

Belle River Dyke Inspections
Summary of Observations

Street Address		Flood Protection		Notes
		Type	Condition	
145	West River	Concrete Wall	Deficient	Small gap in dyke between north termination of concrete wall and garden wall on north abutting property.
149	West River	Concrete Wall	Deficient	Gap in dyke at south termination of concrete wall associated with discontinuity of dyke at south abutting property.
153	West River	Raised Building Envelope	Uncertain	Apparent discontinuity in dyking along north property limit. Existing wood fence will complicate reinstatement of dyke.
163	West River	Raised Building Envelope	Deficient	Apparent discontinuity in dyking along north and south property limits. Recommended detail site assessment to determine full extent of deficiency and appropriate scope of repairs.
167	West River	Double-Retained Berm	Deficient	Apparent instability of boat slip shoreline contributing to settlement of backfill and double retained berm. Portions of retaining walls are leaning outward.
173	West River	Double-Retained Berm	Deficient	Settlement of retained fill (thickness of a brick). Minor outward lean to short segments of retaining wall.
183	West River	Earth Berm	Fair	Settlement of earth berm near transition to north abutting, double-retained berm.
625	Notre Dame	Concrete Wall	Deficient	No backflow valve at CB. Minor gap between concrete wall and berm near lookout. Shorewall appears reasonably stable. Some anchor rods are exposed and rusting. Minor settlement of concrete wall south of the old spillway.
188	First Street	Single-Retained Berm	Fair	Minor vertical deflection / heaving of retaining blocks, apparently due to roots of adjacent tree.
178	First Street	Earth Berm	Deficient	Berm elevation at long gravel paths (between edging stones) is low.
168	First Street	Double-Retained Berm	Fair	Minor settlement of retained fill.
154	First Street	Earth Berm	Deficient	Settlement behind existing SSP shorewall may indicate long term instability. Top elevation of berm is low (176.22-176.36m)
327	West River	Earth Berm	Fair	Minor settlement of berm at north property limit.
323	West River	Earth Berm	Fair	Minor settlement of berm at south property limit.
319	West River	Earth Berm	Deficient	Settlement of berms that abut boathouse.
309	West River	Earth Berm	Deficient	Minor localized settlement of berm.
301	West River	Earth Berm	Deficient	Minor settlement of berm at north property limit.
295	West River	Earth Berm	Deficient	Minor settlement of berm at south property limit.

BELLE RIVER FLOOD CONTROL PROJECT
BELLE RIVER DYKING INSPECTIONS

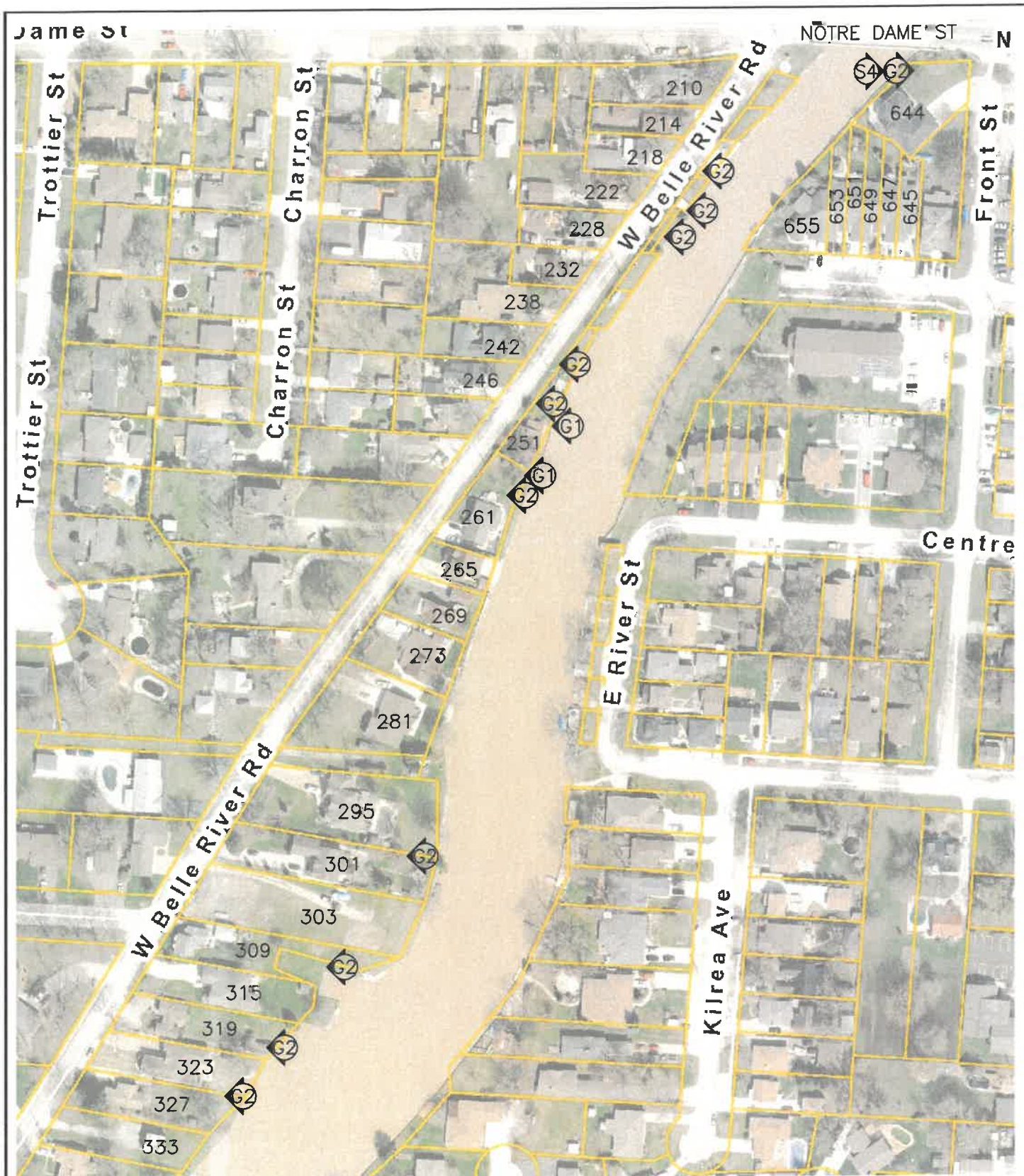
Landmark

Belle River Dyke Inspections
Summary of Observations

Street Address		Flood Protection		Notes
		Type	Condition	
261	West River	Earth Berm	Deficient	Settlement of earth berm at transition to double-retained berm.
		Double-Retained Berm	Deficient	Settlement of retained fill (thickness of one course of brick).
251	West River	Double-Retained Berm	Fair	General minor settlement of retained fill. Retaining walls have differentially settled between steps and concrete wall.
246	West River	Earth Berm	Deficient	Settlement of earth berm at transition to south abutting, double-retained berm.
242	West River	Earth Berm	Deficient	Settlement of earth berm within property limits.
228	West River	Earth Berm	Deficient	Settlement of earth berm over the majority of the property.
222	West River	Earth Berm	Deficient	Settlement of berms that abut boathouse.
218	West River	Earth Berm	Deficient	Settlement of earth berm within property limits.
644	Notre Dame	Earth Berm	Deficient	SSP fronting the site is severely corroded at and above the wale elevation. The dyking that was originally constructed at this site no longer exists. Lands lying north of the dwelling are too low to contain flood waters.
1726	Caille	Earth Berm	Deficient	Settlement of earth berm at transition to concrete wall.



Title DEFICIENCY LOCATION MAP (NORTH)	Date FEBRUARY 2019	FIGURE <div style="font-size: 2em; text-align: center;">1</div>
	Scale 1:2000	
Project BELLE RIVER FLOOD CONTROL PROJECT	Project No. 18-036	



Title	DEFICIENCY LOCATION MAP (SOUTH)
Project	BELLE RIVER FLOOD CONTROL PROJECT

Date	MARCH 7, 2019
Scale	1:2000
Project No.	18-036

FIGURE
2



167 West River St.

Description:

Minor settlement of fill in Double-Retained Berm section; some distorted and visibly unstable segments of retaining wall (i.e., leaning and/or loose bricks) and gaps at berm ends and transitions to adjacent structures.

Locations:

167, 173, 251 and 261 West River St.
168 and 188 First Street

Recommended Action:

Top up retained berms with soil; reconstruct severely distorted segments of retaining walls as required to restore stability.



251 West River St.



173 West River St.

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FIGURE 3



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT**

GENERAL DEFICIENCY - TYPE G1





319 West River St.

Description:

Low or discontinuous earth berm - probably due to settlement.

Locations:

183, 218, 222, 228, 242, 246, 261, 295,
301, 309, 319, 323 and 327 West River
Street
154, 178 First Street
644 Notre Dame Street
1726 Caille Avenue

Recommended Action:

Top dress / extend earth berms as
required to restore the design top of dyke
elevation of 176.48 m (based on GPS
datum).



323 West River St.



218 West River St.

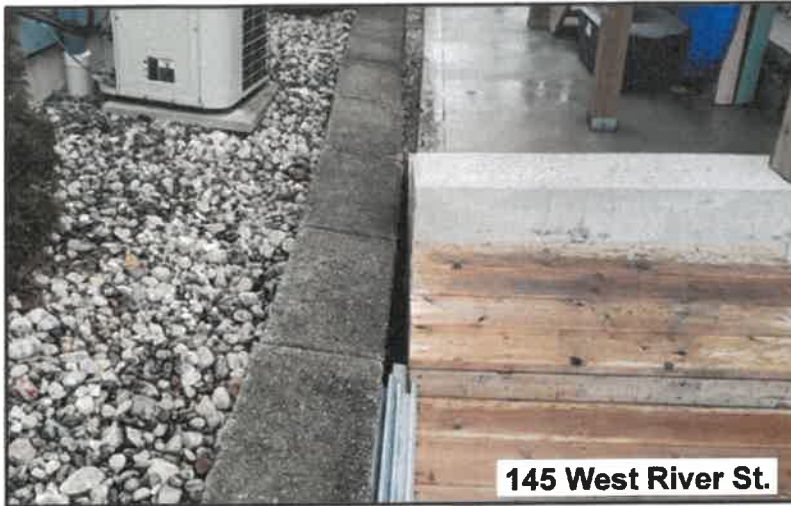
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FIGURE 4



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
GENERAL DEFICIENCY - TYPE G2**





Description:

Gap in dyke at termination of concrete walls and/or at transitions to other structures.

Locations:

145, 149 and 153 West River Street
625 Notre Dame Street

Recommended Action:

Fill gap with appropriate filler or backer material and reseal with caulking.



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FIGURE 5



BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
GENERAL DEFICIENCY - TYPE G3





Description:

Dyking is not continuous through adjacent properties. Concrete wall is abruptly terminated at property line, which will allow flood water to outflanking of the dyke and spill inland.

Location:

Property line between 149 and 153 West River Street.

Recommended Action:

Further assessment needs to be undertaken to determine most appropriate repair. (Possible solution would be removing existing fence, construct a curb matching top of wall and tying back into property)



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FIGURE 6



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
SITE SPECIFIC DEFICIENCY
LOCATION S1**





Description:

The dyking is not continuous on north and south sides of the new dwelling. Improper transitions to adjacent properties will allow floodwaters to outflank the dyke and spill inland.

Location:

163 West River Street

Recommended Action:

A more thorough evaluation of remedial options needs to be undertaken in consultation with affected property owners before an appropriate scope of repairs can be identified.



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FIGURE 7



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
SITE SPECIFIC DEFICIENCY
LOCATION S2**





Description:

The long-term stability of the SSP shorewall is unknown. Top elevation of berm is too low.

Location:

154 First Street

Recommended Action:

A more detailed assessment of this site is required to confirm the long-term stability of the shorewall before a proper scope of remedial measures can be identified.



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FIGURE 8



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
SITE SPECIFIC DEFICIENCY
LOCATION S3**





Description:

Dyking is non-existent on the north side of the dwelling. The absence of a dyke will allow floodwaters to spill inland. Numerous perforations noted in SSP wall.

Location:

644 Notre Dame Street

Recommended Action:

A more thorough evaluation of remedial options needs to be undertaken in consultation with affected property owners before an appropriate scope of repairs can be identified.



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FIGURE 9



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
SITE SPECIFIC DEFICIENCY
LOCATION S4**





Description:

Existing ditches are significantly fouled with woody vegetation and phragmites. Privately constructed drain enclosures and infills along Caille Avenue further compromise conveyance capacity.

Locations:

Lakefront drainage ditches immediately north of CN tracks along Lakeview Drive and Caille Avenue

Recommended Action:

Clear existing ditches of vegetation along both drains and compile inventory of encroachments along Caille Avenue.



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FIGURE 10



**BELLE RIVER FLOOD CONTROL PROJECT
INSPECTION REPORT
LAKEFRONT DRAINAGE
TYPICAL CONDITIONS**

