

**Metropolitan Bible Church Façade**  
**453 Bank Street**  
**Ottawa, Ontario**



**Metropolitan Bible Church [JCAL 2008]**

**JCAL Project No. 08024**  
**July 2009**

**Prepared By:**

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## **Section 1.0 Executive Summary**

As a condition for the development of the site at 453 Bank Street, the City of Ottawa requires that the street façade of the Metropolitan Bible Church building be retained as part of the new development, due to its heritage designation.

This report outlines the nature of the wall construction, observations on the wall condition based on our site investigations, details of the three options we studied in order to incorporate the façade into the new building, and our assessment of each of the three options.

Based on our study of the three options, we made our recommendation which is presented to the City of Ottawa in this report.

## **Section 2.0 Existing Conditions**

### **Section 2.1 Exterior Masonry Condition Survey**

In early May 2008, John G. Cooke & Associates Ltd. arranged with Doran Residential Contractors Ltd to supply a man-lift in order to closely inspect the brick masonry exterior face of the Bank Street façade. As noted, in our letter of May 8, 2008 (see section 2.1.1), the existing brick is in relatively good condition. The joints are raked joints and the mortar is a lime mortar. The main issues noted at the time were along the condition of the brick behind the metal feature strip below the head of the third floor windows, and the condition of the mortar joints for several courses below the roof line and at the two chimneys.

At the metal feature strip, it was noted that the detail was poor. The metal did not finish into a reglet. Instead, it finished flush with the wall and was caulked. The detail subsequently failed, allowing the metal to pull away from the wall. Moisture could infiltrate the brick behind the flashing. As can be seen from the photographs (see sections 2.1.2), the brick is of inferior quality to the exterior brick, and is badly deteriorated, thus weakening the wall at this location.

At the chimneys, and along the roof line, the mortar joints have deteriorated, and some of the brick is loose.

Based on our experience, due to the lack of gravity load, it can be assumed that the brick masonry of the two chimneys and a portion of the upper walls at roof level will have to be dismantled and rebuilt.

Given the serious defect in the brick masonry wall behind the metal ledge, the unknown condition of the backup concrete block, and the extent of dismantling required at the top of the wall, we are recommending that the upper portion of the wall must be dismantled, regardless of the selected option to incorporate this heritage façade into the new development.

During the reconstruction, a similar compatible historic brick will be used to replace the damaged brick behind the metal ledge. Brick will also be salvaged from the backside of the chimney to replace brick damaged during dismantling of the upper wall.

#### **Section 2.1.1 Letter dated May 8, 2008.**

This section includes a letter sent to Adjeleian Allen Rubeli Ltd. from John G. Cooke & Associates Ltd. describing the conditions of the exterior masonry with recommendations of the required actions.

Adjeleian Allen Rubeli Limited  
75 Albert Street, Suite 1005  
Ottawa, ON K1P 5E7

May 8, 2008  
Project No. 08024

Attn: Garry Vopni  
e-mail [gvopni@aar.on.ca](mailto:gvopni@aar.on.ca)

**RE: 453 Bank Street – Façade Brick Condition**

Dear Garry,

This is a brief report on my observations of the façade condition as observed May 7 from the man-lift on Bank Street.

My observations are as follows:

- .1 At the metal cornice, the metal is rusting and is in poor condition. The detail is very badly done, with the upper horizontal surface of the cornice terminating at the face of the brick, with no reglet of any kind. The weather seal is totally dependent on the sealant which has failed. The water infiltrates behind the metal cornice, so the poorer quality brick used behind the cornice is deteriorating, and mortar in the brick joints is eroded. The metal cornice is pulling away from the wall but is not in danger of falling at this time.
- .2 At roof level, for several courses below roof level, and at the small parapet each side of the chimneys, the outer portion of the joints is eroded, but in general, the mortar is still bonded to the brick.
- .3 At the large south chimney, the brick joints are in poor condition for the extent above the roof, with mortar cracked, debonded or eroded. Some of the brick is bulging. Many bricks appear to be loose. This chimney is still in use so it is not capped. The brick liner inside the chimney is in very poor shape. Most of the brick mortar joints are void, and some brick is deteriorated. Some attempt to repoint brick joints was made on the north east, and south sides of the chimney on the exterior face.
- .4 The north chimney is capped, but the brick condition is similar to the south chimney, with poor condition of mortar joints, and deteriorated brick. On the east face, there is a noticeable bulge in the brick face.

Our conclusions and recommendations are as follows:

- .1 The metal cornice will have to be replaced. Ideally, it should be replaced with copper for longevity and minimum maintenance. The metal must be properly detailed to finish into a reglet in the brick above the ledge.

During the shoring, this cornice, which is loose, will have to be removed. The profile of the cornice must be accurately recorded. The brick band behind will have to be repaired by replacing deteriorated brick, and repointing joints, before the building is demolished, as this band is creating a weakness in the wall at this point.

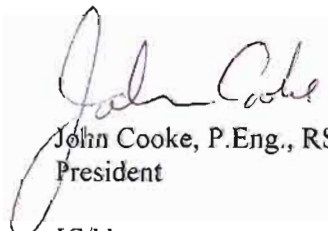
- .2 Given the condition of the brick parapet and the chimneys in the centre, the brick construction above the parapet will largely have to be reconstructed. In light of this condition, I would recommend careful demolition of the brick above roof level, and possibly even several courses below roof level (this will depend on the condition of the upper brick courses after the cap flashing is removed), prior to building demolition.

All of this exterior brick should be salvaged and cleaned for reconstruction later. This will reduce the height of wall to be shored and braced, thus introducing some savings into the cost of this work.

Please contact me if you have questions on the above. I am sending a CD of the photographs I took by courier.

Yours truly,

**JOHN G. COOKE & ASSOCIATES LTD.**



John Cooke, P.Eng., RSW  
President

JC/kh

08024/ltr\_1

cc: Jean-Michel Carrier – Adjeleian Allen Rubeli Limited  
Marty Lockman – John G. Cooke & Associates Ltd.

Section 2.1.2 Photographs



Picture 1 Exterior Façade: View from the north west corner of the building



Picture 2 Exterior Façade: View from the south west corner of the building



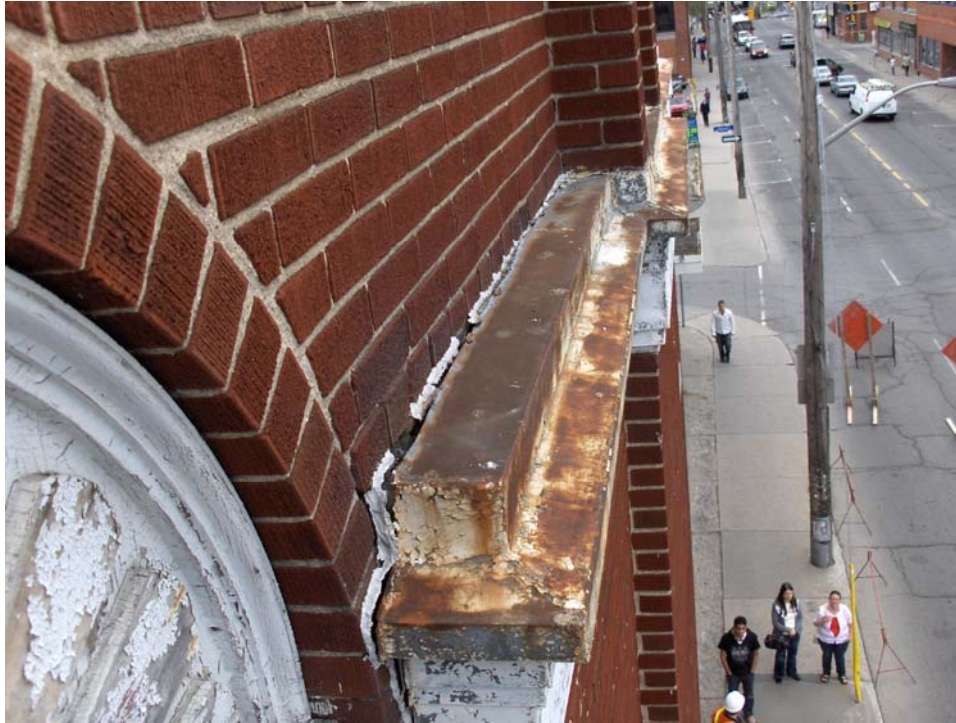


Picture 3 Exterior Façade: Bottom of the north elevation



Picture 4 Exterior Façade: Bottom of the south elevation





Picture 5 Metal feature strip at third floor windows



Picture 6 Metal feature strip at third floor windows



Picture 7 Metal Feature Strip at third floor windows



Picture 8 Metal feature strip at third floor windows





Picture 9 Chimney



Picture 10 Chimney

## Section 2.2 Interior Masonry Condition Survey

John G. Cooke & Associates Ltd arranged with Doran Residential Contractors Ltd. to core some areas of the building to determine wall assembly and condition of the backup block structure. The observations are noted in the letter dated May 30, 2008, included in section 2.2.1. Photographs of the cores are shown in section 2.2.2.

### Section 2.2.1 Letter dated May 30, 2008.

This section includes a letter sent to Adjeleian Allen Rubeli Ltd. from John G. Cooke & Associates Ltd. describing the conditions of the interior masonry with recommendations of the required actions.

Adjeleian Allen Rubeli Limited  
75 Albert Street, Suite 1005  
Ottawa, ON K1P 5E7

May 30, 2008  
Project No. 08024

Attn: Jean-Michel Carrière  
e-mail [jcarriere@aar.on.ca](mailto:jcarriere@aar.on.ca)

**RE: 453 Bank Street – Block Backup Condition**

Dear Jean-Michel,

We prepared a draft wall section based on the core made. Three cores were made in the basement, one core was made at ground level and one core was made at the second floor level. One core was also made through the ground floor.

Our observations of the cores are as follows:

The three cores in the basement:

The same wall construction was noted at all three core locations. The wall is 16½" thick. It is made of either two 8" concrete blocks or a 12" and a 4" concrete block with a ½" thick parging/plaster on the inside face. The concrete block units and the mortar were found to be in good condition.

The core at ground level:

The core was made through the chimney. The wall construction at the chimney is as follows: 3½" brick, 2" space, 12" concrete block, 18" space, 12" concrete block and ½" thick parging/plaster on the inside face. The concrete block units and the mortar were found to be in good condition.

The core at the second floor level:

The wall construction is as follows: 3½" brick, ½" space, 8" concrete block, and ½" thick parging/plaster on the inside face. The concrete block units were found to be in good condition. The mortar was found to be weak and easy to debond.

The core through the ground floor slab:


The floor slab is 5" thick with a 3" topping.

As additional recommendations from the letter of May 8, 2008, which addressed the exterior brick, an allowance should be provided to repoint a portion of the block. The condition of the concrete block units and mortar need to be re-assessed once the wall finishes are removed. For pricing purposes, an allowance for repointing of 10% of the block joints should be included in the bid documents. Also, an allowance will need to be carried to infill any mechanical openings or pockets found in the wall.

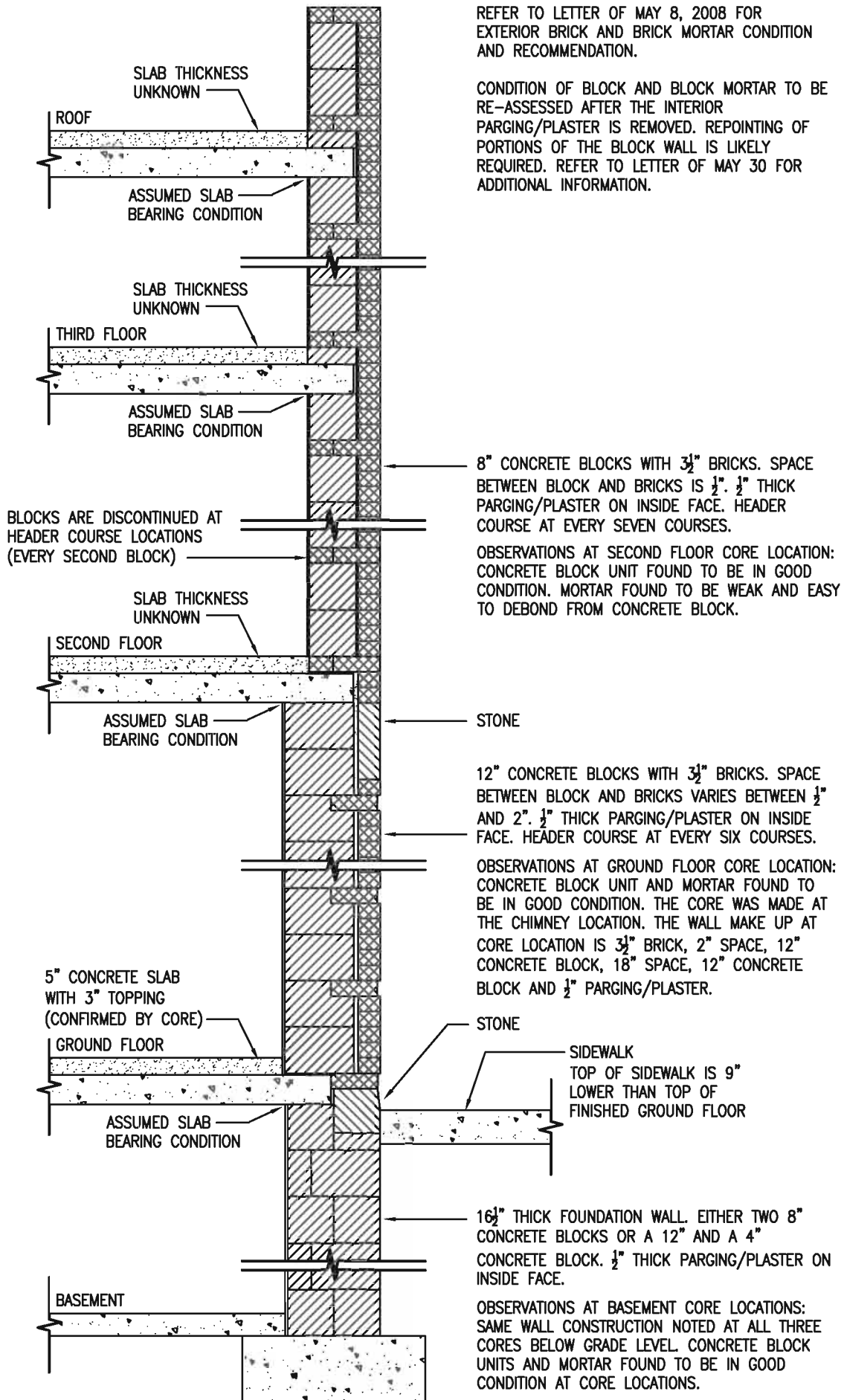
Please contact our office if you have questions on the above.

Yours truly,

**JOHN G. COOKE & ASSOCIATES LTD.**



Marty Lockman, P.Eng., Ing.  
ML/ml  
08024/ltr\_2



REFER TO LETTER OF MAY 8, 2008 FOR EXTERIOR BRICK AND BRICK MORTAR CONDITION AND RECOMMENDATION.

CONDITION OF BLOCK AND BLOCK MORTAR TO BE RE-ASSESSED AFTER THE INTERIOR PARGING/PLASTER IS REMOVED. REPOINTING OF PORTIONS OF THE BLOCK WALL IS LIKELY REQUIRED. REFER TO LETTER OF MAY 30 FOR ADDITIONAL INFORMATION.



Section 2.2.2 Photographs



Picture 11 Core sample at the second floor



Picture 12 Core sample at the ground floor



Picture 13 Core sample in basement



Picture 14 Core sample through ground floor slab

### Section 2.3 Letter from Doran to Metropolitan Bible Church

This section includes a letter sent to Metropolitan Bible Church from Doran Residential Contractors Ltd. The letter was informing Metropolitan Bible Church on the condition of the masonry.

June 30, 2008

Metropolitan Bible Church,  
453 Bank Street,  
Ottawa, Ontario  
K2P 1Y9

Attention: Mr. Wayne Webster

Re: Church Façade

Dear sir.

As you are aware, we recently completed an investigation of how the façade was built to help determine how we would go about supporting it during the construction of the Central condominium development.

In the process of determining the structural details of the building and the façade, we noted several areas where deterioration had taken place. We feel you should be aware of our findings.

Attached are copies of reports prepared by John G. Cooke & Associates Ltd. dated May 8 & May 30, 2008.

Yours truly,  
Doran Residential Contractors Ltd.

Louis A. Dugas  
Senior Construction Manager

cc; Jeff Parkes, Taggart Realty Management  
David Wex, Urban Capital (Gladstone) Inc.

## **Section 3.0 Existing Building Façade Conservation Options**

### **Section 3.1 Dismantling and reconstruction (Option A)**

This option involves the complete dismantling of the masonry walls, after first recording all aspects of the construction using photographs, measurements, recording and detailing of features. The masonry, where feasible, would be salvaged. All concrete blocks and portions of brick masonry would have to be replaced with compatible material, leaving little heritage significance other than a replica of the façade.

The wall would be reconstructed following the construction of the new building. Mortars similar to the original mortars would be used. Replacement historic brick would be used on the upper portion of the wall and at the door recesses at ground level. It would be difficult to match the existing brick in size, colour and finish.

This option would allow for conventional shoring and foundation construction. It would also allow to fully incorporating the façade into the new building, including seismic upgrade into the wall. Furthermore, this option would minimize sidewalk closure and street interference.

### **Section 3.2 Underpinning of Building Façade (Option B)**

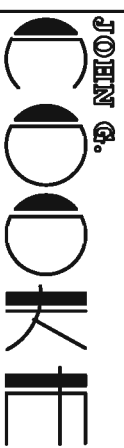
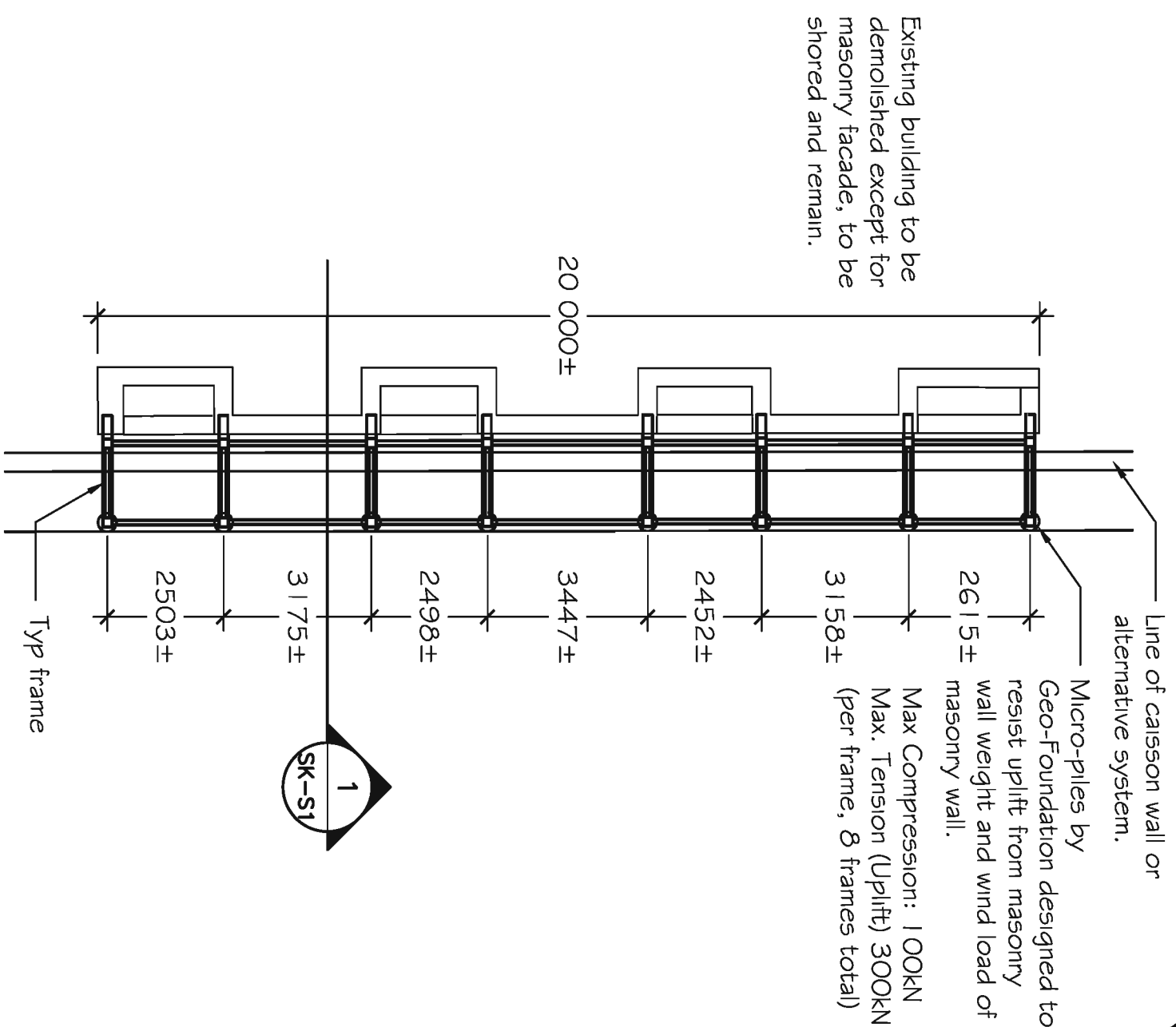
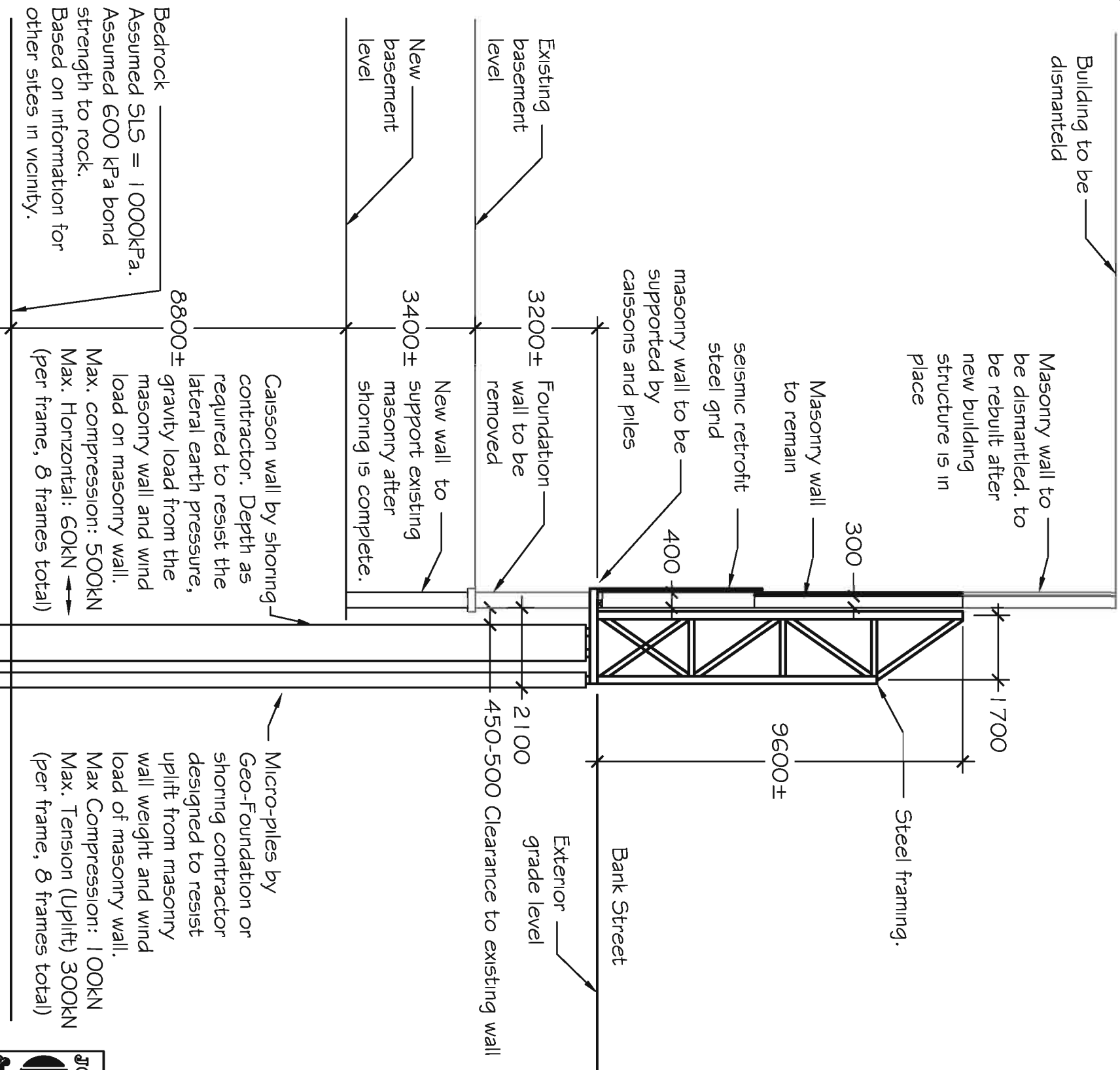
This option involves keeping the façade in place. It conforms to the historic guidelines for minimum intervention. Full conservation of the façade, both interior and exterior would be required. The dismantling and reconstruction of the upper façade as described in section 2.1 would still be required. Full repointing of both faces of the masonry and repairing of any damage on the concrete block masonry would be required.

A permanent steel frame to provide lateral support to the wall in its finished location would be installed. This will strengthen the wall during demolition and reconstruction of the new building.

It would be necessary to erect a very complicated shoring system to support the wall on both sides, with a steel framing tower on the street side, to support the wall during demolition and reconstruction. The process will be complicated due to the prior foundation condition in this area, and the need for deep piling to support the shoring structure. This option would require unconventional shoring wall to support the weight of the façade and maintain earth stability under Bank Street. The shoring construction and dismantling must be closely coordinated with the excavation of the foundations for the new building. Also, a concrete pile shoring wall would have to be constructed on the street side of the wall prior to erecting the shoring and proceeding with excavation on the interior of the site. This will be an extremely expensive operation, and the risk of damage to the wall is high. This option would also require closure of the sidewalk and part of the street for an extended period of time.

#### **Section 3.2.1 Conceptual Drawings**

This section includes conceptual drawings of this option.

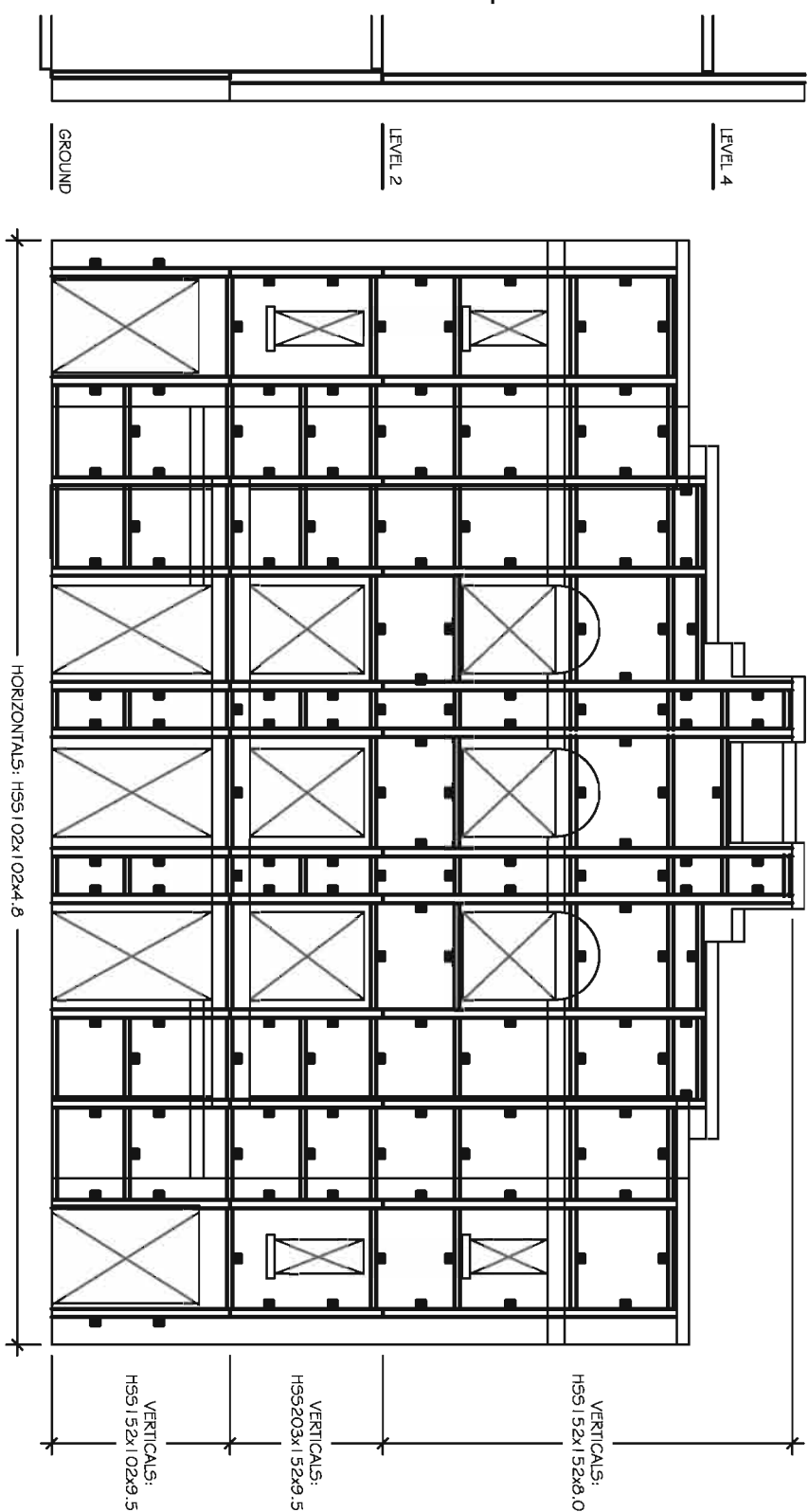
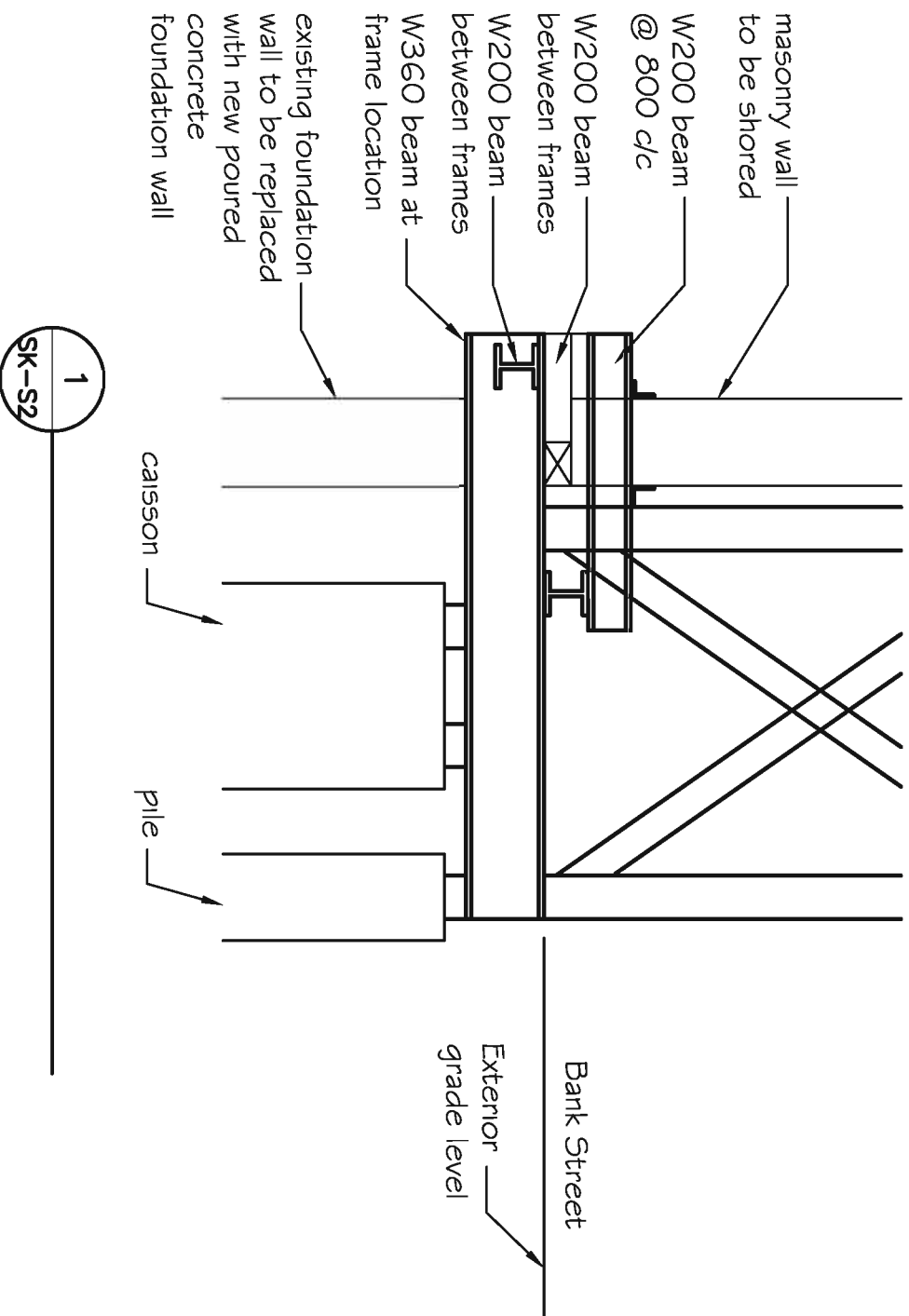


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Project  
MASONRY FACADE SHORING FOR 453 BANK ST.  
Client  
URBAN CAPITAL (GLADSTONE) INC.

Drawing  
PRELIMINARY FACADE SHORING  
dwg. no.  
SK-5A  
Drawn  
ML  
scale  
N.T.S.  
date  
JUN 12/08  
project no.  
08024

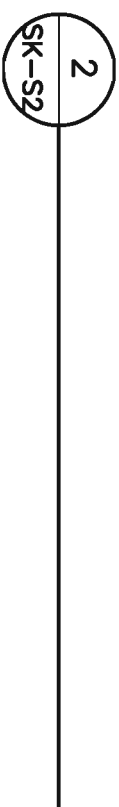




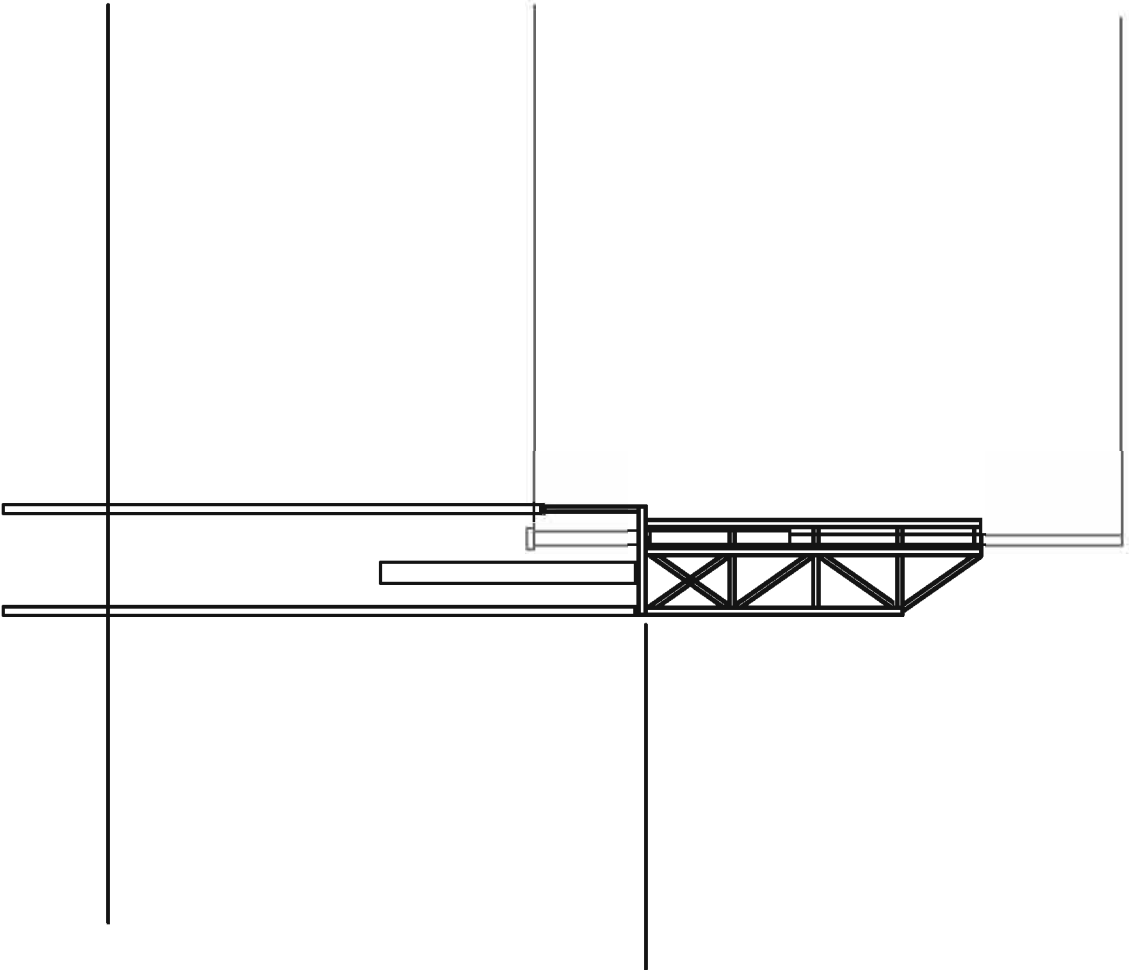
Sequence of construction work during reconstruction of the foundation wall under existing masonry.

1. Install shoring system by general contractor designed for lateral soil pressure during excavation and new basement construction.
  2. Install shores at steel frames location designed for additional reaction from frames.
  3. Install additional piles for uplift loads on frames if caissons cannot be designed as dual system.
  4. Cut opening in the wall at frame location. Install W360 horizontal beam through the wall.
  5. Build steel framing along front façade and tie masonry to frame.
  6. Install needle beams.
  7. Demolish Building, starting from roof down.
    - 1.1 Demolish the foundation wall.
    - 1.2 Excavate for new building basement.
    - 1.3 Construct the new foundation wall.
    - 1.4 Remove needle beams
- Install new steel frames at the back of the façade for seismic retrofit and to anchor the façade to the building structure.

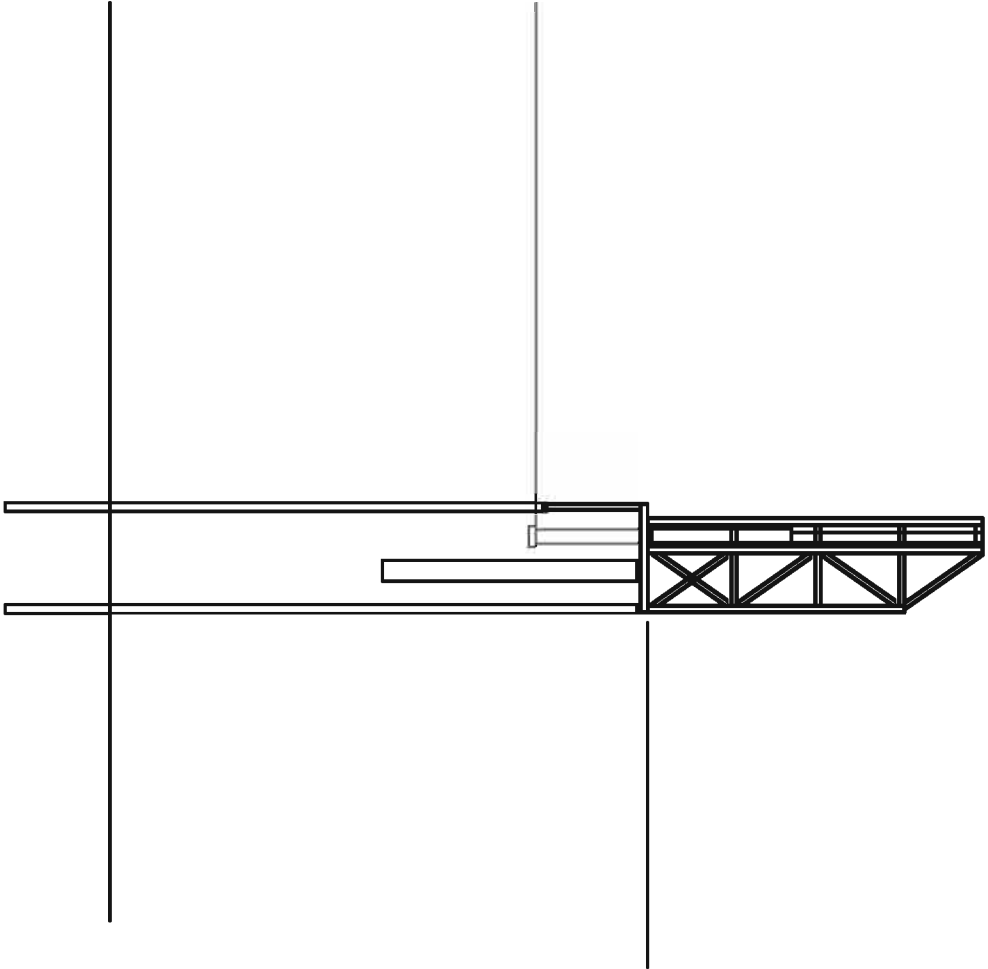
Proposed steel grid pattern for seismic retrofit (on inside face of facade)



|  |  |                 |  |  |  |                      |  |
|--|--|-----------------|--|--|--|----------------------|--|
| <div>JOHN G. COOKE &amp; ASSOCIATES LTD.<br/>CONSULTING ENGINEERS<br/>1750 COURTMOOD CR. OTTAWA, ONT. K2C 2B5<br/>SUITE 101 FAX (613) 226-7424<br/>(613) 226-8718 E-MAIL mailbox@jgcooke.com<br/>WEB SITE http://www.jgcooke.com</div> |  |                 |  | Project<br>MASONRY FACADE SHORING FOR 453 BANK ST. |  |                      |  |
| Client<br>URBAN CAPITAL (GLADSTONE) INC.   |  |                 |  | Drawing<br>PRELIMINARY FACADE SHORING              |  |                      |  |
| drawn<br>ML  |  | scale<br>N.T.S. |  | date<br>JUN 12/08                                  |  | project no.<br>08024 |  |
|  |  |                 |  | dwg. no.<br>SK-SB                                  |  |                      |  |



# PHASE 1

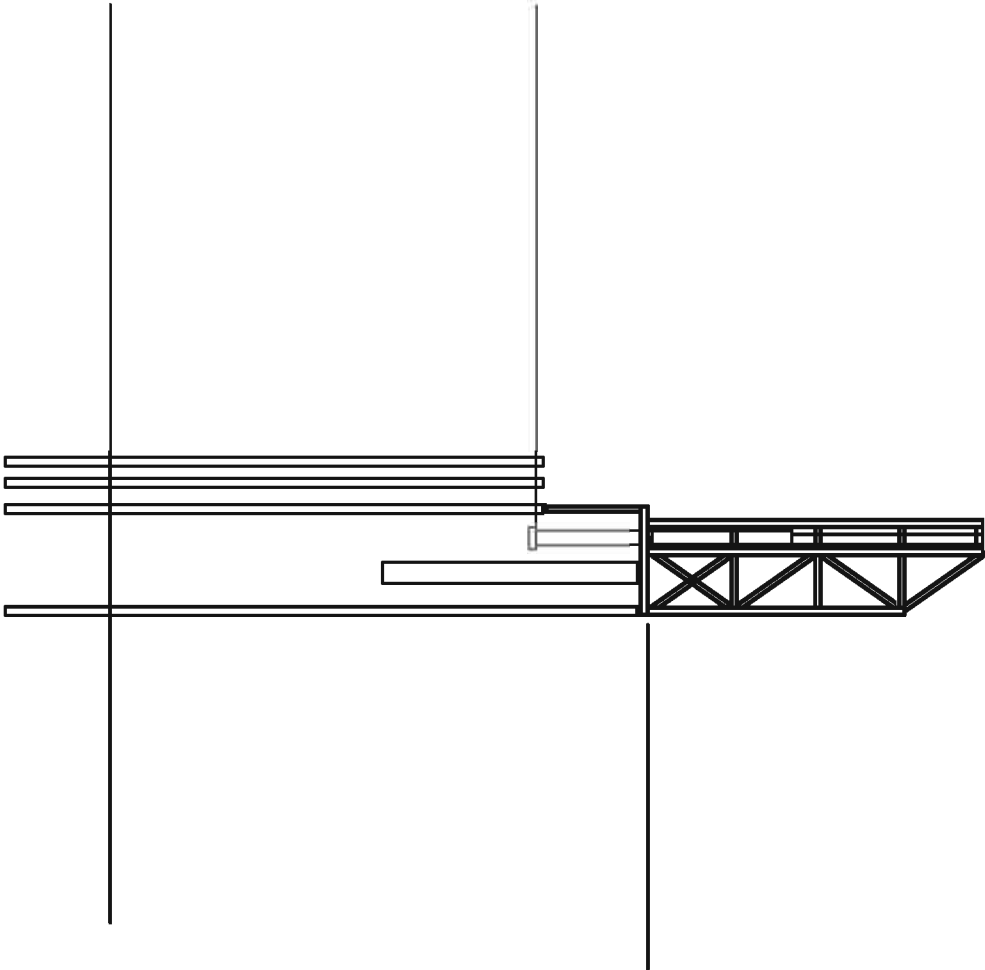


# PHASE 2

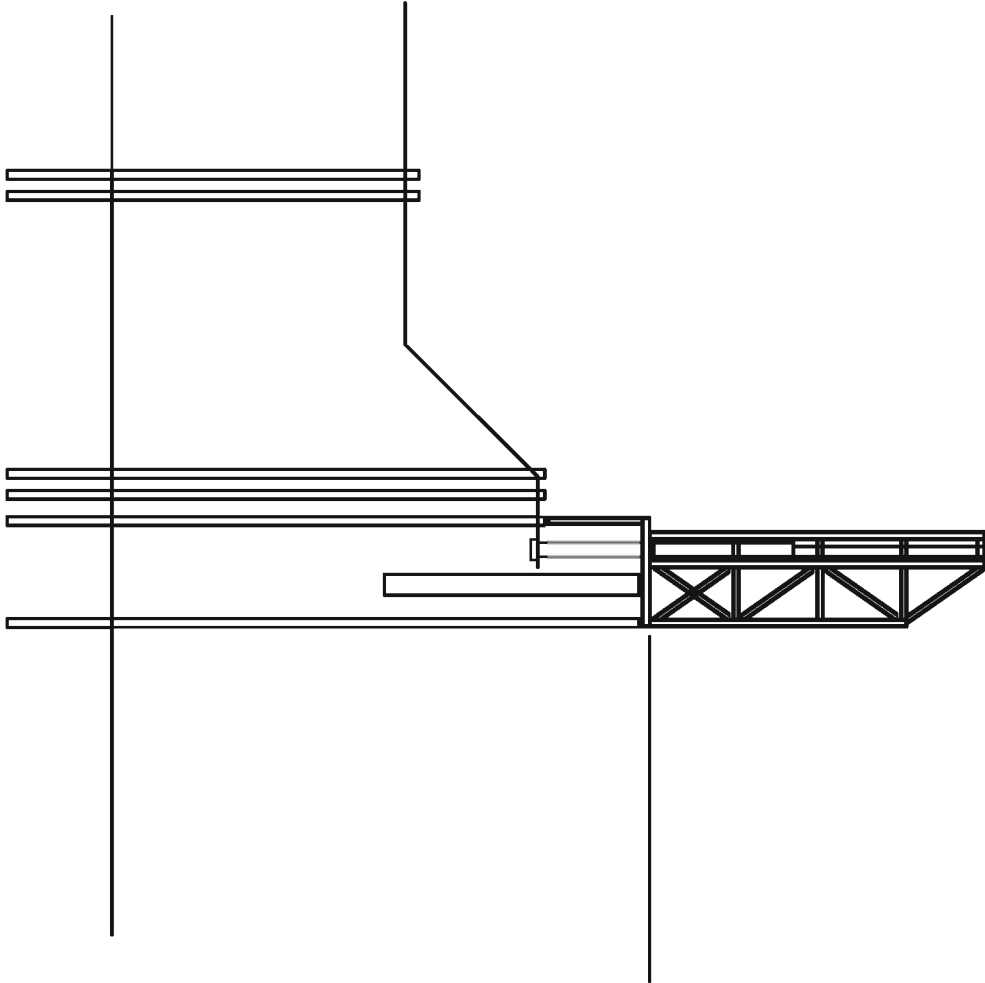
- PHASE 1 :
- INSTALL CAISSON PILE RETAINING WALL.
  - INSTALL MICROPILES INSIDE AND OUTSIDE THE BUILDING.
  - INSTALL THE PERMANENT STEEL FRAMING BEHIND THE FACADE (LOWER PORTION ONLY).
  - INSTALL THE FACADE SUPPORT FRAMING.

- PHASE 2 :
- DEMOLISH BUILDING.
  - DISMANTLE UPPER PORTION OF FACADE.

|   |                 |                   |                      |                    |   |  |
|---|-----------------|-------------------|----------------------|--------------------|---|--|
| <div><div>JOHN G. COOKE &amp; ASSOCIATES LTD. CONSULTING ENGINEERS</div><div>1750 COURTWOOD CR. SUITE 101 OTTAWA, ONT. K2C 2B5 (613) 226-8718 FAX (613) 226-7424 E-MAIL mailbox@jgcooke.com WEB SITE http://www.jgcooke.com</div></div> |                 |                   |                      |                    | Project<br>MASONRY FACADE SHORING FOR 453 BANK ST.              |  |
| Client<br>URBAN CAPITAL (GLADSTONE) INC.  |                 |                   |                      |                    | Drawing<br>PRELIMINARY FACADE SHORING SCHEMATIC PHASING OF WORK |  |
| drawn<br>ML   | scale<br>N.T.S. | date<br>JUN 12/08 | project no.<br>08024 | dwg. no.<br>SK-SC1 |   |  |



PHASE 3



PHASE 4

- PHASE 3: - INSTALL NEW BUILDING PILES NEXT TO FACADE.
- PHASE 4: - EXCAVATE AWAY FROM THE FACADE.  
- INSTALL THE REMAINING NEW BUILDING PILES.

JOHN G. COOKE & ASSOCIATES LTD. CONSULTING ENGINEERS

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Project

MASONRY FACADE SHORING FOR 453 BANK ST.

Client

URBAN CAPITAL (GLADSTONE) INC.

Drawing

PRELIMINARY FACADE SHORING SCHEMATIC PHASING OF WORK

drawn

ML

scale

N.T.S.

date

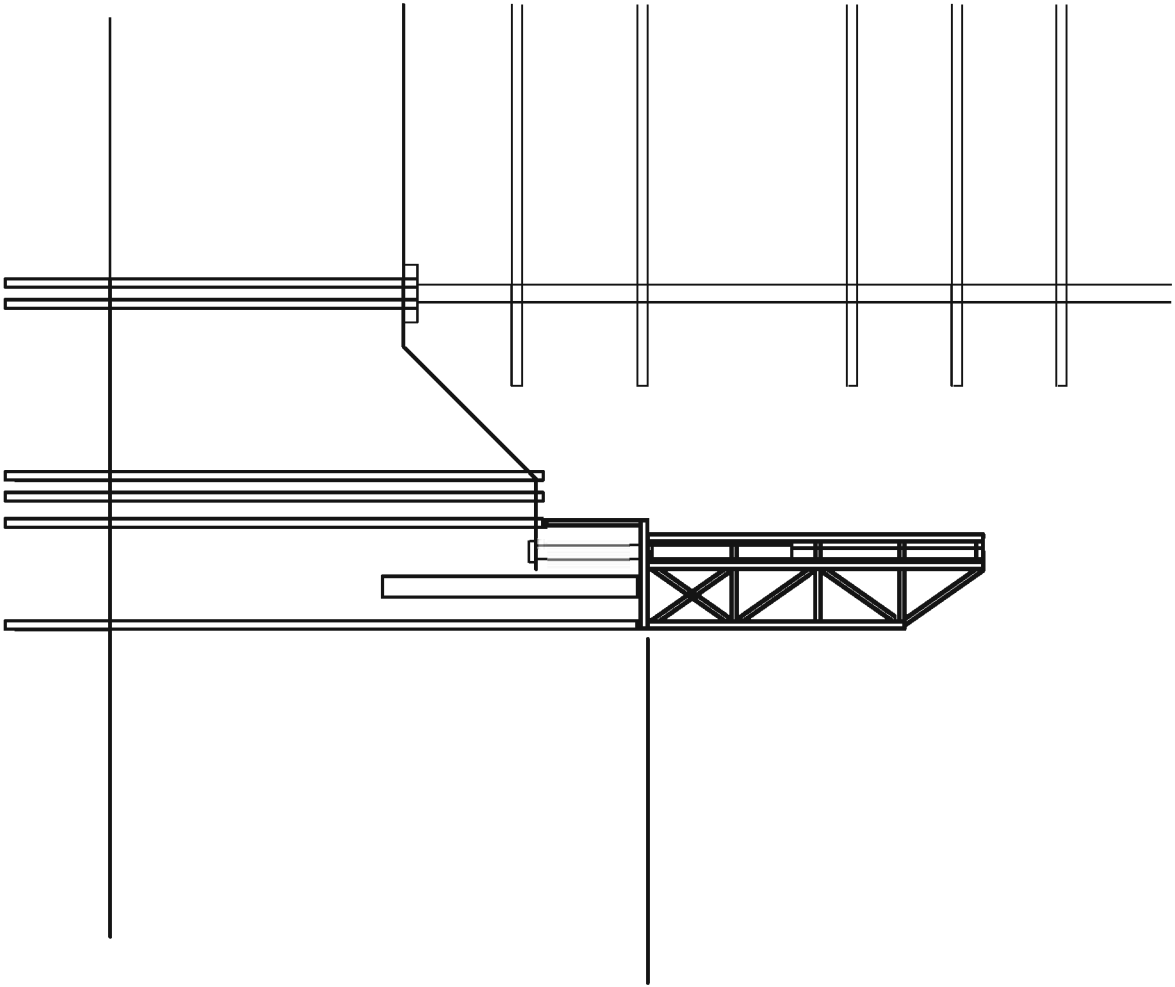
JUN 12/08

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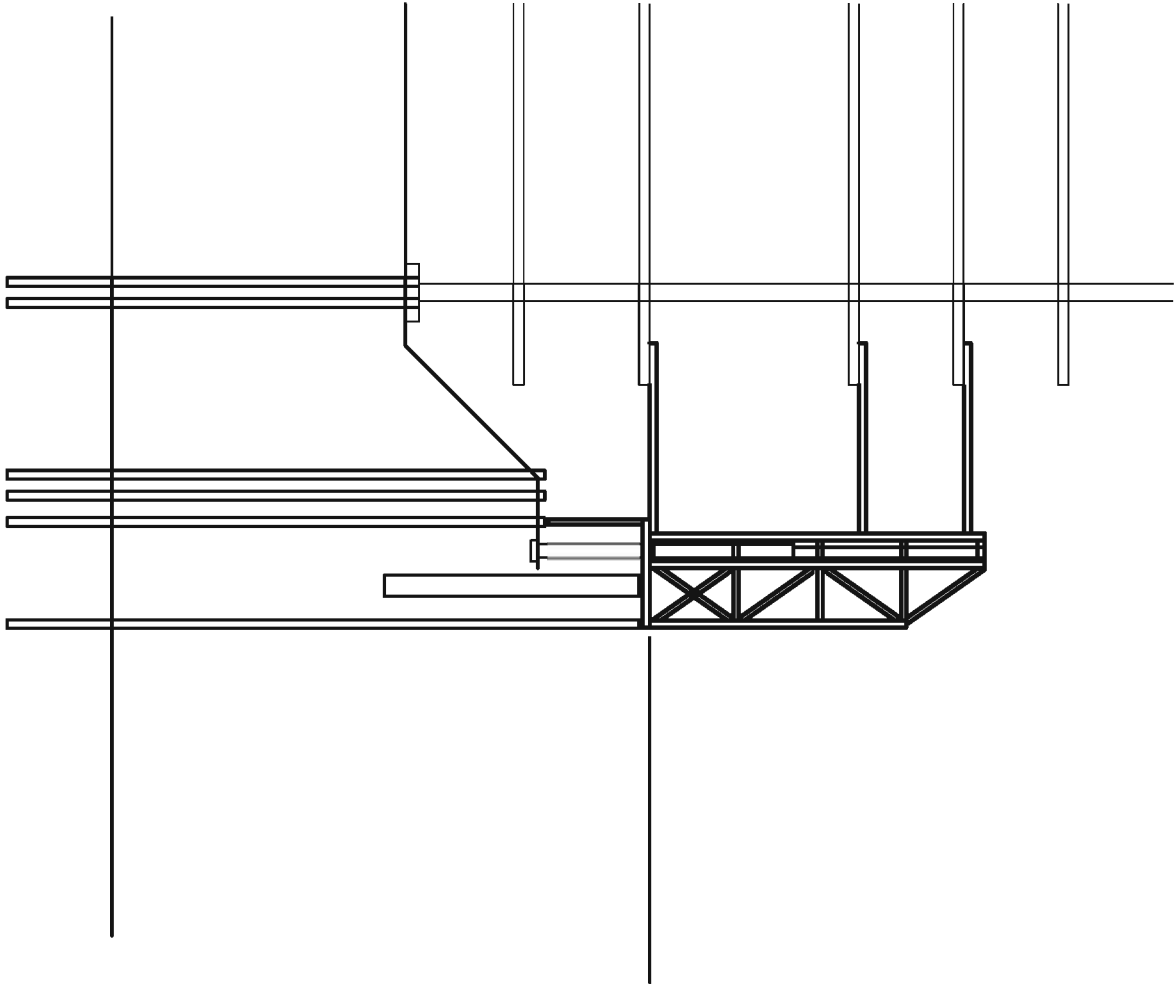
08024

dwg. no.

SK-S02



PHASE 5



PHASE 6

PHASE 5: - CONSTRUCT NEW BUILDING STRUCTURE ONE BAY AWAY FROM THE FACADE.  
PHASE 6: - BRACE THE FACADE AGAINST THE NEW BUILDING STRUCTURE.

JOHN G. COOKE & ASSOCIATES LTD.

CONSULTING ENGINEERS

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Project

MASONRY FACADE SHORING FOR 453 BANK ST.

Client

URBAN CAPITAL (GLADSTONE) INC.

Drawing

PRELIMINARY FACADE SHORING SCHEMATIC PHASING OF WORK

drawn

ML

scale

N.T.S.

date

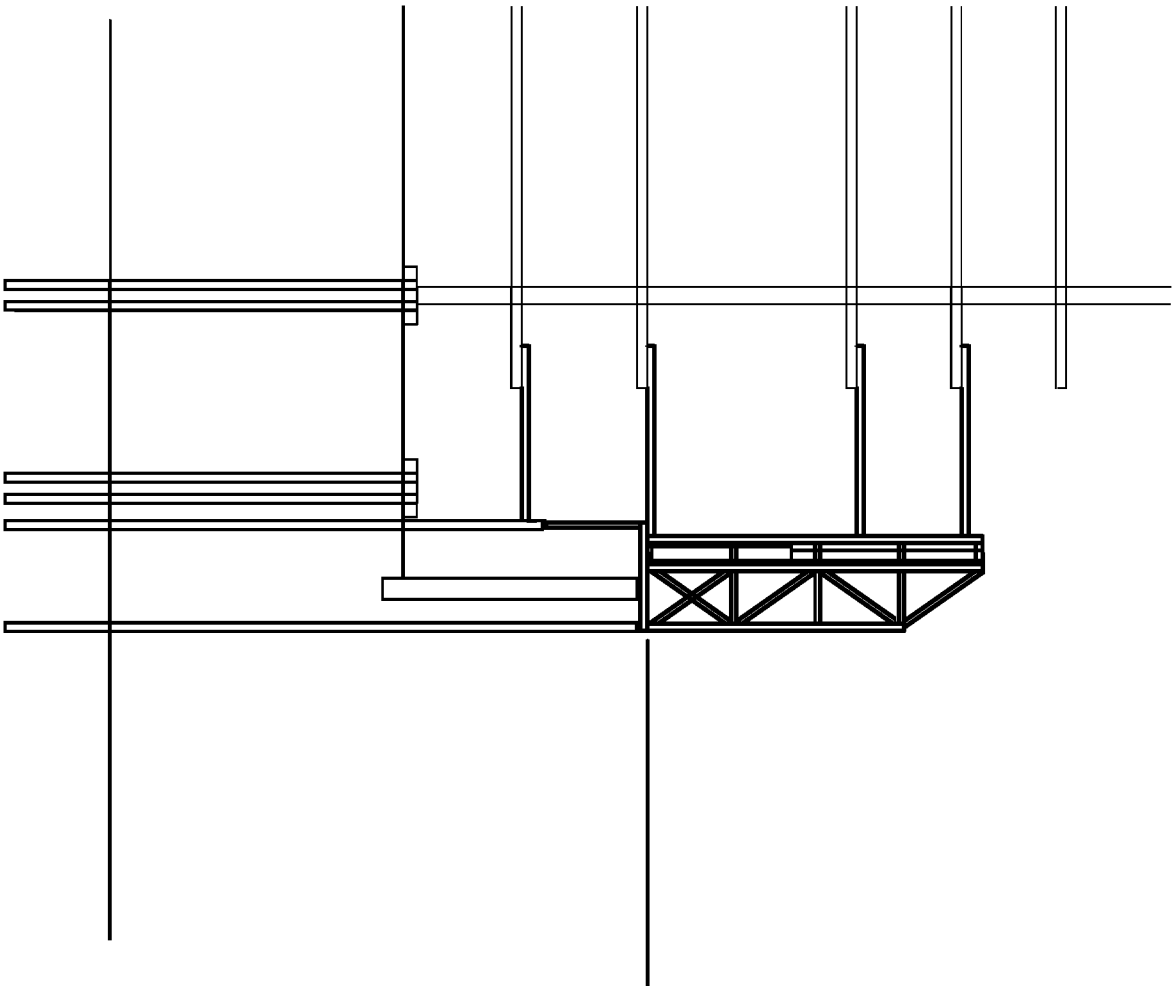
JUN 12/08

project no.

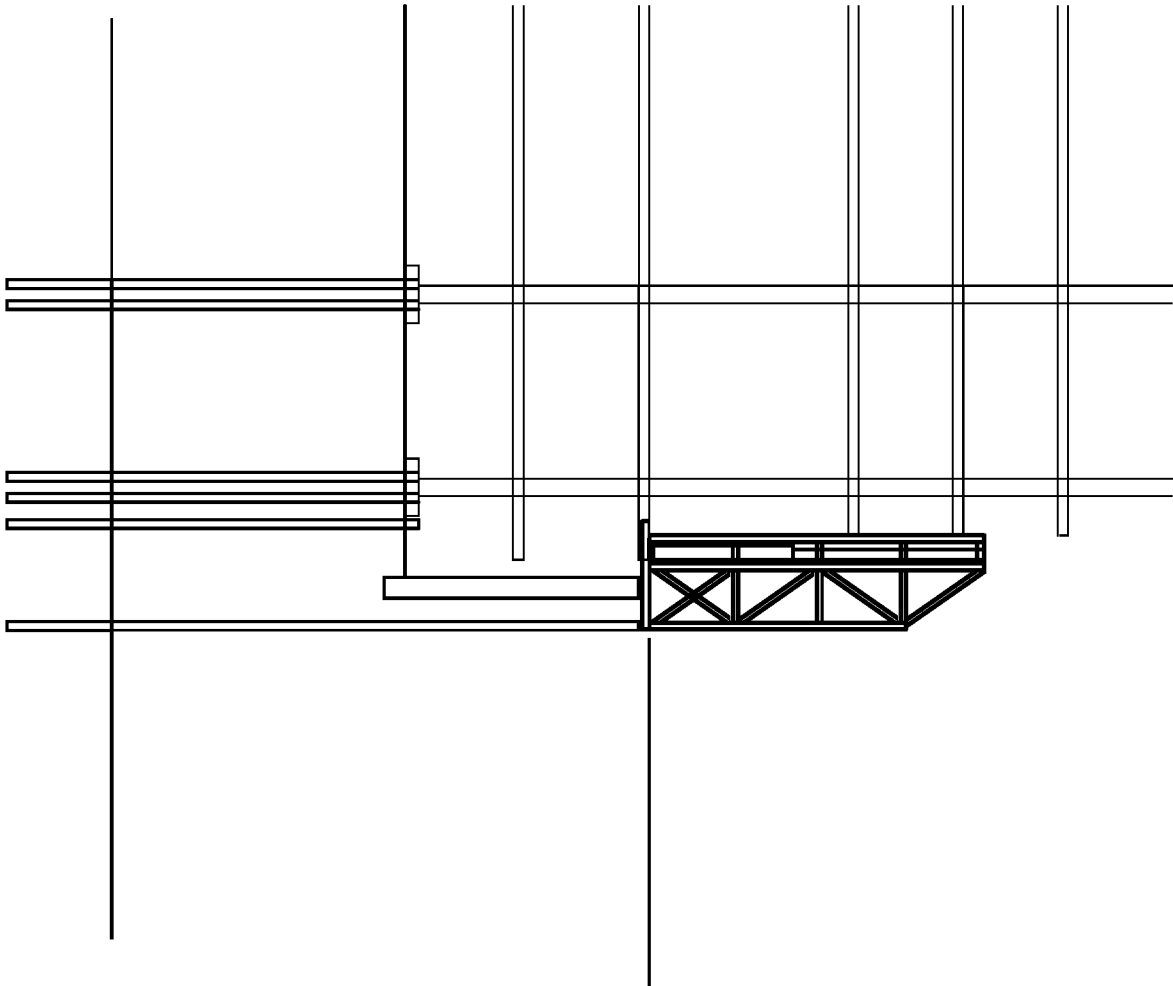
08024

dwg. no.

SK-SC3



PHASE 7

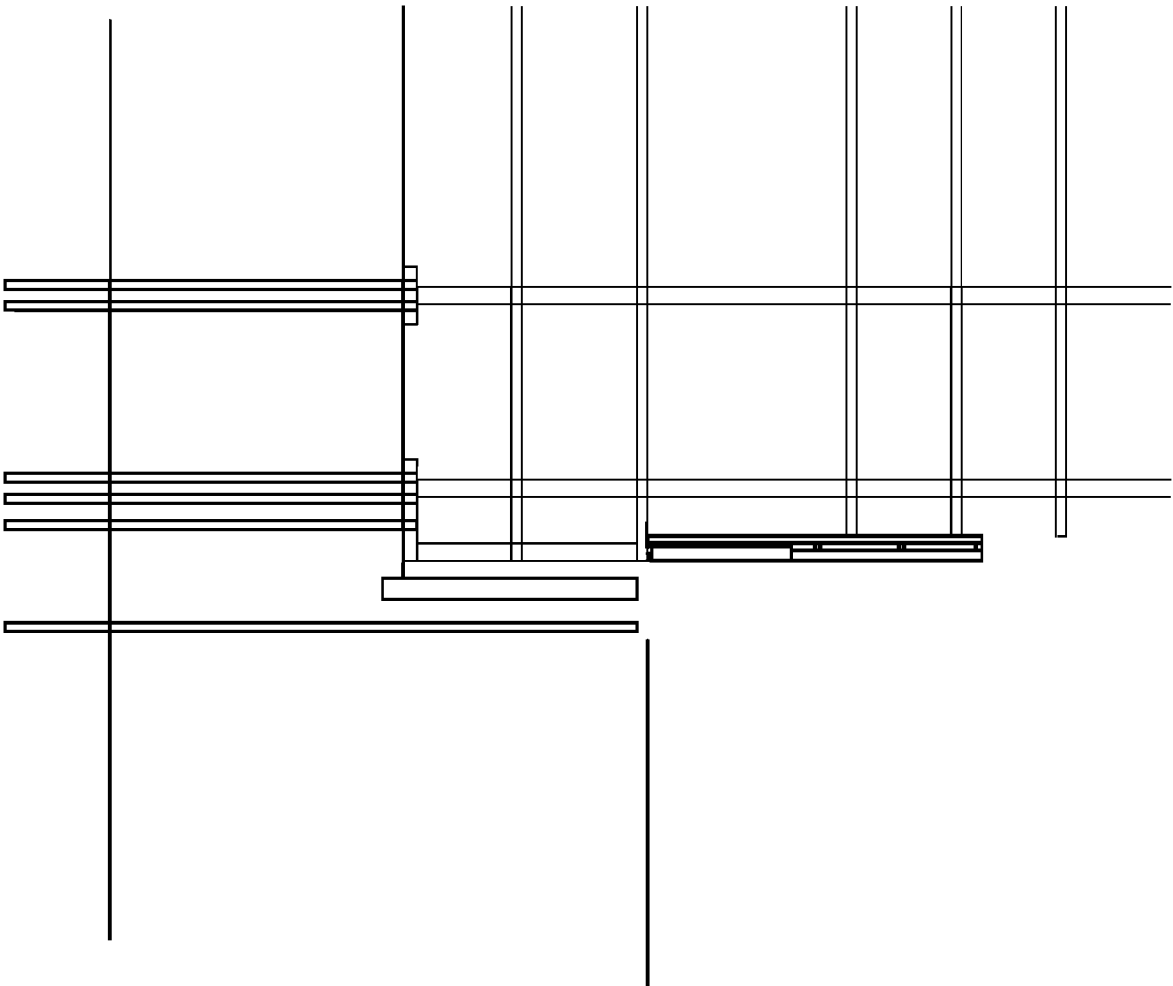


PHASE 8

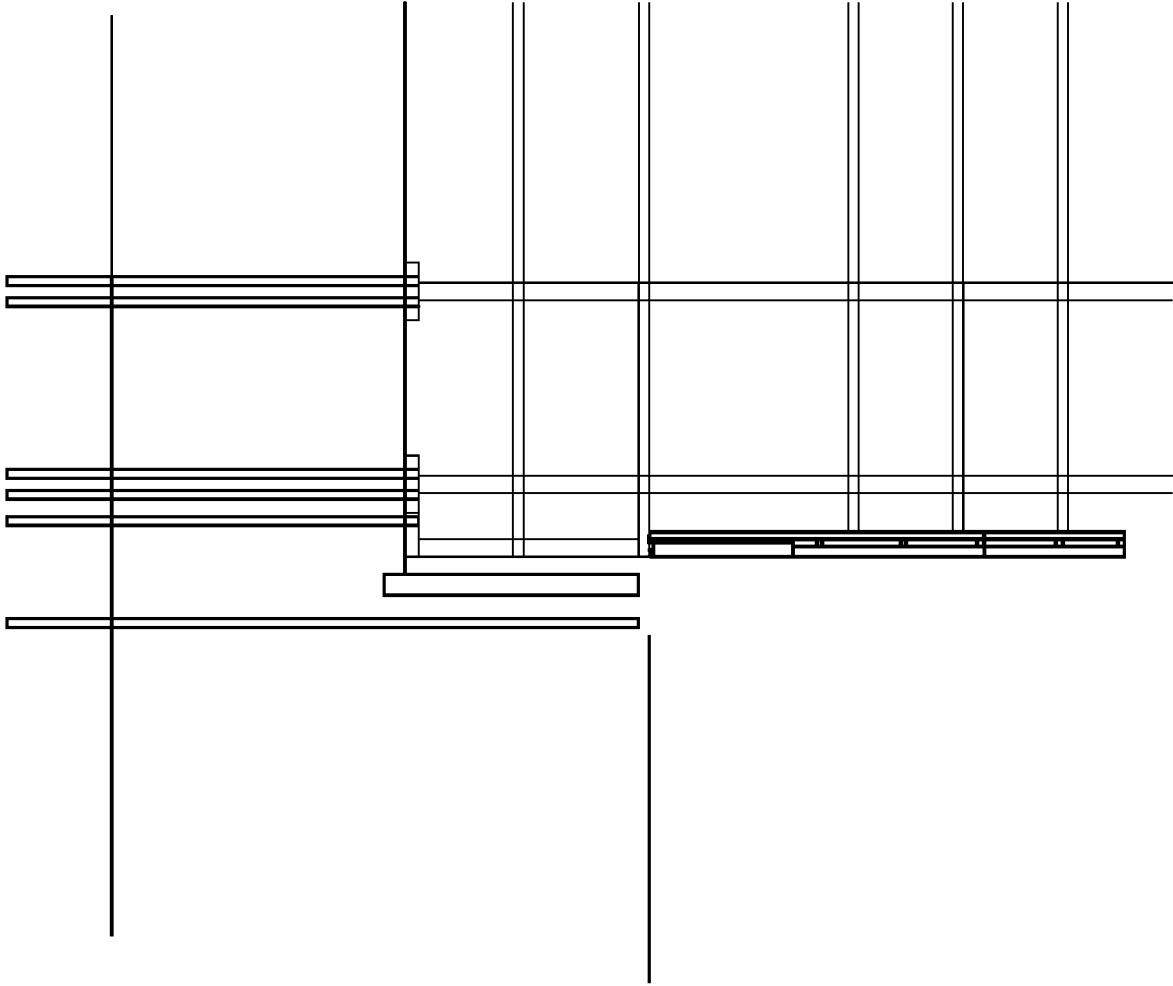
PHASE 7: - COMPLETE EXCAVATION NEXT TO THE FACADE.  
- CUT DOWN PILES.

PHASE 8: - COMPLETE NEW BUILDING STRUCTURE NEXT TO THE FACADE.

|   |  |  |   |   |
|---|--|--|---|---|
| <div><div><div>JOHN G. COOKE &amp; ASSOCIATES LTD. CONSULTING ENGINEERS</div><div>1750 COURTWOOD CR. SUITE 101 OTTAWA, ONT. K2C 2B5 (613) 226-8718 FAX (613) 226-7424 E-MAIL mailbox@jgcooke.com WEB SITE http://www.jgcooke.com</div></div><div><div>Project</div><div>MASONRY FACADE SHORING FOR 453 BANK ST.</div></div></div> |  |  |   |   |
| <div><div>Client</div><div>URBAN CAPITAL (GLADSTONE) INC.</div></div>   |  |  |   |   |
| <div><div>Drawing</div><div>PRELIMINARY FACADE SHORING SCHEMATIC PHASING OF WORK</div></div>  |  |  |   | <div><div>dwg. no.</div><div>SK-SC4</div></div> |
| <div><div>drawn</div><div>ML</div></div>  | <div><div>scale</div><div>N.T.S.</div></div> | <div><div>date</div><div>JUN 12/08</div></div> | <div><div>project no.</div><div>08024</div></div> |   |



# PHASE 9



# PHASE 10

PHASE 9: - CONNECT FACADE TO NEW BUILDING STRUCTURE.  
- REMOVE FACADE SUPPORT FRAMING.

PHASE 10: - RECONSTRUCT UPPER PORTION OF THE FACADE.  
- COMPLETE PERMANENT FRAMING INSTALLATION BEHIND THE UPPER PORTION OF THE FACADE.

|   |  |             |                 |                    |  |  |  |  |
|---|--|-------------|-----------------|--------------------|--|--|--|--|
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| Client<br>URBAN CAPITAL (GLADSTONE) INC.  |  |             |                 | dwg. no.<br>SK-SC5 |  |  |  |  |
| Drawing<br>PRELIMINARY FACADE SHORING SCHEMATIC PHASING OF WORK   |  | drawn<br>ML | scale<br>N.T.S. | date<br>JUN 12/08  | project no.<br>08024                               |  |  |  |



### Section 3.3 Temporary Relocation Underpinning of Building Façade (Option C)

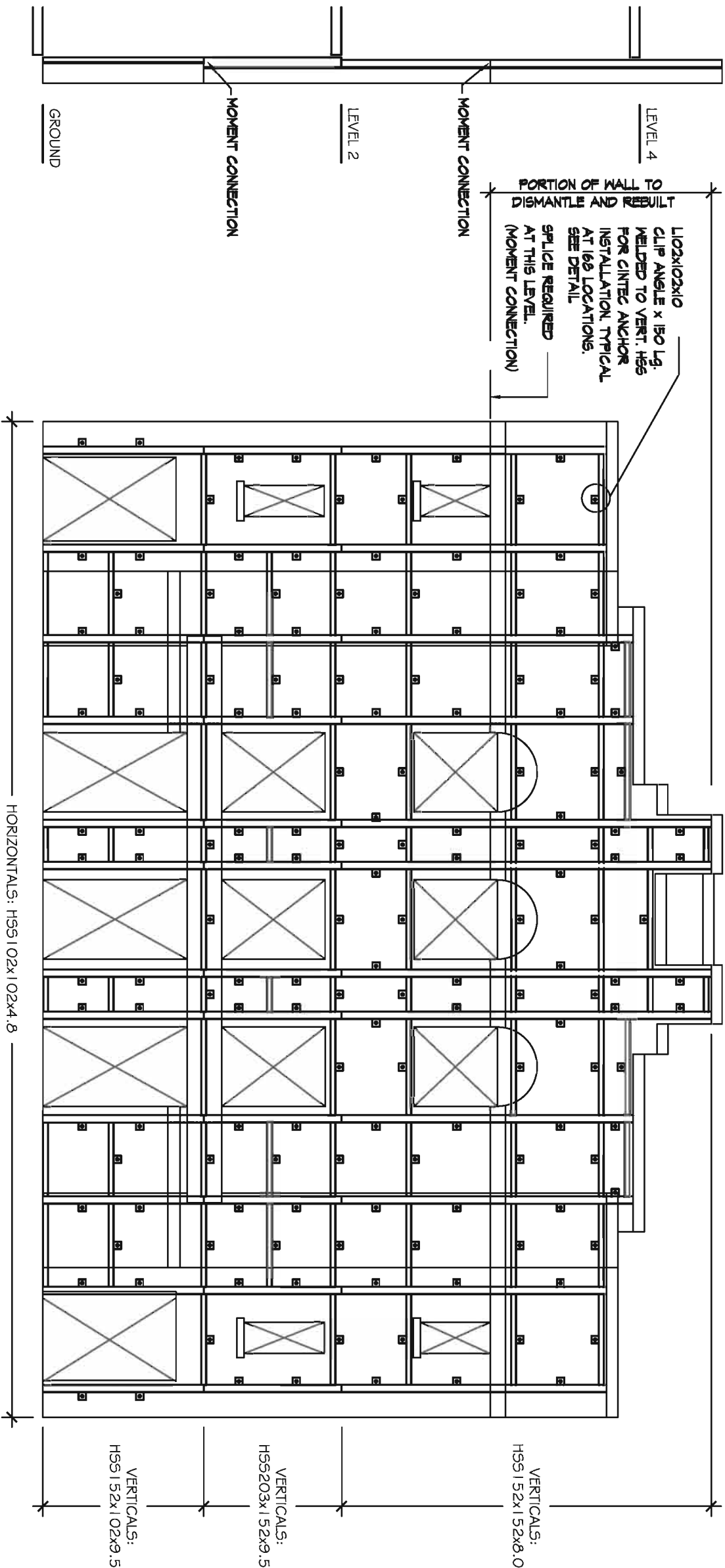
This option involves full conservation of the façade, after dismantling of the upper portion, as discussed in section 3.2. Following this, a permanent steel frame for lateral support of the wall will be added as described in section 3.2.

A temporary steel frame will then be erected on both sides of the wall, interconnected through the windows, at each end, and top and bottom, to provide two way trusses, ensuring the necessary stiffness to support the existing masonry façade. The wall will be systematically separated from the foundation wall. With the use of two large cranes, the wall will be lifted and lowered into the already excavated basement close by. Once the foundations under the wall are reconstructed, along with the structure at the back of the wall, the wall will be relocated into position, and the upper portion of the wall will be reconstructed. The temporary bracing frame will be disconnected, and the steel backup frame will be fastened to the new structure, leaving the existing façade to act similar to a curtain wall. This option in our view, conforms to the historic requirements of minimum intervention while minimizing the risk of damage to the wall.

This option allows for conventional shoring and foundation construction. It also allows making minor adjustment to the façade location and elevation. This option requires delicate hoisting operation to move the façade away and back to its final location. There are some risks of damaging the façade during the hoisting operations. The full closure of Bank Street will be required during the two hoisting phases.

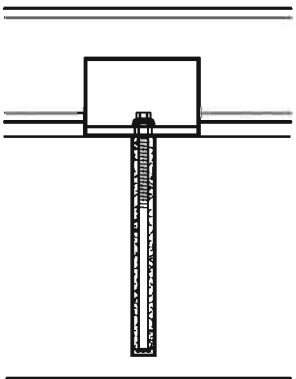
#### Section 3.3.1 Conceptual Drawings

This section includes conceptual drawings of this option.



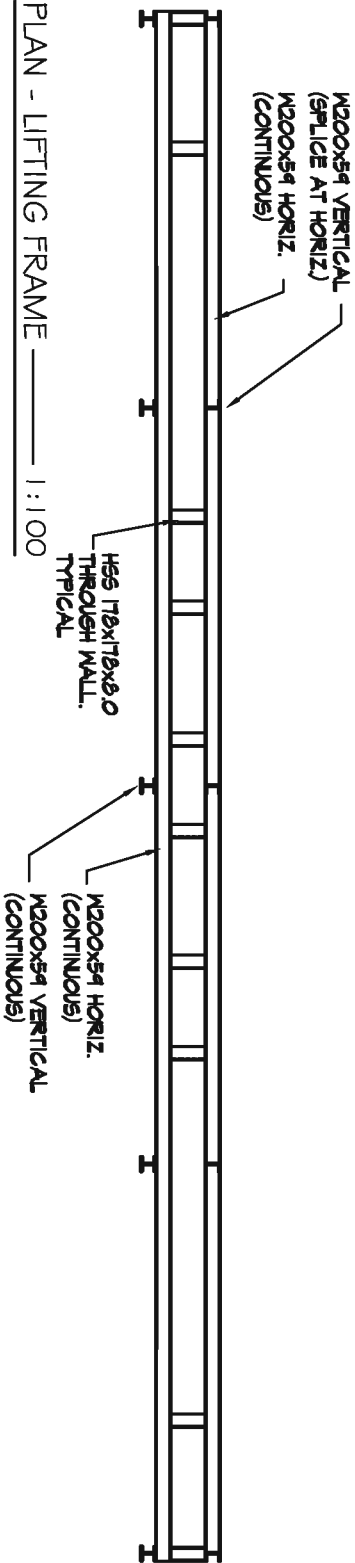
ELEVATION - PERMANENT FRAME ——— 1:100

- 1, VERTICALS DESIGNED FOR L/600 SPANNING FLOOR TO FLOOR  
2, RESISTANCE REQUIRED IN EACH CINTEC ANCHOR.  
Tr=Vr=166 kN

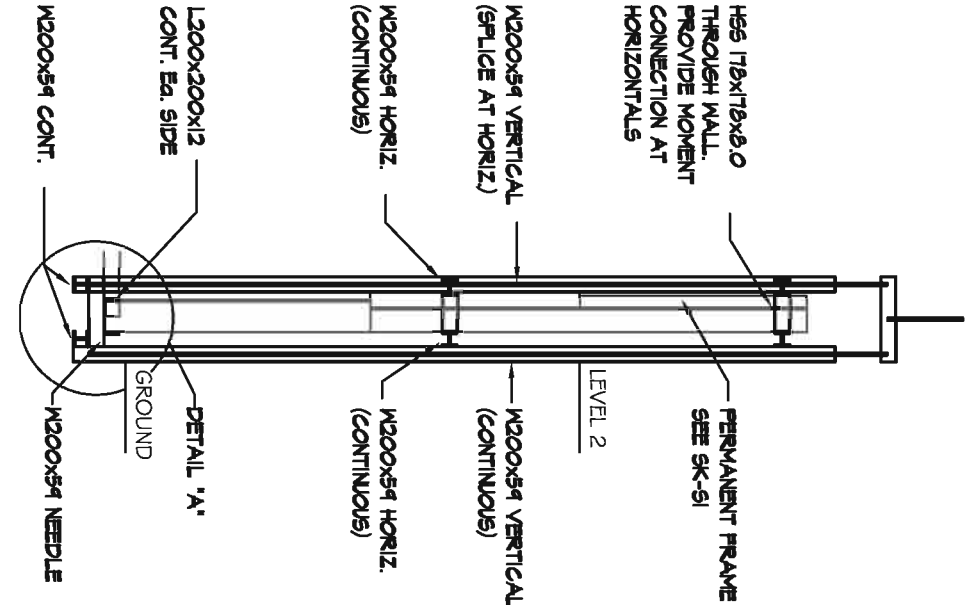


|  |                |   |                      |
|--|----------------|---|----------------------|
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| Client<br>URBAN CAPITAL (GLADSTONE) INC.   |                | Drawing<br>ELEVATION - PERMANENT FRAME      |                      |
| drawn<br>J.B.  | scale<br>1:100 | date<br>27/08/08                            | project no.<br>08024 |
| dwg. no.<br><b>SK-5D</b>   |                |   |                      |

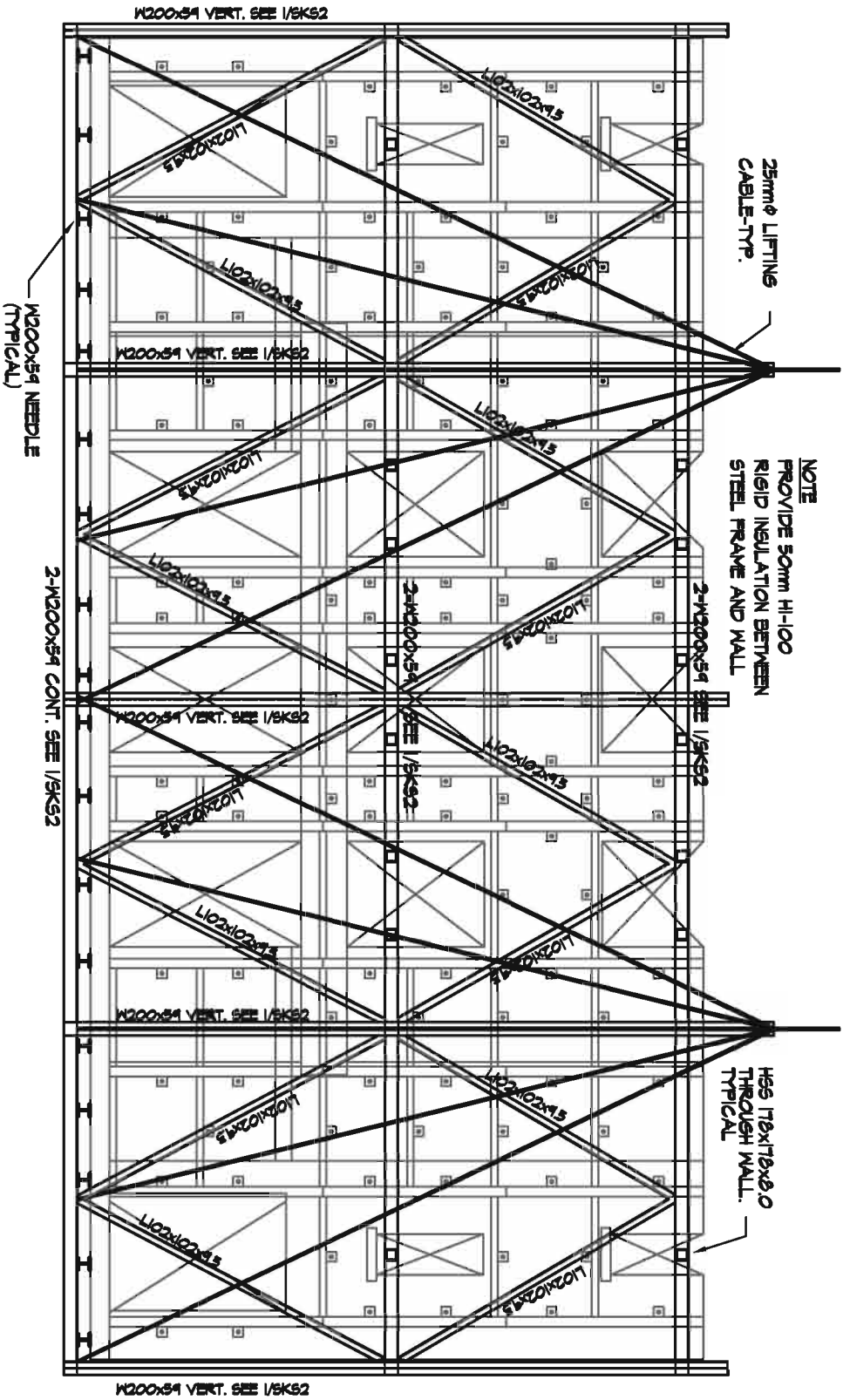
TYPICAL CINTEC ANCHOR DETAIL ——— 1:10



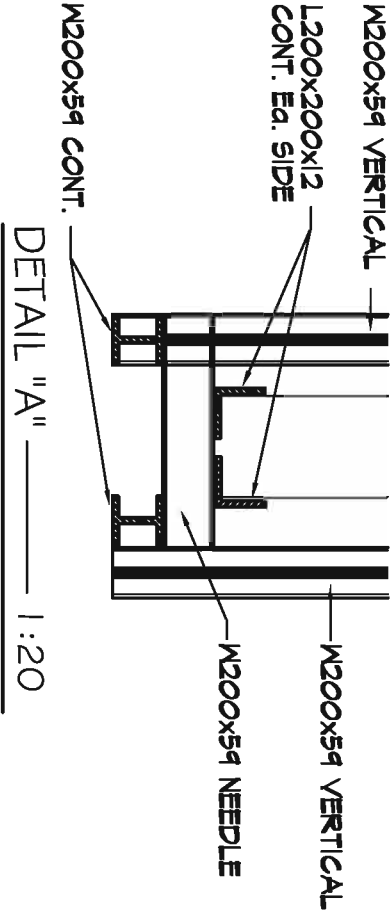
PLAN - LIFTING FRAME ——— 1:100



SECTION I ——— 1:100



ELEVATION - LIFTING FRAME ——— 1:100



DETAIL "A" ——— 1:20

|  |  |  |                       |
|--|--|--|-----------------------|
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|--|--|--|-----------------------|

### Section 3.4 Assessment and Recommendation

Our assessment criteria in selecting a preferred option are as follows:

- .1 The safety to the structure during construction, and after, including risk of collapse.
- .2 The preservation of the heritage value of the wall.
- .3 The risk factor (safety) in executing the project.

Option A is not recommended. In this option, the historic integrity of the façade will be lost. It will be very difficult, if not impossible, to obtain sufficient replacement brick in order to restore the façade. Essentially, this option would reproduce a replica of the façade. The risks related to this option are low, and would simplify construction. The dismantling process would be slow due to the need to salvage as much existing material as feasible.

Option B is not recommended. It has a very complicated shoring system. Option B also has a high risk of damage to the façade and can be unsafe to carry out the foundation work underneath the existing façade. Maintaining earth stability under Bank Street with the façade in place is a major concern. Due to the very poor foundation conditions on this site, and the depth of the rock, deep piling is required. There is a concern that the vibration of the piling will damage the wall. There is also the difficulty of getting piling rigs close enough to the wall in order to drive the piles without damaging the wall, and the complexity of driving piles inside the existing building prior to demolishing of the structure adjacent to this façade. The shoring system required to retain the soil during the basement excavation would have to be installed outside the property line under the sidewalk.

Option C is the recommended option. It is the best option based on the combination of overall safety, feasibility and heritage value. With this option, the façade will be safely packaged and moved while the construction of the foundation and structure behind the wall proceeds.

## **Section 4.0     Action Plan**

### **Section 4.1     Preparation of Building Façade for Temporary Relocation.**

Before the temporary relocation of the building façade can take place, substantial preparation work to the façade is required. The following work is required:

- Record the brick pattern, flashing details and other information on the façade required to rebuild the upper portion of the wall.
- Rake-out and repoint brick joints below flashing band.
- Dismantle existing canopy.
- Remove all interior finishes and repoint backup blocks as required.
- Install permanent steel frame on lower portion of wall.
- Install interior portion of temporary hoisting frame.
- Demolish building and dismantle upper portion of wall and door recesses. Salvage as much bricks as possible from upper wall section and door recesses.
- Complete installation of hoisting frame.

Drawings SK-SF0 to SK-SF3 in section 4.4.1 show the conceptual sequence of this work. Drawings H1 to H4 in section 4.4.2 show more technical information of this work.

### **Section 4.2     Relocation Procedures**

In general terms, the moving procedures are as follows, after the preparation outlined in section 4.1 is complete:

- Excavate the south west corner of the site and install shoring wall along Bank Street and McLeod Street.
- Drive the piles and construct pile caps for the south west corner foundation of the new building.
- Hoist the façade from its original location to its temporary location on the pile caps (in the excavation) at the south west corner of the building. The hoisting will be done using two cranes simultaneously located on Bank Street. Bank Street will need to be completely close during the hoisting.
- Excavate and install shoring wall at the original location of the façade.
- Construction the new building foundation and structure.
- Hoist the façade from its temporary location to its final location. The hoisting setup will be the same as per the first hoist. Bank Street will be completely closed again.
- Connect façade to the new building structure.
- Remove temporary shoring frame.

Drawing H2 in section 4.4.2 shows the calculated weight of the façade including the permanent and hoisting steel frame. The hoisting contractor will prepare a detailed hoisting procedure for both hoisting phases.

### Section 4.3 Post Relocation Interventions

#### Section 4.3.1 Inspection of the Masonry

After the façade is hoisted back into its final position, a condition survey of the brick and backup block will need to be carried out. This will allow verifying if the masonry has been damaged during the hoisting. An inspection report with required actions will be prepared.

A condition survey of the permanent steel structure will also be carried out. This will allow verifying the condition of the steel and determine if paint touch-up or other interventions are required prior to completing the construction of the wall on the interior façade.

#### Section 4.3.2 Reconstruction of Upper Wall Section

Prior to the dismantling of the upper portion of the wall, all the existing details shown as brick pattern and flashing details must be recorded. During the dismantling process, as much brick as feasibly possible must be salvaged. The back of the chimneys will not be reconstructed and the bricks that can be salvaged can be reused to reconstruct the upper portion of wall. Also the bricks from the door recesses at ground level could be use as well, if the door recesses are reconstructed with new bricks. Even with the additional bricks from the back of the chimneys and door recesses, it is very likely that not enough bricks will be salvaged to fully reconstruct the upper portion of the wall. New bricks matching as close as possible the size, colour and composition of the existing will need to be found. The existing bricks on the remaining portion of the building to be demolished do not match the bricks on the façade. The upper portion of the backup wall would be reconstructed using new concrete blocks. After the reconstruction of the masonry is complete the permanent steel structure and connection to the building structure would be completed.

#### Section 4.3.3 Reconstruction of the Door Recesses

Similar to section 4.3.2, all existing details must be recorded prior to dismantling the door recesses. If the salvaged bricks are used to reconstruct the upper wall section, the recesses will need to be reconstructed entirely with new bricks. If the recesses are reconstructed with salvaged bricks, it is very likely that not enough bricks will be salvaged to fully reconstruct the recesses.

#### Section 4.3.4 Reinstatement of bottom row of stone

There is approximately 150mm difference in the grade elevation between the north end and the south end of the façade. There is a row of stone at grade level that is partially below grade at one end of the façade and almost totally below grade at the other end. During the needling operation, the row of stone must be removed. Since portions of the stones are below grade, it is likely that the stones are decayed from years of exposure to deicing salts and the stones may not be salvageable. To protect the bottom of the façade, the façade will be raised approximately 150mm from its current position. A recess will be provided in the new concrete foundation too allow the installation of a row of face stone (artificial) to duplicate the original appearance.

#### Section 4.3.5 Reinstatement of Flashings

The existing flashing will be reinstated to match the existing appearance. The flashing details would be modified to provide a better protection against water infiltration. Given the failure of the existing detail, it is an acceptable conservation procedure.

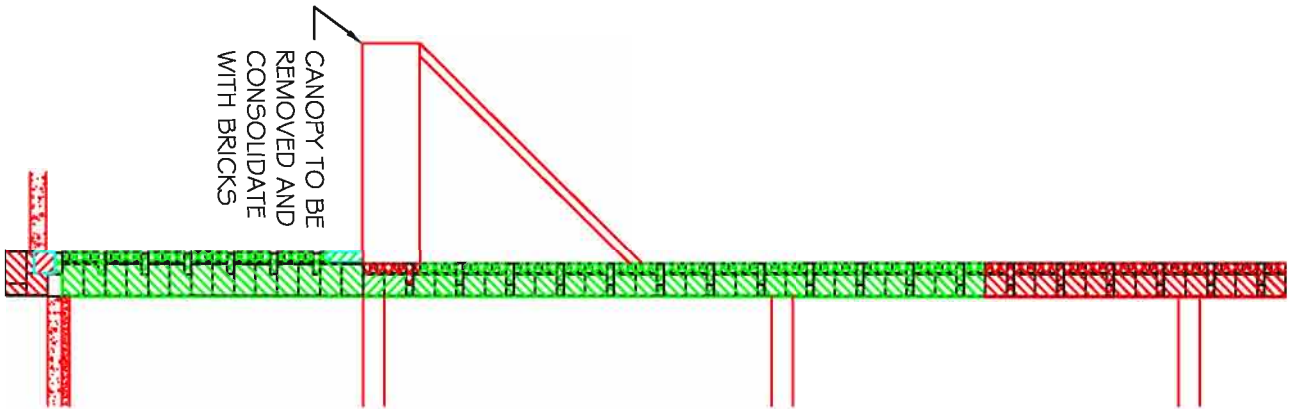


#### Section 4.4 Drawings

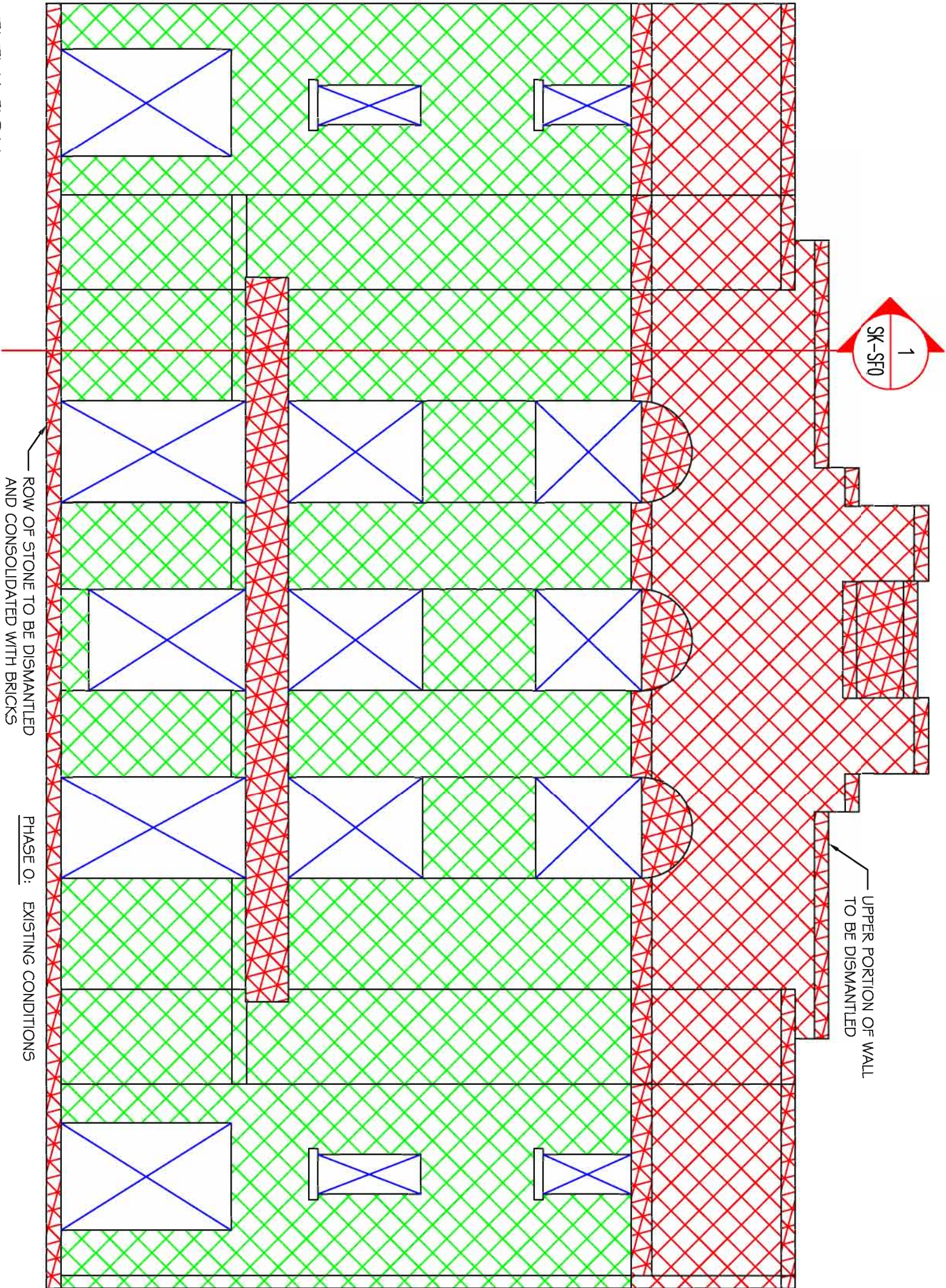
##### Section 4.4.1 Schematic Procedure Drawings

This section includes drawings SK-SF0 to SK-SF5 showing the conceptual sequence of work.





SECTION I/SK-SFO



ELEVATION

TO REMAIN

TO BE DISMANTLED

NOTES: DRAWINGS SK-SFO TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.



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**Project** MASONRY FACADE SHORING FOR 453 BANK ST.  
**Client** URBAN CAPITAL (GLADSTONE) INC.

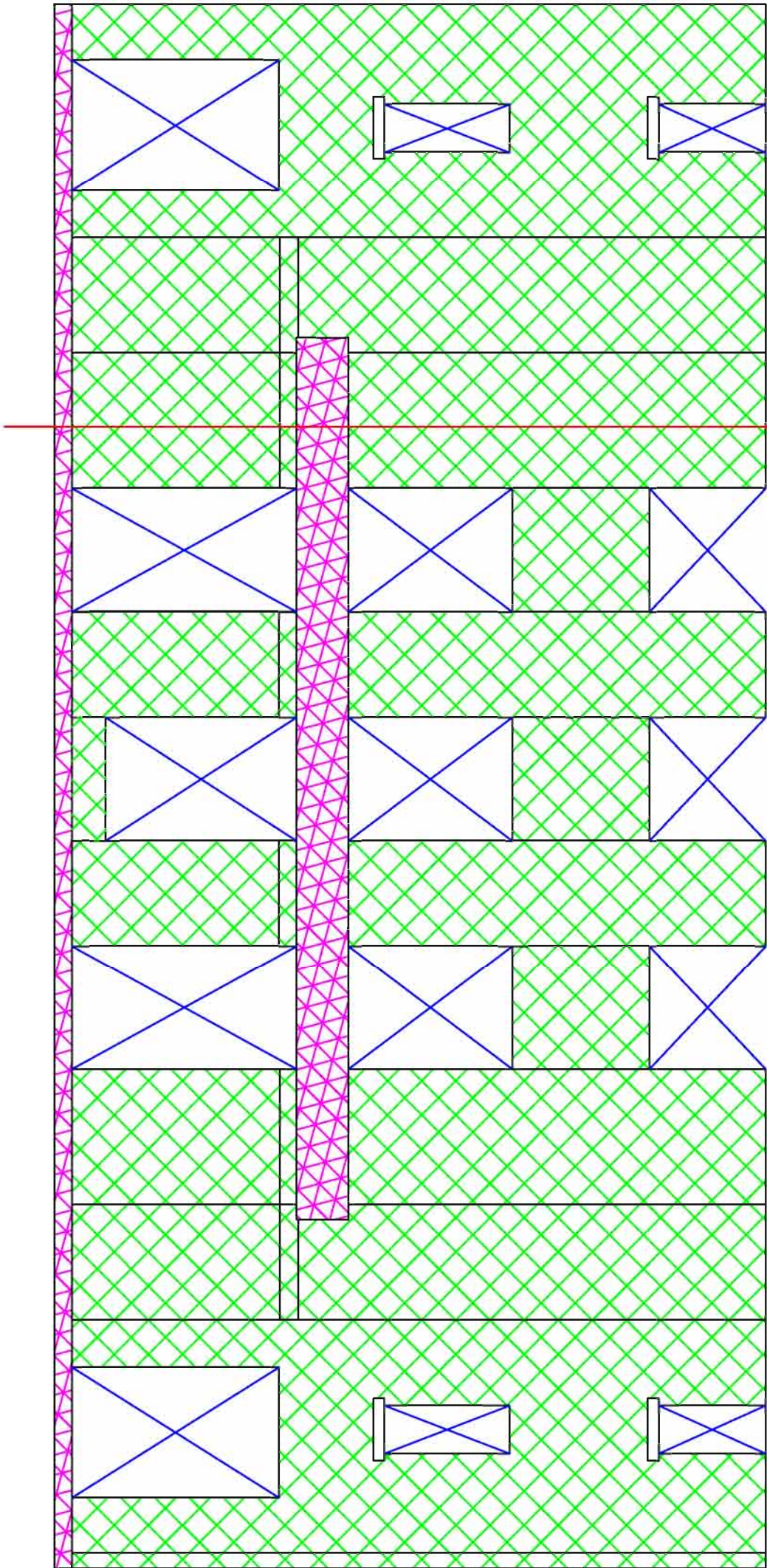
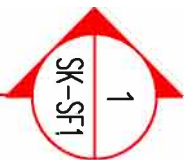
**Drawing** TEMPORARY RELOCATION OF FACADE SCHEMATIC PROCEDURES

**dwg. no.**

**drawn** ML **scale** N.T.S. **date** OCT 6/08 **project no.** 08024

**SK-SFO**





SECTION I/5K-SF1

ELEVATION

PHASE 1: DISMANTLE UPPER PORTION OF WALL, REMOVE CANOPY AND BOTTOM ROW OF STONE.



EXISTING BRICKS



CONSOLIDATED BRICKS

NOTES:

DRAWINGS SK-SFO TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.

JOHN G.



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Project

MASONRY FACADE SHORING FOR 453 BANK ST.

Client

URBAN CAPITAL (GLADSTONE) INC.

Drawing

TEMPORARY RELOCATION OF FACADE  
SCHEMATIC PROCEDURES

dwg. no.

drawn

ML

scale

N.T.S.

date

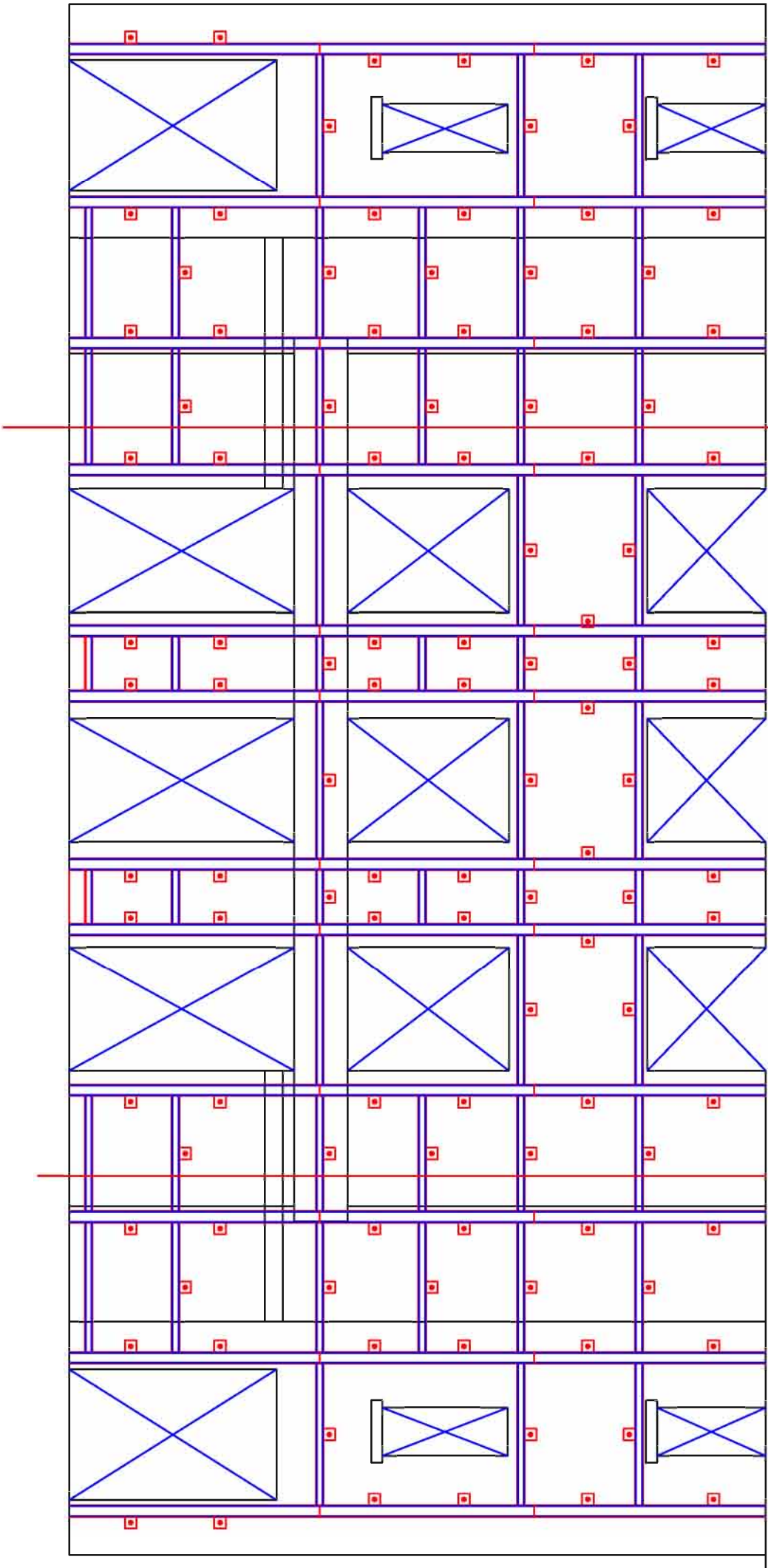
OCT 6/08

project no.

08024

SK-SF1





SECTION 1/SK-SF2

ELEVATION



EXISTING BRICKS



CONSOLIDATED BRICKS

NOTES:

DRAWINGS SK-SF0 TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.



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WEB SITE <http://www.jgcooke.com>

Project

MASONRY FACADE SHORING FOR 453 BANK ST.

Client

URBAN CAPITAL (GLADSTONE) INC.

Drawing

TEMPORARY RELOCATION OF FACADE  
SCHEMATIC PROCEDURES

dwg. no.

drawn

ML

scale

N.T.S.

date

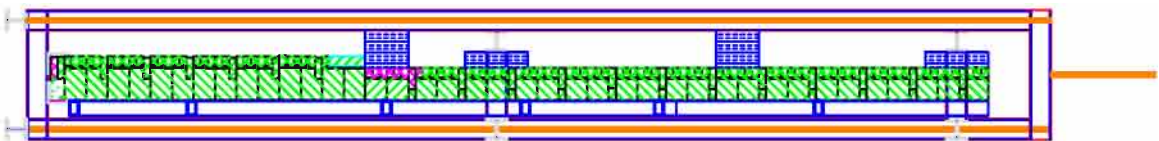
OCT 6/08

project no.

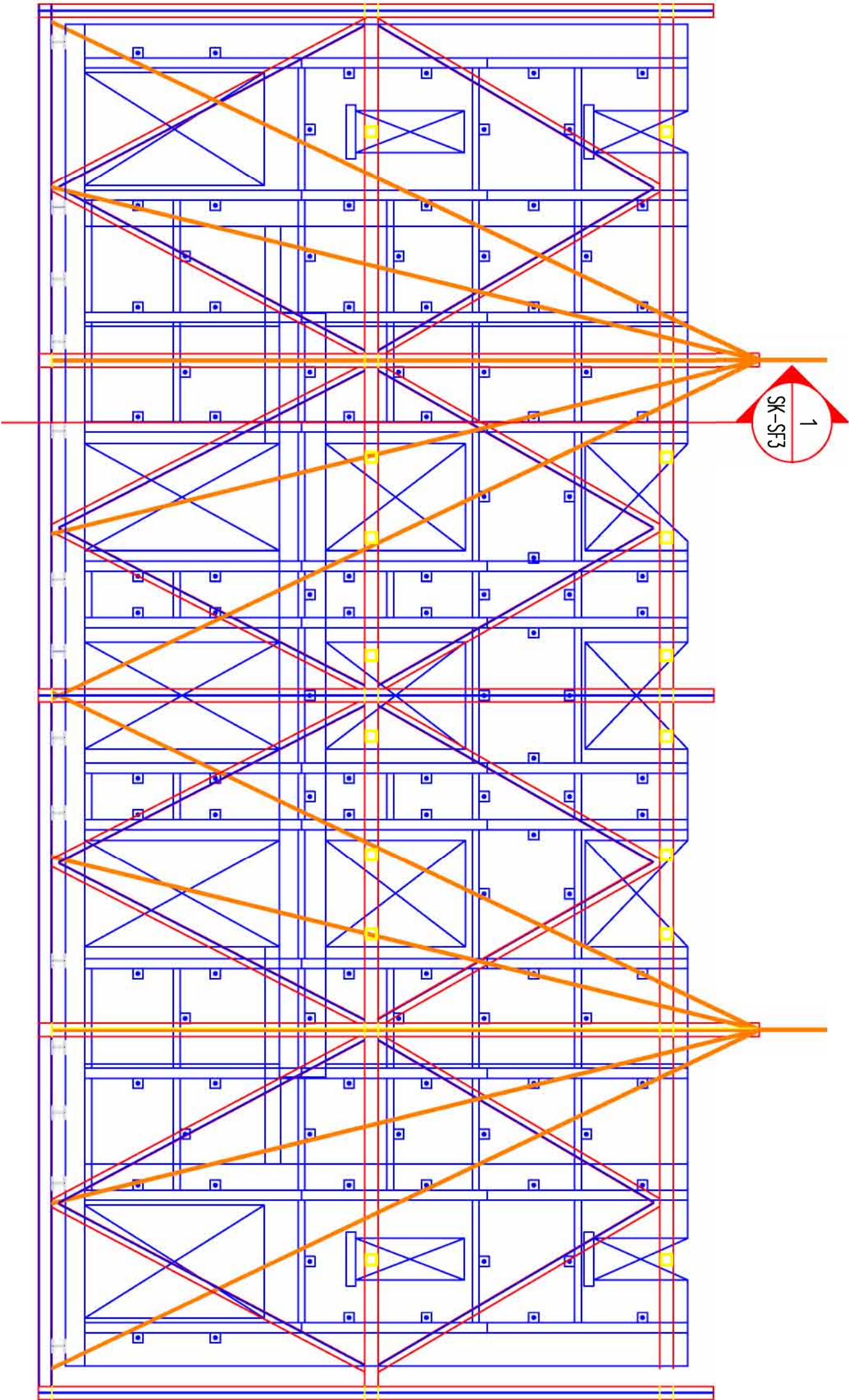
08024

SK-SF2

PHASE 2: INSTALL PERMANENT STEEL FRAME ON REMAINING PORTION OF WALL.




SECTION I/5K-SF3



ELEVATION

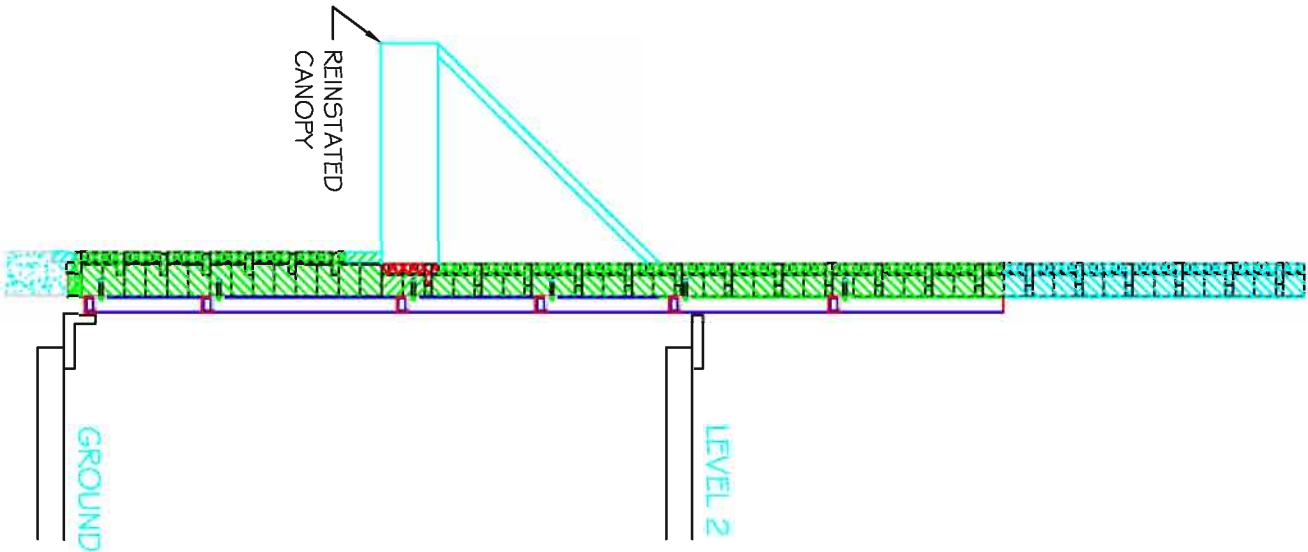
- EXISTING BRICKS
- CONSOLIDATED BRICKS

NOTES: DRAWINGS SK-SF0 TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.

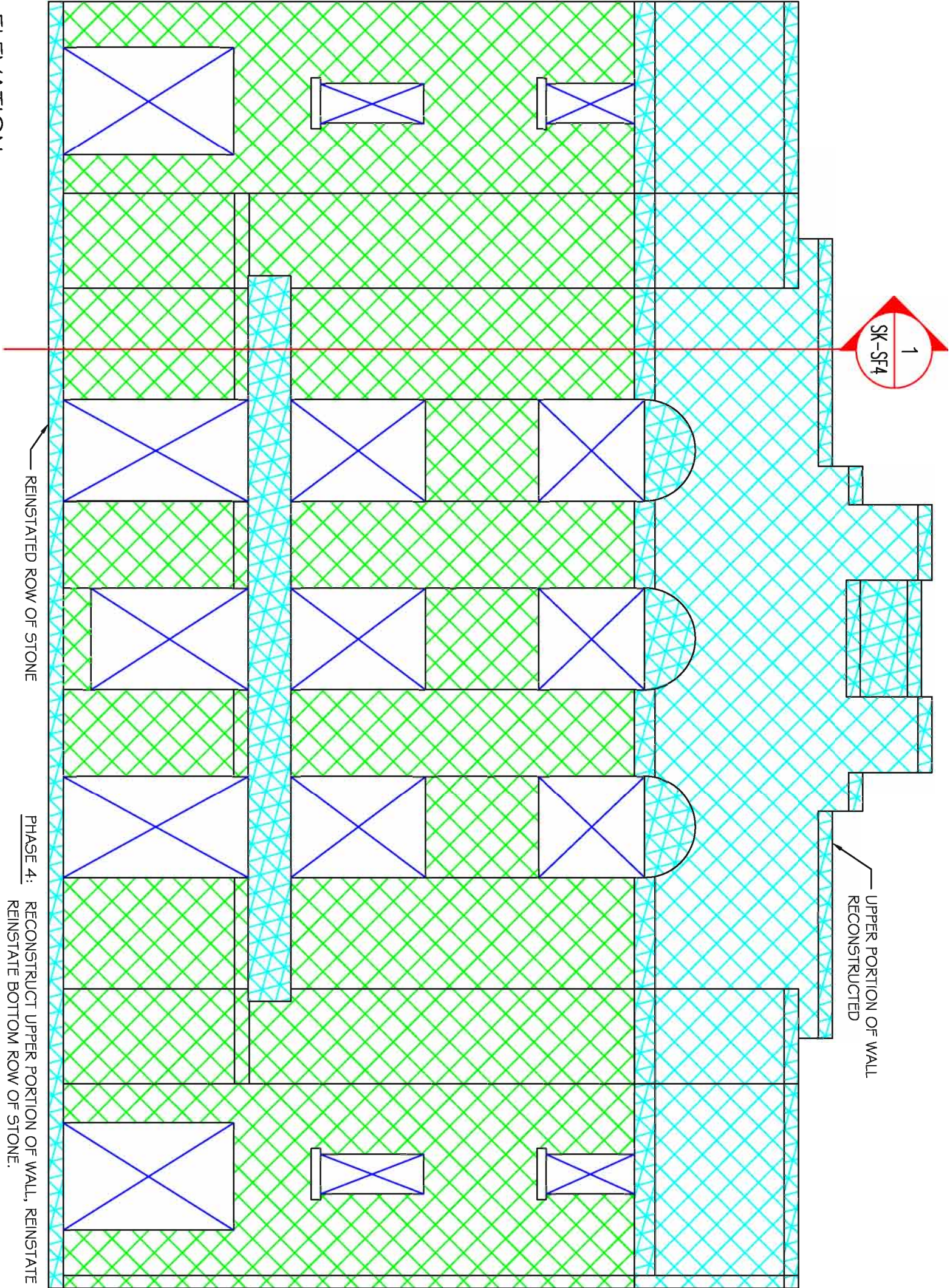
|  |  |                 |  |  |  |                      |  |
|--|--|-----------------|--|--|--|----------------------|--|
| <div><div>JOHN G.</div><div></div><div>ASSOCIATES LTD.</div><div>CONSULTING ENGINEERS</div><div>1750 COURTWOOD CR.</div><div>SUITE 101</div><div>OTTAWA, ONT. K2C 2B5</div><div>(613) 226-8718</div><div>E-MAIL: mailbox@jgcooke.com</div><div>WEB SITE: http://www.jgcooke.com</div></div> |  |                 |  | Project<br>MASONRY FACADE SHORING FOR 453 BANK ST.             |  |                      |  |
| Client<br>URBAN CAPITAL (GLADSTONE) INC.   |  |                 |  | Drawing<br>TEMPORARY RELOCATION OF FACADE SCHEMATIC PROCEDURES |  |                      |  |
| drawn<br>ML  |  | scale<br>N.T.S. |  | date<br>OCT 6/08   |  | project no.<br>08024 |  |
|  |  |                 |  |  |  | dwg. no.<br>SK-SF3   |  |

PHASE 3: INSTALL TEMPORARY HOISTING FRAME. MOVE FACADE TO TEMPORARY LOCATION AND MOVE BACK TO ORIGINAL LOCATION.





SECTION I/SK-SF4



ELEVATION

- EXISTING BRICKS
- RECONSTRUCTED

NOTES: DRAWINGS SK-SFO TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.

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Project

MASONRY FACADE SHORING FOR 453 BANK ST.

Client

URBAN CAPITAL (GLADSTONE) INC.

Drawing

TEMPORARY RELOCATION OF FACADE SCHEMATIC PROCEDURES

drawn

ML

scale

N.T.S.

date

OCT 6/08

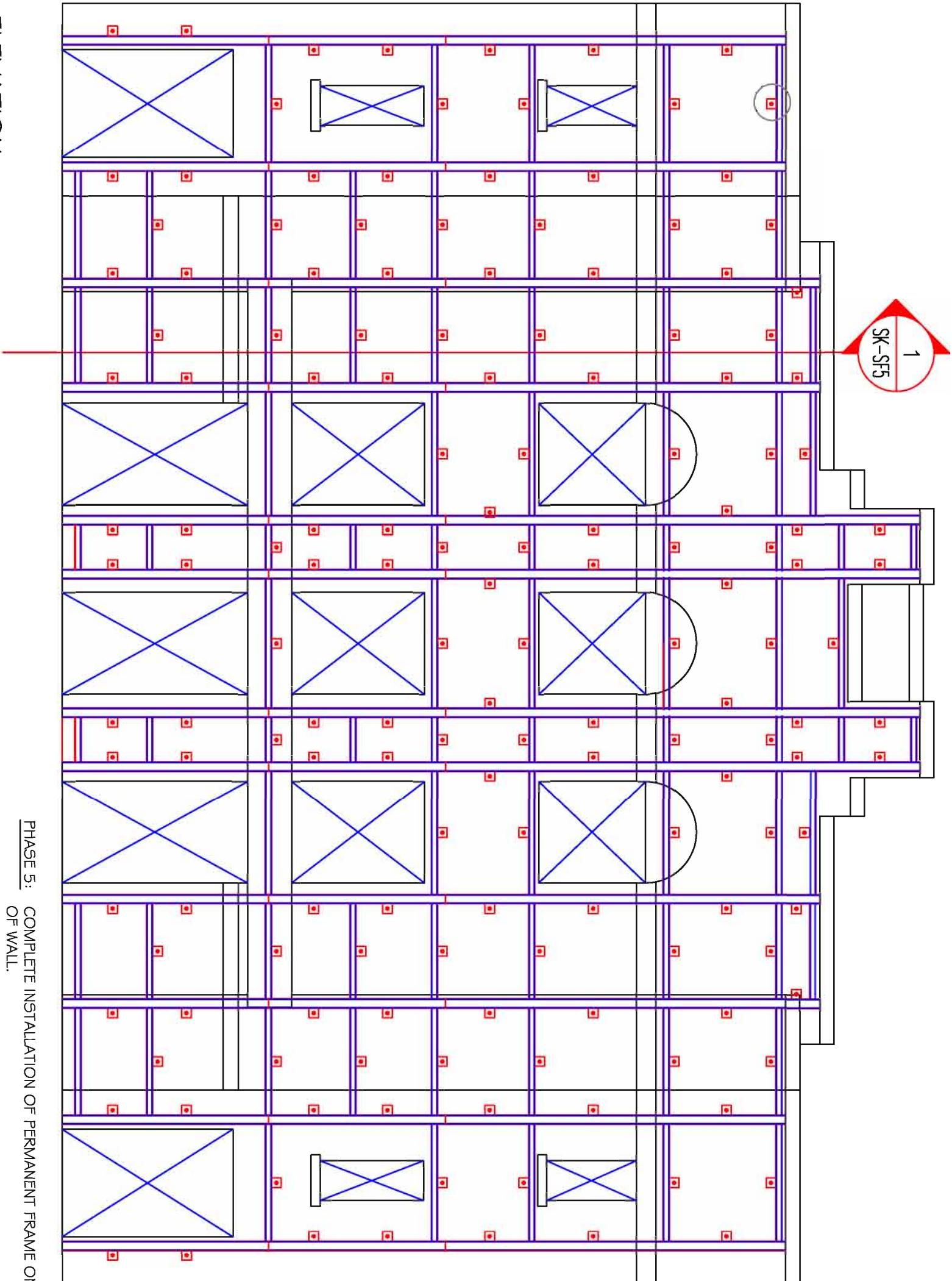
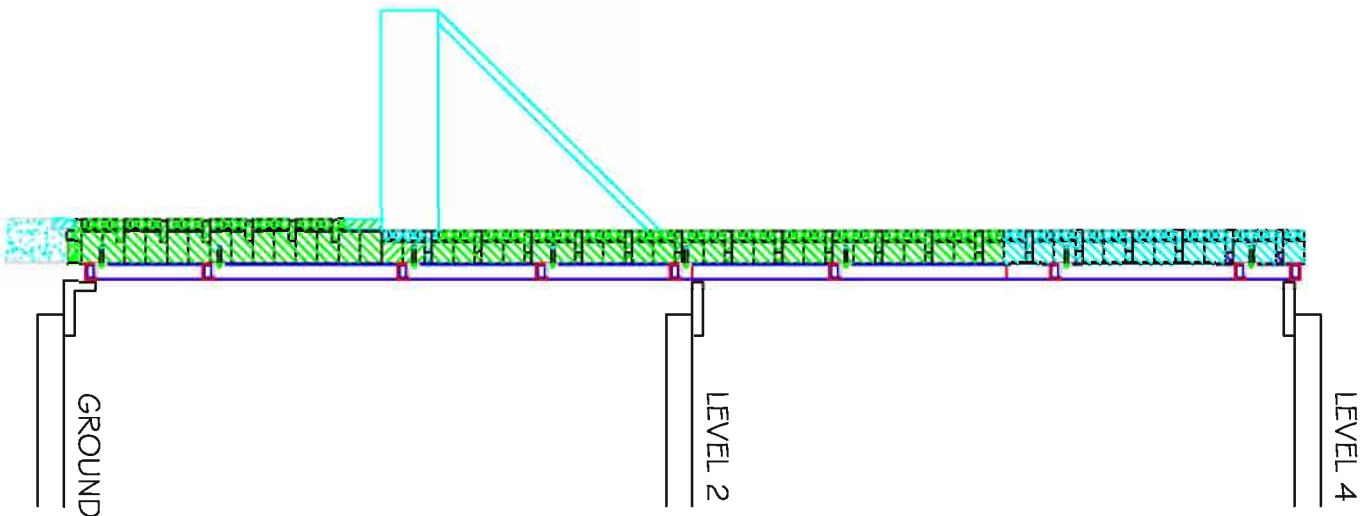
project no.

08024

dwg. no.

SK-SF4





SECTION I/SK-SF5

ELEVATION

- XXXXX EXISTING BRICKS
- XXXXX RECONSTRUCTED

NOTES: DRAWINGS SK-SFO TO SK-SF5 SHOW THE CONCEPTUAL SEQUENCE OF WORK. REFER TO DRAWINGS H1 TO H3 FOR DETAILED PROCEDURES.

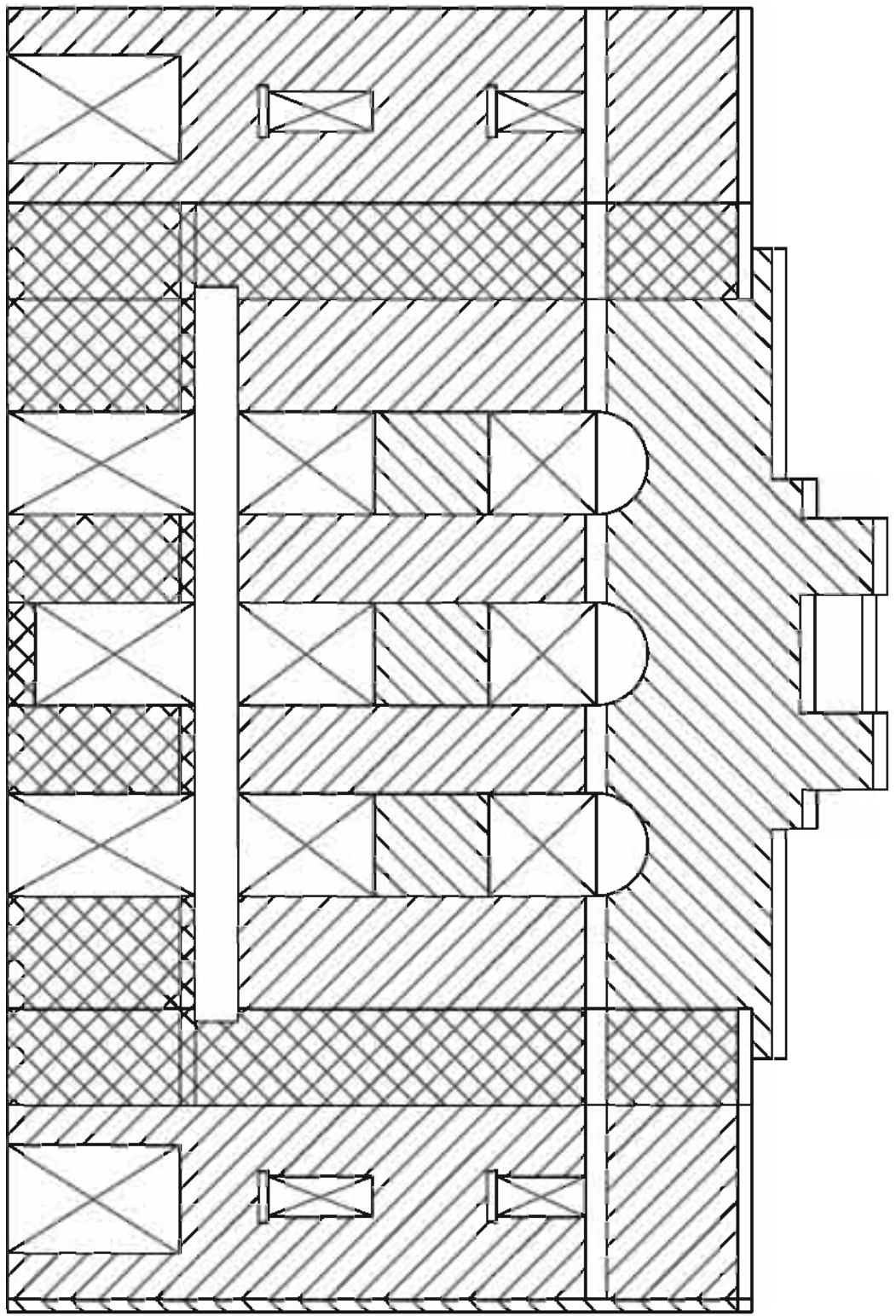
|   |              |               |                   |   |  |  |  |
|---|--------------|---------------|-------------------|---|--|--|--|
| <div><div>JOHN G. COOKE &amp; ASSOCIATES LTD.</div><div>CONSULTING ENGINEERS</div><div>1750 COURTMOOD CR. SUITE 101 K2C 2B5 (613) 226-8718 FAX (613) 226-7424 E-MAIL <a href="mailto:mcilbox@jgcooke.com">mcilbox@jgcooke.com</a> <a href="http://www.jgcooke.com">http://www.jgcooke.com</a></div></div> |              |               |                   | Project MASONRY FACADE SHORING FOR 453 BANK ST.             |  |  |  |
| Client URBAN CAPITAL (GLADSTONE) INC.   |              |               |                   | Drawing TEMPORARY RELOCATION OF FACADE SCHEMATIC PROCEDURES |  |  |  |
| drawn ML  | scale N.T.S. | date OCT 6/08 | project no. 08024 | dwg. no. SK-SF5   |  |  |  |

PHASE 5: COMPLETE INSTALLATION OF PERMANENT FRAME ON UPPER PORTION OF WALL.

#### Section 4.4.2 Permanent Frame and Hoisting Frame Drawings.

This section includes drawings H1 to H4 showing the technical information for the permanent steel frame and the temporary hoist frame.

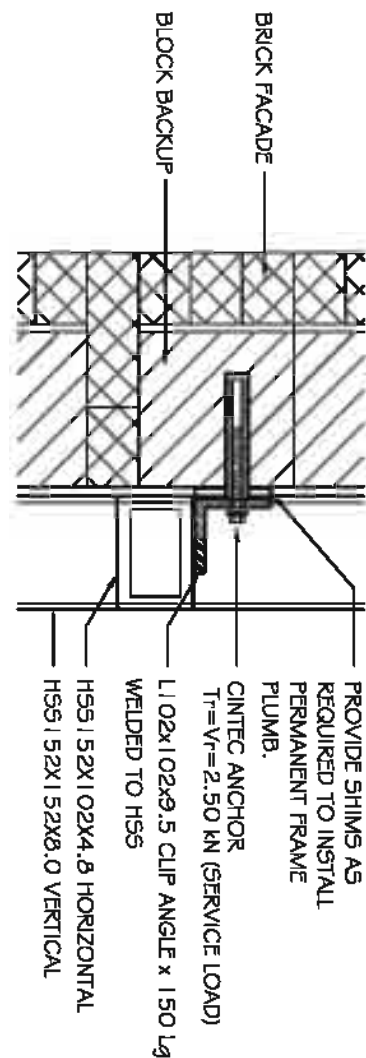




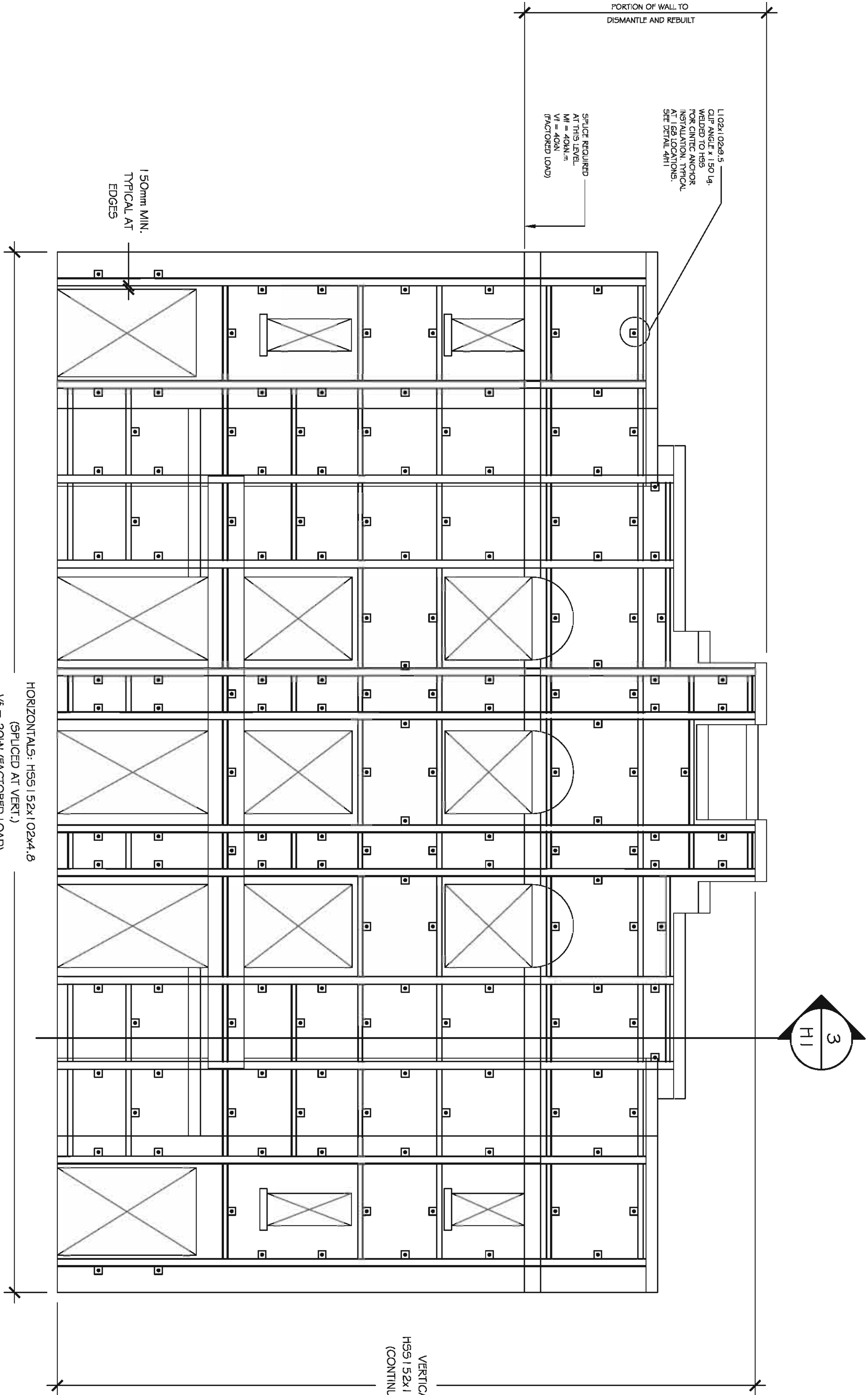
200mm THICK WALL  
310mm THICK WALL  
420mm THICK WALL

GENERAL NOTES:

- DO NOT SCALE THESE DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO THE START OF THE WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- REFER TO SPECIFICATIONS FOR STRUCTURAL STEEL REQUIREMENTS.
- SEE CONSTRUCTION PROCEDURES ON DRAWING H3.
- SEE DRAWING H4 FOR BLOCK, BRICK AND BAND FLASHING RECONSTRUCTION FOR WALL PORTION TO BE DISMANTLED AND RECONSTRUCTED.



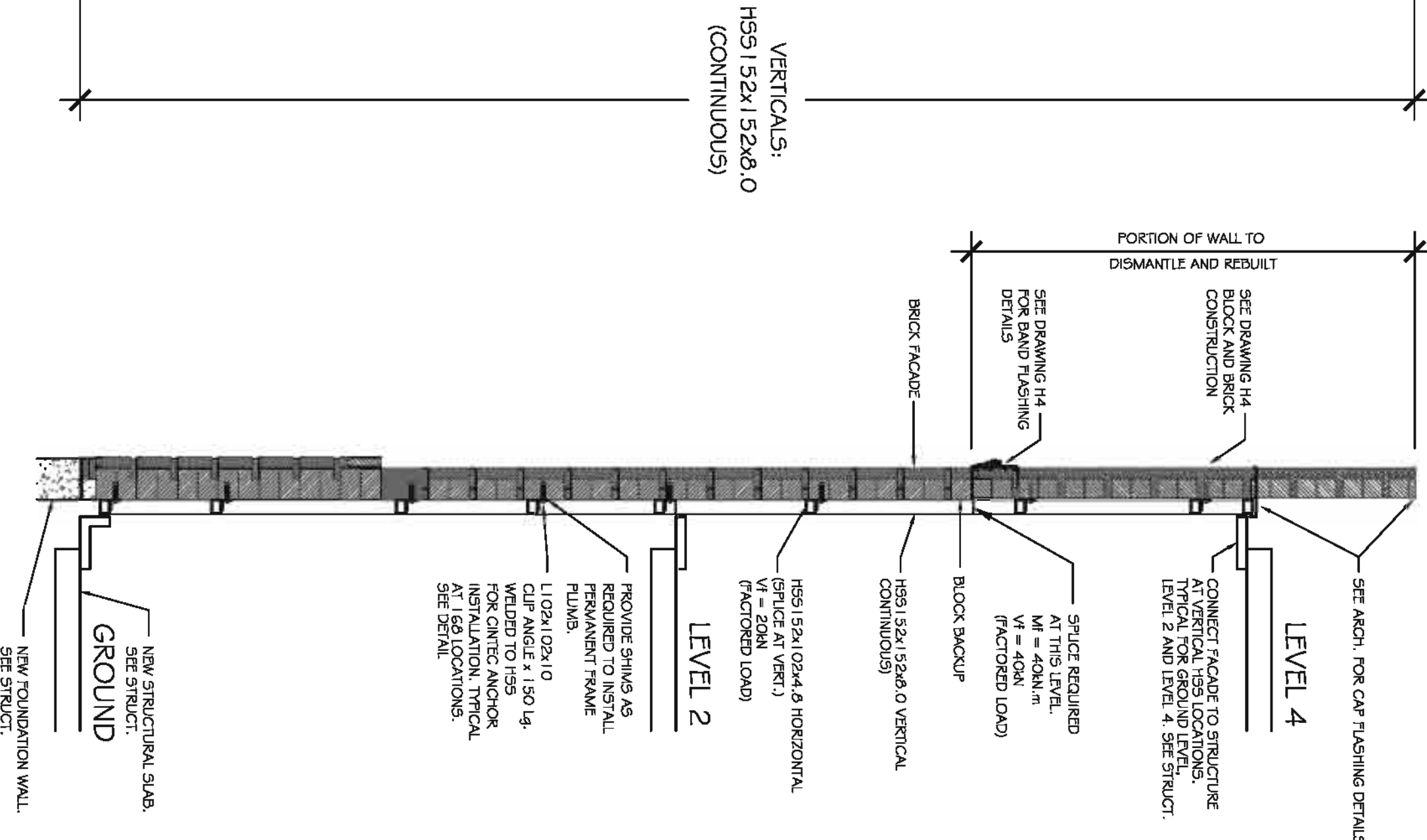
ELEVATION - 1/H1 WALL THICKNESS ——— 1:100



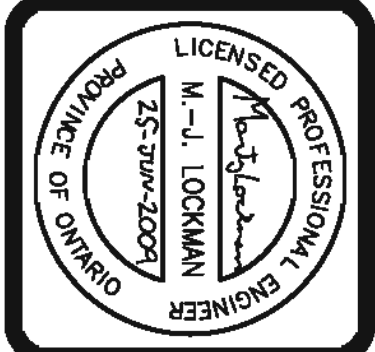
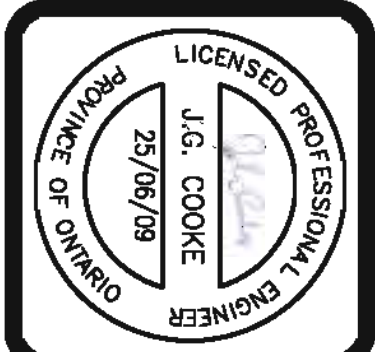
HORIZONTALS: H551 52x1 02x4.8  
(SPliced AT VERT.)  
VF = 20kN (FACTORED LOAD)

ELEVATION 2/H1 - PERMANENT FRAME ——— 1:50

- VERTICALS PROVIDED FOR U500 SPANNING FLOOR TO FLOOR
- RESISTANCE REQUIRED IN EACH CONTC ANCHOR:  
T=V=2.50 kN (SERVICE LOAD)



SECTION 3/H1 ——— 1:50



|          |                   |          |
|----------|-------------------|----------|
| No.      | ISSUED FOR PERMIT | 25/05/09 |
|          | 95% SUBMISSION    | 14/10/08 |
|          | 90% SUBMISSION    | 15/09/08 |
| REVISION |                   | DATE     |

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PROJECT  
453 BANK STREET  
FACADE SHORING

DRAWING  
PERMANENT FRAME  
ELEVATION AND PLAN

|           |          |
|-----------|----------|
| DATE      | 15/09/08 |
| SCALE     | AS NOTED |
| DESIGNED  | M.L.     |
| DRAWN     | J.B.     |
| PROJECT # | 08024    |

DRAWING No.  
H1



|     |                   |          |
|-----|-------------------|----------|
|     | ISSUED FOR PERMIT | 25/06/09 |
|     | 95% SUBMISSION    | 14/10/08 |
|     | 90% SUBMISSION    | 16/09/08 |
| No. | REVISION          | DATE     |

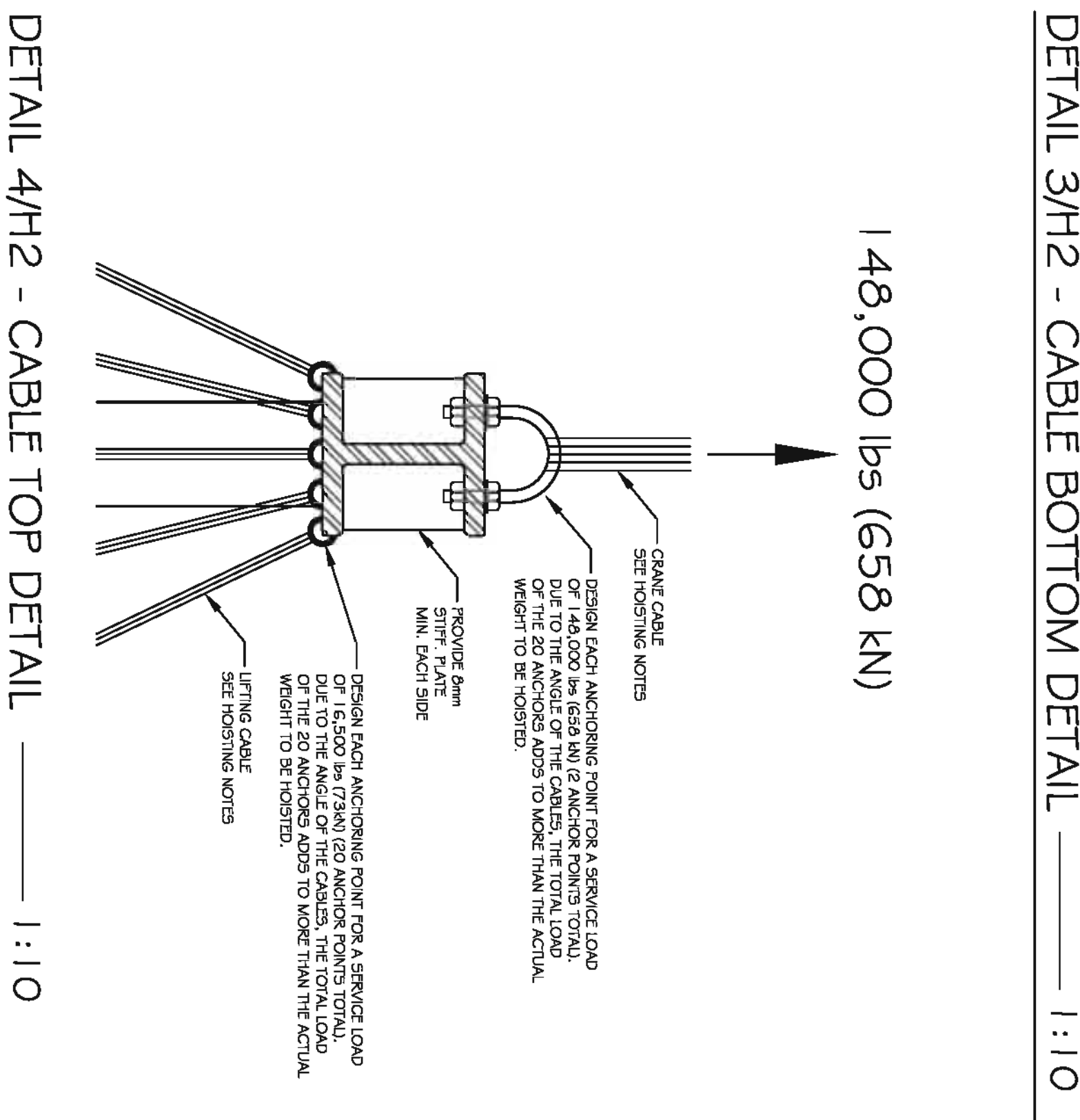
1001

PROJECT  
453 BANK STREET  
FACADE SHORING

|          |          |
|----------|----------|
| DATE     | 15/09/08 |
| SCALE    | AS NOTED |
| DESIGNED | M.L.     |
| DRAWN    | J.B.     |
| PROJECT  | 08024    |

DRAWING No.

# H2

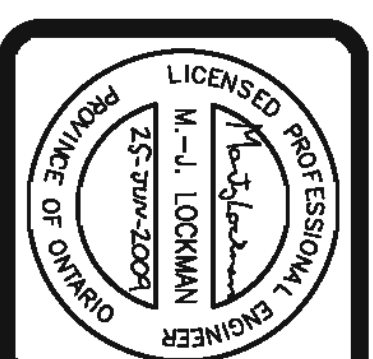
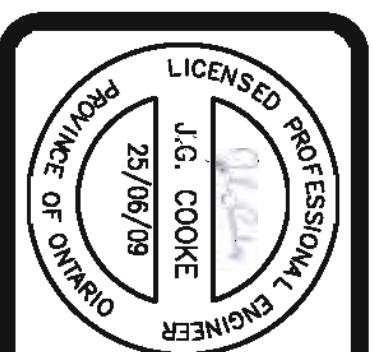


1. THESE DRAWINGS SHOW THE GENERAL INTENT OF THE HOISTING AND THE HOISTING CONTRACTOR TO PROVIDE ENGINEERED SHOP DRAWINGS, THE SHOP DRAWINGS TO INCLUDE THE ANCHORING DETAILS, CABLE SIZES AND STRENGTH AND FACTOR OF SAFETY USED IN THE DESIGN. THE SERVICE DESIGN LOADS ARE INCLUDED ON THESE DRAWINGS.
2. HOISTING SHOP DRAWINGS TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO.



DO NOT SCALE THIS DRAWING.  
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE CONSULTANT  
OF ANY DISCREPANCIES BEFORE WORK COMMENCES.

|     |                   |          |
|-----|-------------------|----------|
|     | ISSUED FOR PERMIT | 25/06/08 |
|     | 95% SUBMISSION    | 14/10/08 |
|     | 90% SUBMISSION    | 16/09/08 |
| No. | REVISION          | DATE     |



**COCKE & ASSOCIATES LTD.**  
CONSULTING ENGINEERS

1750 COURTMOND CRESC. OTTAWA, ONT.  
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FAX (613) 226-7426  
E-MAIL malibaks@jcocke.com  
WEB SITE <http://www.jcocke.com>

PROJECT  
453 BANK STREET  
FACADE SHORING

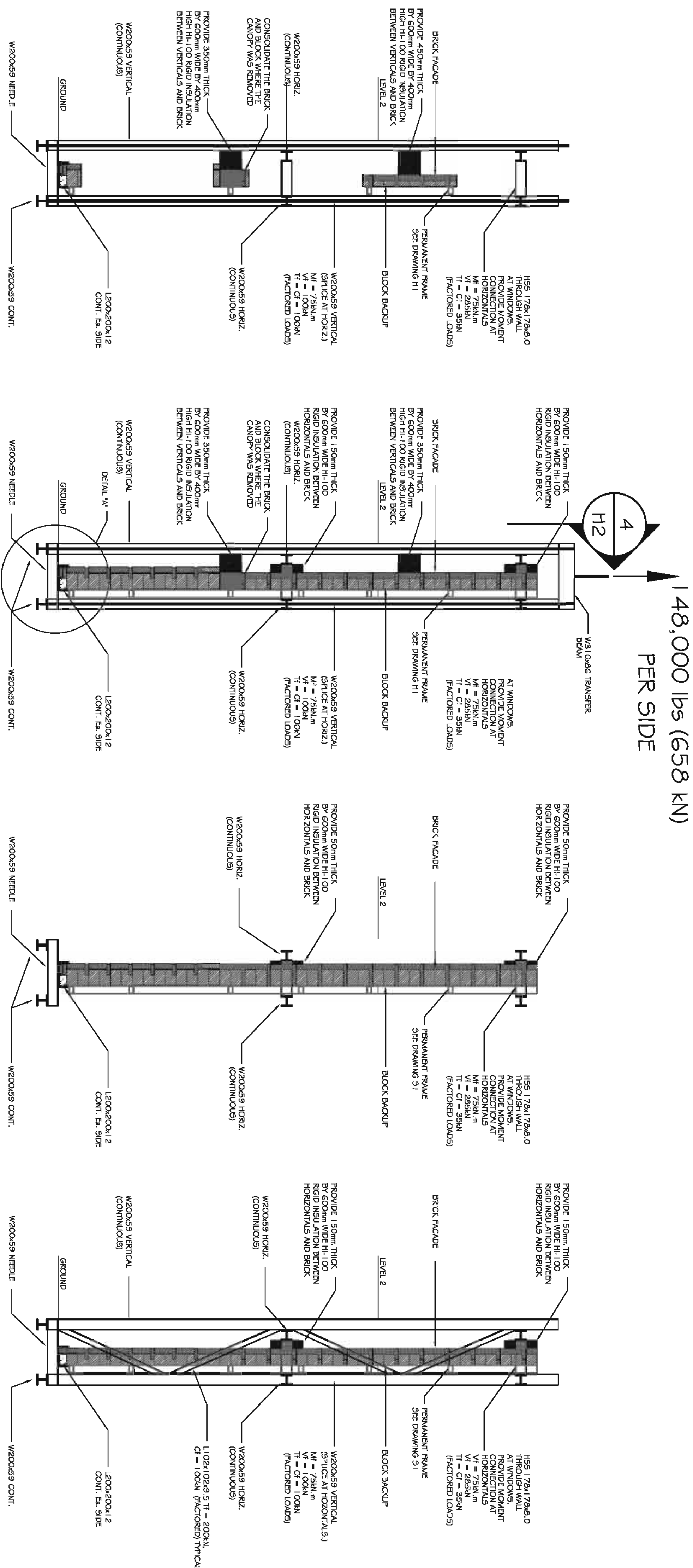
# DRAWING

## LIFTING FRAME

### SECTIONS AND PROCEDURES

|           |          |
|-----------|----------|
| DATE      | 15/09/08 |
| SCALE     | AS NOTED |
| DESIGNED  | M.L.     |
| DRAWN     | J.B.     |
| PROJECT # | 08024    |

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SECTION 1/H3 — 1:50

SECTION 2/H3 — 1:50

SECTION 3/H3 — 1:50

SECTION 4/H3 — 1:50

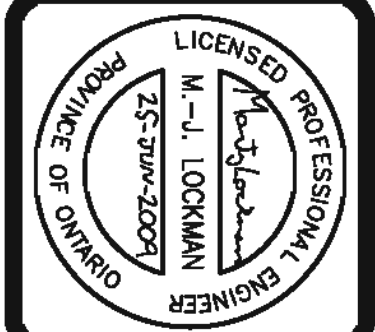
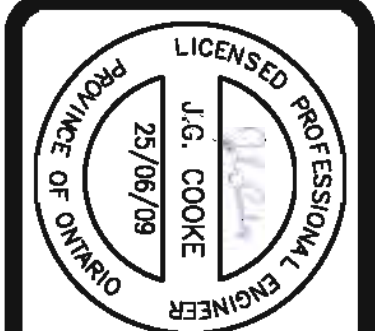
## GENERAL PROCEDURES

1. PRIOR TO STARTING DEMOLITION, RECORD THE BLOCK PARTIAL, FLASHING DETAILS AND OTHER INFORMATION ON THE BUILDING PAGES REQUIRED TO RESULT THE UPPER PORTION OF THE WALL.
2. MAKE OUT AND REPORT 100% OF THE BLOCK JOINTS BELOW THE FLASHING BAND, WHERE THE WALL IS NOT DEMOUNTED. REPORT IN ACCORDANCE WITH SPECIFICATION SECTIONS 04051, AND 04051.1, AND WITH TYPICAL REPORTING DETAIL ON DRAWING 444.
3. DEMOUNT AND REMOVE THE CANOPY, IN-TILL, ALL VEDS IN THE BLOCK VENTER FOLLOWING THE REMOVAL OF THE CANOPY.
4. REMOVE ALL FINISHES ON THE INSIDE FACE OF THE WALL TO EXPOSE THE BLOCK.
5. BLOCK JOINTS ARE REPORT ALL DEPROFENATED WORKED JOINTS IN THE BLOCKS. ASSUME 50% OF THE BLOCK JOINTS ARE TO BE REPAID OUT AND REPORTED.
6. DEMOUNT THE BLOCK WALL OF THE CHIMNEYS AND CONSIDER THE BLOCKS BLOCKS AS REQUIRED.
7. DEMOUNT THE BLOCK WALL WITH CARE TO SALVAGE AS MUCH BRICKS AS POSSIBLE.
8. REMOVE ALL MECHANICAL AND ELECTRICAL EQUIPMENT ON THE WALL AND IN-TILL ALL HOLES IN THE WALL WITH SALVAGED OR NEW CONCRETE BLOCKS.
9. MAKE CHIMNEYS THROUGH THE FLOORING AND INTERIOR WALLS AS REQUIRED TO ALLOW THE INSULATION TO BE REMOVED FROM THE CHIMNEYS. DO NOT DISMOUNTING AND REMOVE THE CHIMNEYS FROM THE EXISTING INTERIOR STAIR FLAME.
10. DO NOT REPAIR THE STEEL, RAILING, RAILING, DOING AND WHERE THE WALL WILL BE DEMOUNTED THE UPPER PORTION OF THE EXISTING FRAME IS TO BE REINSTATED AFTER THE UPPER PORTION OF THE WALL IS RECONSTRUCTED.
11. MAKE ADDITIONAL OPENINGS THROUGH THE BLOCKS, ROOF, AND INTERIOR WALLS AS REQUIRED TO ALLOW THE INSULATION OF THE INTERIOR PORTION OF THE TEMPORARY HOUSING FRAME.
12. BLOCK BACK THE INTERIOR PORTION OF THE TEMPORARY HOUSING FRAME IN PREPARATION FOR THE BUILDING DEMOLITION.
13. PROCEEDS FOR THE BUILDING DEMOLITION BY OTHERS.
14. ONCE THE ROOF IS DISCONNECTED TO THE PAGES, DEMOUNT THE UPPER PORTION OF THE WALL DOWN TO THE BLOCKS AS POSSIBLE. CARRY OUT DEMOLITION IN ACCORDANCE WITH SPECIFICATION SECTION 02205.

- 15 REMOVE THE SIDEWALK AND EXCAVATE AS REQUIRED TO ALLOW THE INSTALLATION OF THE EXTERIOR PORTION OF THE TEMPORARY HOISTING FRAME.
- 16 INSTALL THE EXTERIOR PORTION OF THE TEMPORARY HOISTING FRAME AND CONNECT TO THE INTERIOR PORTION.
- 17 CAREFULLY MAKE HOLES THRU THE PAVEMENT BELOW GRADE LEVEL FOR THE INSTALLATION OF THE NEEDLE BEAMS AND SHEET PILING. REMOVE THE STONE AT GRADE LEVEL IN SHORT PORTION AND FILL THE VOID WITH BROCK.
- 18 AT THE DOOR RECESSSES, MAKE A SCAFFOLD 4200mm AWAY FROM THE FACE OF THE PAVEMENT. Dismantle the blocks around the SCAFFOLD WITH CARE TO SALVAGE AS MUCH BROCK AS POSSIBLE.
- 19 CONSOLIDATE THE BROCKED BROCK AS REQUIRED.
- 20 INSTALL ALL THE CABLE AND CONNECT THEM TO THE CABLE.
- 21 DISCONNECT ALL REMAINING PORTION OF THE BUILDING FROM THE BUILDING, INCLUDING ALL SHORING AND SHORING TIES.
- 22 EXCAVATE AND BUILD THE BASE STRUCTURE.
- 23 HOIST THE MAJOR BACK TO PLACE.
- 24 THE BACK THE MAJOR BACK TO THE BASE STRUCTURE.
- 25 REMOVE THE NEEDLE BEAMS AND FILL THE HOLES WITH NON-EXPANSIVE GROUT. COMPLETE BRICK REPAIRS AT GRADE USING THE SALVAGED BROCK.
- 26 REMOVE THE TEMPORARY HOIST FRAME.
- 27 REBUILD THE UPPER PORTION OF THE WALL USING SALVAGED OR NEW CONCRETE BLOCKS AND SALVAGED BROCK FROM THE ORIGINAL CONSTRUCTION.
- 28 CONVERT THE INSTALLATION OF THE UPPER PORTION OF THE PERMANENT INTERIOR STEEL FRAME AND COMPLETE CONNECTION OF THE MAJOR TO THE BASE STRUCTURE.
- 29 REINFORCE EXISTING CANOPY OR NEW APPROVED STRUCTURE.



|     |                   |          |
|-----|-------------------|----------|
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| No. | REVISION          | DATE     |



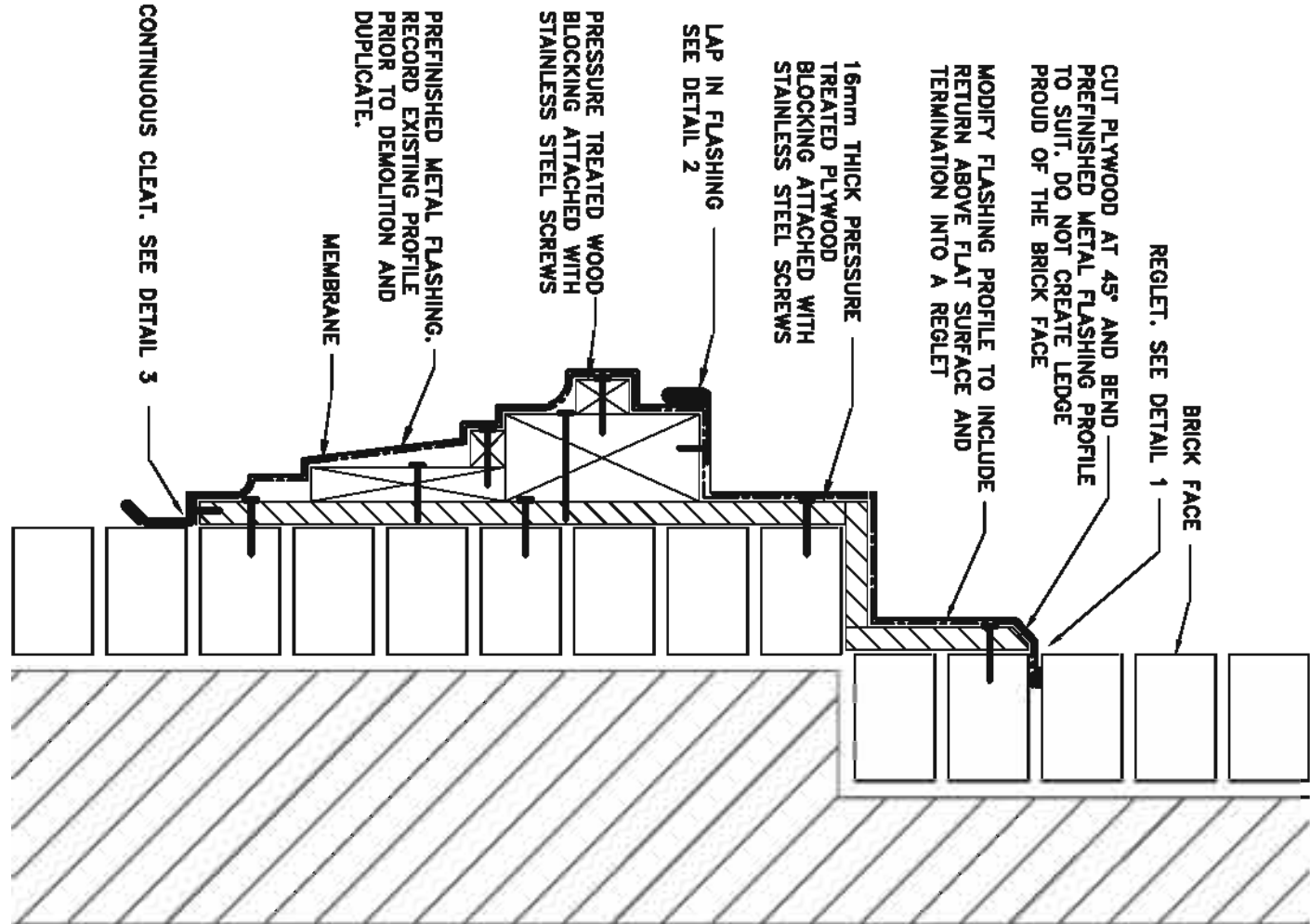
**JOBEN & COOKE**  
ASSOCIATES LTD.  
CONSULTING ENGINEERS  
1700 SHEPPARD AVE. E.  
SUITE 101 MARKHAM ONT. L3R 9V3  
(905) 226-8718 FAX (905) 226-7424  
http://www.jbenandcooke.com

PROJECT  
453 BANK STREET  
FACADE SHORING

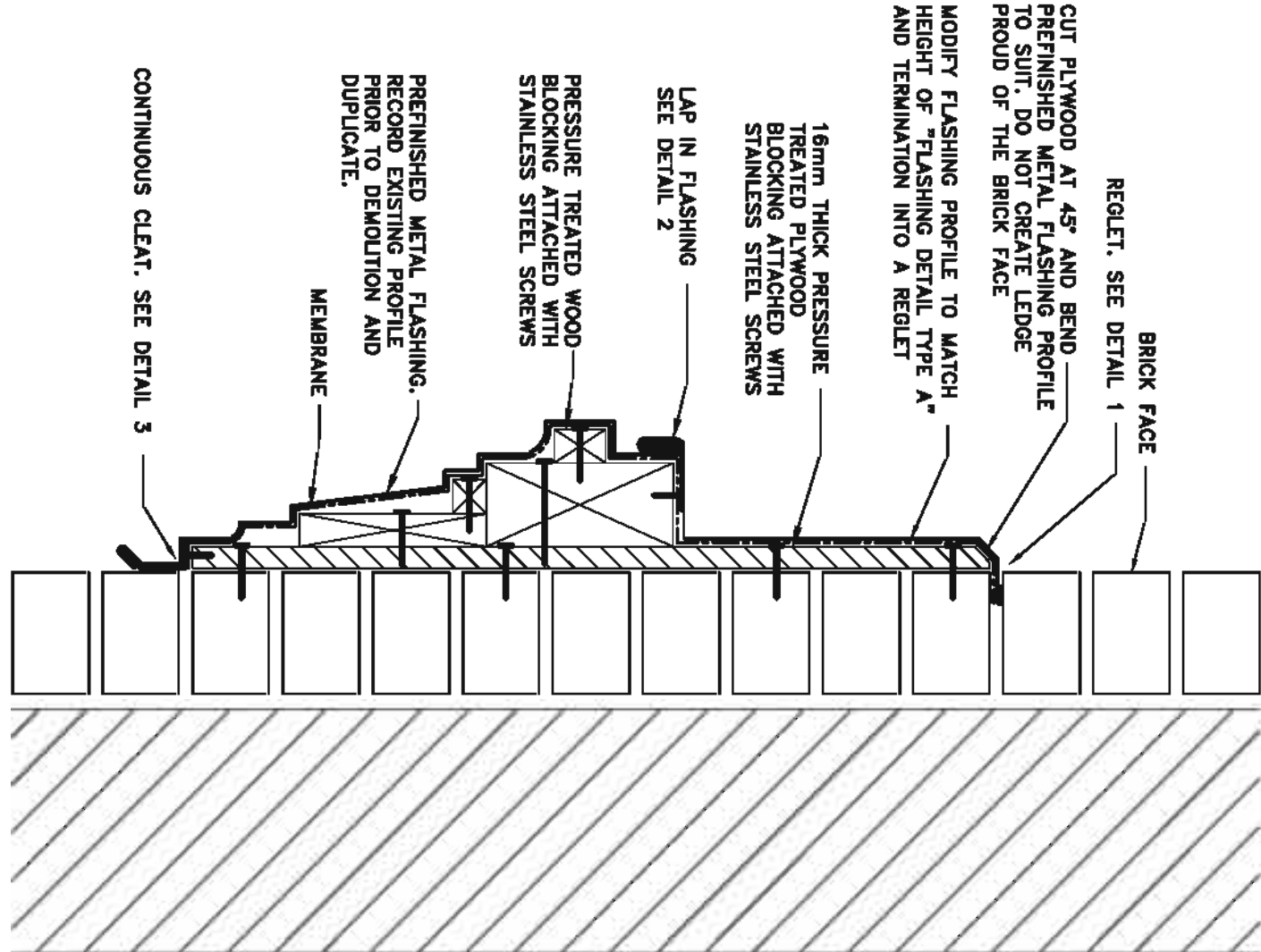
DRAWING  
RECONSTRUCTION DETAILS

|           |          |
|-----------|----------|
| DATE      | 15/09/08 |
| SCALE     | AS NOTED |
| DESIGNED  | M.L.     |
| DRAWN     | J.B.     |
| PROJECT # | 08024    |

DRAWING No.  
**H4**

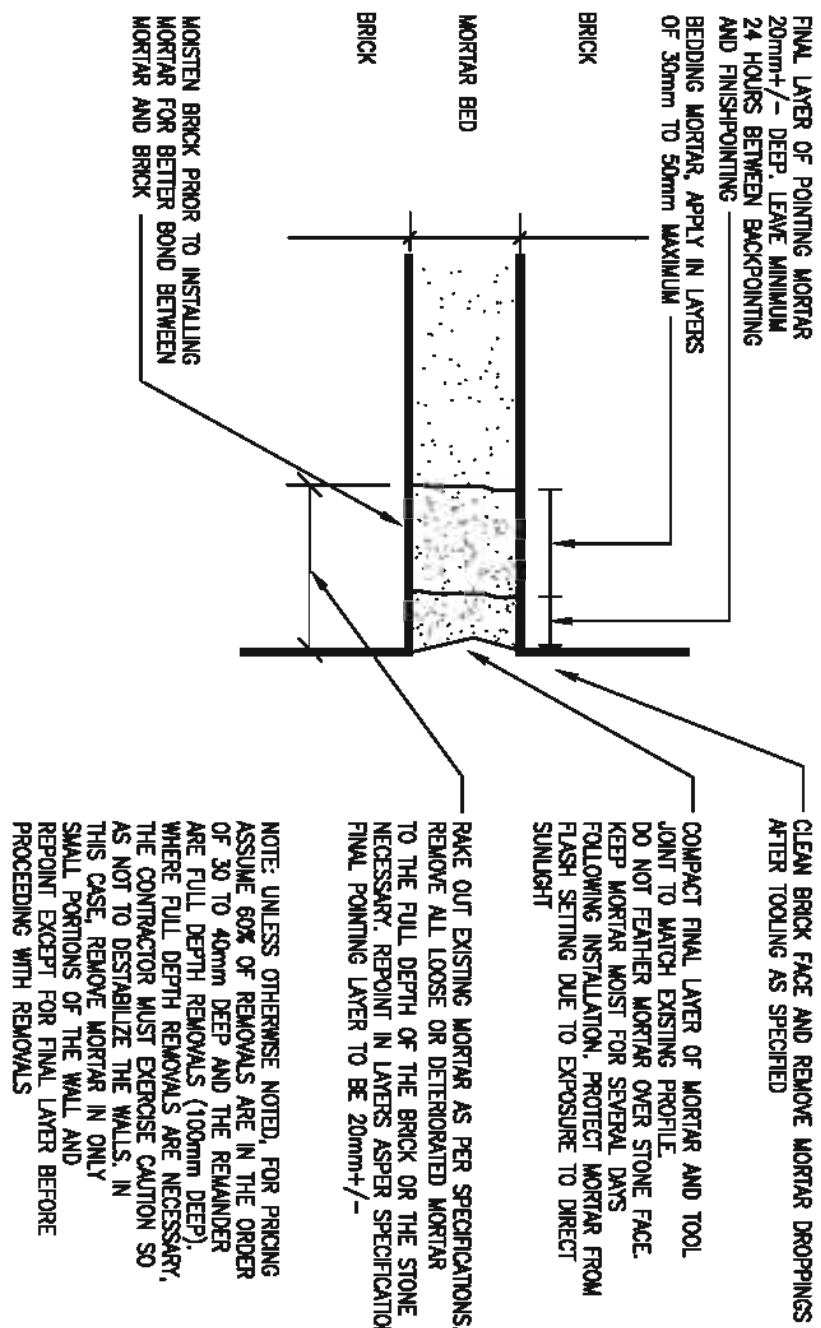


FLASHING DETAIL TYPE "A" — N.T.S.

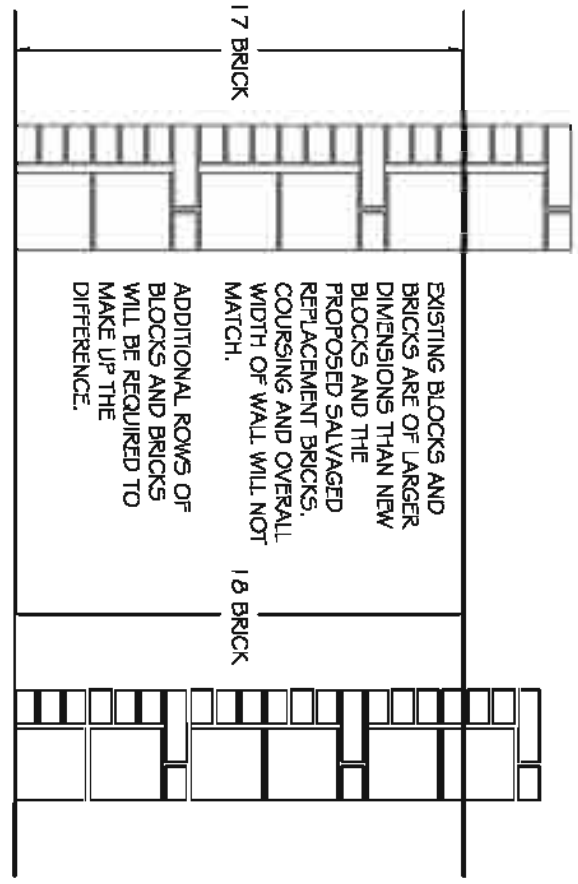


FLASHING DETAIL TYPE "B" — N.T.S.

## FLASHING BAND DETAILS

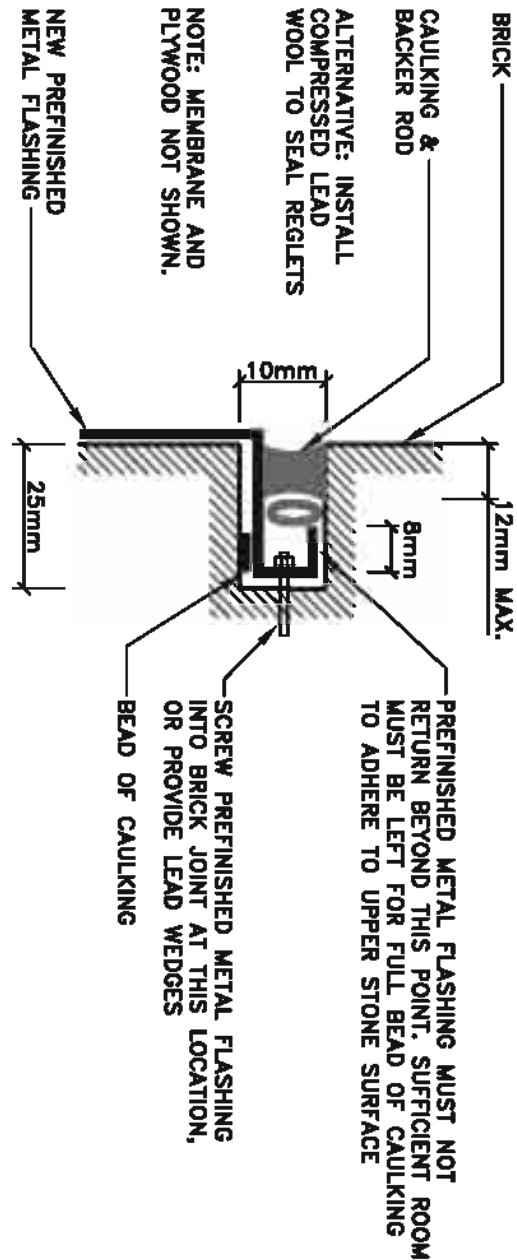


TYPICAL REPOINTING DETAIL — N.T.S.

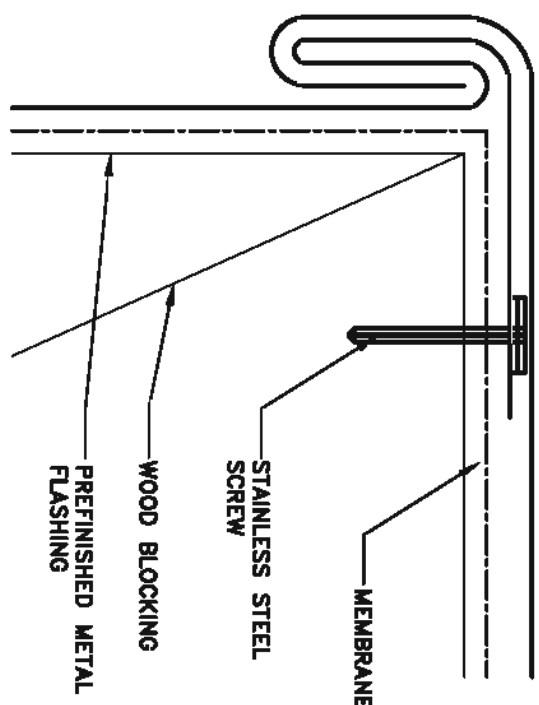


EXISTING CONSTRUCTION VERSUS  
PROPOSED RECONSTRUCTION. — 1:20.

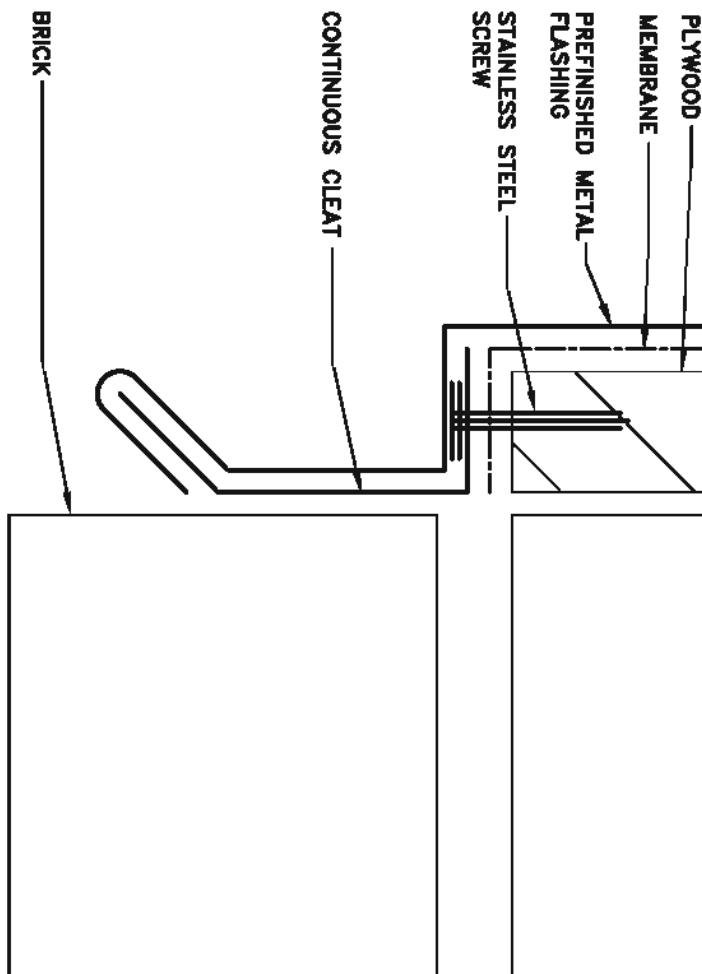
DETAIL 1 — N.T.S.



DETAIL 2 — N.T.S.



DETAIL 3 — N.T.S.



## Section 5.0 Disclaimer and Limitations

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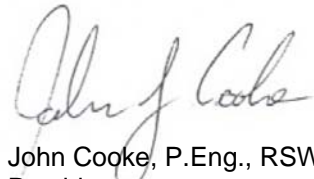
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We trust that this report covers the scope of work as outlined in executive summary. Should there be any questions regarding this report, or if we can be of any further assistance to you, please contact us.

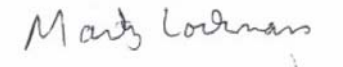
Please contact the undersigned if there are any questions. I remain,

Yours truly,

JOHN G. COOKE & ASSOCIATES LTD.



John Cooke, P.Eng., RSW  
President



Marty Lockman, P.Eng., ing

ML/ml  
08024/Proposal for Façade 07-Jul-2009