

Agenda No

AGENDA MANAGEMENT SHEET

Name of Committee **Stratford on Avon South Joint Committee**

Date of Committee **25 September 2008**

Report Title **Investigations for the Upgrading of Lucy’s Mill Footbridge, Stratford-upon-Avon**

Summary Two feasibility reports have shown the upgrading of Lucy’s Mill Footbridge not to be feasible.

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Would the recommended decision be contrary to the Budget and Policy Framework? Yes/No

Background Papers Feasibility reports dated November 2006 and March 2008.

CONSULTATION ALREADY UNDERTAKEN:- *Details to be specified*

- Other Committees
- Local Member(s) Councillor R Hyde
(With brief comments, if appropriate) Councillor M Perry
- Other Elected Members
- Cabinet Member
(Reports to The Cabinet, to be cleared with appropriate Cabinet Member)
- Chief Executive
- Legal I Marriott – comments incorporated.
- Finance
- Other Chief Officers

- District Councils
- Health Authority
- Police
- Other Bodies/Individuals

FINAL DECISION **YES/NO** *(If 'No' complete Suggested Next Steps)*

SUGGESTED NEXT STEPS :

Details to be specified

- Further consideration by this Committee
- To Council
- To Cabinet
- To an O & S Committee
- To an Area Committee
- Further Consultation

**Stratford on Avon South Joint Committee
25 September 2008**

**Investigations for the Upgrading of Lucy's Mill Footbridge,
Stratford-upon-Avon**

**Report of the Strategic Director for
Environment and Economy**

Recommendation

That the Committee notes the findings of two feasibility reports completed in November 2006 and March 2008 on the upgrading of Lucy's Mill Footbridge and that the result of the further investigation referred to in 2.6 is reported to the next meeting of this Committee.

1. Introduction

- 1.1 Over the last two years or so there has been local interest in the upgrading of Lucy's Mill Footbridge.
- 1.2 Options to refurbish or replace this footbridge were investigated in feasibility studies carried out in November 2006 and again in March 2008 respectively. See **Appendix A**.

2. Summary of the Findings of the Two Feasibility Studies

- 2.1 The Disability Discrimination Act 1995 (DDA) has the effect of requiring the refurbished bridge to be constructed so as to be useable by people with disabilities, subject to certain exceptions broadly concerned with what is reasonably possible and lawful.
- 2.2 Guidance on the application of this Act is provided in 'Inclusive Mobility', a document produced by the Department for Transport. This document indicates that DDA compliant access/egress gradients to public facilities should not be greater than 1 in 20.
- 2.3 Since the footbridge would be some 3.1 metres above the river water level for adequate flood clearances this will require approximately 60m long approach access ramps at a gradient of 1 in 20.

- 2.4 The conclusion of both feasibility reports is that the upgrading of Lucy's Mill Footbridge is not feasible.
- 2.5 Both the 2006 and 2008 studies show that whilst it is possible to provide a DDA compliant access onto the footbridge from the East river bank, a similar DDA compliant access to the footbridge cannot be provided on the West bank (see drawing numbers 3.3/334/2/1 and 3.3/334/2/2 in **Appendix A**) without encroaching onto privately owned land.
- 2.6 In order to construct a DDA compliant access on the West bank, the footprint of the approach ramp would impinge on privately owned properties and land. Compulsory Purchase Orders (CPO) could be made to acquire the necessary private land for the West ramp and hence upgrade Lucy's Mill Footbridge. A CPO interferes with human rights and must be justified by a compelling case in the public interest. However, in recognition of concerns that the bridge is not currently accessible to disabled persons, it is proposed that further investigation is carried out into the related questions whether the bridge could lawfully be constructed without meeting accessibility standards and the likely success of a CPO and progress reported to the next meeting of this Committee.

PAUL GALLAND
Strategic Director for Environment and Economy
Shire Hall
Warwick

8 September 2008

Appendix A of Agenda No

Stratford on Avon South Joint Committee - 25 September 2008

Investigations for the Upgrading of Lucy's Mill Footbridge, Stratford-upon-Avon

Refurbishment of Lucy's Mill Footbridge, Feasibility Report
(November 2006)

Proposed New Footbridge By Stratford Voice, Feasibility Report
(March 2008)

Lucy's Mill Footbridge Feasibility Report

1.0 INTRODUCTION

1.1 Brief

To investigate the feasibility of refurbishing the existing Lucy's Mill bridge to be suitable for pedestrians, cyclists and wheelchair users as an alternative or in addition to the proposed new River Avon Bridge as part of the Waterfront developments.

1.2 Location

The site is about 10 metres north of the A4390 road bridge, Stratford (known as the Seven Meadows Road Bridge), at Grid Reference SP20055399. This is some 600m downstream of the proposed new footbridge. The general ground level of the footways on each side of the River is approximately 34.5m AOD. The level of the existing deck is approximately 37.0m AOD.

1.3 History

The existing Lucy's Mill Footbridge is narrow (1.5m between parapets) with stepped access on each side. The total length of the bridge is approximately 40m. The bridge has three spans supported on abutments and two piers. The deck construction is concrete cased steel beams with steel parapets.

1.4 Existing Situation

The consultation process for a proposed new pedestrian/cycle bridge across the Avon at a location approximately 600m north of this, raised the option of refurbishing and upgrading the existing Lucy's Mill Bridge as an alternative or an additional route.

2.0 CONSIDERATIONS

2.1 Land Ownership

The ownership of the adjacent land is indicated on drawings attached to this report. Private and public ownership is indicated.

The public footpath routes leading from the bridge to the surrounding areas need to be maintained.

The moorings on the west bank and land between the public footpath and the river make up one whole private freehold owned jointly by 20 Directors of Lucy's Mill Ltd.

2.2 Flood Level Requirements

The bridge is located in the Avon flood plain. Initial discussions with the Environment Agency indicate that if the existing bridge were to be refurbished the new deck would need to comply with the current required flood levels for this section of the river. These are as follows:

The theoretical 1% annual probability flood level for Lucy's Mill footbridge is 36.31m AOD. However, the highest recorded flood level in this particular location is 36.56m AOD recorded during Easter 1998 at Lucy's Mill.

A minimum of 50% of the span soffit level must be 600mm above the highest recorded flood level, 36.56m AOD (i.e. 50% of the soffit length should be at or above 37.16m AOD).

This compares to the existing bridge which has a continuous soffit level of approximately 36.45m AOD.

It should be noted that this is the narrowest point for the river and any alteration/reduction to the existing afflux area will not be acceptable to the Environment Agency.

2.3 Deck Requirements

Ideally the minimum width of a new deck suitable for both pedestrian and cycling traffic would be 3.0m between parapets, doubling the deck width compared to the existing bridge deck.

The possibility of replacing the existing deck would need further investigation into the capacity of the existing bridge foundations. The construction details of the piers and abutments are not known and any assessment of the foundation to carry an increase in load would be an approximation based on assumptions. It is estimated that loading on the existing piers would increase by 50-60%, resulting from providing a wider deck.

However, considering the current enhanced factors of safety used in the design of bridges since this footbridge was built, the overall increase in design load on the foundations could be in the order of 70 – 80%. The Environment Agency have indicated that it would not accept additional piers in the River.

2.4 Ramped Access Requirements

Ramped access to the footbridge should be compliant to Disability Discrimination Act 1995 (DDA). Guidance on how to apply this Act in practice is provided in the Department for Transport 'Inclusive Mobility' document, which sets out access requirements for pedestrian and transport infrastructure. This indicates that ramps should have a gradient of 1:20 with individual ramped flights not exceed 10m and that 1.5m long landings provided at every 10m for ramps longer than 10m.

2.5 Maintenance Clearance between Bridges

A 3.0 m clearance is required on each side of the Seven Meadows Road Bridge and Lucy's Mill Footbridge to allow for future inspections and maintenance repairs of both structures.

2.6 Trees

It is understood that the mature willow trees adjacent to the moorings on the west bank, have a tree preservation order (TPO) on them as well as being in a conservation area.

2.7 Funding

Any refurbishment or replacement of this bridge would be fully funded by the County Council, unlike the new footbridge which is almost entirely funded by Advantage West Midlands since it is expected to regenerate the local economy and wellbeing of Stratford and

its residents. The County Council may be unable to fund works on Lucy Mill Footbridge in the short to medium term.

2.8 Conservation Status

The footbridge is located in a Conservation Area and therefore any proposals would need to comply with such requirements as appropriate in keeping with this status.

3.0 OPTIONS

Two options A and B have been considered (both proposed by Stratford Voice) to assess their suitability. The two options are detailed below, investigating how the footprint of the refurbished/new footbridge and ramps will fit the land available on each bank.

Both options are based on the bridge deck and ramps being 3.0m wide for combined pedestrian / cycling use and compliant to DDA.

3.1 Options A and B

For these options it is calculated that the bridge rises some 2.86m above the surrounding ground.

Therefore, in accordance with the guidance provided in 'Inclusive Mobility' the ramps at a gradient of 1:20 would be approximately 65m long on both sides of the river.

The eastern ramp can be constructed on land owned by the District or the Highway Authority. However, the two options considered by Stratford Voice for the western ramp footprint impinge directly on privately owned land. Drawing nos. 3.3/334/2/1 and 3.3/334/2/2 show the two options for this ramp.

These drawings show the bridge and ramp layout to scale to demonstrate the actual footprint of the structure. They also show the colour flooded privately owned land.

Option A is not feasible even if private land was available since the circular ramp will obstruct two existing footpaths.

Option B is possible subject to acquisition of private owned moorings and approval by the Environment Agency. However, discussions with a representative of the 20 shared owners of the moorings indicate that they are not prepared to sell the land and thus compulsory purchase order (CPO) is the only available course of action to acquire this land. However, it is considered that a CPO may not be granted for this land. Furthermore, any part of the ramp being suspended over the river and encroaching into the flood level envelope will obstruct river flows in a flood event and hence EA will not endorse such proposals, particularly at this point since this is a "bottleneck" for the river. In addition, the row of willow trees which are subject to a TPO will need to be cut. Therefore, Option B is also not feasible.

4.0 CONCLUSIONS

At this stage no quantitative investigations have been carried out to assess the capacity of the existing piers and abutments. However, it is unlikely that the existing piers and abutments would be adequate to support an increase in deck load of 70 - 80% from the wider bridge designed to current standards, hence requiring new foundations. The Environment Agency have also indicated that it would not accept additional piers in the river.

A DDA compliant ramp arrangement on the east bank is possible and feasible for the two options considered.

However, a DDA compliant ramped access on the west bank is not feasible for Option A as it obstructs existing footpaths apart from acquiring private land and residential properties. Similarly Option B is not feasible due to the need for land acquisition of privately owned land through CPO which is unlikely to be granted. In addition, EA would object if the ramp encroaches into the flood level clearances. This option will also require the removal of a row of mature willow trees subject to a TPO situated in a Conservation Area.

In addition, any refurbishment or replacement of this footbridge would need to be entirely funded by the County Council.

In conclusion, it is considered that a suitable DDA compliant access ramp arrangement can not be provided on the west side of the footbridge at this location.

Therefore, refurbishment or replacement of Lucy Mill Footbridge is not considered to be feasible.

Prepared by: J. Thomas, *B.Eng.*

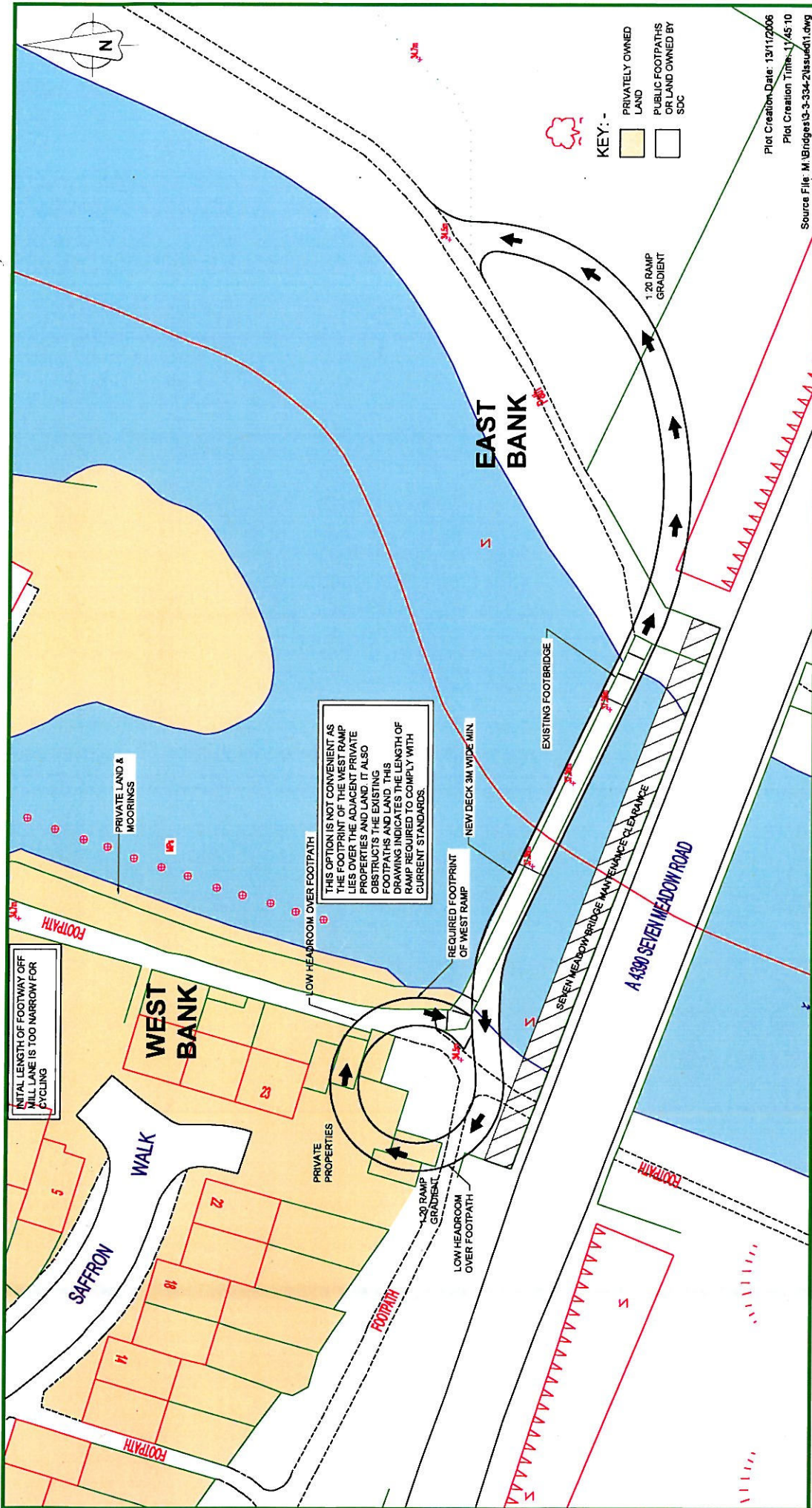
Checked by: M. M. Ahmed,
B.Sc., M.Sc., C.Eng., MICE

Signed

Signed:

Date: 8/11/06

Date: 8/11/06



INITIAL LENGTH OF FOOTWAY OFF MILL LANE IS TOO NARROW FOR CYCLING

THIS OPTION IS NOT CONVENIENT AS THE FOOTPRINT OF THE WEST RAMP LIES OVER THE ADJACENT PRIVATE PROPERTIES AND LAND. IT ALSO OBSTRUCTS THE EXISTING FOOTPATHS AND LAND. THIS DRAWING INDICATES THE LENGTH OF RAMP REQUIRED TO COMPLY WITH CURRENT STANDARDS.

KEY: -
 PRIVATELY OWNED LAND
 PUBLIC FOOTPATHS OR LAND OWNED BY SDC

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TITLE
LUCY'S MILL FOOTBRIDGE
STRATFORD UPON AVON
OPTION A

ENVIRONMENT AND ECONOMY DIRECTORATE

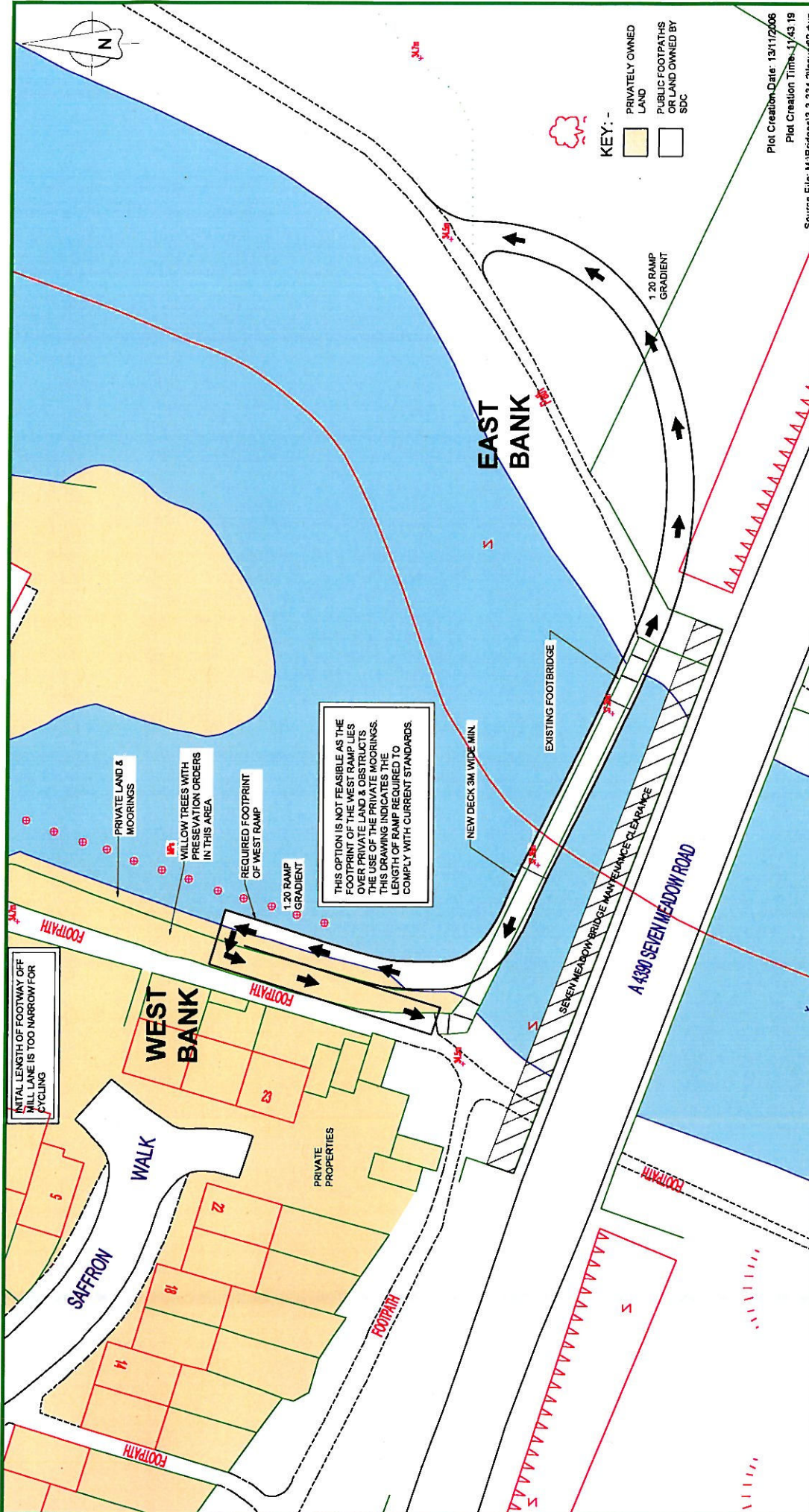



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DRN	CK'D	JT
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TITLE

LUCY'S MILL FOOTBRIDGE
STRATFORD UPON AVON

OPTION B

Warwickshire County Council

ENVIRONMENT AND ECONOMY DIRECTORATE

Design Services

Warwickshire County Council

Warwickshire County Council Logo

Logo with checkmark and 'OK' text

Certificate No. FS 26655

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Proposed New Footbridge By Stratford Voice Feasibility Report

1.0 INTRODUCTION

1.1 Brief

To investigate the proposals for a new footbridge made by Stratford Voice in February/March 2008. This report will evaluate the current proposal in terms of technical and legal requirements.

Two previous proposals made by Stratford Voice in 2006 were investigated and a report was prepared on these in November 2006. This report is available on the Web for information.

1.2 Location

The site for the proposed footbridge is immediately adjacent to the north side of A4390 road bridge, Stratford (known as the Seven Meadows Road Bridge), at grid reference SP20055399. The general ground level of the footways on each side of the river is approximately 34.5m AOD.

1.3 Existing Situation

The existing Lucy's Mill Footbridge would need to be demolished to enable the construction of the proposed footbridge.

The footprint of the proposed bridge appears to lie wholly within land owned by Stratford District or the highway boundary.

2.0 CONSIDERATIONS

2.1 Existing Footpath on the West Bank

The footpath approaching the bridge on the west bank is narrow for combined footway and cycleway use. In places this is as narrow as 1.6m. The minimum width required for combined use is 2.5m. See the attached drawing number 3.3/334/2/3

This footpath would remain substandard for combined use since it would not be possible to widen it as land on both sides of the path is privately owned.

2.2 Western Approach Ramp

The proposal shows a short approach ramp about 20m long. Approximately half of this ramp is over the river and the other half over the western bank. According to the Environment Agency this point along the river acts as a "bottleneck" in flood events. To accommodate this the section over the river will need to be at the same level as the main deck to maintain flood clearances. Thus only about 10m of this ramp will actually slope down to the footpath on the west bank.

The level difference between the footbridge deck and the west bank is about 3.16m. To accommodate this reduction in height over a distance of 10m would require a ramp gradient of about 1 in 3. This gradient is well outside legal and design standard requirements and would be physically difficult to climb even for able bodied persons.

The required gradient under Disability Discrimination Act 1995 (DDA) is 1 in 20. A ramp with a gradient of 1 in 3 for use by pedestrians and cyclists would be impractical.

Raising the existing footpath levels to reduce the level difference between the deck and landing on the banks would not be permitted by the Environment Agency as this will reduce the river flow at this critical location in flood conditions. To support the raised footpaths, retaining walls may be required along the river edge. Again these will not be acceptable to the Environment Agency for the reasons stated above. This option may also raise privacy issues since the raised footpaths would overlook into adjoining properties.

2.3 Closure of Through Route

The construction of the west ramp even at the steep gradient of 1 in 3 as proposed would almost certainly mean that the through footpath route from the town along the riverside would be obstructed by the end of the proposed ramp.

If a through route were to be maintained it would mean a shortening of the west ramp, making it steeper than a 1 in 3 gradient. In this case both the ramp and the through route would be narrow at about 1.0m wide each. This is clearly not acceptable.

2.4 Location of West Bridge Support

The proposal appears to show that the location of the west bridge support is in the river (see attached drawing). Discussions with Environment Agency have shown that a bridge support in the river would not be acceptable since it is likely to act as an obstruction to river flow.

If this support were to be moved onto the west bank it would create complex design and construction issues due to the cantilevered curved west ramp and the main deck between two end supports. This is likely to require a deeper, stiffer construction of the deck increasing the level difference between the deck and ground level, compounding the existing issues. The bridge supports would also need to be more robust to withstand the large rotational forces.

2.5 Acoustic Barrier

The acoustic barrier shown by Stratford Voice's proposal would not be acceptable to the Environment Agency. In their view, should the flood level reach above the bridge deck level the barrier would act as a dam holding back flood waters and causing widespread flooding of the town upstream of the bridge.

In addition, the erection of the barrier may require strengthening of the concrete parapet edge beam.

The acoustic barrier as shown is not considered to be necessary if it is being proposed purely as a sound barrier.

2.6 Clearance Between Bridges

The proposed footbridge appears to abut the north side of the Seven Meadows Road Bridge.

This position of the new bridge does not comply with national design standards with respect to future maintenance requirements of the two structures. It would also create construction difficulties and raise issues on Health and Safety grounds for future maintenance.

The Highway Authority would not accept abutting of the two bridges and a reasonable separation between the two structures would be required to safely construct the new footbridge and meet the design standards regarding future maintenance of both bridges.

2.7 Eastern Approach Ramp

On the East bank adequate land is available to construct the East ramp to comply fully with design standards and legal requirements and hence there are no issues to be addressed on this side.

3.0 CONCLUSIONS

The current proposal by Stratford Voice for a new footbridge at this location fundamentally fails to meet key legal, technical, practical and design requirements.

Therefore, this proposal is not considered to be feasible.

Prepared by: J. Thomas, *B.Eng.*

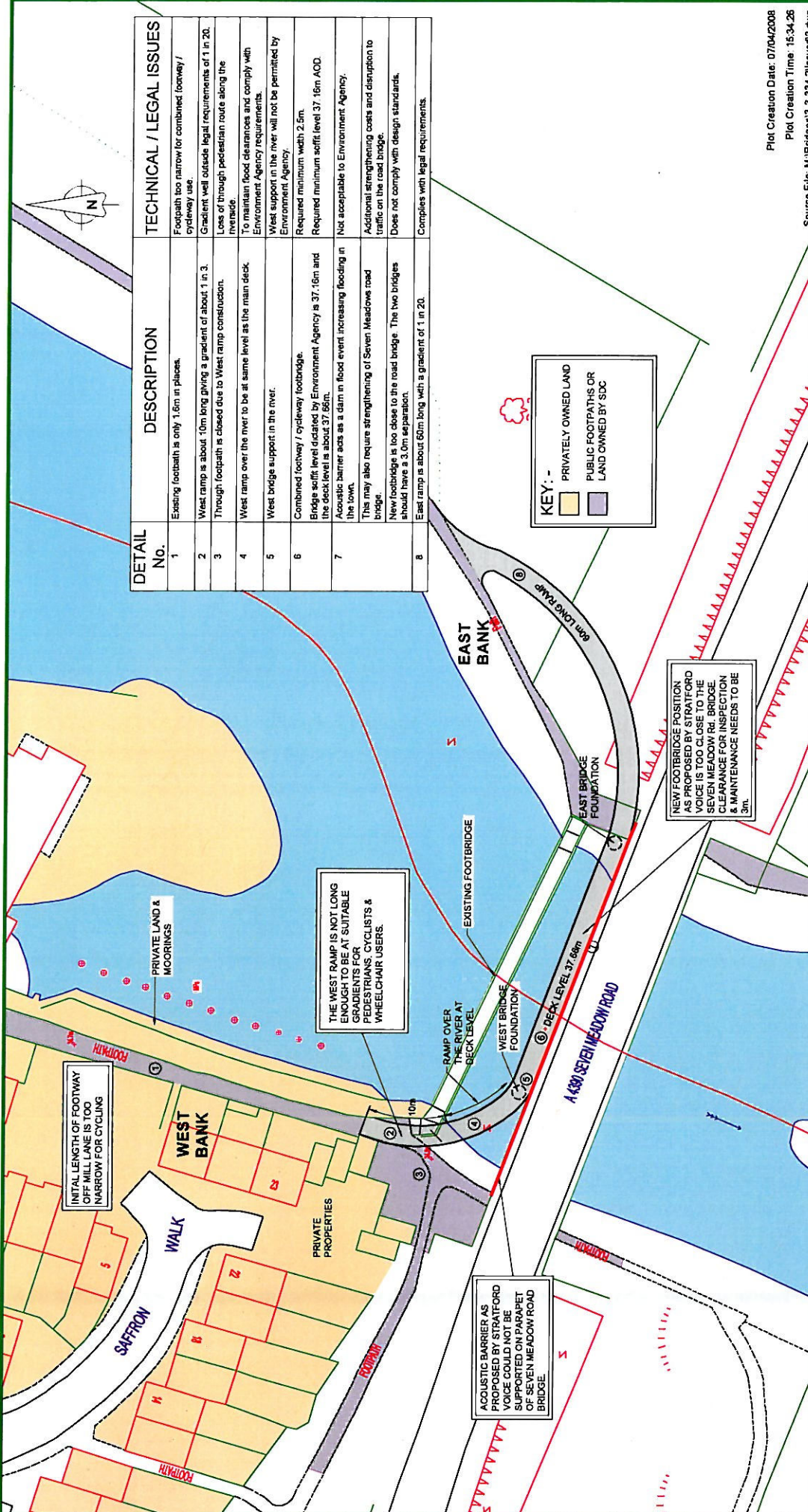
Checked by: M. M. Ahmed,
B.Sc., M.Sc., C.Eng., MICE

Signed

Signed:

Date: 20/3/08

Date: 5/4/08



DETAIL No.	DESCRIPTION	TECHNICAL / LEGAL ISSUES
1	Existing footpath is only 1.6m in places.	Footpath too narrow for combined footway / cycleway use.
2	West ramp is about 10m long giving a gradient of about 1 in 3.	Gradient well outside legal requirements of 1 in 20.
3	Through footpath is closed due to West ramp construction.	Loss of through pedestrian route along the meadows.
4	West ramp over the river to be at same level as the main deck.	To maintain flood clearances and comply with Environment Agency requirements.
5	West bridge support in the river.	West support in the river will not be permitted by Environment Agency.
6	Combined footway / cycleway footbridge.	Required minimum width 2.5m.
7	Bridge sciff level dictated by Environment Agency is 37.16m and the deck level is about 37.66m.	Required minimum sciff level 37.16m AOD.
8	Acoustic barrier acts as a dam in flood event increasing flooding in the town.	Not acceptable to Environment Agency.
	This may also require strengthening of Seven Meadows road bridge.	Additional strengthening costs and disruption to traffic on the road bridge.
	New footbridge is too close to the road bridge. The two bridges should have a 3.0m separation.	Does not comply with design standards.
	East ramp is about 60m long with a gradient of 1 in 20.	Complies with legal requirements.

KEY:-
 PRIVATELY OWNED LAND
 PUBLIC FOOTPATHS OR LAND OWNED BY SOC
 ROAD

NEW FOOTBRIDGE POSITION AS PROPOSED BY STRATFORD VOICE IS TOO CLOSE TO THE SEVEN MEADOW RD. BRIDGE CLEARANCE FOR INSPECTION & MAINTENANCE NEEDS TO BE 3m.

THE WEST RAMP IS NOT LONG ENOUGH TO BE AT SUITABLE GRADIENTS FOR PEDESTRIANS, CYCLISTS & WHEELCHAIR USERS.

ACOUSTIC BARRIER AS PROPOSED BY STRATFORD VOICE COULD NOT BE SUPPORTED ON PARAPET OF SEVEN MEADOW ROAD BRIDGE.

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TITLE
 LUCY'S MILL FOOTBRIDGE
 BRIDGE FOOTPRINT FOR PROPOSAL MADE
 BY STRATFORD VOICE IN FEB / MARCH 2008

ENVIRONMENT AND ECONOMY DIRECTORATE



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