

92133  
Bill Billings  
T-Rex Dinosaur.  
1991  
Metal/Steel, Concrete, Mixed Media

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## CONDITION REPORT

Examined by Francis Toohey  
17 Mar 2022



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## OBJECT'S DETAILS

<b>TITLE</b>	T-Rex Dinosaur.	<b>ARTIST / MAKER</b>	Bill Billings
<b>DATE OF CREATION</b>	1991	<b>ID</b>	92133

## SCULPTURE

<b>MEDIA</b>	Metal/Steel, Concrete, Mixed Media
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## EXAMINATION

<b>GENERAL CONDITION NOTES</b>
<p>The sculpture is in a fair condition consistent with its age and simple method of manufacture.</p> <p>To better understand the findings of this survey a brief outline of the method of manufacture would be instructive.</p> <p>A series of photos taken during construction show the method of manufacture. First, a steel armature with scaffolding poles was erected approximating the shape of the dinosaur. These poles look to be clamped rather than welded. The armature was wrapped in a light steel mesh and chicken wire. The whole was covered in a skim coat of concrete. The sculpture sits on concrete foundation pads. In the original photos, scaffolding poles can be seen being embedded into concrete to some depth. These photos were taken at the Leon School where the sculpture was built as a community art project. The sculpture has been moved to its current location but there must be a similar arrangement of embedded poles into concrete foundations to secure the sculpture to the ground. This would be essential during high winds. The whole is painted with numerous layers of graffiti type artwork. This is in poor flaking condition.</p> <p>Clearly, the sculpture was built with a limited budget with no real intention that it would last indefinitely. An engineer was probably not consulted. Longevity was not really the point of the sculpture. Community engagement in manufacturing the artwork was. For this reason, the object is also popular with the local community.</p> <p>With all the limitations of its construction, the object has weathered fairly well for over thirty years. There are however cracks and fissures to the surface and some cavities to the concrete skin outlined in more detail below.</p> <p>The sculpture has been covered repeatedly in graffiti type artworks. The painted surface is in a poor condition. No attempt should be made to consolidate or retain the painted surface as it is regularly reapplied as part of the community art project. A new application of paint could be applied after any move.</p> <p>The sculpture is to be moved to a new location, or scrapped, as the development of the park is to take place. An assessment needs to be made as to the viability of moving the sculpture. Plowden and Smith are not engineers so our observations are based on empirical experience. An engineer should assess the object before any decision is made to move it. The reason for this is that what we can see is a concrete wire mesh reinforced skin about 50mm thick. This would have a kind of eggshell strength but it is not what is holding the dinosaur together. What is holding the dinosaur together is an armature manufactured from scaffolding poles. There is no indication that these are held in place by welding. Rather the construction photos show standard scaffolding clamps. If the dinosaur had been manufactured in a workshop it would likely have had lifting points welded onto the internal armature. Probably no thought was given at the time to possible future moves.</p> <p>As the point of this report is to assess the viability of moving the dinosaur there are several options to consider.</p>

To lift the sculpture it would be necessary to undermine the concrete foundations. The foundations would have to be broken up at least enough to cut the scaffolding poles embedded into them. Once the sculpture is cut free it should be lifted and moved. If this is not possible in one day then it must have props or heavy scaffolding erected to ensure it does not topple.

Typically a large sculpture is lifted with soft but very strong slings and a crane. The problem with wrapping slings around this sculpture is that it may crush the concrete skin under its own weight. This could result in a sudden collapse much like an egg bursting under pressure. In fact, some of the crazed surfaces may be the result of stresses created in the first move. Because it does have an internal armature and mesh reinforcement to the concrete any collapse, whilst bad, may not be catastrophic.

At the moment there is no access to the site for a crane as the location is surrounded by earth mounds that are part of the children's park. If a crane were to be used access through the earth mounds would have to be created by a bulldozer.

To mitigate the chances of collapse a purpose-built steel frame could be built from RSJ beams or box steel. This should essentially be a large open rectangular box frame that surrounds the object. From this frame supporting beams can crisscross the object. The supports should be padded with timber and Plastazote. The frame itself has lifting points. This type of lift is usually reserved for high-status art objects. This would obviously not be a cheap option.

A third option would be to study the construction photos carefully. Then find suitable internally points on the frame perhaps with the aid of an endoscope. Some of the concrete surfaces could be removed above these points. Heavy steel lifting points could then be welded into position and the sculpture lifted from there. This is probably the safest and most cost-effective method. After the move, the concrete skin to the lifting points could be reinstated.

At the end of this report is an audit of surface faults some of which hint at possible internal problems. It may be possible at a future date to commission an engineer with an endoscope to survey the structural integrity of the sculpture if the decision is made to move the sculpture.

In summary, then, moving the sculpture though difficult is possible. There are risks to the move and those commissioning it should understand that. There is no easy way or shortcut to move this object. This is another way of saying that for an object that is of little monetary worth serious money would have to be spent moving it.

In conclusion, the decision to move the dinosaur rests with others. Things to consider are that the dinosaur is poorly manufactured and in poor condition. The move would not be easy and would be costly. The dinosaur was only ever constructed as temporary artwork and most of its life is probably over. The dinosaur will need restoration after the move. A replica or laser scanned replicas may be a more cost-effective solution with the original discarded.

#### Audit.

The proper right elevation.

The proper right side elevation snout and teeth have rust staining indicating rusting to the internal mesh or armature. The right front claw is spalling away probably the result of rust expansion to the armature. The right flank of the torso has an area of cracked crazing. About 1.4 metres from ground level there is a serious loss of surface exposing the interior mesh. The wire mesh is galvanised but in places, the galvanised surface has failed and the mesh is rusting. The concrete surface is heavily crazed. This area is probably under stress due to the design. This crazing is probably the result of long term differential movement between steel and armature, steel mesh and concrete skin.

The tail is crazed all the way to ground level. Where it touches the ground there is a 400mm x 350mm area of loss. At this point, there is a kink in the tail before it lays on the ground for a metre. The final section of tail is poorly executed and unpainted on the ground. Underneath the body of the dinosaur is a missing section of tail half-buried in the ground. This may have gone where the kink to the tail is or at the end. In any case, it has not been used perhaps so the dinosaur would fit inside the perimeter railings.

There is a historic repair one metre from ground level to the right side.

The front right leg has a 120mm hole just below the knee. At ground level on the same leg, there is a 150mm x 100mm loss to the concrete surface exposing wires.

Between the two legs on the front elevation there is a 300mm x 300mm surface loss.

The front right leg has a 300mm x 100mm repair to the concrete at the front just below the right knee.

The proper left elevation.

To the proper left elevation, the teeth and snout have rust staining consistent with a rusting armature.

The front left arm is fissured with rust growing from these fissures.

The body of the left elevation has many fissures overall. There is a 400mm x 300mm area of surface spalling to the body but not deep enough to expose the armature.

The left leg is in very poor condition with a 400mm x 300mm loss to the front exposing the armature and a 250mm loss to the back and a further loss of 100mm x 100mm at ground level. The left leg is crazed all over.

Both clawed feet on the ground, visible in the school site, are missing.

**EXAMINED BY**

Francis Toohey

**EXAMINER TITLE**

Head of Stone Conservation

**EXAMINATION LOCATION**

Windermere drive, Bletchley, Milton Keynes.

**DATE**

17 Mar 2022

1. Image 8 Foundation preparation. / 21 Mar 2022



2. Image 5 / 21 Mar 2022



3. Image 3 / 21 Mar 2022



4. Image 7 / 21 Mar 2022



5. Image 4 / 21 Mar 2022



6. Image 1 / 21 Mar 2022



7. Image 2 Scaffold pole and wire construction. / 21 Mar 2022



8. Image 9 / 21 Mar 2022



9. Image 10 / 21 Mar 2022



10. Image 11 / 21 Mar 2022



11. Image 12 / 21 Mar 2022



12. Image 13 / 21 Mar 2022



13. Image 14 Fissures Graffiti / 21 Mar 2022



14. Image 15 Front Right Leg. / 21 Mar 2022



15. Image 16 / 21 Mar 2022



16. Image 17 / 21 Mar 2022



17. Image 18 Right Elevation. / 21 Mar 2022



18. Image 19 / 21 Mar 2022



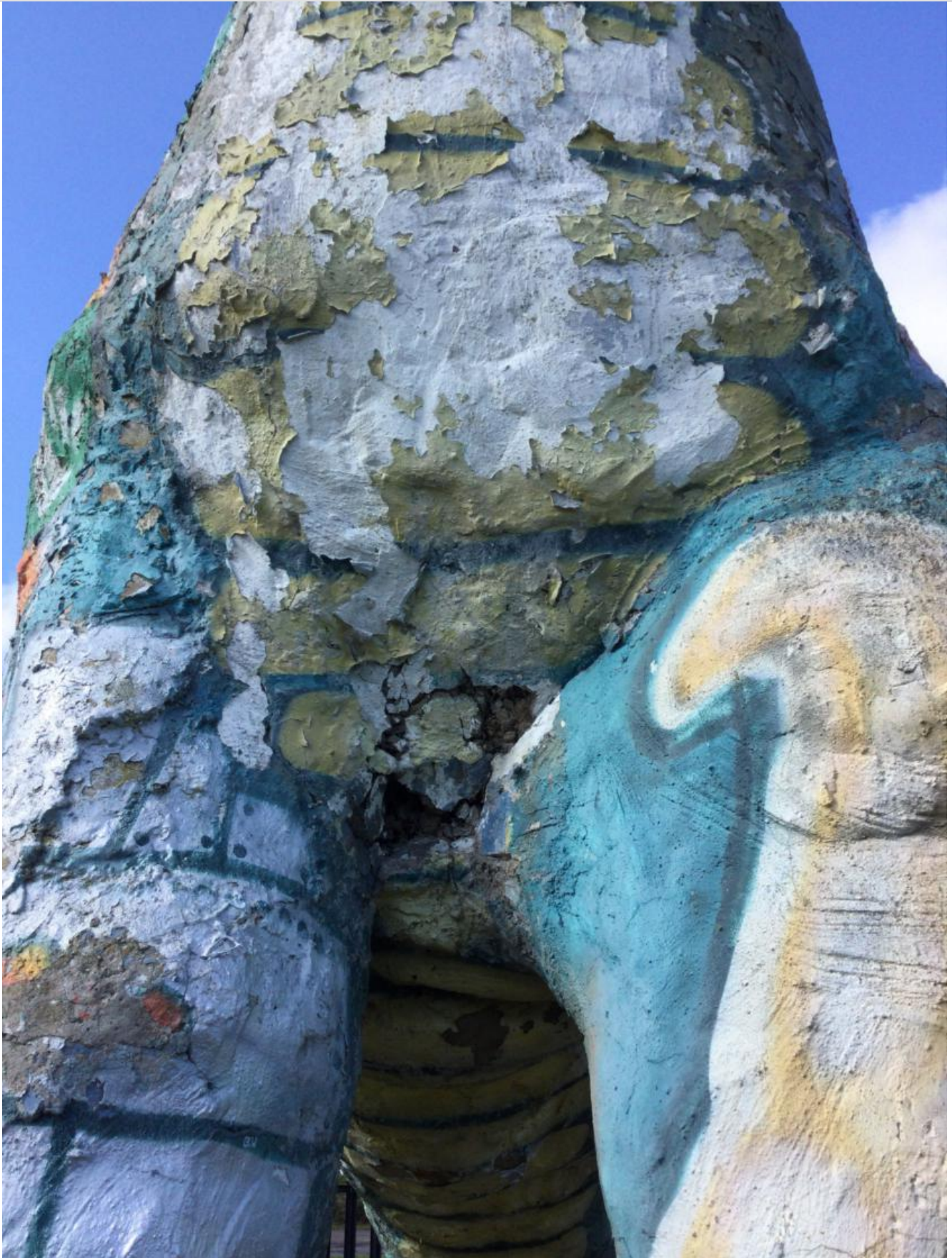
19. Image 20 / 21 Mar 2022



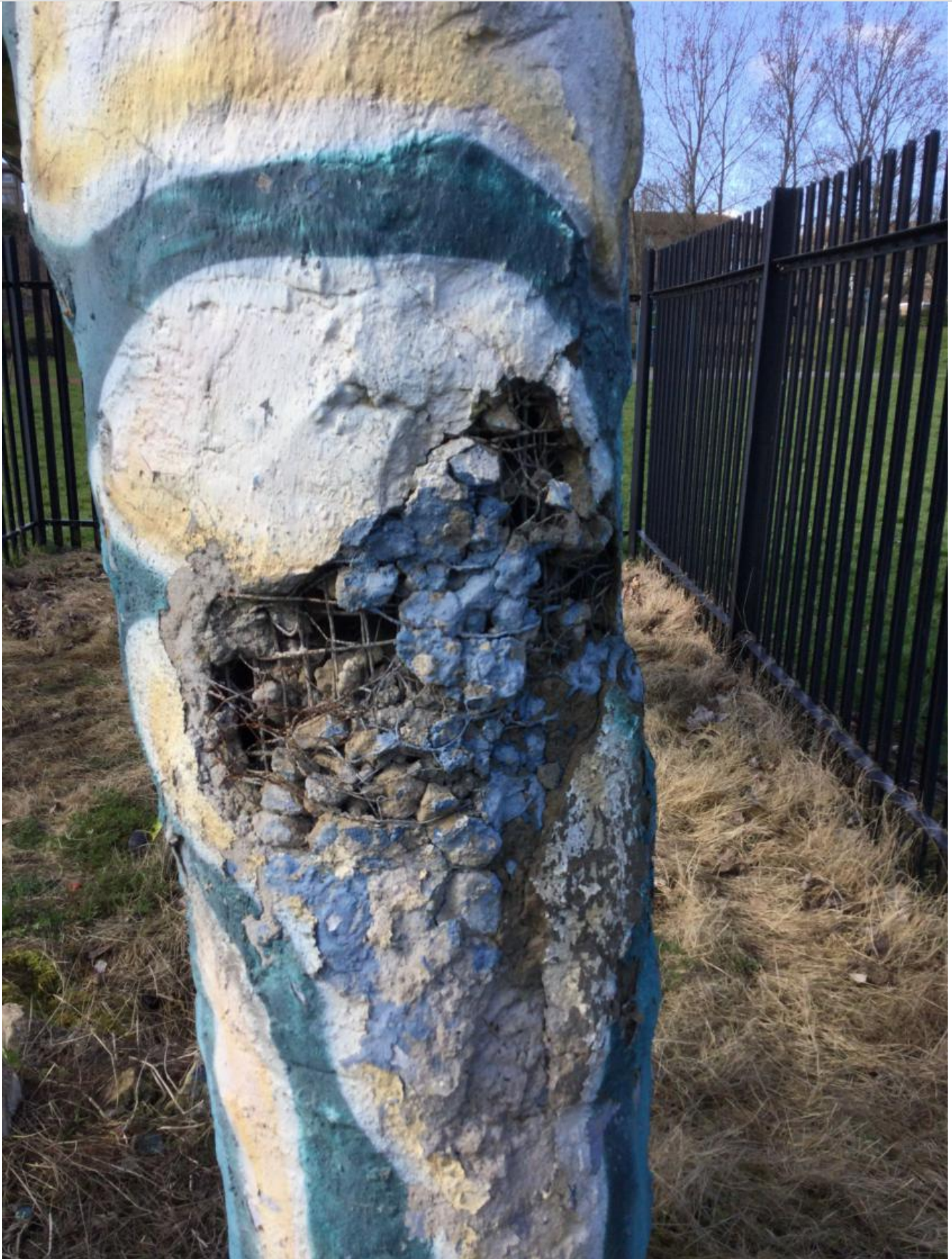
20. Image 21 / 21 Mar 2022



21. Image 22 / 21 Mar 2022



22. Image 23 / 21 Mar 2022



23. Image 24 / 21 Mar 2022



24. Image 25 / 21 Mar 2022



25. Image 26 / 21 Mar 2022



26. Image 27 / 21 Mar 2022

