

Upper Lavant Flood Risk Management Study



Presentation to Lavant Valley Partnership

June 2015

About this study

- CH2M – who?
- What is an SWMP and why are we doing it?
 - Research, collect, collate, and review flood related data
 - Investigate and analyse
 - Include stakeholder engagement
 - Identify problems, options and mitigation measures
- When?
 - 15-18mth staged programme, commenced March 2014
- Where and why ?
 - Easebourne, Lavant, Lancing, Manhood, West Chichester, Billingshurst & Hassocks
 - Locations with identified flooding issues, as part of Operation Watershed response



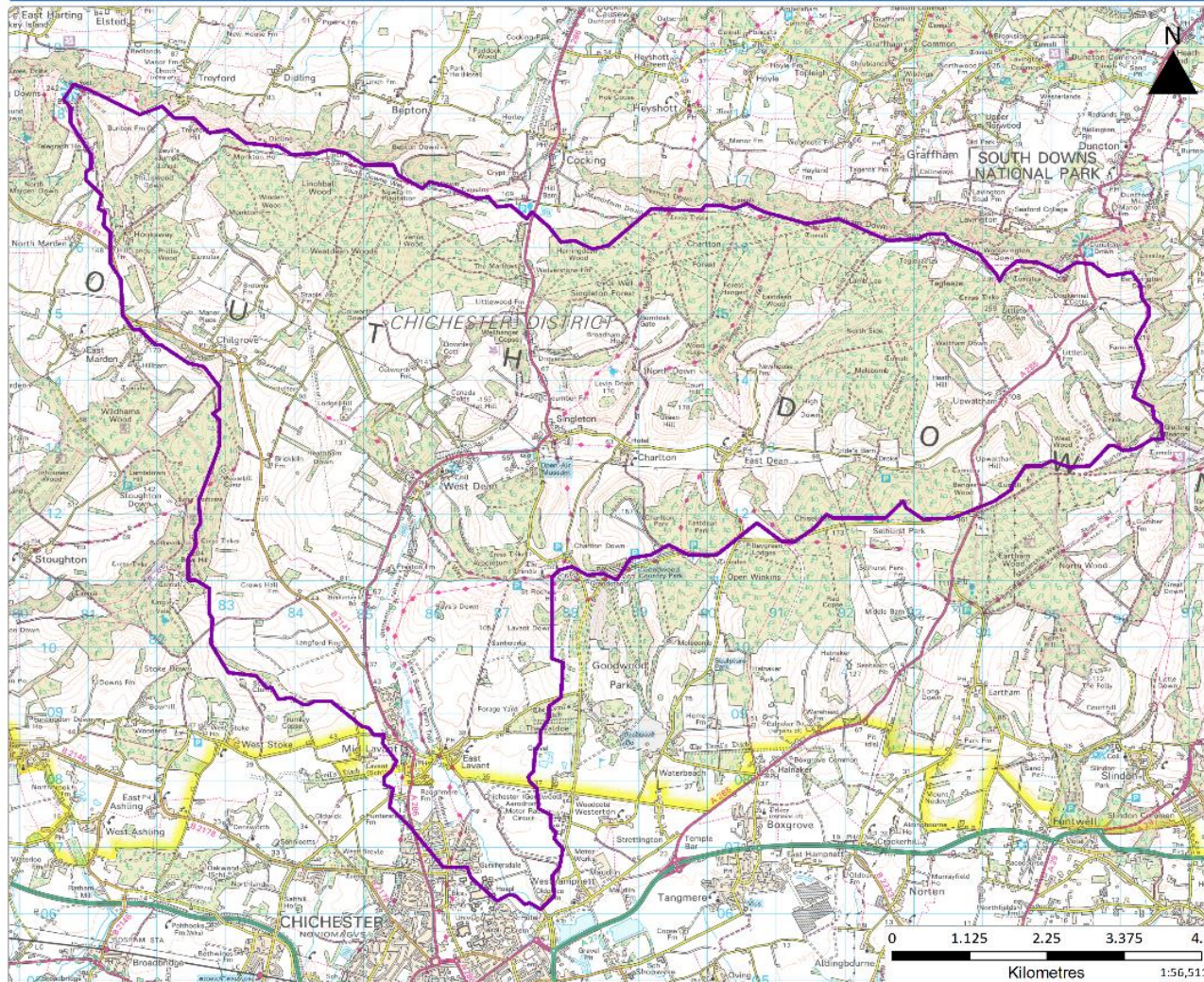
Objectives of the study

- The primary objectives of this study are to:
 - understand the flooding issues within the catchment;
 - consider current flood risk management practices within the Upper Lavant Valley;
 - identify localised capital and maintenance measures which can be taken, and;
 - provide evidence to prepare for, and respond to, flooding incidents



Study Area

Lavant SWMP



Legend

 Lavant Study Boundary

Upper Lavant SWMP Study Area

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Checked by: Ali Cotton (17-Dec-14)

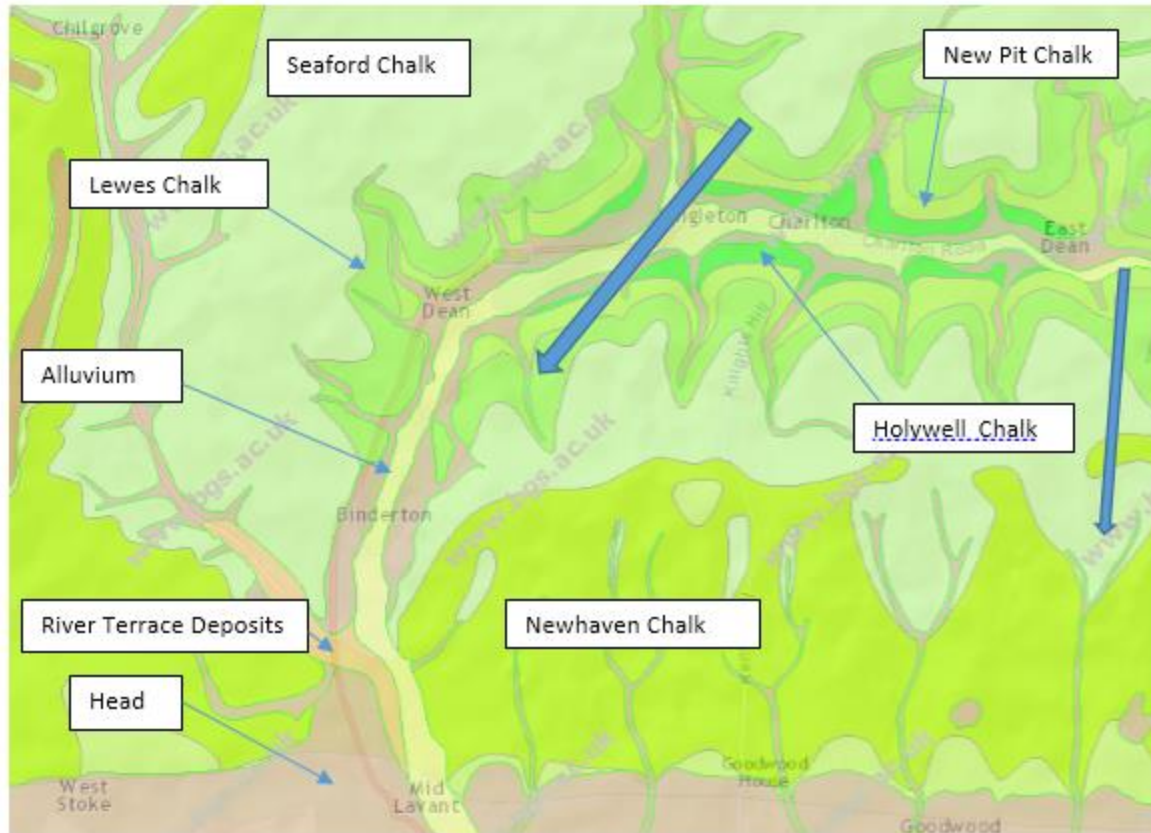
Recent flooding issues and impacts

- 1994 – Extensive flooding in the valley (and serious fluvial flooding in Chichester)
- 2000/01 – Flooding in valley and widespread through Southern England
- 2012/13 & 2013/14 – two of the wettest winters on records

Village	Properties / Infrastructure affected by flooding (2013/14)
East Dean	Several properties suffer basement flooding Butchers Lane and Main Road are flooded (not impassable)
Charlton	Charlton Road flooded along various sections from East Dean to Charlton Flooding also occurs at both bridges through Charlton
Singleton	2-5 properties flooded due to direct groundwater flooding, overtopping of the River Lavant and sewer flooding Charlton Road flooded along various sections from Charlton through to Singleton Flooding also occurs on the A286 and Cobbler's Row
Chilgrove & Chilgrove Road	Extensive flooding on Chilgrove Road which causes dangerous driving conditions
West Dean	2-3 properties at risk of flooding from overtopping of River Lavant and direct groundwater flooding (only one property suffered basement flooding in 2013/14 event)
Mid & East Lavant	3 properties on Pook Lane and memorial hall at risk of flooding from overtopping of River Lavant (no property flooding in 2013/14). Sheepwash Lane and Pook Lane flooded

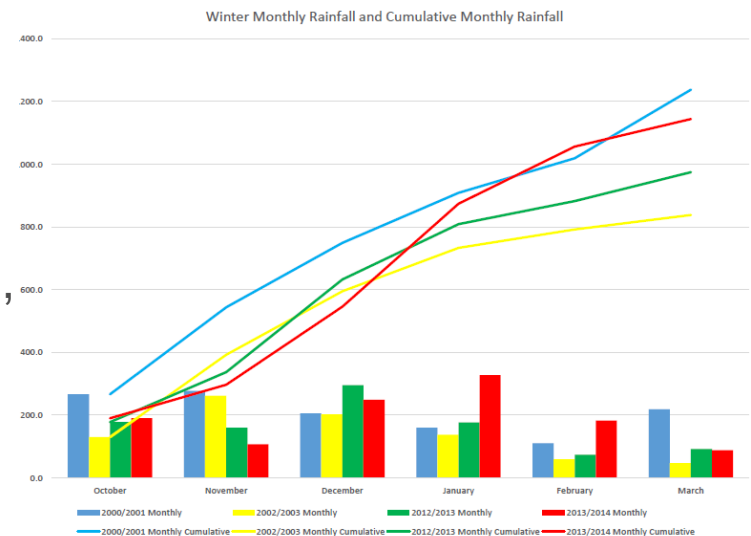
Understanding of flooding mechanisms

Geological and Hydrogeological Setting

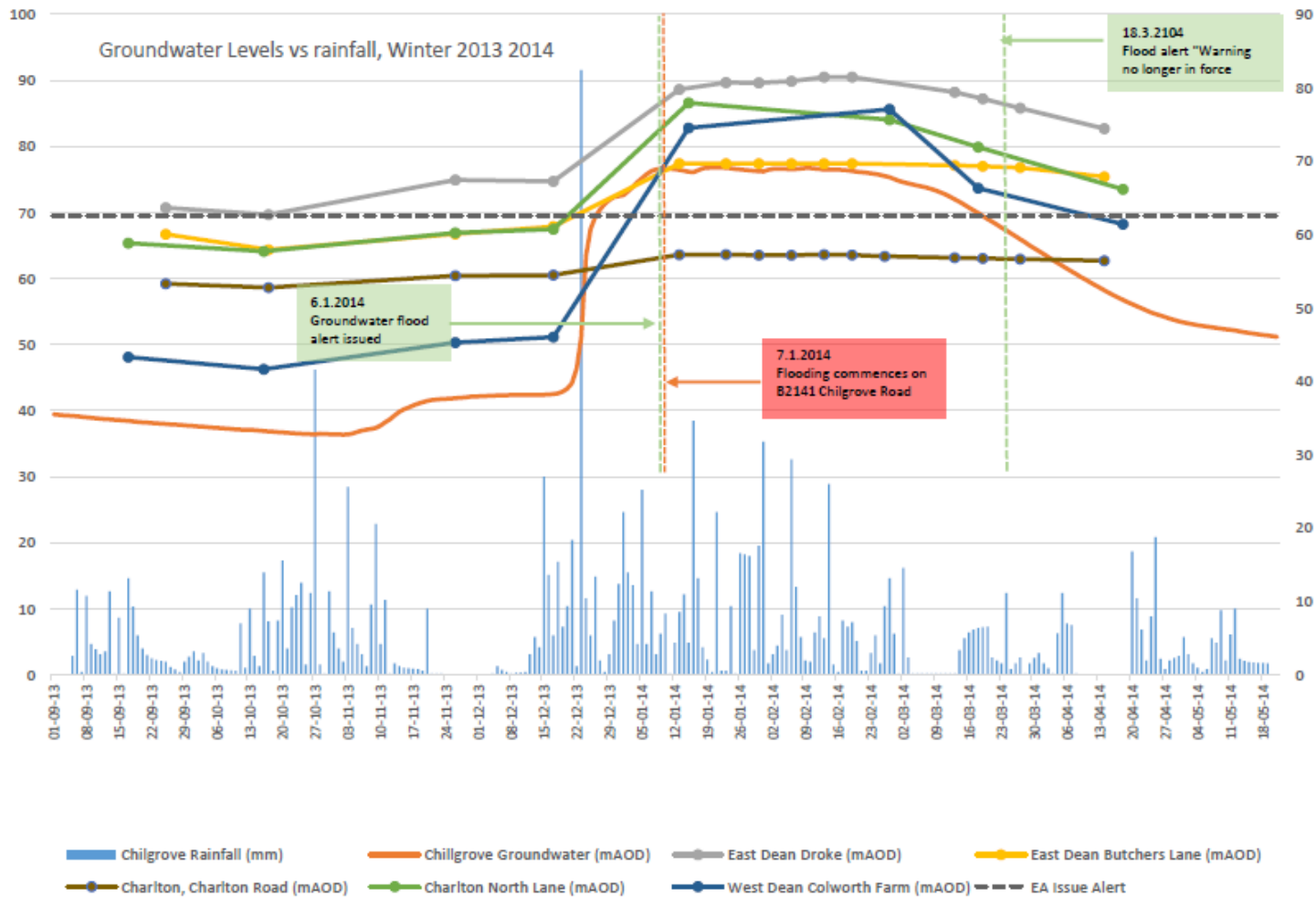


Flood behaviour

- Groundwater levels respond to rainfall, fluctuating seasonally but able to absorb and buffer winter rainfall
- With extreme and cumulative rainfall events (such as 1994, 2000/01, 2002/03, 2013/14) the chalk becomes supersaturated and levels respond rapidly to rainfall
- With extreme groundwater levels the catchment is no longer able to buffer rainfall, this results in:
 - increased flow in the Lavant
 - infiltration into sewers,
 - groundwater emergence in basements,
 - some new spring discharges



Groundwater level monitoring



Triggers and warnings

- Monitored groundwater levels at Chilgrove House may be related to flood events occurring in the Lavant Valley
- These may be used to set “trigger” levels to prompt different actions:
 - The issue of flood information
 - The imposition of traffic controls
 - The implementation of other emergency measures
- We are considering monitoring other boreholes to refine local trigger levels and responses

Action plans to alleviate flood risk

Types of measures



Capital Works

- Investment in infrastructure needed to improve conveyance of flows or protect properties



Enhanced Maintenance

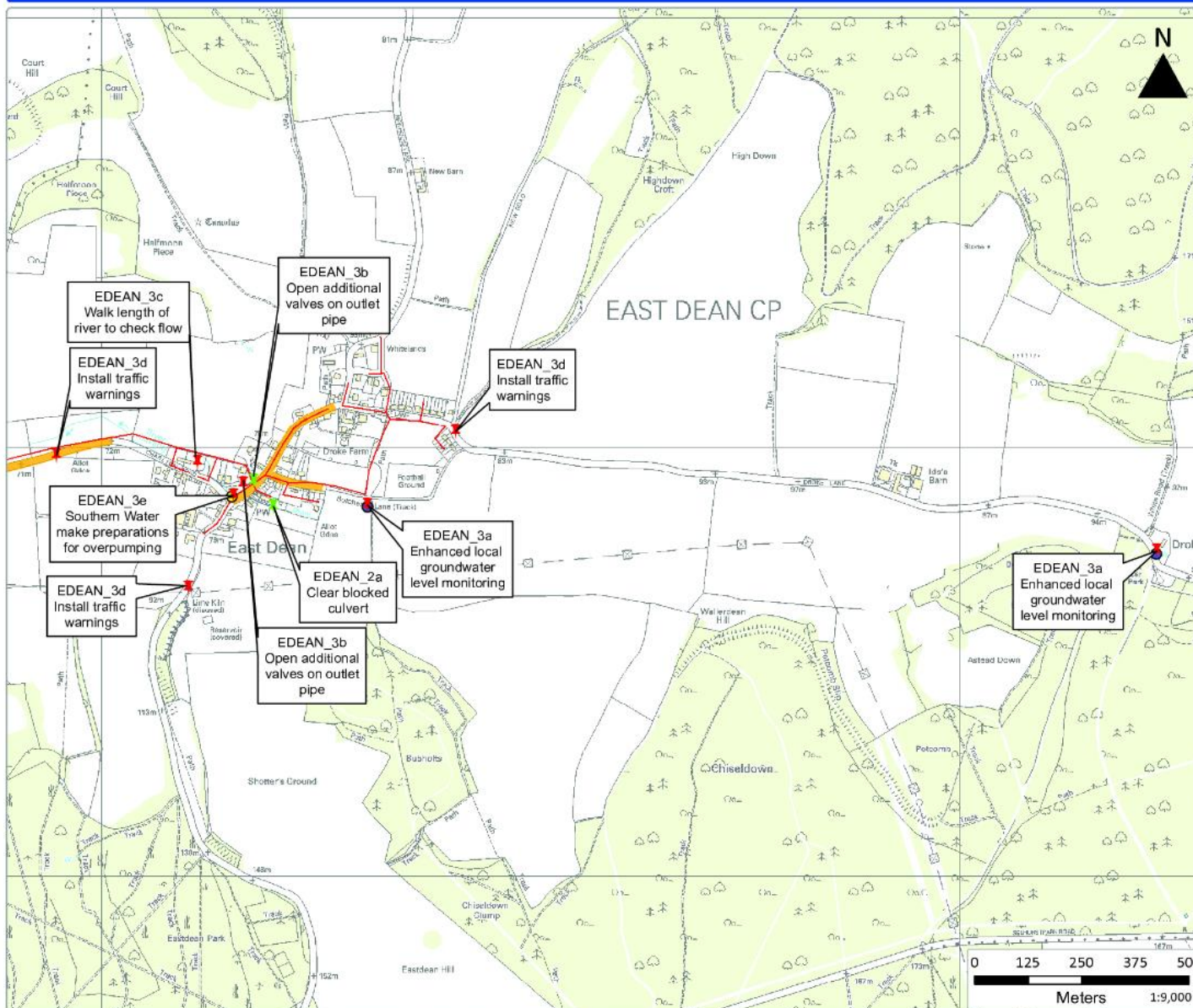
- Measures to ensure that the conveyance of drainage and watercourses is effective during times of flooding incidents



Emergency Planning

- What local authorities, parish councils, Southern Water and homeowners need to do to reduce the impacts of flooding when certain threshold levels are reached in the catchment

Lavant SWMP



Legend

Type

- + Emergency Planning and Actions
- + Enhanced Maintenance
- Overpumping & tankering locations
- EA boreholes locations
- Foul Sewer
- Roads susceptible to flooding

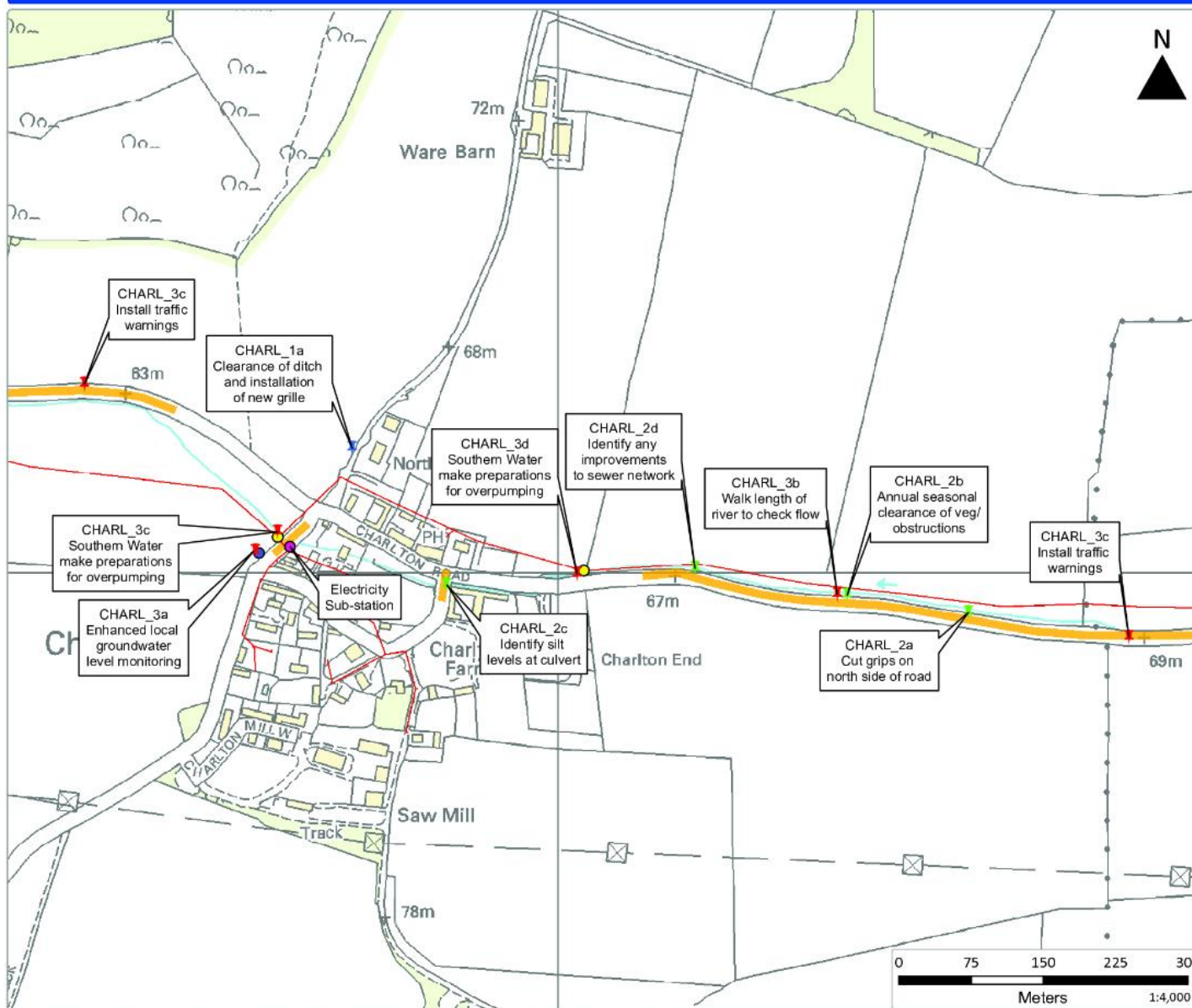
East Dean Measures to mitigate flood risk

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Lavant SWMP



Legend

Type

- + Capital Improvements
- + Emergency Planning and Actions
- + Enhanced Maintenance
- Critical infrastructure
- Overpumping & tankering locations
- EA boreholes locations
- Foul Sewer
- Roads susceptible to flooding

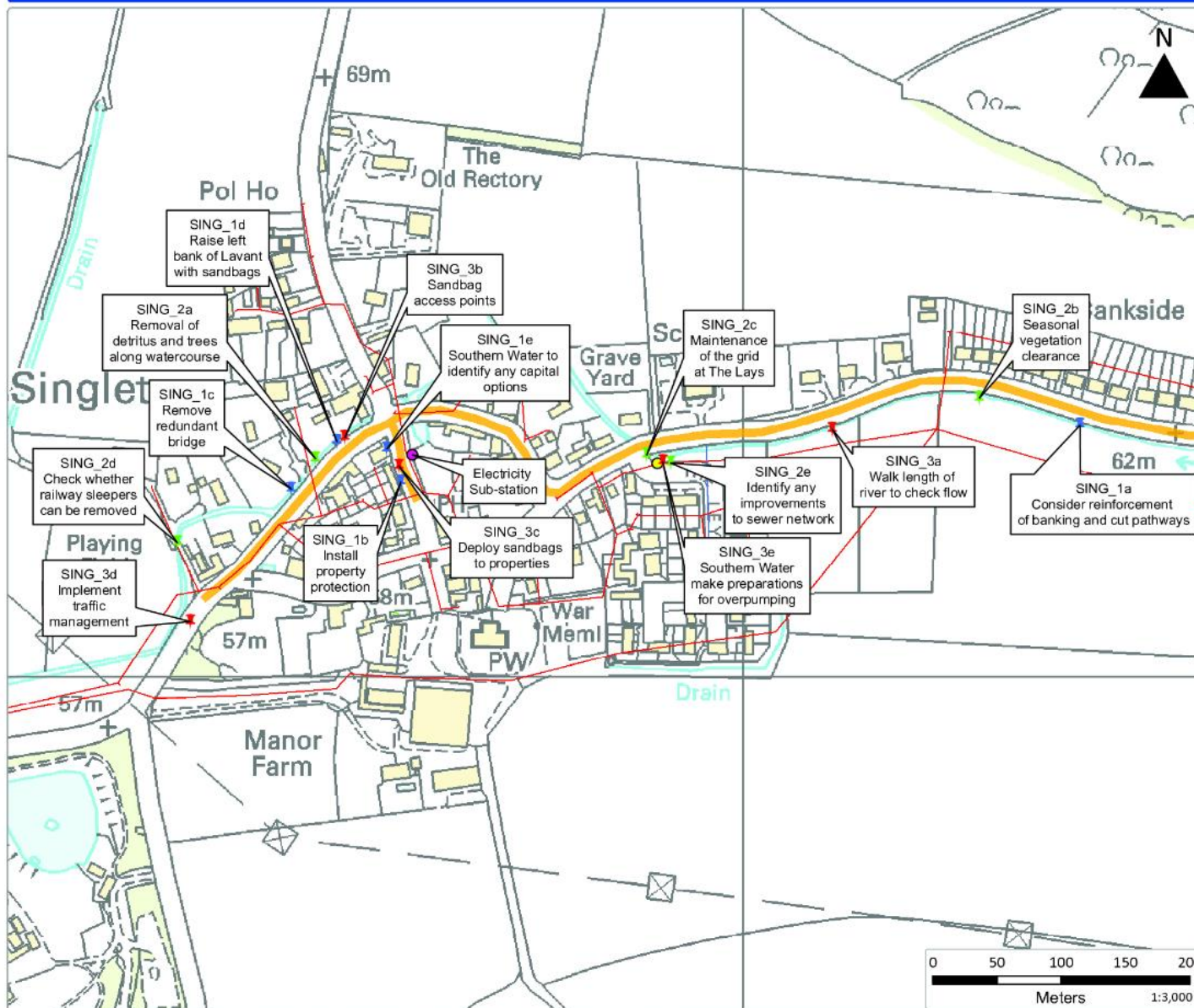
Charlton Measures to mitigate flood risk

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Lavant SWMP



Legend

Type

- + Capital Improvements
- + Emergency Planning and Actions
- + Enhanced Maintenance
- + Critical infrastructure
- + Overpumping & tankering locations
- Foul Sewer
- Surface Water Sewer
- Roads susceptible to flooding

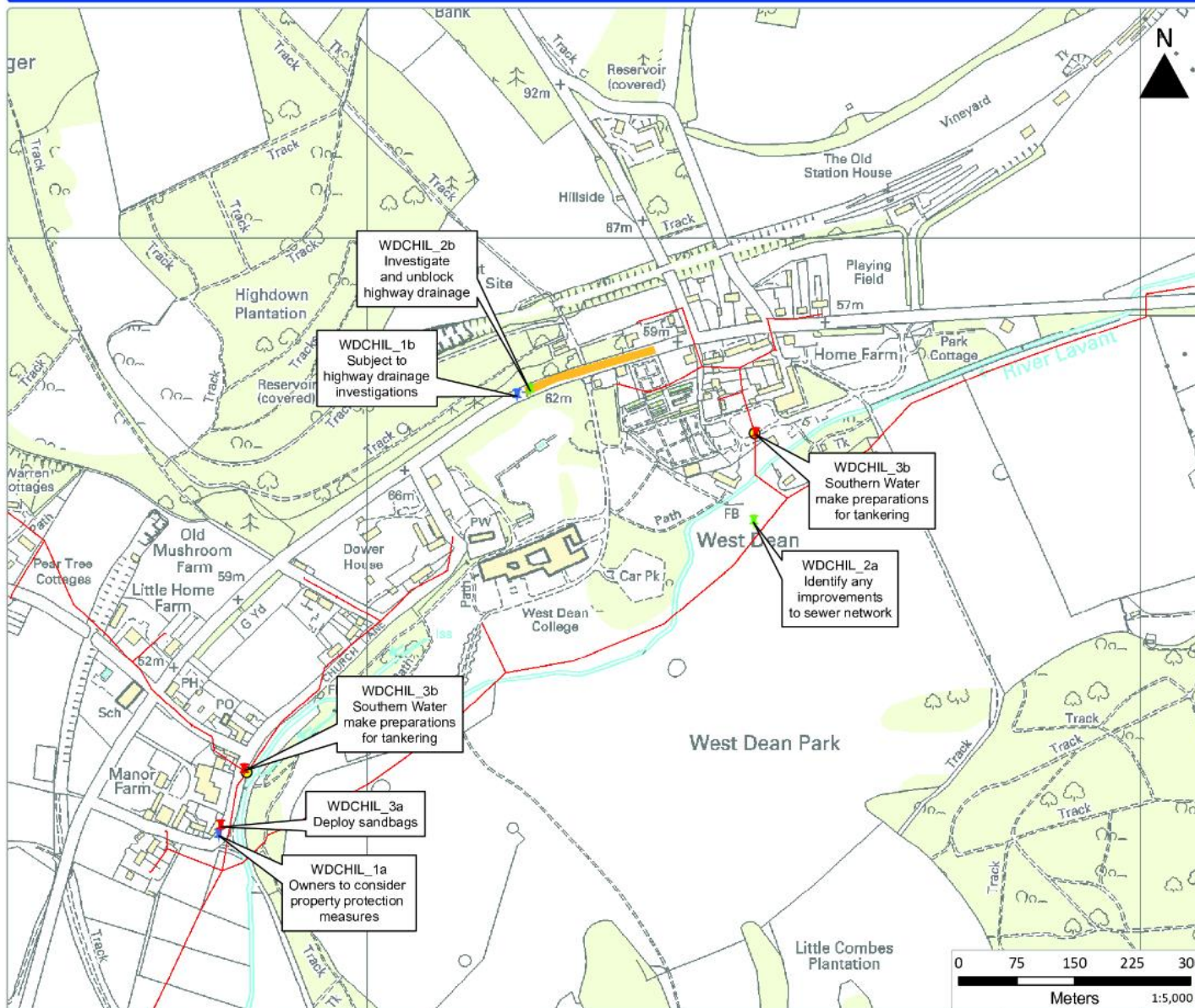
Singleton Measures to mitigate flood risk

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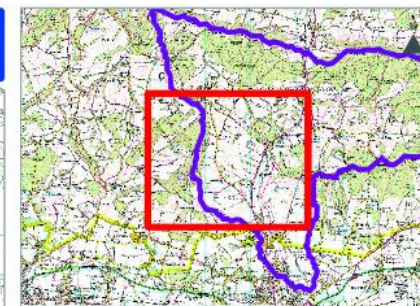
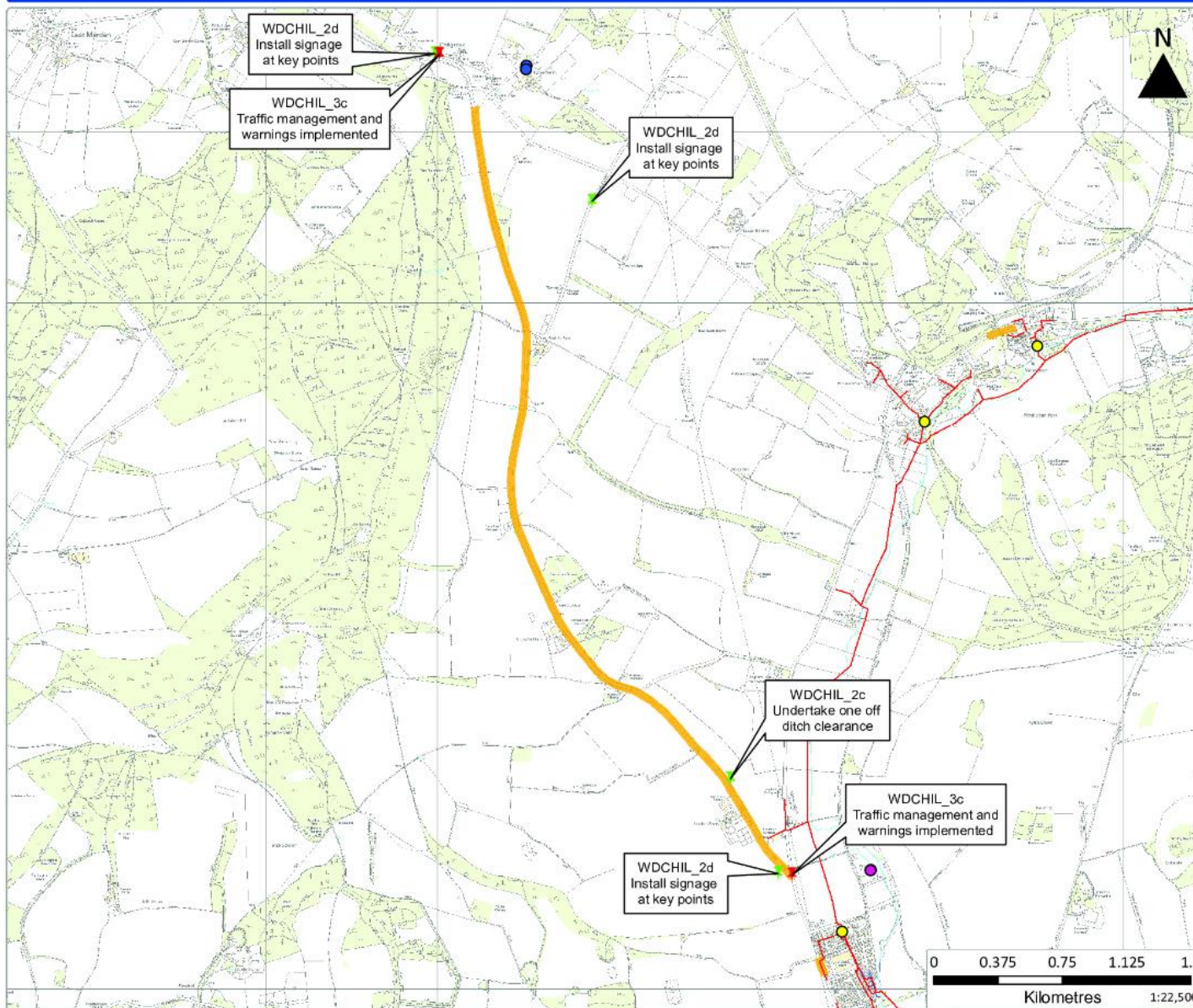
West Dean Measures to mitigate flood risk

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Lavant SWMP



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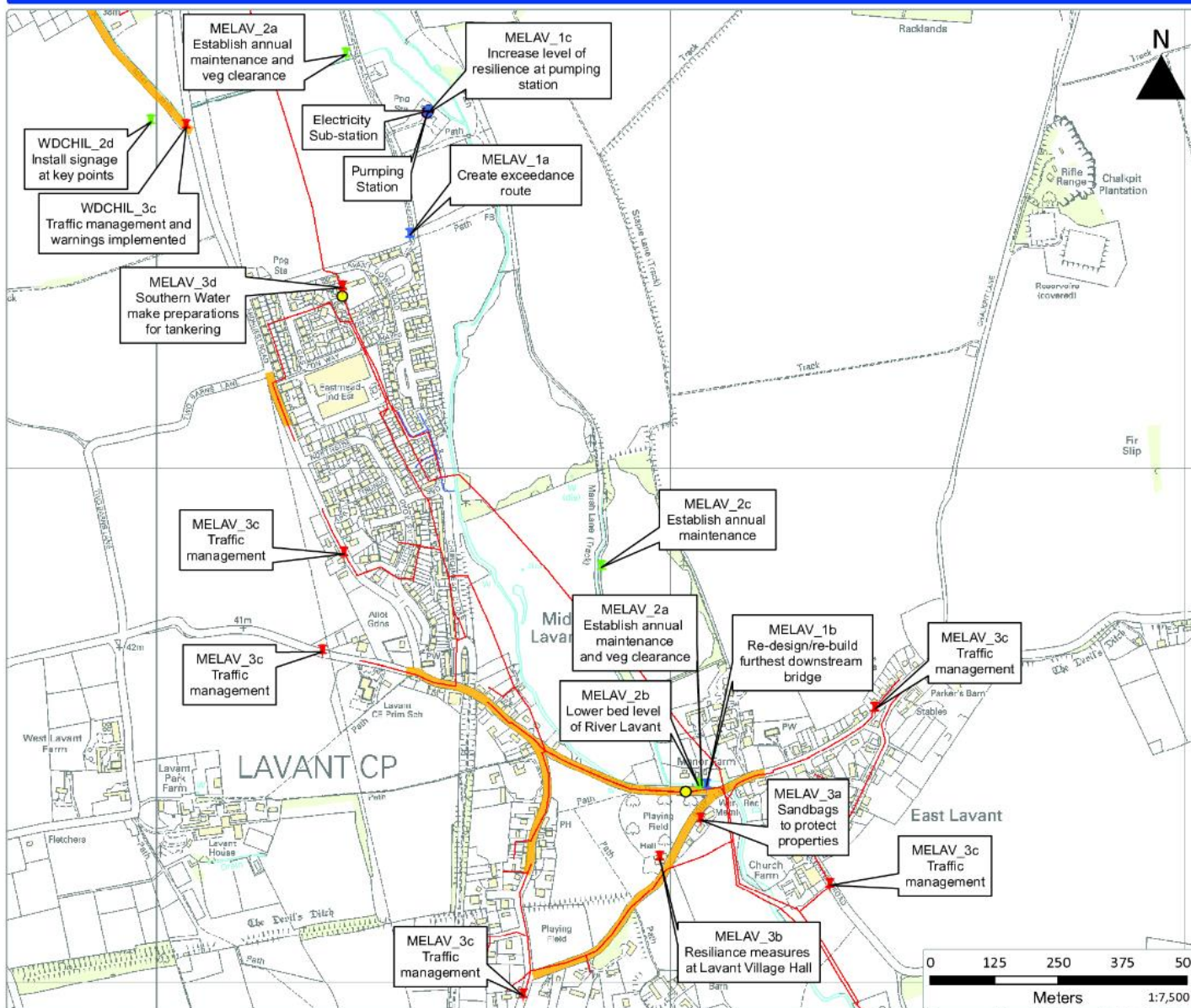
Chilgrove Road Measures to mitigate flood risk

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Lavant SWMP



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- Capital Improvements
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- Enhanced Maintenance
- Critical infrastructure
- Overpumping & tankering locations
- Foul Sewer
- Surface Water Sewer
- Roads susceptible to flooding

Mid & East Lavant Measures to mitigate flood risk

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Next Steps

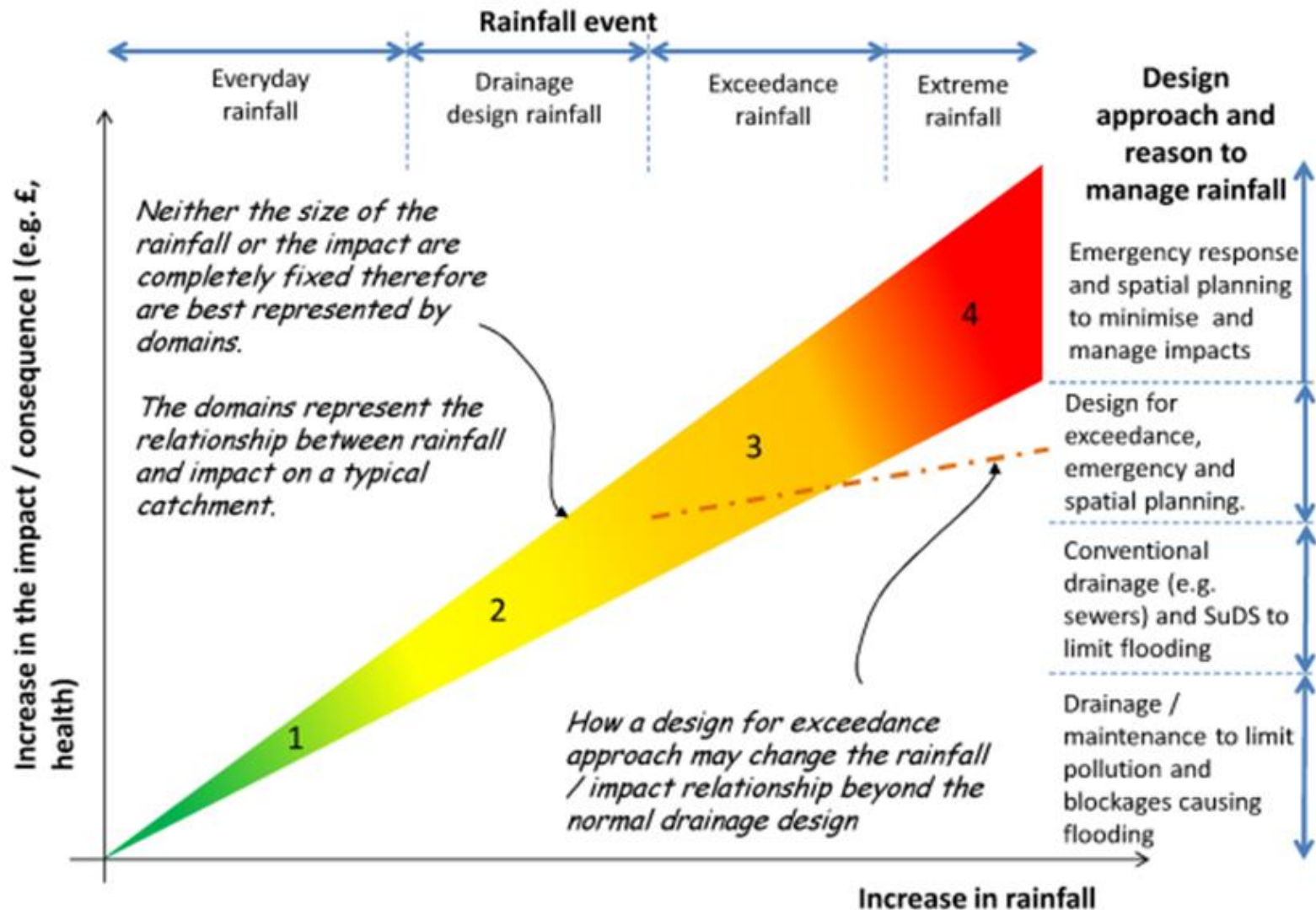
Thank You

Questions



ch2m.SM

Identifying appropriate measures



Environment Agency Flood Warning Information

- ***Flood Warnings Direct***- register online or by telephone

- ***Floodline*** **0345 988 188**

- ***Flood Warning Areas***

- River Lavant at Mid Lavant and East Lavant

[Quick Dial:- Floodline, Option 1, **01232114**]

- River Lavant at West Hampnett

Quick Dial:- Floodline, Option 1 **01232115**]

- ***Groundwater Flood Alert Area***

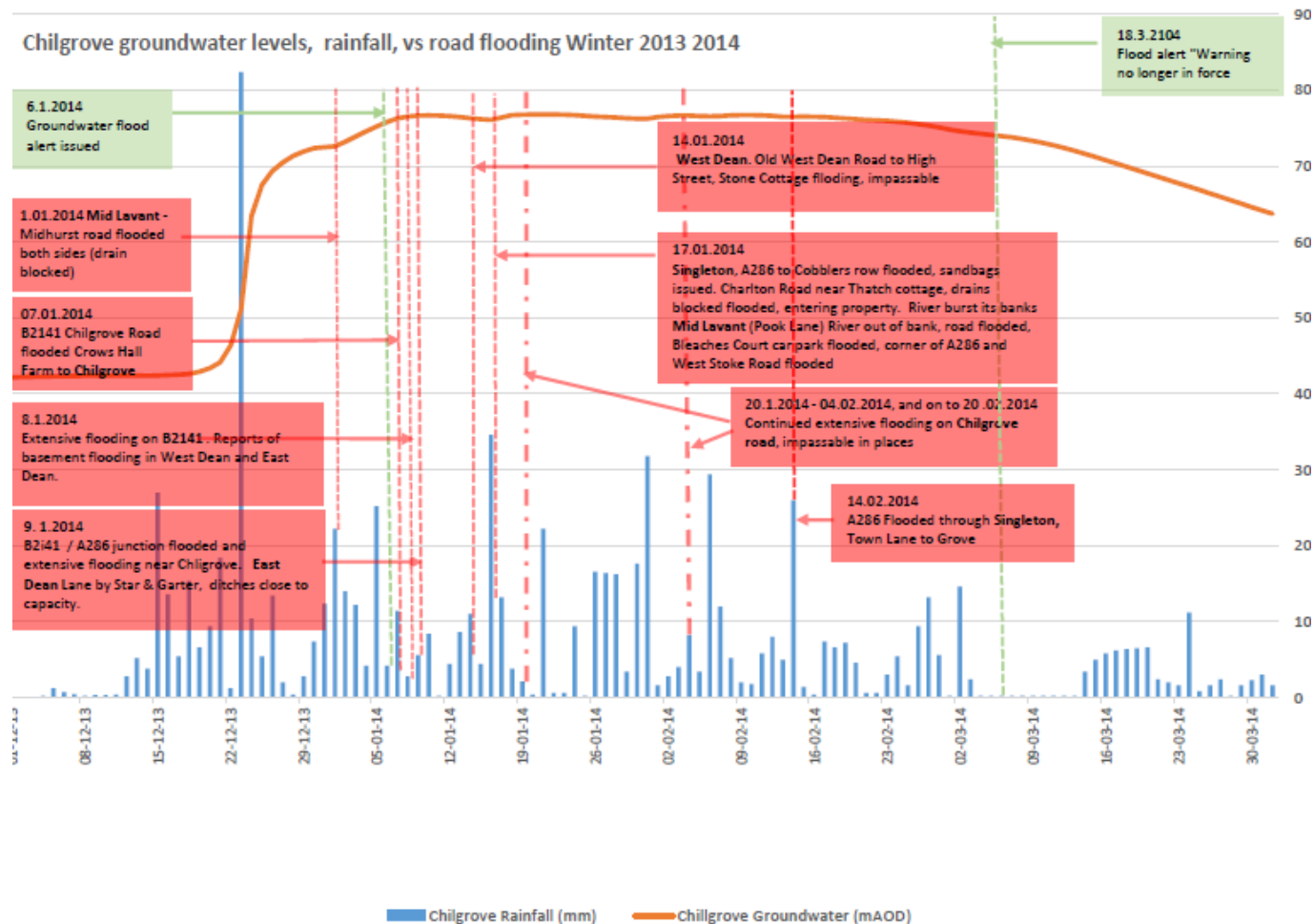
- Communities at risk of groundwater flooding...East Dean, Charlton, Singleton, West Dean, Chilgrove

[Quick Dial:- Floodline, Option 1, **0123411**]



ENVIRONMENT
AGENCY

Groundwater levels vs road flooding



Groundwater levels vs sewer flooding

