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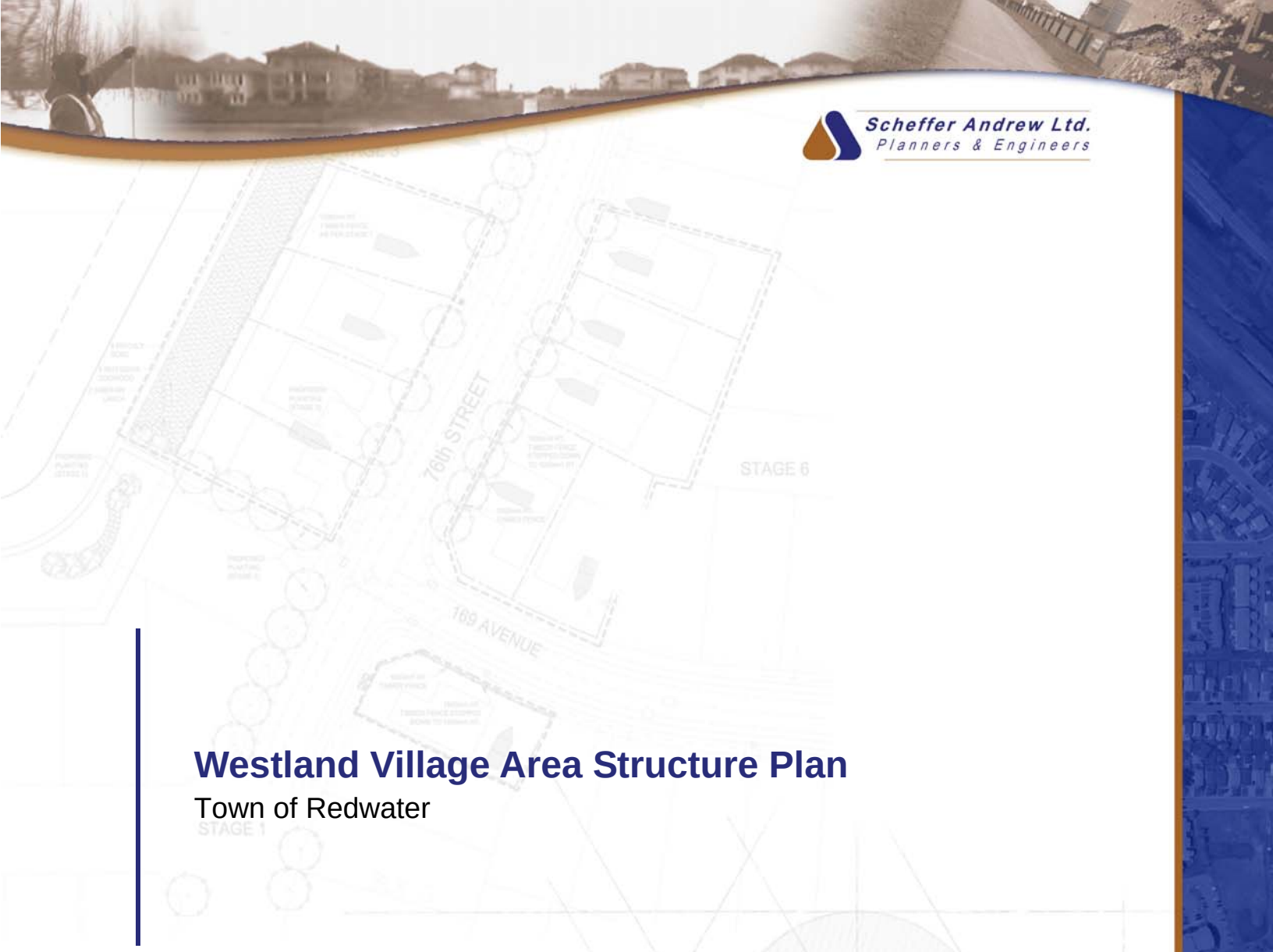

Westland Village Area Structure Plan

Town of Redwater

July 2010

File # 7160500

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Appendix

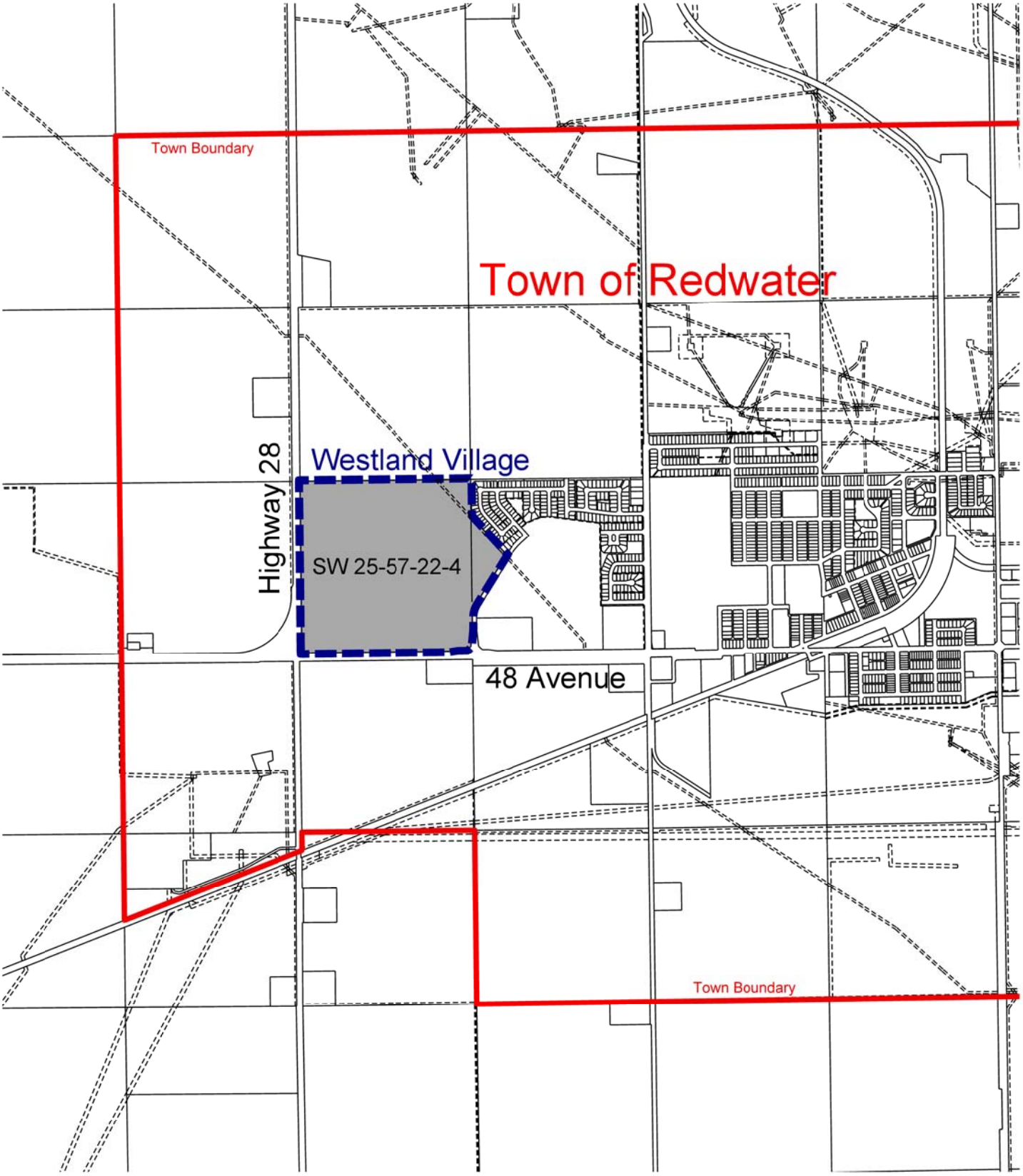
1 Purpose

This area structure plan provides a general development framework for approximately 66.0 hectares (163.1 ac) of land legally described as the SW Quarter Section 25, Township 57, Range 22, West of 4th Meridian, and located northeast of the intersection of Highway 28 and Highway 38 (48 Avenue in the Town) (see Figure 1). It will provide a planning framework for future detailed redistricting, subdivision, and development.

The area structure plan identifies:

- future land uses;
- external access points;
- a general utility servicing concept;
- a roadway system for the plan area; and
- parks and open space amenities.

This Area Structure Plan also provides detailed design guidelines for development within the plan area. These design guidelines are provided due to the relatively high densities proposed for the residential component of the plan area and the need to carefully mitigate any potential land use conflicts.



ASP area

FIGURE 1

LOCATION PLAN

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

Scale 1:25000
May 18, 2010
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2 Statutory Compliance

2.1 Municipal Development Plan

The Town of Redwater Municipal Development Plan (MDP), Bylaw No. 754, which was adopted in December 2009, is the overarching planning document that guides future growth and development within the Town of Redwater and informs all subsequent planning documents, including this Area Structure Plan (ASP). This ASP supports the policies and goals described by the MDP relative to neighbourhood planning, housing, commercial development and transportation. Specific policies of the MDP that directly influence this ASP are listed in Table 1 below.

Table 1: Municipal Development Plan Policies

Municipal Development Plan Policies	
7.3	Highway Commercial Areas
7.3.2	The development of Highway Commercial areas will take careful cognizance of the need to buffer the potential negative impacts of such development from adjacent uses.
7.3.3	All future highway commercial development will be serviced efficiently and be consistent with the Town's Master Servicing Study.
8.1	Housing Mix
8.1.1	In cooperation with the developer and other government agencies, the Town will endeavour to ensure the provision of: a) a range of dwelling and lot sizes, b) a variety of housing types, c) an adequate supply of rental units, d) social housing to meet special needs in the community; and e) affordable non-market housing to meet the needs of the community.
8.1.2	All new or revised residential area structure plan areas will have a residential housing mix normally reflecting a ratio of 80% low and medium density residential development and 20% high density residential development. A larger percentage of higher density residential development may be allowed by the Town if the developer can demonstrate the following: a) that the development can be serviced in a manner that is consistent with the Town's Master Servicing Study; b) that the overall development pattern is complementary to adjacent land uses and infrastructure; c) that the development will provide a high percentage of social and/or affordable housing; and d) that the development will provide a higher percentage of public amenity areas, including but not limited to, park areas, trails, recreation amenities and/or public art.
8.1.6	Where the Town deems necessary, new residential developments will be required to provide buffering from potential negative impacts of adjacent land uses.

8.2	Neighbourhood Planning
8.2.5	The Town's overall density of residential development within a designated neighbourhood unit should be approximately 30 persons per net residential hectare. As average household size continues to decline, however, a somewhat higher overall density standard may be considered in specific circumstances.
8.2.6	Ground oriented medium density residential development will be permitted in each neighbourhood. Medium density residential sites should be spread throughout each neighbourhood rather than being concentrated in any one (1) area.
8.2.7	Ground-oriented medium density residential developments will not normally exceed a density of 50 units per net residential hectare
8.2.8	High density residential developments will not normally exceed a density of 100 units per net residential hectare
8.3	Subdivision and Site Planning
8.3.3	Subdivision and site planning techniques using building forms, landscaping features, etc., should be used to reduce the adverse effects of noise sources such as railways and major roadways on residential areas, foster a sense of neighbourhood security, and provide visual privacy.
8.3.5	The Town may use architectural control of major developments so as to create an aesthetically pleasing residential environment.
8.6	Residential Infrastructure
8.6.1	All residential development will be serviced efficiently and be consistent with the Town's Master Servicing Study.
9.2	Recreation Areas and Facilities - General
9.2.4	The Town will ensure the continued development of a system of recreation areas and facilities for community-wide use, for neighbourhood use, and for pre-schoolers (e.g. tot lots)
9.2.5.	The Town will ensure that all recreation areas and facilities area easily accessible to the population they serve and that this access is clearly defined and visible to the public.
10.1	Transportation
10.1.7	The Town will endeavour to enhance the appearance of roadways. Developers will be required to provide landscaping, including trees, along the medians and boulevards of roadways

2.2 Land Use Bylaw

The implementation of this area structure plan will require amendment of the Town of Redwater's Land Use Bylaw No. 666, adopted by Council in December 2003, to establish and apply residential and commercial Districts and appropriate design regulations to the subject lands.

It is important to ensure that the development of specific sites described in this ASP is properly controlled in detail. Specific information requirements and development regulations are necessary to ensure that the development and design policies and criteria included in the Town's MDP and in this ASP are implemented.

3 Background Information

3.1 Land Use Context

The plan area is bounded by farmlands to the north, an existing residential subdivision to the east, 48 Avenue to the south, and Highway 28 to the west. The site is cleared and used for farming except for a treed area on the southwest. There is a farmstead on the northeast corner of the plan area.

3.2 Natural Features

The topography of the site is generally flat and elevation ranges from 636 m to 640 m. There are no bodies of water or wetlands on the site. The aerial photograph and topography (0.5 m interval) of the plan area are shown in Figure 2.

3.3 Environmental Site Assessment

Two separate Phase I Environmental Site Assessments were conducted for the plan area: UMA Engineering Ltd. conducted one for the southern half and Treeline Environmental Projects Corporation completed one for the northern half of the plan area. Neither study found any major environmental concerns on site. However, because of snow cover at the time of assessment, the UMA report recommended that a site visit and assessment of surface soils, subsurface soils, and groundwater be performed. The follow-up groundwater monitoring, conducted by UMA, concluded that there are no further environmental concerns with the property. Copies of the original reports have been submitted under separate cover.

3.4 Geotechnical Report

Two separate Preliminary Geotechnical Assessments were conducted for the plan area: UMA Engineering Ltd. conducted one for the southern half and J.R. Paine & Associates Ltd. conducted one for the northern half. The recommendations from the both reports should be followed at the time of development.

Copies of the original reports have been submitted under separate cover.

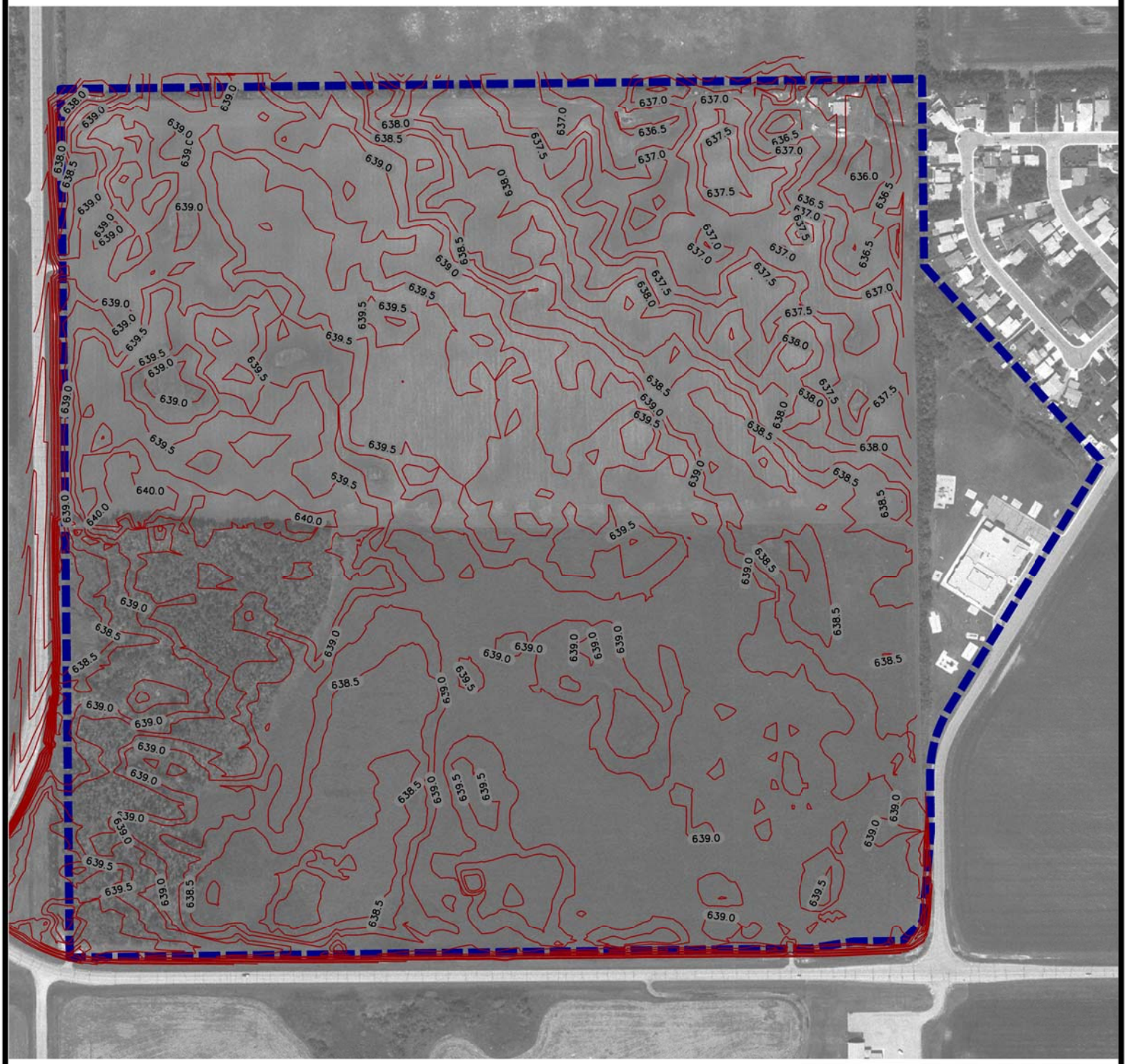
3.5 Wells and Pipelines

A Land Development Package from the Alberta Environmental Resources and Conservation Board was reviewed for the subject land and its vicinity. There is one abandoned well on the northern half of the plan area and a reclamation certificate has been issued. There is also a gas pipeline running southeast-northwest in the northeast corner of the plan area.

The Town of Redwater's MDP Policy 10.3.1 requires a 15.2 m setback from the nearest edge of the pipeline right-of-way to any permanent structure.

3.6 Historical Resources Impact Assessment

Historic Resources Management Branch of Alberta Culture and Community Spirit confirmed that the subject land is primarily disturbed and there is low likelihood that undisturbed archaeological sites will be impacted.



Contours Interval is 0.25m
Airphoto taken in 2004

FIGURE 2
NATURAL FEATURES

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

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Scale 1:5000
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7160500 ASP base 15.dgn

4 Development Concept

Westland Village provides for a transition from highway commercial land uses in the west, through high and medium density residential developments towards the centre, to low density residential and public parks and open space near the existing development to the east (see Figure 3).

The range of medium and high density residential housing types proposed in the plan area includes apartments, row housing and potential for duplex and semi-detached housing. This development will meet the needs of a wide range of consumers. Opportunities will be provided for affordable housing and social housing, meeting special needs to satisfy both younger and older age groups in units that may be either owned or rented. Westland Village will implement the policies listed in Section 8.1.1 of the MDP or provide opportunities for the implementation of these policies. The development concept is also consistent with the *Capital Region Growth Plan's Land Use Policy II: Minimize Regional Footprint, Principle d. Support Expansion of Medium and Higher Density Residential Housing Forms*.

The location of the plan area adjacent to Ochre Park School, offering kindergarten to Grade 4 education, will make it attractive for young families. The ASP area and the existing development in Ochre Park share a school/park site, approximately 3.0 ha in size, which will be expanded as part of this ASP. Sturgeon School Division requested that this land be set aside as a potential future school site.

Westland Village is also linked to Ochre Park by an internal road.

Alberta Transportation requires a 60.0 m right-of-way for 48 Avenue (Highway 38). In addition to the existing 40.23 m right-of-way, a 10.0 m wide strip of land along the plan area's southern boundary will be protected by caveat in favour of Alberta Transportation for future road widening. Another 10.0 m will be provided from the south side of the highway.

Design guidelines set out in this ASP will be applied through the Town's Land Use Bylaw to ensure that new development in the ASP area meets the Town of Redwater's desired standard of appearance.

4.1 High Density Residential

The total area designated for high density residential use is approximately 2.9 ha. Development on the high density sites will consist of apartments up to three storeys in height, and will have suites for both rental and ownership. The density of these apartment sites will be limited under the Town's Land Use Bylaw and subject to design guidelines to ensure the accomplishment of the goals of this ASP and of the Town's MDP.

Two of the high density residential sites are located near the proposed commercial facilities and the amenity offered by the western storm water management facility. Another high density site is located at the southeast entrance to the subject land.

4.2 Medium Density Residential

The total area of medium density development is approximately 6.7 ha, consisting of predominantly row housing development with some potential for semi-detached dwellings or duplexes. These areas may be developed as projects, with private internal roads, or as individual lots fronting on public streets. Row housing development may have up to six units attached under the Town's Land Use Bylaw. Row housing development will be subject to design guidelines to ensure the accomplishment of the goals of this ASP and of the Town's MDP.

4.3 Low Density Residential

The remainder of the residential portion of the plan area is designated for low density housing consisting of single family dwellings, with some semi-detached dwellings and duplexes. Low density residential sites closer to medium density residential sites may be developed with smaller lot areas, providing a transition in density.

4.4 Commercial

Valuable exposure to both Highway 28 and Highway 38 (48 Avenue) along the southwest plan boundaries creates an ideal location for commercial development. Development on these sites will be subject to design guidelines in order to ensure accomplishment of the goals of this ASP and of the Town's MDP, and to ensure that there is no conflict between these commercial developments and adjacent residential developments.

Access to this commercial area will be provided from the internal road that extends north through the plan area from 48 Avenue. No direct access from Highway 28 or 38 will be allowed to individual sites.

4.5 Parks and Open Space

Municipal reserve dedication proposed in the southeast corner of the plan area will expand the existing Ochre Park School grounds. This will help integrate the proposed development into the existing community. The expanded park and school area will accommodate a variety of active and passive recreation experiences for residents of Westland Village and the existing Redwater community.

Another municipal reserve of approximately 2 hectares will be dedicated in the centre of the plan area. This park space will connect the two storm water management facilities and together they will create a major open space for recreational opportunities and add visual amenity to the west side of the Town.

Smaller "pocket parks" and walkways will be located throughout the plan area. The exact location of the small parks and walkways will be determined at the time of subdivision or development.

A combination of linear parks, walkways, and sidewalks will create a continuous pedestrian trail circuit, connecting the parks and storm water management facilities within the plan area. This trail network provides recreational opportunities and non-vehicular transportation options for short-distance trips.

The new park area will be approximately 6.7 ha, or 10.1% of the plan area. The total open space area, including the parks, Ochre Park School, and the storm water management facilities will be approximately 16.0 hectares or 24.1% of the gross plan area.

4.6 Development Statistics

Development Statistics in Table 2 show the distribution of land uses within the area structure plan lands.

The MDP states the High Density residential development's maximum density as 100 units per net residential hectare (MDP Policy 8.2.8) while the High Density Residential (R-7) District's maximum density is 86.5 units per hectare according to the Land Use Bylaw. The plan area's unit density is assumed to be less than what is allowed under the Land Use Bylaw given the landscape/buffer/setback requirements from the commercial use and arterial roads, and the site area normally required for ground level parking. The MDP supports Medium Density Development at 50 units per net residential hectare (MDP 8.2.7). The Land Use Bylaw's maximum density for row housing development (Medium Density Residential (R6) Development) is 30 units per hectare. Although there is a possibility that the Town may introduce a new land use district that allows higher density row house development, the current maximum unit density has been used to prepare the development statistics.

Based on the minimum site area specified in the Town's current Land Use Bylaw, the density of this type of low density residential development cannot exceed 22 units per net hectare.

In the low density development area, the expected density is based on the minimum site areas for single detached and duplex dwelling, as specified in the Town's current Land Use Bylaw. Taking into account the possible duplex development within the low density residential area, the maximum density is expected to be approximately 22 units per hectare.

In total, the plan area is projected to accommodate approximately 2,194 residents in approximately 881 dwelling units, consisting of roughly 20% high density units and 80% medium and low density dwelling units. The overall estimated density is 28.2 dwelling per net residential hectare, which is consistent with the Capital Region Growth Plan's density target for this area.

Table 2: Development Statistics

Land Use	Hectares	%				
Gross Area	**66.1**					
Road Widening (Highway 38)	0.7	1.1%				
Uses (Non-Residential)						
Municipal Reserve (Parks - New)	6.7	10.1%				
Municipal Reserve (Ochre School Site)	3.1	4.7%				
Public Utility (SWMF/PUL)	6.2	9.3%				
Commercial	8.0	12.1%				
Circulation	10.2	15.4%				
Subtotal- Non-Residential	**34.8**	**52.7%**				
Residential			**Units**	**%**	**Pop***	**%**
Low Density	21.7	32.8%	476	52.3%	1215	55.4%
Medium Density	6.7	10.1%	201	22.1%	513	23.4%
High Density	2.9	4.4%	233	25.6%	466	21.2%
Subtotal - Residential	**31.3**	**47.3%**	**910**	**100.0%**	**2,194**	**100.0%**

*Population based on 2.55 persons/unit for Low/Medium Density Residential and 2.00 persons/unit for High Density Residential.

Table 3: Population Estimate and Staging

	Residential Development Types			
Stage	High Density	Medium Density	Low Density	Population Estimate
1	0.8	2.7	1.1	390
2	0.0	0.0	3.6	201
3	0.0	0.0	2.7	152
4	0.0	1.3	0.0	96
5	1.5	0.0	0.0	240
6	0.0	0.0	1.0	55
7	0.0	0.0	2.5	140
8	0.0	0.0	3.7	205
9	0.0	0.0	2.9	160
10	0.7	2.7	0.0	313
11	0.0	0.0	1.5	82
12	0.0	0.0	2.8	159
Total	**2.9**	**6.7**	**21.7**	**2,194**

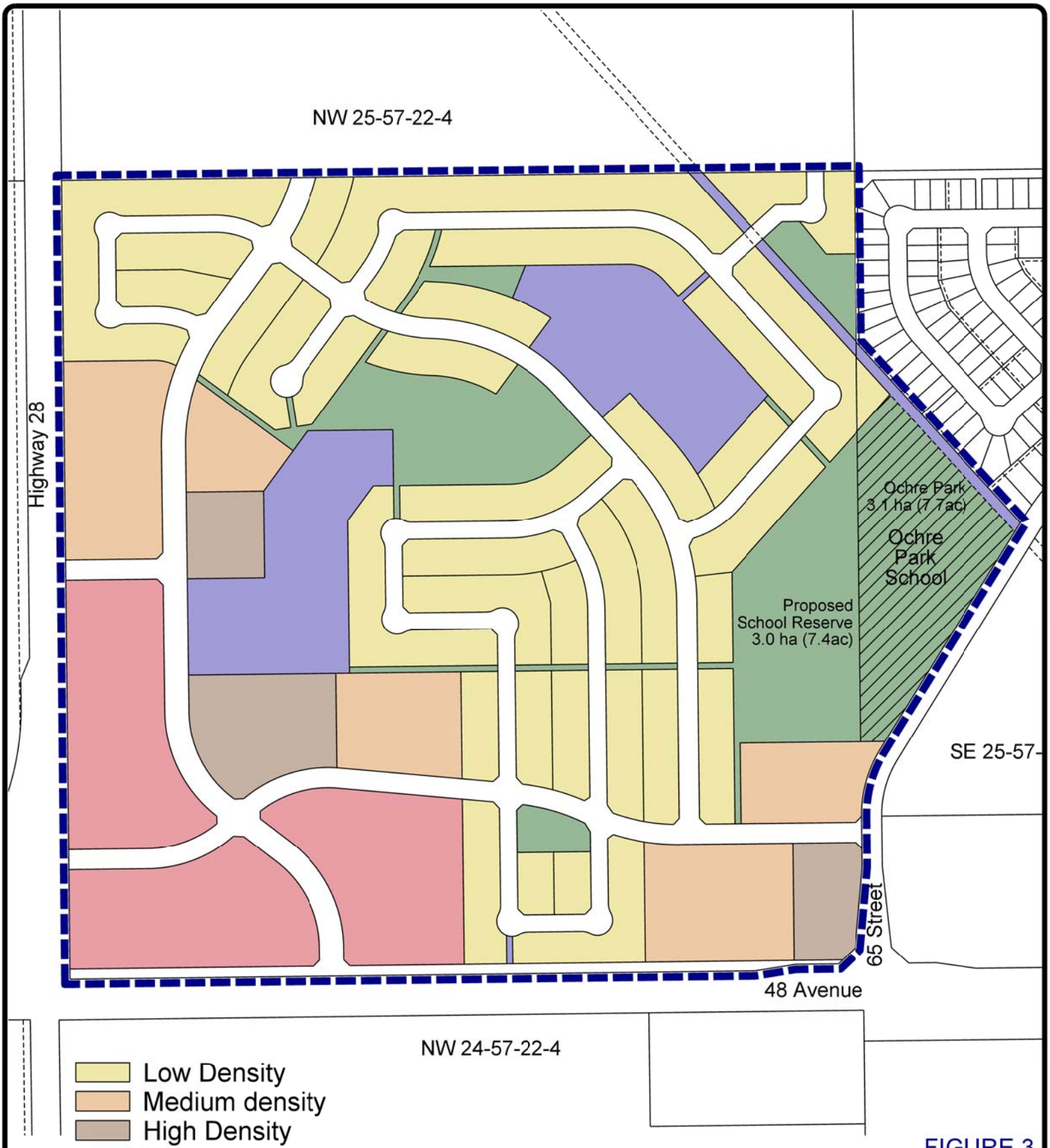

FIGURE 3

DEVELOPMENT CONCEPT

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

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Planners & Engineers

Scale 1:5000
May 18, 2010
7160500 ASP base 15.dgn

5 Design Guidelines

The MDP provides that architectural controls may be used to ensure major developments create an aesthetically pleasing result. It also requires that site planning techniques be used to reduce the effects of major roadways, to foster neighbourhood security and to provide visual privacy. Pursuant to these policies, the Town's land use bylaw requires exterior building finishes be satisfactory to the Development Authority and that the design, character and appearance of all buildings will:

- be compatible with other buildings in the vicinity, unless it is setting a new standard for the district;
- be suited to the purpose of the district within which it is located; and
- comply with the provision of any statutory plan applicable to the design, character and appearance of the building.

This is not considered sufficient because of the scale of the Westland Village development. In order to be comprehensively designed, projects such as apartment and ground-oriented multi-unit residential sites will require additional regulations addressing scale, density, internal separation space between buildings, the need for access between buildings, and site design considerations including site access, shadowing, on and off-site privacy, building orientation and appearance, pedestrian access, etc.

In the context of these MDP policies and Land Use Bylaw regulations, the Development Authority shall apply the following design guidelines when considering a development permit application for either residential or commercial use. This will create a high quality urban environment, ensure compatibility between neighbouring uses proposed within the plan area and currently existing to the east of the plan area, and provide quality streetscapes and architecture.

5.1 Site Planning

a) Arrangement of buildings, open spaces, parking and circulation areas will consider the context of surrounding land uses (especially the interface between different uses), the location of major traffic generators, and the site's particular characteristics.

b) Commercial uses shall be buffered from incompatible residential development using site design techniques on both development sites. Medium density residential development will be buffered from incompatible higher density residential development. Landscaping, fencing, increased setbacks, and/or appropriate building orientation will be used as a means of providing adequate separation between such land uses.

c) When appropriate, buildings shall be sited along frontages of internal roads in residential areas and use variable building setbacks in order to avoid long monotonous building facades and to create an interesting streetscape.

d) The placement and design of structures will facilitate pedestrian activity and convey a visual link to the street and sidewalks.

e) CPTED (Crime Prevention Through Environmental Design) principles shall be used to design public and private spaces and facilities, focusing on natural surveillance and access control.

5.2 Architecture

a) An architectural theme will be developed for large projects where high quality, innovative, and imaginative architecture are encouraged. This theme will ensure compatibility with surrounding development considering building style, form, size, colour, materials and rooflines.

b) Building facades facing streets will include design elements, finishing materials, and variations that will reduce any perceived mass and linearity of large buildings and add architectural interest.

c) All wall surfaces visible to the public will be architecturally enhanced and front and street-side wall elevations will include building offsets and architectural details.

d) Building entries will be readily identifiable and articulated by utilizing recesses, projections, columns, and distinctive materials and colours.

e) Design techniques including, but not limited to, the use of sloped roofs, variations in building setbacks, and articulations of building facades will be employed in order to minimize the perception of building mass when viewed from adjacent residential areas and roadways.

f) Roof lines will aim to reduce the perceived mass and linearity of large buildings and add architectural interest. Sloped roofs will include varying pitches, and flat roofs will be concealed by parapet walls that include articulation and elements in harmony with the principal architectural theme.

5.3 Parking and Circulation

a) Pedestrian and vehicle access and internal circulation will promote safety, efficiency and convenience. Clearly defined pedestrian paths will be provided from parking areas to primary building entrances and to sidewalks along the public roadways.

b) Internal vehicle circulation will facilitate access to building clusters, take advantage of views or amenities, and reduce conflict with pedestrians.

c) Parking will not dominate street frontages.

d) Parking or loading facilities will be setback, landscaped, and screened to the satisfaction of the Development Authority.

e) Acceptable access and egress routes will be developed to the satisfaction of the Town and the Town's Subdivision Authority for each stage during the subdivision process.

5.4 Landscaping

a) A detailed landscaping plan will be submitted in accordance with the landscaping regulations in the Town of Redwater Land Use Bylaw prior to the approval of a development permit, and will include pedestrian connection and fencing details, exterior lighting and street furniture elements, pedestrian seating areas, and varied sizes and species of plantings for the entire site.

b) Where fences are developed, they will be consistent in design, materials, finishes, and colours with the fencing styles established for the neighbourhood.

In addition to the above, with the purpose of decreasing the maintenance cost of the stormwater management facilities, "naturalized landscaping" such as using native plant species or combinations of drought and wet weather resistant plants will be required on PUL lots and MR parcels. As well, the use of stormwater for irrigation shall be encouraged.

6 Access and Traffic

6.1 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) was conducted by Scheffer Andrew Ltd. and submitted under separate cover. Alberta Transportation has accepted the report and the addendum as satisfactory. Further letter was sent to confirm the implications of the planned relocation and realignment of Highway 28 and Highway 38. A copy of Alberta Transportation's response is included as Appendix B.

The TIA analysed the intersections of Highways 28 and 38 (48 Avenue), 48 Avenue (Highway 38) and 65 Street, and 48 Avenue (Highway 38) and the new collector. It recommends:

- Improvement and realignment to Highways 28 and 38 will be handled by Alberta Transportation in the near future. No interim improvement is contemplated.
- Road widening provisions for Highway 38.
- Improvement to Highway 38 and 65 Street is required during the first stage of development.
- Lighting of the intersection of Highway 38 and the new collector road is required. The timing should be determined at each stage of development.

6.2 External Road Network

Due to issues of safety and efficient movement of traffic, no direct access from Highway 28 into the plan area is proposed (see Figure 4). The northern half of the quarter section currently has direct access onto Highway 28. However, Alberta Transportation will require this access to be closed once development of the plan area begins.

Primary access into the plan area is to be provided north from 48 Avenue (Highway 38), 400 m east of the Highway 28 and 38 intersection (48 Avenue). The existing access north of 48 Avenue at 65 Street will also be retained.

An existing intersection south of Highway 38 (Range Road 221) is recommended to be relocated to align with the proposed westerly primary access in the future. In the event that further development proceeds in the south quarter section, additional traffic impact analysis will be required to determine appropriate treatment of intersections and road design improvement requirements.

Another local road connection will be provided to the north at the northeast corner of the plan area. The construction of the access from the local road to the land northwest of the pipeline right-of-way is the responsibility of the land owner.

Connections to the west from the plan area will be provided as shown in Figure 4. The western extension of these roads will be determined at the time when realignment of Highway 28 is finalized and the surplus land east of the highway becomes available for development.

The existing 40.23 m right-of-way on Highway 38 will be widened by 10.0 m all along the north side to ensure adequate drainage and accommodate potential future highway widening (see Figure 3). This will provide for a future 60.0 m wide basic right-of-way with the 10.0 m widening on the south side of Highway 38. Additional right-of-way is expected for the intersection treatments.

Future commercial building setbacks adjacent to the Highway will conform to the Redwater Land Use Bylaw 666, Section 5.12. The bylaw requires a 7.6 m (24.9 ft) front yard, 1.5 m side yard and 1.5 m rear yard for non-residential development and 6.0 m rear yard when adjacent to a residential district.

Noise attenuation measures will be considered at the subdivision stage with discussion with the Town of Redwater. The development and dedication of any additional land to accommodate noise attenuation structures will be negotiated at the subdivision stage. Alberta Transportation requires that any noise attenuation structure be designed and constructed outside the highway right-of-way.

6.3 Internal Road Network

Primary westerly access from 48 Avenue into the plan area will continue as a major collector road to the north plan boundary. A second internal collector intersects with this north/south road and extends eastward to connect with 65 Street. These roads will be constructed within 20-24 m of the right-of-way.

An internal road will be required in the north eastern corner of the plan area to provide road access to this area and to ensure that there are at least two (2) roadways providing access to NW 25-57-22-W4.

Internal local roads will be constructed to an urban cross-section standard with 17 m right-of-way and curb and gutter. The local road network is subject to change at the subdivision stage. Access to each medium and high density parcel will be reviewed at the subdivision application or development permit stage.

A public pedestrian walkway will be required along the internal east west road paralleling Highway 38. The rights-of-way for this walkway will be identified at the subdivision stage.

Requirements for temporary turn-around and/or temporary emergency access will be reviewed at the subdivision stage.

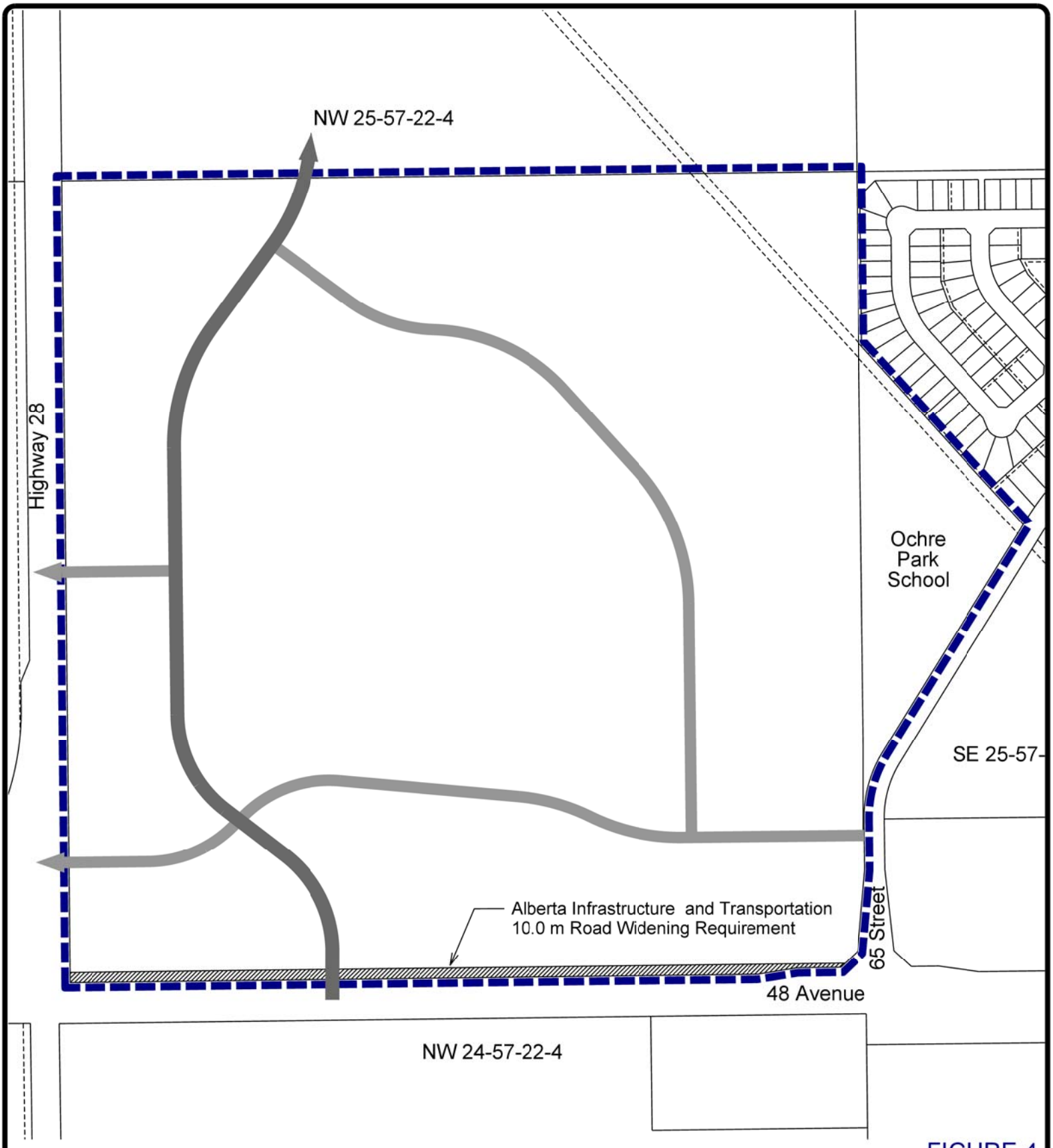

FIGURE 4

TRANSPORTATION

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

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7 Engineering Services

Municipal water and sanitary sewer services will be constructed to service the Westland Village. Developments that have a foreseeable negative impact on the existing infrastructure for the surrounding area will not be permitted.

7.1 Municipal Water

In keeping with the May 2005 Master Services Plan, water service to this development will be provided by connecting to the existing 300 mm main located along 65 Street and the future 350 mm main parallel to the 48 Avenue alignment outside of the highway right-of-way, as shown in Figure 5. A future proposed booster station at 48 Avenue between 55 and 58 Street as shown in the Master Services Plan will supply water for domestic consumption and fire protection for this development and the surrounding lands.

The water service can be extended to the land south of the plan area by tying in to the proposed 350 mm main using a trenchless installation.

7.2 Sanitary Drainage

Sanitary servicing will be provided via a gravity sewer system connecting to the existing lift station that discharges to the existing sewage lagoon in the northeast area of the Town, as shown in Figure 6. The onsite sanitary sewers will be oversized to service the lands south of 48 Avenue, the NW 24-57-22-W4. As well, the offsite main to the existing lift station will be sized to accommodate future flows from areas to the north of Westland Village but those areas will generally require a lift station(s) to discharge to the gravity main.

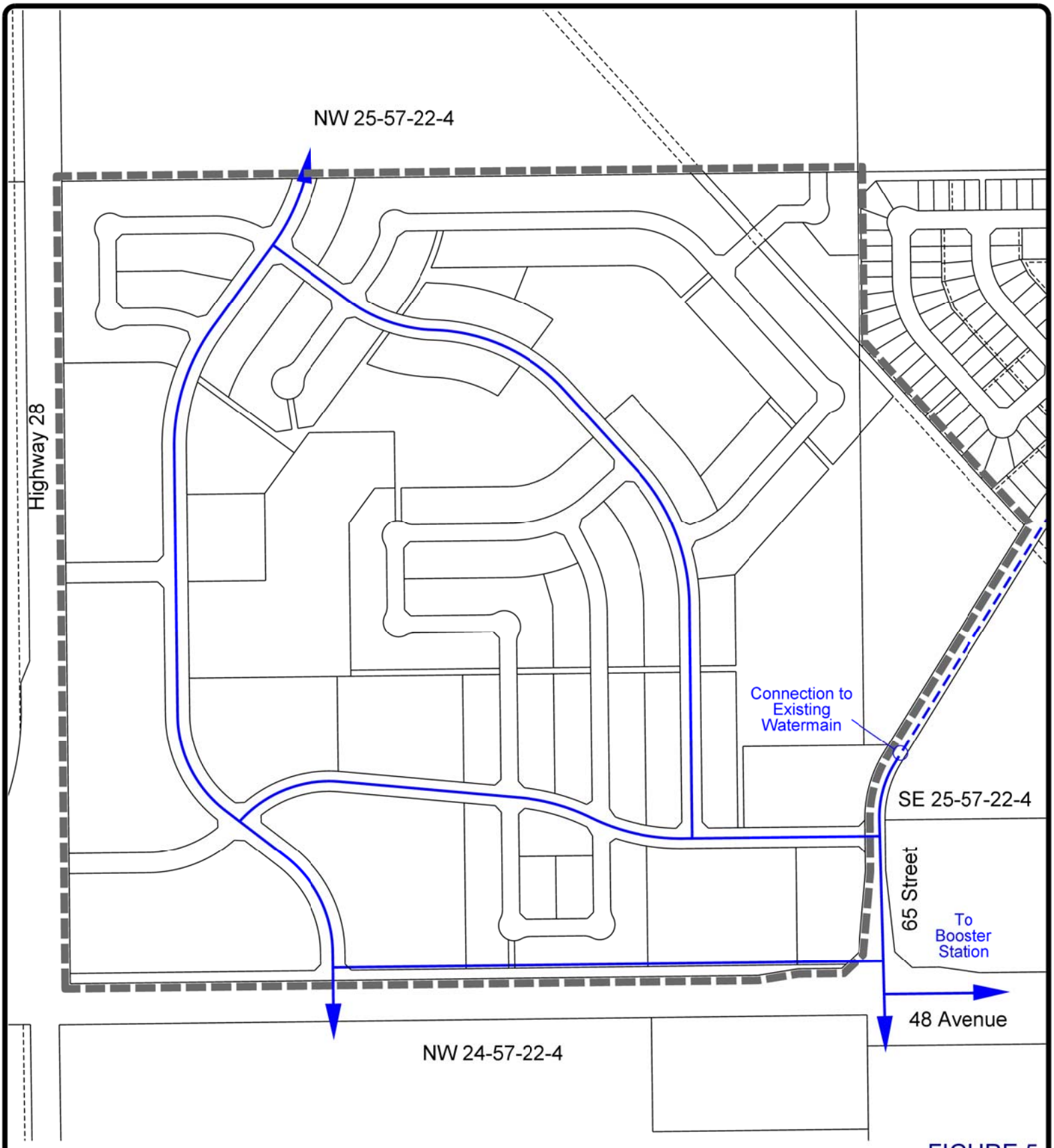
The preliminary off site sanitary trunk design is included in Appendix A.

7.3 Storm Water Drainage

All post-development storm water runoff will be managed on-site prior to discharging off-site into the Town's drainage system.

A two pond system (Lakes 1 and 2) with underground interconnected storm pipes will be constructed to manage and treat the stormwater. The treated stormwater will be discharged at the predevelopment flow rate to the existing ditch at the northeast of the plan area; from there it will flow to a proposed storm water management pond located in the NE 30-57-21-W4, approximately 2 km east of the site, and ultimately discharge to Red Water River as shown in Figure 5.2 of the Town of Redwater Master Services Plan, dated May 2005.

The conceptual storm water management plan for the subject and volume calculation of the proposed storm water management facility are shown in Figure 7.



Plan Boundary
Proposed Water Distribution Main
Existing Watermain

FIGURE 5
WATER SERVICING
WESTLAND VILLAGE AREA STRUCTURE PLAN

SW 25-57-22-4

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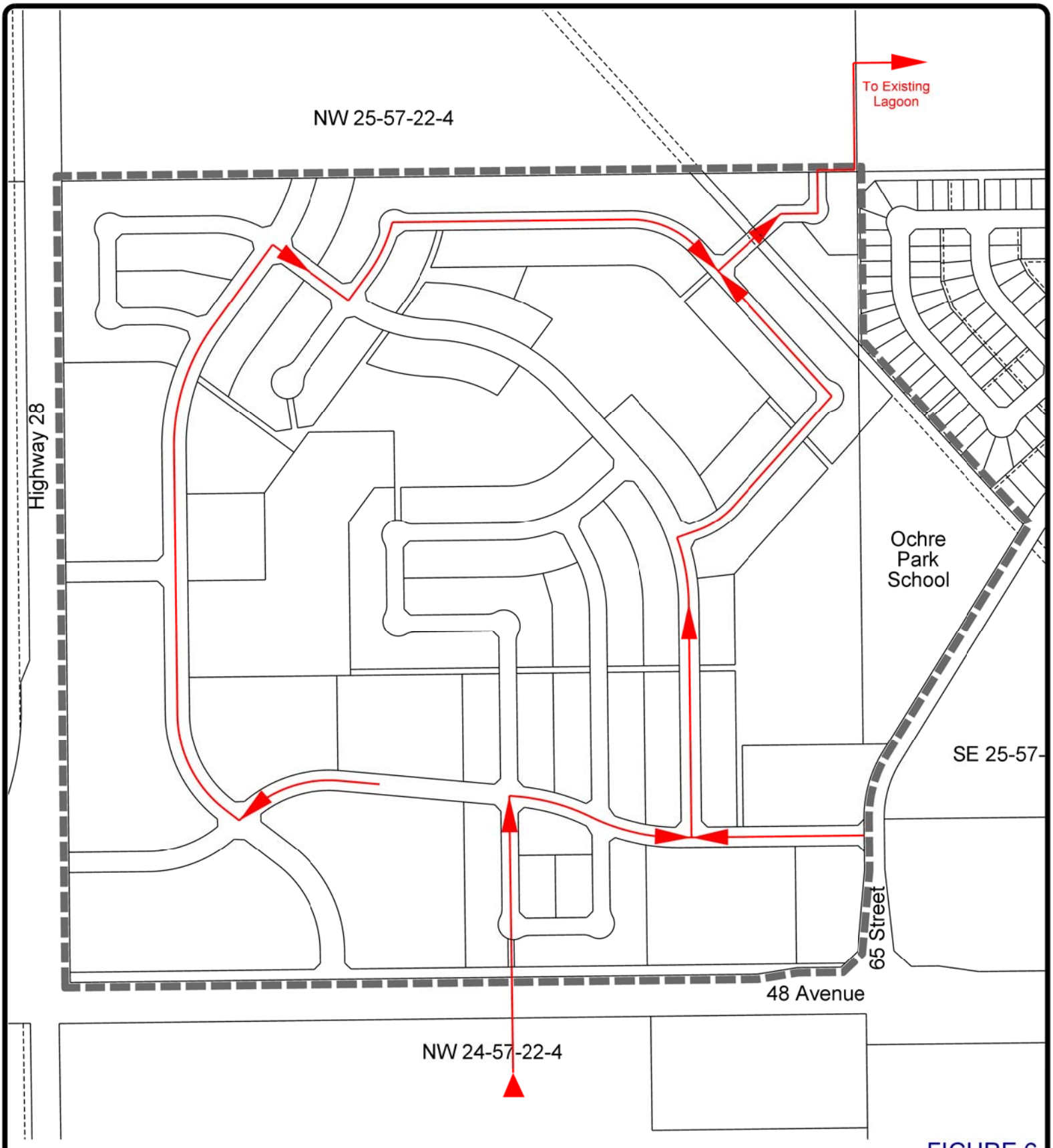

Plan Boundary

Proposed Sanitary Sewer

FIGURE 6
SANITARY SERVICING
WESTLAND VILLAGE AREA STRUCTURE PLAN

SW 25-57-22-4

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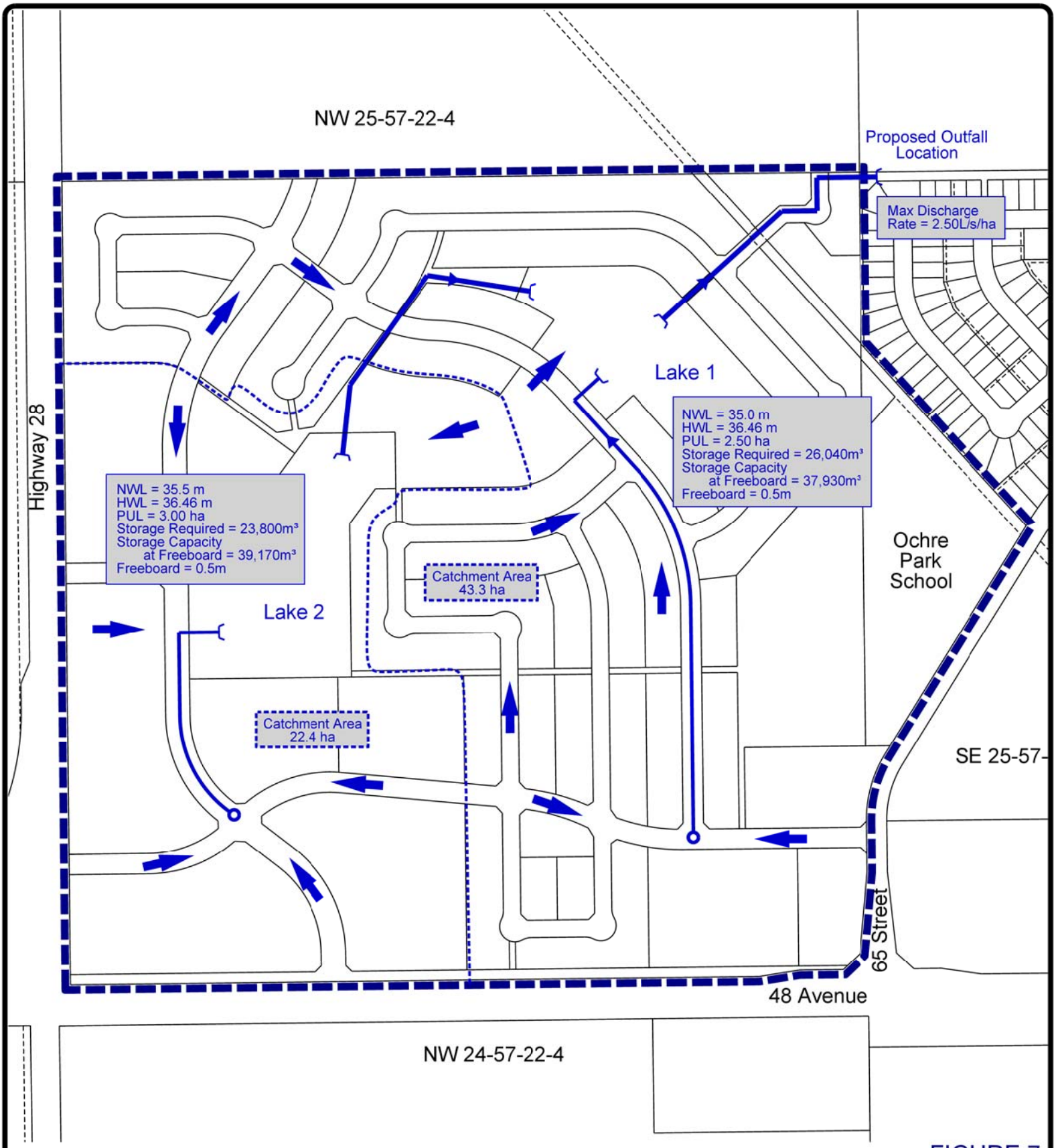
May 18, 2010
7160500 ASP base 15.dgn



Plan Boundary
Proposed Storm Mains
Drainage Boundary
Direction of Flow

FIGURE 7
STORMWATER MANAGEMENT
WESTLAND VILLAGE
AREA STRUCTURE PLAN
SW 25-57-22-4

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8 Implementation and Staging

Districting and subdivision in the plan area will occur in several stages in response to market, servicing and access considerations. It is expected that development will proceed from the southeast corner towards the northwest, although the market may support some early commercial development in the southwest part of the plan area.

Each residential stage will include a variety of housing types in accordance with Policy 8.1 of the Town's MDP.

The phasing shown on Figure 8 is conceptual and the numbers do not necessarily correspond to the sequence of development. The staging boundaries and the housing mix may be adjusted in response to housing supply and demand elsewhere in the Town. Some stages may be combined to be developed at the same time and off-site infrastructure development may be required for some stages.

8.1 Infrastructure Phasing

8.1.1 Water

The construction phasing of water infrastructure will follow that of the subdivision staging plan. With the exception of Stage 10, watermains will be extended with each stage developed. Stage 1 will require the connection to the existing stub at 65 Street that will feed the neighbourhood. Stage 2 will extend the main from Stage 1 but will also extend the water main along 48 Avenue to make a loop connection through the PUL connecting Stage 2 with 48 Avenue. Each development stage after Stage 2 will simply construct its portion of the water main loop.

As development proceeds, the overall water main loop for the neighbourhood can be made with the development of Stage 10. This stage would see the construction of an off-site watermain through the future Stage 11 area to connect to the Stage 8 water main, which would already be in existence at that time, to complete the neighbourhood loop.

Connections to mains outside of the neighbourhood will be made in the future through Stages 7 and 12 as adjacent subdivisions are developed by others. The proposed water network and pipe sizes will be confirmed at the detailed design stage. It may be determined at detailed design that the Stage 2 connection to the 48 Avenue water main can be relocated to the Stage 4 development where the tie-in can be made within the north-south collector road right-of-way. A connection in that location may provide a better overall looping efficiency. However, the adequacy of the single tie-in to service Stages 1, 2, and 3 before the noted Stage 4 loop connection is made to 48 Avenue will have to be confirmed through detailed design.

The water infrastructure phasing plan is shown in Figure 9.

8.1.2 Sanitary

The two main onsite sanitary sewers, the east and west trunks, will be constructed in three phases. The east trunk is divided into section S1 and S2 or Phase 1 and 2 respectively. Developing Stage 1 of Westland Village will require constructing section S1 of the east sanitary trunk. Section S2 of the east sanitary trunk will be constructed when Stage 2 develops and will provide a stub for future connection to the south at 48 Avenue. Phase 3 will consist of constructing the entire west trunk, S3. This trunk will be part of Stage 4 development. The major offsite sanitary trunk as described in Section 7.2 above will be constructed as part of Stage 1 construction.

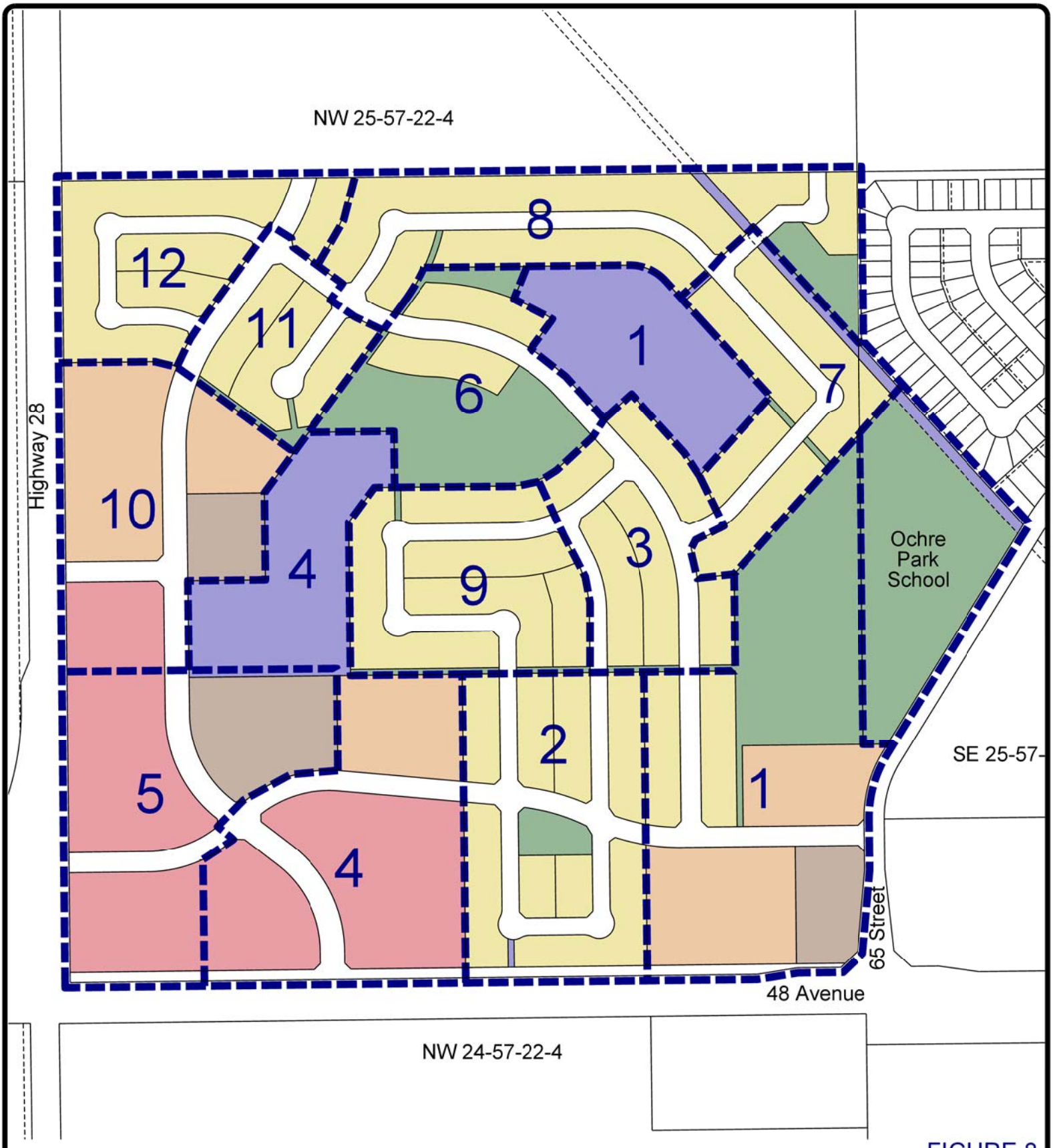
The sanitary infrastructure phasing plan is shown in Figure 10.

8.1.3 Storm

The storm water infrastructure will be constructed in two phases. Phase 1 includes storm sewers L1 and L2, and the stormwater management facility Lake #1. These infrastructure items will be part of the Westland Village Stage 1 development. Phase 2 includes storm sewer L3 and L4, and the stormwater management facility Lake #2. These infrastructure items are required when Stages 4, 5, and 10 are developed.

However, Stage 4 and 5 can be developed without constructing Lake #2. The stormwater from these two stages can be directed to Lake #1 in the interim until Stage 6 of the development plan. Lake #1 has the capacity to store the 1 in 100 year post-development runoff generated from Stages 1 to 5. This option will still require the construction of storm sewers L3 and L4, and an overland drainage swale through the Lake #2 area to direct the storm water to Lake #1 via the L4 sewer.

The stormwater infrastructure phasing plan is shown in Figure 11.



Staging Boundary is conceptual and is subject to change

FIGURE 8
STAGING
WESTLAND VILLAGE AREA STRUCTURE PLAN

SW 25-57-22-4

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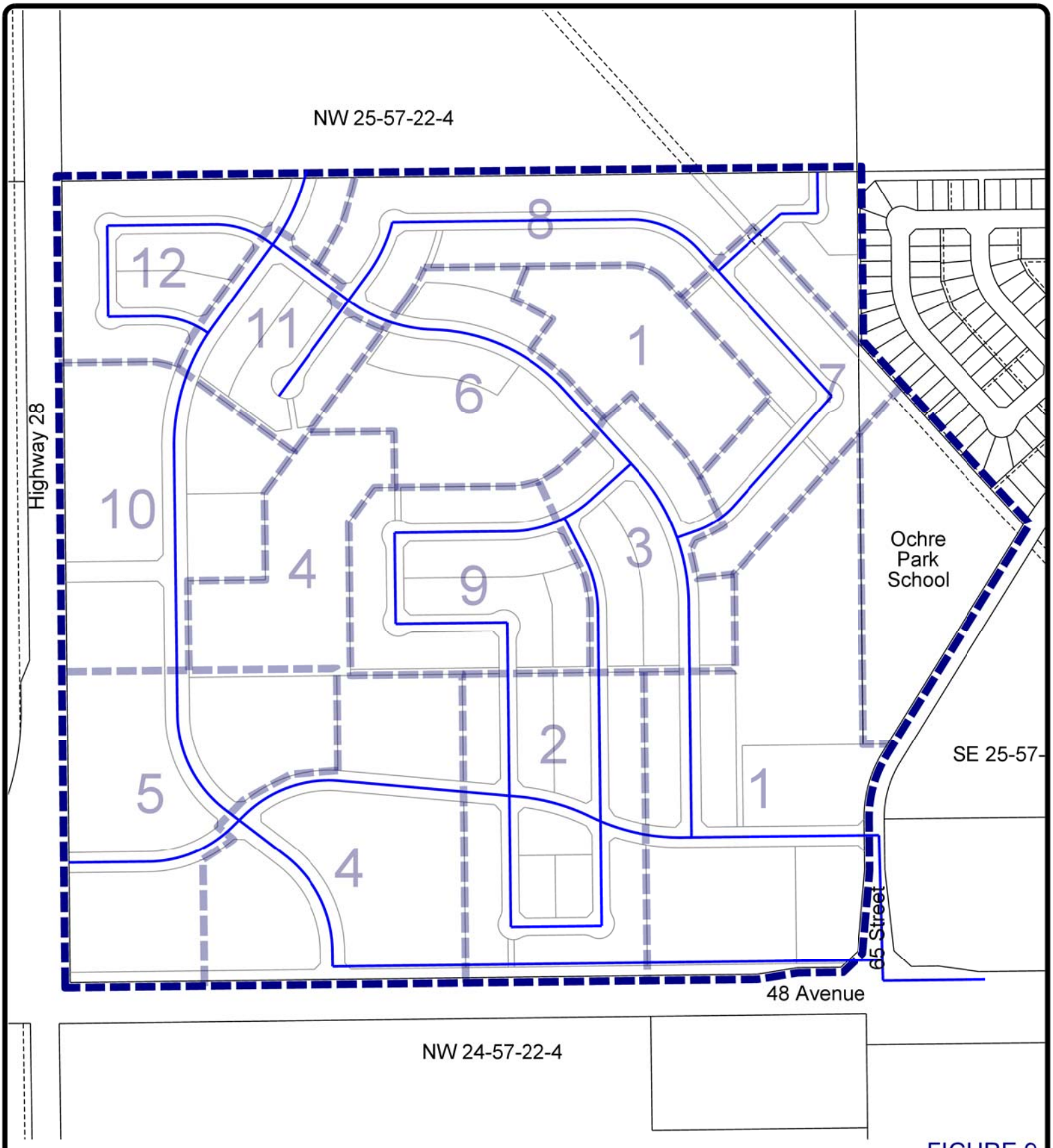

FIGURE 9
WATER INFRASTRUCTURE PHASING

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

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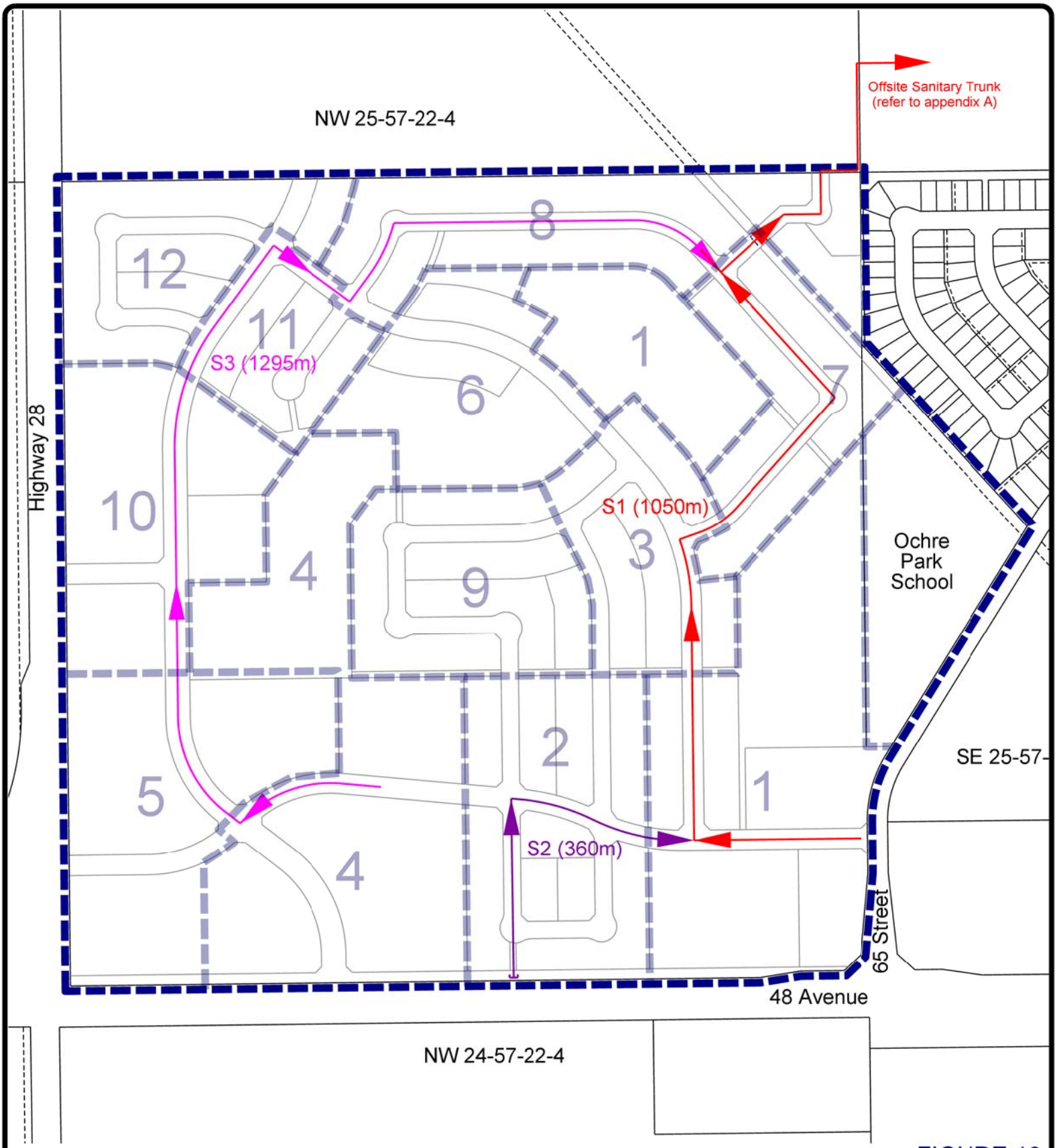

Plan Boundary
Staging Boundary

Phase 1: S1
Phase 2: S2
Phase 3: S3

FIGURE 10
SANITARY INFRASTRUCTURE PHASING

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

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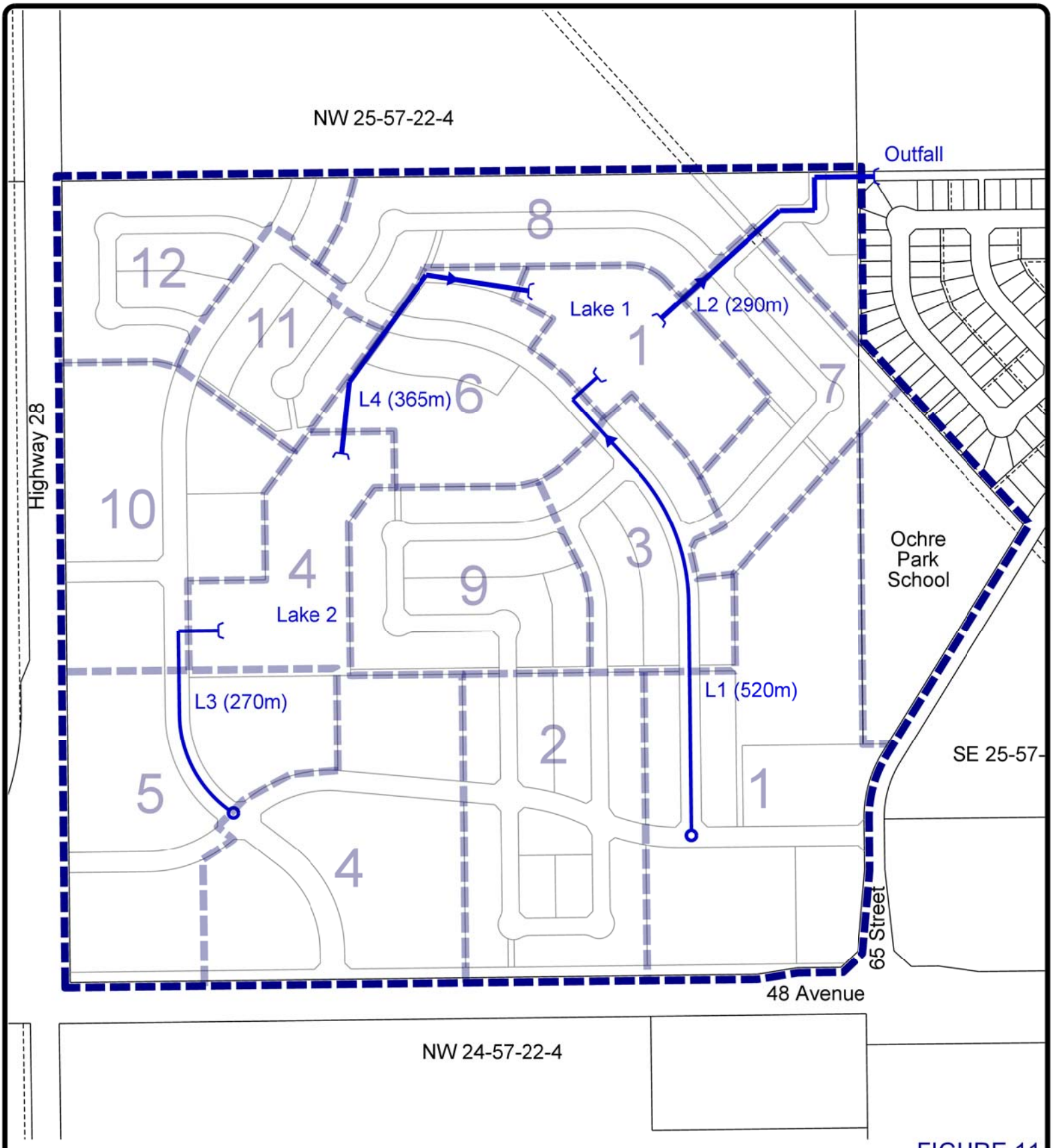


Plan Boundary

Staging Boundary

Phase 1: L1, L2, Lake 1

Phase 2: L3, L4, Lake 2

FIGURE 11

STORM INFRASTRUCTURE PHASING

WESTLAND VILLAGE
AREA STRUCTURE PLAN

SW 25-57-22-4

Scheffer Andrew Ltd.
Planners & Engineers

Scale 1:5000
May 18, 2010
7160500 ASP base 15.dgn

Appendix A

Preliminary Sanitary Trunk Design

LEGEND

EX. SANITARY CATCHMENT BOUNDARY

SANITARY CATCHMENT BOUNDARY

FUTURE BOUNDARY

SANITARY SEWER & MANHOLE NO. — 150 MANHOLE

CATCHMENT NO. & AREA — **B 0.827ha**

MAN HOLE RIM 638.40
OUTLET INV 633.61

no.	date	revision / description	checked
8			
7			
6			
5			
4			
3			
2			
1			
0	05/03/2008	TENDER DOCUMENTS	

permit

PERMIT TO PRACTICE
SCHEFFER ANDREW LTD.
Signature _____
Date _____
PERMIT NUMBER: P 1054
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

engineer

designed D.P.
drawn L.C.
checked D.P.
scales H 1 : 2000
0 20 40 80
metres

Scheffer Andrew Ltd.
Planners & Engineers

Town of Redwater

DRIACON DEVELOPMENTS

WESTLAND VILLAGE
PRELIMINARY SANITARY TRUNK DESIGN

drawing no. 71603-07B | rev. 0

LEGEND

EX. SANITARY CATCHMENT BOUNDARY

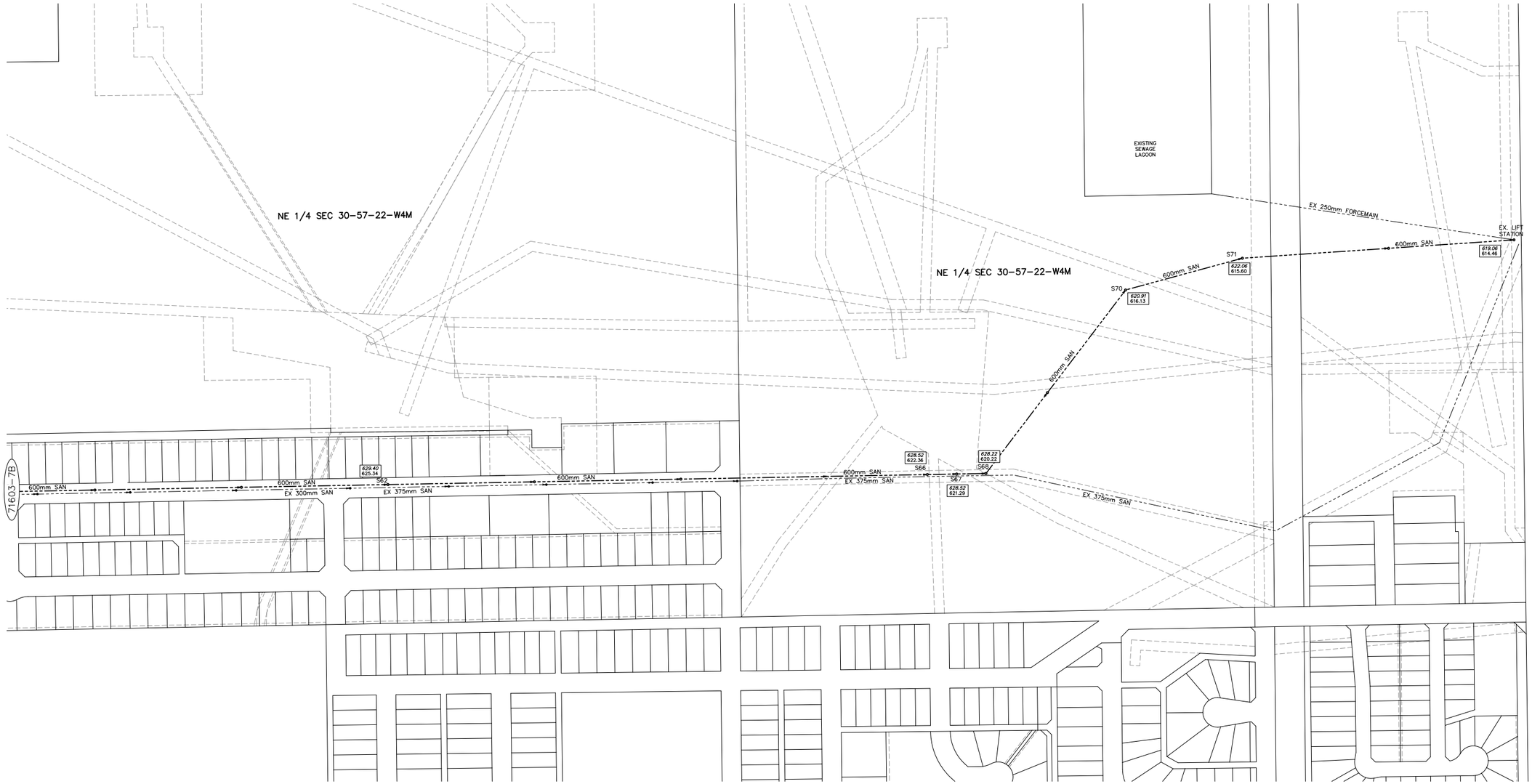
SANITARY CATCHMENT BOUNDARY

FUTURE BOUNDARY

SANITARY SEWER & MANHOLE NO. — 150 MANHOLE

CATCHMENT NO. & AREA — **B 0.827ha**

MAN HOLE RIM / OUTLET INV — *638.40* / 633.61



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permit

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PRELIMINARY SANITARY TRUNK DESIGN

drawing no. 71603-07C | rev. 0