



Figure 17 Map of archaeological testing in Area 1

The sequence of works in Area 1, starting on the 26th of May 2020, began with TT1-2, followed by TT1-1 (27th of May), TT1-3 (28th of May), TT1-4 (2nd June) and TT1-5 (5th June). TT1-1 was enlarged at the request of Sarah McCutcheon (Project Archaeologist) to expose and record the northern elevation of the brewery building.

TT1-1

Trench TT1-1 was located along the northern range of a paved, projecting square, bay on public realm land, formerly occupied by Nolan's Cottages and in the 18th and 19th century by the City/Newgate Brewery. The trench was approximately 1m south of northern retaining quay wall built in 1895. The trench was orientated E/N by W/S and originally to measure 9m by 1.5m by 4m depth. The final dimensions of the excavated trench were 11m long by 4m wide and 3.4m deep. This enlargement was due to the trench connecting with TT1-2 to the immediate south and to expose the northern elevation of a sub-surface building with two-barrel arches. The trench was benched into terraces to reach the required depth and to allow access for closer inspection of the features.

Background

TT1-1 is an area of known high archaeological potential and the site of three recorded monuments: a castle (LI005-017101) and two mills (LI005-017074 and LI005-017075). TT1-1 was located on the former access road to the northern terrace of Nolan's Cottages. This road was built on reclaimed ground north of what was a part of the Newgate Brewery. The purpose of this trench was to identify the northern extent of a tunnel noted in previous excavations by O'Rahilly and Hodgkinson in 1987/1988.

It is proposed to construct a glass panelled wall running N/S across this area on a concrete beam with piled foundation.

Results

Following the removal of five trees running north south across Area 1, the surface brick paving and sand bed were removed exposing a modern gravelly layer 200-300mm thick. This overlay a broken layer of asphalt (C1-1-03) representing the original street level for Nolan's Cottages. To the north of the trench, running E/W at a depth of 400mm, was a black 4" cable duct. This service was retained *in situ*. Below the road was a mix of grey-brown sandy builders fill with frequent small and medium sized stones inclusions of brick, mortar, ash and occasional patches of charcoal (C1-1-04). This deposit was dumped in the early 1890s to extend the quay wall northwards prior to the development of Nolan's Cottages. The infill was excavated to a maximum depth of 3.4m down to a basal layer of river mud, sand and shingle. At this depth, the trench was affected by tidal flooding.

Earlier excavations in TT1-2 to the south had exposed the northern elevation of a building running E/W. Following consultation with the Project Archaeologist, TT1-1 was extended to the south and east to expose the range of this structure resulting in the widening of the trench to a maximum of 4.1m by 10.3m. Groundworks along the elevation of this brewery building, directly under a layer of gravel, exposed a structure of uncoursed random rubble containing two, largely blocked up, semi-circular barrel arches (C1-1-05 & C1-1-06) set 3.35m (11 feet) apart (see figures 11, 12, 17, 18).

The barrel for the western arch ran north-south along the quay wall, its crown directly below modern levels (280mm). The projected span, not fully exposed, was 3.65m (12 foot) and the rise from the impost to the keystones was 1.85m (6 foot). The arch was built of rectangular voussoirs averaging 350/360mm long by 100-150mm wide (14 by 4 inches). The arch and abutment were set on a plinthed foundation built of massive rectangular cut stone. The interior of the barrel was nearly entirely silted up with fine alluvial sand and occasional stones to 1.5m below the arch. The arch soffit was roughly constructed of tightly packed stones, set lengthways. The underside of the arch was visible for approximately 7m running to the south,

lit by a shaft of light shining through a break in the barrel. The western extent of the arch where it would have met the quay wall was not fully exposed.

The eastern arch (C1-1-06), corresponding to the line of the tunnel exposed during excavations in the 1980s, was recessed between two shoulder walls 300mm deep (1 foot). These side walls were largely built of cut stone blocks with roughly pecked faces, the one to the north in best condition. The semi-circular arch had a 3.04m (10 foot) span and the ring stones - voussoirs were of sandstone with a limestone keystone bonded with a thickly applied, gritty white mortar. The voussoirs averaged 400mm long by 100mm wide (16 x 4 inches). The stone in the spandrels was a mix of small to medium sized sandstones averaging 200mm long by 80mm high with one cut stone and one brick fragment. The barrel of this feature was angled NW/SE and was blocked up to near roof level with river sand and stone.

The fill wall between the arches was approximately 3.35m long and 3.8m high, 2.4m to the plinth. The three courses above the plinth were constructed of regularly cut limestone blocks with pecked faces. The upper courses, particularly over the exposed spandrel of the western most arch, were rougher, with roughly hewn stones of limestone and sandstone.

The plinthed foundation, running below the spring line for the western most arch, was not fully exposed along the range. What was visible was two courses deep, the upper course consisting of a massive rectangular block over a course of smaller roughly hewn squared stone. This foundation was approximately 900mm deep. The base of the wall was not bottomed out due to continual flooding.

To ascertain the thickness of the facing wall along the northern elevation, the gravel was removed, the wall was 680mm thick, south of this was a brown compact, clay floor.

Conclusion

Excavations in TT1-1 identified the northern elevation of a building associated with the City Brewery. This building running alongside Golden Mill appears in both 19th century illustrations and a photograph from the Lawrence collection. The exposed face of the building comprising two barrel arches and a fill wall measuring approximately 10.3m length which was 3.4m at its deepest. The easternmost arch was recessed and had a 10 ft span; the westernmost arch (not fully exposed) had a 12 ft span. The material infilling the trench was late 19th century, dumped to make up ground for a terrace of cottages built in 1895. Both tunnels were tidal and would have flooded with water. How the tunnels function is undetermined. They may have been built to turn an internal wheel, draw water, cool beer tuns or load or unload cargo. The building appears on 19th century mapping but was probably built in the late 18th century for use within the brewery complex. The brewery was auctioned in 1871 and the site later developed for social housing.

Table 2: TT1-1 Summary of results

Trench number	TT1-1
Dates excavated	27-28 May 2020
Location	Mill and Brewery Site
Co-ordinates (NW corner)	E 557682.2021, N 657693.4345
Dimensions, orientation	L: 11m E/W, W: 4.1m NW/SE, terraced for site safety.
Ground level (ASL)	4.0570m
Maximum depth	3.4m
Services exposed	Plastic 4" pipe at 400mm depth; redundant cast iron Gas main at 500mm

Archaeological significance	North elevation of brewery building
Recorded contexts	<p>C1-1-01: Brick paving and sandy bedding 120-200mm</p> <p>C1-1-02: Modern Gravel 100-300mm</p> <p>C1-1-03: Asphalt 100-200mm</p> <p>C1-1-04: Grey Brown sandy infill with frequent stone deposited in early mid-1880s</p> <p>C1-1-05: Western most barrel arch (12-foot span)</p> <p>C1-1-06: Eastern most recessed barrel arch (10-foot span)</p> <p>C1-1-08: 18th century Brewery building 11m long by 3.35m high containing two barrel arches.</p> <p>C1-1-09: Grey alluvial mud and sand</p>



Figure 18 West-facing view of the north elevation of brewery building showing two arches, infilled in 1890s.

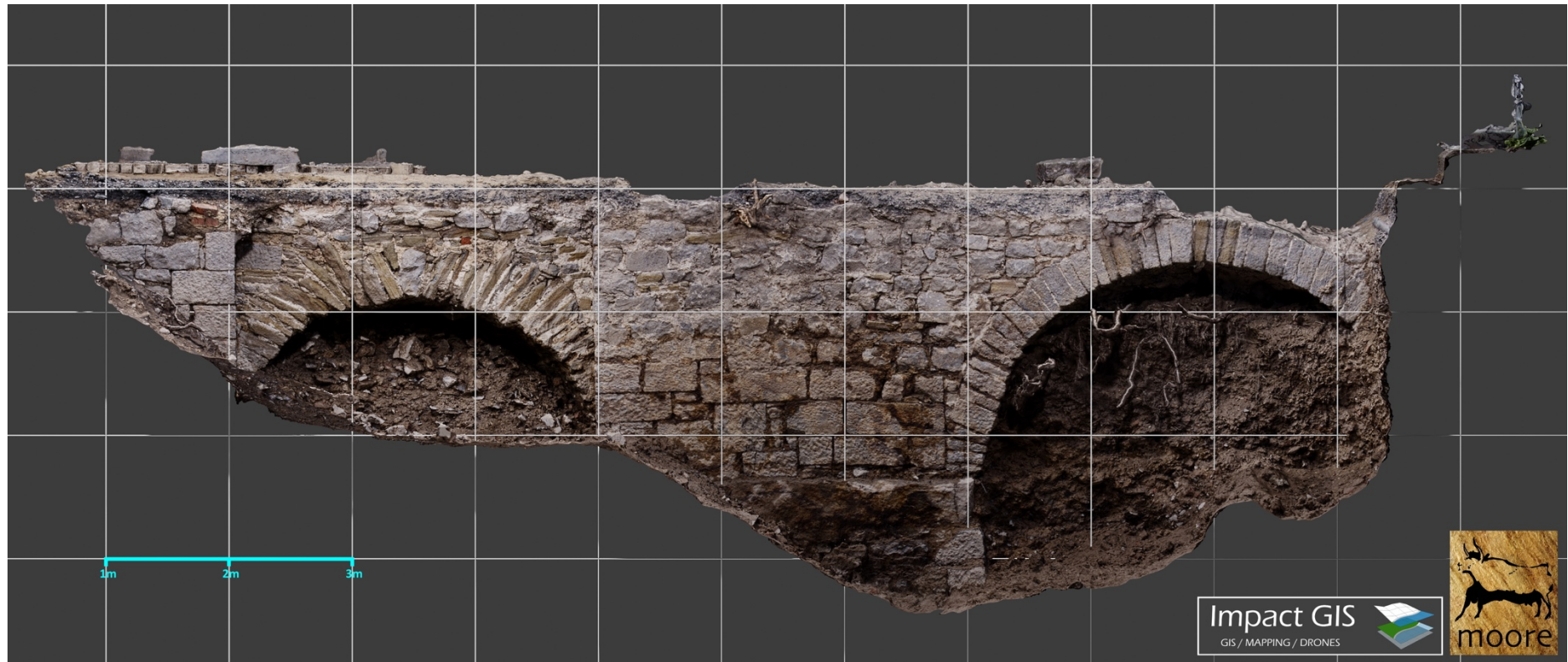


Figure 19 Scaled elevation view of arches in TT1-1



Figure 20 Southeast-facing view of arches showing foundation course.



Figure 21 South-facing view of western arch C1-1-05



Figure 22 South-facing view of eastern arch C1-1-06

TT1-2

TT1-2 was located to in the north west corner of Area 1 and was orientated NW/SE along the western quay wall. The trench measured 7m long by 1.5 m wide. It was the first to be excavated in Area 1.

Results

Excavation below the surface brick paving and bedding sand exposed a layer of modern gravel with a 4" pipe running along the western edge. The gravel varied in depth from 200-400mm thick and overlay the top of a barrel vault (figure 21-22). The stony longitudinal spine and haunch of the arch ran the full length of the trench forming a rough convex surface falling to the west (C1-2-04). The stones were inset in a thick sandy mortar. Excavation at the northern end of the trench, exposed the face of the arch built of cut rectangular voussoirs averaging 350/360mm long by 100-150mm wide (14 by 4 inches). The fill against the face of the arch was a mix of 19th century of grey-brown sandy builders fill with frequent small and medium sized stones. The arch was silted up with grey silty sand, stonier towards the base. On exposure of the topside of arch excavation ceased and the feature was retained *in situ*.

Conclusion

Excavations in TT1-2 exposed the crown and western haunch for a barrel vault associated with an 18th century brewery building whose northern side was examined in greater detail in TT1-1.

Table 3: TT1-2 Summary of results

Trench number	TT1-2
Dates excavated	26 May 2020
Location	Mill and Brewery Site

Co-ordinates (NW corner)	E 557682.6904, N 657691.7809
Dimensions, orientation	L: 7m NW/SE, W: 1.5m NE/SW
Ground level (ASL)	4.1106m
Maximum depth	The average depth was 400mm, deeper at the northern terminal
Services exposed	Plastic 4" pipe running N/S along quay 400mm below ground
Archaeological significance	Spine of barrel arch
Recorded contexts	C1-2-01: Brick paving 80mm C1-2-02: sandy bedding C1-2-03: Modern Gravel 100-300mm C1-2-04: Western most barrel arch (12-foot span) C1-2-05: 19 th century infill



Figure 23 Location of TT1-2 looking south to crown of wall and west part of ring arch.



Figure 24 Arch abutting Quay wall.

TT1-3

TT1-3 was located in the middle of Area 1 and was a linear trench oriented E/W extending 5m from the edge of TT1-2 to the east. Its northern edge was approximately 9.2m from the northern quay wall.

Results

Underlying the modern surface layers of brick paving, bedding sand and gravel was a compact layer of builders fill of brick, slate, timber, plaster between 150-350mm deep. This layer was interpreted as representing the destruction layer of Nolan's Cottages. Below this was a hardened dark clay over a mortar layer that ran the length of the trench. This layer, the brewery floor, ran across the length of the trench covering four sub surface structures, namely the abutment wall for the westernmost tunnel (C1-3-15), two freestanding foundation pads (C1-3-12 to the east and C1-3-13 to the west) and an eastern wall (C1-3-14) running across the width of the trench. Between these features was a mix of infilled sandy silty deposits.

The abutment wall (C1-3-15) found to the west of the trench ran the width of the cutting and supported the barrel vault identified in both TT-5-1 and TT-5-2. This wall was approximately

600mm thick built of roughly hewn stones bonded by a white gritty mortar. The wall fell vertically along its western face for 60m to a plinth that jutted 200mm continuing a further 400mm to the base of the trench.

C1-3-13 was 900mm east of the abutment wall and consisted of a roughly square freestanding foundation pad, with a flat, prepared top possibly designed to support an upright. This feature measured 930mm E/W by 1m N/S. It stood 900mm tall near the southern section face with a gap to the west section face. The exposed base of this pad sat on an irregular dump of rubble stone.

C1-3-12, another foundation pad, was 1.35m east of C1-3-13 and measured 850mm E/W by 1.05m N/S by 900mm high. The top of this pad had a roughly sub-circular flat area 500mm wide at similar level to C1-3-13. Similarly, the lower course was on a rough rubble foundation.

C1-3-14 was a wall foundation under a layer of concrete found at the eastern end of the trench, only its western elevation was exposed, to a depth of 800mm. This limestone-built wall was approximately 200mm higher than the adjacent pads. It was built of roughly shaped stone bonded with a white mortar. This wall was thought to be the abutment for the eastern tunnel, found in TT5-1 however its angle widthways the trench does not correspond with the more NW/SE orientation of the tunnel. Notwithstanding this, the tunnel has to be supported by a substantial wall in this general area.

Below the floor level of the brewery (C1-3-07) were series of infills abutting the pads and walls. These are C1-3-08 a brown-grey silty sand with slate, brick and frequent small stones 350mm thick overlying a pale brown mortar rich sand 100mm thick. Below this was a 600mm thick layer of dark brown silty clay with red brick fragments. At the base of the trench between the pads was a grey brown coarse sand.

This trench was dug to a maximum depth of 1.6m the features retained *in situ*. Following recording, as elsewhere the trench was covered in geo-textile and backfilled.

During the testing programme in Area 1, track machines disturbed the sandy bed under the brick paving between TT1-1 and TT1-3 exposing the tops of two additional foundation pads. These pads were investigated and similarly to those found in TT1-3 consisted of two free-standing rubble stone-built, foundations both topped with a square stone with a central rectangular socket. The pads were 1.1m apart. The eastern one was 900mm E/W by 1m N/S and has heavily mortared around the socket stone (330mm x 333mm). The western pad was 1m E/W by 1.4m N/S, the socket stone was 560mm N/S by 540mm E/W). The abutting brown silty fill contained brick, a fragment of blue and white delft tile and a porcelain sherd. These pads were interpreted as the internal supports for a wood framed superstructure.

Conclusion

Excavations in TT1-3 an east west cross section through the brewery building exposed two free-standing roughly squared foundation pads between the abutments for the two-barrel arches. Two matching plinths were also found between TT1-1 and TT1-3 each topped with a socketed stone. These pads were possibly designed to support timber uprights for a wooden superstructure.

The abutment walls to the east and west, only partially exposed, were built to take the weight of the barrel arches.

Table 4: TT1-3 Summary of results

Trench number	TT1-3
Dates excavated	4 th June 2020
Location	Mill and Brewery Site

Co-ordinates (NW corner)	E 557687.7376, N 657686.0736
Dimensions, orientation	L: 6m E/W, W: 1.5m N/S
Ground level (ASL)	3.8482m
Maximum depth	1.6
Services exposed	None
Archaeological significance	Stone foundations and abutment walls for arches (?)
Recorded contexts	<p>C1-3-01: Brick paving 80mm</p> <p>C1-3-02: sandy bedding 50mm</p> <p>C1-3-03: Modern grey gravel 100-300mm</p> <p>C1-3-04: Concrete over abutment wall for east arch 100mm thick</p> <p>C1-3-05: Compact builders fill of brick, slate, timber, plaster (destruction layer of Nolans's Cottages) 150-350mm</p> <p>C1-3-06: Brewery floor, brown hardened clay and mortar with stone slabs. 40-100mm</p> <p>C1-3-07: Mortar rich bedding for brewery floor. 100mm</p> <p>C1-3-08: Stony brown grey silty sand with slate, brick and small stones. 350mm</p> <p>C1-3-09: Lower pale brown mortar rich layer between 120 and 138mm</p> <p>C1-3-10: Dark brown silty clay with brick and stone inclusions (similar to C.8, but darker in colour) 580mm</p> <p>C1-3-11: Grey sandy layer at base of trench between C. 12 and C.13, 200mm</p> <p>C1-3-12: Foundation pad, 670mm below ground, measuring 0.95m E/W by 1m N/S; 0.9m high. Built of heavily mortared uncoursed limestones on a rubble plinth. The top had roughly sub-circular flat surface 500mm wide at similar level to C1-3-13. This pad was freestanding and did not extend across the width of the trench.</p> <p>C1-3-13: Foundation pad measuring 0.85m E/W by 1.05m N/S; same construction as C1-3-12. The top has a flat square of mortar that would have had a base above. This pad was 0.9m east of C1-3-15, the abutment for the western tunnel. This pad was freestanding and did not extend across the width of the trench.</p> <p>C1-3-14: Wall, under concrete layer, initially thought to be abutment of eastern most tunnel. The wall was 800mm high and found at the eastern end of the trench.</p> <p>C1-3-15: Abutment wall for western arch: 600mm thick with plinth foundation, plinth extends for 200mm. Wall is 1m high built of uncoursed roughly hewn limestones.</p>

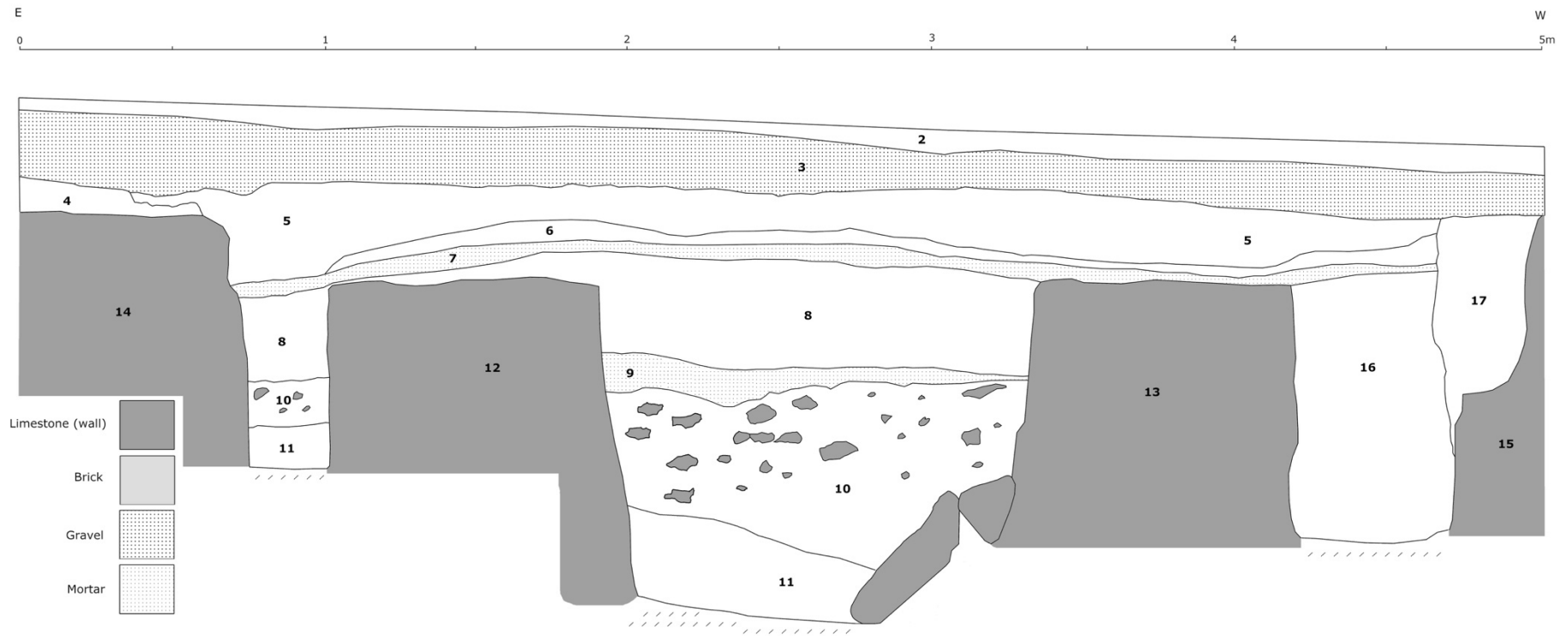


Figure 25 Profile drawing of TT1-3, north facing wall, showing foundation pads between abutment walls



Figure 26 Looking east across TT1-3 showing foundation pads, C1-3-12 in foreground and C1-3-13 in background



Figure 27 Elevation of C1-3-13 looking west



Figure 28 Facing south wall to east of trench C1-3-14 and pad C1-3-13



Figure 29 Facing south to abutment wall for western arch C1-3-15 and pad C1-3-12