CCTV Inspections
Housatonic River Levee System
Derby, CT
August-September 2010

FOR:

Milone and MacBroom
99 Realty Drive
Cheshire, CT 06410

HEITKAMP

NEPCCO Division Heitkamp, Inc.
99 Callender Road
Watertown, CT 06795
Phone: (860) 274-5469
Fax: (860) 945-3219

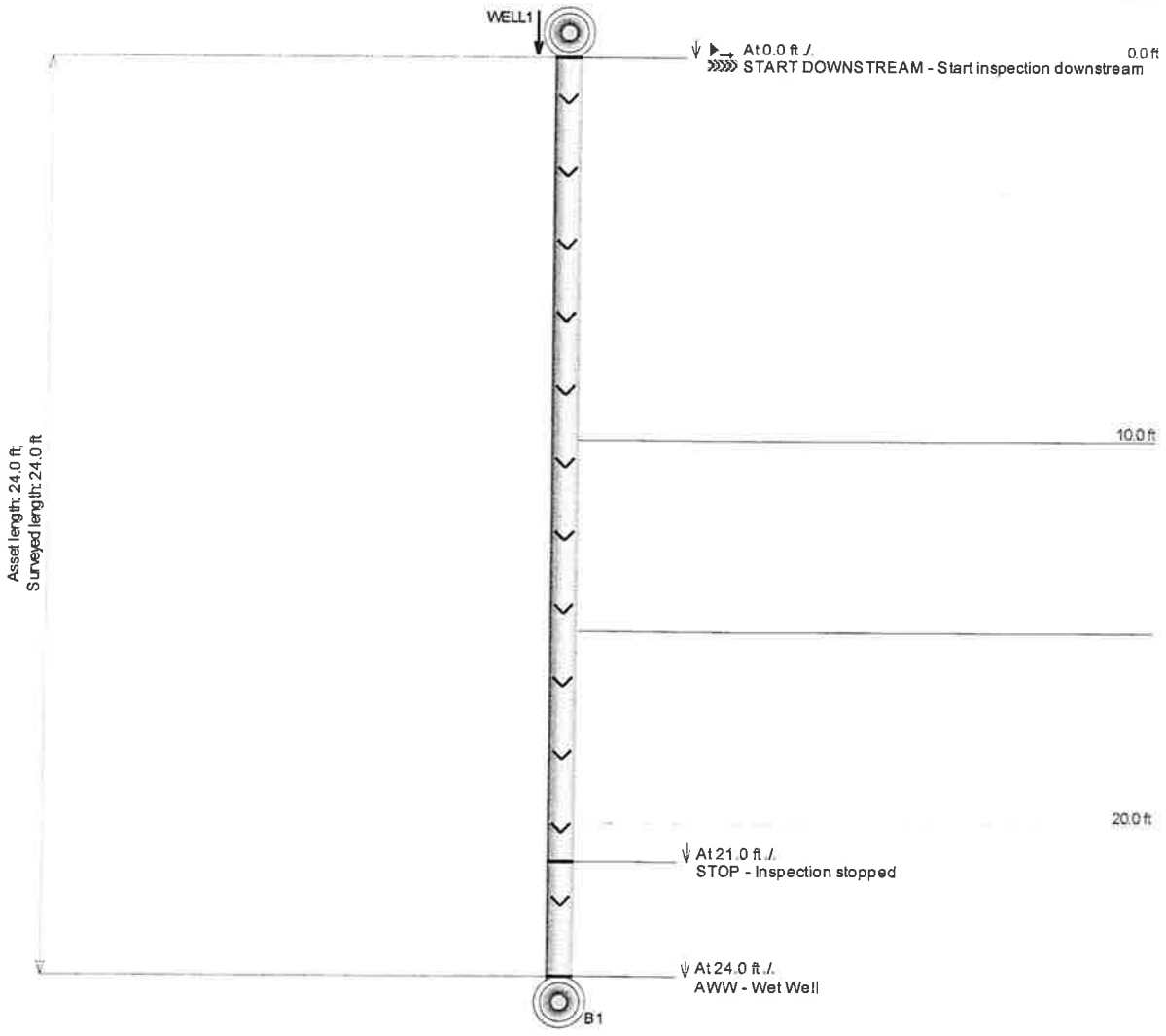
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL1/B1	DERBY CT	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	24.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL1/B1	2010/09/02	12:57	DERBY SHEET 15	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL1			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B1					D		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			24.0	24.0			450-4 VTR 0:00:00-0:02:50

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
24.0	173	AWW											WELL1

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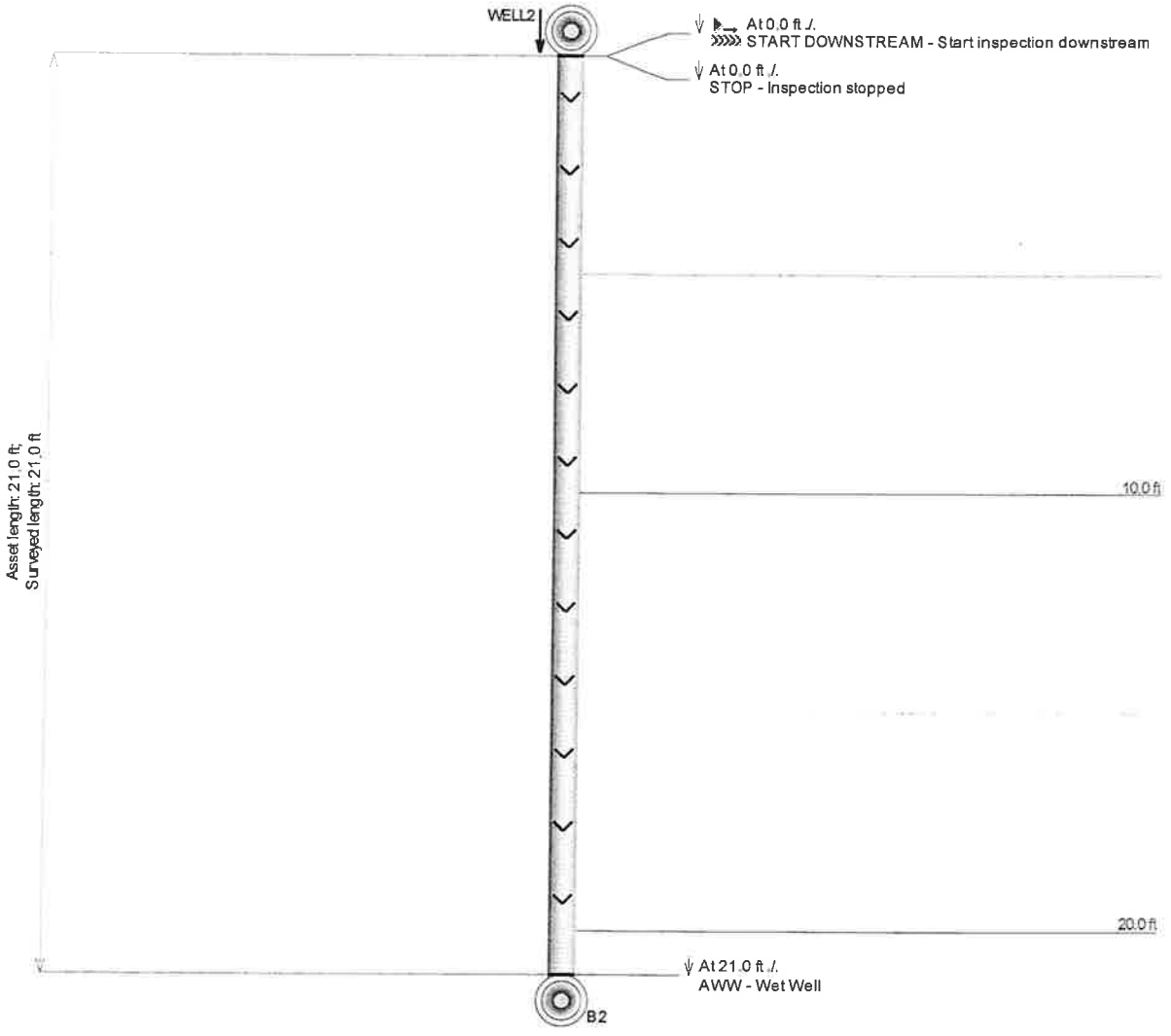
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL2/B2	DERBY	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	21.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL2/B2	2010/09/02	13:05	DERBY SHEET 15	DERBY

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL2			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B2					D		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			21.0	21.0			450-4 VTR 0:02:50-0:05:31

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
21.0	169	AWW											WELL2

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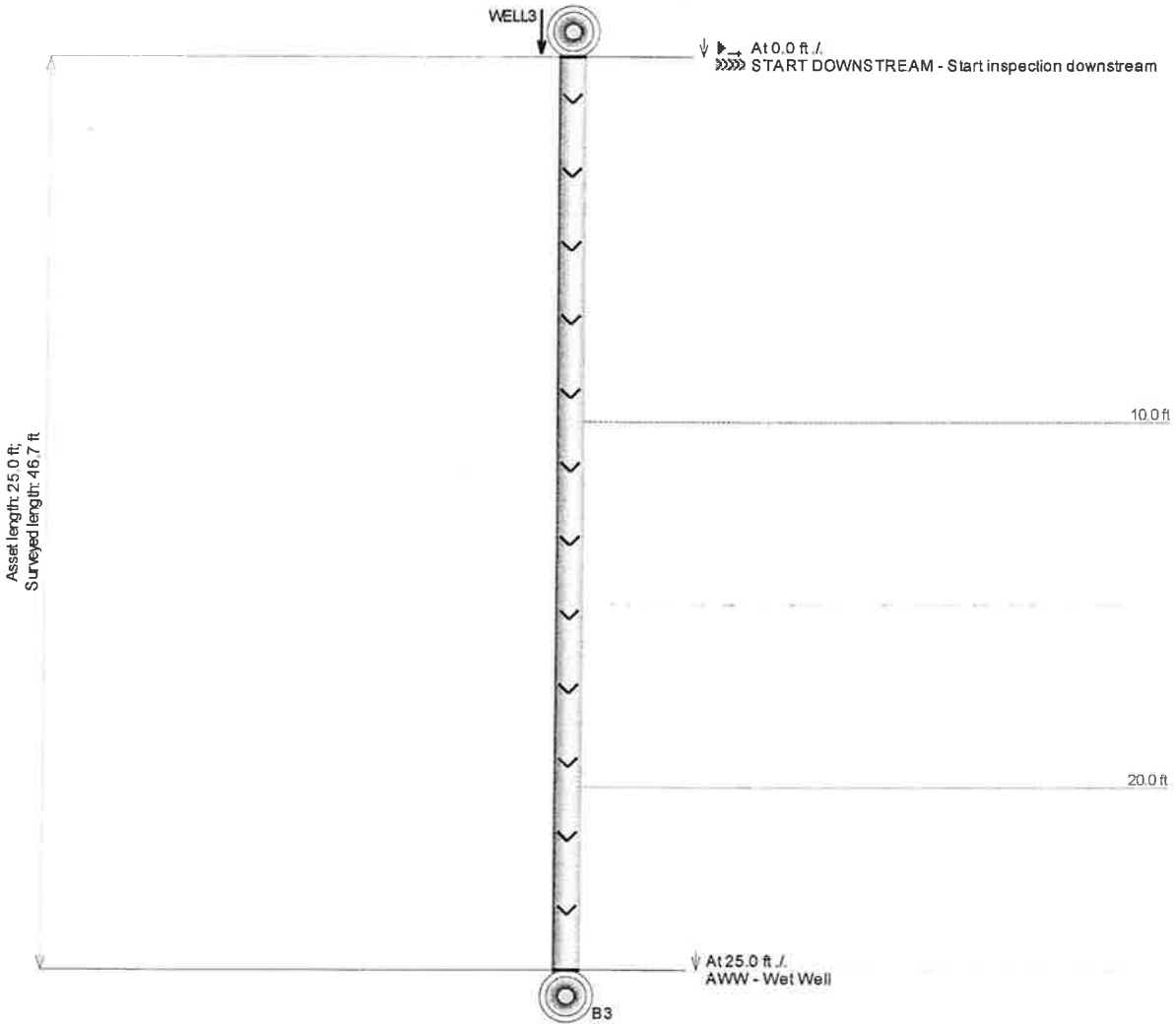
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL3/B3	DERBY CT	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	46.7		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL3/B3	2010/09/02	13:14	DERBY SHEET 15	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL3			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B3					D		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			25.0	46.7			450-4 VTR 0:05:31-0:08:38

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	Value %	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
25.0	148	AWW											WELL3

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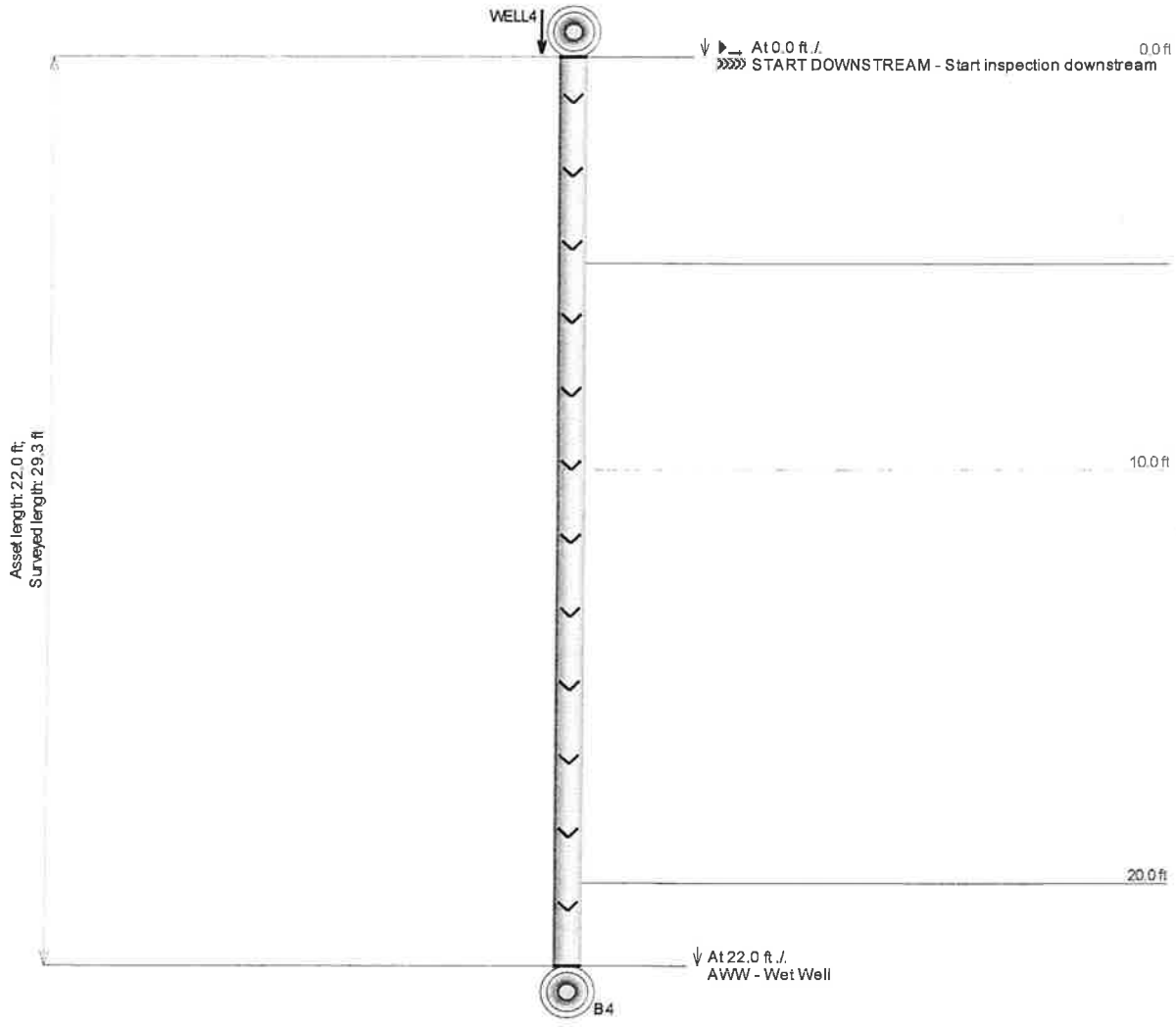
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL4/B4	DERBY CT	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	29.3		



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Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL4/B4	2010/09/02	13:22	DERBY SHEET 15	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL4			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B4					D		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			22.0	29.3			450-4 VTR 0:08:38-0:10:45

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	Value %	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
22.0	131	AWW											WELL4

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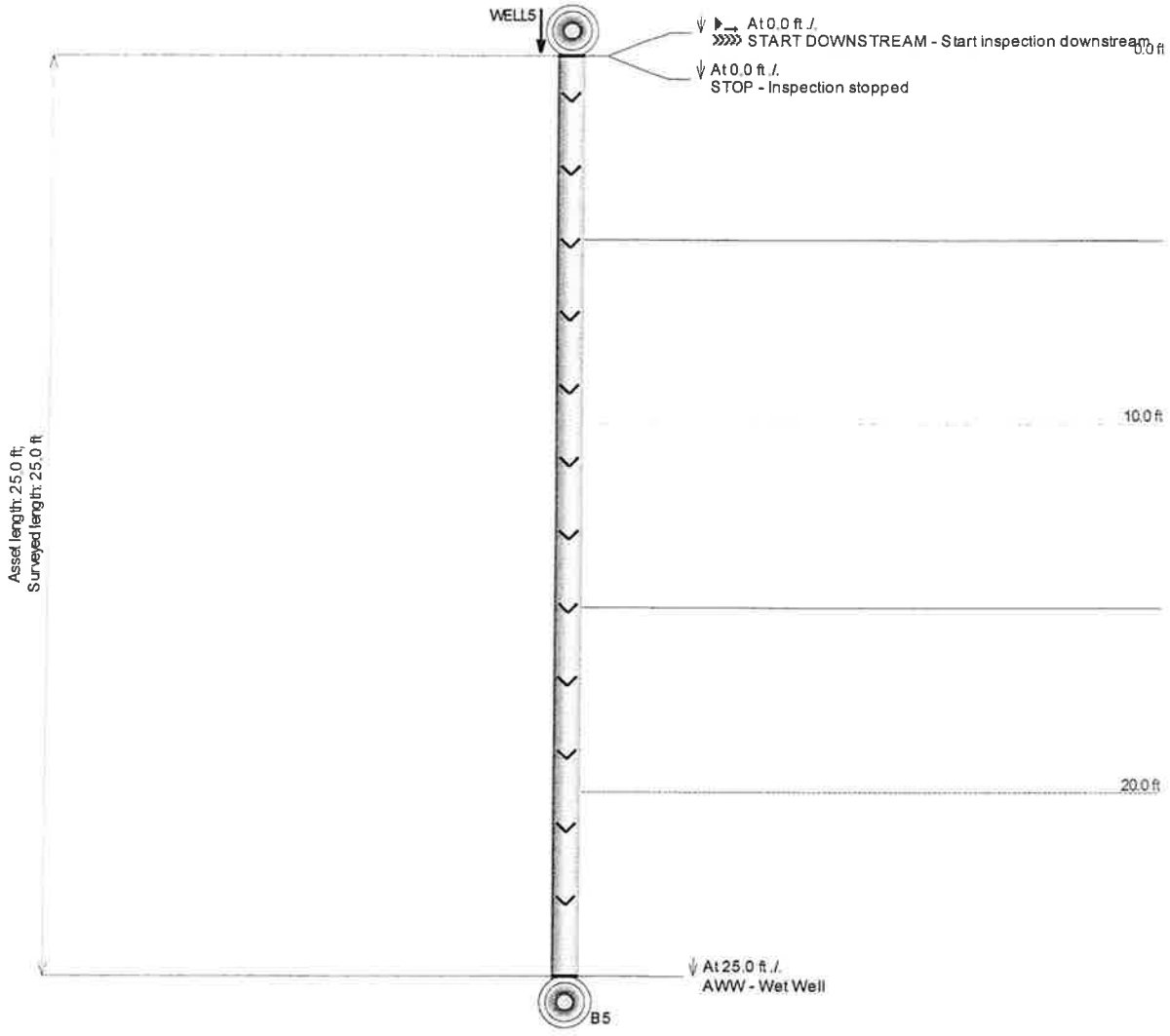
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL5/B5	DERBY CT	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		8	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	25.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL5/B5	2010/09/02	13:30	DERBY SHEET 15	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL5			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B5					D		8

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			25.0	25.0			450-4 VTR 0:10:45-0:14:17

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
25.0	216	AWW											WELL5

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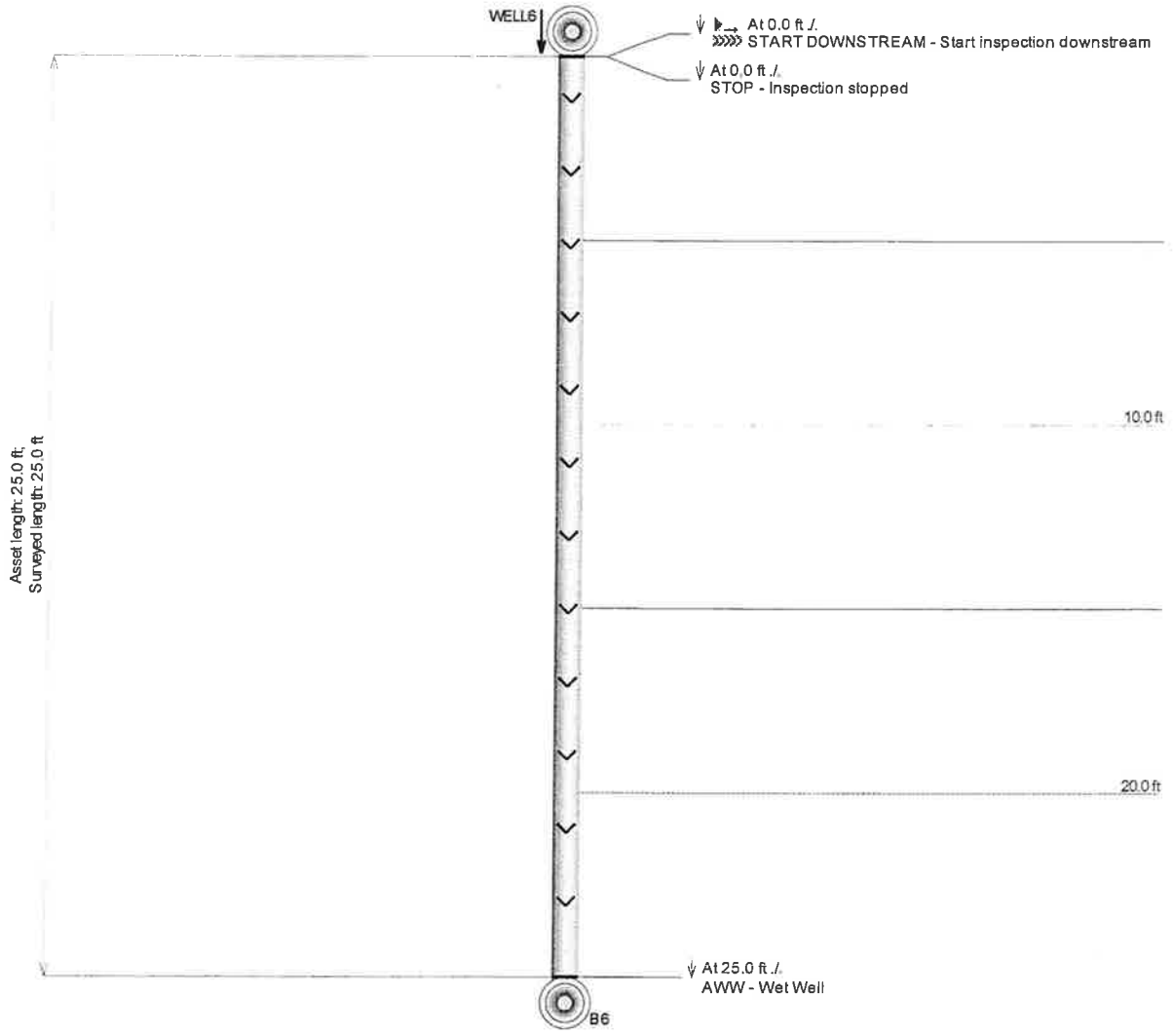
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	WELL6/B6	DERBY CT	DERBY SHEET 15

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/2/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	25.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	WELL6/B6	2010/09/02	13:45	DERBY SHEET 15	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	WELL6			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
B6					D		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			25.0	25.0			450-4 VTR 0:14:17-0:16:16

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/02			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
25.0	124	AWW											WELL6

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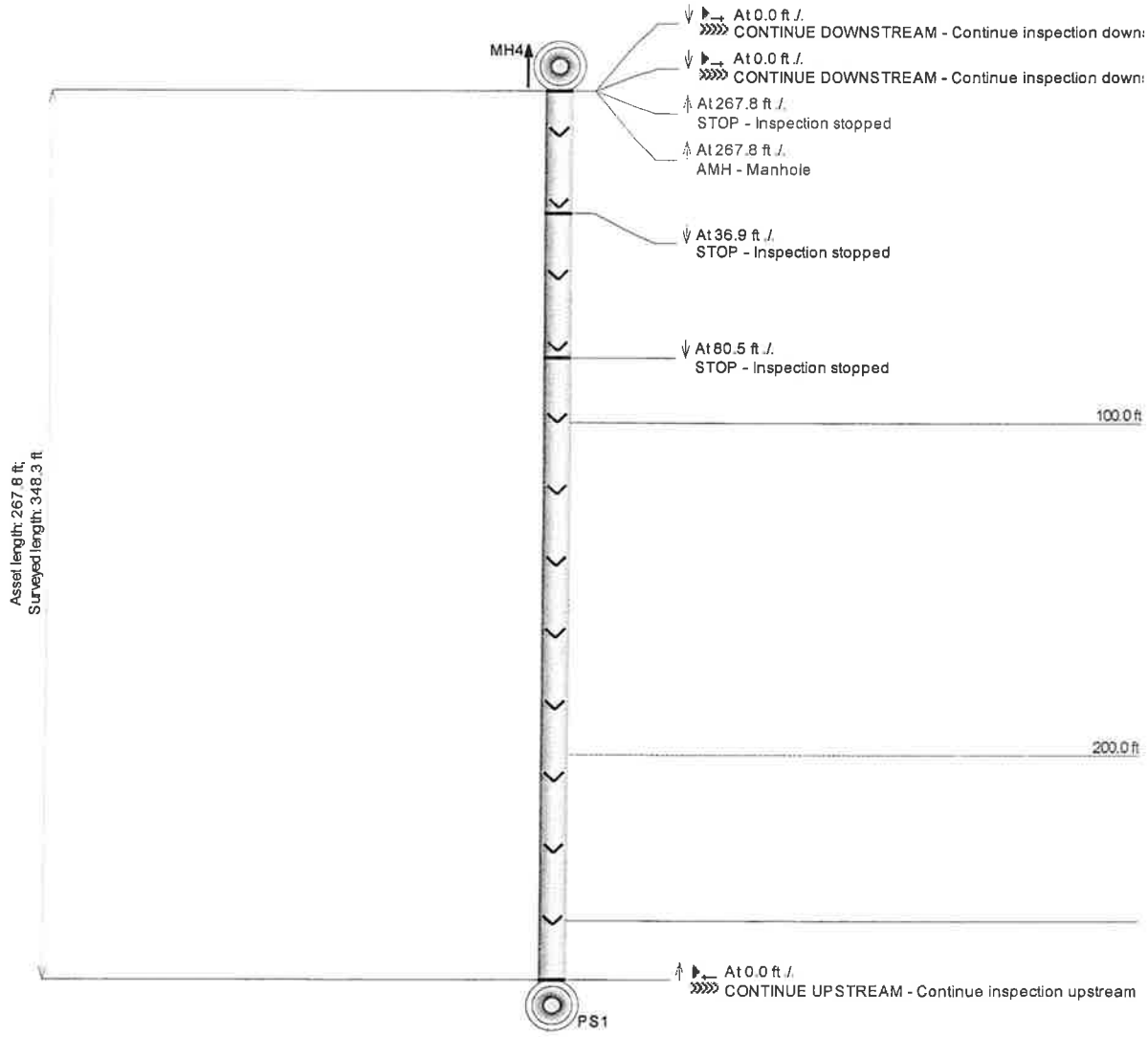
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH4/PS1	DERBY CT	DERY SHEET 53

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/3/2010		42	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	348.3		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH4/PS1	2010/09/03	07:37	DERY SHEET 53	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH4			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
PS1					U		42

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			267.8	348.3			450-4 VTR 0:16:15-/0:25:41-/450-5-0:50:00

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
267.8	179	AMH											MH4

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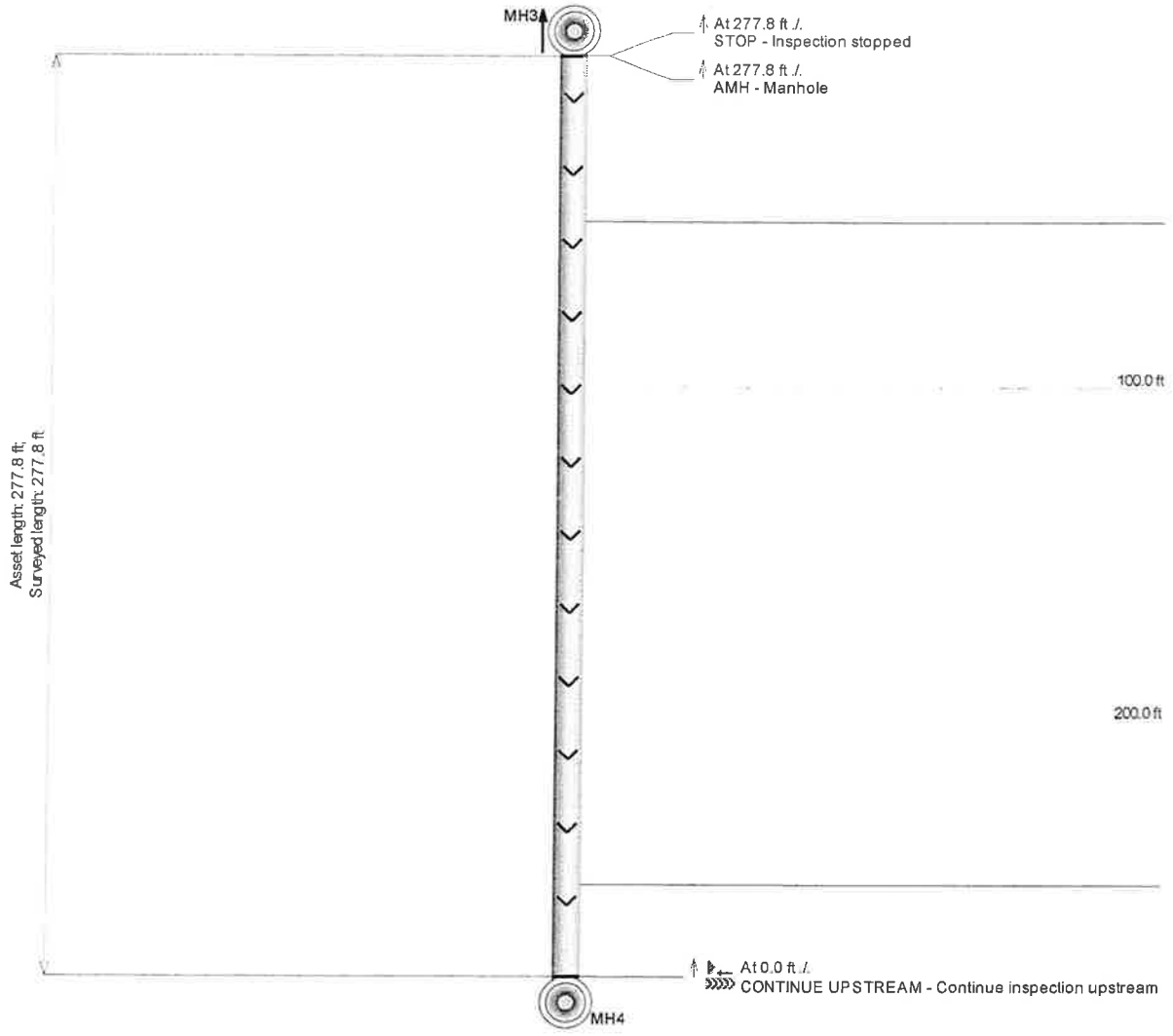
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH3/4	DERBY CT	DERBY SHEET 52

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/3/2010		36	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	277.8		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH3/4	2010/09/03	08:16	DERBY SHEET 52	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH3			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH4					U		36

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP		5.0	277.8	277.8			450-4 VTR 0:18:44-0:25:41

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		J	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
277.8	418	AMH											MH3

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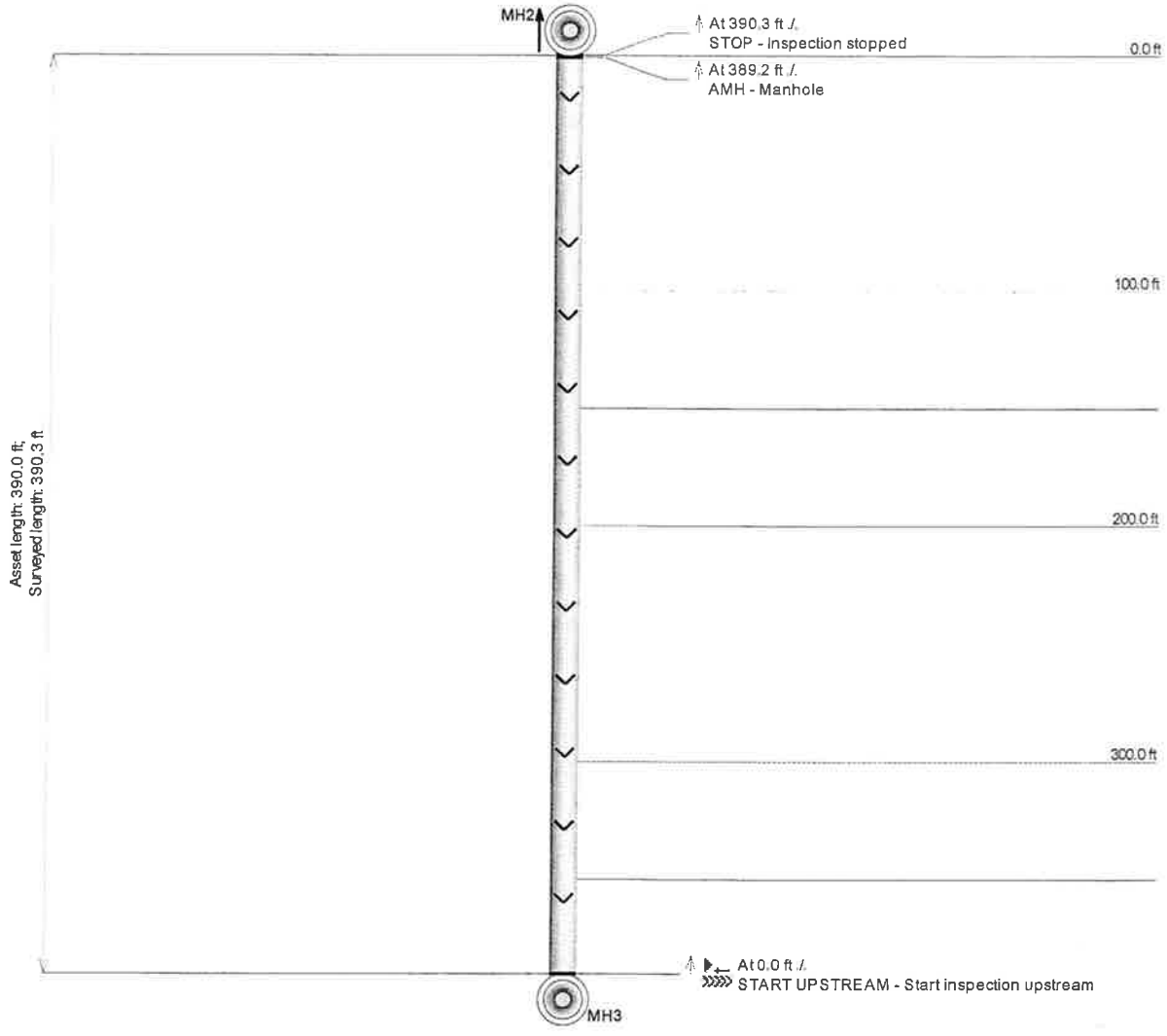
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH2/3	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		18	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	390.3		



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Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH2/3	2010/09/15	10:15	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH2			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH3					U		18

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			390.0	390.3			450-5 VTR 0:00:00-0:13:56

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
389.2	851	AMH											MH2

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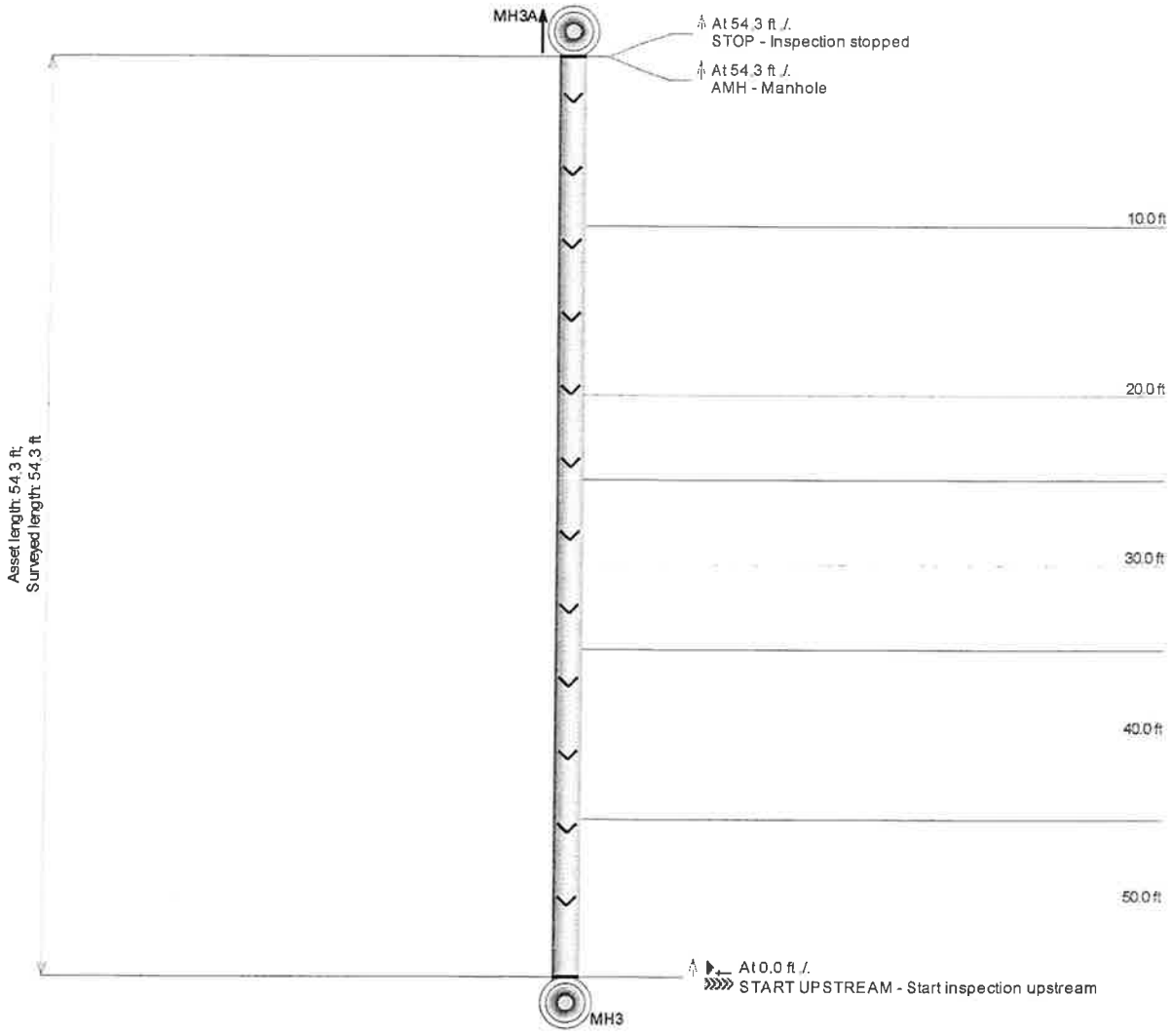
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH3A/3	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		15	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	54.3		



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JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH3A/3	2010/09/15	11:23	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH3A			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH3					U		15

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			54.3	54.3			450-5 VTR 0:13:56-0:16:10

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N				

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
54.3	140	AMH											MH3A

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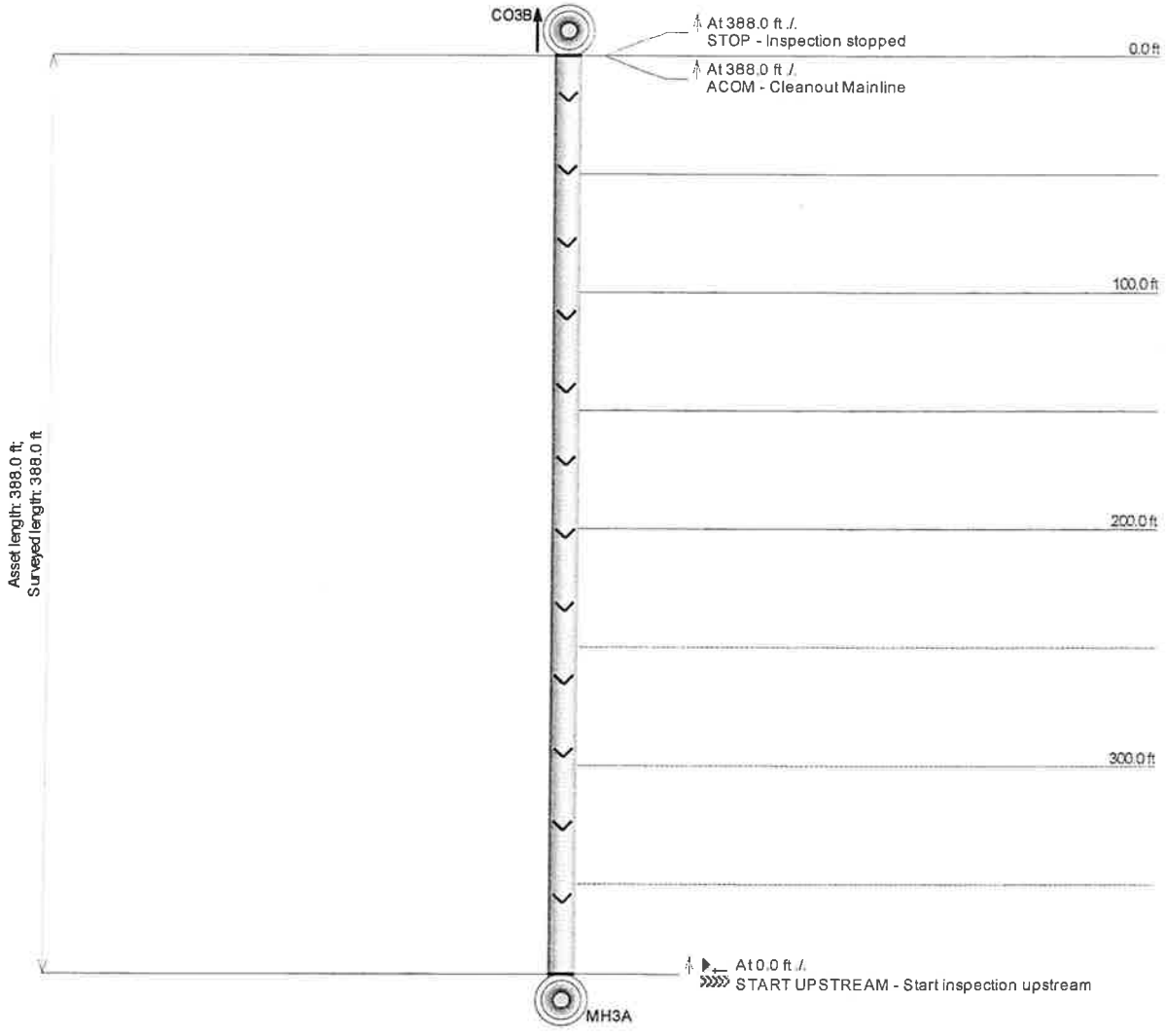
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	CO3B/MH3A	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		15	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	388.0		



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JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	CO3B/MH3A	2010/09/15	11:52	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	CO3B			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH3A					U		15

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			388.0	388.0			450-5 VTR 0:16:10-0:24:38

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
388.0	504	ACOM											CO3B

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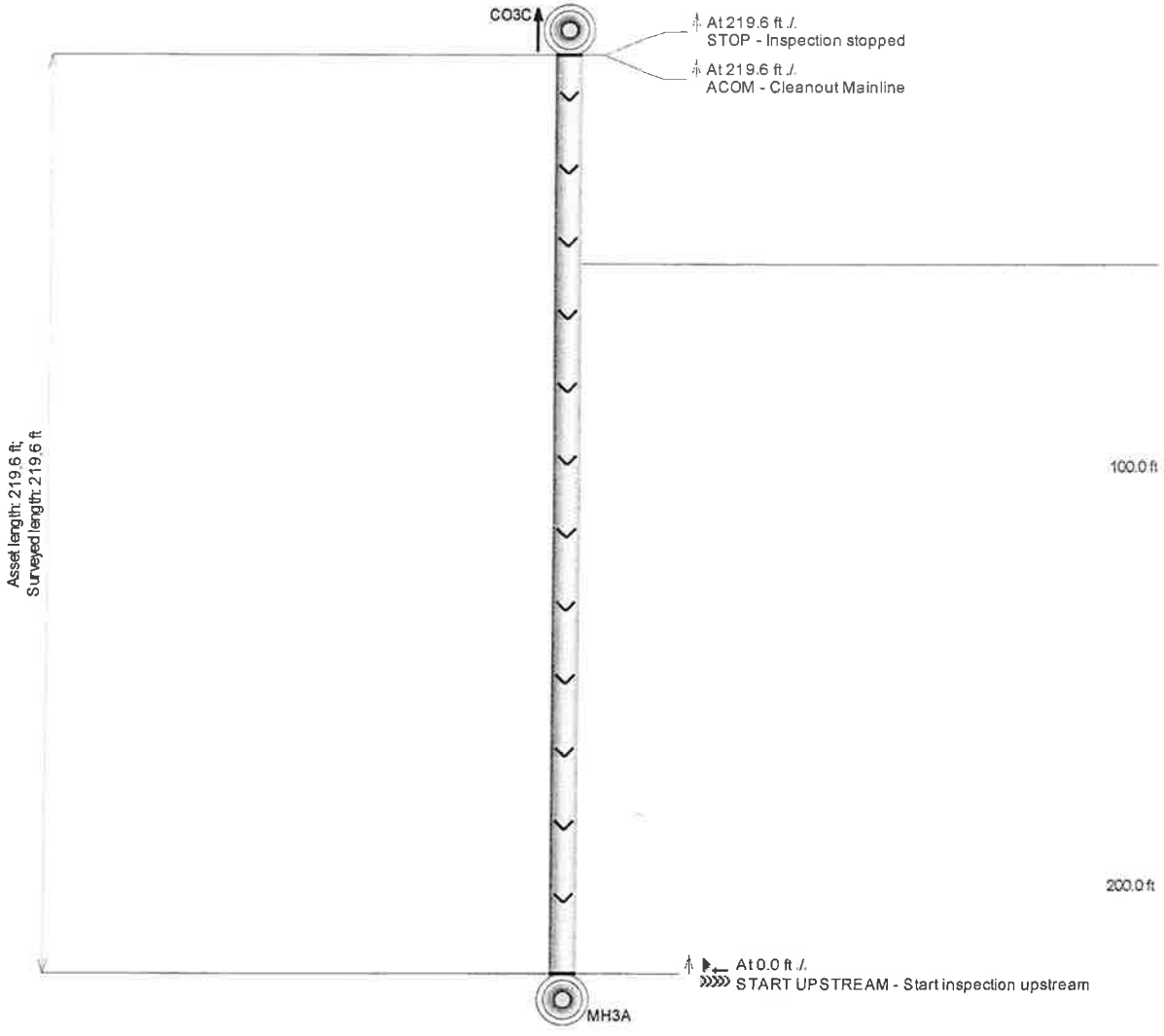
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	CO3C/MH3A	DERBY CT	DERBY UTILITIES LAYOUT N02

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	219.6		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	CO3C/MH3A	2010/09/15	12:30	DERBY UTILITIES LAYOUT N02	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	CO3C			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH3A					U		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			219.6	219.6			450-5 VTR 0:24:38-0:29:20

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
219.6	284	ACOM											CO3C

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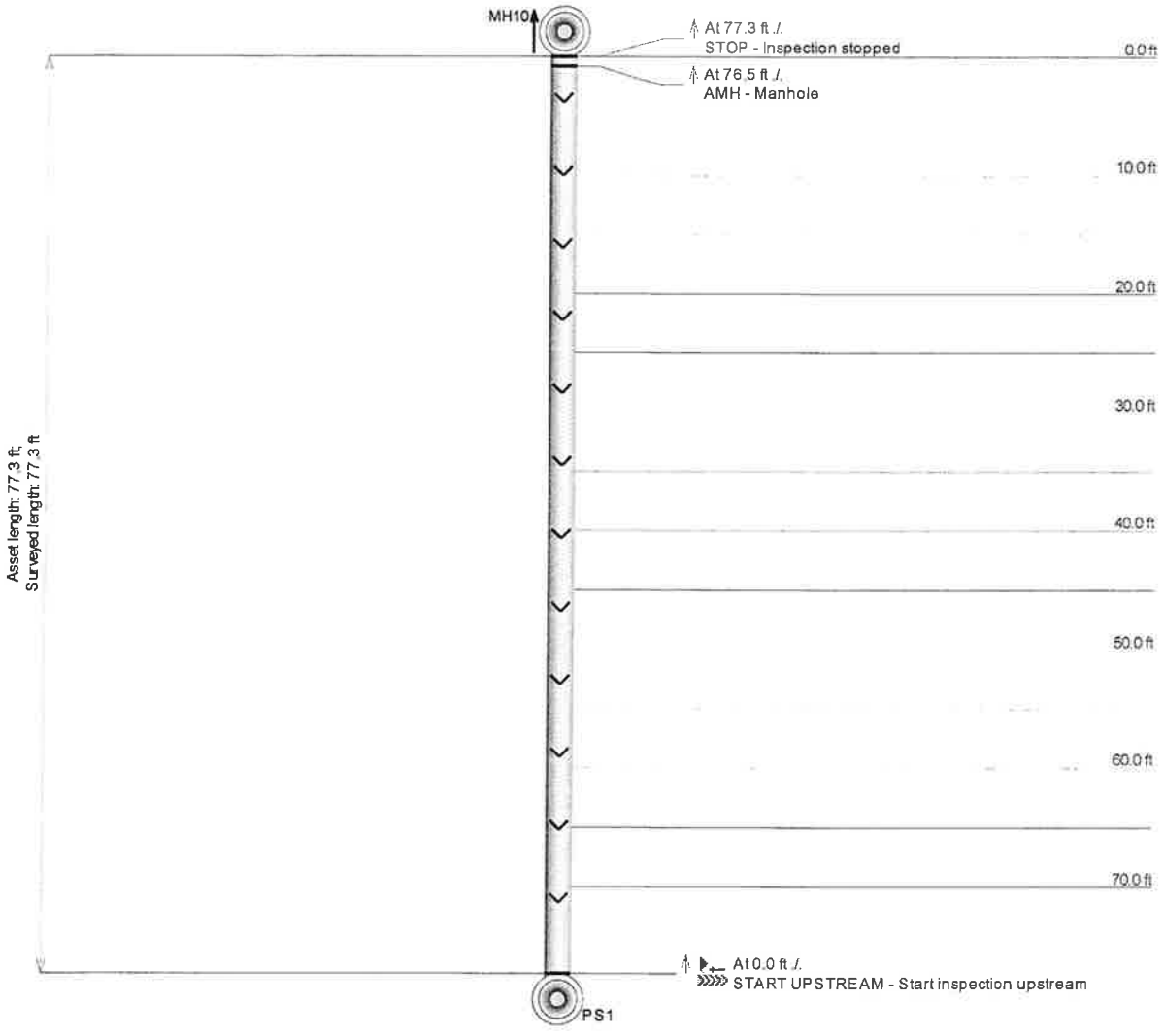
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH10/PS1	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		48	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	77.3		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH10/PS1	2010/09/15	13:03	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH10			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
PS1					U		48

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			77.3	77.3			450-5 VTR 0:29:20-

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	Value %	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
76.5	111	AMH											MH10

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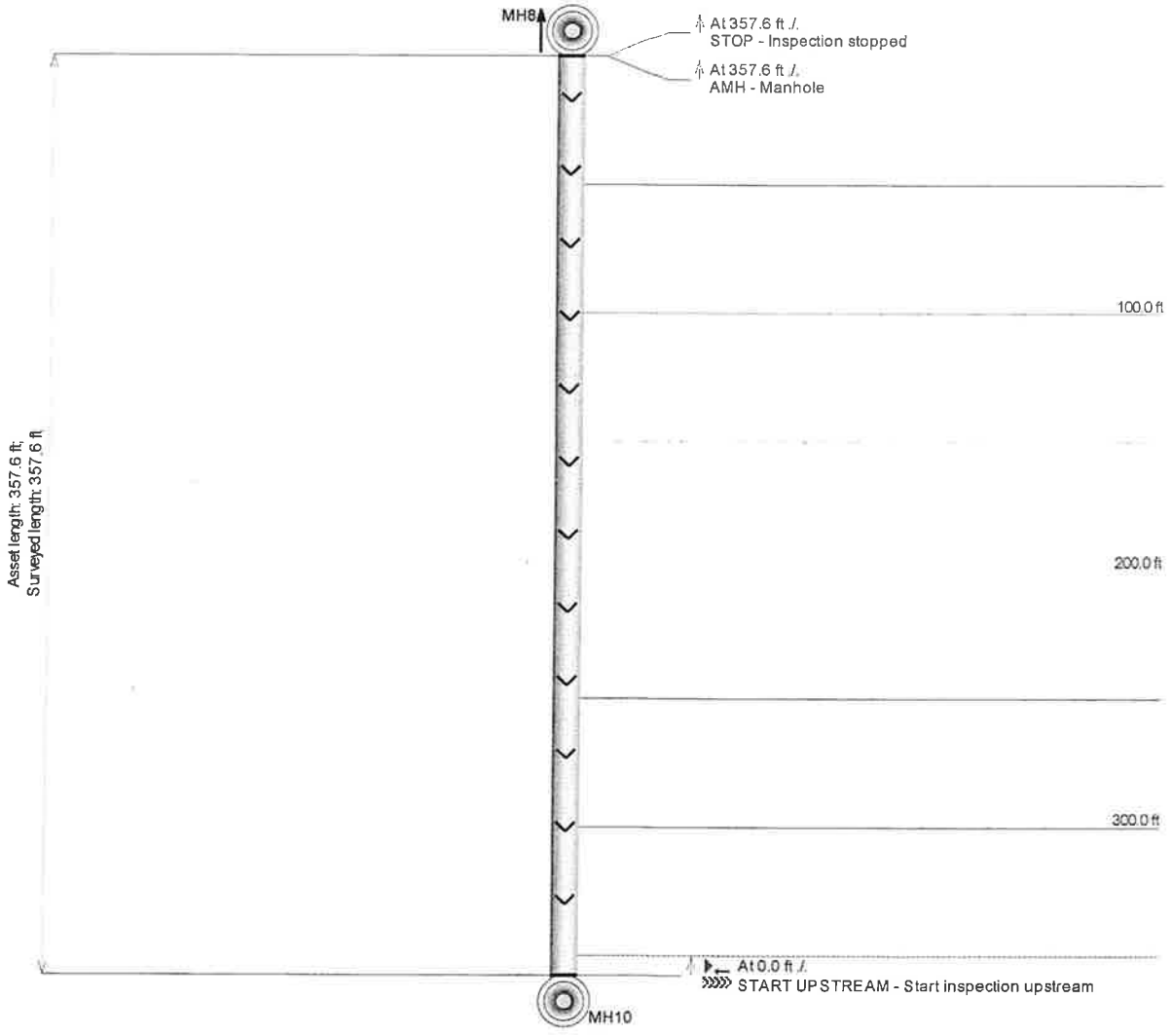
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH8/10	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		48	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	357.6		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH8/10	2010/09/15	13:11	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH8			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH10					U		48

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			357.6	357.6			450-5 VTR 0:32:07-

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	Value %	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
357.6	302	AMH											MH8

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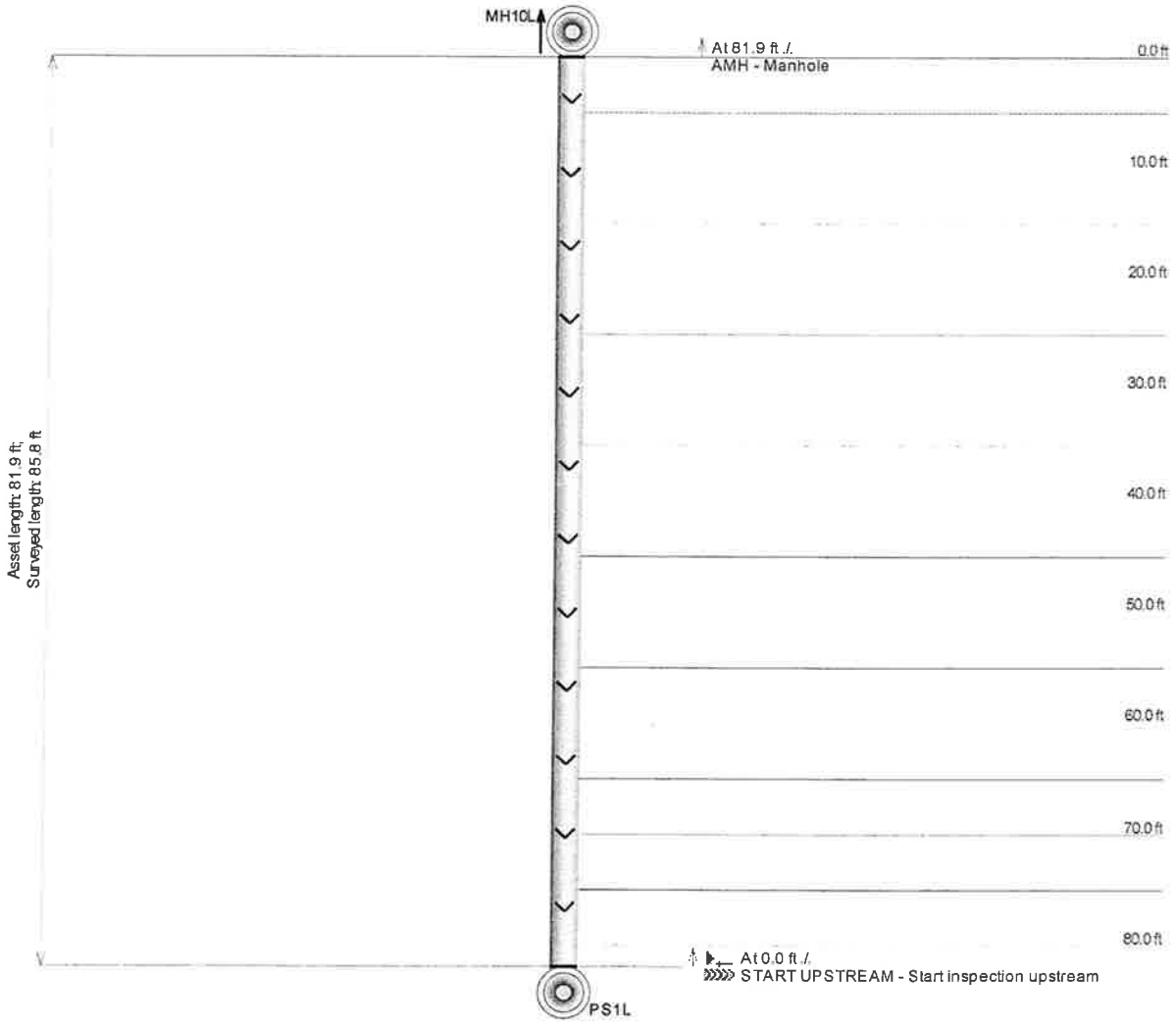
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH10L/PS1L	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		48	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	85.8		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH10L/PS1L	2010/09/15	13:36	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH10L			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
PS1L					U		48

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			81.9	85.8			450-5 VTR 0:37:38-0:40:13

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
81.9	138	AMH											MH10L

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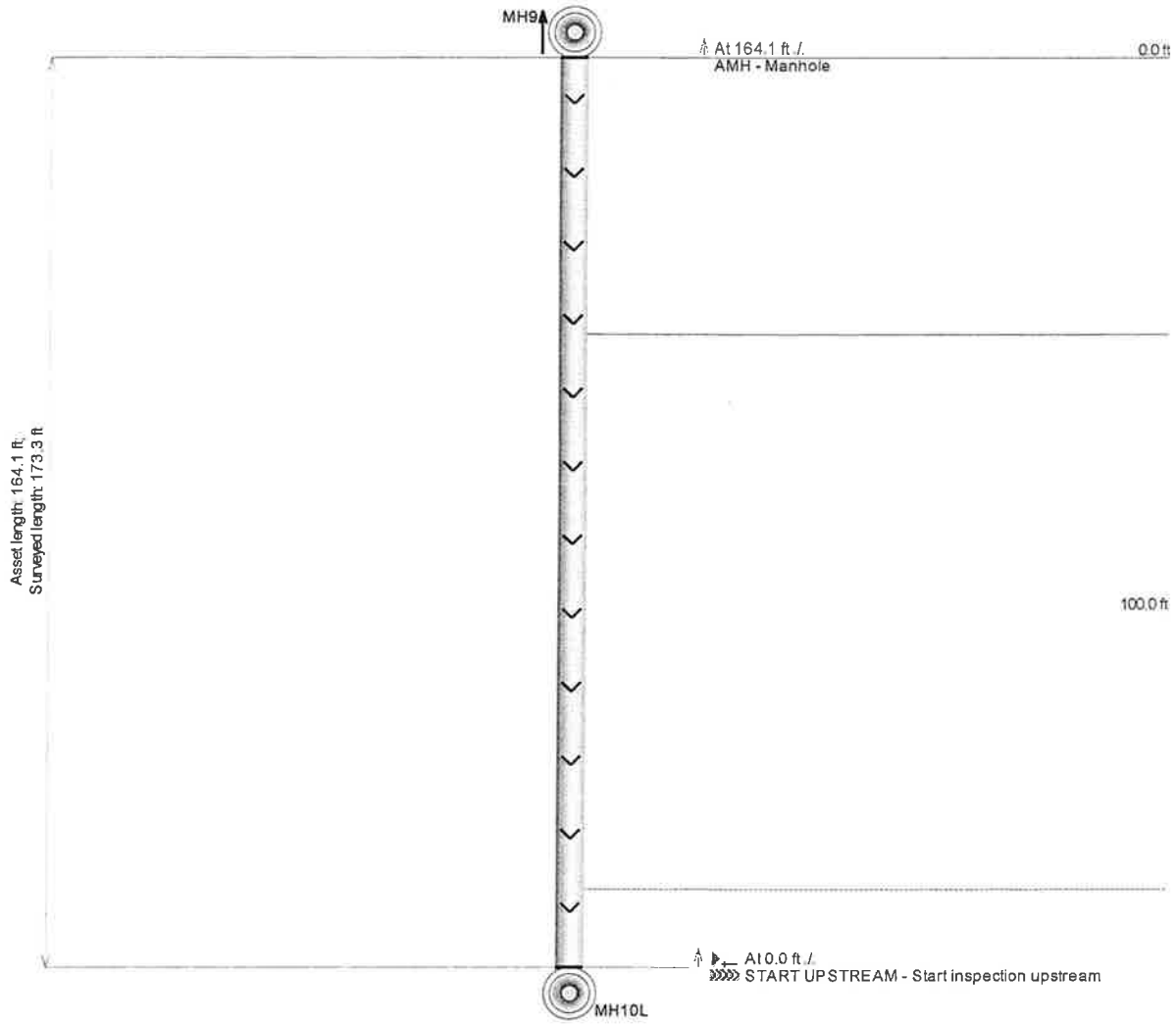
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH9/10L	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		48	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	173.3		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH9/10L	2010/09/15	13:42	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH9			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH10L					U		48

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			164.1	173.3			450-5 VTR 0:40:13-0:47:39

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
164.1	370	AMH											MH9

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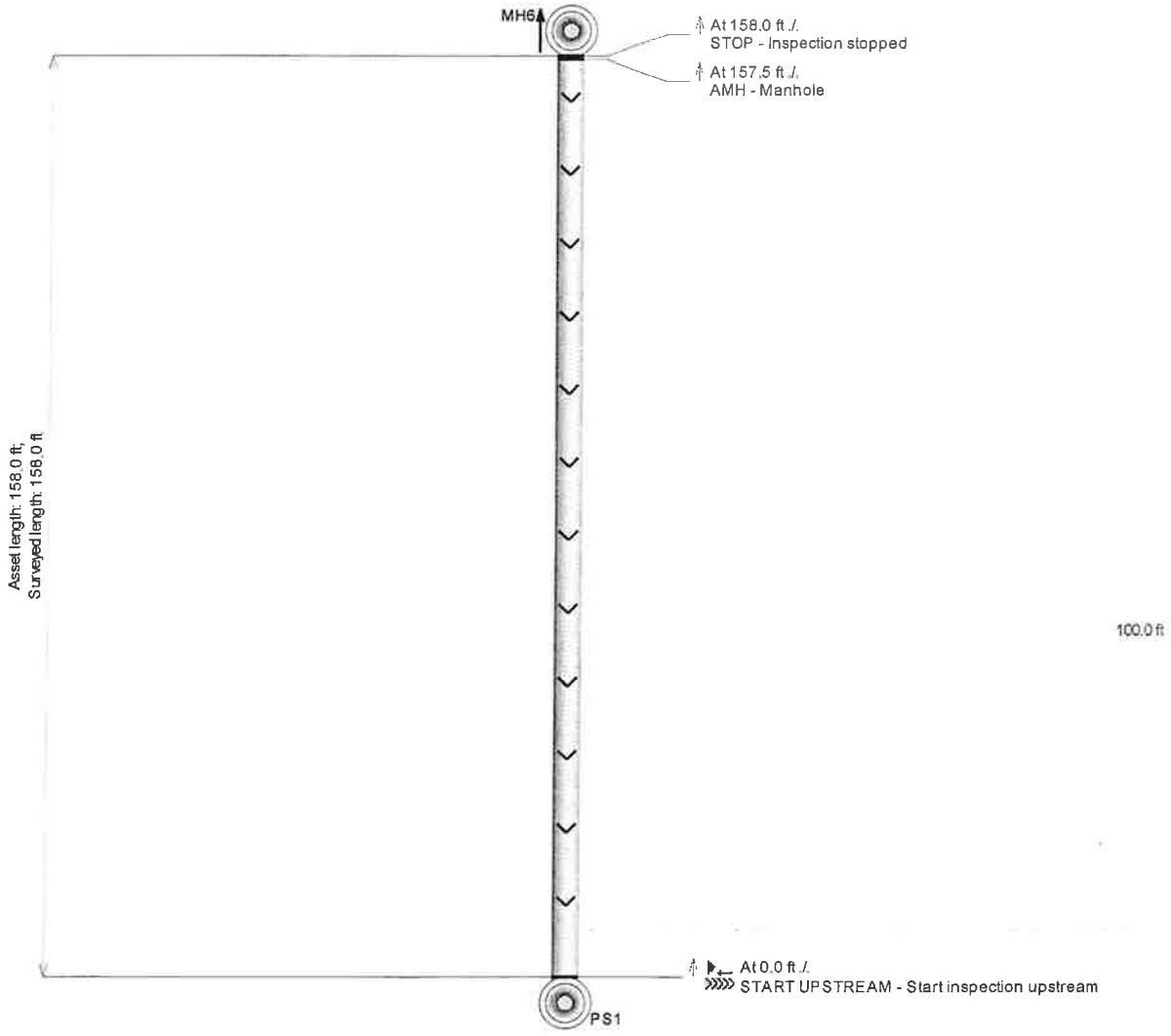
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH6/PS1	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		24	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	158.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH6/PS1	2010/09/15	14:48	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH6			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
PS1					U		24

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			158.0	158.0			450-5 VTR 0:50:21-0:53:18

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
157.5	152	AMH											MH6

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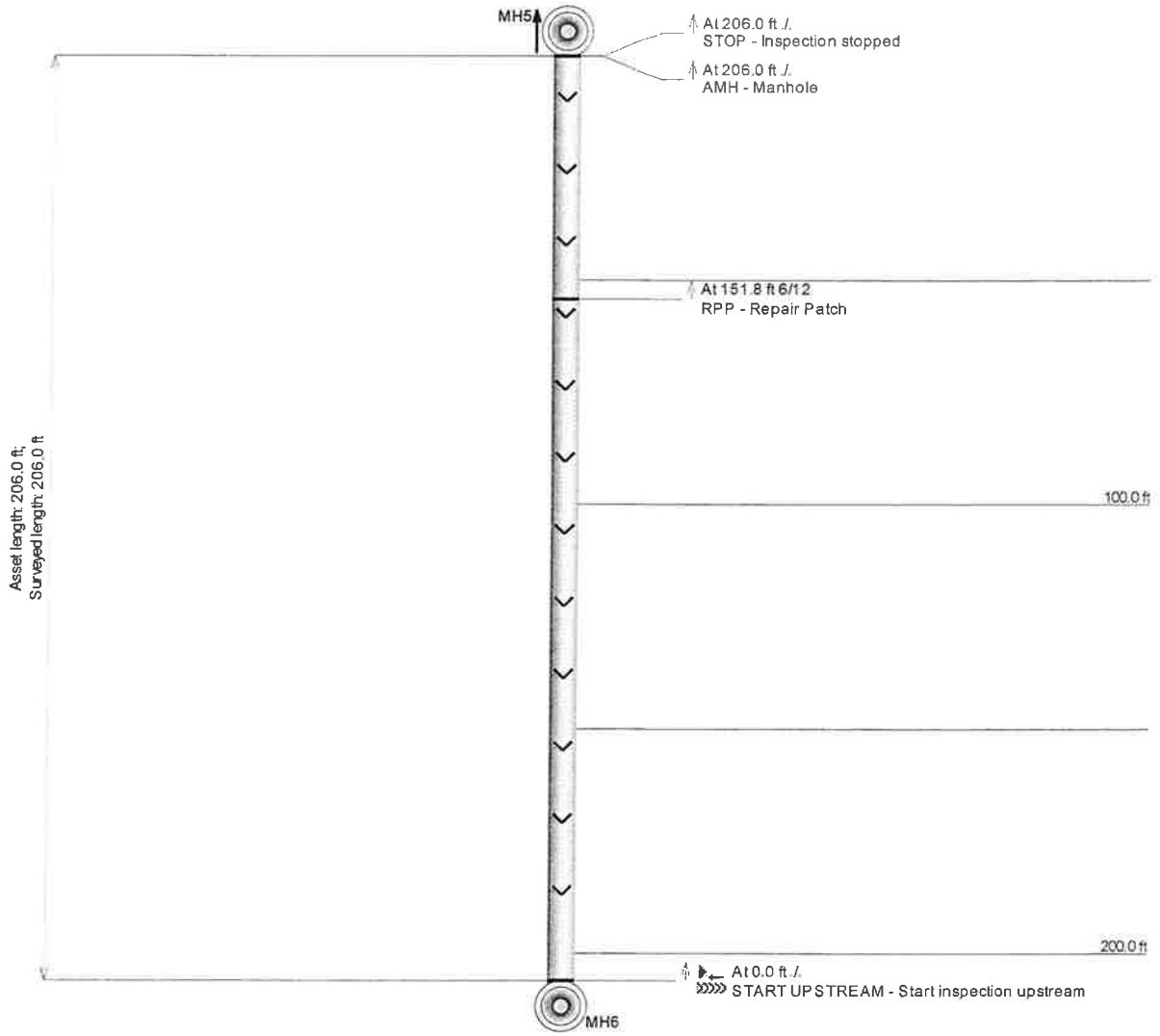
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH5/6	DERBY CT	DERBY UTILITIES LAYOUT N02

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/15/2010		24	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	206.0		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH5/6	2010/09/15	14:54	DERBY UTILITIES LAYOUT N02	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH5			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH6					U		24

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			206.0	206.0			450-5 VTR 0:53:18-0:58:28

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
151.8	211	RPP								6	12		CMP
206.0	324	AMH											MH5

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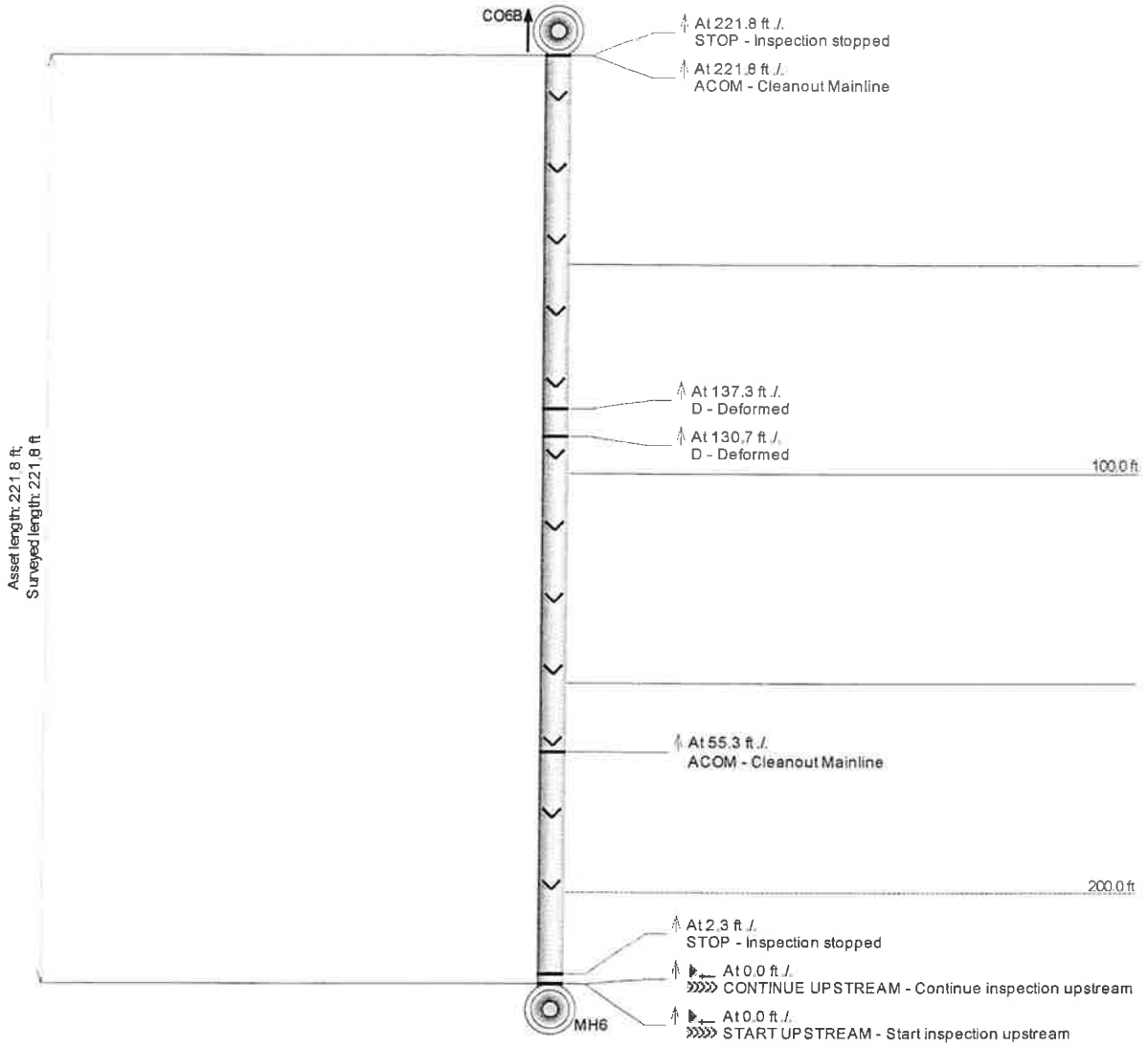
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	CO6B/MH6	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	221.8		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	CO6B/MH6	2010/09/16	09:44	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	CO6B			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH6					U		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			221.8	221.8			450-5 VTR 0:58:30-1:07:41

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
55.3	156	ACOM											CO6A
130.7	281	D						10					
137.3	325	D						10					
221.8	491	ACOM											CO6B

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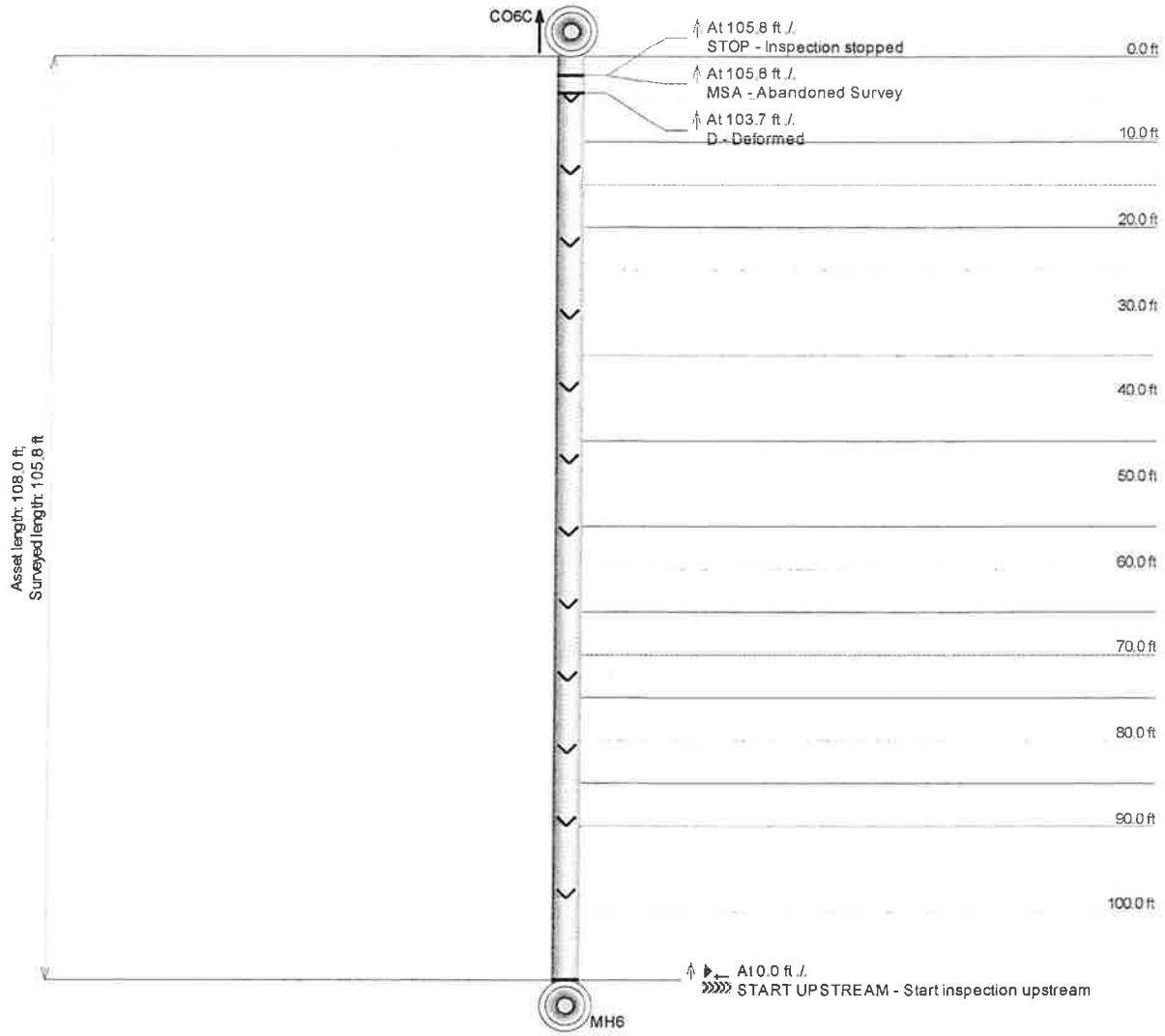
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	CO6C/MH6	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		10	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	105.8		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	CO6C/MH6	2010/09/16	10:02	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	CO6C			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH6					U		10

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			108.0	105.8			450-5 VTR 1:07:41-1:12:25

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
103.7	146	D						80					
105.8	235	MSA											COULD NOT GET UNDER

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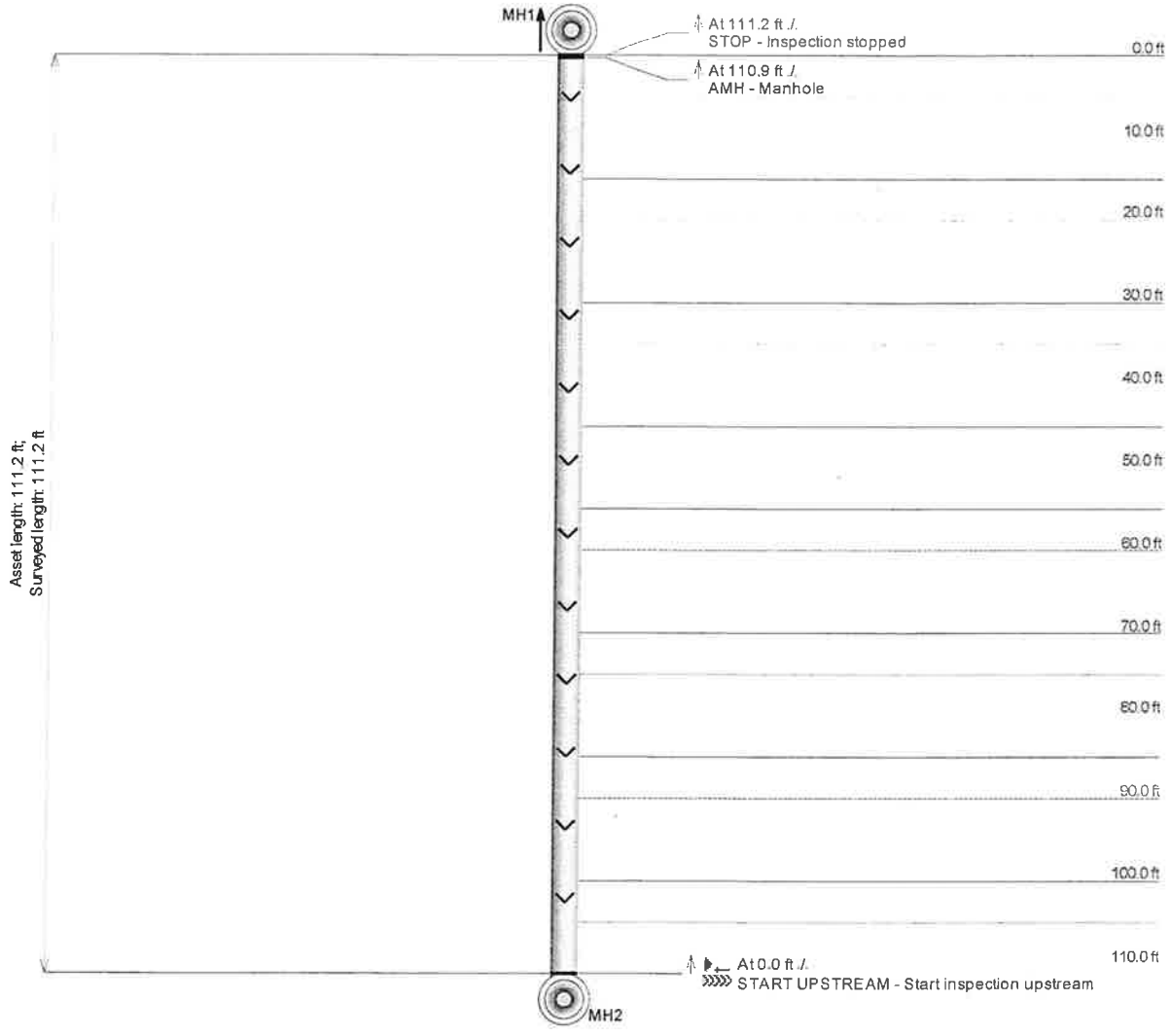
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH1/2	DERBY CT	DERBY UTILITIES LAYOUT N01

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		15	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	111.2		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH1/2	2010/09/16	11:09	DERBY UTILITIES LAYOUT N01	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH1			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH2					U		15

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			111.2	111.2			450-5 VTR 1:12:25-1:15:32

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
110.9	177	AMH											MH1

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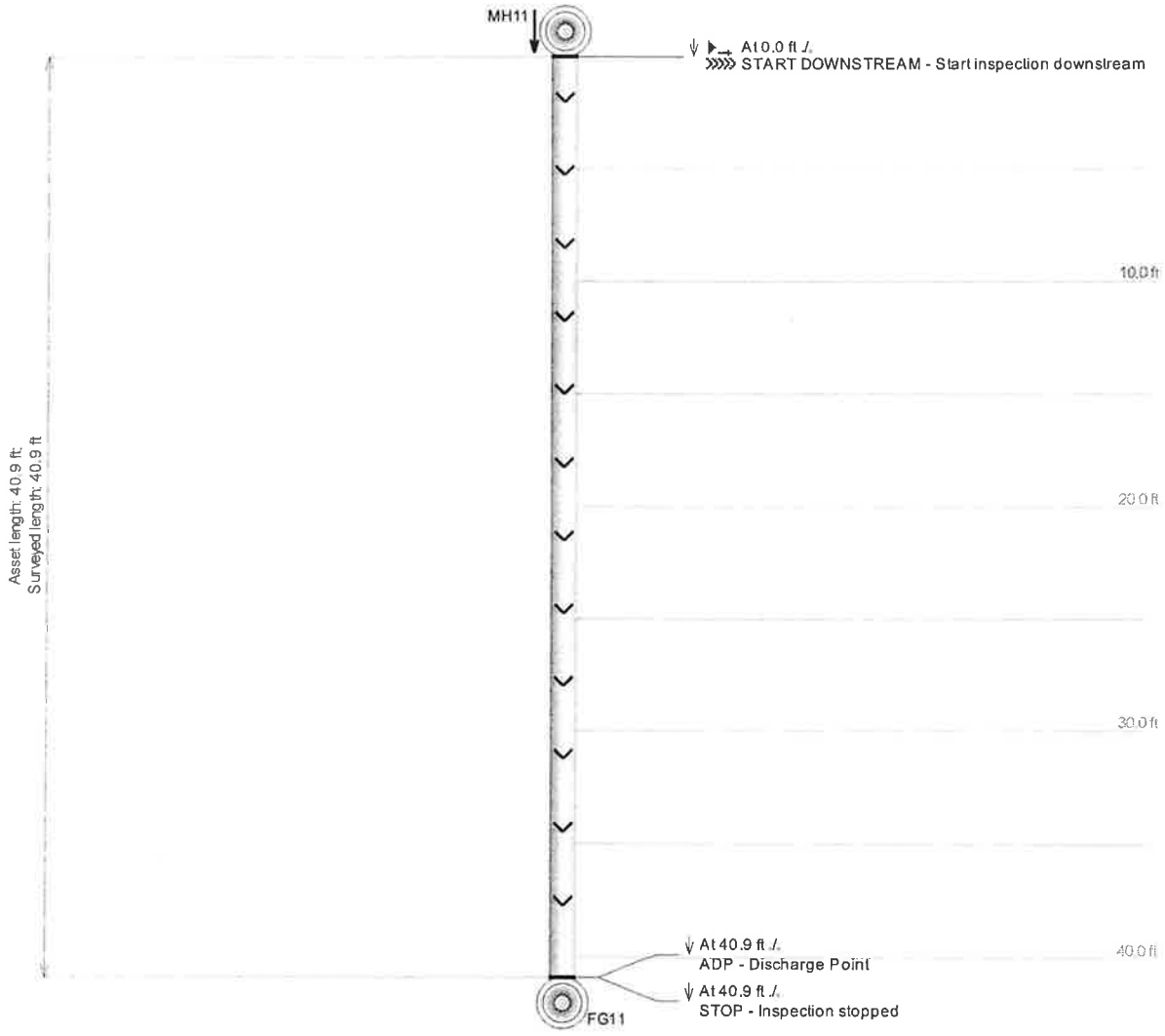
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TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH11/FG11	DERBY CT	DERBY UTILITIES LAYOUT NO1

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		24	CAS	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	40.9		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH11/FG11	2010/09/16	12:07	DERBY UTILITIES LAYOUT NO1	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH11			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
FG11					D		24

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CAS				40.9			450-5 VTR 1:15:32-

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	Value %	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
40.9	115	ADP											FLAP GATE

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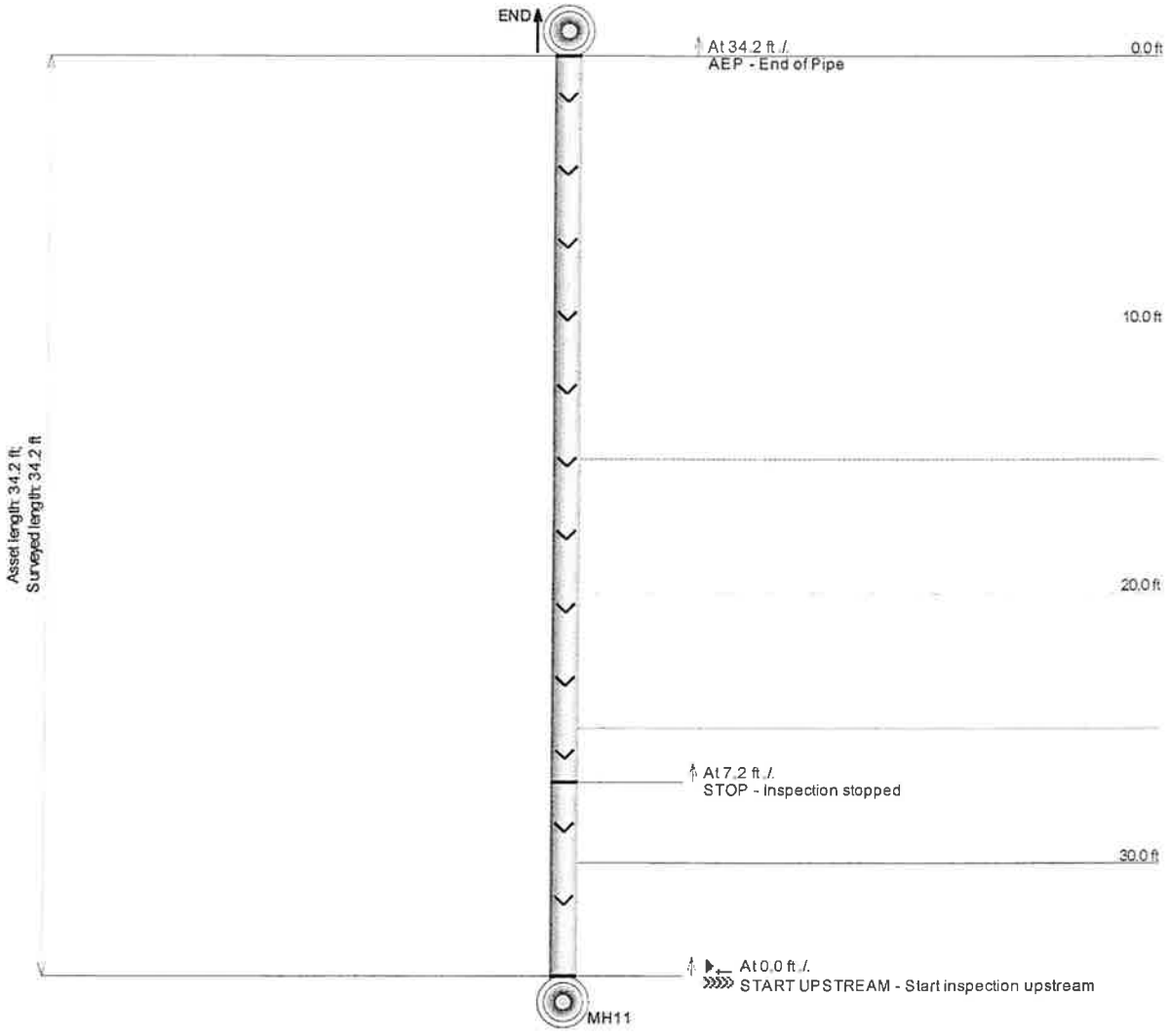
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	END/MH11	DERBY CT	DERBY UTILITIES LAYOUT NO1

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		18	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	34.2		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	END/MH11	2010/09/16	12:19	DERBY UTILITIES LAYOUT NO1	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	END			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH11					U		18

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			34.2	34.2			450-5 VTR 1:17:30-1:20:16

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
34.2	43	AEP											END BRICKED OFF

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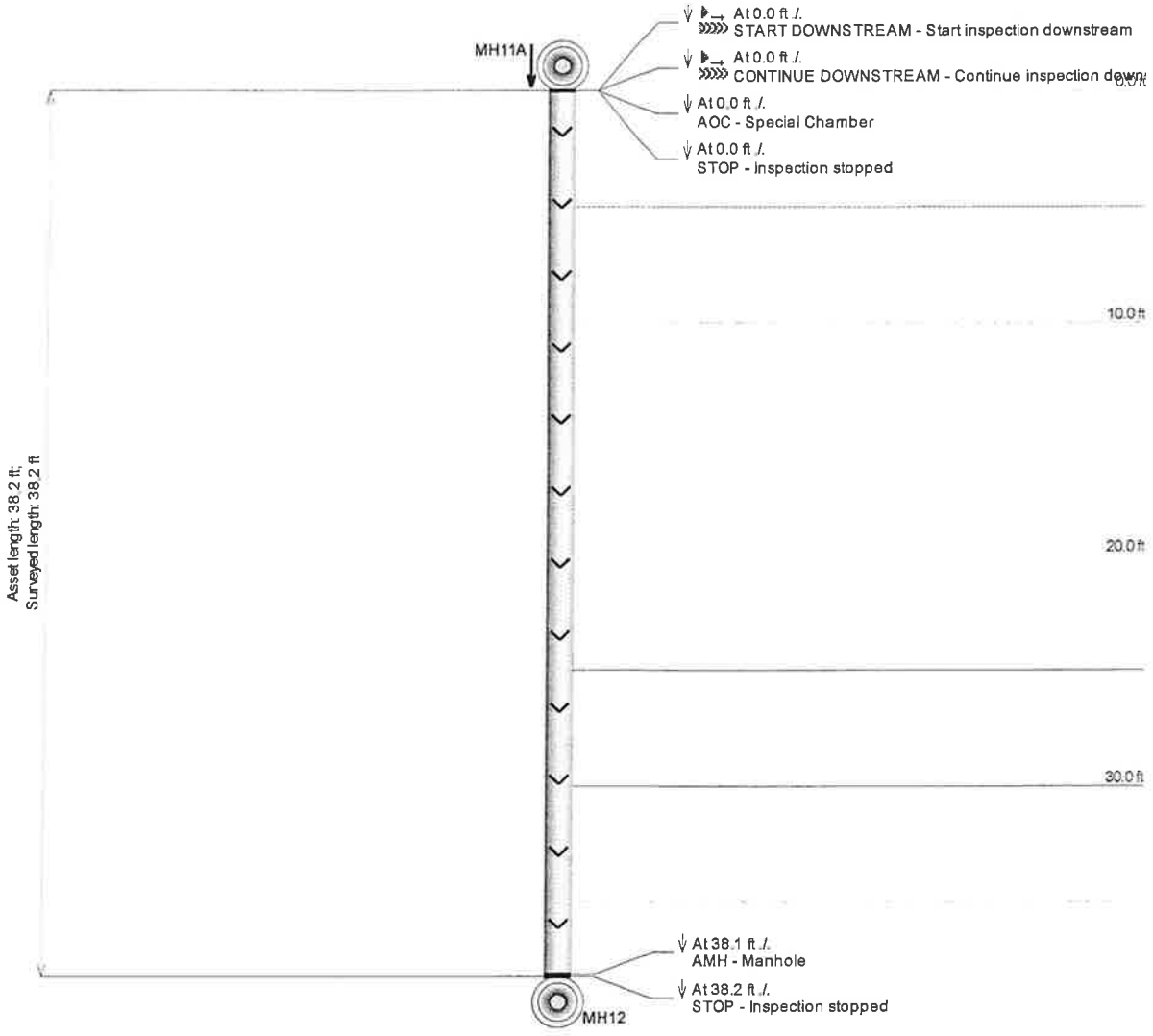
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	MH11A/12	DERBY CT	DERBY UTILITIRS LAYOUT NO1

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		36	CAS	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	38.2		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	MH11A/12	2010/09/16	12:34	DERBY UTILITIRS LAYOUT NO1	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	MH11A			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
MH12					D		36

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CAS			38.2	38.2			450-5 VTR 1:20:16-1:25:38

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
0.0	111	AOC											AT MH11A UPSTREAM
38.1	167	AMH											MH12

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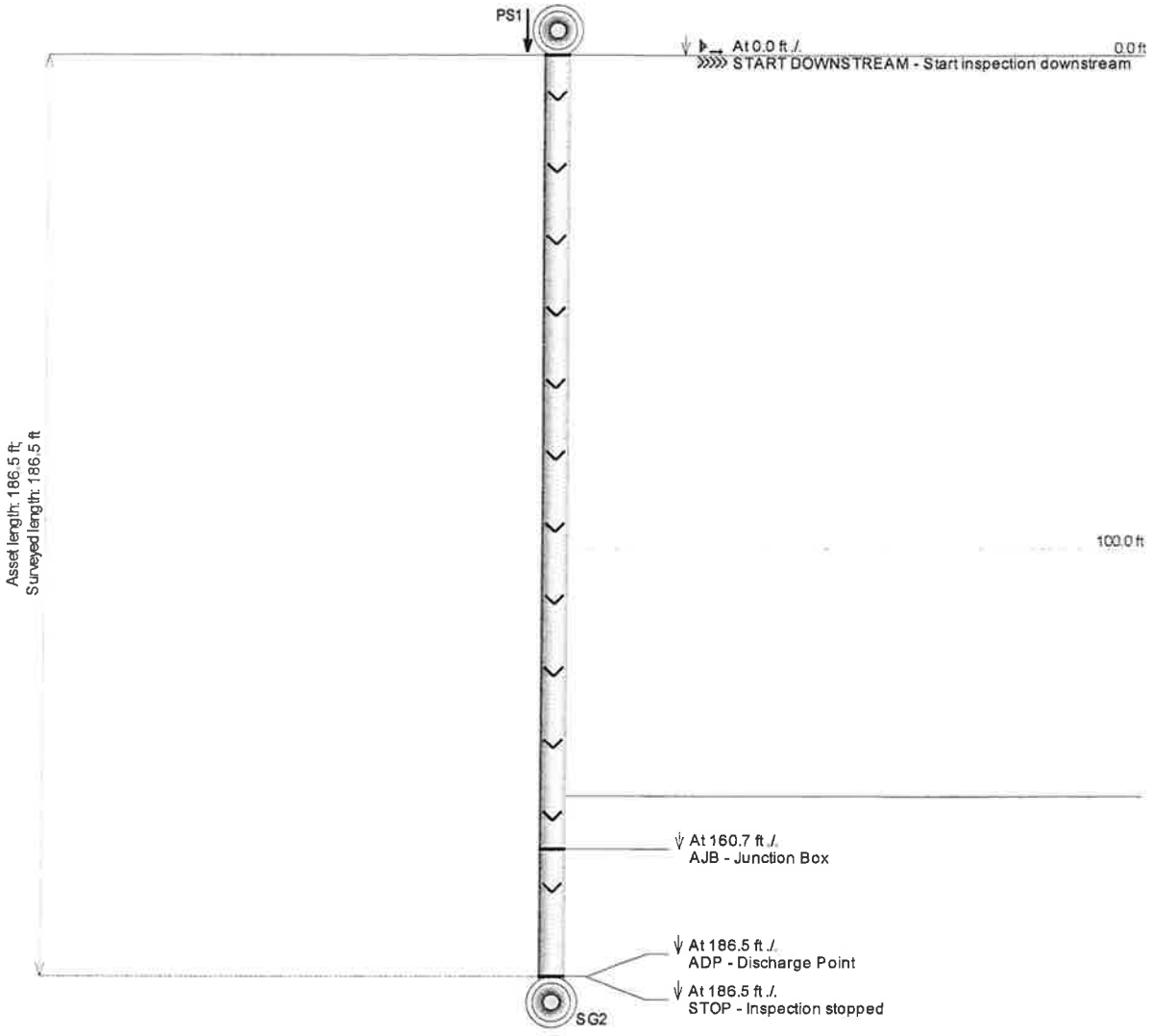
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	PS1/SG2	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010	8	6	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Downstream	186.5		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	PS1/SG2	2010/09/16	13:13	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	PS1			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SG2					D		6

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
8	S	RCP			186.5	186.5			450-5 VTR 1:25:38-1:31:38

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
160.7	174	AJB											TOWER
186.5	340	ADP											SG2

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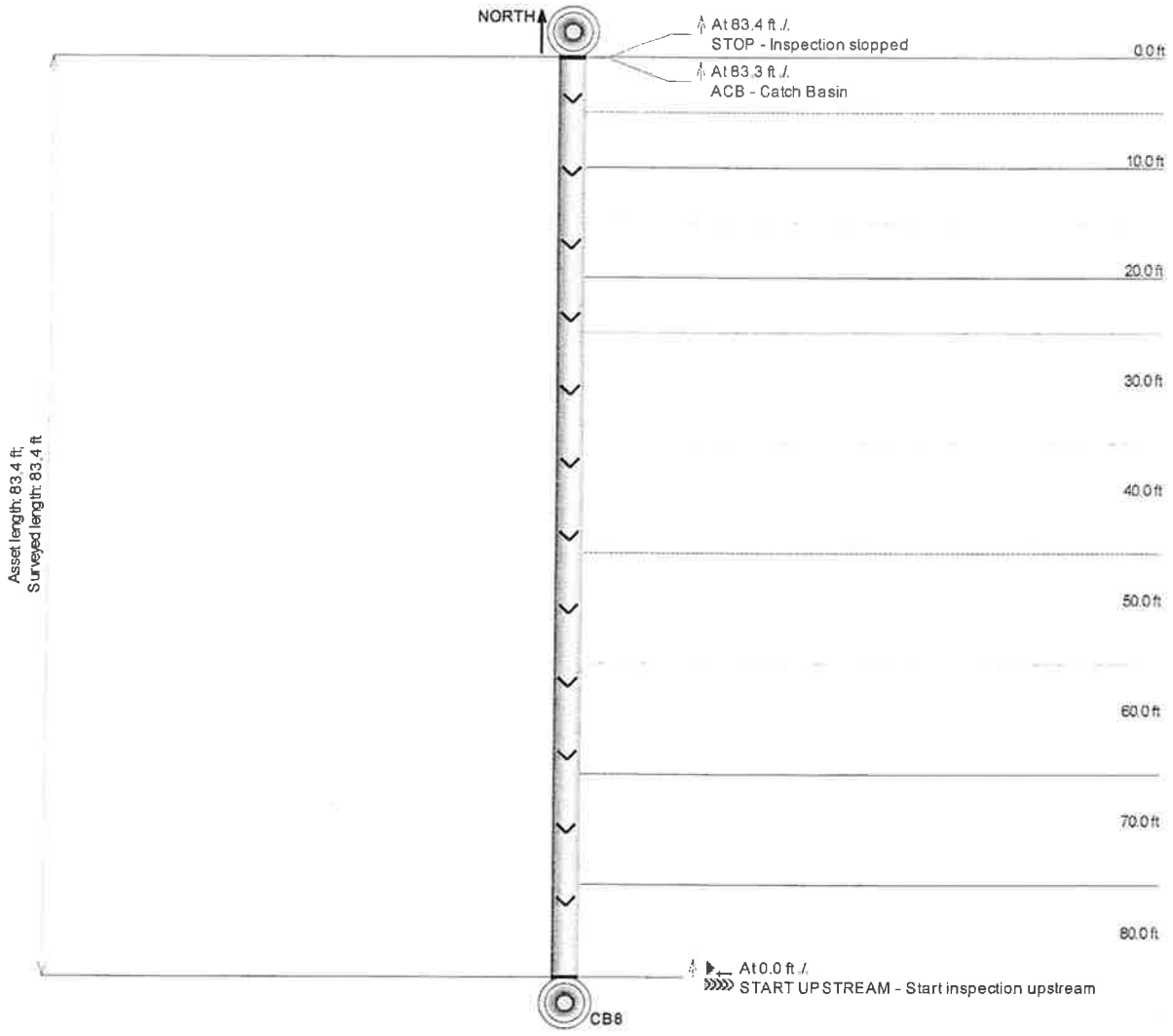
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	NORTH/CB8	DERBY CT	DERBY UTILITIES LAYOUT N02

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		15	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	83.4		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	NORTH/CB8	2010/09/16	14:14	DERBY UTILITIES LAYOUT N02	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	NORTH			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
CB8					U		15

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			83.4	83.4			450-5 VTR 1:31:38-1:34:46

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N				

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
83.3	162	ACB											CB

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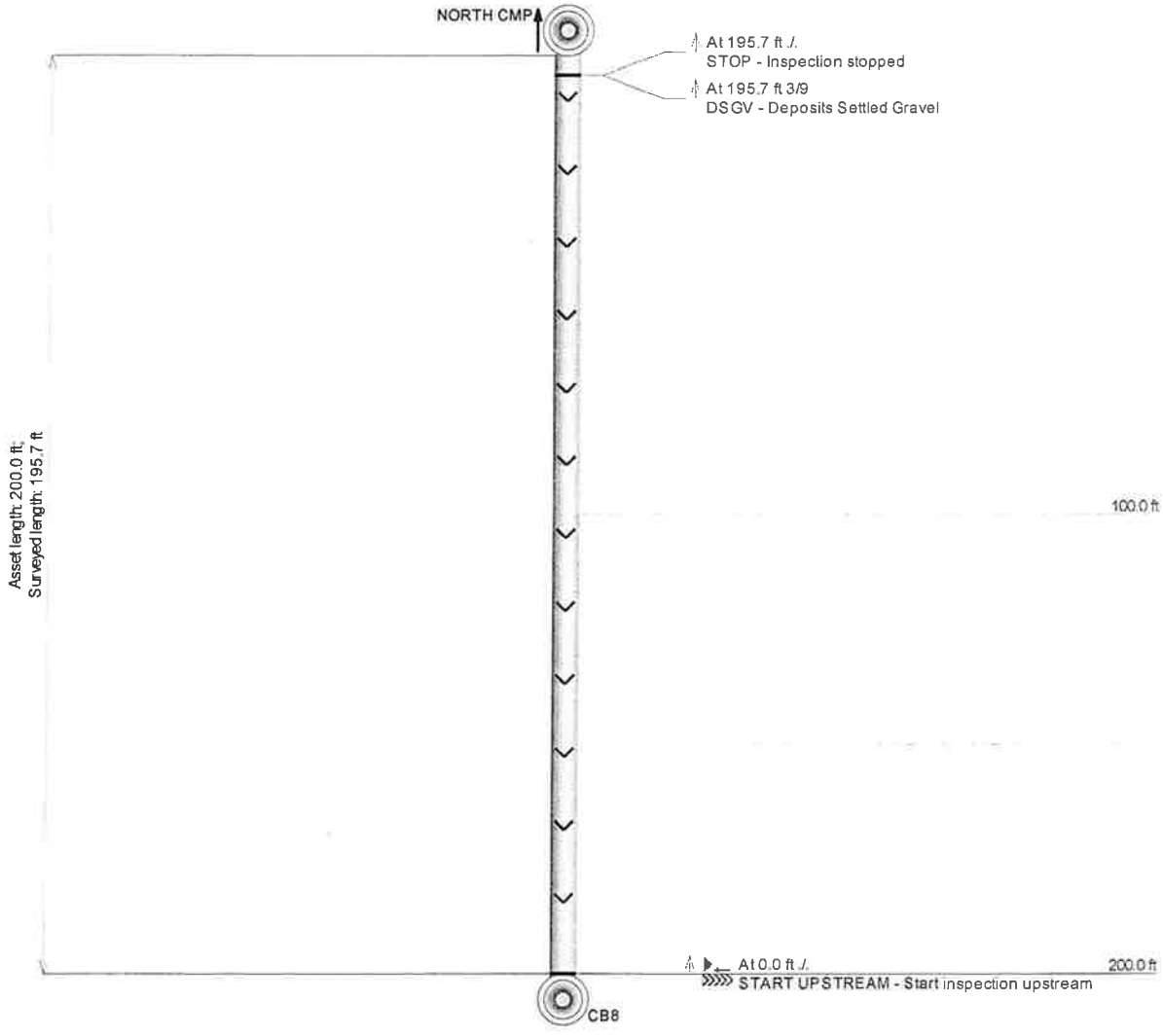
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	NORTHCMP/CB8	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		15	CMP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	195.7		



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PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	NORTHCMP/CB8	2010/09/16	14:23	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	NORTH CMP			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
CB8					U		15

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	CMP			200.0	195.7			450-5 VTR 1:34:46-1:38:38

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
195.7	273	DSGV						50		3	9		

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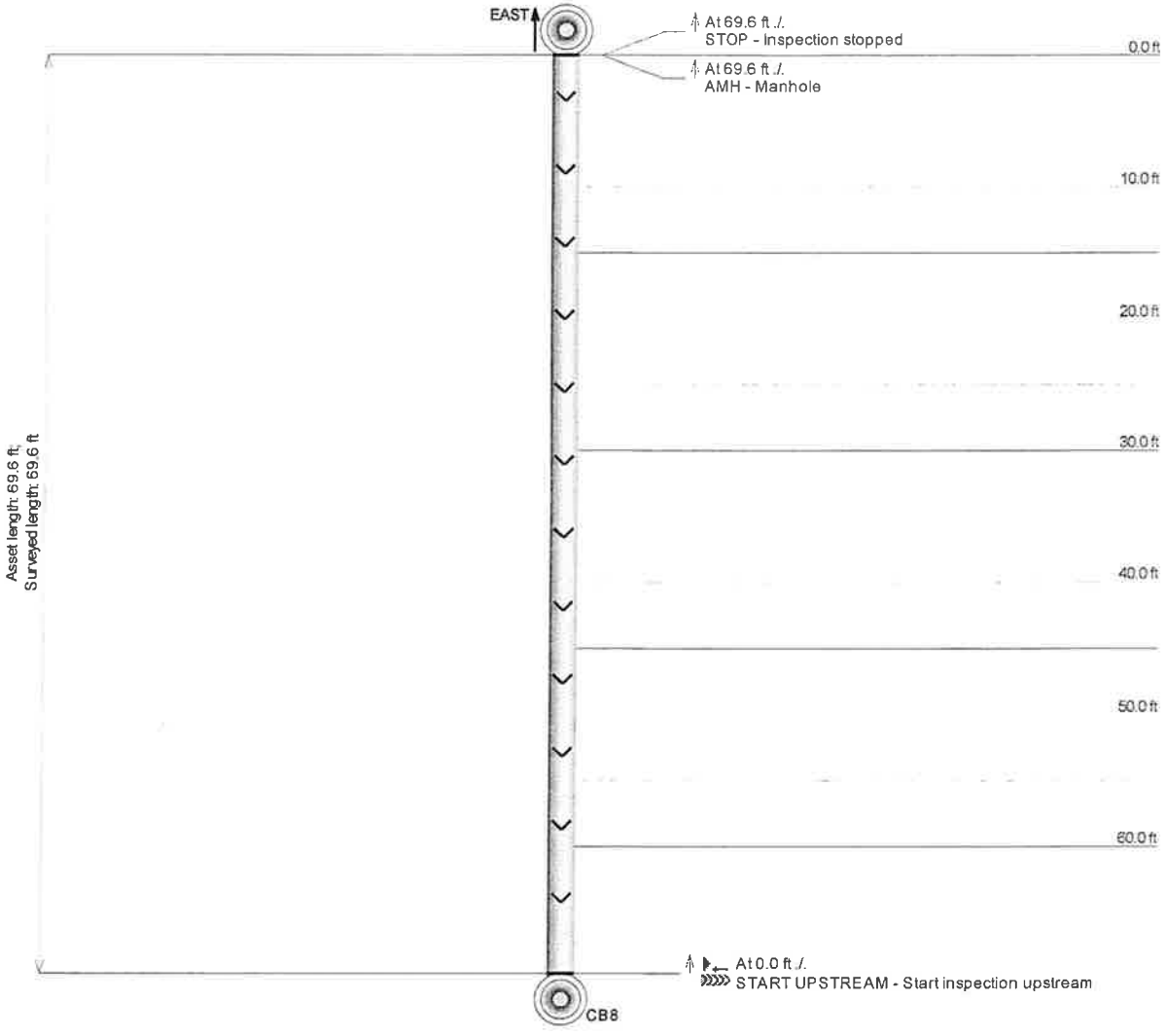
HEITKAMP

TV Inspection with Pipe-Run Graph

Project Name:	Asset ID:	City:	Address:
DERBY CT	EAST/CB8	DERBY CT	DERBY UTILITIES LAYOUT NO2

Date	Pipe Width:	Pipe Height:	Pipe Type:	Surface Condition:
9/16/2010		18	RCP	

Direction:	Surveyed Footage:	Weather	Tape/Media #
Upstream	69.6		



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HEITKAMP

PACP Sewer Report

Surveyors Name	and Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet No.
JOSEPH ASSARD	U-704-1474		M&M		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and Number)	Locality
	EAST/CB8	2010/09/16	14:41	DERBY UTILITIES LAYOUT NO2	DERBY CT

Further Location Details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	EAST			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
CB8					U		18

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape/Media Number
	C	RCP			69.6	69.6			450-5 VTR 1:38:38-1:42:16

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Location Code	Additional Information
		N	2010/09/03			

Distance (Feet)	Video Ref.	Group/ Descripto	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches 1st	Value Inches 2nd	%	Joint	Circumferential Location at	Circumferential Location to	Image Ref.	Remarks
69.6	216	AMH											CB MH

Burning at 9.27.2010 5.00.01 PM

Burning started at 9/27/2010 5:00:01 PM
Destination: DVD, D:\

Export started at 09/27/10 17:00:01
Local database: G:\10-03-3060 - Milone and MacBroom - Ansonia-Derby\DERBY CT M&M.mdb
Export finished at 09/27/10 17:00:02
Burning disk 1 of 1, label "Derby450-ASV01"
Video files burned:
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G:\10-03-3060 - Milone and MacBroom - Ansonia-Derby\Media\Video\DERBY CT- NORTH-CB8-DERBY UTILITIES LAYOUT NO2.mpg
G:\10-03-3060 - Milone and MacBroom - Ansonia-Derby\Media\Video\DERBY CT-CO3B-MH3A-DERBY UTILITIES LAYOUT NO2.mpg
G:\10-03-3060 - Milone and MacBroom - Ansonia-Derby\Media\Video\DERBY CT-CO3C-MH3A-DERBY UTILITIES LAYOUT NO2.mpg
G:\10-03-3060 - Milone and MacBroom - Ansonia-Derby\Media\Video\DERBY CT-CO6B-MH6-DERBY UTILITIES LAYOUT NO2.mpg
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Burning finished at 9/27/2010 5:07:17 PM

Pump Station – Megohmeter Testing

Megohmeter Testing

Silver Hill Equities L.L.C.
5 Cullens Hill Road
Derby, CT. 06418
Tel. (203) 734-4067

ABSTRACT

The major purpose of performing electrical maintenance testing is to identify faulty cabling and devices.

CABLE TESTING

Testing represents an integral part in the life of a cable. A cable should be subjected to multiple tests in its lifetime including a series of tests beginning at the factory and potentially continuing throughout the lifespan of the cable. Cable testing is performed in different phases including: materials testing, qualification testing, production testing, and field testing and/or maintenance testing. The types of tests performed in the various phases can depend on the environment of the cable as well as the type of cable being tested.

It is important to recognize that many factors must be considered to properly summarize the test results obtained from any testing program. Many of these factors are controllable as part of material testing, qualification testing, and production testing. Unfortunately, field testing does not allow control over very many of these factors, two of which are temperature and humidity. Keeping track of the various factors that could affect cable testing results and accounting for them can be the difference between obtaining passing or failing outcomes.

FIELD TESTING

Field testing of cable is commonly carried out to determine the as installed condition of the cable, and/or the operating condition of the cable. Field testing can be divided into two broad categories: Type 1 - Destructive and Type 2 - Non-Destructive. Both of these categories of tests can be conducted as installation and/or maintenance testing.

Type 1 - Destructive Field Tests

Destructive tests can be categorized as "pass/fail" or "go/no-go" tests. By nature, a withstand test that tries to breakdown a cable defect during the time of testing is considered a destructive test.

Type 2 - Non-Destructive Field Tests

Non-Destructive tests can be categorized as "diagnostic" tests which are used to provide the relative condition of the insulation system by comparison with figures of merit.

Megohmeter Testing of Insulation Resistance

Megger testing can be applied as a destructive (Type 1) test or a diagnostic (Type 2) test depending on factors such as test duration and test voltage. Typical application of a megger test determines the total insulation resistance of each cable. The resistance measurement is used to determine if the circuit will operate without excessive leakage current through the insulation when energized. Measured values can be impacted by certain external factors (temperature, moisture, etc.) , which may result in questionable readings.

The megger test is performed by applying an elevated DC voltage to the conductor and measuring the current flow to a ground reference. With the known voltage and measured current, an insulation resistance value can be calculated.

It is important to recognize that megger testing non-shielded cables may produce marginal results due to the inherent lack of a completely encompassing and uniform ground plane over the dielectric of the cable.

Field Tests

This type of test is performed to provide a general overview of the cable being tested. It is up to the end-user to determine which field test method will provide the most accurate and useful information. One test method cannot completely asses the condition every cable. To properly determine the condition of a cable, the best test method may be a combination of tests.

A commonly used test method for non-shielded cables is a megger test. Megger testing non-shielded cables typically involves applying a potential to the "test cable" and then measuring the insulation resistance.

Installation Testing

Installation testing non-shielded cables also typically involves applying a potential to the "test cable" and grounding the other cables in the same duct or conduit as well as possibly grounding the duct or conduit itself, and then measuring the insulation resistance. This test may produce marginal results due to the inherent lack of a completely encompassing and uniform ground plane.

Acceptance Testing

The test data obtained from these tests typically provides information about the whole cable system being tested. Some acceptance test may be able to differentiate the results between the cable and any accessories. An acceptance test provides a good starting point for verification of the cable system installation; however, if marginal test results are obtained, further testing should be performed.

Maintenance Testing

Maintenance testing is conducted during the operating life of a cable system. It is intended to detect deterioration of the system (in cable or accessories) so that suitable maintenance procedures can be initiated.

Maintenance testing of cables typically includes all the cable accessories as part of the test results. Consequently, any test result must be interpreted to properly determine if there may be a problem with the cable or an accessory. Maintenance testing of cables can be accomplished through multiple test techniques. Each test offers unique advantages as well as disadvantages.

CABLE TESTING (overview)

The basic megger testing practice is covered within this document; however, please note that this document is only intended to provide general information. The interpretation of cable testing results is the key to properly assess the characteristics of a cable.

Prepared for : The City of Derby
Department of Public Works
Coon-Hollow Road
Derby, Connecticut 06418

Respectfully Submitted,

Silver Hill Equities L.L.C.
Ray Sadlik
State of Connecticut
E-1 License Holder
104265

Silver Hill Equities L.L.C.

Electrical and Building Contractors

Megger Test Report

Project / Job : City of Derby - Flood Control Pump Station **Date :** 11-12-2010

Temperature : +/- 61 Degrees Fahrenheit **Humidity :** +/- 55 %

Test Date : 11-02-2010 ***Note : All readings shown in Megohms***

Cir. # ID	Volts / Ph.	L-1 to Neut.	L-2 to Neut.	L-3 to Neut.	L-1 to Grd.	L-2 to Grd.	L-3 to Grd.
1	120 / 1	250	n/a	n/a	250	n/a	n/a
2	120 / 1	50	n/a	n/a	50	n/a	n/a
3	120 / 1	200	n/a	n/a	200	n/a	n/a
4	120 / 1	Infinity	n/a	n/a	Infinity	n/a	n/a
5	120 / 1	2500	n/a	n/a	2500	n/a	n/a
6	120 / 1	100	n/a	n/a	100	n/a	n/a
7	120 / 1	2000	n/a	n/a	2000	n/a	n/a
8	120 / 1	110	n/a	n/a	110	n/a	n/a
9	120 / 1	2000	n/a	n/a	2000	n/a	n/a
10 Spare	120 / 1	n/a	n/a	n/a	n/a	n/a	n/a
Main Switch	120/240 / 1	2000	Infinity	1500	2000	Infinity	1500
Sump Pump	120/240 / 1	2500	2500	n/a	2500	2500	n/a
X-fmer Load	120/240 / 1	2500	2500	n/a	2500	2500	n/a
Main Feeder	240 / 3	400	1500	500	400	1500	500
Sluice Gate	240 / 3	No longer in use --- replaced with manually operated / non electric apparatuses					

Field Testing Performed by : Ray Sadlik **Date :** 11-02-2010

Field Test Engineer/Designee : Mike Joyce, Milone & McBroom **Date :** 11-02-2010

Test Report Prepared by : Ray Sadlik **Date :** 11-12-2010