From: "Jan Noble" <JNoble@wollongong.nsw.gov.au>
Sent: Thu, 16 May 2019 12:36:10 +1000
To: "Lucy Wiewiora" <Lwiewiora@wollongong.nsw.gov.au>
Subject: HPRM: FW: Helensburgh Community Centre - Water Ingress
Attachments: Design Requisition Helensburgh CC.docm, observations & discussions HCC.DOCX, SN assessment May 2019.docx

Hi Lucy,

I thought the assessment report re HCC might be of interest – use?

Thanks
jan

Jan Noble
Branch Libraries + Community Facilities Manager
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Phone +61 2 4227 7249
Email jnoble@wollongong.nsw.gov.au ● **www.wollongong.nsw.gov.au/library**

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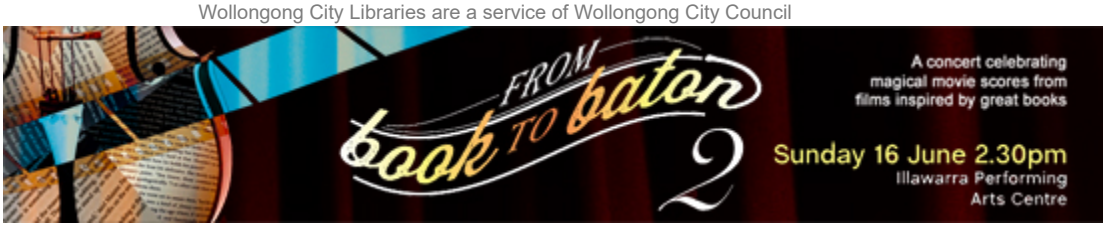

From: Peter Kellaway
Sent: Thursday, 16 May 2019 10:48 AM
To: Jan Noble
Subject: Helensburgh Community Centre - Water Ingress

Hi Jan,
As discussed, please can you sign the attached design request as Service Manager, and return. I'll then get ISP to do same.
I attach Scott Neilson's report and our subsequent meeting notes for your information.

We've also asked John Libro to look at addressing the ventilation concerns in the sub-floor this FY.

Many thanks,

Peter Kellaway
Senior Project Manager - Buildings and Facilities
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FORM DESIGN REQUISITION – PART A

FM 103

PJ/TR No* Select type PJ – Capital, TR – Operational / Maintenance	TR -	Works Order No - TR* 7 digit number from HANSEN Linked to operational budget – see Service Provider	1477419
		Works Order No – PJ* (CPM to provide)	
Project Suburb*	Helensburgh	Technology1 Budget No Number linked to the Work Order No. Eg: B123456	
Project Street Name*	26 Walker St	Design Manager* The Designer or Person the Design Requisition is going to.	Jon Griffiths
Project Description*	Helensburgh Community Centre - Water Ingress		

FUNDING/BUDGET ALLOCATION

1	Funds Available	$ 60,000		
2	Source	Grant ☐	Council ☒	Other ☐
3	Funding Constraints			
4	Estimate Prepared by	ISP		

REQUIRED DATE

1	Programmed Construction Date	FY20/21 and (if multiple years) Choose an item.		
Construction by Day Labour or Contract		Day Labour ☐	Contract ☒	Other ☐
Project History		**The community centre has experienced ongoing problems with water ingress into the sub-floor, resulting in damage to the floor structure from mould and wood rot. The main hall has been closed to sports that impact the floor eg. basketball as a result. Scott Neilson Building Contractors recently investigated the site and produced a report outlining the issues.**		

CONSULTATION TO DATE

1	Asset Manager	
2	DTS Section	
3	Consultation with Community	
4	Council	

AUTHORITY FOR PROJECT

Service Manager Division*	Community Facitlities		
Service Manager Division Contact*	Jan Noble	Signature	
ISP/Middle Manager Contact*	Peter Harris	Signature	
Divisional Manager Signature* Only required for PJ projects not in the current 4yr Capital Works Program		Date	Click here to enter a date.

DESIGN REQUISITION – PART B – PROJECT BRIEF
Confirmation of Project Brief

FM 103

FORM

COMPLETED FORM TO BE EMAILED TO: **DESIGN REQUISITIONS (if a PJ/TR is to be created)**

* Requisition will not be processed if starred fields are blank

Project Brief Design required to: 1) Prevent/limit water ingress into the sub-floor, ventilate sub-floor & re-construct the floor following resolution of the water ingress

Discussed With		Phone Number	
Designer Signature		Date	

Meeting discussion summary – assessment of site findings :
Troy Subotic, Peter Kellaway, John Libro, Scott Neilson

- Evidence of continual sub-floor water run off consistent with the presence of a natural spring or water dispersion above a rock layer. Focused in sub-floor area running centrally east/west then ponding in NE corner
    - Suggest engage geotech to determine depth of rock layer/presence of sub surface water
        - Suggest engage hydraulic consultant to advise based on geotech findings
            - Possible excavate & divert along western elevation
            - Possible focus along sub-floor western footing, pipe/pump out
- An assessment of any required surface water dispersion/capture to be performed with consideration to geotech findings (hydraulic consultant input)
- High moisture content readings taken - 22% in flooring (taken above)
- Condensate observed from Alsynite roof sections dripping onto timber floor
    - Large passive roof ventilators recommended (current ventilators insufficient size and not used)
- Presence of mould is health risk for guests to the facility & any proposed operative working in the confined non-ventilated environment
- Significant mould deposits on sub floor structure – concentrated in the eastern section of floor (refer SN report)
    - 'Bridging' observed in western section of floor also- consistent with swollen flooring due to high moisture content
- Contaminated sub floor including ACM debris
- Ant capping corroded and requires replacement – SN noted that this would be difficult to perform with existing floor in situ
- It is assumed that due to construction limitations (confined spaces, contaminated area, hazardous work area, mould and the observed extensive damage to existing sub-floor structure) that removal of existing floor may be required
    - Full sub-floor structure requires replacement with H3 LVL type moisture resistant members
    - New flooring & finishing would also be required as part of this proposed scope
- An additional large vandal proof vent will be required to be installed in the brick wall (and door) at the NE corner of building. This would create required cross flow feed
- Louvres currently permanently closed (west) will require replacement with functional units (vandal resistant)

Wollongong City Council-Helensburgh Community Centre.

Assessment of subfloor area and general interior/exterior to the above multi- purpose facility. The area in question of the basketball and multi-purpose section encompasses an area of some 510 square metres. The hardwood timber floor, believed to be Ironbark or similar, is layed upon hardwood bearers/joists, Messmate or similar. This in turn is founded onto 350by 350mm brick piers. The sub-floor and foundation material is severely water charged most likely from a natural water spring occurring through the impervious sandstone layers typical of the area.

Whilst the timber floor is a durable species and is not suffering the effects of woodrot from below, the bearers and joists particularly towards the stage area, are in a state of deterioration. The remainder of the bearers and joists are still in a sound condition albeit with evidence of mould throughout, which will need to be addressed as a health hazard during take up, handling and disposal. Air quality in the sub-floor is generally very poor.

There is also evidence of Fibro fragments, such as broken up packing material strewn around the subfloor. Given the building was constructed in 1978, it would be almost certain this has Asbestos content in these pieces.

Also noted is a lot of timber flooring offcuts left on the ground and given the amount of moisture present on the ground, this could attract termites as a potential food source.

Ant cappings particularly nearer the direction of the stage are suffering corrosion and will need to be replaced.

Further evidence of mould is present on the timber bearers as shown here.

The brick piers in general still appear to be well founded and have not sunk or rotated over time.

On test, the mortar still is reasonably stiff and the bricks have not fretted away from the amount of moisture.

There is a white powdery coating on most piers indicating an efflorescence coming out.

Typical spacings of the piers are at 1.8 metre centres. The bearers are spaced centrally on the piers and the joist centres are @ 450mm, which is within standard building code regulations of maximum spacings.

As mentioned previous, there is a significant amount of mould present that is detrimental to the health of people. Proper WHS handling methods will need to be adopted.

As can be seen in this picture, a floor joist has broken it's back due to the effects of wood rot. There is also the situation of the wiring, which needs to be made good during the replacement of the floor. It would be recommended to replace given that is coated in mould as well.

Numerous electronic moisture readings were taken of the below floor, including joists and bearers. On the day of testing being 29th April,2019, an average reading

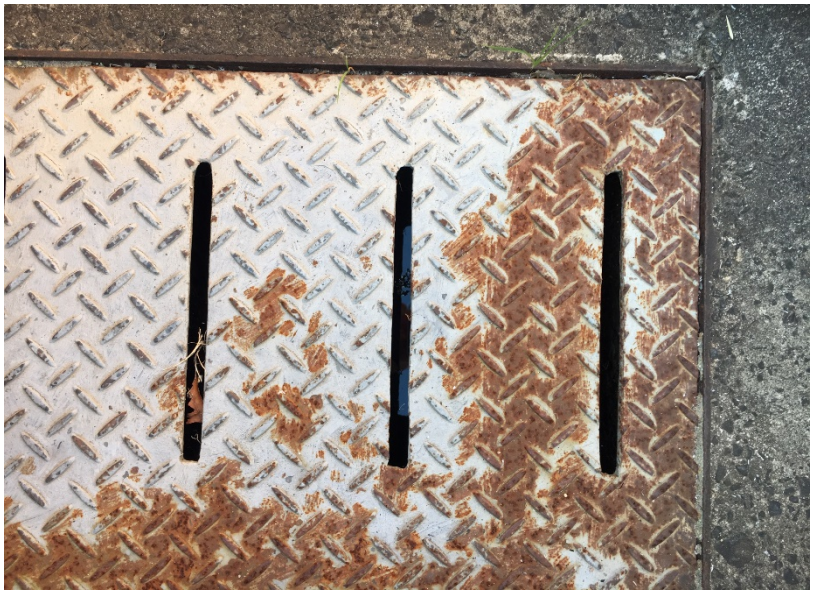
in numerous locations was in the vicinity of twenty three percent. Floorboards on the underside were indicating nineteen percent(approx. two percent can be added to the floorboard reading due to it's species). The ambient temperature was in the vicinity of approx 20deg and therefore based on this, the temperature compensation would be zero. Typically a moisture reading in a normal environment of most timbers would be expected to be in the ten-twelve percent range. Also noted is the fact that drying fans were activated for a minimum of four days prior. Weather patterns in the months' prior have not shown excessive rainfall for some time.

At left shows some scouring out of the wall adjoining the sub-floor and storage area below the stage. Still evident is a large amount of wet soil present.

Running down the middle from the west is a distinct path where surface water tracks down and then diverts across towards the North East corner of the building.

There is no exit point for the excess water to escape and therefore ‘pools’ up in the swale at the lowest point.

A possible remedy would be to take out the exterior garden bed and create a drainage pit to allow discharge out to the streetfront.



This drainage pit (west) was full of water on the day. A plumber should be engaged as part of the process to clear all drains and carry out a 'Dye Check' or similar to see if the ground water does in fact carry though the pipework where it is intended to terminate. This would determine if a stormwater pipe could be broken under the building or causing the water issue.

Raking out of the expansion joints of the junction to the walls/concrete pathway and then applying caulking with a polysulphide will assist in stopping surface water from getting into the building. It is also noted that a number of downpipes are not properly engaged to the stormwater socket.

On the north side boundary, there is also a large gap that will collect water possibly contributing to water ingress. After clearing out of debris, a suitable capping should be placed over and waterproofed.

A reasonable quantity of water was noted on the floor immediately below each of the roof skylights. The indicates a high level of condensation within the building due to a general lack of airflow. Supply and installation of 'Hurricane" type roof ventilators of a large size, say 500-600mm throat diameter minimum will allow extraction of air. Multiple units can be installed near the ridgeline with a 'soaker' type flashing installed and tucked under the ridge capping for weatherproofing.

To further increase air movement throughout the interior of the building ,the exterior intake air grilles should be re-established, as presently these are sealed off. This will allow more cross flow ventilation. Terracotta vent bricks on the exterior can be removed and replaced with larger vents with a mesh type exterior (commercially available). This will promote further airflow not necessarily in the sub floor but will enhance ventilation within the cavity brickwalls.

In summary, a reasonable course of action further to the above pictures and information would be as follows:

Engage a specialist ventilation company to supply and instal a sub floor and above floor ventilation system where possible to enable air movement both intake and exhaust.

Engage a suitably qualified drainage engineer(s) to research and design a means of stopping water ingress to the main sub-floor area ***prior*** to the replacement of the floor and supporting timbers. This may involve partial or complete removal of the floor and timbers or in specific areas to allow remedial work to occur. Partial removal of the floor with a suitable barrier will allow some continued use of the facility by the Public, but this would be dependent on the extent of works involved and the disposal of hazardous materials. This may involve excavation and or civil works to capture/stem the flow of water and then be diverted through a pipework and or pit arrangement. Probable waterproofing methods of specific walls and floor to be applied . After completion of remedial works and when proven that this issue is solved, a reasonable timeframe should be adopted to allow the ground to sufficiently dry out back to a reasonable level. A check of the existing piers should be done as due diligence in case the ground has shrunk due to the drying out period. The piers may drop or sink slightly as a result. If no real apparent settling has occurred, then the new timbers and floor could be installed .

A 'sprung' timber floor should be specified to suit the nature for the use of the indoor area. This is done by having rubber mounted pads set-up between the piers and supporting floor timbers thereby allowing a certain level of 'give' in the floor. Also supplied is some information and pricing (attached) for the replacement floor. The company approached carried out a good majority of floor work to many schools and halls during the BER period and are specialists in this field. On top of this rate would have an expected builder's margin applied as well as other costings needed in support of this work.

Possible external works may also be required on the western laneway side, to stop or divert ground water.

As the nature of the remedial drainage and earthworks to the interior/exterior is not yet clear until such time as a design is carried out, it would be difficult to estimate a value on this. Likewise would be the same scenario to estimate for a proper ventilation system until known.

Yours Faithfully, Scott Neilson.