

**TRAFFIC SAFETY COMMITTEE**

*HIS WORSHIP, THE MAYOR  
AND COUNCILLORS*

**SUBJECT: DOUGLAS ROAD & SPROTT STREET  
NORTH-EAST CORNER PEDESTRIAN SAFETY REVIEW**

**RECOMMENDATIONS:**

1. THAT Council approve road safety improvements at Douglas Rd. and Sprott St., which includes curb work and road markings, as described in this report.
2. THAT a copy of this report be forwarded to the Douglas Road Elementary School Principal and PAC, 4861 Canada Way, Burnaby, BC V5G 1W2.

**REPORT**

The Traffic Safety Committee, at its meeting held on 2007 December 04, received and adopted the *attached* report examining possible improvements on the north-east corner of Douglas Road and Sprott Street for pedestrian safety.

Respectfully submitted,

Councillor N. Volkow  
Chair

Councillor S. Dhaliwal  
Vice Chair

Councillor G. Evans  
Member

Copied to:	City Manager Director Engineering
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**TO:** CHAIR AND MEMBERS  
TRAFFIC SAFETY COMMITTEE

**DATE:** 2007 November 27

**FROM:** ASSISTANT. DIRECTOR ENGINEERING,  
TRAFFIC AND ENGINEERING SYSTEMS

**FILE:**  
*Reference:*

**SUBJECT:** DOUGLAS RD & SPROTT ST  
NORTH-EAST CORNER PEDESTRIAN SAFETY REVIEW

**PURPOSE:** To examine possible improvements on the north-east corner of Douglas Rd & Sprott St for pedestrian safety.

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#### RECOMMENDATIONS:

1. **THAT** the Committee recommends road safety improvements at Douglas Rd & Sprott St, which includes curb work and road markings as described in this report.
2. **THAT** a copy of this report is forwarded to the Douglas Road Elementary School Principal and PAC, 4861 Canada Way, Burnaby, BC V5G 1W2.

#### REPORT

##### 1.0 INTRODUCTION

At the 2007 March meeting the Traffic Safety Committee received correspondence from the Douglas Road Elementary School's Parent Advisory Committee regarding pedestrian safety at the north-east corner of Douglas Rd & Sprott St. The concern was referred to staff for review.

##### 2.0 BACKGROUND [Exhibits 1 & 2]

Both Douglas Rd and Sprott St are designated truck routes, thus turning movements of large vehicles are common at this signalized intersection. Three of the corners have been fully constructed with concrete curb and gutter, but the north-east corner remains unfinished, and the sidewalk/pedestrian landing area is now virtually flush with the roadway surface. This combined with rear wheel off-tracking from westbound to northbound turning trucks into the sidewalk area is the main cause of concern. There is a retaining wall on the corner behind the sidewalk limiting its expansion. Until recently the retaining wall sat on the property line but through a recent subdivision the right-of-way has been expanded to enable future road improvement.

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From: Assistant Director Engineering  
Traffic and Engineering Systems  
Re: DOUGLAS RD & SPROTT ST NORTH-EAST  
CORNER PEDESTRIAN SAFETY REVIEW  
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The Elementary School’s catchment generates a significant amount of child pedestrian traffic at the intersection and an adult crossing guard has been assigned by the School District to work here.

### 3.0 REVIEW OF OPTIONS

Three options of segregating vehicle and pedestrian traffic are discussed below in order of increasing cost and construction complexity.

#### 3.1 No-Post Barriers [Exhibit 3]

Currently there are three temporary rubber curbs installed to help define the current edge of road and deter vehicle off-tracking into the pedestrian landing area. While they have been in place for a relatively short time, maintenance has been required on several occasions to re-install the northern-most curb. Although they better define the corner, there is little comfort perceived by pedestrians in protection from large turning trucks.

Changing the rubber curbs to concrete barriers is seen as a temporary measure at best. The intended use of concrete barriers is for deflection of errant vehicles impacting on shallow angles. They will have negligible impact on deflecting turning trucks since they will not be interconnected or heavily anchored. As the footprint of the barriers is significant, the radius of the corner would need to be tightened 12-13 metres to 10 metres if the clear space on the corner is to be sufficient for waiting pedestrians. With a tighter radius there is potential for some damage to trucks from the barriers and vice versa if they cut the corner too fine. Conversely there could be delays to vehicle movement through the intersection if larger right turning trucks shy from the barrier or otherwise have to off-track into the southbound lane on Douglas.

Placement of 4 concrete no-post barriers along the tightened curb radius should be combined with the use of anchor posts to prevent displacement by turning trucks.

The cost would be approximately \$1,200.

#### 3.2 Install Standard Curb [Exhibit 4]

Improved pedestrian protection can be provided on the corner by installing a “standard” 6 inch high barrier curb as shown in Diagram “B”. It will better define the roadway from the pedestrian landing area, and with a tighter corner radius increase the space available for pedestrians.

Douglas Rd is designated as a Major Collector roadway but is currently built to an interim standard. At some time in the future it will be constructed as a 14 metre, curb-to-curb roadway with an abutting sidewalk on each side. The lower, east side will require a new retaining wall. Therefore, any curb work constructed on this corner would be

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temporary and could be done in asphalt rather than concrete. Raised retro-reflective pavement markers” placed along the top of curb at 5 metre intervals and an edge line painted at the base would provide the visual contrast normally provided by concrete curbs.

Constructing a 10 metre corner radius pulls the Sprott St sidewalk west providing a minimum 1.2 metre pinch point at the corner of the retaining wall; this is an instantaneous point as all other locations will give more clearance. This is the best that can be provided without touching the retaining wall. As curb let-downs [wheelchair ramps] are required, the crosswalk on the east leg of the intersection should be adjusted to allow maneuvering. An added benefit of moving the crosswalk west closer to Douglas Rd will be more sight clearance over the retaining wall and fence. Some sidewalk re-grading to the north will be necessary as the sidewalk is 1 to 1.5 metres lower than the current intersection.

Installation would be by City subject to scheduling affected by weather. The cost for asphalt curbing and sidewalk, traffic control, road markings and adjustments to junction boxes and traffic signal detectors is estimated at \$4,500.

### **3.3 Partial Reconstruction of the Retaining Wall [Exhibit 4]**

An option, not offered for serious consideration, would be to construct this quadrant of the intersection to the future finished Douglas Rd alignment with abutting sidewalk. This would require blending the new work to the existing, which would be difficult. The safe course of reconstructing the retaining wall on the new property lines would also be very expensive and somewhat speculative relative to what will be require by the future grades. Further, in the future, if the intersection design varies from what is anticipated any road work undertaken now will be “sunk” cost.

Increased room for pedestrians on the corner can also be made by modifying the wall behind the sidewalk. The wall is a Burnaby standard gravity retaining wall of which about 10 metres would require removal. Before any work could be done an engineered design drawing would be needed.

Detailed design of an interim modification to the retaining wall would take some time with the earliest expected construction would be late summer 2008. The cost for a temporary wall modification, new curb and sidewalk is estimated to be in excess of \$20,000.

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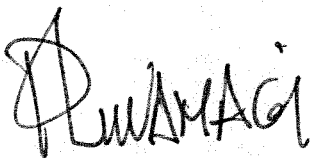
#### 4.0 CONCLUSION

While rebuilding the complete retaining wall provides the best solution for pedestrians and truck movements, the lengthy timeline for completion, the cost and likely redundancy of the work once Douglas Rd is rebuilt to a finished standard removes this proposal from consideration. However it would be feasible to cut back some of the retaining wall at the corner to improve the area available to waiting pedestrians. Of the 3 "interim options this is considered to be the least cost effective.

Based on our review, construction of a curbed sidewalk on the corner as discussed in 3.2 appears to be the best interim solution. However, notwithstanding reservations about using concrete barriers in a longer term, it would be advantageous to use them temporarily until a barrier curb and raised sidewalk can be installed. This will improve the safe refuge area on the corner for pedestrians.

In summary we recommend:

- Installation and subsequent removal of 4 no-post concrete barriers and road markings. Cost for this temporary measure is estimated at \$1,500.
- Installation of asphalt barrier curb with raised pavement markers, adjusted raised asphalt sidewalk area, and adjusted east crosswalk alignment. Cost is estimated at \$4,500.

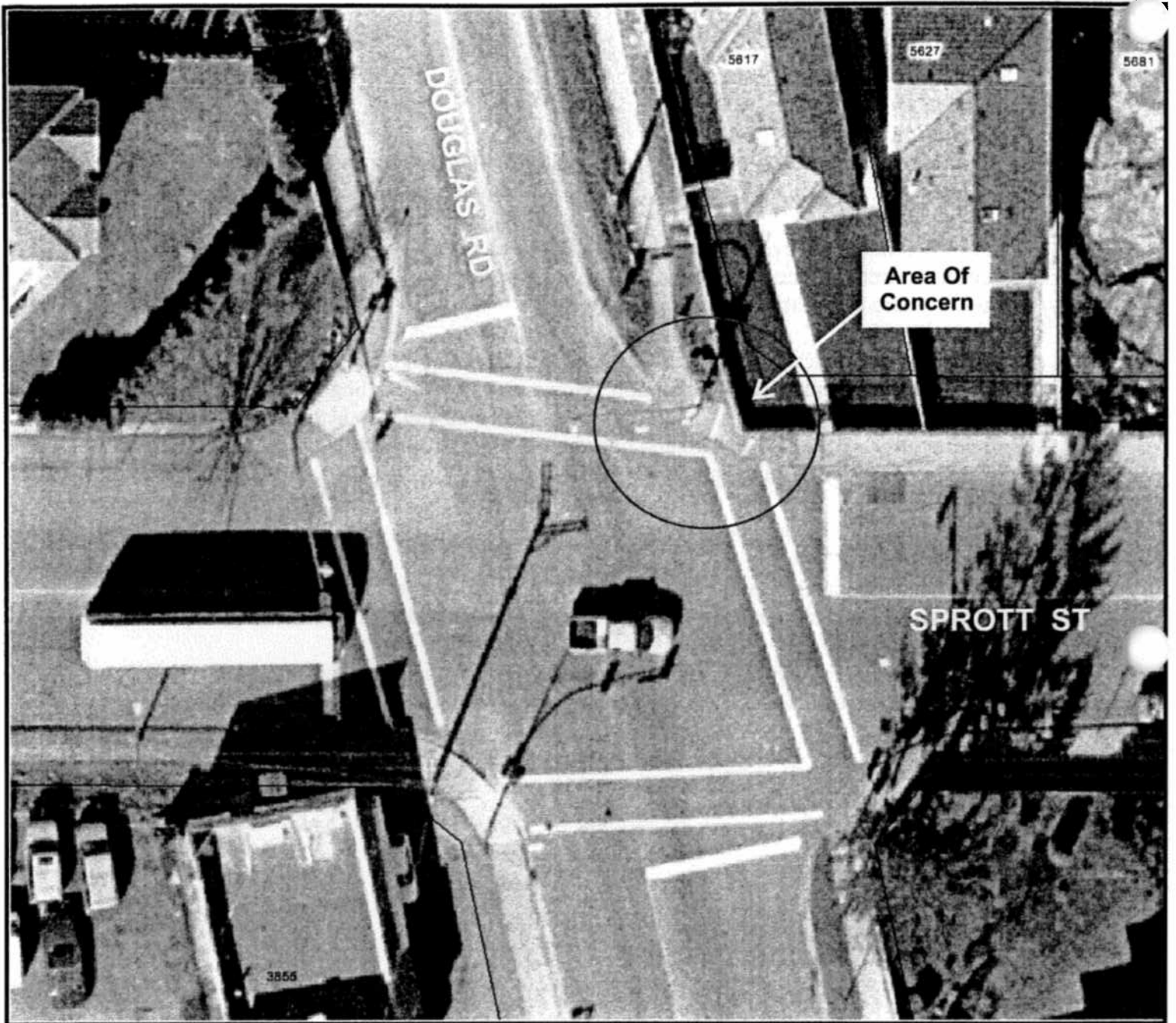


P. Liivamagi, P. Eng.  
ASST. DIRECTOR ENGINEERING,  
TRAFFIC & ENGINEERING SYSTEMS

MDS  
Attachment

Copied to: City Manager

EXHIBIT 1



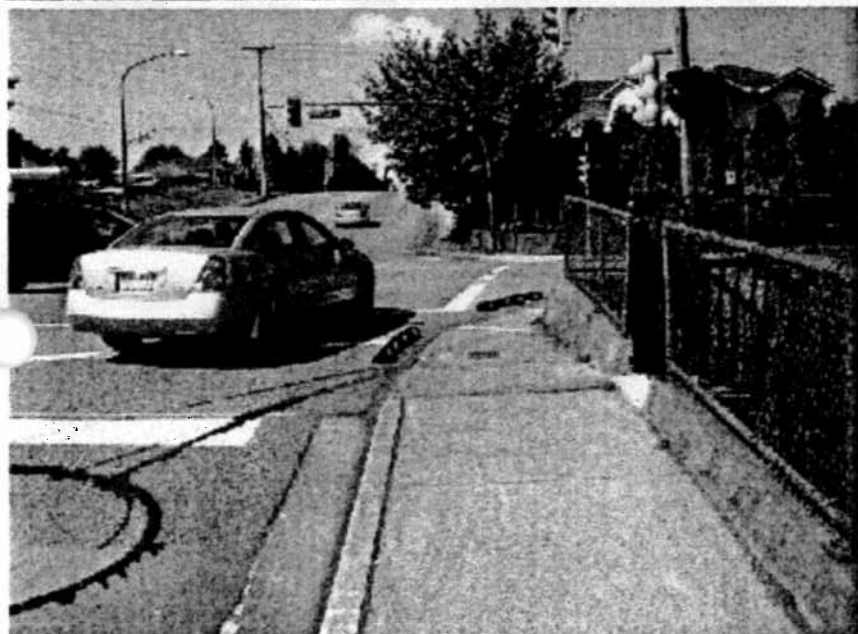
Existing Intersection Layout

## EXHIBIT 2



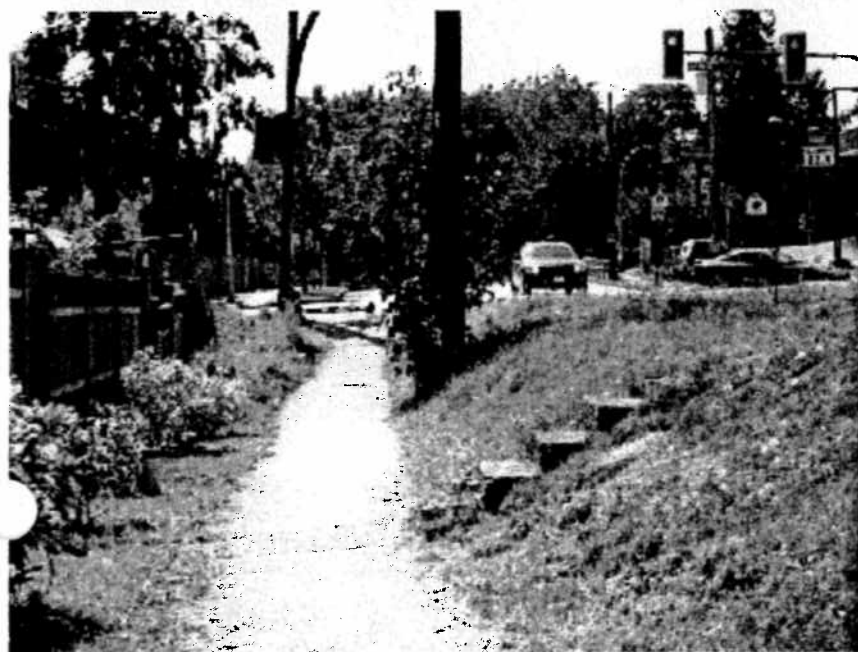
North-East Corner Of  
Douglas Road & Sprott Street With  
Temporary Rubber Barrier Curbs.

Pedestrian Landing Area  
At-Grade With Road Surface.



Sprott Street Sidewalk Looking  
West To Corner At Douglas Road.

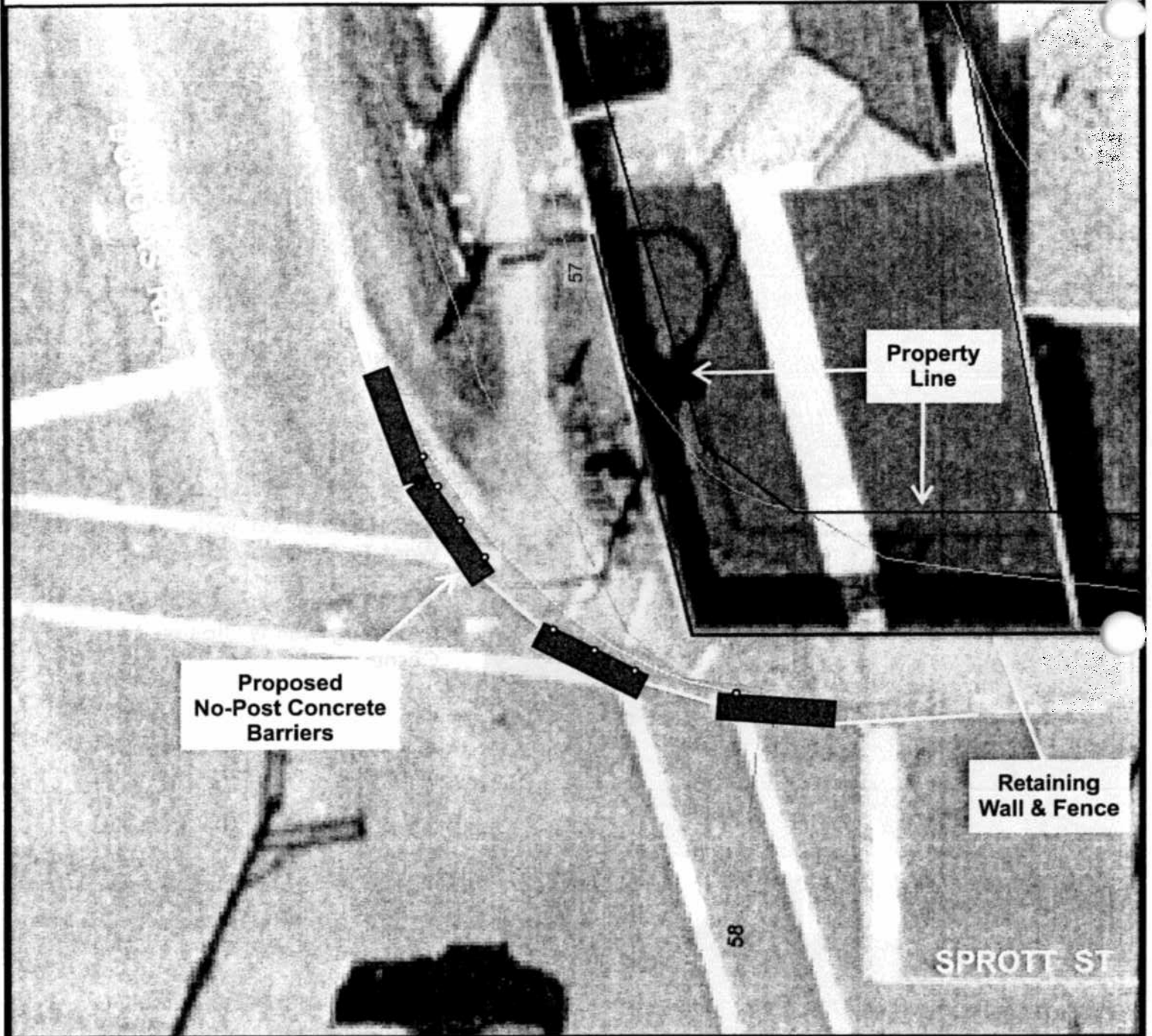
"Pinch-Point" Where  
Retaining Wall Is Closest To  
Corner.



Sidewalk Along East Side Of  
Douglas Road Looking South  
Toward Sprott Street.

Elevation Difference Between  
Douglas Road On Right of  
Picture With Sidewalk.

**EXHIBIT 3**

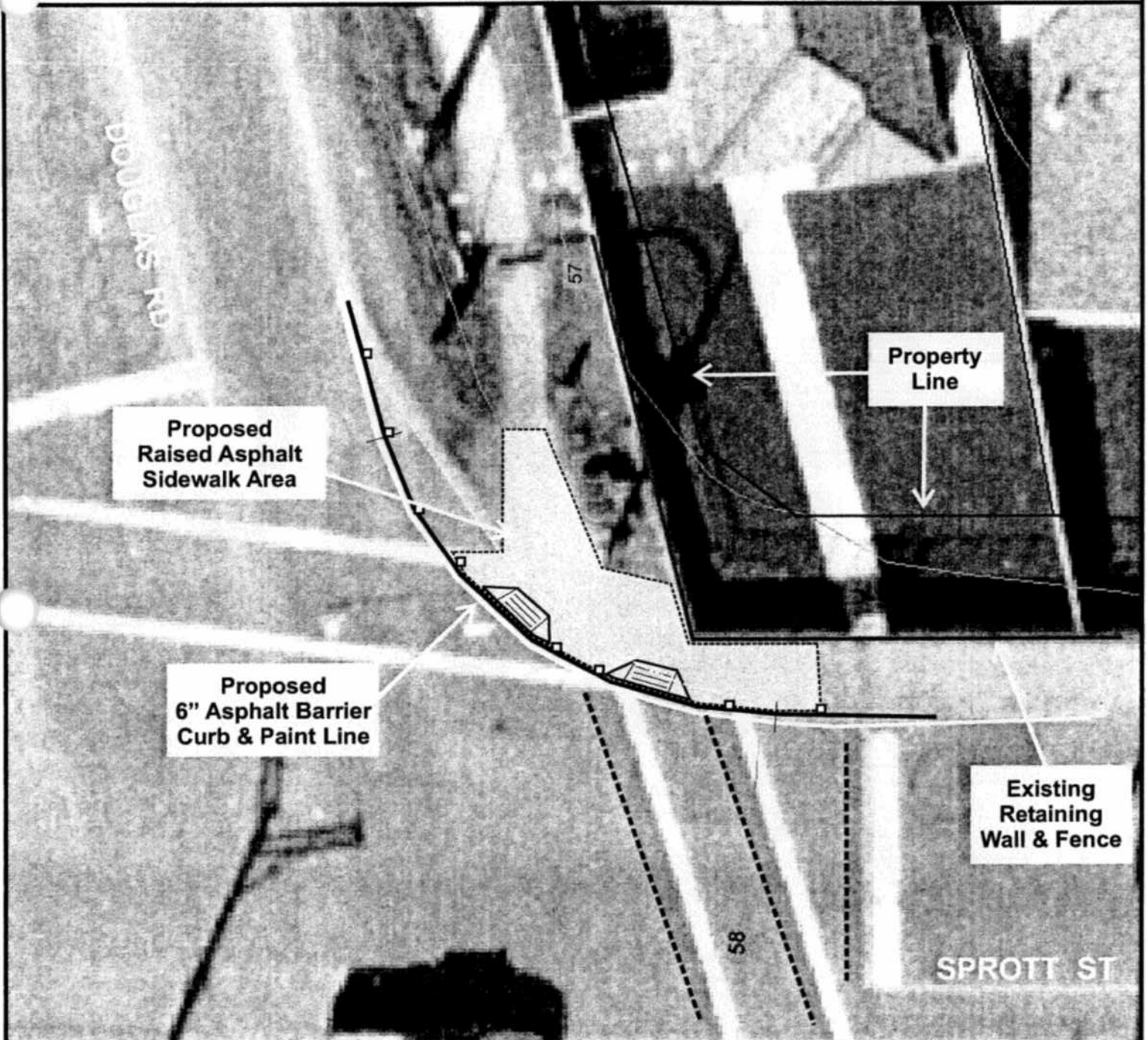


**OPTION 1**

**Showing Placement of 4 No-Post Concrete Barriers  
Anchored By Pins Along A Newly Defined 10 Metre Radius Corner**



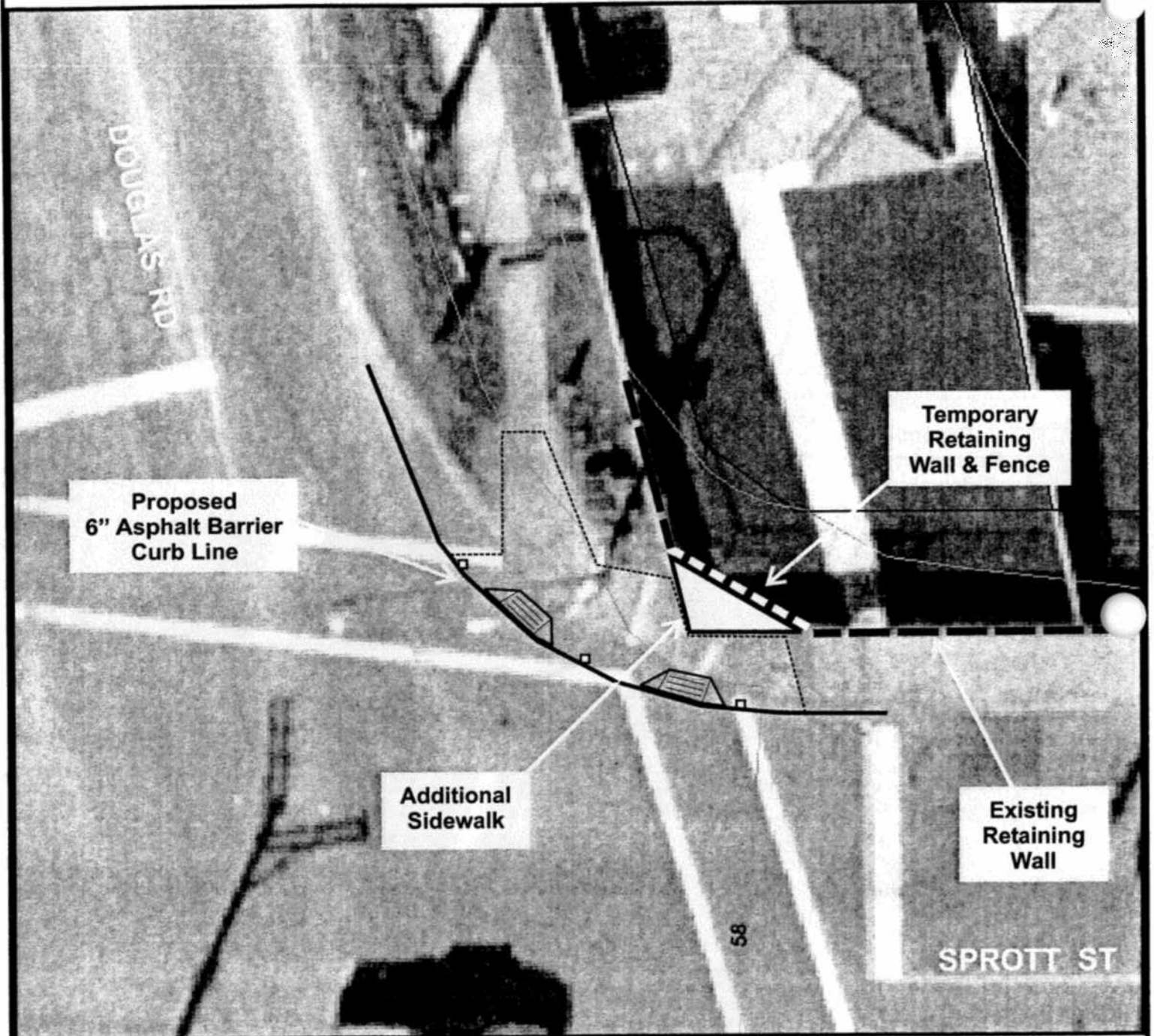
EXHIBIT 4



OPTION 2

Showing New Asphalt Barrier Curb With  
Cat-Eye Reflectors Installed on Top of Curb at 5m Intervals  
Along A Newly Defined 10 Metre Radius Corner

EXHIBIT 5



OPTION 3

Showing Temporary Retaining Wall With  
New Asphalt Barrier Curb on a 10 Metre Radius