

Crystallina Nera West Neighbourhood Structure Plan

Office Consolidation November 2013

Prepared by:

*Planning and Policy Services Branch
Planning and Development Department
City of Edmonton*

Bylaw 14599 was adopted by Council in July 2007. In November 2013, this document was consolidated by virtue of the incorporation of the following bylaws:

- Bylaw 14599* Approved July 9, 2007 (to adopt the Crystallina Nera West Neighbourhood Structure Plan (formerly Crystallina Nera Neighbourhood Structure Plan))
- Bylaw 16639* Approved November 4, 2013 (to replace all references to “Crystallina Nera” in the NSP with “Crystallina Nera West” and all references to “Joviz” in the NSP with “Crystallina Nera East”)

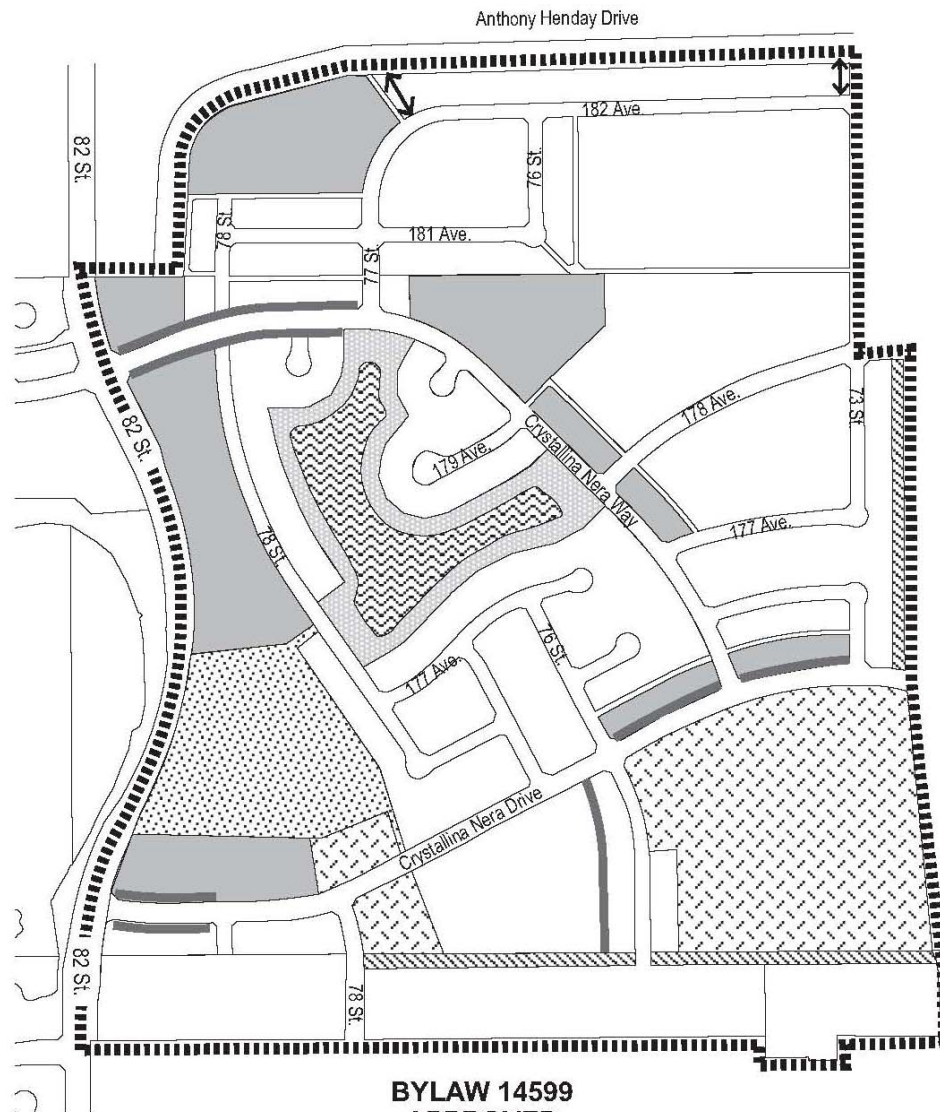
Editor’s Note:

This is an office consolidation edition of the Crystallina Nera West Neighbourhood Structure Plan, Bylaw 14599, as approved by City Council on July 9, 2007. This edition contains all amendments and additions to Bylaw 14599.

For the sake of clarity, new maps and a standardized format were utilized in this Plan. All names of City departments have been standardized to reflect their present titles. Private owners’ names have been removed in accordance with the Freedom of Information and Protection of Privacy Act. Furthermore, all reasonable attempts were made to accurately reflect the original Bylaws. All text changes are noted in the right margin and are italicized where applicable.










This office consolidation is intended for convenience only. In case of uncertainty, the reader is advised to consult the original Bylaws, available at the office of the City Clerk.

City of Edmonton
Planning and Development Department



BYLAW 14599
APPROVED
CRYSTALLINA NERA WEST
 Neighbourhood Structure Plan
 (as amended)



- | | | | |
|-------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|--------------------------------|
|  | Low Density Residential |  | Stormwater Management Facility |
|  | Medium Density Residential |  | Restricted Front Drive Access |
|  | School/Park - Municipal Reserve |  | Potential Pedestrian Access |
|  | Greenway - Municipal Reserve |  | Boundary of NSP |
|  | Natural Area- Municipal Reserve | | |

Note:

Location of collector roads and configuration of stormwater management facilities are subject to minor revisions during subdivision and rezoning of the neighbourhood and may not be developed exactly as illustrated.

SUSTAINABLE DEVELOPMENT

**CRYSTALLINA NERA WEST NEIGHBOURHOOD STRUCTURE PLAN
LAND USE AND POPULATION STATISTICS
BYLAW 14599**

	Hectares	%	Units	%	Pop	%	Density ppgh
Gross Area	100.90						
Arterials	0.00						
ER	0.00						
PUL	0.00						
Sub-total	0.00						
Gross Developable Area	100.90						
Municipal Reserve							
School/Park	9.36	9.3%					
Park	1.15	1.1%					
Natural Area/Buffer	4.90	4.9%					
Greenways	1.46	1.4%					
Sub-total	16.87	16.7%					
Other Uses							
Stormwater Management Facility	6.00	5.9%					
Circulation	20.18	20.0%					
Sub-total	26.18	25.9%					
Subtotal- Other Uses	43.05	42.7%					
Residential							
Low Density	45.12	44.7%	1,128	50.7%	3,722	60.7%	
Medium Density	12.73	12.6%	1,095	49.3%	2,409	39.3%	
Subtotal - Residential	57.85	57.3%	2,223	100.0%	6,131	100.0%	60.8
<u><i>Residential Density</i></u>							
Low Density	25	upha					
Medium Density	86	upha					
<u><i>Population Density</i></u>							
Low Density	3.3	ppu					
Medium Density	2.2	ppu					

Genstar Development Company
Crystallina Nera West Neighbourhood Structure Plan

Prepared by:
UMA Engineering Ltd.
17007 - 107 Avenue
Edmonton, AB. T5S 1G3

0699-754-00-01

March 2007

Table of Contents

1.0	Introduction	1
	1.1 Purpose	1
	1.2 Location	1
	1.3 Background	1
	1.4 Land Ownership	2
2.0	Statutory Plan and Policy Context	3
	2.1 Edmonton Municipal Development Plan	3
	2.2 Edmonton North Area Structure Plan	3
	2.3 Edmonton Zoning Bylaw	3
	2.4 Edmonton Garrison Heliport Zoning Regulations	3
	2.5 Smart Choices	4
	2.6 Urban Land Intensification Strategy	4
3.0	Site Analysis	6
	3.1 Natural Site Features	6
	3.1.1 Topography, Drainage and Soils	6
	3.1.2 Natural Area	6
	3.1.3 Natural Site Assessment Stage 2	7
	3.2 Environmental Site Assessment	8
	3.3 Existing Land Uses	8
	3.4 Surrounding Land Uses	9
	3.5 Historical Resources	9
4.0	Development Concept	10
	4.1 Goals	10
	4.2 Development Objectives	10
	4.3 Land Use Concept	11
	4.4 Residential	11
	4.4.1 General Patterns	11
	4.4.2 Low Density Residential	12
	4.4.3 Medium Density Residential	12
5.0	Green Infrastructure	13
	5.1 Green Infrastructure	13
	5.2 Schools and Open Space	14
	5.3 Stormwater Management Facilities	16
6.0	Transportation	17
	6.1 Regional Network Accessibility	17
	6.2 Perimeter Access	17
	6.3 Internal Roadway Circulation	17
	6.4 Transit/Pedestrian Networks	18

6.5 Transportation Impact Assessment.....	18
6.6 Noise Attenuation	18
7.0 Engineering Services.....	20
7.1 Stormwater Management	20
7.2 Sanitary Servicing	20
7.3 Water Servicing	20
7.4 Shallow Utilities	21
8.0 Implementation.....	21
8.1 Development Staging	21
8.2 Natural Area Management Plan	21
8.3 Rezoning and Subdivision.....	21

List of Appendices

Appendix A Land Use and Population Statistics

Appendix B Historical Resources Overview

Appendix C School Generations

Appendix D Report Figures

Figure 1	Revised Edmonton North ASP - Bylaw 14492
Figure 2	Land Ownership
Figure 3	Existing Site Features
Figure 4	Development Concept
Figure 5	North Edmonton Green Infrastructure
Figure 6	Parks and Open Space/Pedestrian Linkages
Figure 7	Transportation System
Figure 8	Stormwater Servicing
Figure 9	Sanitary Servicing
Figure 10	Water Servicing
Figure 11	Staging Plan

Appendix E Letter of Intent

List of Tables

Table 1: Land Ownership	2
Table 2: Crystallina Nera West MDP Policy.....	5

1.0 Introduction

1.1 Purpose

This Crystallina Nera West Neighbourhood Structure Plan (NSP) will provide a framework for the land use, development sequence, population density and general location of major transportation routes and public utilities within the Crystallina Nera West neighbourhood in north Edmonton. The Crystallina Nera West NSP will guide future subdivision and zoning within the neighbourhood.

This NSP has been prepared in conformity with Section 633 of the *Municipal Government Act*, "Plan Edmonton" Bylaw No. 11777 and the Edmonton North Area Structure Plan (ASP).

This NSP contains the comprehensive plans and text required for an NSP approval for the Crystallina Nera West neighbourhood but also includes a shadow plan that relates it to the future neighbourhood of Crystallina Nera East designated to the east. In order to ensure future compatibility between the two neighbourhoods, an overall preliminary planning and engineering review was conducted on both.

1.2 Location

Crystallina Nera West comprises approximately 100.90 hectares in north east Edmonton. It is located in the Lake District south of the Transportation and Utility Corridor Right-of-Way/Anthony Henday Drive and east of 82 Street. The approved Schonsee neighbourhood is under development to the south and the future Crystallina Nera East neighbourhood is designated to the east. The Crystallina Nera West plan area includes the majority of the NW3-54-24-W4 and the entire portion of the SW10-54-24-W4 which lies south of the Transportation and Utility Corridor. It also includes portions of the NE3-54-24-W4, SW3-54-24-W4, SE10-54-24-W4 and part of Block D Plan 2887AQ.

The future Crystallina Nera East neighbourhood designated east of Crystallina Nera West contains the remaining lands of NE3-54-24-W4 and SE10-54-24-W4 which lies south of the Transportation Utility Corridor. It will comprise approximately 67.90 hectares. Crystallina Nera West and Crystallina Nera East combined will ultimately occupy approximately 168.80 hectares.

1.3 Background

The Edmonton North Area Structure Plan, originally approved in 1979, created nine neighbourhoods in north Edmonton. The name Lake District was revised to Edmonton North Area Structure Plan in one of several amendments made since its inception. Edmonton North Area Structure Plan Bylaw No. 14492 is currently approved. The Edmonton North ASP is bordered by the Transportation and Utility Corridor on the north, 97 Street on the west, 66 Street on the east and 153 Avenue on the south. Five of the neighbourhoods are completely built out and two neighbourhoods, Klarvatten and Schonsee, are under active development. With the majority of the surrounding Edmonton North neighbourhoods finished or nearing completion, it is prudent to begin planning for the final two neighbourhoods, Crystallina Nera West and Crystallina Nera East. Crystallina Nera West and Crystallina Nera East share a common boundary and ownership and although we are only submitting the NSP for Crystallina Nera West we have also done a preliminary review of Crystallina Nera East to ensure the two neighbourhoods are compatible in terms of planning, engineering and transportation issues in the future (see Figure 1).

1.4 Land Ownership

Land ownership within the NSP area is listed in *Table 1: Land Ownership* and shown on **Figure 2**. A Private – Corporate Company is the majority land holder, owning 72.14 hectares of the 100.90 hectares of land. The remaining landowners have been consulted throughout the process.

Table 1: Land Ownership

	Legal Description	COT #	Owner	Area (ha)	% of Total
1	SW Sec. 10-54-24-W4M	022 102 208+1	Private - Corporate	15.84	15.70%
2	SE Sec. 10-54-24-W4M	022 102 230+1	Private - Corporate	3.06	3.03%
3	NW Sec. 3-54-24-W4M	002 196 752	Private - Corporate	58.50	57.98%
4	NE Sec. 3-54-24-W4M	002 013 693 +2	Private - Corporate	13.64	13.52%
5	SW Sec. 3-54-24-W4M	032 383 822 922 019 382 +1	Private - Corporate	8.04	7.97%
6	Block D, Plan 2887AQ	032 188 838	Private - Corporate	1.82	1.80%
TOTAL				100.90	100%

Note: Areas used for land ownership in the NSP are taken from digital survey data and may not match certificates of title exactly. Areas will be confirmed by perimeter and legal surveys at a more detailed design stage.

2.0 Statutory Plan and Policy Context

2.1 Edmonton Municipal Development Plan

The Edmonton Municipal Development Plan (MDP) “Plan Edmonton”, Bylaw No. 11777, as amended, was approved by council on August 31, 1998 and provides a framework for future land use and planning direction for the preparation of the Crystallina Nera West Neighbourhood Structure Plan. The land within the Crystallina Nera West NSP is designated as Suburban Area.

The Crystallina Nera West plan was prepared to respect policies in the MDP that encourage: orderly and cost effective growth; efficient use of land and provision of services through contiguous development; provision of varied housing types and densities; functional and aesthetically pleasing residential and business land uses; accessible recreational and open space opportunities; and protection of natural environment.

2.2 Edmonton North Area Structure Plan

The *Edmonton North Area Structure Plan* Bylaw 5739 was originally adopted August 15, 1979. It provided a planning framework for about 988 hectares of land in north Edmonton. The ASP proposes nine residential neighbourhoods and stipulates each neighbourhood be established by adopting an NSP as an amendment to the ASP. Edmonton North Area Structure Plan Bylaw 14492 is currently approved. To date Crystallina Nera West and Crystallina Nera East are the only neighbourhoods in the Edmonton North Area Structure Plan that have not adopted an NSP. An amendment to the Edmonton North Area Structure Plan is submitted concurrently with this NSP to ensure conformance between the two.

2.3 Edmonton Zoning Bylaw

The NSP area is currently zoned Agricultural (AG) under the Edmonton Zoning Bylaw. Rezoning to appropriate land uses will be done in compliance with this NSP. Unique and innovative zones may require a Direct Control zoning.

2.4 Edmonton Garrison Heliport Zoning Regulations

The *Edmonton Garrison Heliport Zoning Regulations* were approved on April 22, 2004. Stormwater Management Facilities within Crystallina Nera West are identified as “excluded land located within the bird hazard area” (*Edmonton Garrison Heliport Zoning Regulations* Part 6 Division 3). The “excluded lands” clause permits use of the neighbourhoods’ two lakes as open water reservoirs. Engineering design criteria related to the development of the facility will have to gain the approval of municipal, provincial and federal authorities. (See Section 5.3 for more information.)

2.5 Smart Choices

Edmonton City Council approved the *Smart Choices for Developing our Community – Recommendations* on March 23, 2004. Crystallina Nera West respects two of principles from the Smart Choice Catalogue of Ideas applicable to suburban development. Smart Choices promotes the designing of neighbourhoods to encourage a strong community sense of place, preservation and enhancement of natural and cultural resources, equitable distribution of development costs and benefits and an expanded range of access to employment, housing and transportation choices that are fiscally responsible. The development of the Crystallina Nera West neighbourhood presents an opportunity for the City and the developer to work together to implement Smart Choices in a suburban greenfield community in North Edmonton by incorporating walkability and urban design into the Plan. (See Section 4.3.)

Smart Choice communities supported by demographic trends are causing market demands to shift in fundamental ways in both housing and jobs in cities all across North America. To be successful Smart Choices must be grounded on a practical analysis of market conditions, growth projections and demographics. The development of Crystallina Nera West coincides with the City's Smart Choices initiative and enables implementation of some of its principles.

2.6 Urban Land Intensification Strategy

The City's *Urban Land Intensification Strategy* also informs this NSP. In the past, City Council's guidelines encouraged Edmonton neighbourhoods to provide a 65:35 mix of low density/medium density units. In the Urban Land Intensification Audit, a ratio of 60:40 is proposed. The Crystallina Nera West NSP follows this move towards intensification, creating an approximately 50:50 mix in the neighbourhood. This 50:50 mix proposed in the Crystallina Nera West has been planned specifically address the North Edmonton market. According to the *Lake District Profile*, household sizes in Edmonton North are larger than those found throughout the rest of the City, with 50% of the dwelling units housing between four and six people. The area generally has a higher share of children and teenagers (35% of the area's population) and a lower share of people aged 65 and over (4% of the area's population). The 50:50 mix of housing proposed in Crystallina Nera West is intentionally designated to address this unique North Edmonton demographic. The identification of a greater proportion of medium density units will provide an opportunity for a wider cross section of housing choices to satisfy existing needs in North Edmonton. (See Section 4.4.1 for more information.)

Table 2: Crystallina Nera West MDP Policy

Policy		Policy Response
1.1.1	"Provide for choices regarding the types of developments in which people want to live and do business."	The mix of housing and the variety of medium density units allows a wider range of families and lifestyles to access quality housing in North Edmonton
1.1.12	"Place a high priority on the effective and efficient use of land."	The design of the Green Infrastructure and roadway system in Crystallina Nera West combine to create desirable and efficient land use modules
1.1.13	"Plan for urban development which is environmentally and fiscally sustainable in the long term, based on the City's financing, infrastructure and environmental strategies."	A Phase 2 Natural Site Assessment, Transportation Impact Assessment and Neighbourhood Drainage Report have been completed to inform choices and achieve long term environmental and fiscal sustainability.
1.1.18	"Plan for and protect transportation corridors required to implement the City of Edmonton's Transportation Master Plan."	Crystallina Nera West is consistent with the City of Edmonton's Transportation Master Plan.
1.3.3	"Support contiguous development that is adjacent to existing development in order to accommodate growth in an orderly and economical fashion."	This NSP area abuts neighbourhoods that are almost completely developed to the west and south. This provides nearby infrastructure to extend services and infrastructure in a logical and orderly manner.
1.3.4	"Promote intensification of development around transportation corridors and employment areas."	Proximity to the Edmonton Garrison or Lancaster Park, and Industrial developments in North Edmonton and access to Anthony Henday Drive create employment opportunities for residents in the NSP area.
1.7.1	"Accommodate growth in an orderly, serviced and cost-effective manner."	The NSP area is the logical extension of planned suburban growth in North Edmonton
1.7.2	"Provide for a range of housing types and densities in each residential neighbourhood."	The NSP proposes a more intensified mix of low and medium density uses than conventional neighbourhoods.
1.7.3	"Encourage flexibility in creating attractive and functional residential neighbourhoods and business areas."	A complementary variety of form and character of low, medium and high density residential uses focused around the Green Infrastructure will create a functional and livable suburban area.
1.7.4	"Ensure availability and access to recreational opportunities and open spaces."	The Green Infrastructure connects recreational spaces in Crystallina Nera West to other Natural Areas west in Klarvatten and east of 66 St. in the McConachie neighbourhood to create a unique North Edmonton Natural Corridor
2.10.3	"Promote a safe and secure environment through physical design."	The Green Infrastructure and road design creates a safe, convenient and aesthetically pleasing physical design.
4.3.5	Support initiatives which encourage the reduction of transportation-induced impacts on Edmonton's natural environment. Add policy on pedestrian connections.	North-south and east-west corridors provide an alternative to driving to destinations within and beyond the neighbourhood boundary.

3.0 Site Analysis

3.1 Natural Site Features

3.1.1 Topography, Drainage and Soils

The highest land in the north central Plan area of Crystallina Nera West has an elevation of 689 metres above sea level and generally radiates out from that. The lowest point is 681 metres in the southwest plan area adjacent to Poplar Lake. The difference in elevation represents about eight metres of relief resulting in a gradient of about one percent, which is considered suitable for urban development. The natural drainage generally follows the slope of the land to Poplar Lake.

The soil composition in Crystallina Nera West is typical of the Edmonton North Area and has a predominantly silty clay loam formed on lacustrine deposits overlying glacial till generally classified as a Class 2 Zone (see Figure 3).

3.1.2 Natural Area

Information on the Natural Area within the plan area is found in four reports.

- The Inventory of Environmentally Sensitive and Significant Natural Areas, GEOWEST Environmental Consultants, 1993;
- 1996 Assessment, UMA and Spencer Environmental;
- Klarvatten Wetland Management Plan, UMA Engineering Ltd. 1998; and
- A Stage 2 Natural Site Assessment for NE8088 and an Overview of Natural Areas in the Crystallina Nera West and Crystallina Nera East Neighbourhoods, Spencer Environmental Management Services Ltd. 2005.

As part of the City of Edmonton's *Inventory of Environmentally Sensitive and Significant Natural Areas (1993)*, the woodland in Crystallina Nera West, NE 8088, was classified as a Natural Area and Poplar Lake in Klarvatten was recognized as a Environmentally Sensitive Area (ESA)

NE8088 has been the subject of Natural Area investigations in the past. As part of the initial preparation of the Klarvatten NSP in 1994, and concurrent with the development of Policy C-467, the owner agreed to assess Poplar Lake, another recognized ESA within the Klarvatten Neighbourhood, to determine its feasibility for integration into the neighbourhood. The Klarvatten neighbourhood is directly west of Crystallina Nera West and owned by the same developer. UMA and Spencer Environmental (1996) were retained to complete that assessment. Recognizing the proximity and adjacency of NE8088 and Poplar Lake, separated by only 82 Street, the City asked the owner to include NE8088 in the Klarvatten assessment. A reconnaissance level field investigation was undertaken. At that time NE8088 was documented as woodland only and investigations were exclusive to the woodland. Because of the substantial combined size of Poplar Lake and NE8088, their proximity and connectivity to each other, and the prime wildlife habitat they provide, the 1996 assessment identified both areas as priority sites for retention and integration into their respective neighbourhoods.

The Klarvatten Wetland Management Plan has since been approved for Poplar Lake and Poplar Lake has been retained in its entirety in the Klarvatten Neighbourhood. A recently approved amendment to Klarvatten NSP also incorporated an additional buffer on the east side of Poplar Lake.

As a means of standardizing the presentation of Natural Area information and in support of Policy C-467, draft guidelines for the preparation of NSAs were issued in 1995. Those guidelines indicate NSAs can consist of three stages: Stage 1 (Preliminary NSA); Stage 2 (Detailed NSA); and Stage 3 (an Economic Assessment). With the onset of more detailed planning in Crystallina Nera West in 2005 it was decided that the Natural Site Assessment (NSA) for NE8088 should proceed directly to a Stage 2 NSA.

3.1.3 Natural Site Assessment Stage 2

A Stage 2 Natural Site Assessment (NSA) for NE8088 and an Overview of Natural Areas in the Crystallina Nera West and Crystallina Nera East Neighbourhoods was completed by Spencer Environmental Management Services Ltd. over the spring and summer of 2005. The NSA reviewed the entire Crystallina Nera West and Crystallina Nera East neighbourhoods according to NSA protocol but it focused on the NE8088 woodland and the associated wetland to the south.

The NSA review included an analysis of recent and historical aerial photography and field surveys. Breeding bird and vegetation studies were also conducted to determine typing and habitat. The Edmonton Nature Club, Fish and Wildlife Management Information System, Alberta Sustainable Resource Development, Alberta Conservation Association and the Alberta Natural Heritage Information Centre were also contacted and searched for rare or special status wildlife species.

Generally the NSA stated that the lands consisted primarily of cleared agricultural cropland, however, several small isolated wetlands were scattered throughout the plan area and the larger and more diverse Natural Area, NE8088, originally identified in the City of Edmonton's Inventory of Environmentally Sensitive and Significant Natural Areas (1993) was present in the southwest corner. The wetland is not being retained because the NSA questioned its continued sustainability under a development scenario.

The NSA describes NE8088 as a relatively large, biodiverse site comprising of two main components: a balsam poplar woodland and a semi permanent deep marsh wetland. The north edge of the wetland is contiguous with the woodland and as such the two components are functionally connected as one Natural Area. The woodland comprises a relatively uniform stand of large, mature balsam poplar with aspen trees frequent throughout, and a diverse shrub layer. The wetland is characterized by several plant community associations that appear in concentric zones extending from the centre of the wetland. Plants primarily include moisture loving grasses and forbs, with tall willows on the drier outer edges of the site. The report goes on to say that although the woodland and the wetland are contiguous and complement each other they each in their own right provide valuable ecological functions and each support a different suite of plants and wildlife.

The Crystallina Nera West NSP calls for

- retention of the woodland component of the NE8088 and the provision of a complementary park area to the south;
- establishment of an additional maintenance buffer on the east and south edge of the Natural Area to reduce adverse development impacts to the native vegetation; (the buffer will be 10 metres in width and will contain a walking trail of a type and size to be determined in consensus with appropriate City departments)
- creation of a 12-16m wide Greenway east/west to link NE8088 to both Poplar Lake and the Schonsee wetland and north to the Transportation and Utility Corridor; and
- creation of a naturalized stormwater management facility. The wetland component adjacent to NE8088 will be removed to create with a functional naturalized stormwater management facility.

The effort to retain the woodland and create a Greenway is unique to Edmonton. The retention of a large, intact woodland adjacent to an existing wetland, Poplar Lake, is unprecedented in Edmonton. The creation of a Greenway for the purposes of facilitating the movement of wildlife and sustaining ecological processes represents an innovation in conservation of Natural Areas in the City of Edmonton.

The 82 Street arterial right of way will continue to separate Poplar Lake from the Natural Area in Crystallina Nera West. To mitigate the impact of this arterial on the Natural Area a modified arterial cross section has been developed for the portion of 82 Street between Poplar Lake and the Natural Area. 82 Street will be reduced in width through that area and culverts will be incorporated to facilitate movement of small animals between the two Natural Areas and beyond. Despite the future development of 82

Street, the Natural Area is expected to function as a self sustaining and ecologically viable unit within an urban environment. With approval from Public Lands and Alberta Environment the wetland area to the southeast will be drained and filled and the Stormwater Management Facility will be naturalized to act as compensation for the wetland loss subject to approval by the Province in conjunction with the City of Edmonton Drainage Services. The wetland area will be replaced with native upland vegetation to the satisfaction of both the City of Edmonton and the Department of National Defence. This will effectively expand the Natural Area and link it with the Greenway a short distance to the south.

The result will be a natural woodland ecologically connected west to Poplar Lake, east to a large naturalized stormwater management facility and by way of the created Greenway, to the Schonsee wetland and other Natural Areas to the east in McConachie.

Alberta Environment requires compensation for wetland loss when destruction or disturbance of wetland is authorized under the Water Act. Compensation may take the form of

- the restoration of previously drained wetlands;
- rehabilitation of a degraded natural wetland or
- construction, ongoing maintenance and monitoring of a compensatory wetland.

In this case wetland restoration or rehabilitation within the project area is not feasible as no candidate sites are available. The naturalized stormwater management facility proposed in Crystallina Nera West may provide an opportunity to compensate on site but it will still be subject to the necessary Provincial approvals. The exact area and details of the compensation will be determined by Alberta Environment as part of the issuance of permits for the stormwater management facilities under the Water Act.

The NSA identified other small, shallow isolated wetlands but recognized that due to their disturbed nature, their value and function was compromised. In compliance with the approvals under the Alberta Water Act none of these wetlands will be retained but they will require compensation. This compensation may be achieved through the naturalization of the SWMF. Hedgerows identified in several areas were characterized as very weedy and in generally poor condition and will not be retained.

3.2 Environmental Site Assessment

Three separate environmental site visits have been conducted on the property over 2004 and 2005. A site visit conducted on May 19, 2004 produced "2004 Annual Environmental Site Visits Lakeview, Crystallina Nera West and Crystallina Nera East." It stated that no further assessment or remediation work was recommended.

A Phase 1 Environmental Site Assessment was completed for the remainder portion of Klarvatten and all of the majority landowners' area in Crystallina Nera West and Crystallina Nera East areas in July 2004. No significant environmental concerns related to the subject property in NE and NW 3-54-24-W4 or the adjacent properties were identified through that Phase 1 Environmental Site Assessment and no further investigation was recommended.

The second annual review conducted on May 31, 2005 determined that the property was in good condition and there were few findings of significance arising from the 2005 site visit. Copies of these assessments are submitted to the City under separate cover. (File Number BI-274-20-NE-CRYS)

3.3 Existing Land Uses

The Crystallina Nera West plan area has been and is currently cleared and used for agricultural purposes. The woodland exists in the western plan area adjacent to 82 Street and small isolated intermittent wetlands are scattered through the plan area. A larger wetland exists south of the woodland. A vacant house and remnants of a farmstead are located north of the woodland. Another rural residence exists south of the woodland. These structures will be removed or relocated as the lands become available for urban

development. Several minor hedgerows exist in the Plan area. These are generally very weedy and in poor condition and will not be retained.

3.4 Surrounding Land Uses

The Transportation and Utility Corridor (Anthony Henday Drive) right-of-way forms Crystallina Nera West's north boundary and will be part of Edmonton's future Ring Road. The Transportation Utility Corridor will remain under agricultural use until development is imminent. The Edmonton Garrison or Lancaster Park, is located on lands further north of the Transportation and Utility Corridor.

The Schonsee neighbourhood to the south is approved for residential development. Urban development and construction have begun in south Schonsee and north Schonsee is graded in anticipation of future development.

The realigned 82 Street arterial road right-of-way which defines the west boundary of Crystallina Nera West is approved with the Klarvatten Neighbourhood. Construction in Klarvatten north of 177 Avenue and west of 82 Street will begin in 2006. Poplar Lake is located in the Klarvatten neighbourhood.

The only undeveloped neighbourhood of the Lake District, Crystallina Nera East, will border the eastern edge of Crystallina Nera West. A shadow plan is included in this NSP to conceptually illustrate the future integration of these two neighbourhoods (**see Figure 5**). The McConachie neighbourhood of the Pilot Sound Area Structure Plan is currently approved east of 66 Street under Bylaw 14173.

3.5 Historical Resources

Altamira Consulting Ltd. was retained to conduct an Historical Resources Overview: an investigation of existing records of historical and archaeological sites on the property. Past investigations previously identified three known archaeological sites within the proposed Crystallina Nera West and Crystallina Nera East neighbourhoods and also included information on the farmhouse located just north of the woodland. The sites were discovered in 1978 during the Edmonton North Survey completed by Stuart Baldwin. Although the exact extent of the survey is unknown it appears that all the Crystallina Nera West lands were surveyed at that time. The practice of recording homesteads was common to record the presence of a house before it was removed. All houses recorded this way received a site number for inclusion in the inventory of historic buildings. These houses are not formally designated as historic sites in any way. As such, they have no protected status and there are no implications concerning their potential removal.

To follow up, Altamira Resources initially completed an Historical Resource Overview which recommended an Heritage Resource Impact Assessment (HRIA) but Alberta Community Development did not support that recommendation. Altamira Consulting Ltd. provided the Cultural Facilities and Historical Resources Division (CFHRD) of Alberta with an "Historical Resource Overview" package regarding Spencer Environmental Management Services Ltd.'s development plans for the Crystallina Nera West neighbourhood in parts NE3 and 10-54-24-W4. Staff of the Heritage Resource Management Branch of the CFHRD has reviewed the potential for the proposed residential development to impact historical resources and have concluded that a Historical Resource Impact Assessment is not required. Therefore Crystallina Nera West has *Historical Resources Act* clearance. A November 23, 2005 letter to that effect is included under Appendix B.

4.0 Development Concept

4.1 Goals

The Crystallina Nera West NSP will lay the foundation for a community in North Edmonton that is dynamic and capable of responding to evolving community values. Demographics, technological innovations and cultural influences are changing the employment, lifestyles and compositions of families locally and globally. The health and wellbeing of the future Crystallina Nera West community rests in its ability to relate to its residents throughout their daily lives and stages of life. To accomplish this goal long term, Crystallina Nera West must carefully balance sustainable social, economic and environmental systems.

Crystallina Nera West presents a timely opportunity for a respected Edmonton developer to work with the City of Edmonton and other stakeholders to implement Smart Choice practices on a greenfield site in the urban fringe and create a dynamic and sustainable community in North Edmonton. To respond to these dynamics, Crystallina Nera West has a strong relationship between the green and built environment and a compatible mix of land uses intended to accommodate and support both traditional and non traditional styles of housing.

The Crystallina Nera West NSP sets a framework for land uses that will be developed over the next fifteen years or more. A commitment must be made by the City and the land development industry to work together to include innovations in water conservation, energy efficiency, stormwater management and recycling to the extent possible.

4.2 Development Objectives

By respecting a balance between green and built infrastructure and creating a compatible mix of housing types affordable for a variety of salary levels, Crystallina Nera West can fulfill a need for quality and more affordable housing currently in demand in North Edmonton in an urban environment.

The Crystallina Nera West Neighbourhood Structure Plan has been planned to address the North Edmonton market. According to the *Lake District Profile*, household sizes in Edmonton North are larger than those found throughout the rest of the City, with 50% of the dwelling units housing between four and six people.¹ The area generally has a higher share of children and teenagers (35% of the area's population) and a lower share of people aged 65 and over (4% of the area's population). By creating a well designed compact community with mixed uses and access to open space and transit Crystallina Nera West can actually shape a market profile specific to North Edmonton.

Specific objectives of the NSP are:

- to preserve and protect existing Natural Areas to the full extent possible;
- to enhance the natural features with a built Green Infrastructure sensitive to site ecology, wildlife and vegetation;
- to create a unique Greenway system that encourages pedestrian activity;
- to provide a range and diversity of housing opportunities distributed throughout the neighbourhood;
- to provide economical servicing which responds to existing site conditions and logical development staging;
- to deliver a safe and convenient range of sustainable transportation choices; and
- to encourage local officials to adopt local regulations that allow more flexibility to incorporate mixed uses, narrower streets, compact development and other smart practices.

4.3 Land Use Concept

Crystallina Nera West will be a primarily residential community with a mix of low and medium density units (see Figure 4). The preservation of the substantial woodland in the west central plan area and the creation of an ecological/pedestrian friendly Greenway east/west and north/south through the plan area will contribute to a comprehensive system of Green Infrastructure unprecedented in North Edmonton. The Greenway connects Poplar Lake and the woodland to the Schonsee Natural Area in the southeast plan area. The Greenway on the eastern edge of Crystallina Nera West provides links north to the school sites and the future Transportation and Utility Corridor. This extensive Greenway system will contribute to the community's well being and create a strong sense of identity. A naturalized Stormwater Management Facility proposed east of the Natural Area will further enhance and expand the strong natural element of the community. The school sites proposed in south central Crystallina Nera West and northern Crystallina Nera East are well serviced by a collector road and are also connected by the Greenway. In addition to the open space and recreational functions the school sites will also contribute to the spaciousness and vitality of the Greenway. The variety and location of Green Infrastructure creates a multitude of natural buffers and offers a variety of pedestrian experiences within the community and beyond.

The transportation system in Crystallina Nera West consists of a series of local, collector and arterial roadways. Two major accesses, one at the south and one at the north end of the community, are provided from the 82 Street arterial on the west boundary. The collector roadway system forms a modified loop through the Crystallina Nera West community that culminates in a T intersection by the school site. The collector continues on through the future Crystallina Nera East community and will eventually connect to 66 Street. A transportation link is also provided south through the Schonsee neighbourhood.

Crystallina Nera West's proximity to the Transportation and Utility Corridor (Anthony Henday Drive) and 82 Street creates an obvious link to the Edmonton Garrison (Lancaster Park) and Sturgeon County's expanding industrial base. This link fulfills an important element for Smart Choices by providing housing in proximity to potential employment centres.

4.4 Residential

4.4.1 General Patterns

Crystallina Nera West has a higher ratio of medium density units than conventional neighbourhoods and will enable a wider range of market segments and demographic groups to access the housing market in North Edmonton by providing a wider range of housing choices. The vital and diverse community created by the mix of housing forms and price points proposed will contribute to a greater understanding of how Smart Choice principles are addressed on Edmonton's suburban fringe. Community's needs and desires are dynamic and a variety of housing opportunities help to create a sustainable community that is suitable for more than one generation.

The design of the Green and Built Infrastructure in Crystallina Nera West creates an interesting variety of residential modules. To achieve a higher level of affordability and broaden opportunities for access to the housing market Crystallina Nera West includes a higher ratio of medium to low density housing than a conventional suburban neighbourhood. The demand for quality rental and owned low rise apartments and affordable townhouse units in North Edmonton is high. Crystallina Nera West offers an opportunity to provide a greater range of this type of housing product in a suburban neighbourhood. Although Crystallina Nera West generally designates medium density residential land uses on the perimeter, in proximity to 82 Street, it does create internalized pockets of medium density residential housing within the low density residential areas. These uses may take the form of street oriented row housing or multiplexes. "Granny suites" may be incorporated under site specific zoning to expand housing options. These medium density sites are located adjacent to the central collector roadway. Careful attention will be paid to ensure transitions between land uses are appropriate in terms of building heights and setbacks.

4.4.2 Low Density Residential

The low density residential designation can include both single detached and semi-detached housing units. A maximum overall residential density of 25 units per net hectare is assumed for purposes of population projections. A Transportation Impact Assessment will determine appropriate locations for frontage lots on collector roadways. There is an opportunity to utilize lanes to vary the streetscape and to reduce front drive access. Low density residential will generally be developed according to the requirements of the RPL, RF4 and RSL residential land use zones of the City of Edmonton Zoning Bylaw. Innovative low density designs that do not comply with the conventional zones of the City of Edmonton Bylaw may require Direct Control (DC) zones. Low density residential land uses located adjacent to the TUC must be fenced and private access to the TUC will be discouraged.

4.4.3 Medium Density Residential

The demand for multiple forms of housing continues to rise in the Edmonton area. Approximately fifty percent of the units in Crystallina Nera West are designated for medium density residential development. Medium density forms of housing may provide alternative options for families to access the housing market. Attached units and apartments also offer a perceived level of security that is preferred by many segments of the market. These medium density residential sites will accommodate a variety of market segments and could include units for singles, families, adults or seniors and may be a mix of rented and owned units. The intensification proposed by the Crystallina Nera West NSP is supported by demographic trends in North Edmonton.

Units may take the form of street oriented town housing, stacked row housing, row housing, low rise apartments or multiplex units. Multiplexes (eight to twelve plexes) may provide for access to units that are not at grade and may be developed up to a density of 86 units per hectare.

Densities may range from 42-125 units per hectare. For purposes of statistics a blended number of 86 units per hectare has been used. Zoning will generally fall under RF5, RF6 and RA7 zones. Sites that propose developments that do not conform to conventional zones may require Direct Control zones. Architectural guidelines developed and enforced by the developer will ensure medium density sites are comprehensively developed to a standard compatible with adjacent low density residential areas. The maximum height would be four storeys. Land use transitions between medium density residential and low density residential may be addressed through sensitive streetscape design and landscaping.

Ten medium density residential sites are identified in the Crystallina Nera West plan area.

- Four sites all located immediately east of 82 Street have safe and convenient access to 82 Street and are also in close proximity to the Natural Area
- One site in the northwest plan area backs onto Anthony Henday Drive. Medium density residential land uses adjacent to the TUC must be fenced and private access will be discouraged.
- Five sites front onto collector roadways in the neighbourhood. Four of the sites are accessed by a rear lane and may be developed as a street-oriented form of row housing compatible with adjacent low density residential land uses. The larger fifth site in the north central Plan area will have access from the collector roadway.

Changing buyer profiles and consumer demographics may require the developer to supply the market with housing forms not currently available in the marketplace. Alternative housing may require DC1 or DC2 zoning.

5.0 Green Infrastructure

5.1 Green Infrastructure

Connectivity required to link ecological units found within and outside of Crystallina Nera West were a key factor in the development of Crystallina Nera West's Green Infrastructure. The retention of an intact woodland in Crystallina Nera West and maintenance of its connection to the existing Poplar Lake wetland in Klarvatten is unprecedented in Edmonton. The continuous Greenway through Crystallina Nera West will link its Natural Area to the Schonsee wetlands and beyond into proposed conservation areas in the future McConachie neighbourhood east of 66 Street (**see Figure 5**). The incorporation of the Greenway in Crystallina Nera West for the primary purpose of facilitating the movement of wildlife and sustaining ecological processes represents a further innovation in the conservation of Natural Areas in Edmonton. The use of the term Green Infrastructure is used in Crystallina Nera West to recognize this effort and environmental innovation.

Green Infrastructure in Crystallina Nera West consists of six elements:

- the Natural Area;
- the Greenways;
- a naturalized Stormwater Management Facility;
- the buffer on the south and east sides of the Natural Area;
- a school site; and
- a neighbourhood park.

The Natural Area and Greenways in Crystallina Nera West will connect the future residents with the natural environment. The Greenways which vary between 12 and 16 metres will include a recreational pedestrian trail. The Greenway extends east from the southeast corner of the woodland to the Schonsee Natural Area and to the Natural Area in McConachie neighbourhood east of 66 Street. Continuation of the Greenway north to the Transportation and Utility Corridor will require confirmation with Alberta Transportation on adjacent development. The level of landscape development of the east/west and north/south Greenways may vary from a highly naturalized Greenway east/west to a more manicured Greenway as it extends north past the school sites. In addition to serving the daily pedestrian needs of the community, the Greenways have the potential to act as a primary link in a regional network of Natural Areas in north Edmonton.

Through the approval of the recent Klarvatten NSP Amendment, Spencer Environmental provided five recommendations to improve the ultimate functionality of the Greenways.

- Provide as wide a Greenway as possible to allow for the movement of more species;
- Provide vegetation structures suitable for the species that currently inhabit the Natural Area;
- Minimize or eliminate the presence of mowed strips along recreational trails and fence lines allowing native vegetation to grow up to the trail or fence;
- Minimize the impact of recreational trails by minimizing their width and locating them at the edge of the Greenway and consider leaving trails unpaved; and
- Minimize the presence of gaps in the Greenways (such as roads) to the extent possible by providing features that will reduce habitat fragmentation and maximize connectivity. This could include trees with canopies that overhang the roadway and culverts that accommodate the passage of small animals.

With consensus of the Parks Branch, Asset Management and Public Works Department (AMPW), Planning and Policy Services and the developer, the Crystallina Nera West NSP will respect these recommendations to the extent possible as development proceeds. Further direction with respect to the development and maintenance of the Natural Area is discussed in the Natural Area Management Plan, submitted under separate cover. The Natural Area Management Plan is subject to approval by various Departments within the City of Edmonton.

The majority of the Crystallina Natural Area in the west central Plan area will be retained. The ultimate right of way for 82 Street will form a modified west boundary for the Natural Area and a 10 metre buffer is designated beyond the south and east edges of the existing Natural Area. This buffer allows for the development of a walkway in conjunction with the Natural Area and also provides for emergency access. The type and size of walkway will be established by the Natural Area Management Plan currently being prepared. The north edge of the Natural Area is currently defined by an existing access into the original farmstead. Long established caragana flanking the access has negatively invaded the north edge of the Natural Area and the Planning and Development, Community Services and Spencer Environmental all agreed that it must be eliminated to reduce further damage to the Natural Area. Due to servicing requirements the slightly redefined north edge will be designated as a public utility but it will also serve as a buffer that can provide walkway access to the multi-use trail on 82 Street. The area of the Natural Area and buffer combined is approximately 4.90 hectares and it is all designated as municipal reserve.

5.2 Schools and Open Space

The natural and more passive elements of the Green Infrastructure proposed in Crystallina Nera West are complemented by active open space in the school site located in the south portion of the Plan area (**see Figure 6**). Sites for educational facilities were sized to address student populations and located through consultation with the Public and Separate School Boards and the City. The approved North Edmonton ASP Bylaw 5739 designates four school sites in the south central area of the two neighbourhoods. A Separate Elementary and a Separate Junior High school were located in the Crystallina Nera West neighbourhood and a Public Elementary and Public Junior High school were located in Crystallina Nera East. Both School Boards agreed that they would combine the originally proposed two sites into one K-9 school. As a result the number of school sites has been reduced from four to two. The School Boards also agreed that the sites could be separated and joined by a Greenway. The boundary of the neighbourhoods has been adjusted to ensure each neighbourhood has a school site. The Public site is located in Crystallina Nera West and the Separate site will be in the future Crystallina Nera East neighbourhood. An amendment to the North Edmonton ASP is submitted concurrently with this NSP to acknowledge this change. The 9.36 hectare Public School site in Crystallina Nera West is located south of the east west collector in the east plan area. The T-intersection created by the collector from the north will require a minimum distance of 150 metres to the west edge of the school site to allow for efficient development of the school site. The Greenway that extends north through the neighbourhood links the two school sites and also provides a critical link to the Transportation and Utility Corridor. The level of landscaping in this north Greenway may be less naturalized than the east west Greenway.

In addition to providing a natural community focus, the connection and variety of Green Infrastructure may contribute to a reduction of public costs for stormwater management, flood control and other forms of built infrastructure.

The combination of the Natural Area and the unique Greenways form an integral neighbourhood element that will contribute immensely to the well being of the residents of Crystallina Nera West, Crystallina Nera East and North Edmonton. The neighbourhood review conducted as part of this NSP ensured that, with the cooperation of the City of Edmonton, the extensive natural elements proposed by this NSP Plan could be retained and still maintain adequate municipal reserve for school and park needs in both Crystallina Nera West and Crystallina Nera East.

The extraordinary combination of Green Infrastructure proposed in Crystallina Nera West to accommodate the Natural Area and buffer, the Greenways, large school site and neighbourhood park requires more than the 10% municipal reserve required. A letter of intent is included to acknowledge discussion with the City of Edmonton departments for the additional Municipal Reserve required (**see Appendix E**). The municipal reserve adjustment and deferment in Klarvatten, west of Crystallina Nera West, is possible because the same landowner owns the majority of land in both areas. The shortfall of 0.41 hectares municipal reserve in the Crystallina Nera East neighbourhood will not negatively impact its open space requirements. Crystallina Nera East will have a school site and the Greenways will link Crystallina Nera East to the nearby open space in Crystallina Nera West and the Schonsee neighbourhood. Following is a summary of the municipal reserve dedication in the Crystallina Nera West and Crystallina Nera East neighbourhoods.

Crystallina Nera West/Crystallina Nera East Municipal Reserve Summary	ha
Klarvatten Deferred Reserve	2.56
Crystallina Nera West (GDA 100.90 ha)	10.09
Crystallina Nera East (GDA 67.90)	6.79
Total MR Available for Crystallina Nera West/Crystallina Nera East NSP Areas	19.44
Crystallina Nera West Gross Developable Area	100.90 (10.09 MR)
School/Park	9.36
Park	1.15
Natural Area	4.45
10.0m Buffer	0.45
Greenways	1.46
Total MR Proposed	16.87
Crystallina Nera West Over-dedication	6.78
Crystallina Nera East Gross Developable Area	67.90 (6.79 MR)
School/Park	6.00
Greenways	0.38
Total	6.38
Crystallina Nera East Under-dedication	0.41
Total MR Required in Crystallina Nera West/Crystallina Nera East	23.25
Municipal Reserve Available	19.44
Crystallina Nera West/Crystallina Nera East Combined Over-dedication	3.81

5.3 Stormwater Management Facilities

Although it is designated as a public utility the approximately 6.00 hectare stormwater management facility in the central Plan area will make a major visual and functional addition to Crystallina Nera West's Green Infrastructure. The long and narrow shape of the stormwater management facility has been created in consideration of Department of National Defence regulations for manmade facilities within the Edmonton Garrison Heliport Zoning Regulations. Under these regulations, SWMFs with a normal water level under 2.5 ha do not require DND approval. The Edmonton Garrison Heliport Zoning Regulations were approved on April 22, 2004. Stormwater Management Facilities within Crystallina Nera West and Crystallina Nera East are identified as "excluded land located within the bird hazard area" (Edmonton Garrison Heliport Zoning Regulations Part 6 Division 3). The "excluded lands" clause permitted use of the neighbourhoods' two lakes, in Crystallina Nera West and Crystallina Nera East, as open water reservoirs. Engineering design criteria related to the development of the facility will have to gain the approval of municipal, provincial and federal authorities. DND still reserves the right to initiate changes at the engineering design stage if they believe the design of the facility will attract birds.

To further enhance the Green Infrastructure, the stormwater management facility will be created as a naturalized facility. Live organic material stockpiled from the wetland area claimed by Public Lands south of the Natural Area will be utilized in the design and construction of the proposed facility.

6.0 Transportation

6.1 Regional Network Accessibility

The Transportation and Utility Corridor is an integral part of Edmonton's future Ring Road (**see Figure 7**). The south boundary of Edmonton's Transportation and Utility Corridor forms the north boundary of Crystallina Nera West. The level of roadway development related to the interchange at 82 Street is currently under review. When completed, the Transportation and Utility Corridor will provide a major transportation and utility corridor and will also offer an important open space to its neighbouring urban environments. No roadway access will be provided from Crystallina Nera West to the Transportation and Utility Corridor. Pedestrian access to the TUC may be restricted. Walkways from the neighbourhood to the TUC will be determined at the time of subdivision with the consensus of Alberta Transportation and the City of Edmonton. Future vehicle access to this major transportation system could provide a critical link to employment opportunities for the residents of Crystallina Nera West and could reduce commute lengths and peak hour congestion in other areas. Proximity of housing to job opportunities is an important consideration in Crystallina Nera West.

6.2 Perimeter Access

Perimeter access to Crystallina Nera West will be provided from two points on the 82 Street arterial on the west boundary of the Plan area. In addition there will be roadway links through Schonsee to the south and 167 Avenue. No access will be allowed from Crystallina Nera West to the lands reserved for the major Transportation and Utility Corridor on the north. Collector links are proposed in both the north and south Plan area of Crystallina Nera West to ultimately connect to 66 Street through Crystallina Nera East.

Lands for the future 82 Street right of way are part of Klarvatten and are not included in this NSP, but 82 Street forms the west boundary of Crystallina Nera West. 82 Street provides the two primary access points into Crystallina Nera West. The northern collector access will align with 180 Avenue in Klarvatten. The southern access will form a T intersection on 82 Street north of 173 Avenue. The 82 Street alignment and access proposed by this Plan were determined as part of a recently approved amendment to the Klarvatten NSP. Following a thorough review which addressed design issues related to 82 Street and potential links between Poplar Lake and the Natural Areas it was determined by the City and the developer that 82 Street should generally be maintained in its current location but should be developed as narrow and undeveloped as possible to reduce habitat fragmentation and maximize connectivity between Poplar Lake and the Natural Area in Crystallina Nera West. 82 Street will include a modified cross section between 173 Avenue and 180 Avenue in order to minimize the potential for the roadway to act as a barrier to wildlife movement between Poplar Lake and the Crystallina Tree Stand. The modified cross section includes a taper in the right of way from 37m to 26m in the vicinity of the Crystallina Tree Stand.

6.3 Internal Roadway Circulation

The internal transportation system will comprise of three collector roads and a system of local roads. One major collector road runs northwest to southeast from the 82 Street to 66 Street arterial roadways. The province initiated a study to review the north leg of Anthony Henday Drive in 2006. Preliminary information from the study indicates that there will be a flyover at 82 Street and an interchange at 66 Street. The study will be completed by the end of 2007. The interior road network offers safe and convenient access throughout the neighbourhood.

Boulevard and /or median landscape treatment at the main entry points will create and enforce a sense of entry into a distinct, identifiable neighbourhood.

Front driveways should be avoided across from future school park sites to reduce traffic congestion and parking issues. As well, the school site requires the necessary roadway frontage to accommodate school facilities, as shown on **Figure 4**.

6.4 Transit/Pedestrian Networks

The collector system defines a route for transit service so that all residences will be within 400m of transit. Attention will be given to pedestrian crossings to ensure pedestrian safety and convenience.

A 2.5m multi-use trail is currently proposed by The City of Edmonton on the east side of 82 Street north of 167 Avenue. This multi-use trail will extend north along 82 Street past Crystallina Nera West. A proposed trail in the Greenway will link to the future multi-use trail west on 82 Street and east to 66 Street and the Schonsee Natural Area. A Natural Area approved in the McConachie neighbourhood will allow the pedestrian network to continue east. The Greenway system will connect Crystallina Nera West with North Edmonton and extensive pedestrian and bicycle link with the surrounding area.

A combination of rights-of-ways, the on-sidewalk collector system and dedicated walkways will provide additional opportunities for interesting and diverse recreation experiences within the Crystallina Nera West neighbourhood. All pedestrian linkages will be developed in consensus with the Planning and Development Department and Asset Management and Public Works (Parks Branch) and Transportation Department and will be developed to The City of Edmonton standards at the time of subdivision.

Access to the TUC is proposed via pedestrian walkways, which may provide connections to future multi-use trail systems under consideration by the province. Two potential access links are shown on Figure 7 at this time, and future detailed access locations will be determined at the zoning and subdivision stages of development. If a future multi-use trail is allowed within the TUC, the trail will be built by the developer at their expense with adjacent subdivisions.

6.5 Transportation Impact Assessment

The TIA was completed in two stages for Crystallina Nera West. The first stage submitted defined the assumptions to be used in the analysis. It included trip rates, origin/destination assumptions, collector networks, and the tabulation of initial volumes anticipated at the arterial to collector accesses. When the land uses were confirmed and planning issues were resolved, the TIA was completed and submitted to the Transportation Planning Branch of the City of Edmonton.

6.6 Noise Attenuation

Noise attenuation will be provided along residential portions of 82 Street and the Transportation and Utility Corridor as required by the City of Edmonton's standards at the subdivision stage. In areas where a residential subdivision is constructed adjacent to a designated highway that has not been constructed, Alberta Transportation requires that the development proponent address future noise concerns. Noise attenuation needs assessment for residential development adjacent to the TUC is required in accordance with the City of Edmonton's Urban Traffic Noise Policy. This policy requires that the developer either proves that projected noise levels in the outdoor amenity area will not exceed 60dBA, or construct any noise attenuation measures necessary to achieve this threshold.

The Province of Alberta will provide noise attenuation along Anthony Henday Drive in the northern portion of the Crystallina NSP in accordance with the City of Edmonton's Urban Traffic Noise Policy. The City's Urban Traffic Noise Policy states: "Where a freeway or arterial is proposed to be built or upgraded through or adjacent to a residential area, the roadway is to be built to meet a noise level as low as possible below 65 dBA with an objective of achieving 60 dBA". The Province of Alberta is committed to providing noise attenuation adjacent to existing developed areas along Anthony Henday Drive to satisfy the 60 dBA (24 hr) objective. Where noise levels are not expected to exceed 60 dBA, or where the adjacent area is yet undeveloped, no noise attenuation is required. Should noise attenuation be required at the time of development adjacent to an existing Anthony Henday Drive, noise attenuation will be provided at the developer's expense.

Further noise level evaluations will be carried out during the design phase of the NSP to verify if these and other locations merit noise reduction measures. If during the course of these further evaluations the locations are confirmed to exceed the 60 dBA objective, noise attenuation will be provided at these locations at the expense of the developer. Should the developer be required to construct noise attenuation adjacent to Anthony Henday Drive, the province has indicated that they will not generally permit noise attenuation berming within the TUC. Should the developer be required to construct berming adjacent to Anthony Henday Drive, the land for the berms must be required within the Crystallina plan area.

7.0 Engineering Services

7.1 Stormwater Management

A majority of the storm drainage for the NSP area will drain to the southwest and discharge into the proposed stormwater management facility (SWMF) located in the western portion of the Plan area. Both major and minor storm flows within the area will drain into the SWMF (**see Figure 8**). The southern area drains into the stormwater management facility located in the Schonsee neighbourhood to the south. A small area in the northeast will drain into the future stormwater management facility that will be located in the Crystallina Nera East neighbourhood.

The SWMF will have a control structure and discharge into the 600 mm diameter storm line on 180 Avenue and 82 Street, which drains into Lake 3W and eventually into the Kennedale System. The discharge from the SWMF will be capable of variable flow control and real time control telemetry will be integrated into the Kennedale trunk system. Provisions will be made to permit occasional diversion of runoff outflows from the Crystallina Nera West stormwater management facility to Poplar Lake as necessary to sustain that water body.

The SWMF will meet Alberta Environment and the City of Edmonton's standards required for their design and operation. Further information on the system is provided in the Neighbourhood Design Report submitted to the Asset Management and Public Works Department, Drainage Services Branch, for review.

The long and narrow shape of the stormwater management facility has been created in consideration of Department of National Defence regulations for manmade facilities within the Edmonton Garrison Heliport Zoning Regulations. Under these regulations, SWMFs with a normal water level under 2.5 ha do not require DND approval. The Edmonton Garrison Heliport Zoning Regulations were approved on April 22, 2004. Stormwater Management Facilities within Crystallina Nera West and Crystallina Nera East are identified as "excluded land located within the bird hazard area" (Edmonton Garrison Heliport Zoning Regulations Part 6 Division 3). The "excluded lands" clause permitted use of the neighbourhoods' two lakes, in Crystallina Nera West and Crystallina Nera East, as open water reservoirs. Engineering design criteria related to the development of the facility will have to gain the approval of municipal, provincial and federal authorities. DND still reserves the right to initiate changes at the engineering design stage if they believe the design of the facility will attract birds.

7.2 Sanitary Servicing

The NSP area will generally drain to two connection points. The sanitary mains for the Crystallina Nera West neighbourhood will connect to the 375 mm trunk on 180 Avenue and 82 Street and a 375 mm sanitary line to the south located in Schonsee neighbourhood. The on-site sanitary network will follow the internal roadway network and associated public utility lots to the sanitary sewer trunk (**see Figure 9**).

7.3 Water Servicing

Initial water supply will be available from a future 450 mm water main to be constructed on 180 Avenue under SUB/04-0022 and a 300 mm water main along 82 Street. The realignment of the existing 300 mm water main along 82 Street must be completed before development of Stage 1 begins in Crystallina Nera West (**see Figure 10**).

7.4 Shallow Utilities

Shallow utilities, such as natural gas, power, telephone and cable TV are available for extension into the NSP area from adjacent lands. Gas, power, telephone and cable TV lines will be located within the road right of way or through easements on private land.

8.0 Implementation

8.1 Development Staging

Development will proceed east from 82 Street in the north Plan area. Individual stages will be based on current market conditions (**see Figure 11**).

8.2 Natural Area Management Plan

In compliance with Policy C467, a Natural Area Management Plan will be developed in order to address issues related to the ongoing management, maintenance and sustainability of the Crystallina Nera West Woodland (NE8088). The Natural Area Management Plan must be completed to the satisfaction of the Office of Environment and the Planning and Development Department. This Natural Area Management Plan must be approved prior to the development of Stage 2A, and in accordance with Figure 11.

8.3 Rezoning and Subdivision

Zoning and subdivision will be required for successive stages of development.

Appendix A
Land Use and Population Statistics

Appendix B
Historical Resources Overview

November 23, 2005

Project File: 4835-05-215

Mr. Andrew Forrest
Spencer Environmental Management Services Ltd.
801, 970 - 110 Street
Edmonton, Alberta
T5K 2L9

Dear Mr. Forrest:

**SUBJECT: SPENCER ENVIRONMENTAL MANAGEMENT SERVICES LTD.
CRYSTALLINA NEIGHBOURHOOD
SECTIONS 3 & 10, TOWNSHIP 54, RANGE 24, W4M
SUBDIVISION DEVELOPMENT
HISTORICAL RESOURCES ACT CLEARANCE**

Altamira Consulting Ltd. has provided the Cultural Facilities and Historical Resources Division ("CFHRD") of Alberta Community Development with an "Historical Resources Overview" package regarding Spencer Environmental Management Services Ltd.'s development plans for the Crystallina Neighbourhood in parts of sections 3 & 10-54-24-W4M. Staff of the Heritage Resource Management Branch of the CFHRD have reviewed the potential for the proposed residential development to impact historical resources and have concluded that a **Historical Resource Impact Assessment is not required**. Therefore, Spencer Environmental Management Services Ltd. has *Historical Resources Act* clearance for Crystallina Neighbourhood.

HISTORICAL RESOURCES ACT REQUIREMENTS

Reporting the discovery of historical resources: Pursuant to Section 31 of the *Historical Resources Act*, should any archaeological resources, palaeontological resources and/or historic period sites be encountered during any activities associated with land surface disturbance operations, please contact Margret Ingibergsson at (780) 431-2374, (Protection & Stewardship Section, Heritage Resource Management Branch, Cultural Facilities and Historical Resources Division, Alberta Community Development, 8820 - 112 Street, Edmonton, Alberta, T6G 2P8), fax (780) 427-3956 or by e-mail at margret.ingibergsson@gov.ab.ca. It will then be necessary for the CFHRD to issue further instructions regarding the documentation of these resources. On behalf of the Cultural Facilities and Historical Resources Division, I would like to thank officials of the Spencer Environmental Management Services Ltd. for their cooperation in our endeavour to conserve Alberta's past.

Sincerely,



Larry Pearson
Manager, Protection & Stewardship Section

Attachment

cc: Tara Young, Altamira Consulting Ltd.

Appendix C
School Generations

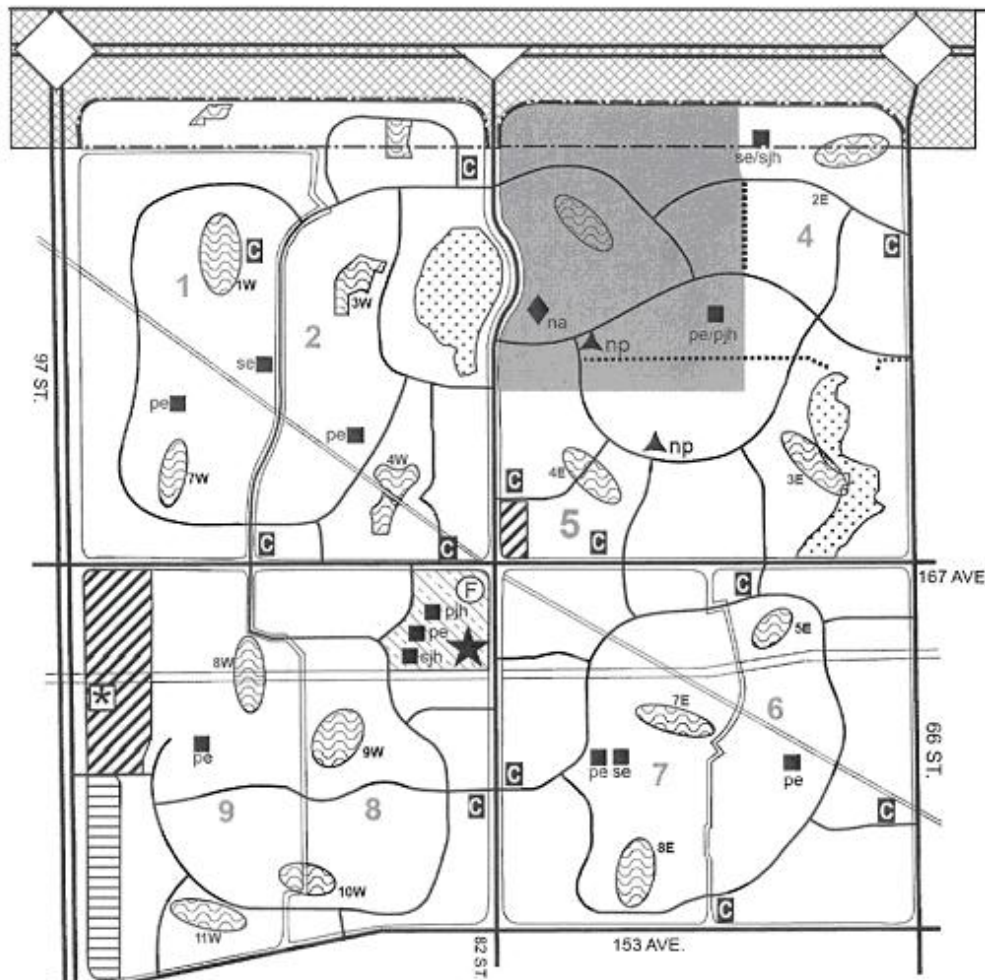
Student Generations			
Grade Grouping	Public	Separate	Totals
K - 6	202	378	580
7 - 9	101	156	257
9 - 12	101	88	189
Totals	404	622	1,026

Note: (Public) The calculation is based on gross area for development, but not gross development area. The new formula is 2 elementary students per ha of gross area, 1 junior high student per ha of gross area, and 1 senior high student per ha of gross area.

Note: (Separate) The calculation is based on the following factors provided by the Catholic Schools Planner, Gerry Heartland-Fole.

Elementary - Low Density	.18 students/unit
- Medium Density	.16 students/unit
Junior High - Low Density	.09 students/unit
- Medium Density	.05 students/unit
Senior High - Low Density	.05 students/unit
- Medium Density	.03 students/unit

Appendix D
Report Figures



- | | |
|---------------------------------|--------------------------------------------------------------------------------------------------------------|
| Residential | School/Park
pe / se public / separate elementary school
pjh / sjh public / separate junior high school |
| Highway Commercial | Neighbourhood Park |
| District Park | Neighbourhood Commercial |
| RDA Release Lands | Power Sub-Station |
| Restricted Development Area | Fire Station |
| Stormwater Facility | Greenway |
| Environmentally-Sensitive Areas | Natural Area |
| Commercial | Housing Opportunity for First Time Homebuyers on Surplus School Site |
| Amendment Area | |
| Collector Roadway Concept | |

Crystallina Nera West
Neighbourhood Structure Plan

**Revised Edmonton North ASP
Bylaw 14492**

Figure - 1

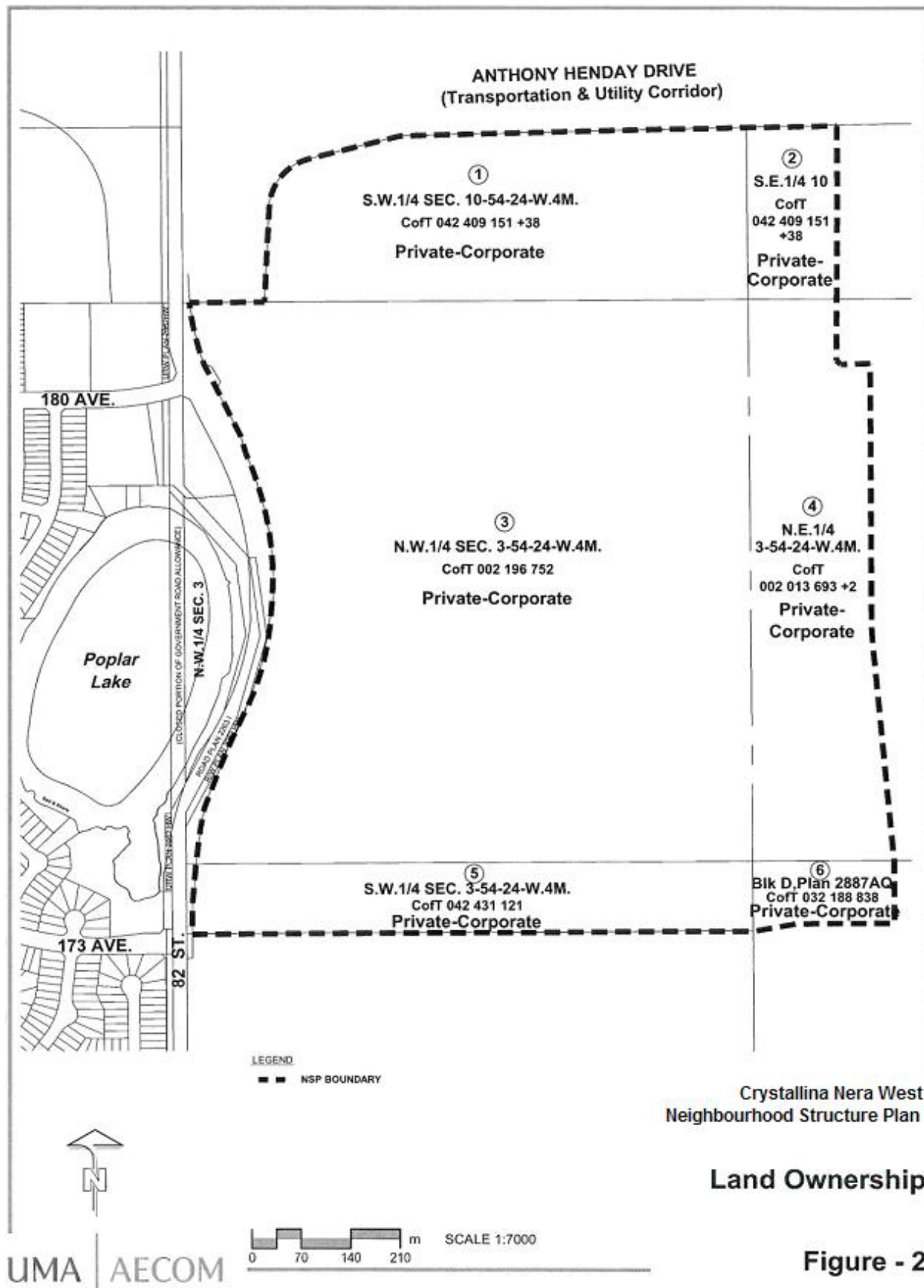
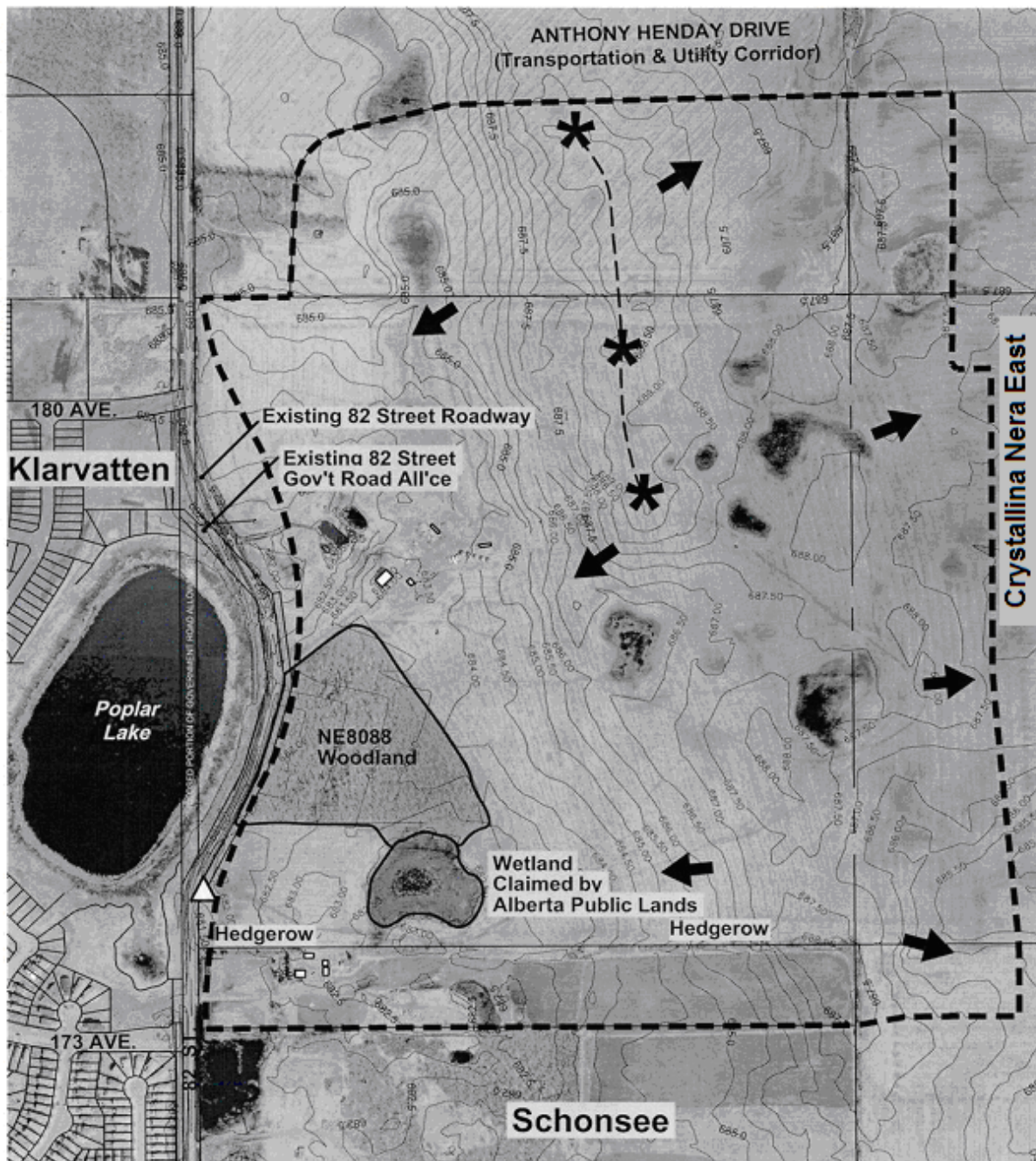


Figure - 2



LEGEND

- NSP BOUNDARY
- SURVEY CONTOURS
- * HIGH POINT
- ▲ LOW POINT
- DRAINAGE FLOW
- EXISTING BUILDINGS



0 70 140 210 m SCALE 1:7000

Crystallina Nera West
Neighbourhood Structure Plan

Existing Site Features

Figure - 3



**North Edmonton
Green Infrastructure**



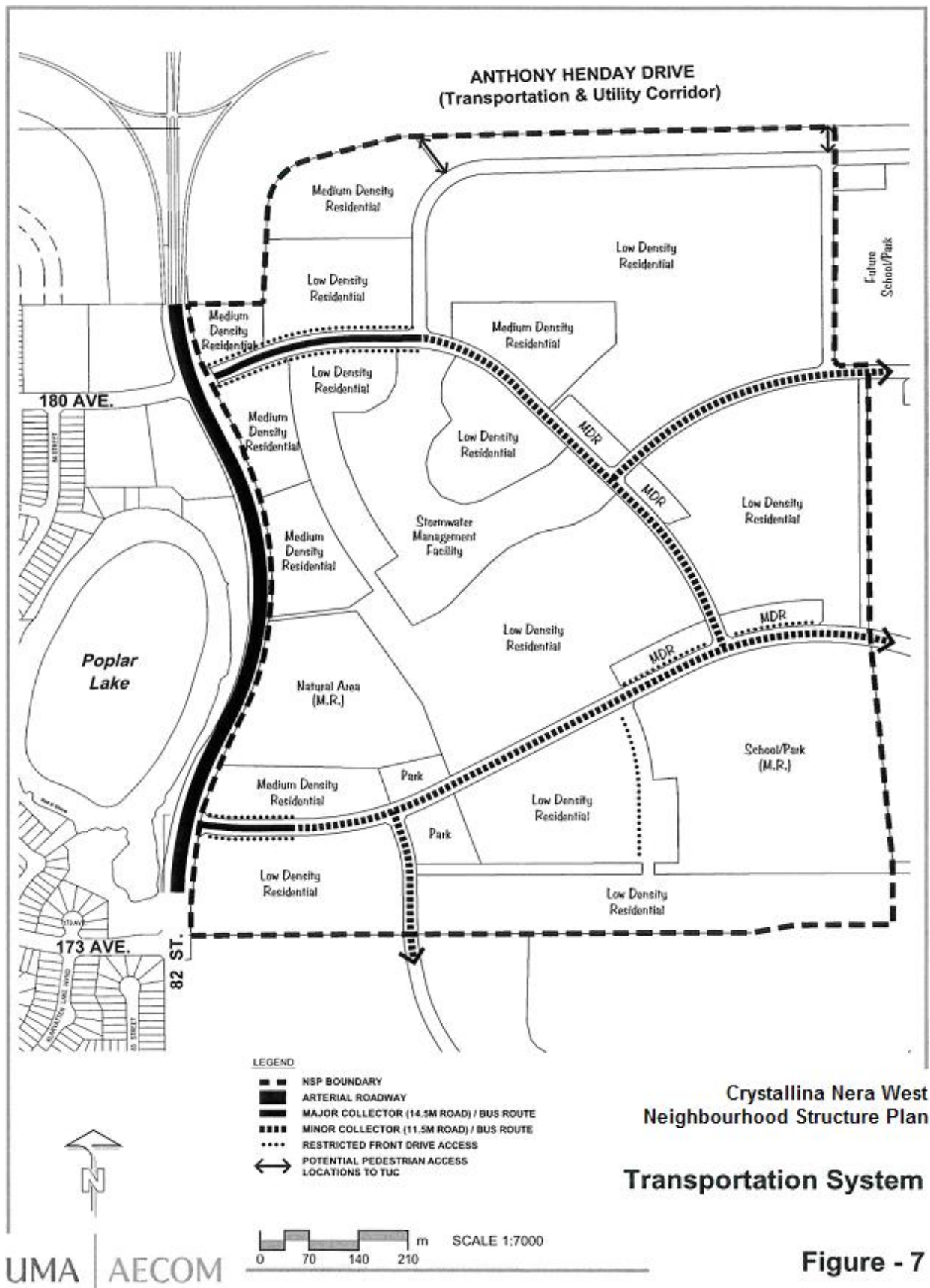


Figure - 7

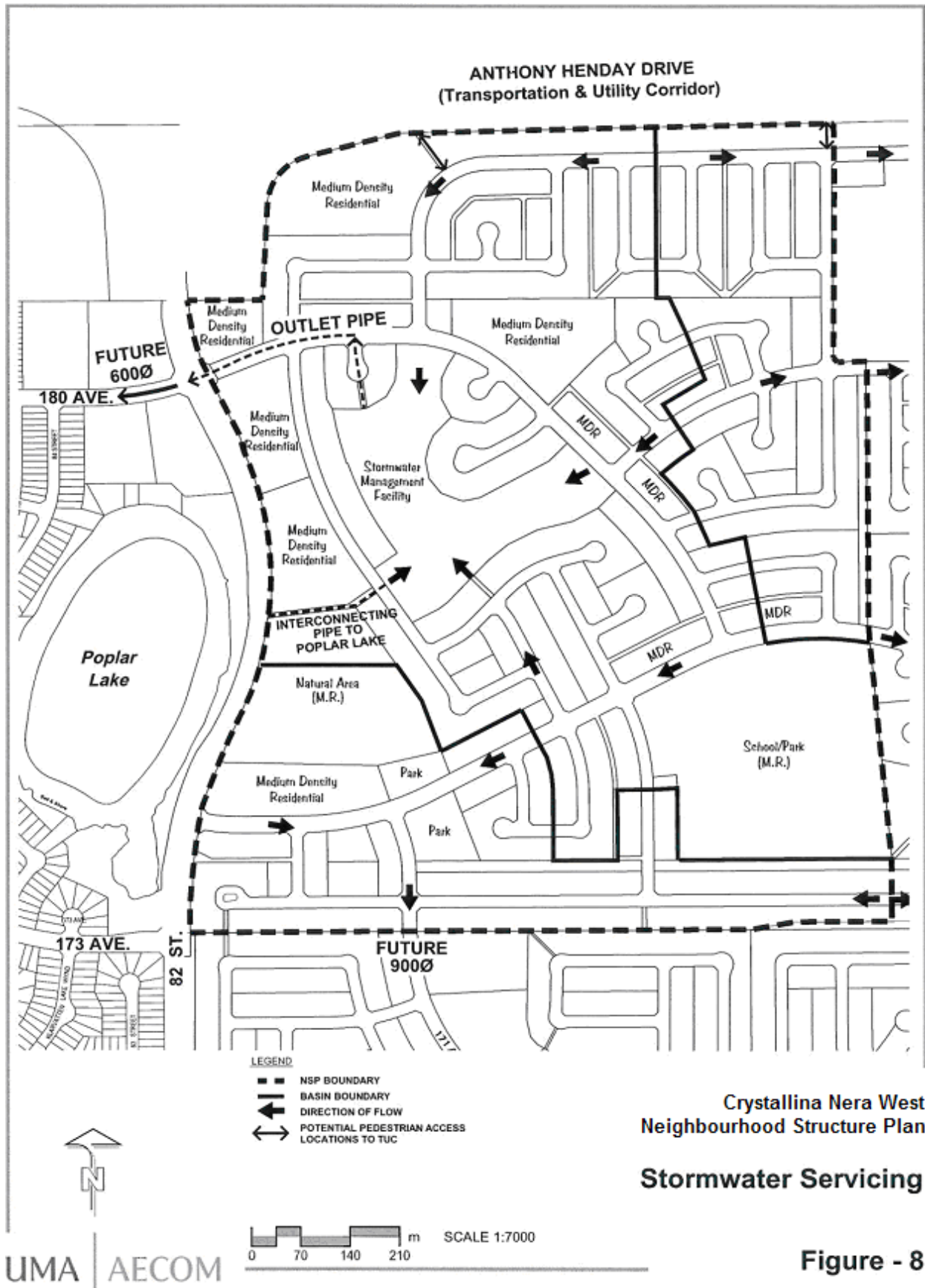


Figure - 8

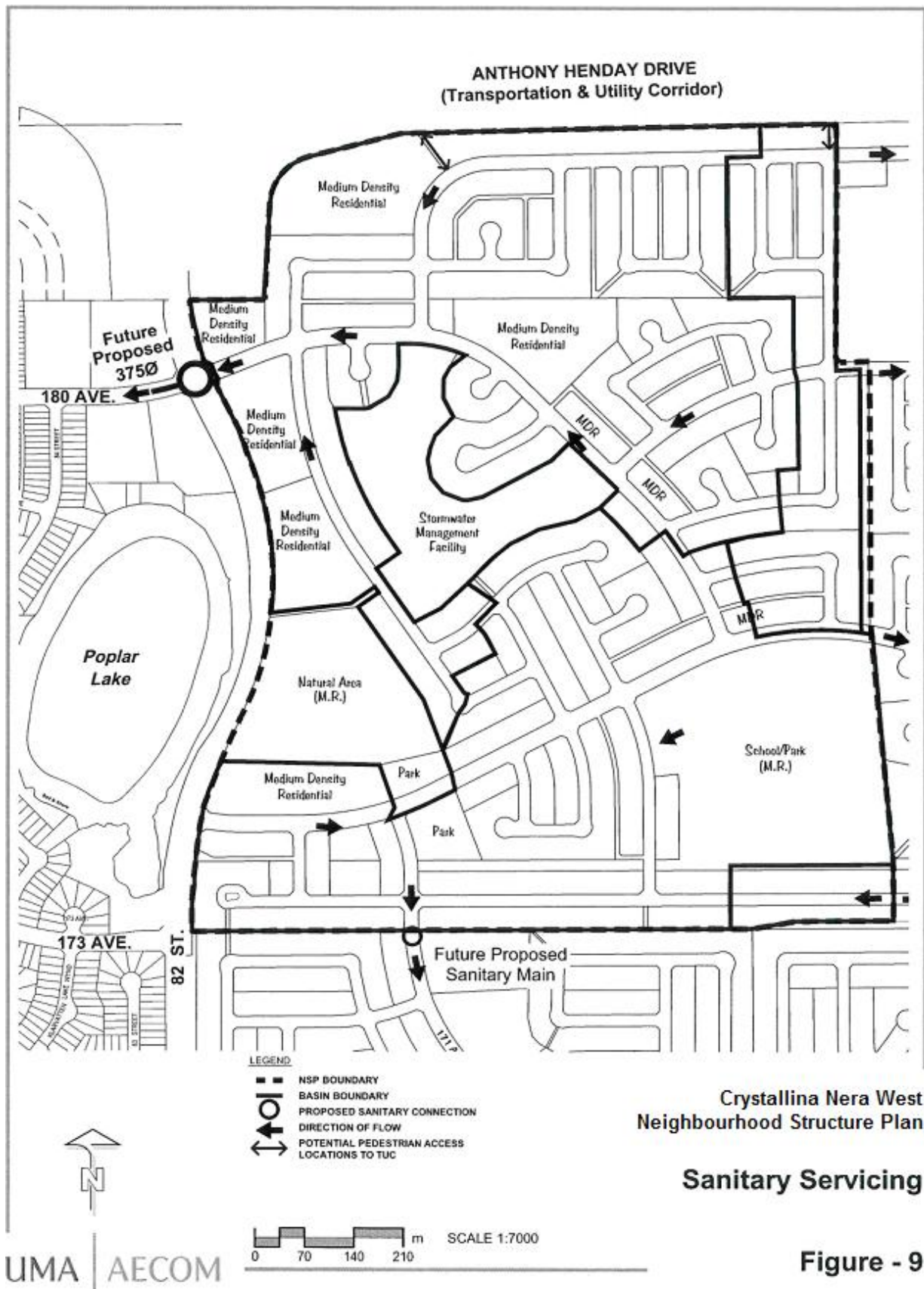


Figure - 9

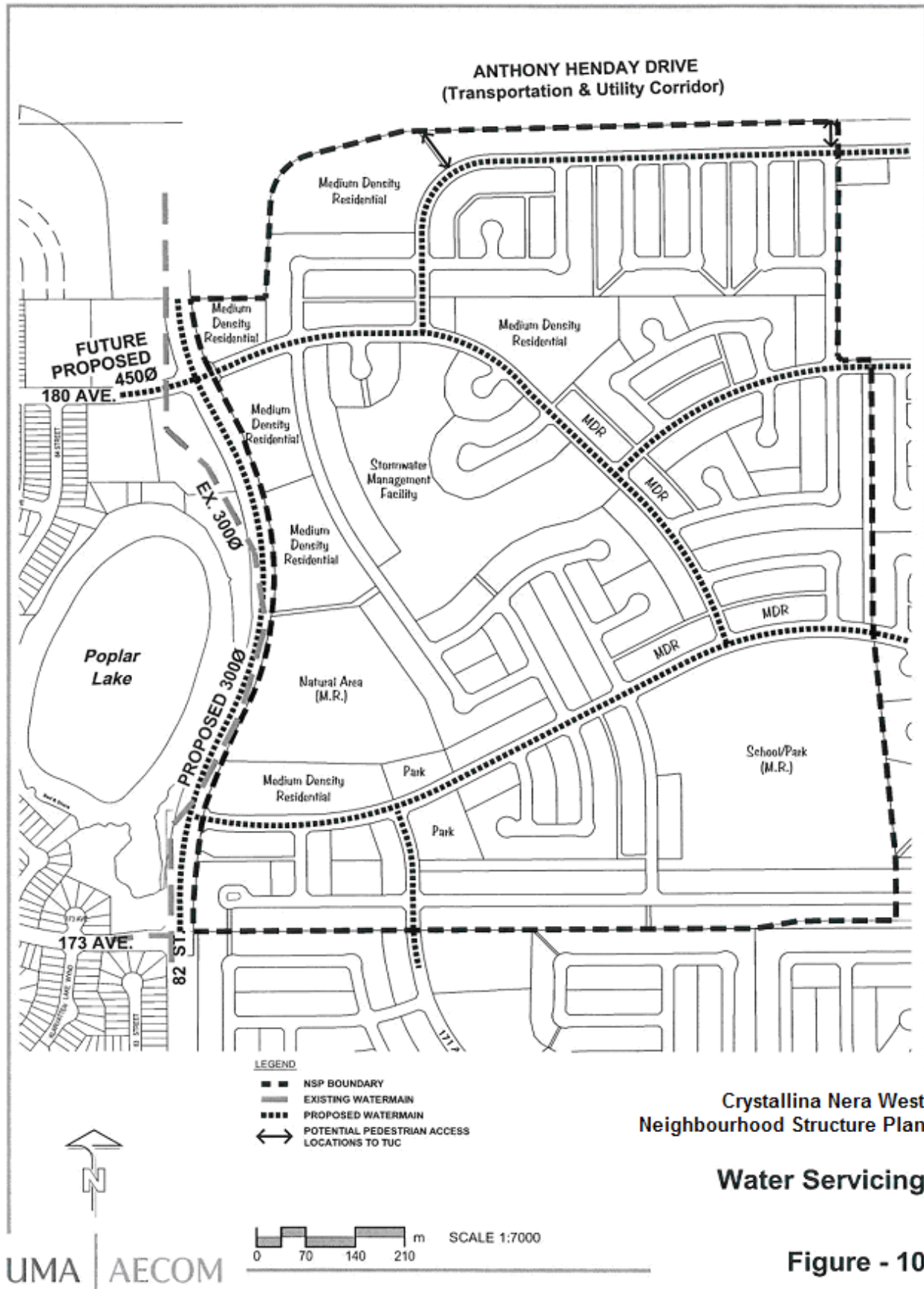


Figure - 10

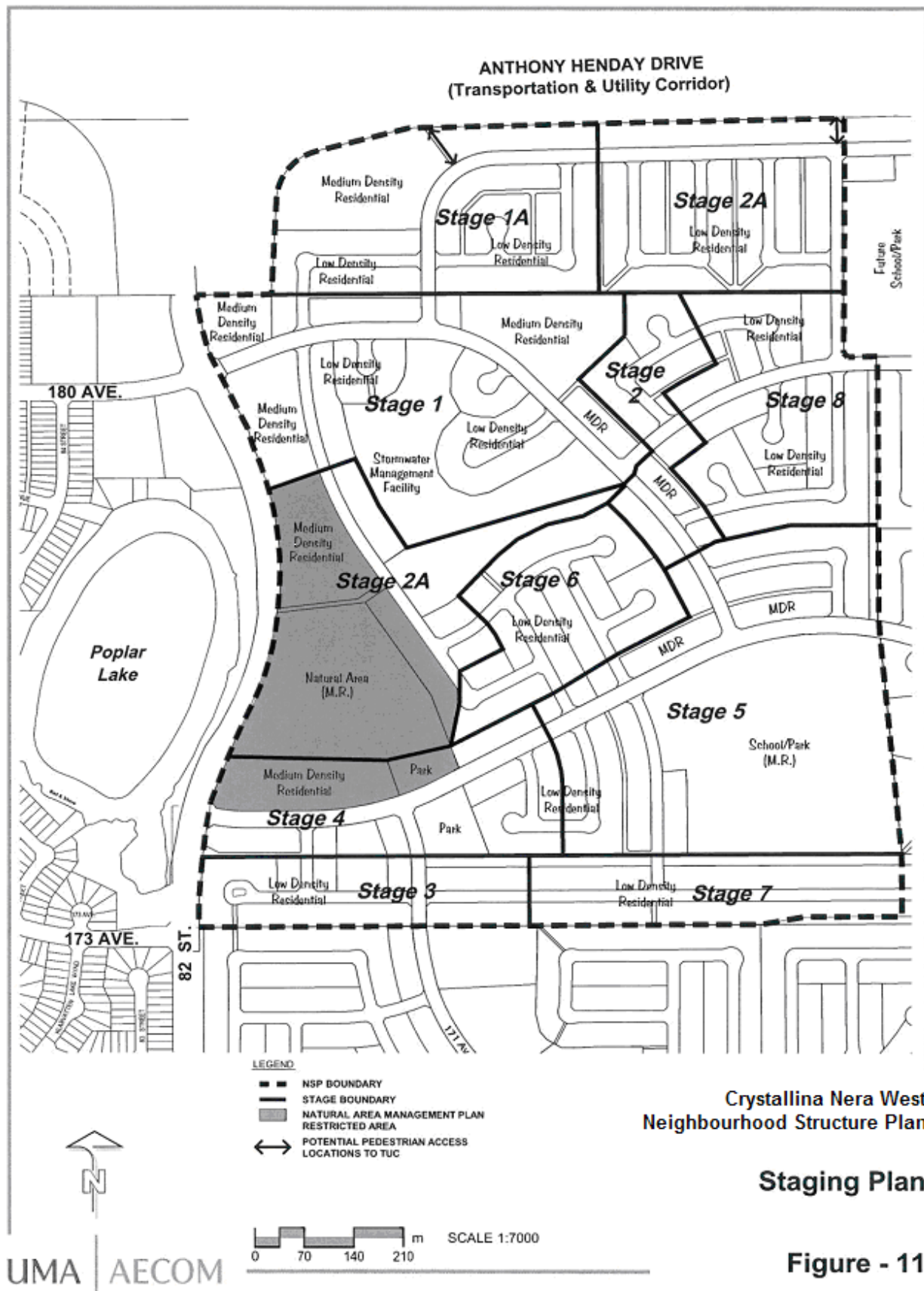


Figure - 11

Appendix E
Letter of Intent

December 22, 2006

TO: SHAUNA KUIPER
Planning and Development

FROM: GRANT PEARSELL
Office of Natural Areas

SUBJECT: Potential Acquisition of Tree Stand in Crystallina Nera Neighbourhood

Senior Administration confirms that the City is interested in negotiating a land exchange for all or a portion of the Crystallina tree stand. This parcel is situated directly to the east of Poplar Lake and is owned by Genstar. The maximum amount of land which the City would be negotiating for is approximately 3 hectares in size. These 3 hectares are natural area lands which are in excess of the MR obligations for this property.

As was previously discussed between Mr. Jim Kristensen (Genstar) and Mr. Phil Sande (City) the land exchange will be based on a value for value basis.

We must emphasize that we can not approve an NASP application which includes a statement pertaining to the City agreeing to the above suggested land exchange as this would inappropriately fetter the Councillors sitting on the Transportation and Public Works Committee (TPW). Assuming that a land exchange agreement is reached for the entire 3 hectares (7.41 acres), then TPW would have to vote on the agreement, if the market value of the Genstar land is in excess of \$1 million. We can not fetter the Councillors ability to approve or refuse this agreement.

Negotiating an acquisition which has a land exchange set the compensation to be paid for the natural area would not change the necessity for TPW to approve or refuse the agreement, specifically if the lands the City is purchasing are valued in excess of \$1 million.