

# AIMSOIR

## CONDITION ASSESSMENT Guidelines

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### Asset Class: SWC

### Stormwater Collection

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## Introduction

This is a supplementary document to the AIMS OIR spreadsheet tool. It is to be used as a guideline for the condition assessment of infrastructure. The document is based on the assessment categories developed by the Province of Nova Scotia and is adjusted to accommodate the requirements of the AIMS OIR spreadsheet tool.

Condition rates need to be captured in values from 1 to 5 with a general rating scheme as shown below.

<b>Rating</b>	<b>Condition</b>
1	Very good
2	Good
3	Fair
4	Poor
5	Very poor

Detail description of the ratings for each asset type (feature code) is described in detail in the tables below.

## 1. GRAVITY PIPE - GPSW

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	GRAVITY PIPE		GPSW		
FEATURE CODE:	GRAVITY PIPE		GRVPST		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Cracking and Joint Displacement (if no CCTV available, not applicable; leave blank)</b>	None	Minor, no infiltration evident	Minor, some seepage evident.	significant cracking and/or joint displacement.  Significant infiltration	excessive cracking and/or joint displacement. Excessive infiltration. Pipe collapse imminent
<b>Pipe Material</b>	PVC, HDPE, Concrete		Corrugated Steel		
<b>Visible blockage by sediment</b>	None	<10% of diameter	10% to 20% of diameter	20% to 50% of diameter	Over 50% of diameter

## 2. MANHOLE - MHSW

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	MANHOLE		MHSW		
FEATURE CODE:	MANHOLE		MHST		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Material</b>	Concrete				Brick
<b>Appearance</b>	Excellent condition. No signs of concrete/brick damage, cover and frame look great. No leaking evident.	Good condition. No visual concrete/brick damage, minor signs of wear on cover and frame. No leaking evident.	Fair condition. Minor concrete/brick damage no gaps or exposed rebar, minor cracking on frame and cover. Evidence of leaking along walls or pipe penetrations.	Poor condition. Significant concrete/brick damage with cracks greater than 6mm. Cracks greater than 6mm or missing pieces from frame and cover. Significant leaks along walls or pipe penetrations.	Very poor - critical condition. Excessive concrete/brick damage, exposed rebar, frame and cover missing or not safe for use. Soil penetrating walls or pipe penetrations.

### 3. PRESSURE SEWER PIPE - GPSW

<b>ASSET CLASS:</b>	<b>STORMWATER COLLECTION</b>		<b>SWC</b>		
<b>SUBTYPE:</b>	<b>PRESSURE SEWER PIPE</b>		<b>GPSW</b>		
<b>FEATURE CODE:</b>	<b>PRESSURE SEWER PIPE</b>		<b>SWFRCM</b>		
<b>Distress Mode</b>	<b>Rating 1</b>	<b>Rating 2</b>	<b>Rating 3</b>	<b>Rating 4</b>	<b>Rating 5</b>
<b>Age</b>	< 15 Years	≥ 15 and < 30 Years	≥ 30 and < 45 Years	≥ 45 and < 60 Years	≥ 60 Years
<b>Pipe Material</b>	PVC, HDPE or Ductile Iron		Asbestos Concrete		Cast Iron
<b>Number of Leaks per Year</b>	No Leaks	< 1 leak per Year	1 leak per Year	2 leaks per Year	> 2 leaks per Year

### 4. LIFT STATION - LFS

<b>ASSET CLASS:</b>	<b>STORMWATER COLLECTION</b>		<b>SWC</b>		
<b>SUBTYPE:</b>	<b>LIFT STATION</b>		<b>LFS</b>		
<b>FEATURE CODE:</b>	<b>LIFT STATION</b>		<b>LIFT</b>		
<b>Distress Mode</b>	<b>Rating 1</b>	<b>Rating 2</b>	<b>Rating 3</b>	<b>Rating 4</b>	<b>Rating 5</b>
<b>Pump Age</b>	<5 Years	≥ 5 and < 10 Years	≥ 10 and <15 Years	≥ 15 and < 20 Years	≥ 20 Years
<b>Interior Wet Well Condition</b>	Excellent condition. No signs of concrete damage, paint on piping and valves looks great. No leaking evident.	Good condition. No visual concrete damage, minor rusting on piping and valves. No leaking evident.	Fair condition. Minor concrete damage, some rusting of piping and valves. Minor leaking visible when pumps running	Poor condition. Significant concrete damage, significant rusting of piping and valves. Still operable. Significant leaking visible when pumps running	Very poor - critical condition. Excessive concrete damage, exposed rebar, major rusting of piping and valves inoperable. Excessive leaking visible when pumps running
<b>Exterior Condition</b>	Excellent condition. No signs of concrete damage, hatch, control panel enclosure and vent piping looks great	Good condition. No visual signs of concrete damage, hatch, control panel enclosure and vent piping looks good.	Fair condition. Minor concrete damage, hatch, control panel enclosure and vent piping still serviceable.	Poor condition. Significant concrete damage, hatch & control panel enclosure have broken or missing parts but is still operable. vent piping significantly deteriorated.	Very poor condition. Excessive concrete damage, hatch & control panel enclosure not lockable and hinges broken, vent piping excessively deteriorated
<b>Mechanical Fault Outages</b>	0 per Year	1 per Year	3 per Year	3-5 per Year	>5 per Year

## 5. CATCH BASIN – CBN

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	CATCH BASIN		CBN		
FEATURE CODE:	CATCH BASIN		CB		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<i>Material</i>	Concrete				Brick
<i>Age</i>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<i>Appearance</i>	Excellent condition. No signs of concrete/brick damage, cover and frame look great. No leaking evident.	Good condition. No visual concrete/brick damage, minor signs of wear on cover and frame. No leaking evident.	Fair condition. Minor concrete/brick damage no gaps or exposed rebar, minor cracking on frame and cover. Evidence of leaking along walls or pipe penetrations.	Poor condition. Significant concrete/brick damage with cracks greater than 6mm. Cracks greater than 6mm or missing pieces from frame and cover. Significant leaks along walls or pipe penetrations.	Very poor - critical condition. Excessive concrete/brick damage, exposed rebar, frame and cover missing or not safe for use. Soil penetrating walls or pipe penetrations.
<i>Sump</i>	<25% accumulation in sump		50-75% accumulation in sump		No sump present, or >75% accumulation in sump

## 6. DRAINAGE CHANNEL – DRC

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	DRAINAGE CHANNEL		DRC		
FEATURE CODE:	GUTTER		RRGT		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<i>Age</i>	<15 Years	≥15 and <30 Years	≥30 and <45 Years	≥45 and <60 Years	≥60 Years
<i>Surface Condition (concrete)</i>	Like new. No signs of surface wear, spalling, cracking, heave or settlement. All control & expansion joints are in good shape and edges are intact	Good Condition. Occasional cracks <10mm, slight signs of surface wear, slight spalling or scaling. Some isolated patches in good condition. Occasional settlement <25mm vertical.	Moderate spalling and scaling, frequent patches in good condition. Moderate longitudinal cracks extending across control joints of about 30% to 40% of length. Faulting (i.e vertical surface drop) <25mm vertical in about 10% to 20% of slabs.	Up to 50% of slabs have severe chipping or spalling. Moderate cracks (10 to 20mm) extending continuously across a few slabs, slabs faulting 25mm or more. Large number of patch work in fair condition.	All the previous mentioned defects are in severe condition, poor drainage and extensive patching that is in poor condition.

## 7. INLET & OUTLET – INO

<b>ASSET CLASS: STORMWATER COLLECTION</b>		<b>SWC</b>			
<b>SUBTYPE: INLET &amp; OUTLET</b>		<b>INO</b>			
<b>FEATURE CODE: INLET &amp; OUTLET</b>		<b>IO</b>			
<b>Distress Mode</b>	<b>Rating 1</b>	<b>Rating 2</b>	<b>Rating 3</b>	<b>Rating 4</b>	<b>Rating 5</b>
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Material</b>	Concrete/PVC/HDPE		Corrugated Steel		Wood
<b>Corrosion / Denting / Spalling</b>	Excellent condition. No signs of damage,	Good condition. No visual damage aside from minor deformation or chipped concrete with no rebar exposed.	Fair condition. Any of: Visible damage, dents, corrosion or spalling to 10% of pipe.	Poor condition. Any of: Visible damage, dents, corrosion or spalling to 50% of pipe.	Very poor - critical condition. Any of: Damage, dents, corrosion through pipe wall or spalling with exposed rebar,
<b>Riprap Protection / Headwall</b>	Handrails and trash racks in place. Rock protection in place. No damage to headwall.	Minor signs of wear on handrails and trash racks. Some sloughing in riprap protection. Surficial cracking, spalling on headwall	Minor damage to handrails and trash racks. Small visible gaps in riprap protection. Cracks greater than 6mm wide or spalling greater than 6mm deep in headwall.	Significant damage to handrails and trash racks, sloughing of riprap protection with visible bank erosion. Cracks greater than 12mm wide or spalling greater than 12mm deep in headwall.	Handrails not solid or broken, trash racks missing or blocked. Riprap protection not present . Cracks greater than 25mm wide or spalling that exposes rebar in headwall.
<b>Sedimentation/ Vegetation Buildup</b>	None	<10% of diameter	10% to 20% of diameter	20% to 50% of diameter	Over 50% of diameter



## 8. CULVERT - CUL

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	CULVERT		CUL		
FEATURE CODE:	CULVERT		CLVT		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Roadway</b>	No deterioration	Dip in asphalt above culvert	Single transverse crack above culvert	Alligator cracking and dip in asphalt above culvert	Pothole or sinkhole above culvert
<b>Culvert Material</b>	Concrete/HDPE		Corrugated Metal		Timber
<b>General Appearance</b>	Excellent condition. No signs of damage, No leaking evident	Good condition. No visible damage, minor signs of wear/age.	Fair condition. Minor concrete spalling / CMP corrosion / HDPE/PVC cracking.	Poor condition. significant concrete spalling / CMP corrosion / HDPE/PVC cracking.	Very Poor condition. Excessive concrete spalling / CMP corrosion / HDPE/PVC cracking.
<b>Blockage</b>	None	<10% of diameter	10% to 20% of diameter	20% to 50% of diameter	Over 50% of diameter
<b>Inlet/outlet condition</b>	Excellent Condition. No damage, riprap intact	Good condition. No visual damage, Some sloughing in riprap protection	Fair condition. Any of: Visible damage to approximately 10% of pipe, small visible gaps in rock protection.	Poor condition. Any of: Visible damage or corrosion to 50% of pipe, sloughing of riprap protection with visible bank erosion.	Very poor - critical condition. Any of: Damage or corrosion on the majority of the pipe, erosion protection not present with evidence of erosion.

## 9. DRAINAGE CHANNEL - DRC

ASSET CLASS:	STORMWATER COLLECTION		SWC		
SUBTYPE:	DRAINAGE CHANNEL		DRC		
FEATURE CODE:	DRAINAGE CHANNEL		DRCH		
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Vegetation/Clearing</b>	Vegetation trimmed, channel flows freely	Vegetation growth on bank but channel flows freely.	Vegetation in channel or debris / sediment buildup evident in channel. Blockages cause pooling in channel.	Thick vegetation in channel, trees / roots growing into channel, Channel section is still visible.	Thick vegetation in channel, trees / roots growing into channel, Channel not easily visible.
<b>Erosion/Bank Sloughing</b>	None	Some erosion at channel bends	Significant erosion at channel bends, some erosion on straight sections	Bank sloughing is evident over 50% of channel banks. Erosion encroaching on adjacent trails, roads, fences, etc.	Erosion undermining adjacent trails, roads, fences etc.
<b>Size</b>	OHWL 600mm below bank	OHWL 300mm below bank	OHWL at bank	Channel overtops bank in large storms	Channel overtops bank several times per year

Note: Original High Water Mark (OHWM) is the depth where thick vegetation is growing.

## 10. POND - PND

<b>ASSET CLASS:</b>	<b>STORMWATER COLLECTION</b>		<b>SWC</b>		
<b>SUBTYPE:</b>	<b>POND</b>		<b>PND</b>		
<b>FEATURE CODE:</b>	<b>POND</b>		<b>PND</b>		
<b>Distress Mode</b>	<b>Rating 1</b>	<b>Rating 2</b>	<b>Rating 3</b>	<b>Rating 4</b>	<b>Rating 5</b>
<b>Vegetation / Clearing</b>	Clear access to pond. No overgrown paths or equipment	Vegetation beginning to encroach on access to the pond site	Moderate vegetation growth. Access to site starting to become restricted	Significant vegetation growth which impedes access to the pond site	Access to pond site not possible.
<b>Erosion/Bank Sloughing</b>	No sloughing.	Sloughing on 10% of the bank.	Sloughing on 10 - 20% of bank	Sloughing up to 50% of bank.	Sloughing on over 50% of the bank
<b>Garbage Accumulation</b>	None		Minor debris in pond, no blockage of inlet or outlet		Significant debris causing blockage of inlet and outlet.
<b>Sediment Accumulation (wet pond)</b>	> 80% remaining volume capacity	60% to 80% of remaining volume capacity	40% to 60% of remaining volume capacity	20% to 40% remaining volume capacity	<20% remaining volume capacity
<b>Water Level Issues</b>	None		Standing water in pockets in bottom of pond, Outlet partially blocked.		Permanent pool in bottom of pond, sediment blockage at outlet, anecdotal reports of overtopping.
<b>Damaged Fencing or Concrete</b>	No observed damage to perimeter fencing or concrete	Minor damage to fencing or concrete. Structure remains in good working order.	Moderate damage to fencing or concrete. Structure performance is degraded but functional.	Considerable damage to fencing or concrete. Structural performance compromised. Fencing can be moved by hand.	Areas of fencing missing or collapsed. Posts broken or detached from foundation.
<b>Beaver Activity</b>	None				Beaver dam impeding pond flow

## 11. TREATMENT DEVICE - TRD

ASSET CLASS:		STORMWATER COLLECTION		SWC	
SUBTYPE:		TREATMENT DEVICE		TRD	
FEATURE CODE:		TREATMENT DEVICE		TRMTD	
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Appearance</b>	Excellent condition. No signs of concrete/brick damage, cover and frame look great. No leaking evident.	Good condition. No visual concrete/brick damage, minor signs of wear on cover and frame. No leaking evident.	Fair condition. Minor concrete/brick damage no gaps or exposed rebar, minor cracking on frame and cover. Evidence of leaking along walls or pipe penetrations.	Poor condition. Significant concrete/brick damage with cracks greater than 6mm. Cracks greater than 6mm or missing pieces from frame and cover. Significant leaks along walls or pipe penetrations.	Very poor - critical condition. Excessive concrete/brick damage, exposed rebar, frame and cover missing or not safe for use. Soil penetrating walls or pipe penetrations.
<b>Sediment Accumulation</b>	<25% accumulation		50-75% accumulation		>75% accumulation
<b>Hydrocarbon Accumulation</b>	<25% accumulation		50-75% accumulation		>75% accumulation

## 12. UNDERGROUND STORAGE - UST

ASSET CLASS:		STORMWATER COLLECTION		SWC	
SUBTYPE:		UNDERGROUND STORAGE		UST	
FEATURE CODE:		UNDERGROUND STORAGE		UGS	
Distress Mode	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
<b>Age</b>	< 15 years	≥ 15 and < 35 years	≥ 35 and < 55 years	≥ 55 and < 80 years	≥ 80 years
<b>Appearance</b>	Excellent condition. No signs of concrete/brick damage, cover and frame look great. No leaking evident.	Good condition. No visual concrete/brick damage, minor signs of wear on cover and frame. No leaking evident.	Fair condition. Minor concrete/brick damage no gaps or exposed rebar, minor cracking on frame and cover. Evidence of leaking along walls or pipe penetrations.	Poor condition. Significant concrete/brick damage with cracks greater than 6mm. Cracks greater than 6mm or missing pieces from frame and cover. Significant leaks along walls or pipe penetrations.	Very poor - critical condition. Excessive concrete/brick damage, exposed rebar, frame and cover missing or not safe for use. Soil penetrating walls or pipe penetrations.
<b>Sediment / Garbage Accumulation</b>	<10% accumulation		10-25% accumulation		>25% accumulation