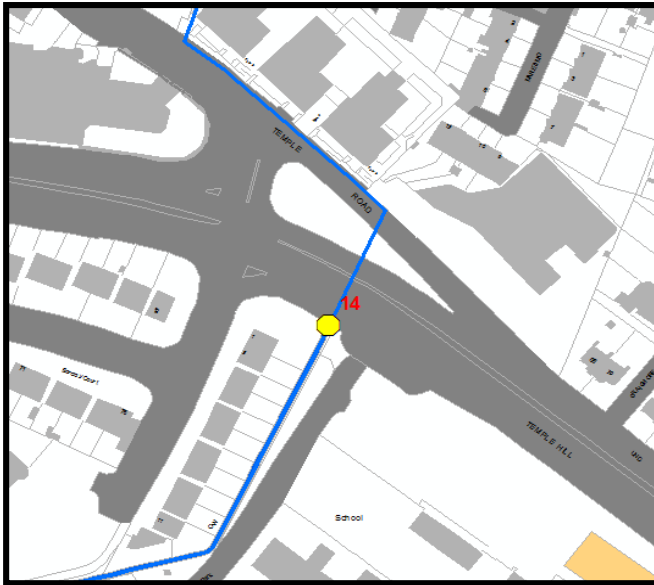


# STRUCTURE RISK ASSESSMENT

## LOCATION PLAN:



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## TEMPLE ROAD

Screen Blockage Likelihood : **HIGH**  
Blockage Severity: **HIGH**  
Risk: **HIGH**  
Assessment Date: **April 2014**

Contract: **2014s0927**  
Client: **Dun Laoghaire Rathdown County Council**

Asset Number: **14**  
Asset Name: **TEMPLE ROAD**  
XY Location (ING): **321704 229290**  
  
Watercourse Name: **Carysfort Maretimo**  
OPW Status: **High Priority**  
Hydrometric Area: **IE10**  
Flood History: **YES**

<b>Basic Structure Information</b>	The structure is a single span concrete box culvert with a two stage trash screen. The structure conveys the Carysfort Maretimo watercourse under the N31 Temple Hill/Temple Road, in Blackrock. Access is provided through a locked gate on the public road. The channel of the Carysfort Maretimo watercourse is heavily modified with concrete channel walls and an additional ten foot high masonry wall with railings on top. The high wall and railings limit public access to the watercourse and the ability to add debris to the channel. Prior to the installation of the trash screen there has been some history of blockage and flooding at the site. After installation of the trash screen there have been instances of large volumes of vegetation collecting and partially obscuring the screen.
<b>Requirement for a Screen</b>	A trash screen is necessary due to the sizing and orientation of the culvert to prevent larger debris from entering the structure, which could cause a blockage within the culvert and would be difficult to remove.
<b>Appropriateness of Screen</b>	The newly installed trash screen allows for access and maintenance but the likelihood for blockage remains unacceptably high due to the close bar spacing capturing large amounts of smaller vegetation debris, which could safely pass through the structure without issue. It is recommended to adjust the bar spacing to allow for a wider interval. Should blockage remain an issue then it may be necessary to implement CCTV and explore the option of an upstream pre-screen to reduce blockage risk.
<b>Likelihood of Screen Blockage</b>	The screen is subject to a history of partial obstructions related to the supply of vegetation from an upstream park. Man made sources of blockage are limited due to high local walls and railings. The likelihood of blockage remains high and a high level of maintenance along with a pre-screen may be advisable to catch additional debris. In its present configuration, the likelihood of blockage remains very high.
<b>Likelihood of Culvert Blockage</b>	The screen is located on the upstream face of the culvert so the likelihood of blockage of culvert is the same as that of the screen.

IS SCREEN APPROPRIATE? YES

LIKELIHOOD OF BLOCKAGE (L SCORE): HIGH (5)

RECOMMENDATIONS: WIDEN BAR SPACING, CONSIDER INSTALLING A PRE-SCREEN IF BAR SPACING NOT EFFECTIVE AND IMPLEMENT MONITORING/MAINTENANCE/EMERGENCY STRATEGY

## BLOCKAGE IMPACT:

Culvert blockage at this location would result in surcharging and significant overland flows resulting in impacts to 38 local properties and approximately 300m of the N31. Properties potentially impacted by the 1% AEP (100 year return period) flood are detailed in the table below and is presented visually in the mapping at the end of this report.

	Property No.	OPW Damage	Severity (S Score)	IMPACT	SCORE	Damage Value (€)
Residential	13	130,000		VERY LOW	1	0
Commercial	21	630,000		LOW	2	0 - 100,000
Combined	4	120,000		MODERATE	3	100,000 - 250,000
				HIGH	4	250,000 - 500,000
TOTAL	38	880,000	VERY HIGH (5)	VERY HIGH	5	>500,000

Note: Property damage is only calculated for depths above 0.1m and damage values (€) are taken from the OPW Minor Works assessment procedure.

# STRUCTURE RISK ASSESSMENT

## BLOCKAGE IMPACT CONTINUED:

IS CULVERT APPROPRIATELY DESIGNED? YES

RECOMMENDATIONS: WIDEN BAR SPACING, PRE-SCREEN IF APPROPRIATE, IMPLEMENT MONITORING/MAINTENANCE/EMERGENCY STRATEGY

## SITE PHOTOGRAPHS:



Upstream Face



Upstream View



Upstream View of Masonry Wall



Downstream View across Temple Road

## SUMMARY:

The two stage screen at the Temple Road structure is of recent construction and is designed with clear access to facilitate clearance. The high wall and palisade fencing ensures that risk of fly tipping is minimised. The current bar spacing configuration results in large amount of vegetation debris becoming trapped and it is recommended that the spacing be increased to catch only more significantly sized debris. Regular monitoring and adoption of a rigorous maintenance/blockage clearance strategy for the site is recommended. Should debris build up still prove to be problematic, consideration should be given to CCTV or installation of a pre-screen.

Should culvert blockage occur the overland flow route impacts 300m of the N31 and 38 properties as surcharging flows make their way over the N31 towards and flowing in the north westerly direction overland towards the Irish Sea. The Dart line is also potentially impacted. Culvert design is considered to be appropriate in terms of sizing and configuration; blockage likelihood can be managed by monitoring and maintenance measures.

**OVERALL RISK (LxS): 25 – HIGH RISK**

**ACTION: WIDEN BAR SPACING & MONITORING/MAINTENANCE/EMERGENCY STRATEGY**

Risk Factor		Likelihood of Blockage (L)				
Blockage Severity (S)	5	25	20	15	10	5
	4	20	16	12	8	4
	3	15	12	9	6	3
	2	10	8	6	4	2
	1	5	4	3	2	1

KEY
LOW RISK
MODERATE RISK
HIGH RISK

## BLOCKAGE IMPACT ANALYSIS: 1% AEP (100 year) flow:



Note: Property damage is only calculated for depths above 0.1m

### Legend

#### BUILDING\_USE

- ◇ Combined
- ◇ Commercial
- ◇ Residential
- ◇ Unknown
- Screen\_Locations
- River\_Centrelines

▨ Outside LIDAR/Study Extent

#### Depth (m)

- 0 - 0.1
- 0.11 - 0.25
- 0.26 - 0.5
- 0.51 - 1
- 1.01 - 2
- 2.01 - 10

### REPORT SIGN OFF:

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