



Cambridge Market Square – Setts & Fountain

Alan Wright BEng(Hons) FStructE MICE MCIQB
Conservation Accredited Engineer



MARKET SQUARE RESIDENT - ROLAND – 4.22am 30 MAY 2022

MEETING OBJECTIVES:

To outline the progress in considering the condition and repair of the late 19th Century Leicester Pink Granite Setts and the remains of the 1850's Fountain.

Review the historical development of The Square and the extent of alteration and disturbance of the setts outlining the impacts on 'access for all' in using The Square as a public space.

Briefly outline the structural and serviceability repairs required to the fountain.

Finally, outline the next steps in preparing a scheme for the continued use of The Square including the repair and continued use of both the setts and fountain.

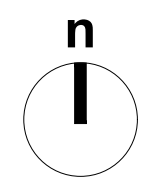
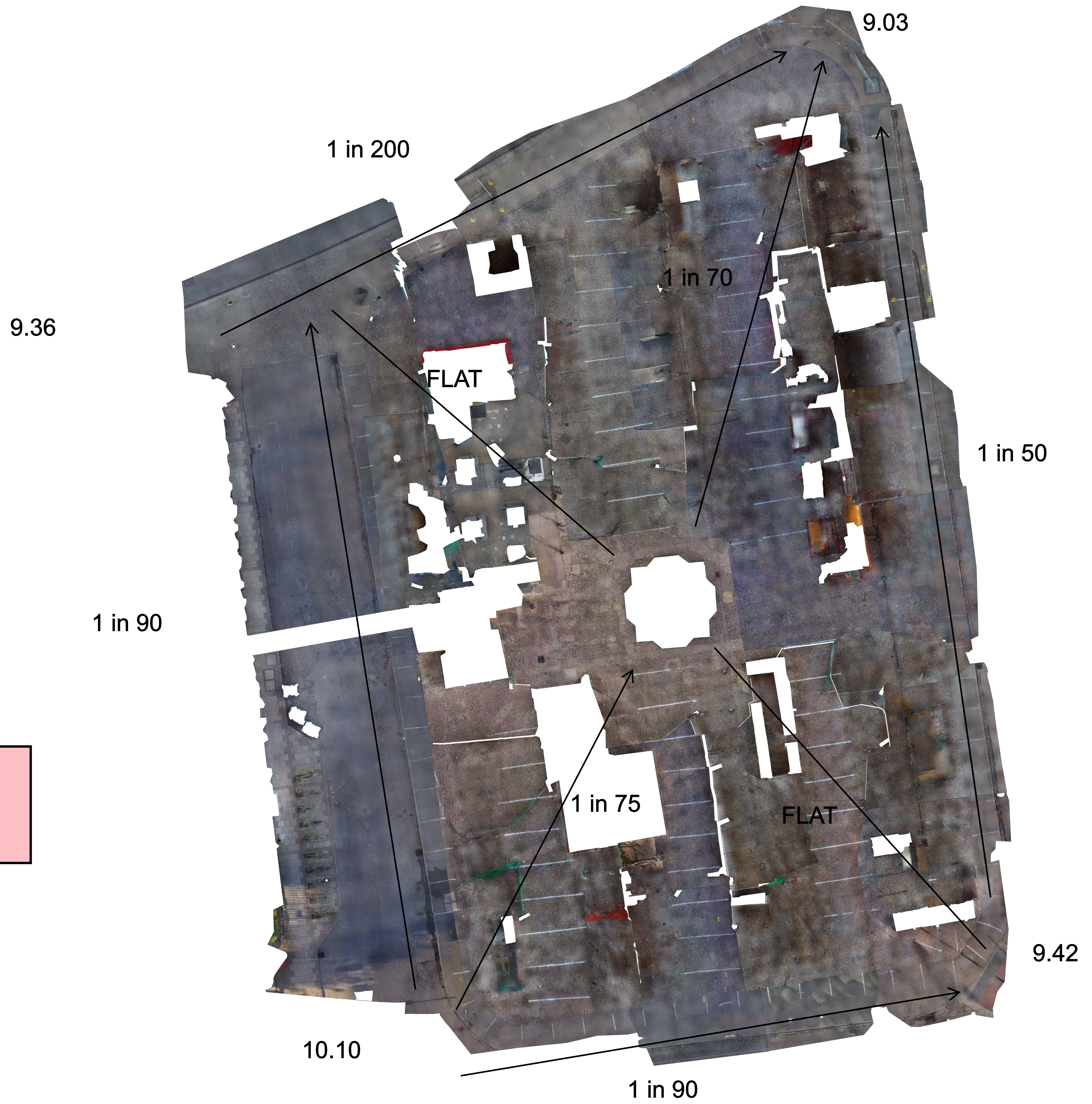
Agenda

- Introduction
- Topography + Development
- Access Audit
- Next Steps
- Fountain – Condition & Repair
- Next Steps



INTRODUCTION

OVERALL GROUND LEVELS
ACROSS MARKET SQUARE



rev.	date	description	dm	chk'd
P1	05/04/2022	PRELIMINARY ISSUE.	JHF	AW

NOTES
 Do not scale from this drawing, use figured dimensions only.
 All dimensions to be checked on site.
 All drawings to be read in conjunction with other contract documentation.
 Any discrepancies to be reported to the Contract Administrator before any work commences.
 © Copyright Wright Consulting



client:	CAMBRIDGE CITY COUNCIL	discipline:	STRUCTURAL ENGINEERING
project:	MARKET SQUARE	drawn:	JHF
dwg title:	PHOTOGRAPHIC SURVEY	chk'd:	AW
		date:	APR 2022
		scale:	@ A1
			N.T.S.
project no.:	--	rev.:	P1
dwg no.:	S002	status:	PRELIMINARY

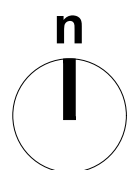
Wright | Consulting
 Colliers Lane
 Slow-cum-Quy
 Cambridge
 CB25 9AU
 T: 07957 430 204
 aw@awcoe.co.uk

GENERAL GROUND LEVEL
WEST TO EAST

LOCAL GROUND LEVELS CHANGES

GENERAL GROUND LEVEL SOUTH TO NORTH

TOPOGRAPHY SUMMARY - RIDGE AND TROUGH OUTLINES CREATES NARROW LINES FOR STALLS



NOTES

Do not scale from this drawing, use figured dimensions only.
All dimensions to be checked on site.
All drawings to be read in conjunction with other contract documentation.
Any discrepancies to be reported to the Contract Administrator before any work commences.
© Copyright Wright Consulting



client: CAMBRIDGE CITY COUNCIL

project: MARKET SQUARE

dwg title: PHOTOGRAPHIC SURVEY

discipline	STRUCTURAL ENGINEERING	drawn	JHF	chk'd	AW	date	APR 2022	scale	@ A1
project no.	--	dwg no.	S002	rev.	P1	status	PRELIMINARY		N.T.S.

Wright | Consulting

Colliers Lane
Stow-cum-Quy
Cambridge
CB25 9AU

T: 07957 430 204
aw@awcoe.co.uk

P1	05/04/2022	PRELIMINARY ISSUE.	JHF	AW
rev.	date	description	dwn	chk'd

LARGER SETTS - 3" TO 3.5" x 5" to 12" LAID IN STAGGERED APPROXIMATELY HALF BOND

LARGER SETTS - 3" TO 3.5" x 5" to 12" LAID IN STAGGERED APPROXIMATELY HALF BOND

TARMAC OVER SETTS?

BASEMENT TOILETS & STORAGE

SMALLER SETTS - 2.5" TO 4" SQUARE OR RECTANGULAR LAID IN STAGGERED BOND

FOUNTAIN

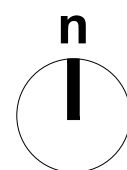
CONCRETE HARDSTANDING

CONCRETE HARD STANDING

LARGER SETTS - 3" TO 3.5" x 5" to 12" LAID IN STAGGERED APPROXIMATELY HALF BOND

SMALLER SETTS - 2.5" TO 4" SQUARE OR RECTANGULAR LAID IN STAGGERED BOND

PHOTOGRAPHIC SURVEY MARKED UP WITH SETT SIZE AND SURFACE FINISH



NOTES

Do not scale from this drawing, use figured dimensions only.
All dimensions to be checked on site.
All drawings to be read in conjunction with other contract documentation.
Any discrepancies to be reported to the Contract Administrator before any work commences.

© Copyright Wright Consulting

P1 05/04/2022 PRELIMINARY ISSUE.

JHF AW
dm chkd



client: CAMBRIDGE CITY COUNCIL

project: MARKET SQUARE

dwg title: PHOTOGRAPHIC SURVEY

discipline: STRUCTURAL ENGINEERING

project no. --

drawn: JHF
date: APR 2022

checked: AW
scale: @ A1
N.T.S.

rev. P1
status: PRELIMINARY

Wright | Consulting

Colliers Lane
Stow-cum-Quy
Cambridge
CB25 9AU

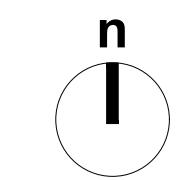
T: 07957 430 204
aw@awcoe.co.uk



KEY	
—	= ELECTRICAL CABLES & DUCTS - UKPN
—	= FOUL DRAINAGE - HURST SURVEYS 1991
—	= SURFACE WATER DRAINAGE (ABANDONED) - HURST SURVEYS 1991
—	= SURFACE WATER DRAINAGE (CURRENT) - HURST SURVEYS 1991
—	= GAS MAINS - CADENT

- E - STALL ELECTRICAL SUPPLY CABLE
- WM - WATER METER
- FH - FIRE HYDRANT
- G - SURFACE WATER GULLY
- MH - FOUL & SURFACE WATER MANHOLE

PHOTOGRAPHIC SURVEY OVERLAID WITH M&E SERVICES FROM HISTORICAL RECORDS



NOTES
 Do not scale from this drawing, use figured dimensions only.
 All dimensions to be checked on site.
 All drawings to be read in conjunction with other contract documentation.
 Any discrepancies to be reported to the Contract Administrator before any work commences.
 © Copyright Wright Consulting

rev.	date	description	JHF	AW
dm	chk'd			
P1	30/05/2022	PRELIMINARY ISSUE.	JHF	AW



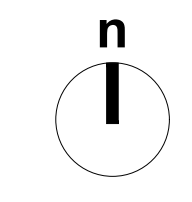
client: CAMBRIDGE CITY COUNCIL		project: MARKET SQUARE		Wright Consulting	
dwg title: PHOTOGRAPHIC SURVEY (WITH ASSUMED TRENCHES)					
discipline: STRUCTURAL ENGINEERING	drawn: JHF	chk'd: AW	date: APR 2022	scale: @ A1	Colliers Lane Slow-cum-Quay Cambridge CB25 9AU
project no. --	dwg no. S003	rev. P1	status: PRELIMINARY		T: 07957 430 204 aw@awcoe.co.uk



KEY	
—	= ELECTRICAL CABLES & DUCTS - UKPN
—	= FOUL DRAINAGE - HURST SURVEYS 1991
—	= SURFACE WATER DRAINAGE (ABANDONED) - HURST SURVEYS 1991
—	= SURFACE WATER DRAINAGE (CURRENT) - HURST SURVEYS 1991
—	= GAS MAINS - CADENT

20th & 21st Century Interventions - estimated trench excavation width for M&E services and basement or slab construction.

NOTE: Does not include unknown service routes included water meter, fire hydrant etc.



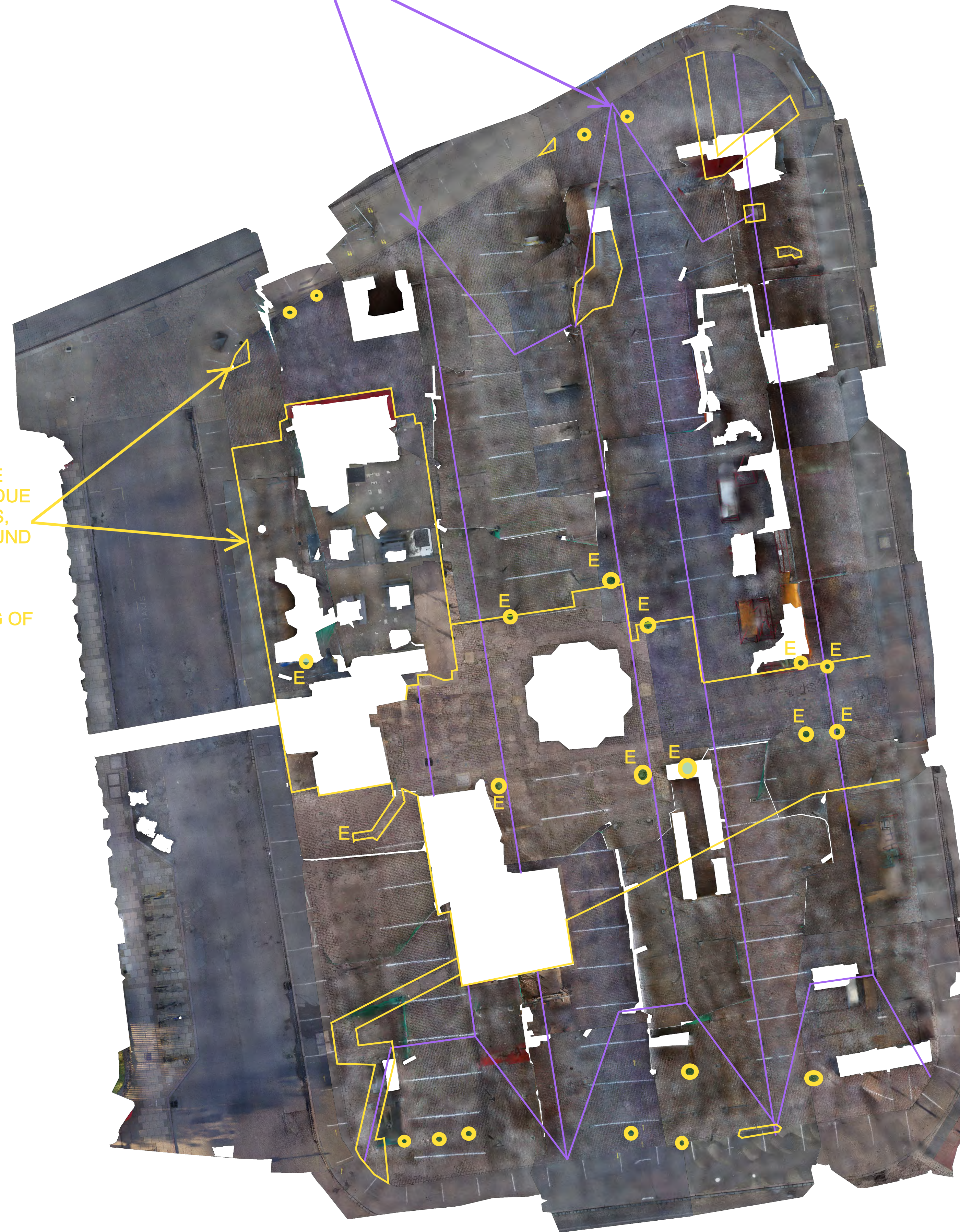
NOTES	
Do not scale from this drawing, use figured dimensions only.	
All dimensions to be checked on site.	
All drawings to be read in conjunction with other contract documentation.	
Any discrepancies to be reported to the Contract Administrator before any work commences.	
© Copyright Wright Consulting	

rev.	date	description	dm	chk'd
P1	30/05/2022	PRELIMINARY ISSUE.	JHF	AW



client:	CAMBRIDGE CITY COUNCIL	Wright Consulting
project:	MARKET SQUARE	Colliers Lane Slow-cum-Quay Cambridge CB25 9AU
discipline:	STRUCTURAL ENGINEERING	T: 07957 430 204 aw@awce.co.uk
project no.:	---	scale @ A1
dwg no.:	S003	N.T.S.
rev.:	P1	status:
		PRELIMINARY

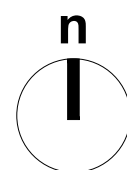
TOPOGRAPHY OF MARKET SET OUT FOR ORIENTATION



AREAS ENLCOSED BY YELLOW LINE ARE AREAS OF SIGNIFICANT DISTURBANCE DUE TO BASEMENT, PREVIOUS POST FIXINGS, ELECTRICAL SERVICES OR UNDERGROUND DRAINAGE INSTALLATION.

NOTE: THERE IS SOME DIFFICULTY IN DISTINGUISHING BETWEEN REPOINTING OF SETTS AND DISBURBANCE DUE TO UNDERGROUND INSTALLATIONS.

PHOTOGRAPHIC SURVEY MARKED UP WITH AREAS OF SIGNIFICANT SETT DISTURBANCE



NOTES

Do not scale from this drawing, use figured dimensions only.
 All dimensions to be checked on site.
 All drawings to be read in conjunction with other contract documentation.
 Any discrepancies to be reported to the Contract Administrator before any work commences.
 © Copyright Wright Consulting

rev.	date	description	dm	chk'd
P1	05/04/2022	PRELIMINARY ISSUE.	JHF	AW



client:	CAMBRIDGE CITY COUNCIL
project:	MARKET SQUARE
dwg title:	PHOTOGRAPHIC SURVEY
discipline:	STRUCTURAL ENGINEERING
project no.:	--

drawn:	JHF	chk'd:	AW	date:	APR 2022	scale:	@ A1
rev.:	P1	status:	PRELIMINARY				

Wright | Consulting
 Colliers Lane
 Stow-cum-Quy
 Cambridge
 CB25 9AU
 T: 07957 430 204
 aw@awce.co.uk

Sett Repair Considerations (not exhaustive):

- 1. Square Use – Load carrying capacity of setts, alignment and drainage, stall installation & layout**
- 2. Slip, trip and falls – surface, alignment, level, moisture, holes etc**
- 3. Consider the Public Sector Equality Duty -** Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act. Advance equality of opportunity between people who share a protected characteristic and those who do not. Foster good relations between people who share a protected characteristic and those who do not
- 4. Statutory Services – Access, maintenance, repair and alteration**
- 5. Surface Water Drainage – Inadequate for current rainfall without any future FRA allowances**
- 6. Underground Voids – condition, capacity and reuse – archaeology**
- 7. Understand the historical development of The Square - respect the past and repair for the future – incorporating security, structural & service capacity and environmental health needs**



Photo 6: Surface in zone 11 with falls steep enough to be considered ramps.



Photo 7: Walkway in zone 3 showing cross falls of 1 in 21.



Photo 8: Zone 12 showing falls of 1 in 15 which is considered to be a ramp.



Photo 9: Zone 10 example showing falls to open channel between stalls.



Photo 10: A 3 sett wide open channel running across Zone 3.



Photo 11: A 5 sett wide open channel running between rows of stalls.



Photo 12: Example of 5 sett wide channel between stalls in zone 10.



Photo 13: Broken and deeply recessed grating between zone 3 & 4.



Photo 14: A 45mm deep channel on a main walkway in zone 12



Photo 15: A drainage grating in zone 11 with 20mm wide slots.

At its worst, there are areas of the surface which are unsafe and the undulations, unfilled joints and setts are sufficient to throw wheelchair or scooter users out of their device, particularly if they encounter them at any speed. This is particularly the case around the fountain at present.



Photo 16: Significant lip, missing pointing and rounded setts in zone 11.



Photo 17: Loose setts missing pointing and rounded setts in zone 3.



Photo 18: Zone 11 showing unevenness and worn pointing



Photo 19: Zone 11 showing significant hazard and rounded/damage setts.



Photo 20: Undulation of 20mm on walkway in zone 3.



Photo 21: Undulation of 25mm on the edge of zone 3 and zone 11.



Photo 22: Example of one of the flatter setts with rounding to the edges.



Photo 23: Example of one of the more rounded setts in zone 10.



Photo 24: General view of worn pointing and rounded setts in zone 10.



Photo 25: General view of worn pointing and rounded setts in zone 1.



Photo 26: Missing and worn pointing to uneven surfaced setts in zone 2.



Photo 27: Example of rounded setts in zone 5.



Photo 28: Example of how rounding of setts creates undulations, zone 2.



Photo 29: Zone 2 example of worn pointing and rounded/damaged setts.



Photo 30: Lack of effective dropped kerb to south west corner.



Photo 31: Missing pointing and uneven setts to north west crossing.

IDACS (UK) Access Audit findings:

- 1. Report sets out how the Equality Act 2010 applies to the Market Square noting disabled people's access needs do not change because a surface is Listed.**
- 2. Inherent Issues in the shape and setting of the setts causing vibration**
- 3. Large areas of The Square have gradients in excess of current benchmark guidance**
- 4. Surface Water Drainage channels and gullies are some of the steepest gradients but often falls under Market Stalls**
- 5. Currently there are isolated areas of loose or missing setts to be repaired**
- 6. Recommendation that wider consultation with people with health conditions and impairments**
- 7. Recommendation that trial panels of sett surfacing are prepared for trialling and agreement with HE**
- 8. Recommendation the surfaces of The Square are re-laid incorporating new surface water drainage**

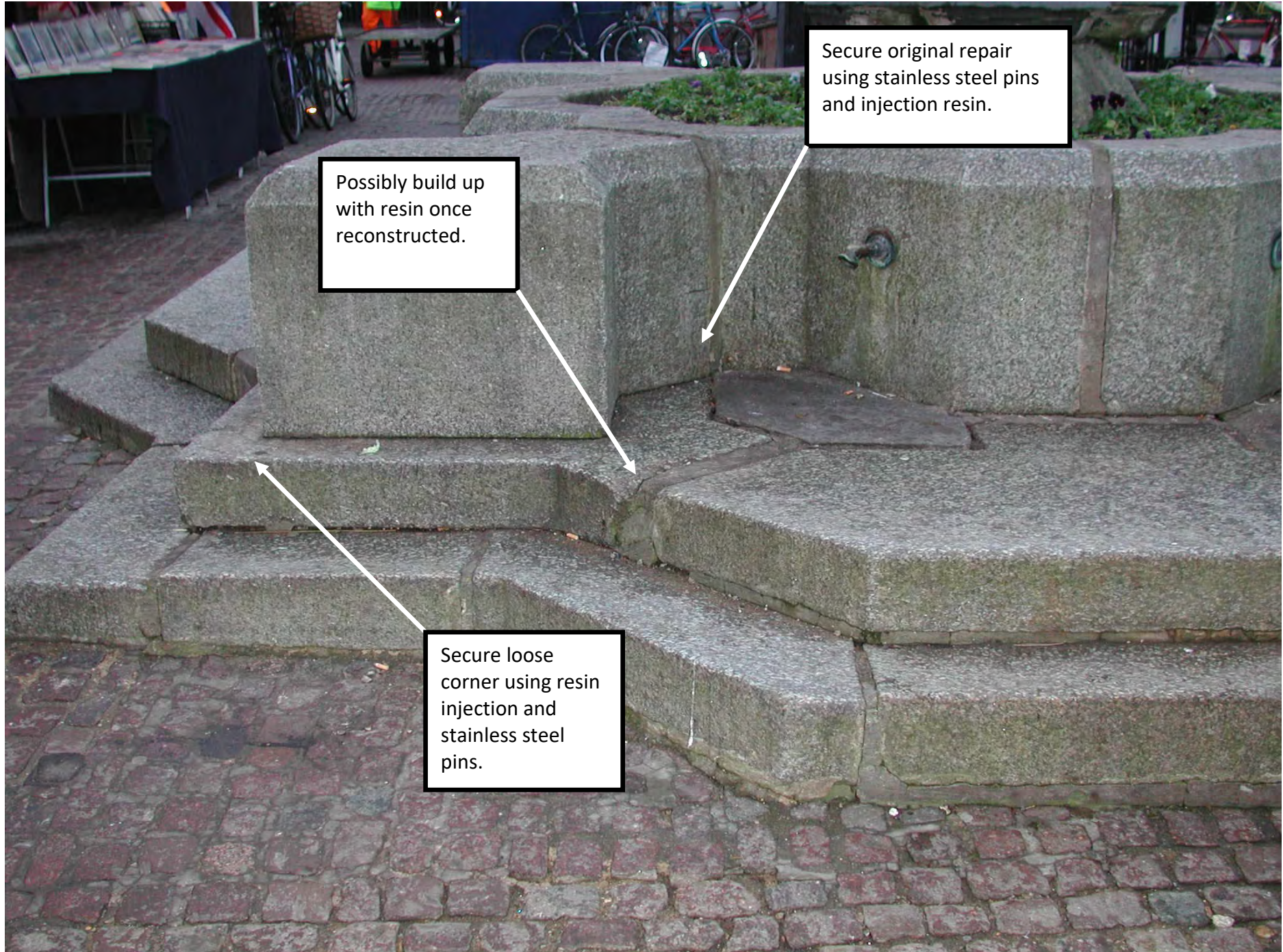
Next Steps for Sett Surface:

- 1. Short Term safety risk assessment and surface repairs completed**
- 2. Agree a Repair & Maintenance Strategy**
- 3. Equality and Access Officers to prepare impact assessment of setts**
- 4. Engagement with local user groups with protected characteristics**
- 5. Preparation of trial panels as test bed for consultation with HE and Access Groups**
- 6. Resurfacing of The Square planned within wider Project**









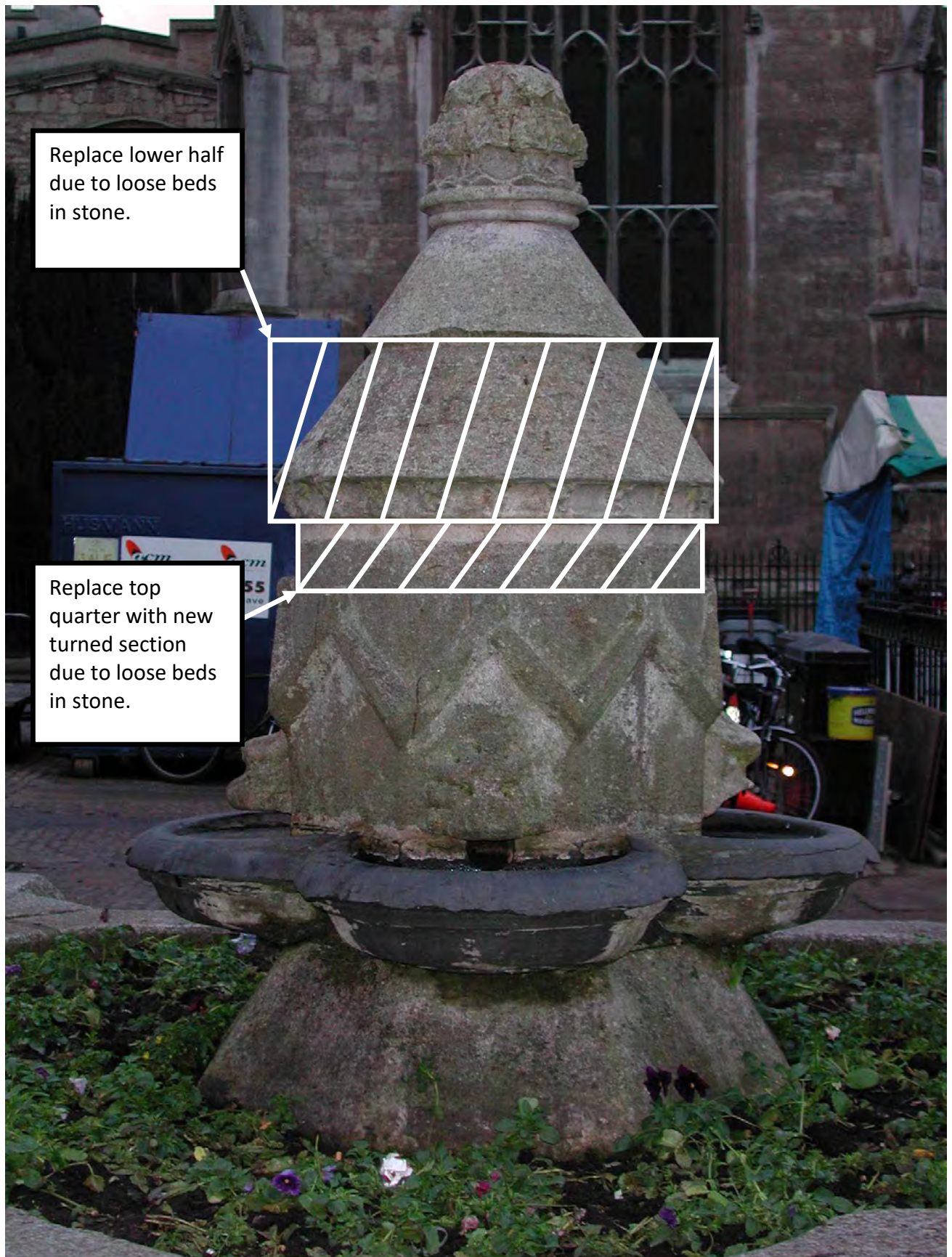
Possibly build up with resin once reconstructed.

Secure original repair using stainless steel pins and injection resin.

Secure loose corner using resin injection and stainless steel pins.

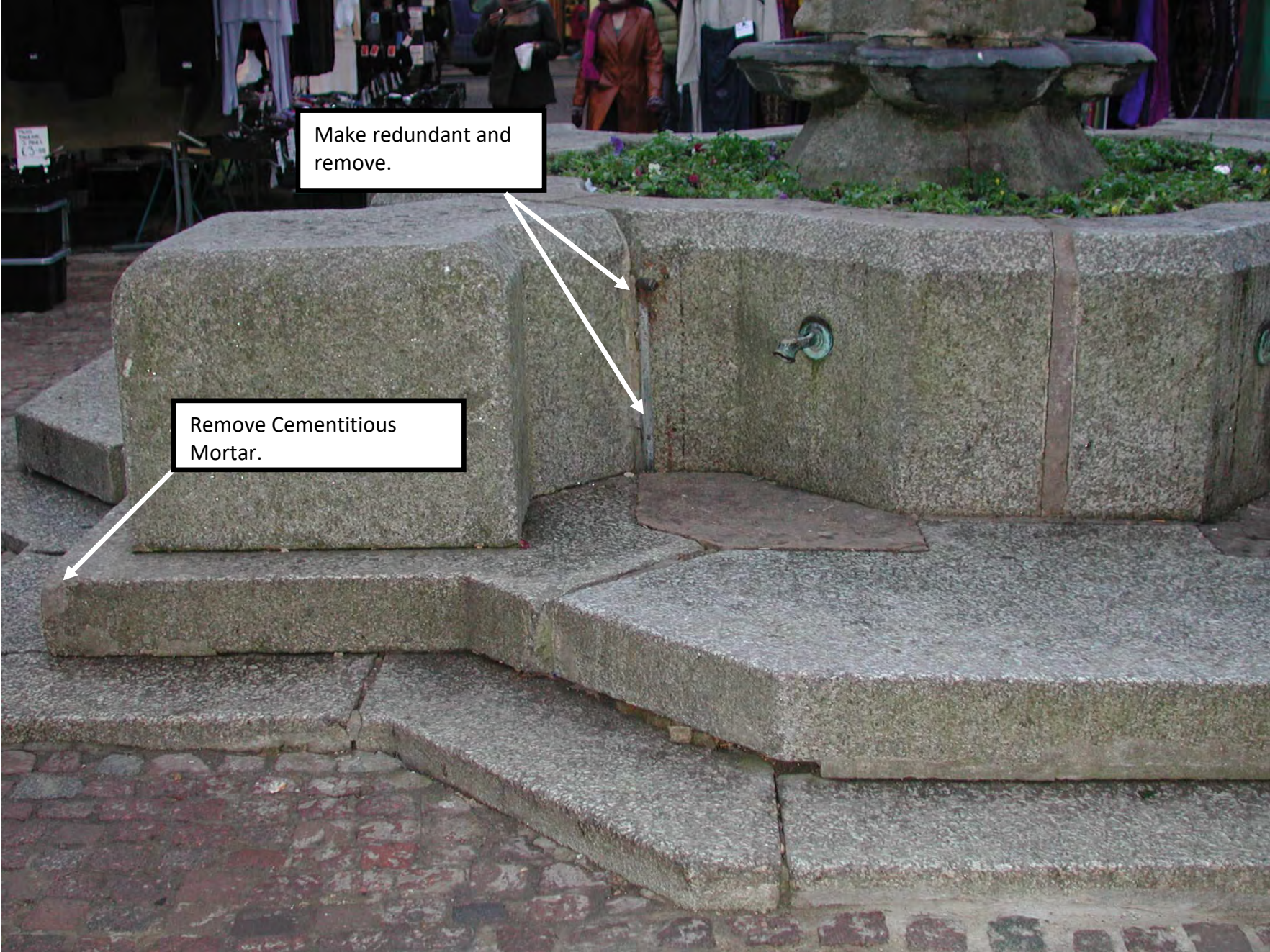


East Elevation of Top and Bowls

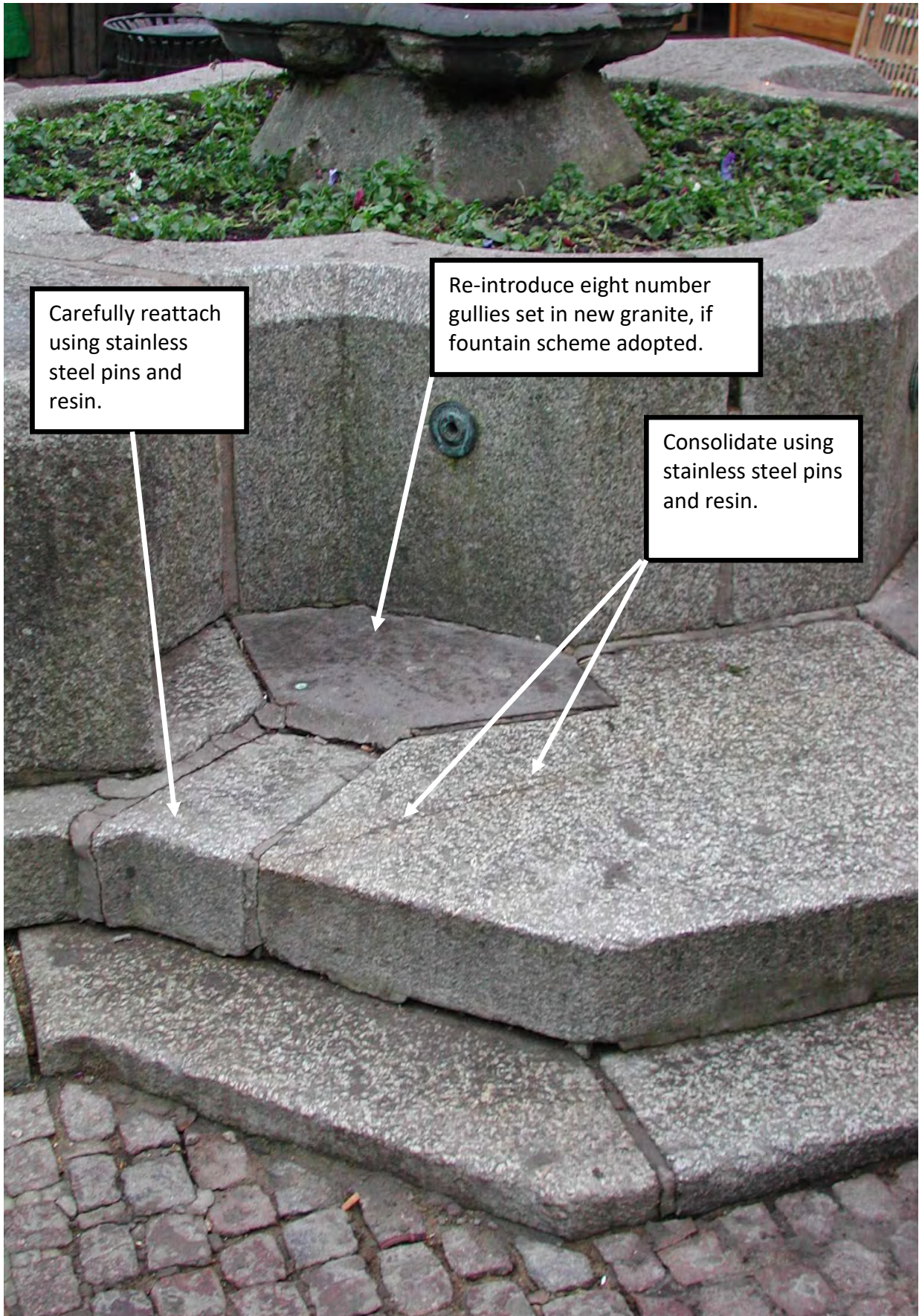




Create fascia in granite to suit new detail if fountain feature incorporated.















Fountain Repair Considerations (not exhaustive):

- 1. Historical development – understand, maintain and repair**
- 2. Fountain Repair – Progressive foundation movement, creation of under-surface voids, iron cramp corrosion, vandalism**
- 3. Fountain Use – Load carrying capacity of underground vaults, water supply and drainage, protection etc**
- 4. Statutory Services – Access, maintenance, repair and alteration**
- 5. Archaeology – unlikely but possible ref. trench 2001**
- 6. Surface Water Drainage – additional capacity if water reinstated**
- 7. Respecting the past and repairing for the future – servicing, security, structural & service capacity and environmental health**

Next Steps for Fountain Repair:

- 1. Schedule of Immediate Repair Works is to be prepared**
- 2. Agreement of surface repairs with Conservation Officer**
- 3. Immediate surface repairs to proceed in 2024**
- 4. Long term use and repair of the Fountain to be considered as part of wider project**