MUNICIPAL YEAR 2014/2015 REPORT NO.

ACTION TO BE TAKEN UNDER DELEGATED AUTHORITY

PORTFOLIO DECISION OF:
Cabinet Member for Environment

REPORT OF:
Director – Regeneration and Environment
Contact officer and telephone number:

Agenda – Part: 1	KD Num: N/A
Subject: **Smeaton Road Bridge Repairs**	
Wards: Enfield Lock	

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1. EXECUTIVE SUMMARY

Smeaton Road Bridge has a number of maintenance problems, primarily failure of the road surfacing, that urgently need addressing. This report requests approval for expenditure on the repair of the road surface and various other works to the bridge.

2. RECOMMENDATIONS

2.1. That the existing tegular block surfacing on the bridge is replaced by red hot rolled asphalt

2.2. To carry out various additional repairs to maintain the integrity of the structure and reduce public health risks.

2.3. To approve the expenditure of £90,000 from the commuted sum provided for the maintenance of the bridge

2.4 To approve the re-prioritisation of proposed structures schemes previously approved in the BCP Portfolio Report approved on 1 April 2014 to allow £140K to be allocated to undertake maintenance works at Smeaton Road Bridge. This will leave a shortfall of £140k to fund works in the 2014/15 Borough Capital programme. The shortfall will be met by deferring the following works to 2015/2016:

1. Lacey Close wall structural repair (part)
2. Low bridge signing improvements (part)
3. Access improvements to Salmons Brook overflow and other sites
4. Renewal of joint sealant

2.5 Additional Capital funding for these works will be sought at a later date in 2014/15, or alternatively the work will be re-profiled and funded from the 2015/16 Borough Capital Allocation for Highway works.

2.6 To use the LoHAC or current Highways and Engineering works term contractor (Enterprise Mouchel) according to a value for money assessment.

3. BACKGROUND

3.1. Smeaton Road Bridge was built in 2000 and serves as the only principal access to the Enfield Island Village. The only other access to this site is via a single way bridge, intended for emergency use, via the private road, Government Way. A commuted sum was provided to the Council by the developer to cover future maintenance of the bridge.

3.2. The bridge consists of three spans and the crosses the River Lea, Government Row and the Lea Navigation. Due to site restrictions the gradients on the bridge are abnormally severe, which results in higher than normal braking forces being exerted on the deck surfacing material, particularly on the approach to the roundabout on the eastern side.

3.3. The bridge carriageway is surfaced using tegular blocks laid on a sand bed, which overlays a waterproof membrane that protects the reinforced concrete deck of the bridge. The blocks were installed to form a demarcation at the entrance to the village; however this provision was not part of the planning consent for the development.

3.4. Bridge inspections reported water ponding on the bearing shelves causing corrosion to the main support beams, bearings and electrical lighting fittings. In addition it was found that the road surfacing blocks were moving, the main expansion joints were failing, the bearing shelf drainage system was ineffective and that water was retained on the treads to the stair access.

3.5. Investigation and monitoring of the water penetration discounted leakage from water mains and concluded that it was due to surface water penetrating the joints between the tegular blocks, running down the sand layer discharging through the expansion joints onto the main beam bearing shelves.

3.6. The defective drainage on the eastern bearing shelf was rectified in 2013; this has cleared the bearing shelf of standing water significantly reducing the electrical hazard. However the penetration of water through the adjacent expansion joint will still cause corrosion of the main structural beams and bearings.

3.7. The water penetration of the deck surfacing has caused saturation of the blockwork foundation sand, and combined with the vehicular loading, has resulted in general movement and loss of some of some of the blocks from the surface. To-date the road surface has been patched with asphalt; however this eventually results in failure of the adjacent sand foundation and is not a sustainable solution.

3.8. A number of possible solutions have been explored in an attempt to preserve the existing block surfacing, including consultation with leading block resin and cementitious grouting specialists. It has been concluded that these solutions are not viable due to the deck profile and braking forces exerted on the blocks.

3.9. It has been concluded that the only viable option is to remove the existing tegular blocks and replace the surface with traditional hot rolled asphalt.

3.10. A meeting has been held to discuss the problems with the Village management company, residents association and Councillor Ozzie Uzoanya in December 2013. The residents group accepted the need for replacement of the blocks, but requested that some form of demarcation be retained on the bridge surfacing. The use of red coloured asphalt was agreed as being an acceptable means of achieving this desire.

3.11. The police have indicated that the removal of the blocks would be desirable as it removes a potential source of ammunition for rioters.

3.12. The proposed works would involve removal of the blocks and sand layer and their replacement with red hot rolled asphalt. Due to the very restricted width of the bridge part of this work will involve night work and restricted overnight public use of the bridge, lorry and bus traffic would be stopped due to the very restricted running width available. It is also proposed to replace the failed expansion joints, improve the drainage of the staircase, repair the corroded steelwork and other minor works.

4. ALTERNATIVE OPTIONS CONSIDERED

4.1 Do nothing – This would allow water to continue to penetrate the bridge deck and overflow onto the bearing shelf. This would cause further corrosion of the main beams etc., which if not remedied would lead to failure of the bridge bearings and closure of the bridge. An untenable option as this is the only access to Enfield Island.

4.2 Close the bridge. An untenable option as this is the only access to Enfield Island Village.

4.3 Continue to patch repair the deck with blocks. The entire deck is showing movement in the existing block work. This option will not stop the water penetration problem causing progressive failure of the surfacing and corrosion of steelwork below.

4.4 Continue to patch repair the deck surfacing with asphalt. The patching is only a temporary solution as the repair causes the block failure to propagate eventually requiring additional repair.

4.5 Seal the blocks using resin or cementitious materials. Specialist contractors have been consulted about this option. However the gradient of the bridge deck and resultant vehicular braking forces mean that no guarantee will be provided regarding the effectiveness and life of these options.

4.6 Remove the existing blocks and resurface the bridge with traditional hot rolled asphalt, coloured red. Statutory Undertakers plant is located in the footpaths, therefore it is unlikely that the red surfacing will be disturbed resulting in a patchwork quilt effect. This option has been accepted by the Enfield Village

residents association as the red colouring maintains a demarcation to the entrance to the Village. In addition adjacent residents in Government Row would welcome the change as road noise will be reduced. It is not currently intended to modify the slab footway surfacing as there are far fewer joints which are much tighter, reducing the risk of water penetration, also there are no significant load or braking forces to displace the slabs.

4.7 This is the preferred option to repair the deck surfacing and reduce the water ingress causing corrosion to the steelwork below.

4.8 The estimated cost of carrying out the works in the summer of 2014/15 is £230,000 to be funded from the commuted sum deposited for the maintenance of the bridge (£90,000) with the residual (£140,000) funded from the 2014/15 Structures Borough Capital Programme.

Works to be deferred from the 2014/15 programme are:-

1. Lacey Close wall structural repair (part) (£80k)
2. Low bridge signing improvements (part) (£30k)
3. Access improvements to Salmons Brook overflow and other sites (£20k)
4. Renewal of joint sealant (£10k)

Total £140k

4.9 Additional Capital funding for these works will be sought at a later date in 2014/15, or alternatively the work will be re-profiled and funded from the 2015/16 Borough Capital Allocation for Highway works.

5. REASONS FOR RECOMMENDATIONS

5.1 Continued patch repair of the existing block surfacing is not sustainable. The existing blocks are generally showing signs of movement and patch repair results in progressive failure. Water penetration of the deck is causing corrosion damage to the main beams and bearings; this cannot be allowed to continue indefinitely as failure of either critical element will result in closure of the bridge.

5.2 The replacement of the existing carriageway tegular blocks with hot rolled asphalt will dramatically, but not entirely, reduce to water penetration of the surfacing and discharge to the bearing shelf. The residual penetrating water will be dealt with by a drainage system installed as part of the replacement expansion joint system.

5.3 The other recommended maintenance work will prolong the life of the bridge.

6. COMMENTS OF THE DIRECTOR OF FINANCE, RESOURCES AND CUSTOMER SERVICES AND OTHER DEPARTMENTS

6.1 Financial Implications

6.1.1 The estimated cost of carrying out the works in the summer of 2014/15 is £230,000, £90k to be funded from the commuted sum deposited for the maintenance of the bridge and £140k is to be funded from the 2014/15 Structures Borough Capital Programme and this will be met by deferring the following works from 2014/15 to 2015/16:

1. Lacey Close wall structural repair (part) (£80k)
2. Low bridge signing improvements (part) (£30k)
3. Access improvements to Salmons Brook overflow and other sites (£20k)
4. Renewal of joint sealant (£10k)

6.1.2 Additional Capital funding for these works will be sought at a later date in 2014/15, or alternatively the work will be re-profiled and funded from the 2015/16 Borough Capital Allocation for Highway works.

6.2 Legal Implications

6.2.1 The Smeaton Bridge is an adopted highway maintainable at the public expense, the maintenance of which falls to the Council as the Highway Authority for the Bridge. By virtue of s.41 of the Highway Act 1980 the Council has a duty to maintain the road surface to a standard suitable for its use.

6.2.2 The use of the commuted sum for the repair of the bridge must accord with the terms under which the commuted sum was taken. Under s.111 of the Local Government Act 1972 the Council has the power to do anything (whether or not involving the expenditure) which is calculated to facilitate, or is conducive or incidental to, the discharge of any of their functions. The reallocation of funding from other programmes must be conducted in accordance with the Council's Financial Regulations.

6.2.3 The re-prioritisation of other works to facilitate the repairs to the Smeaton Road Bridge is a matter for the Highway Authority having undertaken any necessary risk assessment associated with the impact of the deferral of those works.

6.2.4 As owner of the structure of the bridge the Council is responsible for the maintenance and integrity of the structure of the Bridge and has a duty to ensure the safety of users of the bridge and those that pass under the bridge.

6.2.5 The recommendations contained in this report are in accordance with the Council's powers and duties.

6.3 Property Implications

The bridge is owned by the Council and the proposals are intended to stop structural damage due to water penetration and maximise the life of the structure.

7. KEY RISKS

7.1 If the water penetration is not stopped then eventually it will cause extensive corrosion to the main steel beams and bearings, leading to very expensive repair costs.

7.2 Further displacement of the surfacing blocks will result in increased maintenance costs and potential claims from injury or damage to vehicles.

7.3 The staircase treads currently backfall retaining water. The works to the staircase will reduce the risk of injury and claims from residents slipping on ice or algae caused by water currently retained on the treads.

8. IMPACT ON COUNCIL PRIORITIES

8.1 Fairness for All

These proposals will benefit the local community by maintaining access to the Enfield Island Village and will reduce the risk of injury.

8.2 Growth and Sustainability

None.

8.3 Strong Communities

None.

9. EQUALITY IMPACT IMPLICATIONS

Corporate advice has been sought in regard to equalities and an agreement has been reached that an equalities impact assessment/analysis is not relevant or proportionate for approval

10. PERFORMANCE MANAGEMENT IMPLICATIONS

None.

11. HEALTH AND SAFETY IMPLICATIONS

11.1 Significant safety implications would arise if corrosion of the main steel beams causes structural damage and collapse of the bridge.

11.2 Pedestrians could slip on algae or ice caused by water currently retained on the stair treads.

11.3 The aim of these proposals is to maintain the Smeaton Road public and emergency access across the River Lee, Government Row and Lee Navigation canal to the

Enfield Island Village. The works will also reduce the risk of injury from loose blocks and holes in the pavement and slipping on staircase treads.

12. PUBLIC HEALTH IMPLICATIONS

Any repairs should be done in consultation with local cycling groups to ensure that anything new encourages a modal shift following the model proposed under cycle Enfield (mini-Holland).

Background Papers

None.