

**BROUGHDALE DYKE**

## Dyke Inspection Sheet

Dyke: Broughdale Dyke  
Weather: Sunny, 27 °C  
Immediate Action Required •

Report No.: 1 of 2

Date: June 21, 2004  
Inspected By: N.Oliveira, S.Jeater  
Further Investigative Work •

General Information	
<u>Section Inspected:</u> Complete • Section ✓ Specify: 0+000 to 0+425 m	Overall Condition Rating: 4 (this section only) <b>Comments:</b>
<u>Adjacent Property Use:</u> Residential ✓ Parkland ✓ Commercial • Industrial •	<b>Comments:</b> Adjacent parkland (Ross Park) from St. 0+000 to 0+425, becoming residential at 0+425.
Dyke Facing	
<u>Dyke Face Material:</u> Concrete • Gabion •  Earthfill ✓ Other ✓ Specify: manicured grass surface/rough vegetation/trees  <b>Condition Rating:</b> 4 <b>Comments:</b> Dyke face consists primarily of an earth berm with manicured grass covering (maintained by the City). Rough vegetation consisting of bushes/shrubs at ~St. 0+070 to 0+080 (photo 7739). Scattered trees located along dyke face/toe from ~St. 0+125 to 0+160.	<u>Structural Condition (Dyke Face):</u> Erosion • Damage (impact, cracks, etc) • Movement (including unevenness, slipping, bulging or slumping) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> No erosion or movement observed.
<u>Toe:</u> Toe Protection Material (concrete, gabion, earth or other) Specify: Primarily earth (soil) with overlying manicured grass covering. Erosion Yes • No ✓ <b>Condition Rating:</b> 4 <b>Comments:</b> No signs of erosion noted.	<u>Joints:</u> (not applicable to earthfill dykes) Sealant Present Yes • No •  <b>If yes, condition rating:</b> Vegetation (in joints) Yes • No • <b>Comments:</b> Not applicable.
<u>Vegetation:</u> None • Full ✓ Partial • Type: Primarily manicured grass with some rough vegetation and scattered mature trees. <b>Comments:</b> Vegetation consisting primarily of manicured grass (City maintained) with moderate vegetation from St. 0+070 to 0+080.	<u>Water Infiltration:</u> (look for where water can leak behind structure) Yes • No ✓ If yes, due to:  Joints • Cracks • Liner • Other (specify) • <b>Comments:</b>
<u>Additional Information:</u> Access Available Yes ✓ No • Estimated Water Depth: not applicable <b>Comments:</b> Access available along manicured grass (photo 7740 and 7741)	
Top of Dyke	
<u>Dyke Top Material:</u> Concrete • Asphalt • Earth ✓ Rip Rap •  Other ✓ Specify: Grass covering <b>Condition Rating:</b> 4 <b>Comments:</b> Generally earth berm with grass covering (photo 7743).	<u>Structural Condition (Top of Dyke):</u> Erosion (behind wall, etc.) • Damage (vandalism, etc) • Movement (including unevenness, heaving or settlement) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> No noticeable signs of erosion.
<u>Pedestrian Access:</u> Sidewalk • Pathway • None ✓ Other • Specify: If present, width of access way: <b>Condition Rating (if present):</b> <b>Comments:</b> Although no constructed pathway exists (i.e. asphalt, etc.), the top of dyke is easily accessible and consists of well manicured grass.	<u>Protective Barrier:</u> Fence • Guard Rail • None ✓ Other • Specify: <b>Condition Rating (if present):</b> <b>Comments:</b> No protective barrier present. Side slopes moderate.

Top of Dyke - Continued	
<p><u>Joints</u> : (not applicable to earthfill dykes)            Sealant Present    Yes •                      No •  <b>If yes, condition rating:</b>            Vegetation (in joints)    Yes •                      No •  <b>Comments:</b> Not applicable.</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good    ✓    Poor •  <b>Comments:</b> No ponding of water observed along top of dyke.</p>
<p><u>Illumination:</u> (check for lighting present along the top of the dyke)            Yes •    No ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>	<p><u>Vegetation:</u>            None •    Full ✓    Partial •            Type: Grass  <b>Comments:</b> Grassed areas observed along the length of dyke inspected.</p>
<p><u>Additional Information:</u>  <b>Comments:</b> Area inspected relates to berm extension work completed in 1991.</p>	
Area behind the Dyke (immediately adjacent)	
<p><u>Predominant Material:</u>            Concrete    ✓    Asphalt    ✓            Earth    •    Grass    ✓            Other    •    Specify:  <b>Condition Rating:</b> 4  <b>Comments:</b> Combination of asphalt pathway (near St. 0+000 to 0+025) and concrete sidewalk (City owned) from 0+025 to ~0+075 (along Richmond Street) separated by a guard rail. Predominantly manicured grass to St. 0+425.</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good    ✓    Poor •  <b>Comments:</b> No ponding of water observed, nor were there any significant low lying areas.            Are catchbasins present?    Yes •    No ✓  <b>If yes, condition rating:</b>  <b>Comments:</b></p>
<p><u>Vegetation:</u>            None •    Full ✓    Partial •            Type:  <b>Comments:</b> See above.</p>	<p><u>Accessibility:</u> (check for access areas behind the dyke only)            Sidewalks •    Pathways •    Roads •    None ✓  <b>Condition Rating (if present):</b> 4  <b>Comments:</b> Area behind the dyke generally accessed via well manicured grass throughout park. Sections from St. 0+000 to 0+075 consisting of a combination of asphalt pathway to concrete sidewalk.</p>
<p><u>Protective Barrier:</u>            Fence •    Guard Rail    ✓    None ✓            Other •    Specify:            If fence, list type and ownership (i.e. private or city): City owned guard rail from ~St. 0+020 to 0+080. No protective barrier present until start of privacy fencing at St. 0+425.  <b>Condition Rating (if present):</b> 4 (guard rail only)  <b>Comments:</b></p>	<p><u>Illumination:</u> (check for lighting present behind the dyke)            Yes ✓    No ✓  <b>Condition Rating:</b> 4  <b>Comments:</b> Limited lighting from St. 0+000 to ~0+080 from City of London light standards located along Richmond Street. No lighting present afterwards.</p>
Storm Sewers/Sanitary Sewers/Outlet Structures	
<p>Yes •    No ✓ (if no, proceed to next section)            If yes, type of structure (i.e. outlet, headwall, drainage pipe, channel or flush): Specify:  <b>Condition Rating:</b>  <b>Comments:</b> No sewers or outlet structures observed on or immediately adjacent to dyke over section reviewed.</p>	<p><u>Outlet:</u> (check for presence of gates or grates at the outlet)            Flap Gate    Yes •    No •            Safety Gate    Yes •    No •  <b>Condition Rating:</b>  <b>Comments:</b> Not applicable.</p>
<p><u>Outlet Flow:</u> (check for condition of channel downstream from pipe, obstructions within pipe, etc.)            Obstructions                      Yes •    No •            Downstream Erosion                      Yes •    No •  <b>Comments:</b> Not applicable</p>	<p><b>General Comments:</b></p>

**RATING SYSTEM**

- |   |                            |   |
|---|----------------------------|---|
| 1 | <i>Unsafe Condition</i>    | Structure (or element) in very poor or unsafe condition which may pose public safety hazard.  |
| 2 | <i>Poor Condition</i>      | Structure (or element) in poor condition with significant deterioration noted. Deteriorations noted may impact on integrity and may require significant capital cost to bring to fair to poor condition rating. No safety hazard noted. |
| 3 | <i>Fair/Poor Condition</i> | Structure (or element) condition varies from fair to poor with some signs of significant deterioration in localized areas. Able to perform function, but at reduced capacity.   |
| 4 | <i>Fair Condition</i>      | Structure (or element) in fair condition with no visible signs of significant deterioration. Able to perform intended function with no apparent hindrance.  |
| 5 | <i>Good Condition</i>      | Structure (or element) in good condition with minor deterioration. Able to perform intended function with no apparent hindrance.  |

**Dyke Inspection Sheet**

Dyke: Broughdale Dyke  
Weather: Sunny, ~ 27 °C  
Emergency Action Required •

**Report No.: 2 of 2**

Date: June 21, 2004  
Inspected By: N.Oliveira, S.Jeater  
Further Investigative Work •

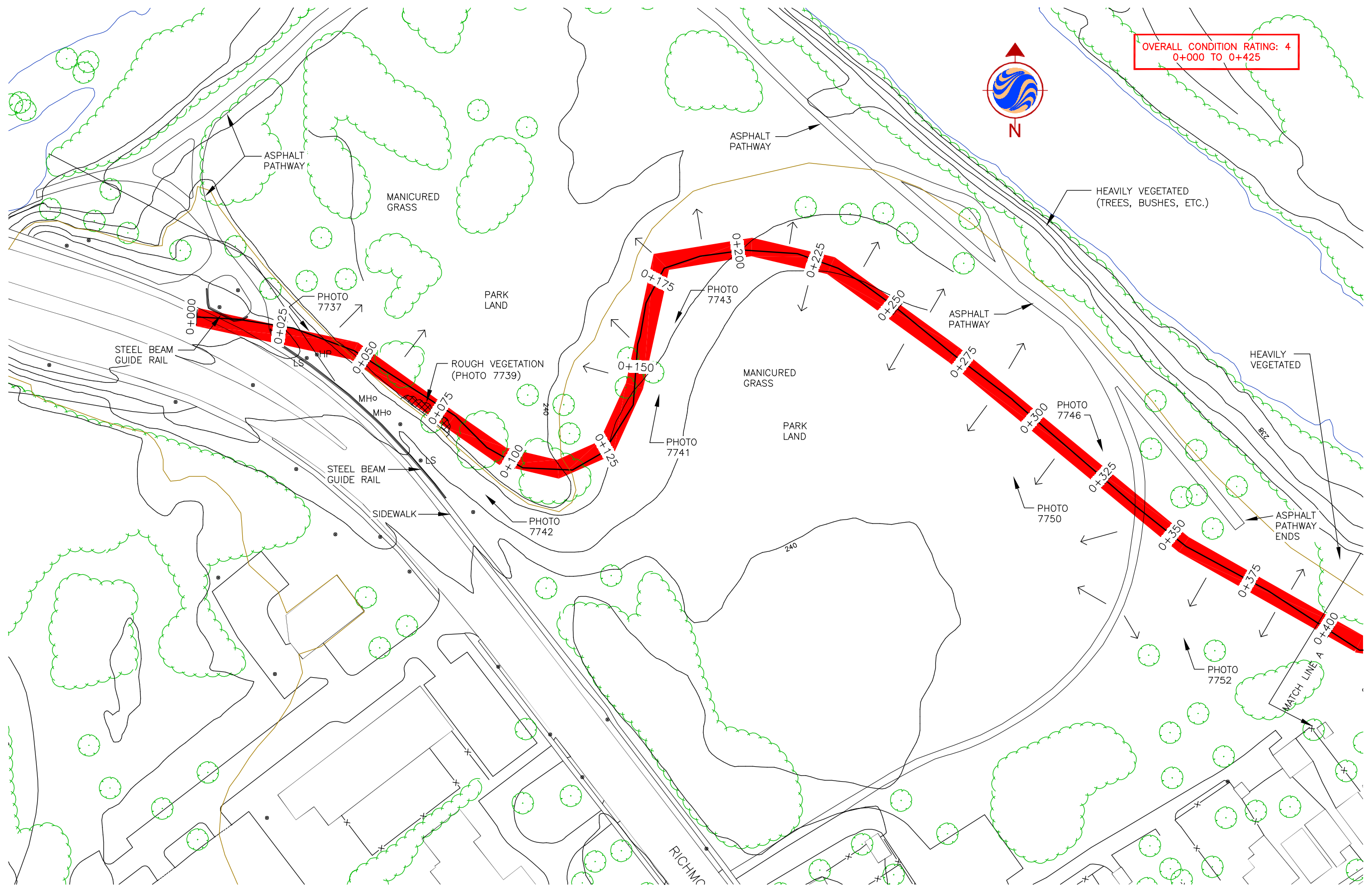
<b>General Information</b>	
<u>Section Inspected:</u> Complete • Section ✓ Specify: <u>0+425</u> to <u>0+766.8</u> m	Overall Condition Rating: 4 (this section only) <b>Comments:</b> Generally less steep conditions encountered in comparison to the previous section inspected, however several steep areas were noted and should be monitored over time.
<u>Adjacent Property Use:</u> Residential ✓ Parkland ✓ Commercial • Industrial •	<b>Comments:</b> Adjacent residential from 0+425 to 0+525. A daycare facility and commercial businesses border the dyke from 0+525 to 0+600 (termination at Wellington Road).
<b>Dyke Facing</b>	
<u>Dyke Face Material:</u> Concrete • Gabion ✓  Earthfill ✓ Other ✓ Specify: Rough vegetation (photo 7755)/wood retaining wall  <b>Condition Rating:</b> 4 <b>Comments:</b> Dyke face consists primarily of moderate to dense vegetation (trees, bushes, shrubs, wild grass). Some concrete rubble also noted extending down dyke face below drainage outlet pipe at St. 0+710. Gabion basket flood wall from ~St. 0+625 (photo 7773) converting to wood retaining wall on gabion baskets from St. 0+660 to ~0+685 (photo 7778).	<u>Structural Condition (Dyke Face):</u> Erosion • Damage (impact, cracks, etc) ✓ Movement (including unevenness, slipping, bulging or slumping) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> Some rotting and minor damage to wood retaining wall observed. Remainder of dyke facing appears to be in good condition.
<u>Toe:</u> Toe Protection Material (concrete, gabion, earth or other) Specify: Primarily earth (soil) with overlying dense vegetation. Becoming gabion basket from St. 0+625 to 0+685. Erosion Yes • No ✓ <b>Condition Rating:</b> 4 <b>Comments:</b> No signs of erosion noted, primarily from St. 0+425 to 0+625 where the toe extends to a low lying vegetated area. Areas along the gabion basket section could not be visually inspected due to the adjacent water level along this section.	<u>Joints:</u> (not applicable to earthfill dykes) Sealant Present Yes • No •  If yes, condition rating: Vegetation (in joints) Yes • No • <b>Comments:</b> Not applicable.
<u>Vegetation:</u> None • Full ✓ Partial • Type: Primarily trees with shrubs, bushes, wild grass, etc. <b>Comments:</b> Vegetation generally well established along side slopes of dyke, including areas above the gabion basket (St. 0+625 to 0+660) and wood retaining wall (St. 0+660 to 0+685).	<u>Water Infiltration:</u> (look for where water can leak behind structure) Yes • No ✓ If yes, due to: Joints • Cracks • Liner • Other (specify) • <b>Comments:</b> No water infiltration noted through dyke face.
<u>Additional Information:</u> Access Available Yes ✓ No • Estimated Water Depth: ~0.5m along gabion basket section <b>Comments:</b> Accessibility along dyke face is generally limited to sections from St. 0+425 to 0+625 (i.e. prior to the gabion basket section) and St. 0+660 to 0+766.8 through moderate to dense vegetation. Access to the gabion basket face is limited due to the vertical nature of the flood wall.	
<b>Top of Dyke</b>	
<u>Dyke Top Material:</u> Concrete • Asphalt • Earth ✓ Rip Rap •  Other ✓ Specify: Grass <b>Condition Rating:</b> 4 <b>Comments:</b> Generally earth along top of dyke from St. 0+425 to 0+766.8 consisting of a mix of sparse to dense vegetation (trees, shrubs, bushes, etc.). Various sections of the dyke intersect backyards of adjacent residential properties consisting of grass and vegetation (photo 7782).	<u>Structural Condition (Top of Dyke):</u> Erosion (behind wall, etc.) • Damage (vandalism, etc) • Movement (including unevenness, heaving or settlement) • Specify type: <b>Condition Rating:</b> 4 <b>Comments:</b> No noticeable signs of erosion.
<u>Pedestrian Access:</u> Sidewalk • Pathway • None ✓ Other • Specify: If present, width of access way: <b>Condition Rating (if present):</b> <b>Comments:</b> No constructed pedestrian access is available. Various sections of the top of dyke are accessible through backyards of adjacent residential properties.	<u>Protective Barrier:</u> Fence • Guard Rail • None ✓ Other • Specify: <b>Condition Rating (if present):</b> <b>Comments:</b> No protective barrier present.



Top of Dyke - Continued	
<p><u>Joints</u> : (not applicable to earthfill dykes)            Sealant Present    Yes    •                      No    •  <b>If yes, condition rating:</b>            Vegetation (in joints)    Yes    •                      No    •  <b>Comments:</b> Not applicable</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good    ✓    Poor    •  <b>Comments:</b> No ponding of water observed along top of dyke. Drainage generally down dyke face.</p>
<p><u>Illumination:</u> (check for lighting present along the top of the dyke)            Yes    •    No    ✓  <b>Condition Rating:</b>  <b>Comments:</b></p>	<p><u>Vegetation:</u>            None    •    Full    ✓    Partial    ✓            Type: Bushes, wild grass, shrubs and trees (photo 7760).  <b>Comments:</b> Vegetation well established, showing no signs of distress.</p>
<p><u>Additional Information:</u>  <b>Comments:</b> As previously noted, sections of the top of dyke appear to intersect yards of adjacent residential properties.</p>	
Area behind the Dyke (immediately adjacent)	
<p><u>Predominant Material:</u>            Concrete    •    Asphalt    ✓            Earth    ✓    Grass    ✓            Other    ✓    Specify: Rough vegetation</p> <p><b>Condition Rating:</b> 4  <b>Comments:</b> Predominantly sparse to dense vegetation from St. 0+425 to 0+475. Asphalt (Raymond Avenue) borders the dyke from St. 0+475 to 0+600 (photo 7762). St. 0+600 to 0+766.8 consists of dense vegetation (trees, bushes, etc).</p>	<p><u>Drainage Conditions:</u> (ponding or low areas present)            Good    ✓    Poor    •  <b>Comments:</b> Although ponded water was not observed during the site visit (dry conditions), low lying areas were noted behind the dyke, in several areas.            Are catchbasins present?    Yes    ✓    No    •  <b>If yes, condition rating:</b> 4  <b>Comments:</b> Catchbasins located along roadway (Raymond Avenue) adjacent to dyke from St. 0+425 to 0+475.</p>
<p><u>Vegetation:</u>            None    •    Full    ✓    Partial    •            Type:  <b>Comments:</b> See above.</p>	<p><u>Accessibility:</u> (check for access areas behind the dyke only)            Sidewalks    •    Pathways    •    Roads    ✓    None    ✓  <b>Condition Rating (if present):</b> 4  <b>Comments:</b> Limited accessibility to areas of dyke adjacent to residential homes, where access is provided through rear yards only. Rating above relates to area of dyke adjacent to Raymond Avenue only.</p>
<p><u>Protective Barrier:</u>            Fence    ✓    Guard    •    None    ✓                Rail            Other    •    Specify:            If fence, list type and ownership (i.e. private or city): Privacy fencing borders the area behind the dyke from St. 0+425 to 0+470 (photo 7754) and St. 0+625 to 0+766.8.  <b>Condition Rating (if present):</b>  <b>Comments:</b></p>	<p><u>Illumination:</u> (check for lighting present behind the dyke)            Yes    ✓    No    •  <b>Condition Rating:</b> 4  <b>Comments:</b> Lighting standards present along Raymond Avenue, adjacent to the dyke from St. 0+475 to 0+600. No other lighting available over section reviewed.</p>
Storm Sewers/Sanitary Sewers/Outlet Structures	
<p>Yes    ✓    No    • (if no, proceed to next section)            If yes, type of structure (i.e. outlet, headwall, drainage pipe, channel or flush): Specify: Approximate 250mm diameter PVC drainage outlet near top of dyke at St. 0+700 (photo 7785). With the exception of sanitary manholes and catchbasins located along Raymond Avenue, no other structures were observed.  <b>Condition Rating:</b> 3  <b>Comments:</b> PVC appears damaged (photo 7785), however flow does not appear to be impeded.</p>	<p><u>Outlet:</u> (check for presence of gates or grates at the outlet)            Flap Gate    Yes    •    No    •            Safety Grate    Yes    •    No    •  <b>Condition Rating:</b>  <b>Comments:</b> Not applicable.</p>
<p><u>Outlet Flow:</u> (check for condition of channel downstream from pipe, obstructions within pipe, etc.)            Obstructions                      Yes    •    No    ✓            Downstream Erosion                      Yes    •    No    ✓  <b>Comments:</b> No signs of erosion immediately downstream of the drainage outlet, however concrete rubble is scattered and does not appear to be placed to provide for protection against erosion.</p>	<p><b>General Comments:</b></p>

**RATING SYSTEM**

- |   |                            |   |
|---|----------------------------|---|
| 1 | <i>Unsafe Condition</i>    | Structure (or element) in very poor or unsafe condition which may pose public safety hazard.  |
| 2 | <i>Poor Condition</i>      | Structure (or element) in poor condition with significant deterioration noted. Deteriorations noted may impact on integrity and may require significant capital cost to bring to fair to poor condition rating. No safety hazard noted. |
| 3 | <i>Fair/Poor Condition</i> | Structure (or element) condition varies from fair to poor with some signs of significant deterioration in localized areas. Able to perform function, but at reduced capacity.   |
| 4 | <i>Fair Condition</i>      | Structure (or element) in fair condition with no visible signs of significant deterioration. Able to perform intended function with no apparent hindrance.  |
| 5 | <i>Good Condition</i>      | Structure (or element) in good condition with minor deterioration. Able to perform intended function with no apparent hindrance.  |

OVERALL CONDITION RATING: 4  
0+000 TO 0+425



AS CONSTRUCTED NOTES	AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	DATE	BY	CONSULTANT OR DIVISION	ENGINEER'S STAMP	SCALE	TITLE	PROJECT No.
1. SEE DRAWING No. FOR FURTHER DETAILS			DESIGN	SITE REVIEW	SEPT. 04	S.J.	 <p>Stantec Consulting Ltd. 171 Queens Avenue London ON Canada N6A 5J7 Tel. 519.645.2007 Fax. 519.645.6575 www.stantec.com</p>		1:500	UPPER THAMES RIVER CONSERVATION AUTHORITY FLOOD CONTROL STRUCTURES BROUGHDALD DYKE	SHEET No.
2. SEWER DESIGN: WIDTH OR AS NOTED		DRAWN S.J.				5A					
3. REFERENCE B.M. ELEVATION		CHECKED N.O.				PLAN FILE No.					
		APPROVED									
		DATE SEPT. 2004									

