



MCI Developments (North West) Ltd

Trub Farm Development - Rochdale

Existing Bridge - Structural Condition Survey

134531

APRIL 2024

RSK GENERAL NOTES

Project No.: 134531

Title: Trub Farm Development – Rochdale.
Existing Bridge – Structural Condition Survey

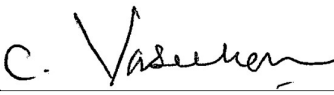
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Land & Development Engineering Ltd.

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1 INTRODUCTION & CLIENT BRIEF

RSK LDE (LDE) were commissioned by Mark Murphy of MCI Developments (North west) Ltd (MCI) to undertake a visual structural condition survey and report for the existing traffic bridge and 'fish-pass' culvert structure at Trub road, Rochdale and to advise on their structural form and existing condition, highlighting any structural defects or issues. MCI advised that the existing Trub Farm site (which is accessed by the bridge and over the 'fish-pass' culvert structure) is to be redeveloped to accommodate a new low-rise residential development (circa 177 units).

An inspection was conducted by Damion Wall of RSK Land & Development Engineering Ltd (LDE) on Tuesday 26th March 2024. The inspection was limited to those areas safely and readily accessible by foot from ground level. The weather was dry and clear during the site inspection. Visual inspection of the underside of the bridge and internal faces of each concrete abutment were limited to what could be seen from the banks either side of the canal. Visual inspection of the 'fish pass' culvert and associated headwall structures was hampered by the presence of dense vegetation and ground cover. The scope of LDE's appointment relates to an external visual inspection only.

2 SCOPE OF SURVEY AND ASSESSMENT

The report includes:

- Findings of the site condition survey for both the road bridge and ‘fish-pass’ culvert – structural forms, general conditions and defects noted.
- Desk-top review of available evidence as listed below.
- Conjecture based hypothesis of existing structural condition and/or any associated risks.
- Recommendations with regards further investigative works.

Table 2.1: Reference Documents

Document Reference	Published By	Title / Description	Date
MC002/SK01 Rev C	apd Ltd	Sketch Layout	22/02/24
/Rochdale/rc54.html	Pennine Waterways	Peninewaterways.co.uk	March 24
TBE	Nolan Redshaw	Sales Document	NA

3 GENERAL OVERVIEW

3.1 Site Location

The existing Trub Farm site, road bridge and existing 'fish-pass' culvert are located off Trub road, Rochdale. The M62 motorway is just South of the proposed development, a new housing estate and industrial/commercial premises are immediately East and railway sidings/lines run along the Western edge of the site. Rochdale canal runs along the Eastern edge of the site and beneath Trub traffic bridge.

The site is accessed via the existing traffic bridge which is positioned at the end of Trub road. A new access road will be required and will pass over the existing 'fish-pass' culvert structure.

- Ordnance Survey National Grid reference: SD 883099.
- Postcode: OL11 2LY.
- What Three Words: looked.cigar.lamp.



Figure 1 – Google Maps Satellite Plan View 1¹



Figure 2 – Extract from apd sketch layout



Figure 3 – Google Maps Satellite Plan View 2¹



Figure 4 – Google Earth 3D View 1 Looking North from the M62 to Trub Farm¹



Figure 5 – Google Earth 3D View 2 Looking South from Trub Farm to the M62¹

¹ Taken from: https://earth.google.com/web/search/trub+road,+rochdale/@53.58628656,-2.17840587,134.97905672a,148.38405727d,35y,0h,0t,0r/data=CigiJqokCc8hwAVk3UpAEbtINbr7u0pAGVNL3oheuv2_IYq1TMNi0APAOgMKATA

3.2 Description of Existing Environs

The existing bridge and fish-pass culvert structures are located approximately 3km South West of Rochdale Town centre and approx. 50km from the sea on the West Coast (Southport).

3.2.1 Trub Farm

The existing Trub Farm site is formed of a triangular strip of land between the existing railway along the Western/Northern boundary, Rochdale canal/a recently completed low-rise residential development along the Eastern boundary and a public footpath and the M62 motorway along the Southern boundary.

The greenfield site currently comprises an open grassed field bordered by numerous trees around the boundary, and what appears to be relict foundations and an infilled pond associated with historical structures in the South Western corner.

The level of the existing site lies approximately 2 to 3m lower than the railway line and the residential development on the Western and Eastern boundaries and approx. 0.5 to 1m lower than the M62 on the Southern boundary.

Trub Farm is accessed off Manchester road (A664) in Castleton, Rochdale via Trub road and the existing traffic bridge.

Current site proposals require a new access road to be built linking the existing bridge to the development entrance and require the road build-up to be constructed over the top of the existing fish-pass' culvert structure.

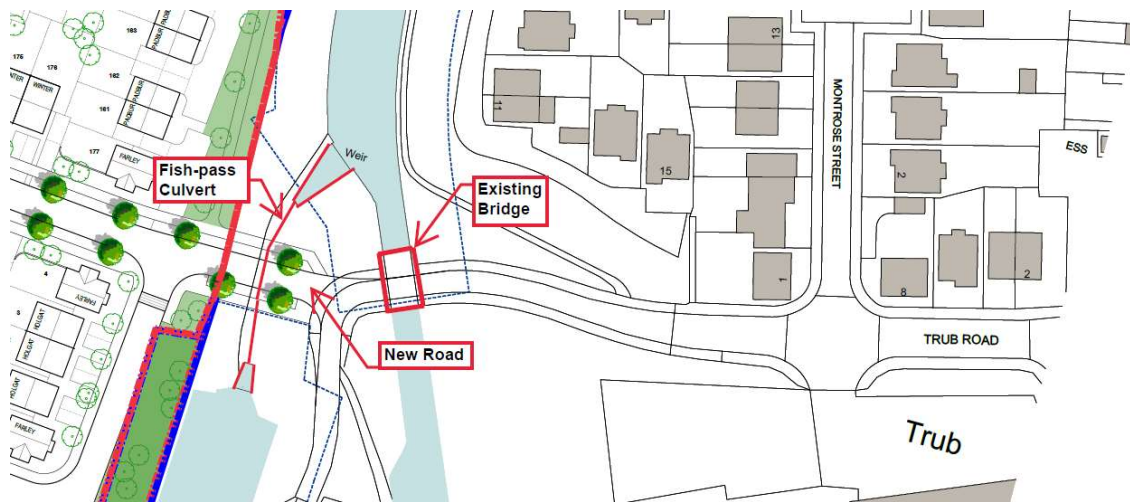


Figure 6 – Proposed Site Access Road

3.2.2 Historical Canal Diversion and Relocation of Lock 53²

When the M62 motorway was constructed across Rochdale Canal circa 2002, a short section of the canal was diverted due to insufficient towpath levels, around and behind Maden Fold Farm through an existing access tunnel where the motorway climbs more steeply.

Lock 53 was also replaced by a new lock South of the M62 Motorway with a new access road (Earl street) being constructed across the tail of the new lock linking Maden Fold Farm to Manchester road (A664).

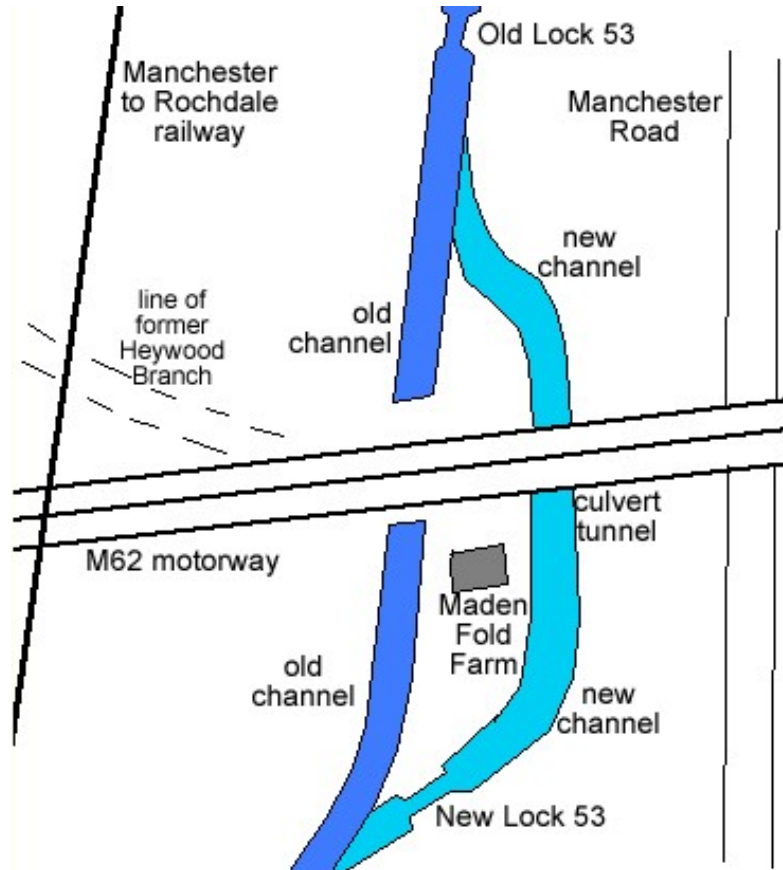


Figure 7 – Pennine Waterways Canal Diversion Plan²

A new reinforced concrete bridge, base and abutments were constructed across the new channel to form an access road (Trub road) to Trub Farm from Manchester road (A664), and the old channel was filled in and culverted (fish-pass) adjacent the new bridge to provide local access via foot. The old channel was filled and culverted further South to allow the new M62 motorway to cross.

The new channel was constructed using interlocked steel sheet piles to form new 'wash walls' which were capped with a concrete ring beam, and the canal bed was filled and capped with layers of clay installed between waterproof sheeting/material containing bentonite.

² Taken from: <http://www.penninewaterways.co.uk/rochdale/rc54.htm>



Figure 8 – Looking South From Old lock 53 Towards the New Bridge Circa 2002²



Figure 9 – New Bridge Construction Looking South Towards the M62 Circa 2002²

3.2.3 Geology

LDE is not aware of any ground investigation works being undertaken to date

² Taken from: <http://www.penninewaterways.co.uk/rochdale/rc54.htm>

4 SITE OBSERVATIONS

4.1 General Observations:

Description and Discussion	Picture example
Existing Trub Road Traffic Bridge. The existing bridge structure is formed of reinforced concrete construction and has a clear span between reinforced concrete abutments of approx. 5.5m. The concrete bridge deck itself is approx. 380mm deep and supported either end via continuous monolithic concrete haunching (approx. 400mm wide x 380mm deep) at its bearings with the abutments either side. The bridge deck is supported by approx. 380mm thick reinforced concrete abutments which double-up as retaining structures for Trub road and the banking either side of the Canal. The bridge abutments are approx. 2.2m in height measured from the top of the Canals 'wash walls', and it is conjectured that the wash walls are approx. 2.0m in height measured from the base of the canal (from review of Pennine Waterways historical construction photos) i.e. the abutments are thought to measure approx. 4.2m in height (measured from the base of the canal) at their highest point. Trub road and the public footpaths on either side are protected by 475mm thick x 1.3m tall solid brick parapet walls which protect the public and traffic from falling into the Canal below. The solid brick masonry parapets appeared plumb and stable with only minor thermal cracking noted along their elevations and some weathering of bed joints noted within the coping stones.	   

Trub road and the public footpaths appeared flat and level where crossing the bridge structure with only minor defects noted i.e. minor spalling of the tarmac access and exit ramps was noted and grass/vegetation growth was prevalent along the junction of the road/kerbs and parapets/footpaths.

Footpath construction is thought to be approx. 300mm in thickness.

The distance between the inside faces of the masonry parapets measure approx. 10.8m with the Northern footpath approx. 4.85m wide, the road approx. 4.1m wide and the Southern footpath approx. 1.85m wide.

The Nolan Redshaw sales brochure notes that the existing bridge 'is built to an adaptable standard and is designed to be able to be widened'.

It has been advised that the bridge is currently owned by The Canal and River Trust but that Trub Farm development proposals include for it to be adopted by the Local Council.

Visual inspection to the underside of the existing bridge deck and the inside faces of the bridge abutments was restricted to what could be observed from the banks either side of the canal.

Shutter joints were observed throughout the surfaces of both abutments and the bridge, suggesting construction was undertaken using in-situ concrete by use of formwork.

Concrete faces appear flat and plumb with only very minor defects noted that are not thought to affect the performance of the bridge i.e. moss growth and very shallow spalling at shutter joints/junctions which were likely caused when formwork was struck circa 2002.

Movement joints (approx. 25mm thick) were observed within both abutments at approx. 600m from the face of the bridge deck on



either side. The flexible sealant within all joints inspected was observed to be only partially filled and require repair.

Water level was measured at approx. 370mm below the top of the 'wash walls' at the time of inspection.

Trub road raises by approx. 3m in a Westerly direction from Montrose street to the existing bridge, before turning left in a Southerly direction and dropping approx. 3m and turning right in a Westerly direction to run parallel with the M62.



Existing Fish-pass Culvert and Headwalls.

The existing culvert structure is completely obscured by the ground, grass, vegetation and trees.

Levels drop by approx. 1.5m from the bridge to the culvert and then approx. 1.5m from the culvert to the existing Trub Farm site.

The existing 'fish-pass' culvert follows the line of the original Canal channel with water flowing from the North in a Southerly direction from the Canal, over a concrete weir and through the culvert in the direction of the M62.

The Northern end of the culvert channel is circular, is approx. 800mm in diameter and protected by a metal grate. The crown of the circular culvert channel was measured at approx. 500mm below the top of the headwall.

The splayed reinforced concrete wingwalls are approx. 12m long with the distance between them varying between approx. 6m at its junction with the main Canal/weir and approx. 1.6m at the face of the reinforced concrete headwall/culvert.

The headwall and wingwalls are approx. 380mm thick.

Some cosmetic wear and vegetation growth was noted along the coping stones that top



the wingwalls and some rubbish/vegetation was observed as trapped within the grate.

The Water level was higher on the Canal side of the weir and the culvert appeared to be functioning well, with water flows satisfactory at the time of inspection.

The Southern end of culvert channel is circular and is approx. 600mm in diameter but is open and not protected by a metal grate. The crown of the circular culvert channel was measured at approx. 250mm below the top of the headwall.

The splayed reinforced concrete wingwalls are approx. 5m long and vary in width between approx. 1.5m at the face of the reinforced concrete headwall/culvert and approx. 3m at the end of the wingwalls in the South.

The headwall and wingwalls are approx. 380mm thick.

No major defects were noted within the headwall or culvert structures however some areas were obscured by vegetation growth.

The base soffit level is higher than the water level within the old channel in the South.

Timber and concrete obstructions were observed at the foot of the base slab within the old channel but water flows were satisfactory at the time of inspection.



5 RECOMMENDED FURTHER INVESTIGATIONS

5.1 Topographical Survey & Existing Services/Utilities Check:

A topographical survey is recommended in order to determine and map out all features, slopes, depressions etc associated with the existing road, bridge, fish-pass culvert and Trub Farm site in order to inform the structural design appraisal of the existing bridge/culvert structures, section 38 design/approval and associated future development proposals.

A utilities search report is also recommended such that utility supplier maps can be reviewed in order to better understand existing underground services/utilities locations within the vicinity of the proposed new access road.

5.2 Intrusive Structural Investigation/Survey:

Intrusive survey/investigation works are recommended in order to better understand the existing structural integrity and strength of the existing bridge and fish-pass culvert structures and to better inform the appraisal of the capability of both structures to support the proposed Trub Farm development access road. Investigation to include (but not limited to):

- Reinforcement mapping - to determine rebar diameters and locations.
- Concrete sampling/testing – to determine concrete grades and reinforcement covers.
- Ground investigation – to determine depth, size and elevation of the fish-pass culvert and its construction. To determine thickness of road/pavement build-ups on top of the bridge deck. To determine local ground conditions, properties and allowable bearing pressures.

5.3 Structural Design Appraisal of the Existing Bridge Structure and Fish-Pass Culvert to Accommodate the New Access Road:

An appraisal of the capability of the existing bridge and fish-pass culvert structures to accommodate the proposed Trub Farm development access road is recommended, utilising the information provided within this report in conjunction with the findings of the further investigation works recommended above.

6 CONCLUSIONS & RECOMMENDATIONS:

Building	Conclusion & Recommendations
Existing Traffic Bridge and Abutments.	The structural integrity of the bridge, its abutments and solid masonry parapets appear satisfactory under current loading conditions and in their existing condition. No major defects were observed at the date of inspection. Some maintenance works are recommended in order to mitigate future deterioration and to increase design life i.e. clear vegetation from the bridge deck/abutments, repoint weathered/missing bed joints, replace the flexible sealant within the MJ's etc. The bridge is to be assessed in accordance with the recommendations made on page 14 in order to determine its suitability to support the proposed Trub Farm development access road.
Existing Culvert and Associated Heawall/Wingwall Structures.	The structural integrity of the headwalls and culvert appear satisfactory under current loading conditions and in their existing condition. The culvert itself was completely obscured by ground cover, vegetation and trees at the time of inspection and as such was restricted to visual inspection of the entrance and exit openings only. No major defects were observed at the date of inspection. Some maintenance works are recommended in order to mitigate future deterioration and to increase design life i.e. clear vegetation from the culvert headwalls/wingwalls, repoint weathered/missing bed joints, clear obstructions which could restrict water flow and/or cause further vegetation/rubbish build-up. The fish-pass culvert is to be assessed in accordance with the recommendations made on page 14 in order to determine its suitability to support the proposed Trub Farm development access road.