Appendix 2. Project Description

2.6. Exceptional Abnormal Load (EAL) Report (AtkinsRealis, 2025)

AtkinsRéalis

Abnormal Load Assessment Report

Bord Gáis Energy Limited (BGE)

21 August 2025

0114485DG0025

CASHLA PEAKER PLANT

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1. Executive Summary

This Abnormal Load Assessment Report evaluates the feasibility of transporting three large components, up to 380 tonnes each, from Galway Port to the Cashla Peaker Plant via two proposed routes. The assessment focused on nine critical structures along these routes, comparing the effects of Exceptional Abnormal Load (EAL) vehicles against original design loads in accordance with TII standards and Eurocode. Using conservative assumptions and finite element modelling, the analysis concluded that all structures on the blue route can safely accommodate the proposed EAL configuration under controlled conditions, while the red route is unsuitable due to overstress at Castlelambert Overbridge. The recommended conditions include a maximum speed of 10 mph, travel in the slow lane, and no concurrent traffic on the same carriageway during passage.

Following completion of the report, a review of the equipment to be transported and the appointment of a preferred haulier resulted in updates to the load configuration. Three components of varying weight are now anticipated, with the maximum cargo load increasing from 350 tonnes to approximately 380 tonnes. (Refer Figure 1-1). The haulier's equipment configuration has also been confirmed, resulting in a revised maximum axle load of approximately 19 tonnes per axle. It should be noted that, due to span lengths, no bridge, along the preferred Blue Route, will carry more than 14 axles at any one time. As the current report adopted a conservative worst-case scenario of 14 axles with axle loads up to 19.9 tonnes, there is no requirement to update the report in full for planning purposes. However, the report will be revised to incorporate the final axle configuration and loads for the Abnormal Load Permit application. These updates ensure regulatory compliance and confirm that the proposed route remains suitable under the updated configuration.

Component	Weight (tonnes)	Length (mm)	Width (mm)	Height (mm)	Delivery vehicle Type
Gas Turbine	360	12,000	5,500	5,020	Girder Truck
Generator	380	14,000	4,250	4,850	Girder Truck
Step-up Transformer	288	11,300	4,730	4,750	Girder Truck

Figure 1-1 - Components Requiring Special Transport Permits

2. Introduction

2.1 Consultant Brief

AtkinsRéalis were appointed by Bord Gáis Energy Limited (BGE) to assist in the transfer of 3 no. pieces of equipment from Galway Port to Cashla Peak Power Plant using different trailer configurations.

This report illustrates the route planning and the structural review of the structures along the routes to determine the suitability of the passage of most critical Exceptional Abnormal Load (EAL) vehicles. (Refer to Section 3.3.3). This report also documents the methodology and the findings of the analysis undertaken and to form a conclusion on the comparison of the load effects on the structures along the proposed routes, refer to Figure 2-1.

The actual loads intended for transport and the final configuration of the EAL vehicle were received after the completion of this report. A comparison between the effects of these actual loads and those of the originally assumed design EAL has been carried out, with the results presented at the end of this report at section 6.A comparative analysis is selected to determine the load effects from the passage of the EAL vehicle over 7 no. bridges and 2 no. box structures, and compare these to the load effects from the original bridge design loads in accordance with TII publication AM-STR-06048-01, TII publication AM-STR-06030 and Eurocode based on the information available.

The EAL vehicle intended to pass over the structures along this route is illustrated in Section 3.3.3.

2.2 Background Information

There are 5 no. proposed loads to be transferred from Galway Port to the Cashla Peak Power Plant using different trailer configurations. AtkinsRéalis (AR) have identified 2 no. of proposed routes, the blue route and the red routed with a common shared route highlighted in yellow, refer to Fig 1.1. 20 no. structures have been identified along the route alternatives between Galway Port and the Cashla Peak Power Plant for both proposed routes and shared section.

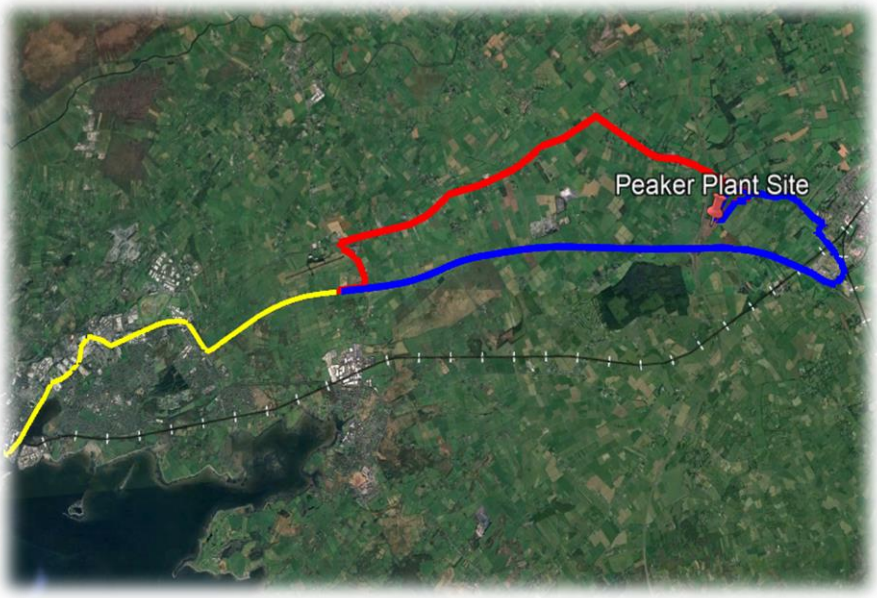


Figure 2-1 - A map of a proposed routes

10 no. of the identified structures are classified as underbridges, which will be traversed by Exceptional Abnormal Loads (EAL), including 1 no. 900mm diameter discharge pipe near Coolagh Junction. Since the structure In accordance with TII publication DN-STR-03001, the 900mm diameter discharge pipe is not considered as a bridge as it is has a clear diameter less than 2.0m. Therefore, this structure is no longer included as part of the analysis. Please see 8.Appendix A for locations of these structures. These structures will require a structural assessment to ensure they can safely accommodate the transport of such loads. This report will focus on these underbridges, refer to Table1.1 for bridge list included in this report, which highlights the section of route they are on.

Table 2.1- Underbridge Bridge List

Bridge List	Span (m)	Width (out to out) (m)	Structure Form and Material	Route - Over	Route - Under
GB-N06-008.00 Ballybrit Cycle-lane Underpass	5.45	31.25	Single span, Precast Reinforced Concrete, Arch Bridge	N6	Foot/Cycle way
GC-M06-001.00 Garraun Road Underbridge	15.25	45.84	Single span, Precast reinforced concrete. Integral Bridge	N6	Garraun North Road
NC-M06-007.00 Bat Underpass 1	2.30	28.00	Box Culvert	NA	NA

NC-M06-009.00 - OBG 157E Ballygaurraun road over rail bridge	18.50	47.42	Single span, Precast reinforced concrete. Integral Bridge	M6	Railroad
NC-M06-010.00 R348 Ballygaurraun Underbridge	19.25	37.81	Single span, Precast reinforced concrete. Integral Bridge	M6	R348
NC-M06-011.00 Teagasc Underbridge (1)	5.60	43.30	Precast Concrete Box	M6	L7160
Road on Road Bridge	20	24.2	Single span, Precast reinforced concrete. Integral Bridge	Side Road	Prospect
OBG 157D	20.25	24.10	Single span, Precast reinforced concrete. Integral Bridge	Side Road	Railroad
DC-M17-005.00 Castlelambert Overbridge	23.064 / 23.491	10	Double span, Precast reinforced concrete. Integral Bridge	L3103	M17

2.3 Available Information

As-built drawings and previous principal inspection (PI) reports have been provided for the majority of the structures, refer to 8.Appendix C for as-built drawings.

3. Methodology

3.1 Structure Review

This phase of the project is compiled of two stages of analysis, the initial comparative analysis check followed by a bridge capacity check, if required.

Prior to undertaking the comparative analysis, A structural review of each structure was undertaken in accordance with TII publication AM-STR-06042-01. The structural review considered criteria such as assessment records, the validity of existing design and, changes in design and assessment standards, changes in condition of the structure from inspection reports (such as PIs) and changes to the required

operational capacity of the network, including abnormal vehicles, etc.. The structural review is a method to support decisions on whether a particular road structure is required to undergo an Assessment.

In the absence of explicit confirmation of design load capacity, the structural review considered the information available for each structure in order to make assumptions and decisions for the assessment. (see Section 2.3) The review considered the year of construction and the design standards applied at that time. Where an assumption has been made in regards to the structure's design load, a justification has been provided for the assumption, refer to Table 3 -1.

Table 3 -1 - Structure Design Load

Structure Name / ID	Design Load	Justification
GB-N06-008.00 Ballybrit Cycle-lane Underpass	Unknown	According to the previous PI, the structure was designed in 1996. It is assumed that structures were designed before 2012 that would have designed to DMRB BD 37/88 loading (HA + 45 HB) (which was superseded by BD 37/01). It is known that it is a common practice that National Road structures would generally have been designed to HA + 45HB at that time. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
GC-M06-001.00	Unknown	Insufficient information available to determine the design load of the existing structure. A conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
NC-M06-007.00	Unknown	According to the previous PI, the structure was designed in 2009. It is assumed that structures were designed before 2012 that would have designed to DMRB BD 37/88 loading (HA + 45 HB) (which was superseded by BD 37/01). It is known that it is a common practice that National Road structures would generally have been designed to HA + 45HB at that time. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
NC-M06-009.00 - OBG 157E	Unknown	According to the previous PI, the structure was designed in 2009. It is assumed that structures were designed before 2012 that would have designed to DMRB BD 37/88 loading (HA + 45 HB) (which was superseded by BD 37/01). It is known that it is a common practice that National Road structures would generally have been designed to HA + 45HB at that time. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
NC-M06-010.00	Unknown	According to the previous PI, the structure was designed in 2009. It is assumed that structures were designed before 2012 that would have designed to DMRB BD 37/88 loading (HA + 45 HB) (which was superseded by BD 37/01). It is known that it is a common practice that National Road structures would generally have been designed to HA + 45HB at that time. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
NC-M06-011.00	Unknown	According to the previous PI, the structure was designed in 2009. It is assumed that structures were designed before 2012 that would have designed to DMRB BD 37/88 loading (HA + 45 HB) (which was superseded by BD 37/01). It is known that it is a common practice that National Road structures would generally have been designed to HA + 45HB at that time. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.

Road on Road Bridge	Unknown	Insufficient information available to determine the design load of the existing structure. A conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
OBG 157D	Unknown	Insufficient information available to determine the design load of the existing structure. A conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment.
DC-M17-005.00	Unknown	According to the previous PI, the structure was designed in 2017. It is assumed that structures were designed after 2012 would have been designed in accordance to Eurocode design load. However, a conservative approach will be adopted and both British Standard and Eurocodes will be used during assessment. As this structure carries a local road, according to TII publications AM-STR-06030-4 and DN-STR-03020-01, loading for special vehicles SV100 for Eurocode and 30 HB for British Standard will be used in the assessment.

3.2 Analysis Methods

In order to prepare the assessment steps accordingly, collaboration with TII, Iarnród Éireann, relevant PPP provider (Motorway Operator), Galway County Council, and Galway City Council was undertaken to agree on the assessment standards for the structures.

As mentioned in Section 3.1, a comparative analysis will be undertaken followed by a bridge capacity check, if required. The aim of the comparative analysis is to confirm that the final abnormal load configuration does not exceed the design load specifications.

Where the exceptional abnormal vehicle load does not show any larger structural impact to the structures than the designed loading in accordance with TII publication document AM-STR- 06048 and AM-STR-06030, no further analysis steps will be required. In other words, no capacity assessment will be required to carry out. The Exceptional Abnormal Load Management Flow Chart and mentioned standards will guide the assessment process for the structures where the draft abnormal vehicle load is the critical case.

In the analyses, the HA & HB loading were applied in accordance with TII publication AM-STR-06030, including the HA load intensity as per Table 13 & Figure 10 of TII publication AM-STR-06030-04, loaded lengths, lane factors and the rules of application of the HB vehicle in combination with HA loading. Similarly, SV196/SV100 loading was applied in accordance with TII publication AM-STR-06048.

In the analyses, where BS applies in the model, HA loading is positioned in accordance with the Figure 13 of TII publication AM-STR-06030, where it combines with HB loading. Similar approach is also applied for models where Eurocode applies, i.e. IS EN 1991-2(2003).

For the EAL vehicle, the analysis was undertaken on the basis that the EAL vehicle will travel along the slow lane of the carriageway, directly adjacent to the kerb, where actual road layout is modelled. This allows to produce a conversative result and closest to the travel plan in reality. It is assumed that, there is no other loading is present on that carriageway of the bridge at the time of passage, where the bridge is a single carriageway. Where the structure carries a dual carriageway, with median along the centre of the road, it is assumed that HA loading where BS applies or LM1 loading where Eurocode applies is applied is present over lanes in the opposite direction as to the EAL vehicle travels. The analysis of the

bridges has compared the load effects under the actual loaded lane in the longitudinal direction when comparing the HA+HB loading / LM1+M3 loading against the EAL.

Longitudinal braking and traction forces have not been considered in the analyses, as the EAL vehicle will be controlled and escorted in accordance with Cl.3.35.4 of TII publication document AM-STR-06048-01. It has been communicated that the EAL vehicle will be escorted and travel at 10 mile/hour during the transfer of the equipment over the identified structures. The controlled speed allows to reduce the dynamic effect of the AEL to 1.0 as per TII publication AM-STR-06048-01 Annex B section B6.

Grillage models are used on all structures, except for arch bridge GB-N06-008.00, to compare the shear forces and bending moments exhibited by the proposed EAL vehicle. According to Section 7.4 in TII publication DN-STR-03020, for structures carry national or regional roads, the models compares these loads with that of the design loads from HA & 45-units of HB / LM1 and LM3-SV196. For structures that carry other roads, HA & 30-units of HB / LM1 and LM3-SV100 have been applied. This is agreed to be the most suitable way to compare the longitudinal bending moments and shear forces on each structure.

There are 3 no. types of structures that were analysed on this project, namely Arch Bridges, integral bridges and box culverts. Each type of structure was modelled with its own approach.

3.2.1 Integral Bridges

The initial comparative analysis begins by using the supplied as-built drawings and PI reports, a finite element analysis model was created using Midas Civil 3D 2023. There are some assumptions and decisions made when modelling the integral bridges:

- The structures are modelled as per as-built drawings provided.
- The models focused primarily on the superstructure, where foundations were not taken into consideration.
- The girder is modelled at a constant height with a constant sizing assumed across the entire structure, see Figure 3-1.
- Where information is not available, the concrete grade of precast beams is C60/75, and the concrete grade of all other concrete elements, such as infill material, is C40/50.
- The elastic modulus of steel is 205GPa and the density of concrete is 25KN/m3.
- The beams are assumed to span from ½ of the abutment seat to ½ of the abutment seat with fixed supports.
- The longitudinal precast beams are cracked for 15% of the entire length of the beams at each end.
- Torsional end releases were applied to all transverse members to eliminate the additional bending stiffness to the longitudinal members by the torsional rigidity of the transverse members.
- The models focused exclusively on the effects of vehicle loading. Tendons and superimposed loads—such as parapets and surfacing—were not included, as the primary objective was to compare the impact of vehicle loads between the standards in use at the time and the EAL. These elements were not required for this study and were excluded to reduce the complexity of the models.
- Due to the uncertainty of the construction date of various structures, a minimum of 2 models were created for each structure, one using the Eurocode (EC) and another using the British Standards (BS). Each structure was loaded by HA, HB 45 (or HB 30), combination of HA&HB and SV196 vehicles (or SV100 vehicles) as defined within Midas. The notified vehicles as discussed above were applied in various cases, refer to Section 3.3.3.

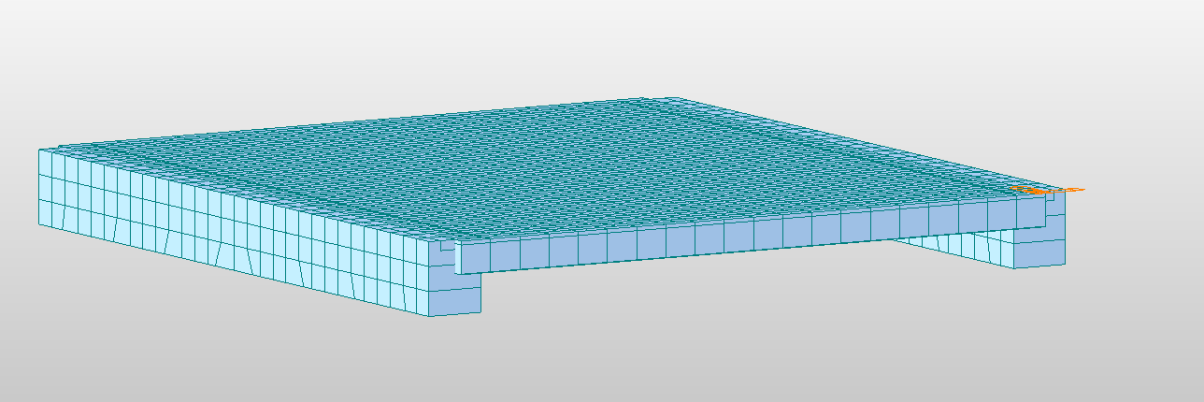


Figure 3-1 - Example in 3D view of grillage model

3.2.2 Box Culverts

There were also 2 no. of buried box culverts. These structures were also modelled in Midas Civil 3D 2023. Although, unlike the grillage models the structures were modelled as 1m width section in 2D line form. The culverts were considered as a rectangular frame with boundary conditions considered at the top corners and bottom slab, see Figure 3-2 as an example. The angle of friction, φ, was considered as 30 for the soil above the structure, as per PD 6694-1_2011+A1 2020 section 10.2.7. A typical spread of a series of axles through fill material overlaying a culvert is provided in Figure 3-3.

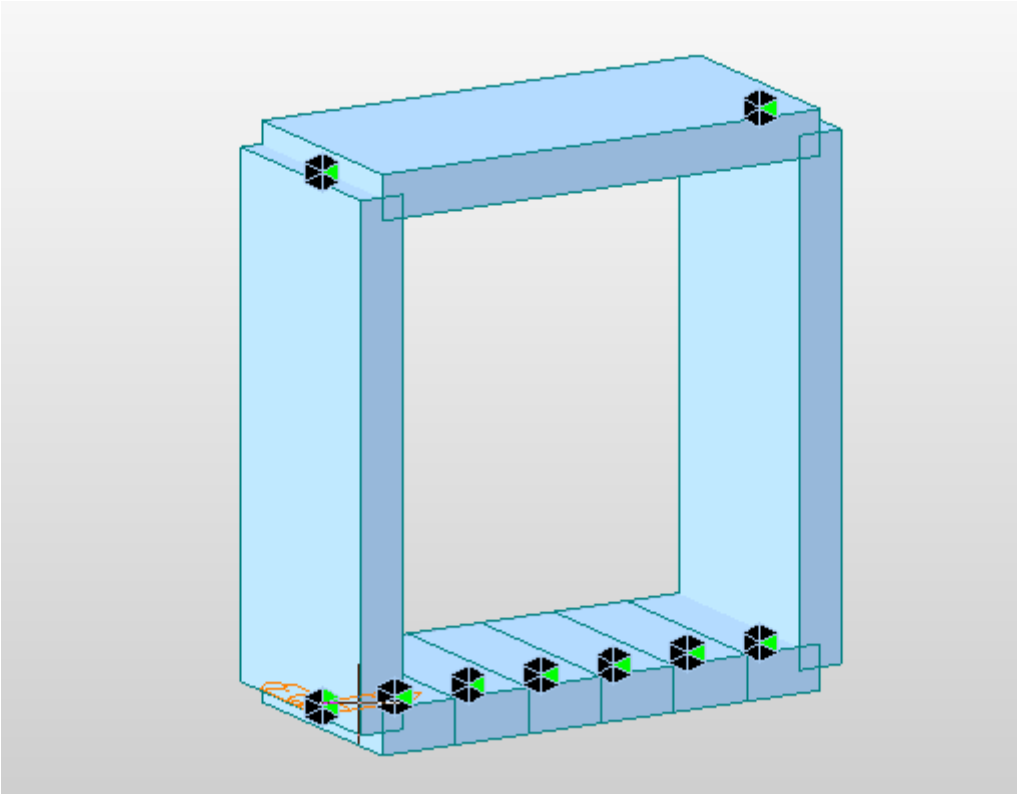


Figure 3-2 - Example of a Culvert model and Boundary Conditions

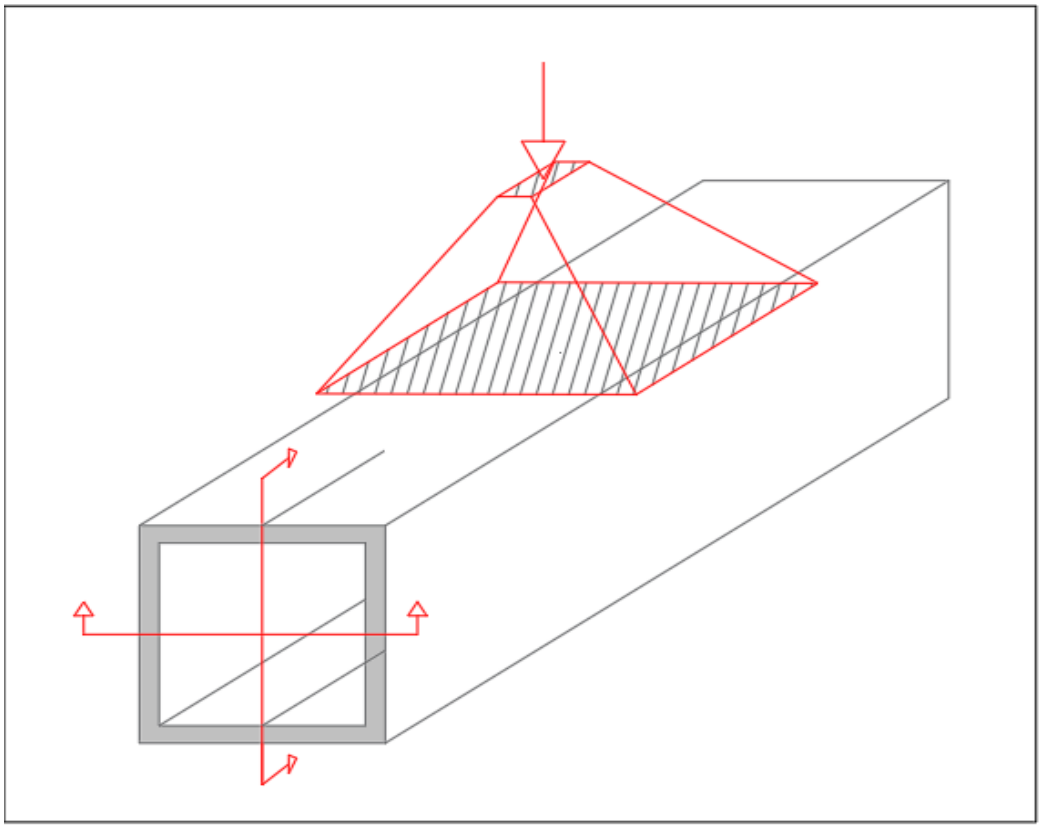


Figure 3-3 - Dispersal of the load over the culvert through the fill in both longitudinal and transverse direction

In the case of the 2D model the loading was considered in the static case. The abnormal vehicle loading, SV196, LM1, 45 HB, UDL, HA & UDL, and HA & EAL were considered. Figure 3-4 to Figure 3-6 highlight the sample equations and layouts used to calculate each of these loads.

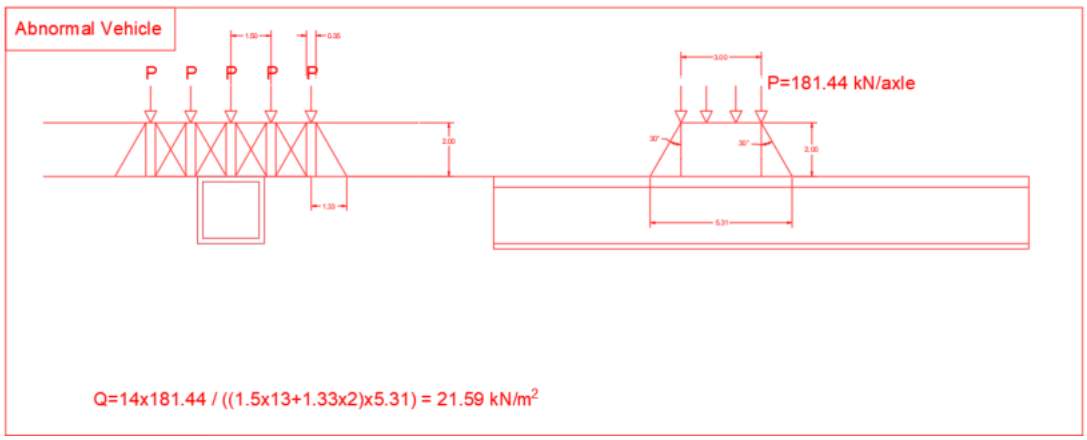


Figure 3-4 – 2.1m x 2.1m Box Culvert Abnormal Vehicle Loading Layout

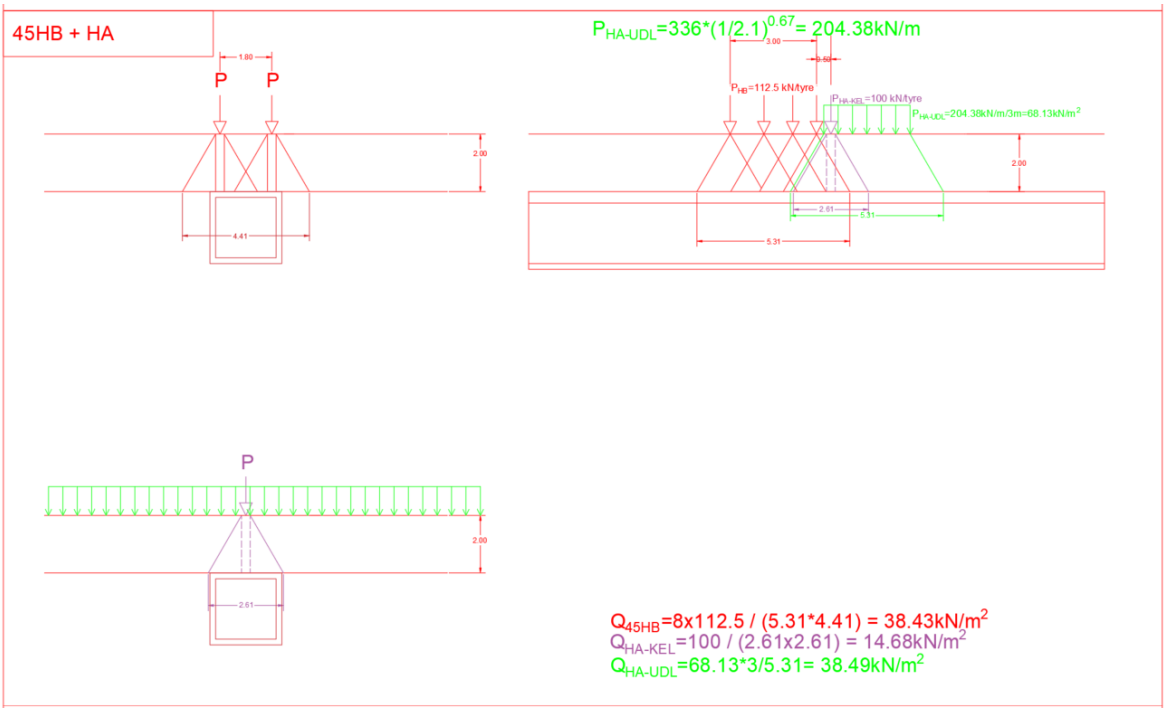


Figure 3-5 - 2.1m x 2.1m Box Culvert British Standard Loading Layout

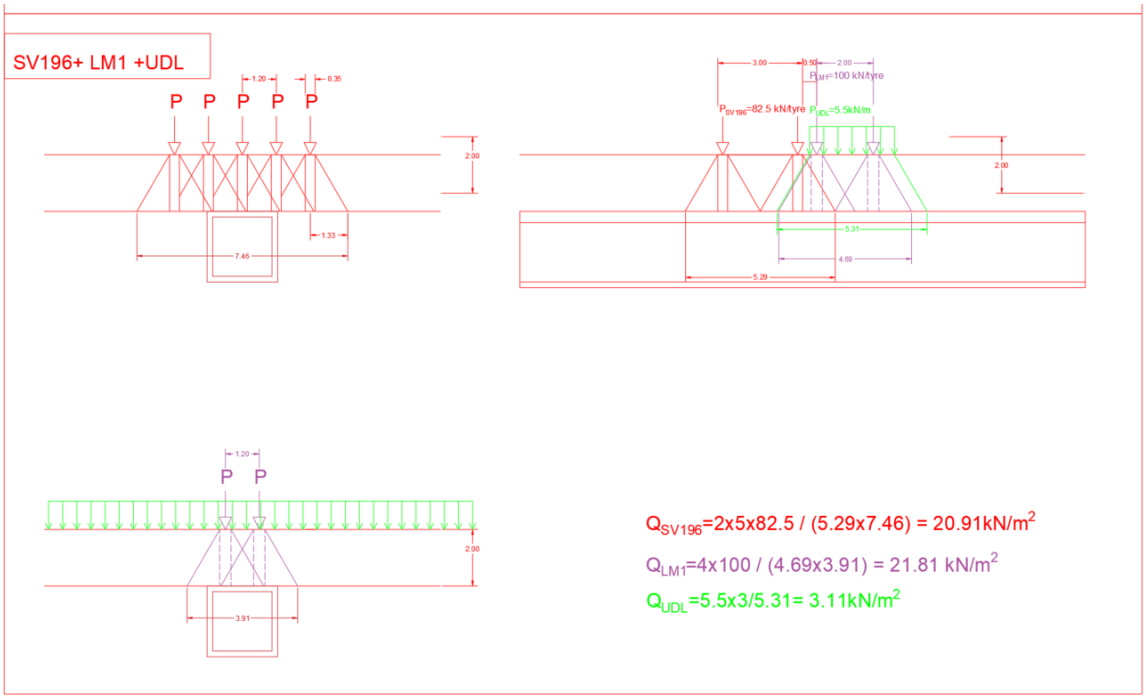


Figure 3-6 - 2.1m x 2.1m Box Culvert Eurocode Loading Layout

3.2.3 Arch Bridge

Structure GB-N06-008.00 is an arch structure with an opening of horseshoe shape. This structure is modelled in software ArchieM using the same load applying on other structures. Refer to Figure 3-7 for an example of load application and results shown on software ArchieM. Detailed assumptions and results are shown in 8.Appendix E.

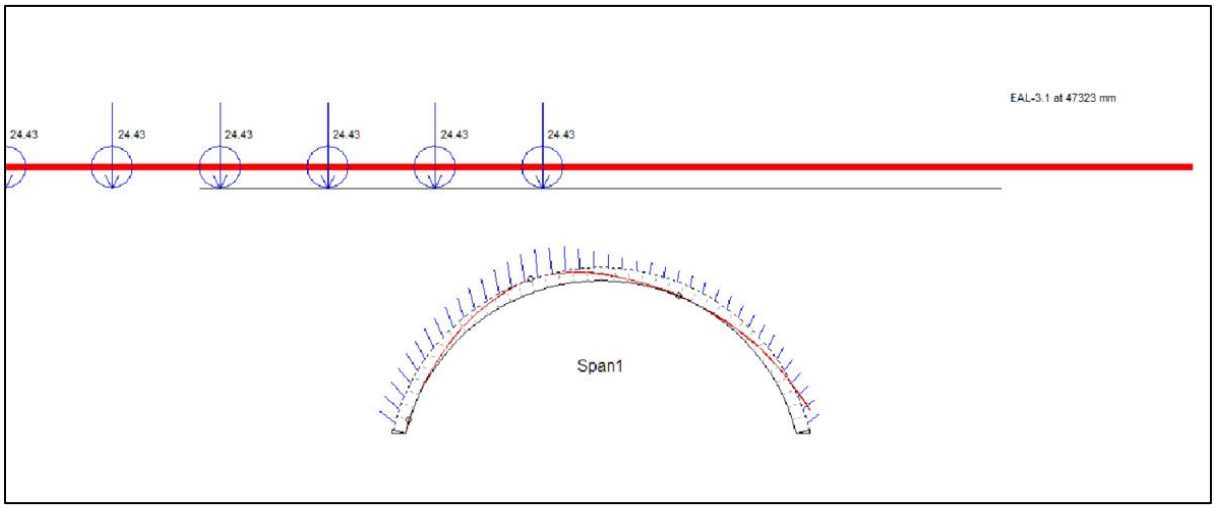


Figure 3-7 - Example of an arch bridge model on software ArchieM

3.3 Modelling

Throughout the modelling process on software MidasCivil certain elements required changes and assumptions in order to aid the structure. The two main elements within the integral bridges that had adaption were and the primary beams/ longitudinal members and the transverse members.

3.3.1 Longitudinal Members

Where cracking is expected to have been taken into consideration during design. It was assumed that 15% of the entire length of primary beams were cracked at both ends of the structure based on engineering knowledge. In order to model this, the properties needed to be calculated with the assumption of fill material above beams are cracked. Sections for a cracked members (i.e. no cover of fill material) were created using AutoCAD and the properties were calculated using function Section Property Calculator in Midas, refer to Figure 3-8.These properties were then applied to the Iyy of cracked sections with the correct sizing.

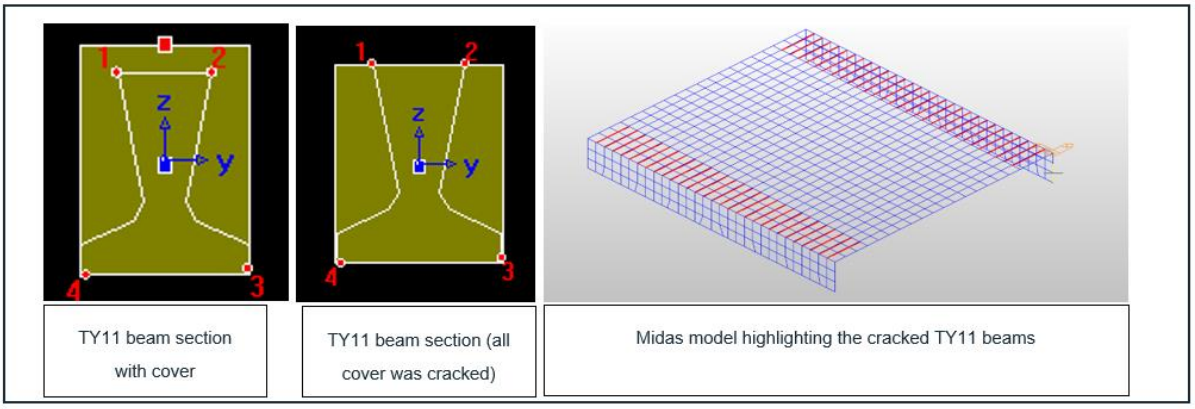


Figure 3-8 - Assortment of Figures- Cracked Section Examples

3.3.2 Transverse Members

As mentioned in Section 0, grillage models were used in integral bridge models. In order to model the effect of the strands/reinforcement on the structure, the height of rectangular transverse members are modified in Midas Civil.

The transverse members were modelled based on the as-built drawings provided. For integral bridges, where reinforcement or prestressing tendons ran transversely through preformed holes, their effects were also incorporated into the model.

The concept of the calculation is to let the moment of inertia of a beam with transverse reinforcement / strands equal to the imaged rectangular members with a desired spacing applied in the models. For instance, value h in Figure 3-9, as equivalent to value $d_{eff,b}$ in Figure 3-10, was input into equation in Figure 3-11.

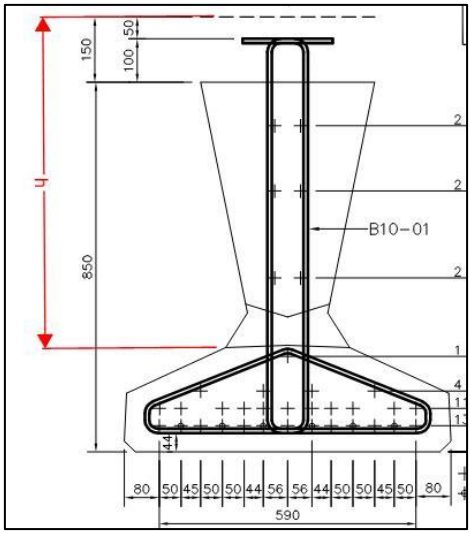


Figure 3-9 – Height between Top of fill material and underside of transverse reinforcement/strands

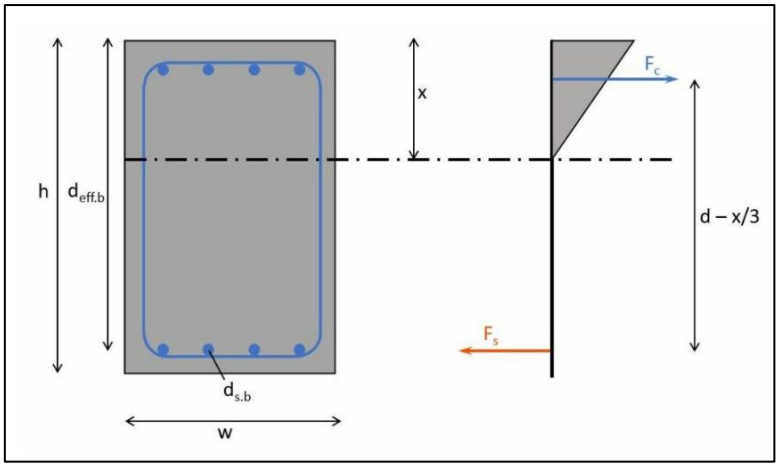


Figure 3-10 - Example Layout of a Concrete Section

Define the geometrical and material properties of the reinforced concrete section (Longitudinal reinforcement at bottom $d_{s.b}$ and top $d_{s.t}$, effective height of the reinforcement d_{eff}, E-moduli of steel E_s and concrete $E_{c.eff}$, cross-sectional dimensions h and b, etc.)
Ratio between moduli:

$$\alpha = \frac{E_s}{E_{c.eff}}$$

Height of the compression area:

$$x = \frac{\alpha \cdot A_{s.b}}{w} \cdot \left(-1 + \sqrt{1 + \frac{2 \cdot w \cdot d_{eff.b}}{\alpha \cdot A_{s.b}}}\right)$$

Moment of inertia (cracked section)

$$I_a = \frac{w \cdot x^3}{3} + \alpha \cdot A_{s.t} \cdot (d_{eff.b} - x)^2$$

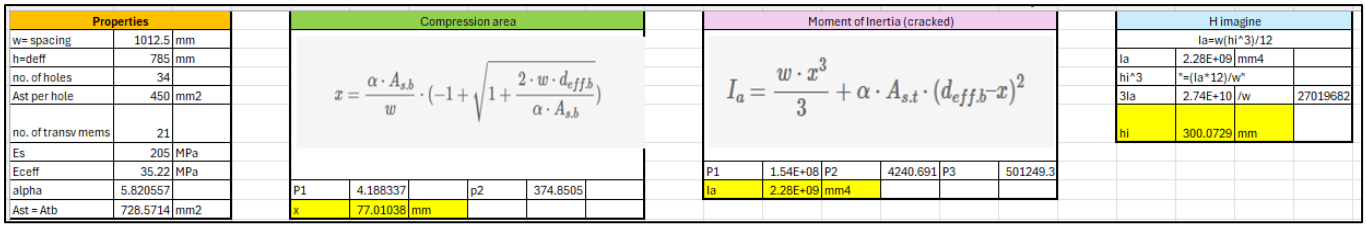
Figure 3-11 - Equations for the moment of inertia

$$Ia = \frac{w \cdot h_{imagine}{}^3}{12}$$

Figure 3-12 - Equation of Moment of Inertia for Cracked Section

Using equations shown in Figure 3-11 and Figure 3-12, where moment of inertia of the reinforced members already calculated, $h_{imagine}$ can be calculated and used within the model, refer to Figure 3-13

for an example. This ensures that the properties within the model are correct. The function of beam end release in MidasCivil has been applied to eliminate the impact of torsion from the transverse members.



Properties		
w= spacing	1012.5	mm
h=deff	785	mm
no. of holes	34	
Ast per hole	450	mm2
no. of transv mems	21	
Es	205	MPa
Eceff	35.22	MPa
alpha	5.820557	
Ast = Atb	728.5714	mm2

Compression area

$$x = \frac{\alpha \cdot A_{s,b}}{w} \cdot \left(-1 + \sqrt{1 + \frac{2 \cdot w \cdot d_{eff,b}}{\alpha \cdot A_{s,b}}}\right)$$

P1	4.188337		p2	374.8505	
x	77.01038	mm			

Moment of Inertia (cracked)

$$I_a = \frac{w \cdot x^3}{3} + \alpha \cdot A_{s.t} \cdot (d_{eff,b} - x)^2$$

P1	1.54E+08	P2	4240.691	P3	501249.3
Ia	2.28E+09	mm4			

H imagine

Ia=w(hi^3)/12			
Ia	2.28E+09	mm4	
hi^3	"=(Ia*12)/w"		
3Ia	2.74E+10	/w	27019682
hi	300.0729	mm	

Figure 3-13 - Example Calculations for $h_{imagine}$

3.3.3 Notified Vehicle and loads

3.3.3.1 HA and HB

The HA and HB loading were designed in accordance with TII publication AM-STR-06030. Both vehicle were considered separable and as a combination case.

The HA loading represents everyday traffic and was loaded to all notional lanes.

HB loading represents the vehicular loads for the abnormal load situation and was loaded as different cases on each lane, refer to Figure 3-14 for requirement of loading arrangement. It was decided that a HB vehicle of 45 units would be considered on all structures that carry national and regional roads. For structures that carry other roads, HB vehicle of 30 units would be considered.

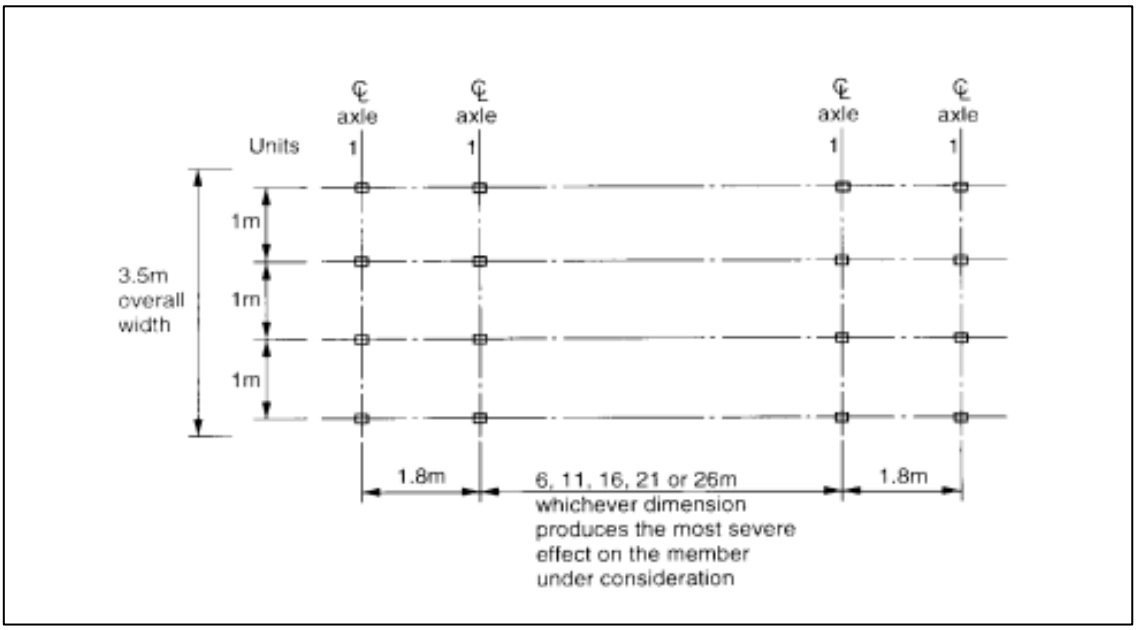


Figure 3-14 - Dimensions of HB vehicles (Figure 12 in TII publication AM-STR-06030)

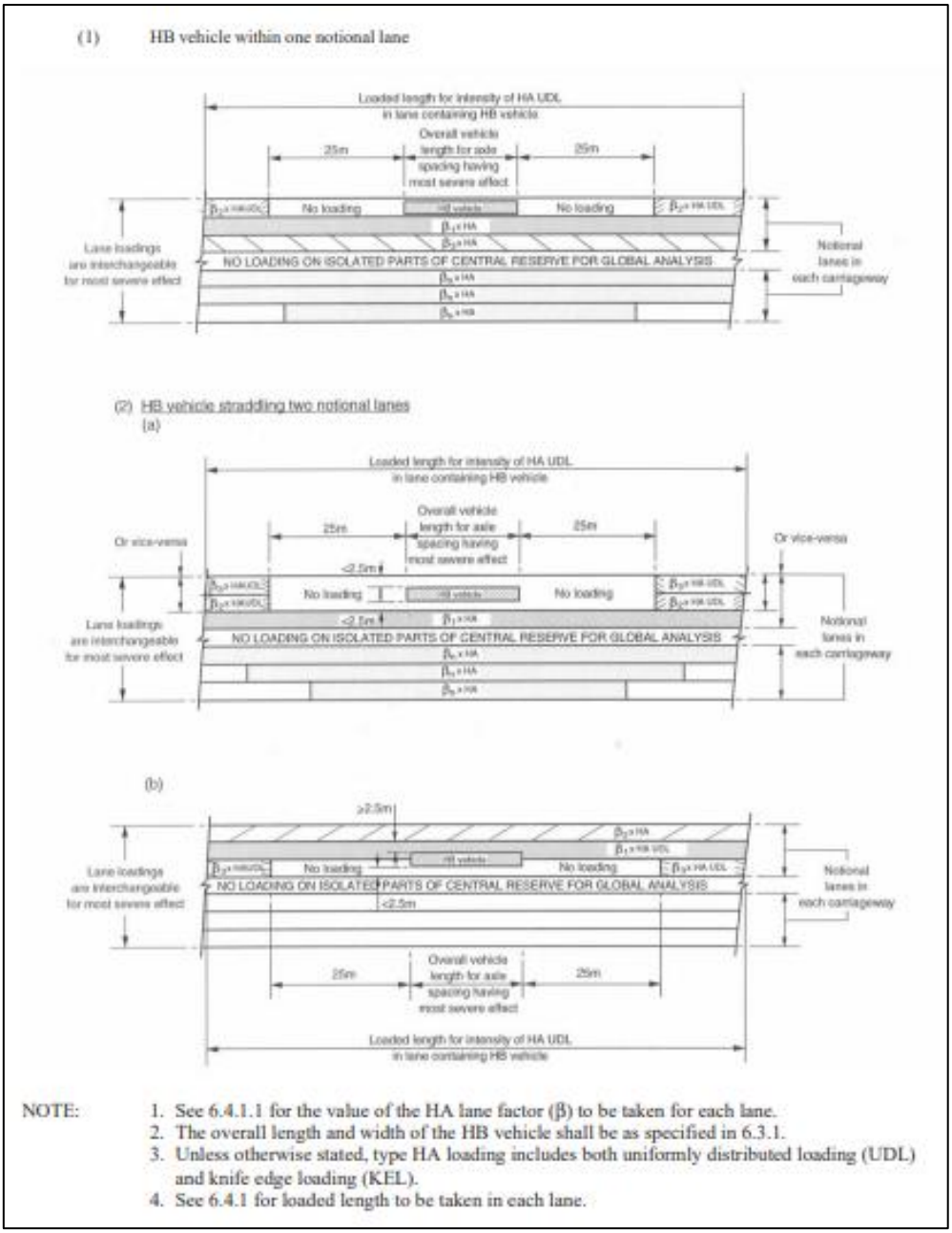


Figure 3-15 - HB vehicles and notional lanes

3.3.3.2 SV vehicles

The SV (Special Vehicle) loading was applied as specified in TII documentation (AM-STR-06048) and IS EN 1991-2(2003).

3.3.3.2.1 SV196

It was decided that an SV196 was the most suitable vehicle with the greatest load to create the most critical case, refer to Figure 3-16 for details. The SV196 falls under Load Model (LM) 3 within the Eurocode. The load was applied with LM1, refer to Figure 3-17 for factors used within modelling in MidasCivil.

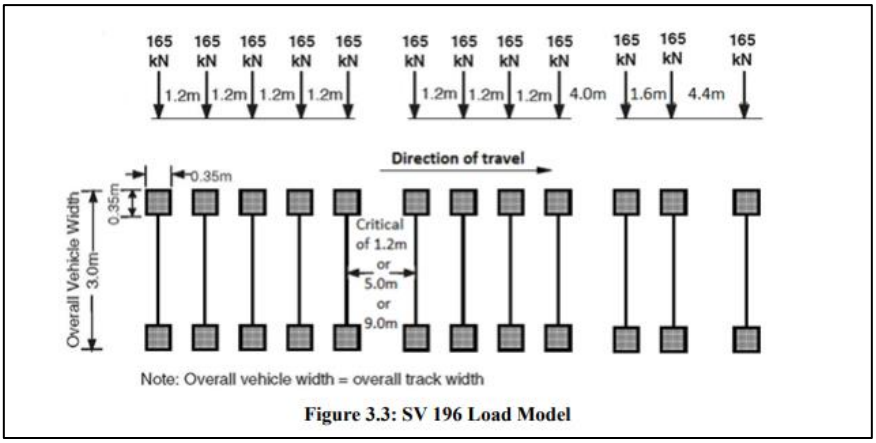
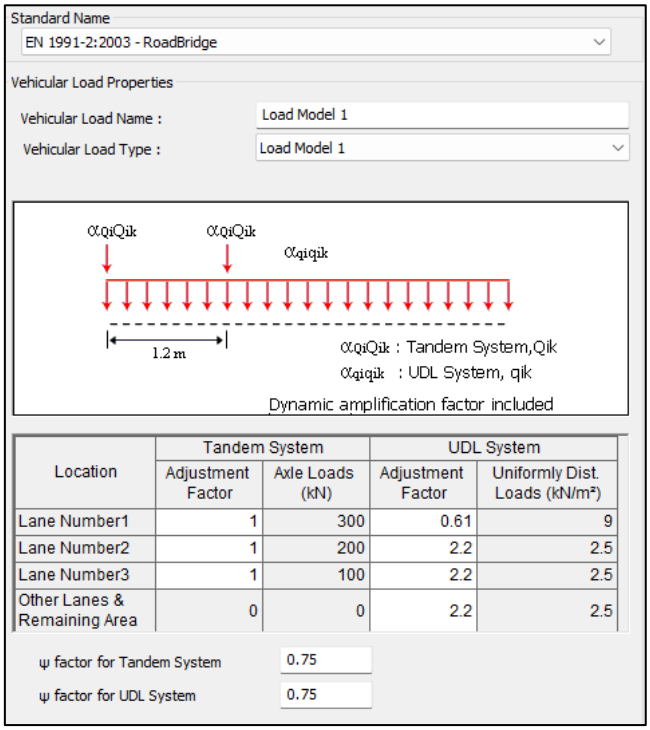


Figure 3.3: SV 196 Load Model

Figure 3-16 - SV196 General Arrangement



Location	Tandem System		UDL System	
	Adjustment Factor	Axle Loads (kN)	Adjustment Factor	Uniformly Dist. Loads (kN/m²)
Lane Number1	1	300	0.61	9
Lane Number2	1	200	2.2	2.5
Lane Number3	1	100	2.2	2.5
Other Lanes & Remaining Area	0	0	2.2	2.5

Figure 3-17 - Load Model 1 factors

3.3.3.2.2 SV100

According to Section 7.4 in TII publication DN-STR-03020, where a structure carries a road that is neither a national road nor a regional road, SV100 model should be used in the design. Refer to Figure 3-18 for details SV100 still falls under Load Model (LM) 3 within the Eurocode. The load was applied with LM1, refer to Figure 3-17 for factors used within modelling in MidasCivil.

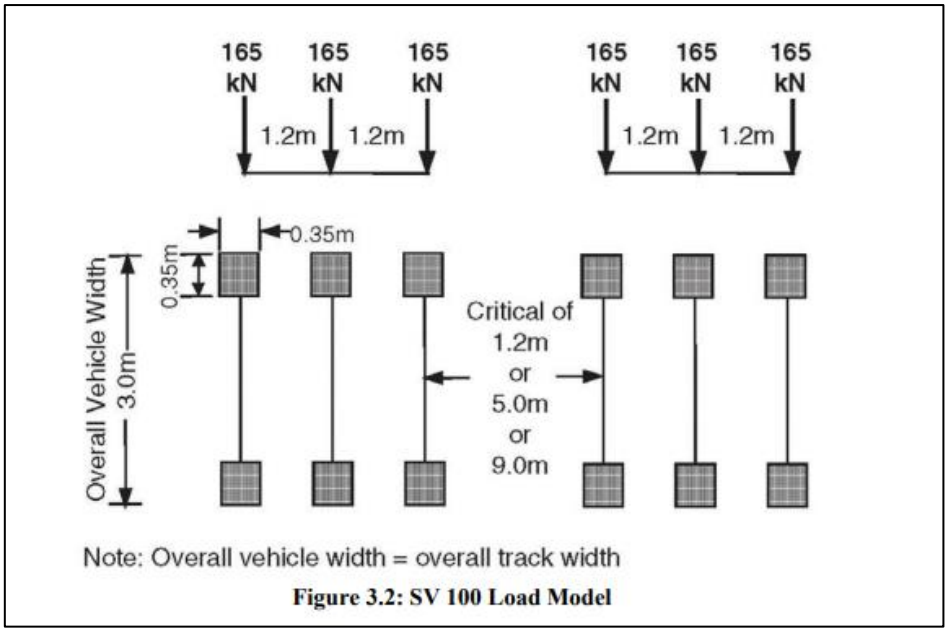


Figure 3-18 - SV100 General Arrangement

3.3.3.3 Permit Truck 1

The draft arrangement of permit truck 1 was agreed with two loading scenarios (300 tonnes and 350 tonnes), see Table 3-2 for more details. Using 350 tonnes, named as Option 2 in this analysis, loading scenario would produce a more conservative approach. All structures were modelled with Option 2 and this was modelled as Permit Truck 1 in MidasCivil. This configuration provides 14 axles under for each trailer. As shown in Figure 3-21, EAL is modelled with 2 no. trucks and 2 no. trailers for each equipment. Permit truck 1 was modelled with 14 axles as shown in Figure 3-21.

As the permit truck configuration has not yet been finalized, 6 no. additional potential load and trailer combinations were considered in the analysis, see Figure 3-19 and Figure 3-20. These are also described in Section 3.3.3.6.

Table 3-2 – Permit Truck 1 Load Details

	Option 1(tonnes)- 300 tonne Turbine	**Option 2 (tonnes)- 350 tonne Generator**
Turbine Weight	300	350
Trailer Weight	168	168
Gross Trailer Weight	468	518
Load for 14 axle trailer (single bogie)	234	259
Load per axle	16.715	18.5

GKT FAKTOR 5.0 GIRDER FRAME			
No Axles Per Trailer	14.0 Tn	15.0 Tn	16.0 Tn
Cargo	350.0 Tn	350.0 Tn	350.0 Tn
Trailer			
No. Of Axles	28 nr.	30 nr.	32 nr.
Weight per axle	3.5 Tn	3.5 Tn	3.5 Tn
Total Axle weight	98.0 Tn	105.0 Tn	112.0 Tn
Girder Frame	105.0 Tn	105.0 Tn	105.0 Tn
Ancillary Steel	5.0 Tn	5.0 Tn	5.0 Tn
	208.0 Tn	215.0 Tn	222.0 Tn
Total	558.0 Tn	565.0 Tn	572.0 Tn

Figure 3-19 - Load and trailer combinations 1- With Gkt Faktor 5.0 Girder Frame

GKT FAKTOR 5.5 GIRDER FRAME			
	14.0 Tn	15.0 Tn	16.0 Tn
Cargo	350.0 Tn	350.0 Tn	350.0 Tn
Trailer			
No. Of Axles	28 nr.	30 nr.	32 nr.
Weight per axle	3.5 Tn	3.5 Tn	3.5 Tn
Total Axle weight	98.0 Tn	105.0 Tn	112.0 Tn
Girder Frame	70.0 Tn	70.0 Tn	70.0 Tn
Ancillary Steel	5.0 Tn	5.0 Tn	5.0 Tn
	173.0 Tn	180.0 Tn	187.0 Tn
Total	523.0 Tn	530.0 Tn	537.0 Tn

Figure 3-20 - Load and trailer combinations 2- With Gkt Faktor 5.5 Girder Frame

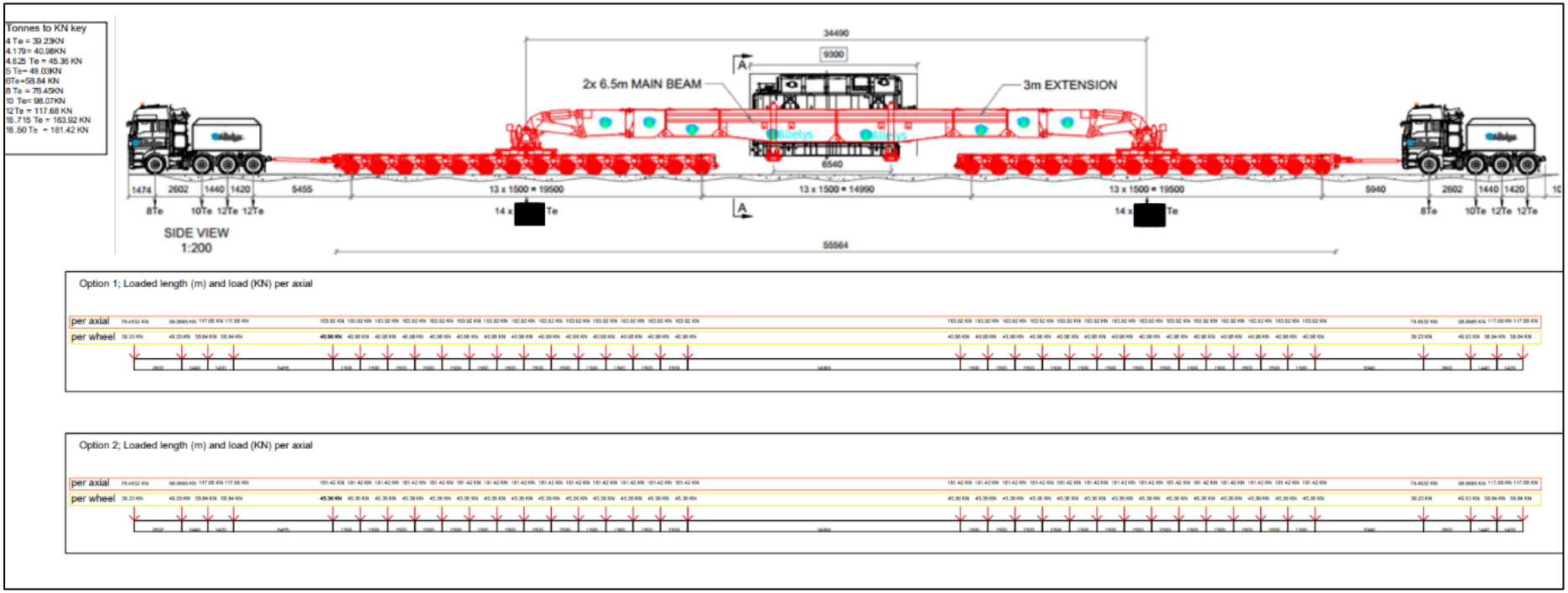


Figure 3-21 - General arranagement for Permit Truck 1 and 2

3.3.3.4 Permit Truck 1

As a conservative approach, an additional permit truck with 15 no. axles has been included in the models.

3.3.3.5 Permit Truck 2

As a conservative approach, similarly, an additional permit truck with 16 no. axles has been included in the models.

3.3.3.6 Girder Frame

There are 2 other options of girder frames, in addition to the initial proposed option, that could be selected for the trailer, namely Gkt Faktor 5.0 Girder Frame (105 tonne) and Gkt Faktor 5.5 Girder Frame (70 tonne). Due to the uncertainty of the selection of the girder frame for the passage, both types of girder frames have been applied with all 14, 15 and 16 axles trailers when modelling the load effects.

3.3.4 Load factors

The analysis compares factored load effects in accordance with TII publication AM STR-06048 and AM-STR-06030-04.

For HA+HB loading, the relevant partial factor is 1.1 as per Clas 6.3.4 in TII publication AM-STR-06030-04 for serviceability limit state (SLS). This partial factor does not include for overloading and dynamic amplification factor, as there is no uncertainty anticipated in the analysis.

For SV & SOV loading, the relevant partial factor is 0.75 as per I.S. EN 1990:2002+NA:2010 - Eurocode 0: Basis of structural design (Including Irish National Annex).

Where EAL applies in the models, the relevant partial factor is 1.0.

Table 3-3 and Table 3-4 summarize the partial factors applied in the models where Eurocode or British Standards apply.

Table 3-3 - Partial factor applied in Eurocode models

Eurocode	**LM1**	**LM3 – SV196 / SV100**
Factor	**0.75**	**1**
	LM1	**EAL**
	0.75	**1**

Table 3-4 - Partial factor applied in British Standards models

British Standards	HA	HB
Factor	1.1	1.1
	HA	EAL
	1.1	1

4. Overview

4.1 GB-N06-008.00- Ballybrit Cycle-lane Underpass

4.1.1 General Description

Ballybrit Cycle-lane Underpass, as shown Figure 4-1, is located Northeast of Galway City. The structure was constructed over the foot/cycle way, while the surface is utilised by the N6/M6. It is a single span precast concrete arch bridge, that was constructed in 1996. The structure carries a motorway, M6, over a foot/cycle way. The M6/N6 spans from Galway City to Kinnegad, Co. Westmeath, while interchanging between motorway and national road. See Figure 4-2.

There are 4 no. of eastbound lanes (to Kinnegad) and 2 no. of westbound lanes (to Galway) above the structure. The east carriageway is compiled of 2 primary lanes and 2 turning lanes. A grass median separates the 2 west lanes from the eastbound lanes.

Based on the latest inspection report produced in 2022, the structure was in good overall condition. There were minor defects evident that required routine maintenance. No structural defects were evident to the primary critical load bearing elements.

No As-Built drawings were available for GB-N0-008.00, therefore a site visit took place to record measurements of the structure and confirm the condition of the structure. See Figure 4-3.

Figure 4-1 - Elevation of GB-N06-008.00

Figure 4-2 Road layout for GB-N06-008.00

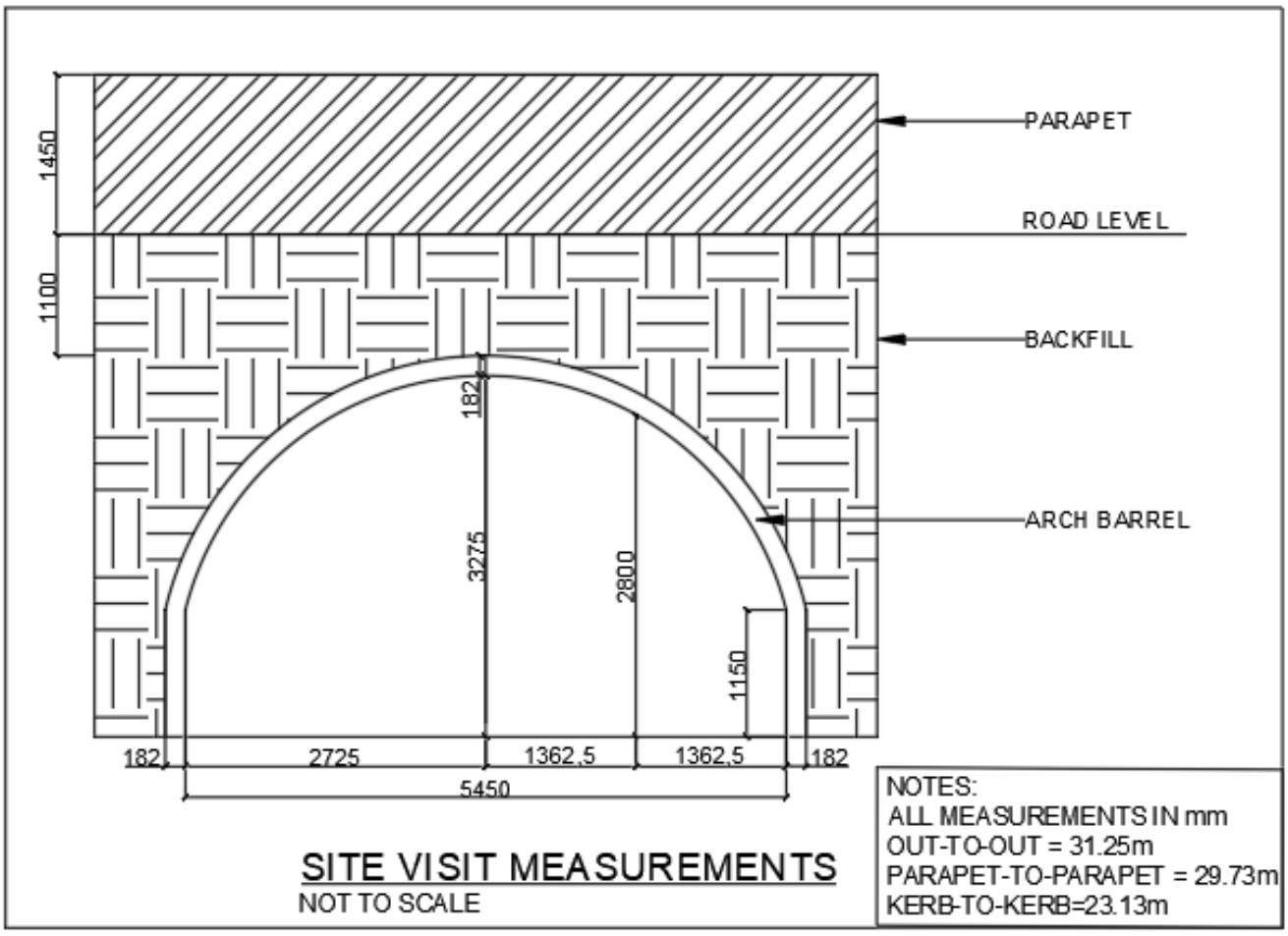


Figure 4-3 - Arch Measurements for GB-N06-008.00

4.1.2 Modelling Decisions/Assumptions

Assumptions made during modelling can be found in Section 8.Appendix E.

4.2 GC-M06-001.00 Garraun Road Underbridge

4.2.1 General Description

Garraun Road Underbridge, as shown Figure 4-4, is located in County Galway, south of Galway Airport. The structure was constructed over the Garraun North road, while the surface is utilised by the N6/M6. It is a single span integral bridge, where the date of construction is unknown. The structure carries a motorway, M6, over a local road, L7106/Garraun North. The M6/N6 spans from Galway City to Kinnegad, Co. Westmeath, while interchanging between motorway and national road.

There are 3 no. of eastbound lanes (to Kinnegad) and 3 no. of westbound lanes (to Galway) above the structure. The carriageways are compiled of 2 primary lanes and a hard shoulder each way, and a concrete median between. The deck was constructed with TY7 precast beams and concrete infill between them. Refer to Figure 4-5 and Figure 4-7 for overview of the structure.

Based on the latest inspection report produced in 2024, the structure was in good overall condition. There were minor defects evident that required routine maintenance. No structural defects were evident to the primary critical load bearing elements. There was a displaced coping stone to the northeast wing wall, although the wing walls are not taken into consideration during the modelling process.

Figure 4-4 - Elevation of GC-M06-001.00

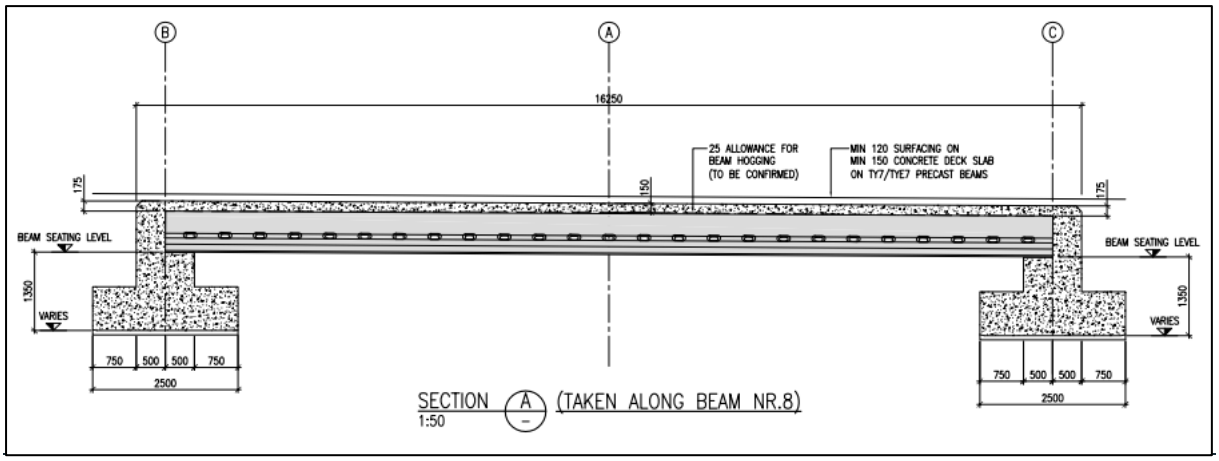


Figure 4-5 - Typical Longitudinal Cross Section of GC-M06-001.00

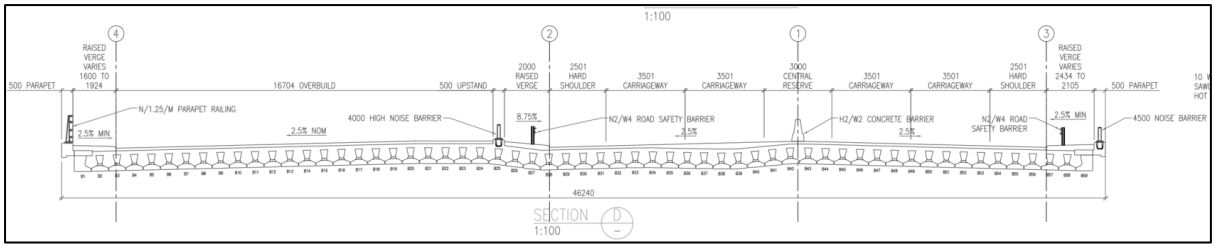


Figure 4-6 - Typical Cross Section of GC-M06-001.00

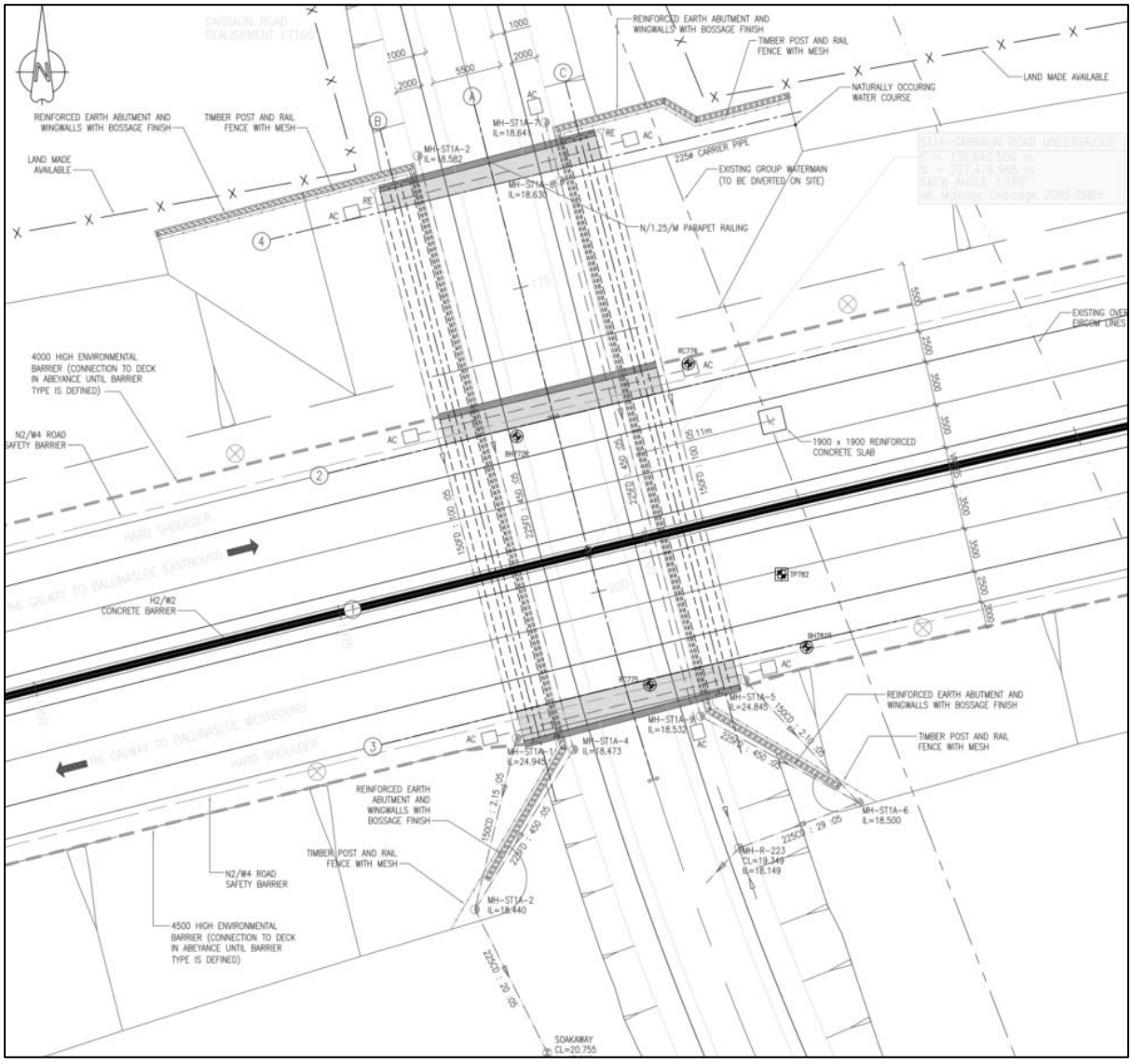


Figure 4-7 - Road Layout of GC-M06-001.00

4.2.2 Modelling Decisions/Assumptions

The following assumptions have been made during modelling, in addition to the general assumptions illustrated in Section 3.2.1;

- The bearing is at the centre of the abutment, span = 15.25m

- The kerb to kerb distance of 9.5m is constant throughout the structure at either side of the median.

4.3 NC-M06-007.00 Bat Underpass 1

4.3.1 General Description

Bat Underpass 1, as shown in Figure 4-8, is located in County Galway, North of Ballygarraun West. The structure was constructed over an unknown river, while the surface is utilised by the M6. The structure is a single span box culvert with an unknown date of construction. The structure is an underbridge which carries a motorway, M6, over an unknown watercourse. The secondary function of the structure is a bat underpass.

The M6/N6 spans from Galway City to Kinnegad, Co. Westmeath, while interchanging between motorway and national road. There are 3 no. of eastbound lanes (to Kinnegad) and 3 no. of westbound lanes (to Galway) above the structure. The carriageways are compiled of 2 primary lanes and a hard shoulder each way, and a concrete median between. Refer to Figure 4-9 to Figure 4-11 for overview of the structure.

Based on the previous inspection report produced in 2022, the structure was in good overall condition. The inspection was not full completed due to heavy vegetation. The condition of substructure is unknown.

Figure 4-8 - Elevation of NC-M06-007.00

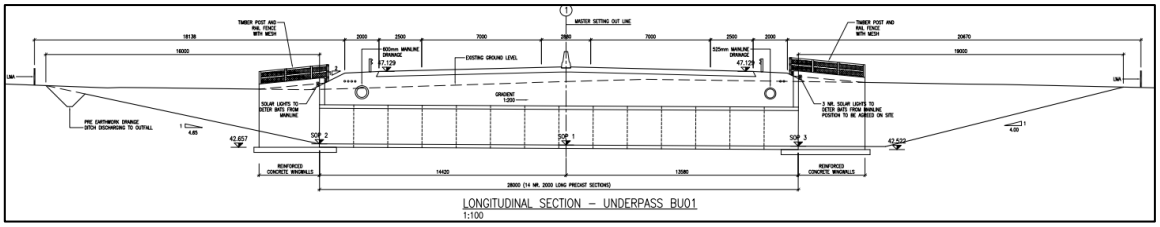


Figure 4-9 - As-Built longitudinal Section for NC-M06-007.00

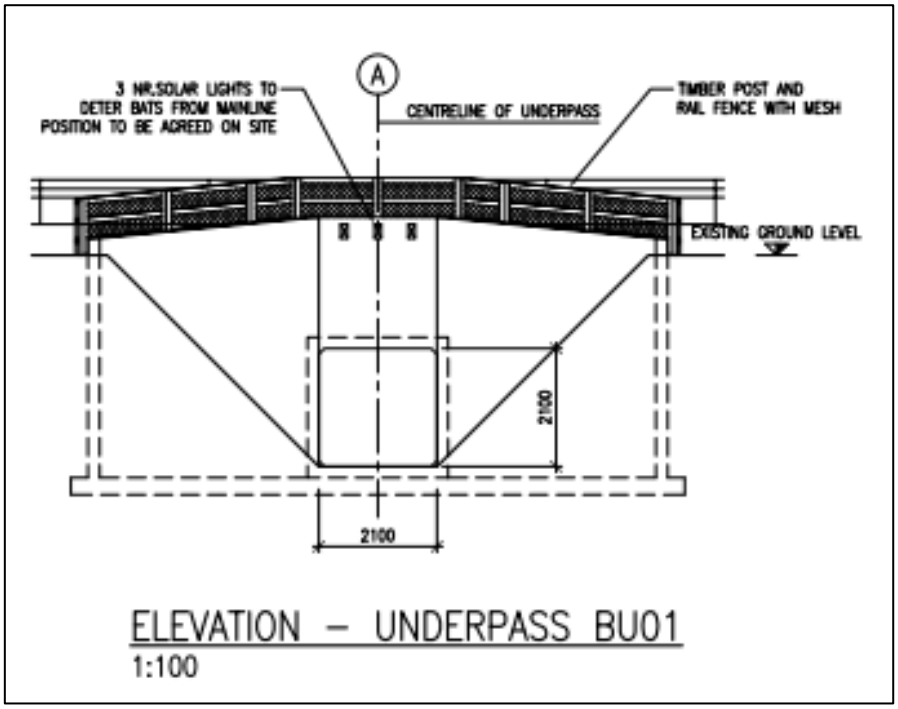


Figure 4-10 - As-Built Elevation for NC-M06-007.00

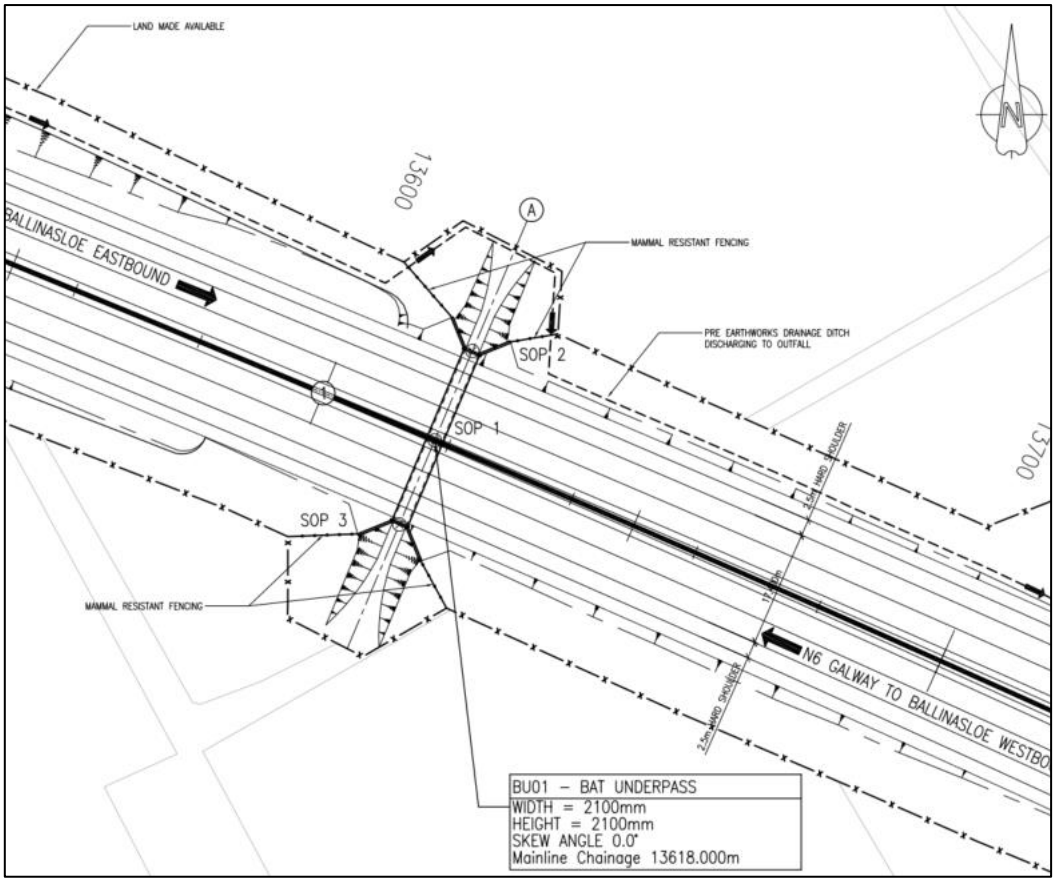


Figure 4-11 – Road Layout of NC-M06-007.00

4.3.2 Modelling Decisions/Assumptions

Refer to Section 3.2.

4.4 NC-M06-009.00 - OBG 157E Ballygaurraun road over rail bridge

4.4.1 General Description

Ballygaurraun road over rail bridge, as shown in Figure 4-12, is in County Galway, northeast of the town of Ballygarruan West. The date of construction is unknown. The surface is utilised by the M6. The structure is a single square span integral bridge, with a deck compiled of precast beams with concrete infill. The structure is an underbridge which functions as a motorway, M6, over a Iarnród Éireann railway, the section that spans between Athenry and Oranmore.

There are 3 no. of eastbound lanes (to Kinnegad) and 3 no. of westbound lanes (to Galway) above the structure. The carriageways are compiled of 2 primary lanes and a hard shoulder each way, and a concrete median between. The deck was constructed with TY9 precast beams and concrete infill between them. Refer to Figure 4-13 and Figure 4-15 for overview of the structure.

Based on the latest inspection report produced in 2022, the condition of the structure was determined. The structure was in good overall condition. There was minor vegetation and graffiti evident that required removal. No structural defects were evident to the primary critical load bearing elements.

Figure 4-12 - Elevation of NC-M06-009.00

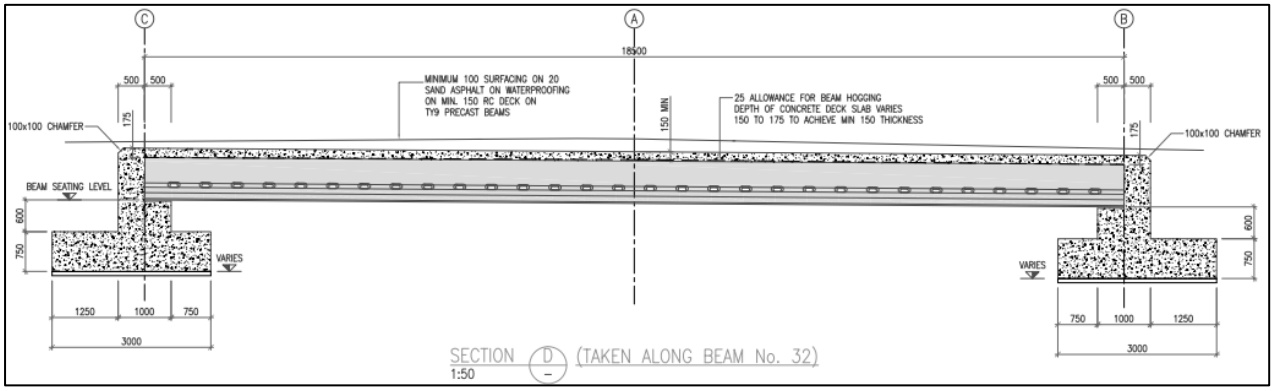


Figure 4-13 - As-Built Longitudinal Section for NC-M06-009.00

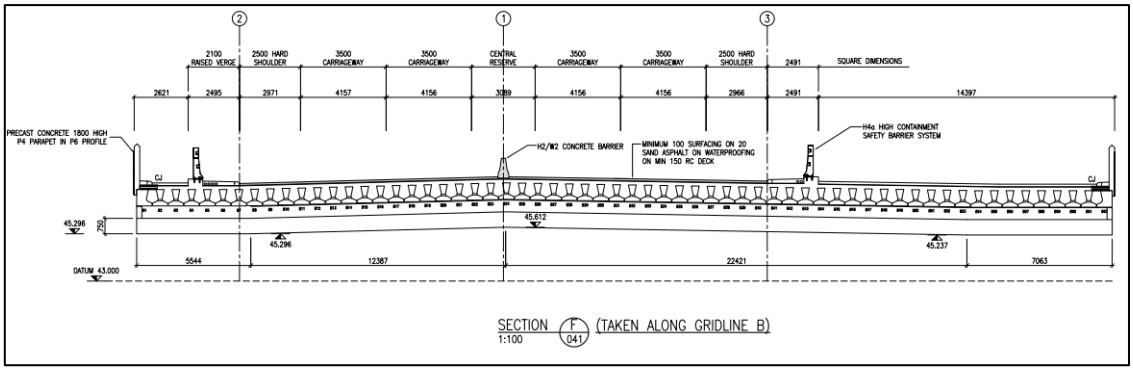


Figure 4-14 - As-Built Cross Section for NC-M06-009.00

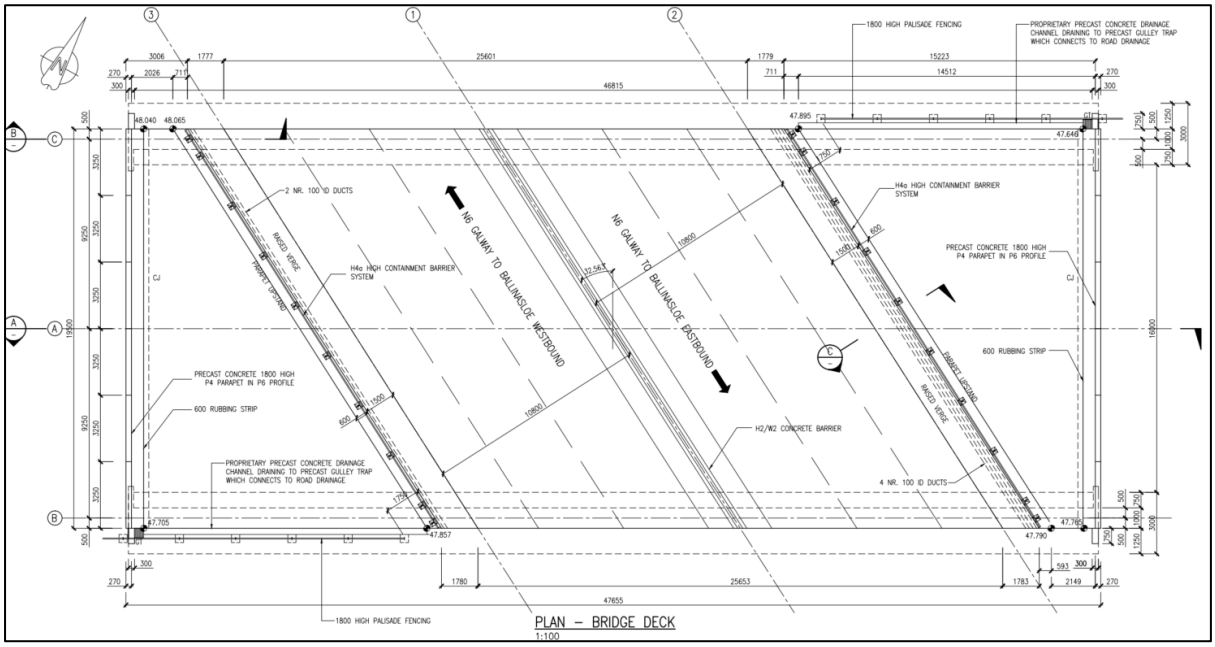


Figure 4-15 - Road Layout of NC-M06-009.00

4.4.2 Modelling Decisions/Assumptions

The general assumptions illustrated in Section 3.2.1 have been made during modelling.

4.5 NC-M06-010.00 R348 Ballygaurraun Underbridge

4.5.1 General Description

R348 Ballygaurraun Underbridge, as shown in Figure 4-16, is located in County Galway, south of Ballygarruan South. The structure was constructed over the R348, while the surface is utilised by the M6. The structure is a single span integral bridge, the date of construction is unknown. The structure carries a motorway, M6, over a regional road, R348. The M6/N6 spans from Galway City to Kinnegad, Co. Westmeath, while interchanging between motorway and national road.

There are 3 no. of eastbound lanes (to Kinnegad) and 3 no. of westbound lanes (to Galway) above the structure. The carriageways are compiled of 2 primary lanes and a hard shoulder each way, and a concrete median along the centre of the structure. There are also overbuilds at both elevations. The deck was constructed with TY10 precast beams and concrete infill between them. Refer to Figure 4-17 and Figure 4-19 for overview of the structure.

Based on the latest inspection report produced in 2022, the condition of the structure was good overall, apart from the north safety barrier. The safety barrier was be ignored within the modelling process, therefore causes no concern. No structural defects were evident to the primary critical load bearing elements.

Figure 4-16 - Elevation of NC-M06-010.00

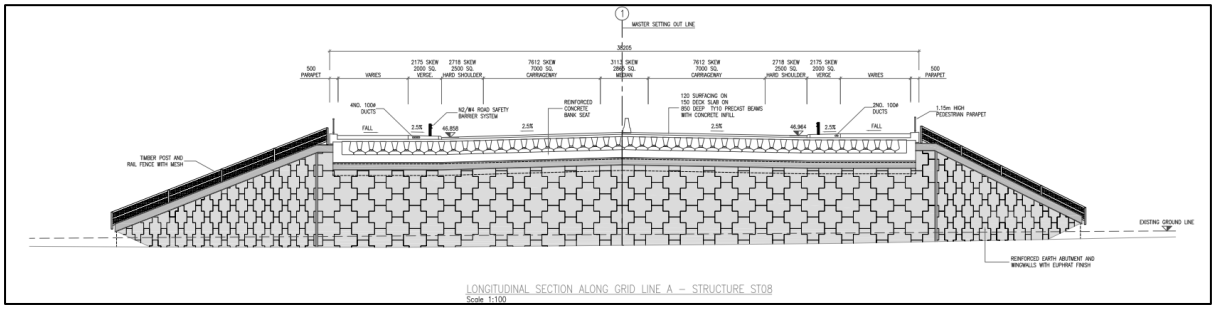


Figure 4-17 - As-Built Cross section of NC-M06-010.00

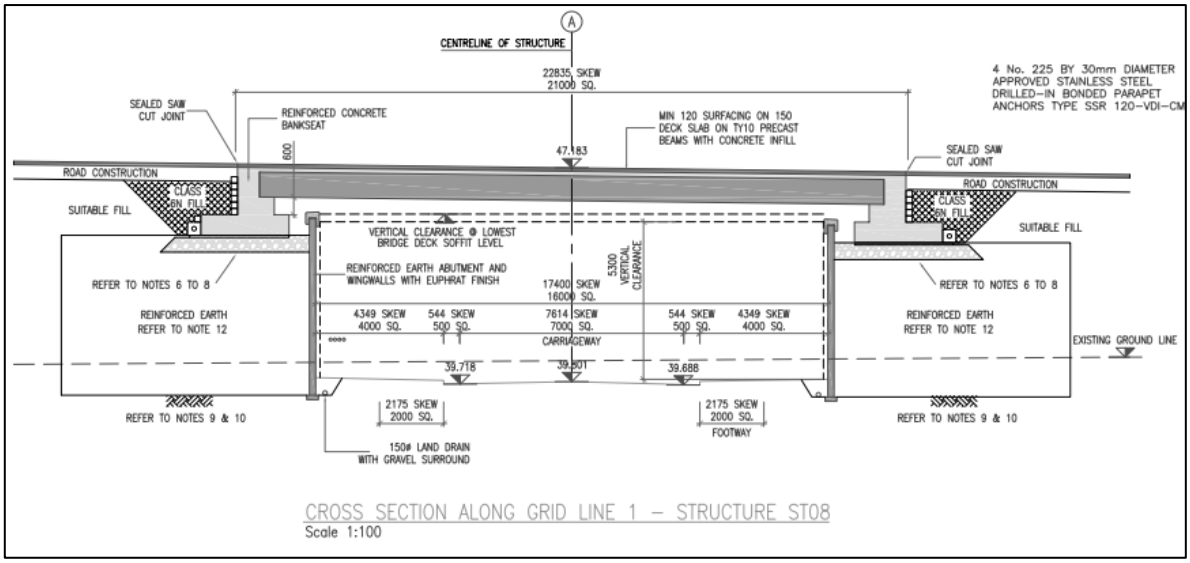


Figure 4-18 - As-Built Longitudinal Cross-section of NC-M06-010.00

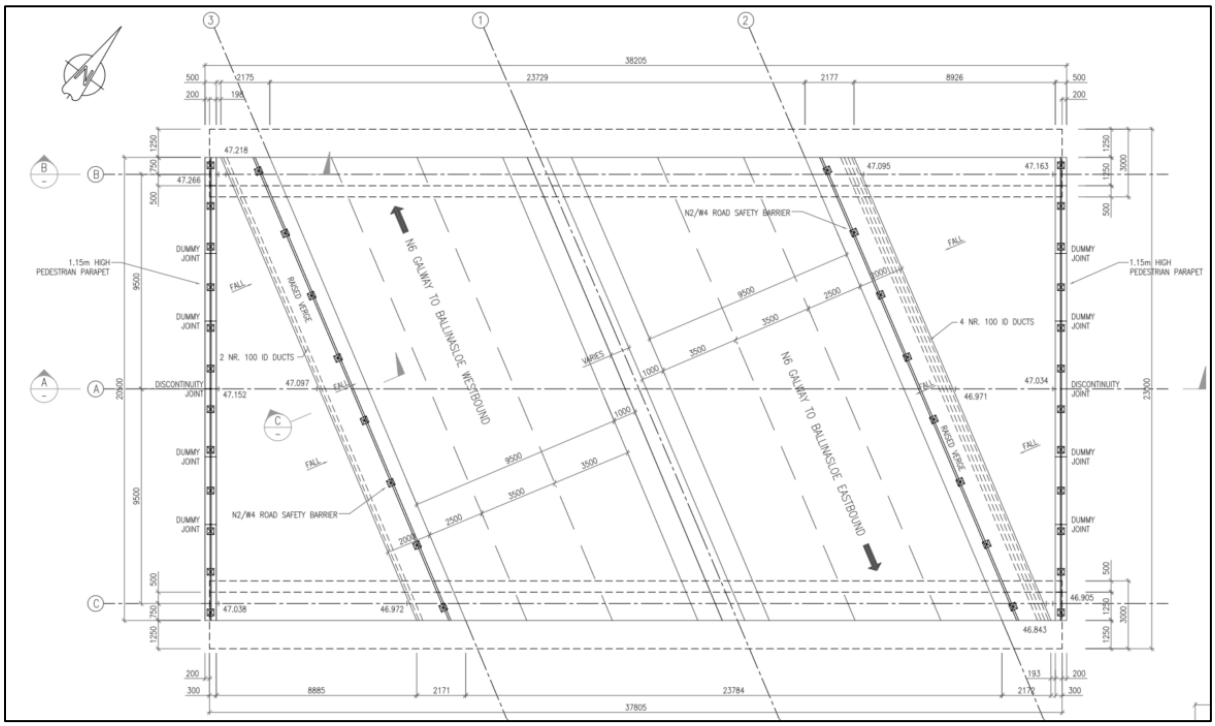


Figure 4-19 - Road Layout of NC-M06-010.00

4.5.2 Modelling Decisions/Assumptions

The following decisions/assumptions have been made during modelling, in addition to the general assumptions illustrated in Section 3.2.1;

- The longitudinal beams are situated at the centre of the abutments as this is an integral bridge, span = 19.25m

4.6 NC-M06-011.00 Teagasc Underbridge (1)

4.6.1 General Description

Teagasc Underbridge (1) is located in County Galway, (Figure 4-20) within Newford. The structure was constructed over the L7160, while the surface is utilised by the M6. The structure is adjacent to the western slip roads connecting the R348 to the M6. The structure is a single span integral bridge, the date of construction is unknown. The structure is an underbridge which carries a motorway, M6, over a local road, L7160. The M6/N6 spans from Galway City to Kinnegad, Co. Westmeath, while interchanging between motorway and national road.

There are 4 no. of eastbound lanes (to Kinnegad) and 4 no. of westbound lanes (to Galway) above the structure. The carriageways are compiled of 2 primary lanes, 1 merging/diverging lane with hatched road markings and a hard shoulder each way with a concrete median separating the direction. Refer to Figure 4-21 to Figure 4-23 for overview of the structure.

Based on the latest inspection report produced in 2022, the condition of the structure was good overall, apart from 2 no. of posts on the safety barriers. The safety barriers were ignored within the modelling process, therefore causes no concern. No structural defects were evident to the primary critical load bearing elements.

Figure 4-20 - Elevation of NC-M06-011.00

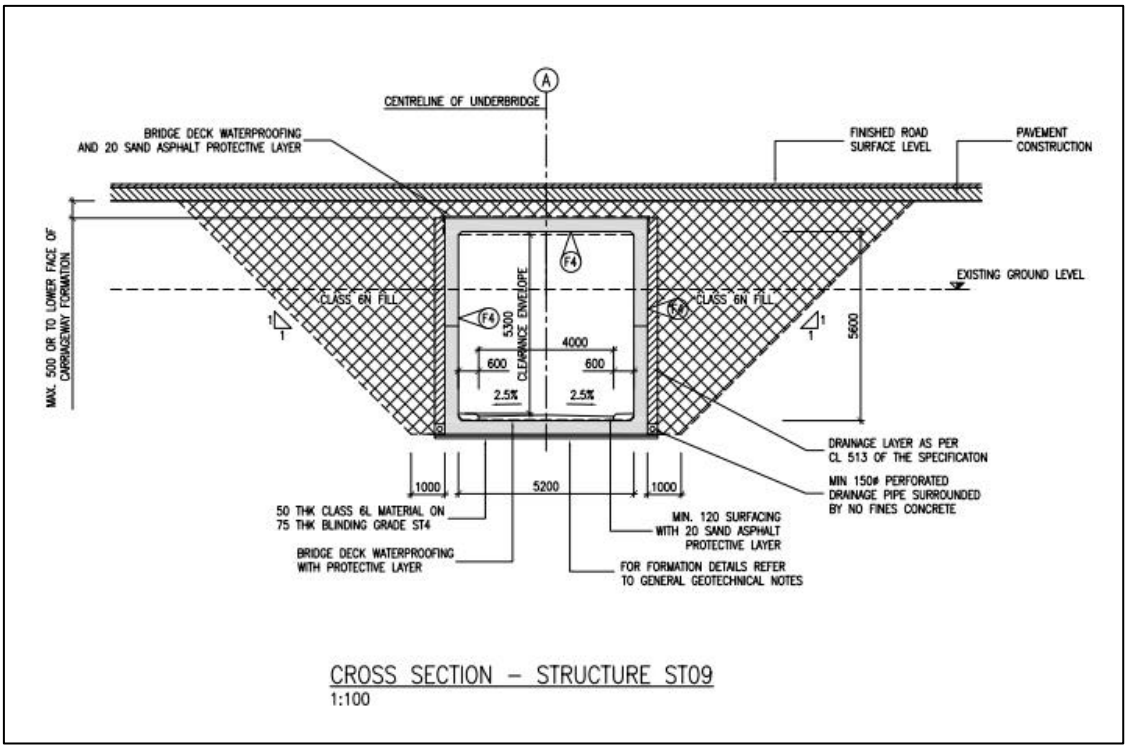


Figure 4-21 - As-Built Cross Section of NC-M06-011.00

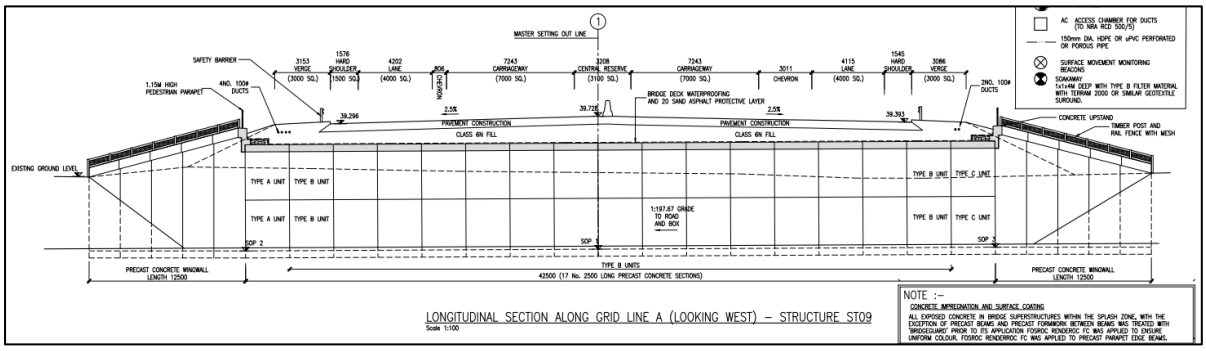


Figure 4-22 - As-Built Longitudinal Section of NC-M06-011.00

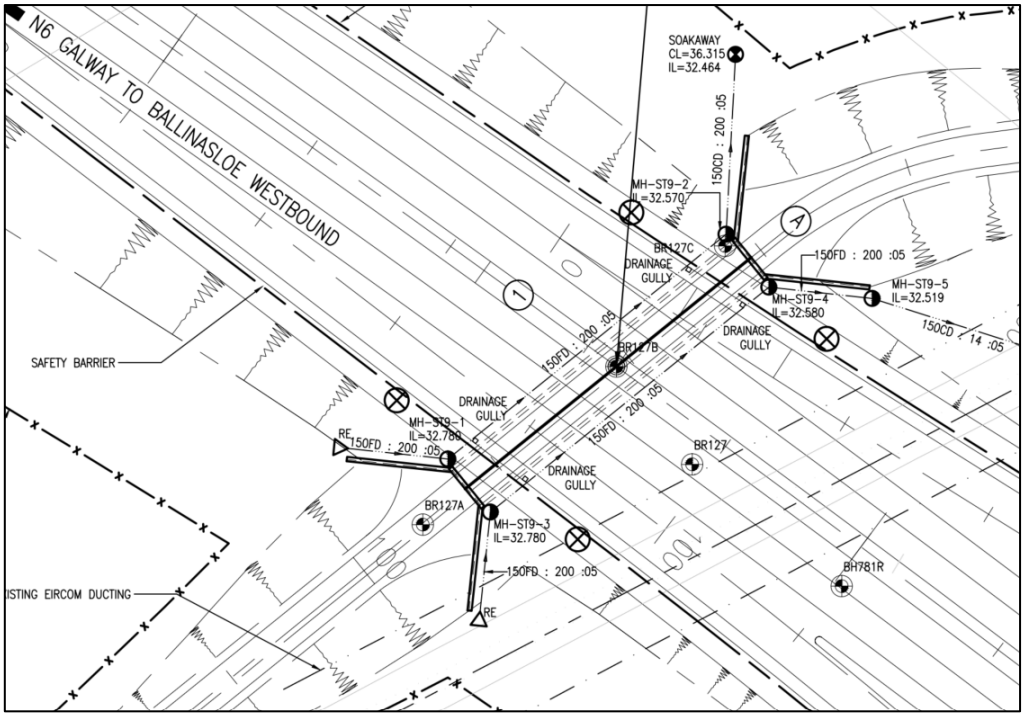


Figure 4-23 - Road Layout of NC-M06-011.00

4.6.2 Modelling Decisions/Assumptions

Refer to Section 3.2.2.

4.7 Road on Road Bridge

4.7.1 General Description

The Road on Road Bridge is located in County Galway, (Figure 4-24) at the southwest of Athenry. The structure was constructed over the Prospect road, while the surface is utilised by a side road, namely Ballygarraun South. The structure is adjacent to the western slip roads connecting the R348 to the M6.

The structure is a single span integral bridge, that was constructed in 2018/19. The structure is an underbridge which carries the side road, Ballygarraun South, over the Prospect road. local road, The Bally Garraun South road spans between a roundabout to the R348 and a roundabout to an unnamed road connecting to the L3103. The Prospect road is a short cut from the R348 to Prospect in the south of Atherny, which has various local amenities. Refer to Figure 4-25 to Figure 4-28 for overview of the structure.

There was no previous inspection report found. Therefore, a visual inspection was undertaken on 15th May 2025, and the condition of the structure was found to be good overall. No structural defects were evident to the primary critical load bearing elements.

Figure 4-24 - Elevation of Road on Road Bridge

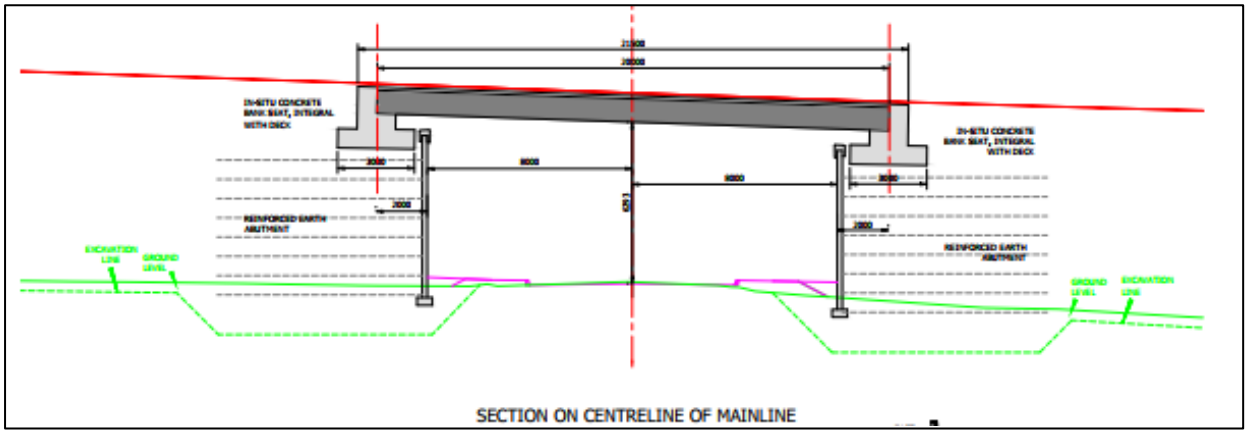


Figure 4-25 - As-Built Cross Section of Road on Road Bridge

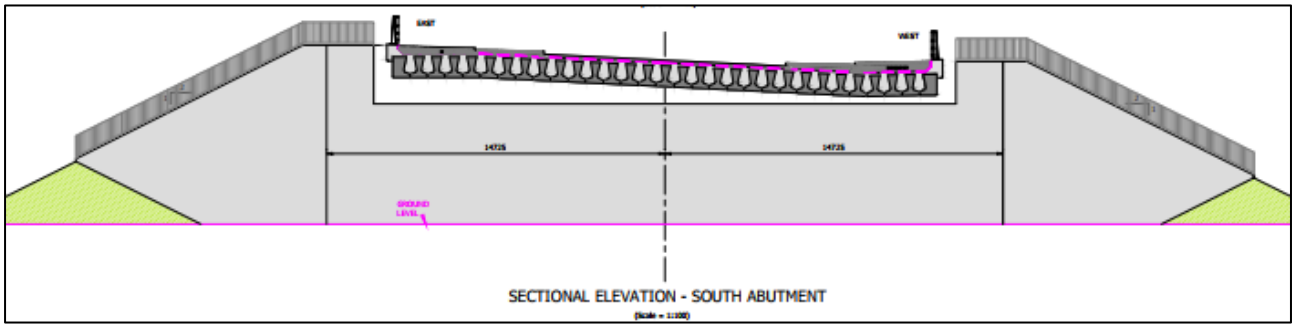


Figure 4-26 - As-Built Longitudinal Section of Road on Road Bridge

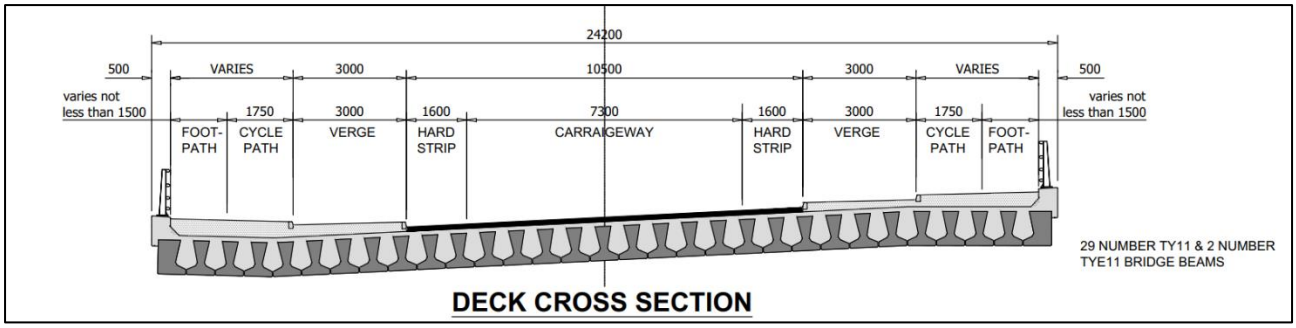


Figure 4-27 – Deck Cross Section of Road on Road Bridge

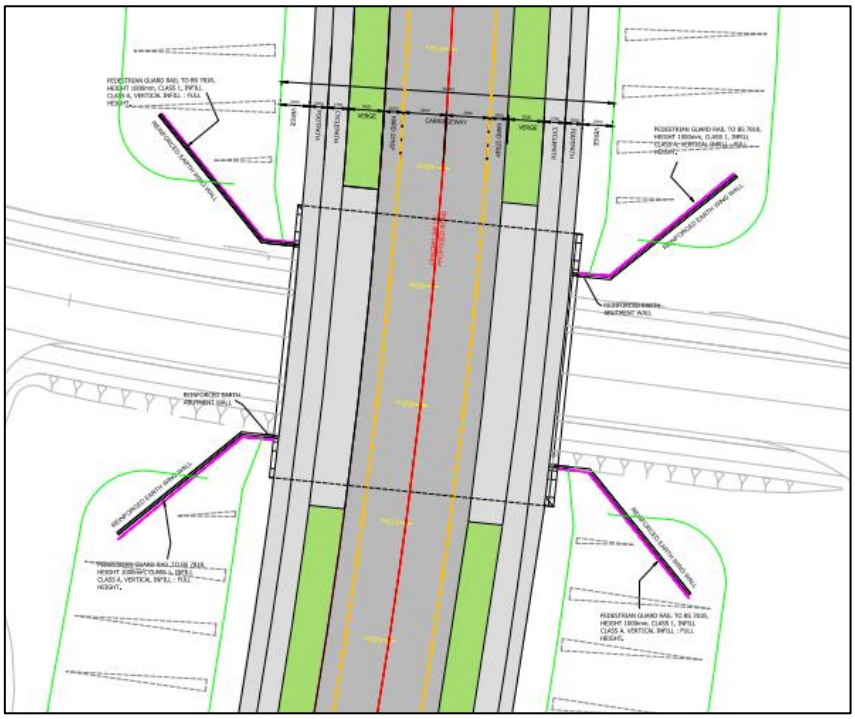


Figure 4-28 - Road Layout of Road on Road Bridge

4.7.2 Modelling Decisions/Assumptions

The following assumptions have been made during modelling, in addition to the general assumptions illustrated in Section 3.2.1;

4.8 OBG 157D

4.8.1 General Description

OBG 157D, see Figure 4-29, is located in County Galway, southwest of the town of Athenry. It was originally built over a single track with plans for a future installation of a second track. The track spans from Athenry station to Oranmore station which continues into Galway City. The public road, L3103, above the railway connects the R339 North of Cashla to the Prospect road at the south of Athenry.

The structure is a single square span integral bridge, which was reconstructed in 2018 with a deck compiled of TY11 precast beams with concrete infill. The structure is an underbridge which functions as a side road, Ballygarraun South, over a Iarnród Éireann railway, a section of the span between Athenry and Oranmore southwest of the town of Athenry. Refer to Figure 4-30 to Figure 4-32 for overview of the structure.

Based on the latest inspection report produced in 2021, the condition of the structure was good overall. No structural defects were evident to the primary critical load bearing elements.

Figure 4-29 - Elevation of OBG157D

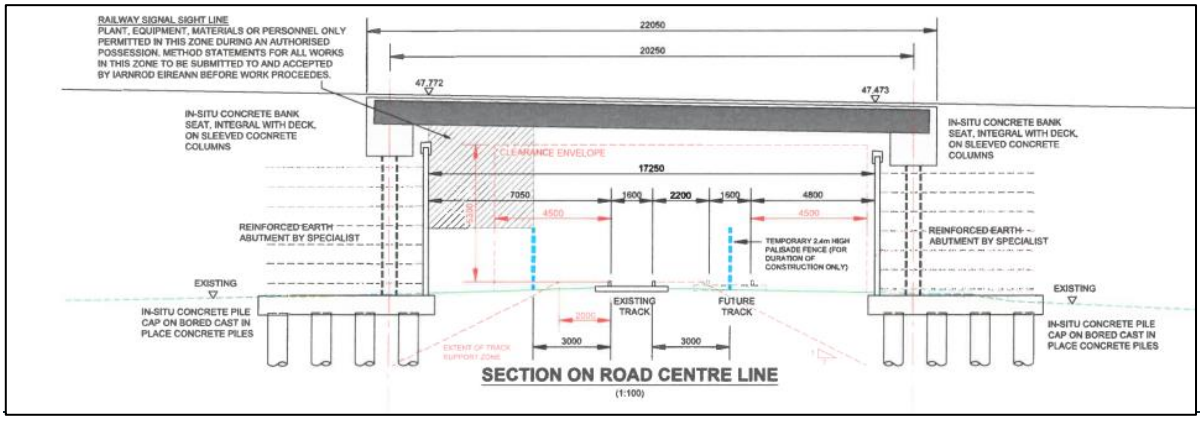


Figure 4-30 - As-Built Longitudinal Cross-section of OBG157D

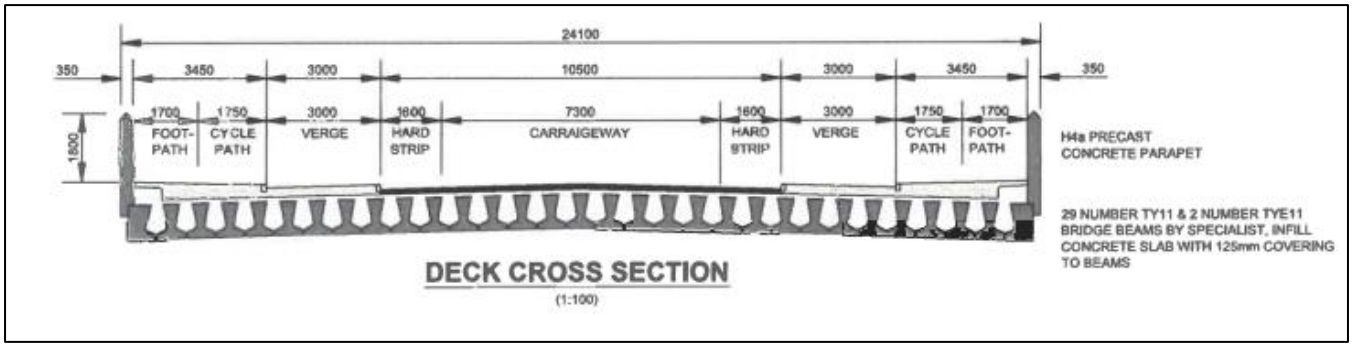


Figure 4-31 - Deck Cross Section of OBG157D

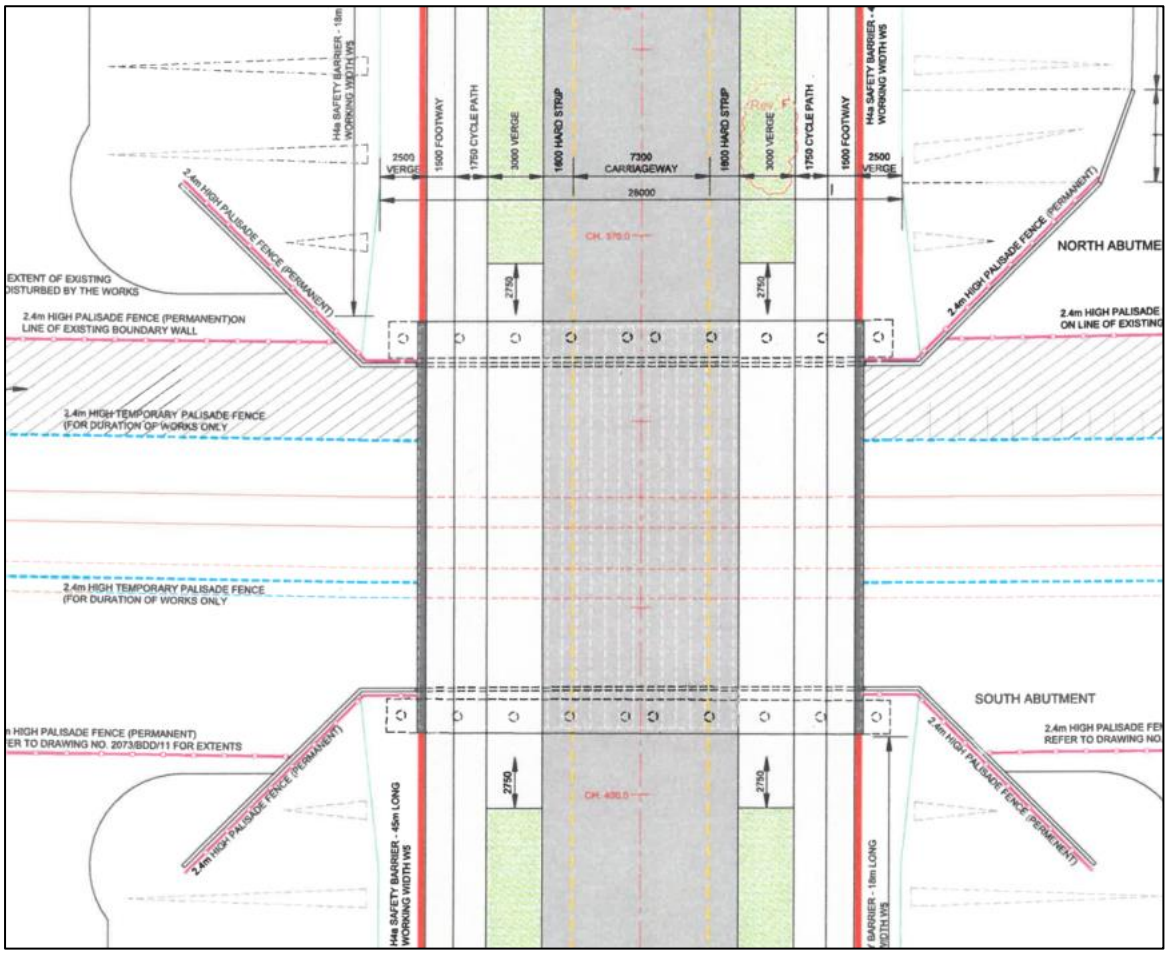


Figure 4-32 - Road Layout of OBG157D

4.8.2 Modelling Decisions/Assumptions

The following assumptions have been made during modelling, in addition to the general assumptions illustrated in Section 3.2.1;

- The bearing is at the centre of the abutment, span = 20.25m.

4.9 DC-M17-005.00 Castlelambert Overbridge

4.9.1 General Description

Castlelambert Overbridge, as shown in Figure 4-33, is located in County Galway, west of the town of Athenry. The structure carries a local road, L3103, over the M17 motorway.

The structure is a 2-span girder bridge, the date of construction is unknown. The structure is an underbridge which functions as a local road, L3103, over a motorway, M17. The L3103 connects the town of Athenry to the R339. The carriageway is compiled of 2 lanes and 2 footways. The deck was constructed with 3 no. W5 precast beams. Refer to Figure 4-34 and Figure 4-36 for overview of the structure.

Based on the latest inspection report produced in 2023, the condition of the structure was good overall, apart from some routine maintenance that was required throughout. No structural defects were evident to the primary critical load bearing elements.

Figure 4-33 - Elevation of DC-M17-005.00

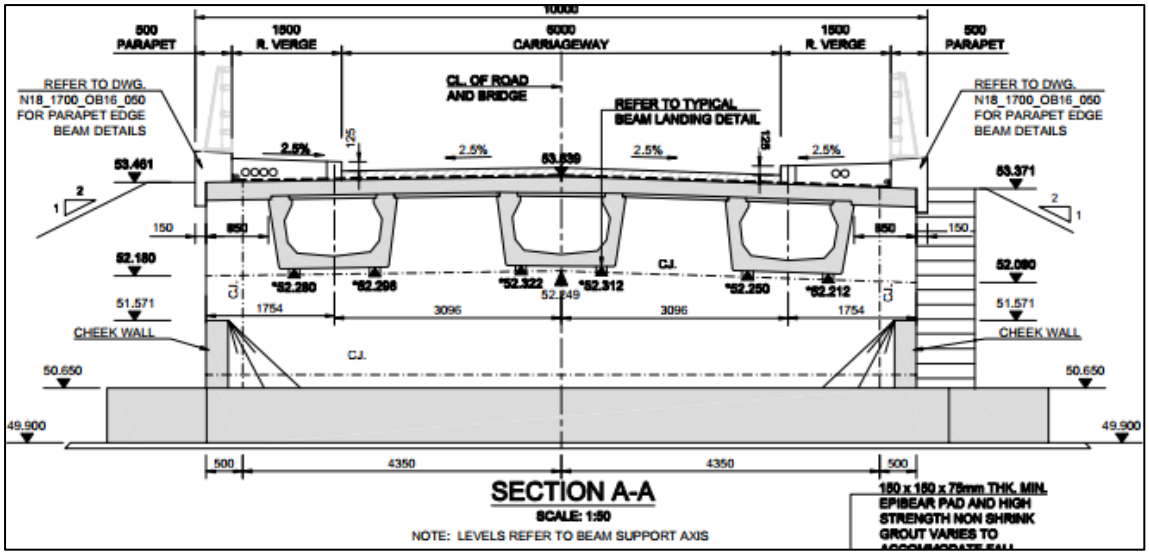


Figure 4-34 - As-Built Cross Section of DC-M17-005.00

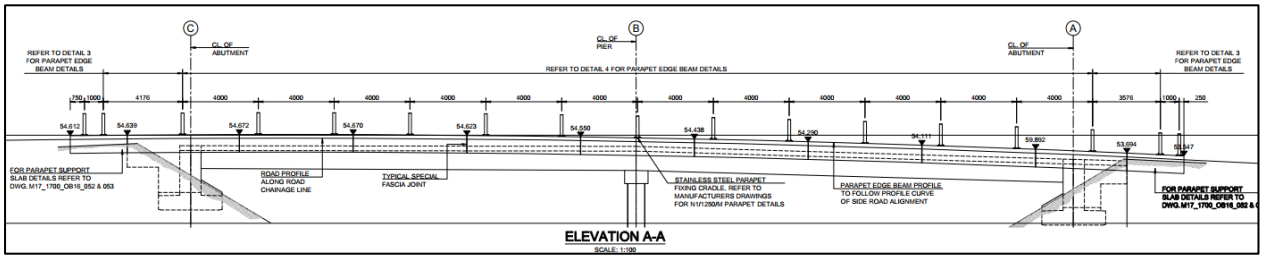


Figure 4-35 - As-Built Longitudinal Section of DC-M17-005.00

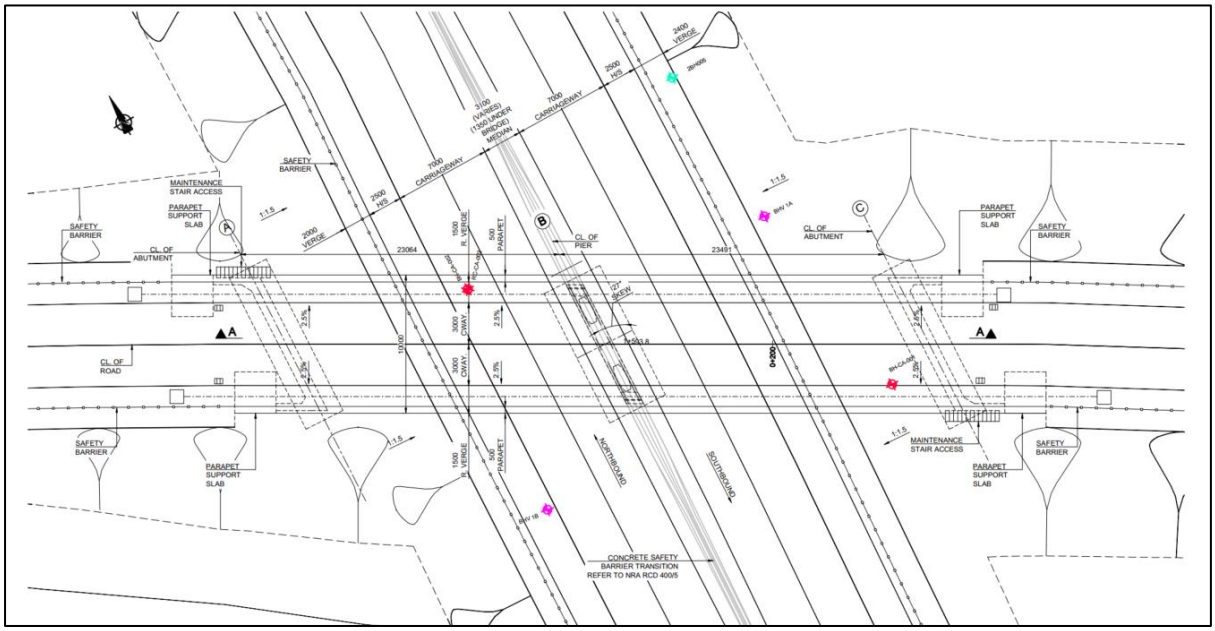


Figure 4-36 - Road Layout of DC-M17-005.00

4.9.2 Modelling Decisions/Assumptions

The following assumptions have been made during modelling, in addition to the general assumptions illustrated in Section 3.2.1;

- The bearing is at the centre of the abutment, span = 46.555m.

5. Results

The results of the design load cases and actual loading have been compared in regards to bending moment and shear force. The output of the programme highlighted the maximum sag and hog moment, and the shear force. A summary of results of comparative analysis is provided in Table 5-1 and Table 5-2.

The bending moments and shear forces in SLS for the structures caused by the design loads were compared to the bending moments and shear forces in SLS caused by the EAL vehicle for the various analysis types. Ratios between the load effects from the proposed EAL vehicles to the equivalent design load effects from HA & HB / LM1 & LM3 loading is also shown in Table 5-1 and Table 5-2

Examples of screenshot of load application with result of bending moments and shear forces diagrams for the various analyses are provided in graphical format in 8.Appendix D and 8.Appendix E. These provide supplementary information on the analysis approach adopted for the structures.

5.1 Bending Moment Results

Table 5-1 - Summary of Conservative Bending Moment Results

	DL+HB45 (kNm/m)	DL+SV196 (kNm/m)	Design Load [Minimum(DL+HB45, DL+SV196)] (kNm/m)	DL+EAL (kNm/m)	Ratio DL+EAL to Design Load	Status
GB-N06-008.00	-124.5	-53.3	53.3	42.3	0.79	Pass

	Load Effect	HA + HB45 (kNm)	LM1 + SV196 (kNm)	Design Load [Minimum(HA + HB45, LM1 + SV196)] (kNm)	HA + EAL (kNm)	LM1+ EAL (kNm)	EAL only (kNm)	EALmax [Maximum(HA + EAL, LM1+ EAL , EAL only)] (kNm)	RATIO EALmax to Design Load	Status
GC-M06-001.00	Sag	319	326	319	193	204	0	204	0.64	Pass
	Hog	-427	-458	427	-300	-300	0	300	0.70	Pass
NC-M06-007.00	Sag	32	15	15	0	0	9	9	0.60	Pass
	Hog	-32	-15	15	0	0	-9	9	0.60	Pass
NC-M06-009.00	Sag	378	428	378	239	242	0	242	0.64	Pass
	Hog	-456	-460	456	-288	-288	0	288	0.63	Pass
NC-M06-010.00	Sag	387	437	387	239	248	0	248	0.64	Pass
	Hog	-538	-545	538	-362	-362	0	362	0.67	Pass
NC-M06-011.00	Sag	302	213	213	0	0	109	109	0.51	Pass
	Hog	-251	-193	193	0	0	-104	104	0.54	Pass
Road Bridge (No ID)	Sag									
	Hog									
OBG 157D	Sag	393	419	393	0	0	222	222	0.56	Pass
	Hog	-637	-627	627	0	0	-440	440	0.70	Pass

	Load Effect	HA + HB30 (kNm)	LM1 + SV100(kNm)	**Design Load [Minimum(HA + HB30, LM1 + SV100)] (kNm)**	HA + EAL (kNm)	LM1+ EAL (kNm)	EAL only (kNm)	**EALmax [Maximum(HA + EAL, LM1+ EAL , EAL only)] (kNm)**	RATIO EALmax to Design Load	Status
DC-M17-005.00	Sag	1665	2210	1665	0	0	1875	1875	1.13	Fail
	Hog	-1855	-2065	1855	0	0	-2347	2347	1.27	Fail

5.2 Shear Force Results

Table 5-2 - Summary of Shear Force Results

	DL+HB45 (kN/m)	**DL+SV196 (kN/m)**	**Design Load [Minimum(DL+HB45, DL+SV196)] (kN/m)**	**DL+EAL (kN/m)**	**RATIO DL+EAL to Design Load**	**Status**
GC-M06-001.00	223.6	180.9	180.9	169	0.93	Pass

	HA + HB 45(kN)	LM1 + SV196 (kN)	**Design Load [Minimum(HA + HB45, LM1 + SV196)] (kNm)**	HA + EAL (kN)	LM1+ EAL EAL (kN)	EAL (kN)	**EALmax [Maximum(HA + EAL, LM1+ EAL , EAL only)] (kN)**	RATIO EALmax to Design Load	Status
GC-M06-001.00	268	342	268	181	177	0	181	0.68	Pass
NC-M06-007.00	83	40	40	0	0	23	23	0.58	Pass
NC-M06-009.00	224	262	224	130	144	0	144	0.64	Pass
NC-M06-010.00	235	280	235	148	149	0	149	0.63	Pass
NC-M06-011.00	176	136	136	0	0	74	74	0.54	Pass
Road Bridge (No ID)									
OBG 157D	267	313	267	0	0	180	180	0.67	Pass

	HA + HB30 (kNm)	LM1 + SV100(kNm)	**Design Load [Minimum(HA + HB30, LM1 + SV100)] (kNm)**	HA + EAL (kN)	LM1+ EAL EAL (kN)	EAL (kN)	**EALmax [Maximum(HA + EAL, LM1+ EAL , EAL only)] (kN)**	RATIO EALmax to Design Load	Status
DC-M17-005.00	695	913	695	0	0	824	824	1.19	Fail

6. Conclusion

A structural review of 9 no. structure was undertaken in accordance with TII publication AM-STR-06042-01. This determined that a comparative assessment was the most appropriate methodology for verification of the structure, in accordance with TII publication AM-STR-06048-01, to carry the proposed abnormal load as per the EAL Management Flow Chart.

The Record of Structural Review Forms for all structures as per Annex B of TII publication AM-STR-06042 for each structure are provided in 8.Appendix B.

Due to the unavailability of information regarding the design loads at time of preparation of this report, conservative assumptions have been made, where all assumptions have been documented in this report. The results of the analyses concluded that the load effects of the arbitrary design EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00. This indicates that the transfer of equipment is under a safe environment over these structures. These are given that the identified structures are in good condition, and that comparative analysis, as per TII publication AM-STR-06048-01.

The actual loads intended for transport and the final configuration of the EAL vehicle were received after the completion of this report. The maximum axial loads on the real EAL configurations are given at the table below:

No	Drawing No	Configuration	Axle Spacing	Max Axle Load	Result
1	ALL-A254213-TA-01	16 axle	1500mm	17.385 tn	OK
2	ALL-A254213-TA-02	16 axle	1500mm	16.792 tn	OK
3	ALL-A254213-TA-03	16 axle	1650mm	16.548 tn	OK
4	ALL-A254213-TA-04	18 axle	1500mm	16.872 tn	OK
5	ALL-A254213-TA-05	18 axle	1500mm	18.461 tn	OK

The maximum span of the bridges along the proposed route is 20.25 m, corresponding to the span of OBG 157D. The overall length of the 15-axle trailer is 21.0 m (14 × 1.5 m), meaning it cannot be fully supported on any of the bridges at one time. A maximum of 14 axles can be positioned on a structure simultaneously, as 14 axle spacings total 19.5 m, which is shorter than the maximum bridge span.

Consequently, when the total number of trailer axles exceeds 14, the additional axles become irrelevant for structural assessment purposes, as they are not carried by the bridge at the same time. Since the maximum axle load associated with the actual vehicle configuration is 18.461 tonnes—which is lower than the 19.92-tonne axle load used in the design arbitrary EAL—the structures will experience lower load effects under the real EAL compared with the conservative design case. The drawing of the vehicle configurations are given at the Appendix F section

To conclude, the real EAL vehicles which is planning to be used to transfer equipment from Galway Port to Cashla Peak Power Plant is suitable for passage over the identified structures on the blue route. This conclusion is derived from the fact that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00. Therefore, the red route is not adequate for transfer of 380 tonne arbitrary vehicle configurations and the real EALs given above.

This conclusion is also based on the application of the following conditions:

- The EAL vehicle traverses the bridges at a speed of 10 mile/hour or less.
- The EAL vehicle travels along the slow lane of the carriageway.
- Where the structure has a median along the centre of the carriageway separating the 2 opposite directions of traffic, no other loading or vehicle travelling in the same direction is present on the same carriageway of the bridges during the EAL vehicle passage. i.e. Where EAL is travelling on Eastbound carriageway on a structure with a median at the centre, there shall not be no other loading traveling on Eastbound during the passage. There is
- Where the structure has no median along the centre of the carriageway separating the 2 opposite directions of traffic, no other loading or vehicle is present on the same structure during the EAL vehicle passage.

7. Recommendations

As the comparative analysis concluded that the load effects of the EAL vehicle are less than the design load effects for each structure, apart from structure DC-M17-005.00. Therefore the red route has been discounted for passage of 380 tonne equipment. With all the structures passing on the blue route in the comparative check, a bridge capacity check will not be required. An inspection for assessment should be carried out before the passage of specific Exceptional Abnormal Load (EAL) vehicles over the identified structures.

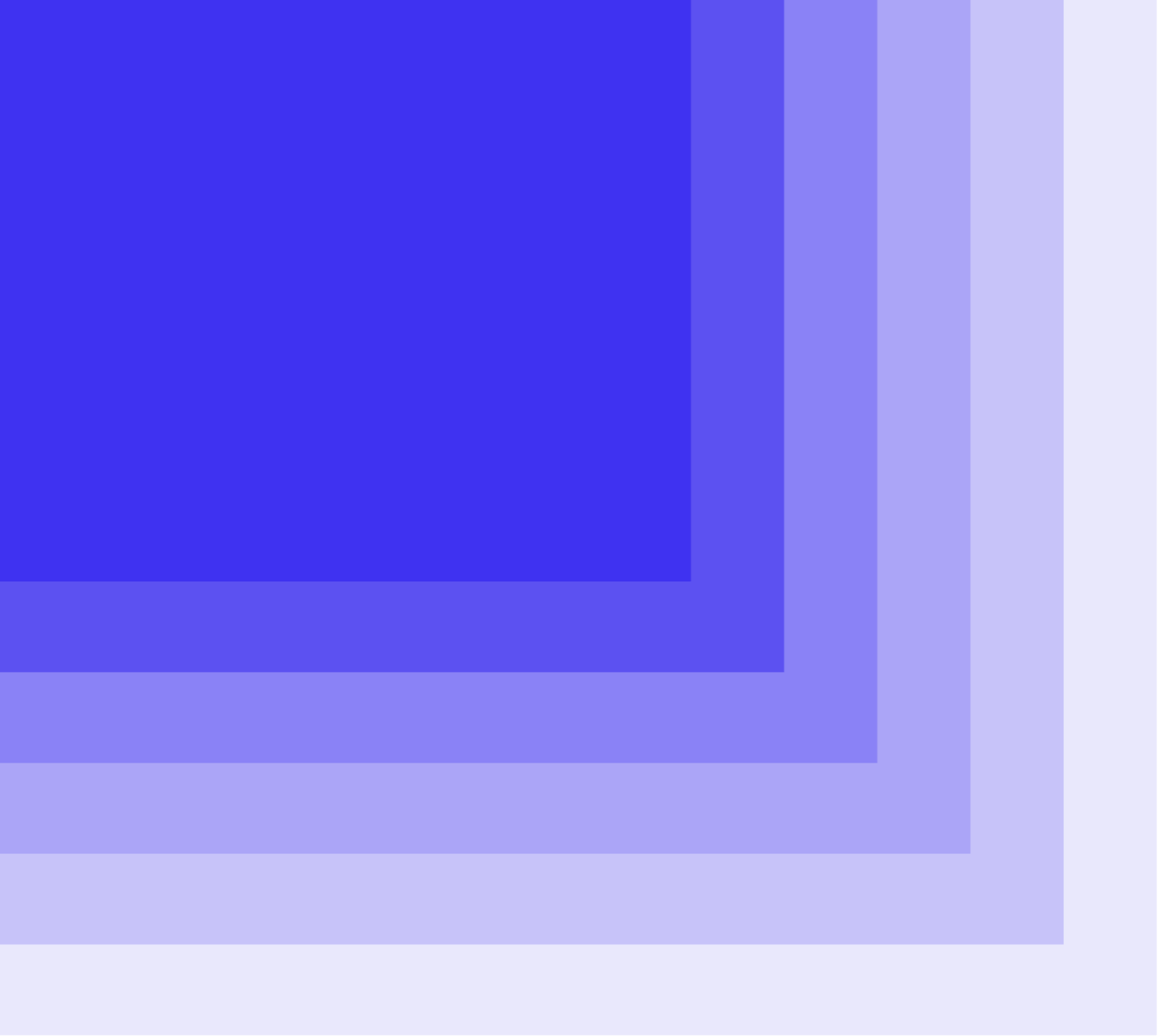
Class 1 Monitoring in accordance with Appendix D of TII publication AM-STR-06039 is recommended to be undertaken for each structure which has been analysed. Class 1 monitoring should be undertaken in the form of pre and post-movement inspections, and shall be undertaken to coincide with the movement schedule as outlined by the haulier. Class 1 Monitoring can be used to confirm structures being in good condition with no concerning defects present at the time of the inspection for assessment.

The exact arrangements of the abnormal vehicle should be obtained, and co-ordination with the hauler firm to clarify the configuration the abnormal load or loads, focusing on axle arrangements, maximum axle loads and axle spacings, etc. should be undertaken. Although the analyses described in the report were undertaken in a conservative approach, gathering all the information will allow confirmation of the results and suitability of the passage of specific Exceptional Abnormal Load (EAL) vehicles over the identified structures.

8. References

A series of standards and guidance have been used as reference in this analysis, which are not limited to the following:

- AM-STR-06030 - Loads for Highway Bridges
- AM-STR-06048 - The Assessment of Road Bridges and Structures for the Effects of Abnormal and Exceptional Abnormal Load Vehicles using SV and SOV Load Models (NRA BD 86)
- DN-STR-03020 - The Structural Design of Road Structures
- I.S. EN 1991-2:2003+NA:2009 - Eurocode 1: Actions on structures - Part 2: Traffic loads on bridges (Including Irish National Annex)
- Banagher Precast Concrete Bridge Beam Manual 3rd Edition



Appendix A. Location Maps

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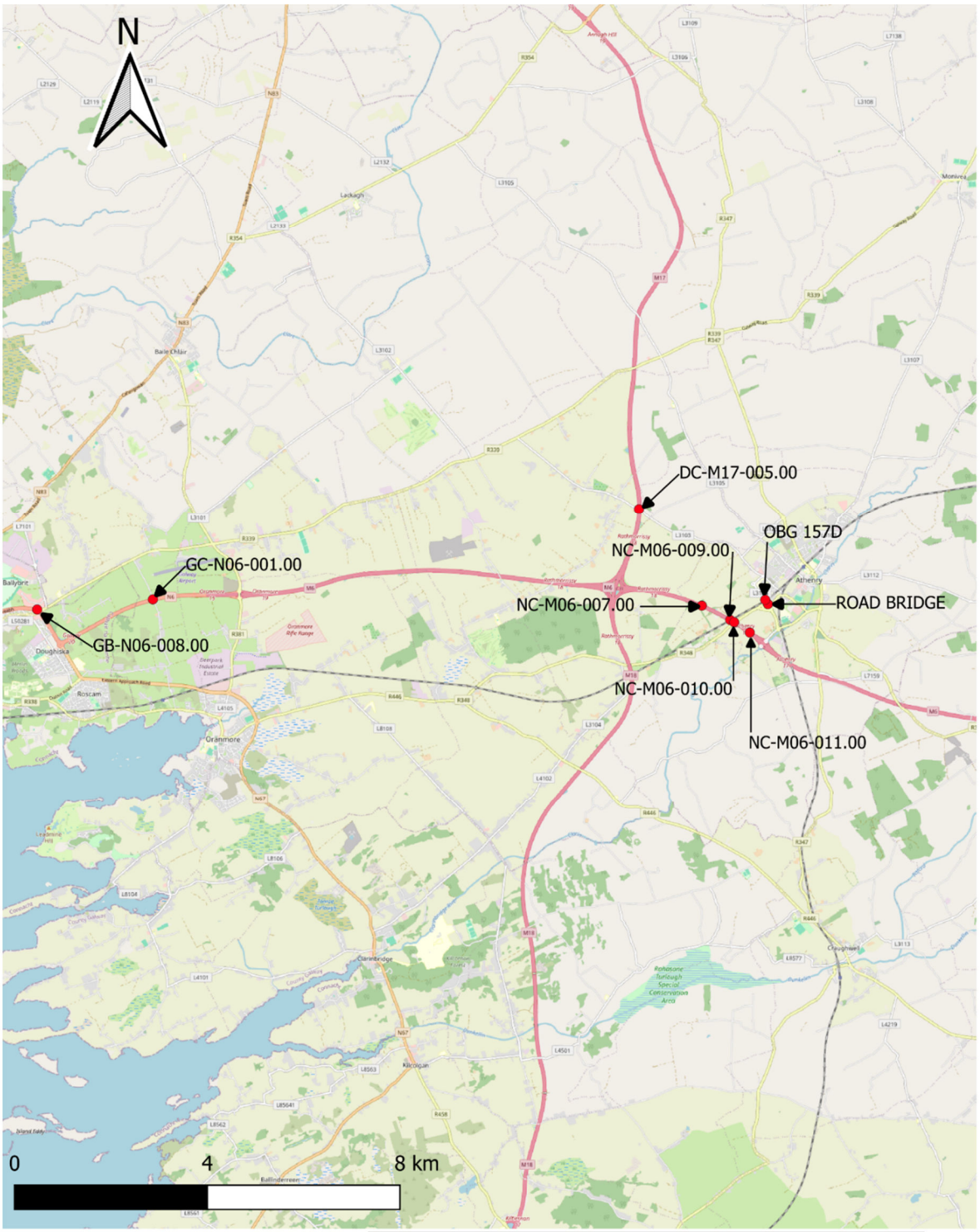

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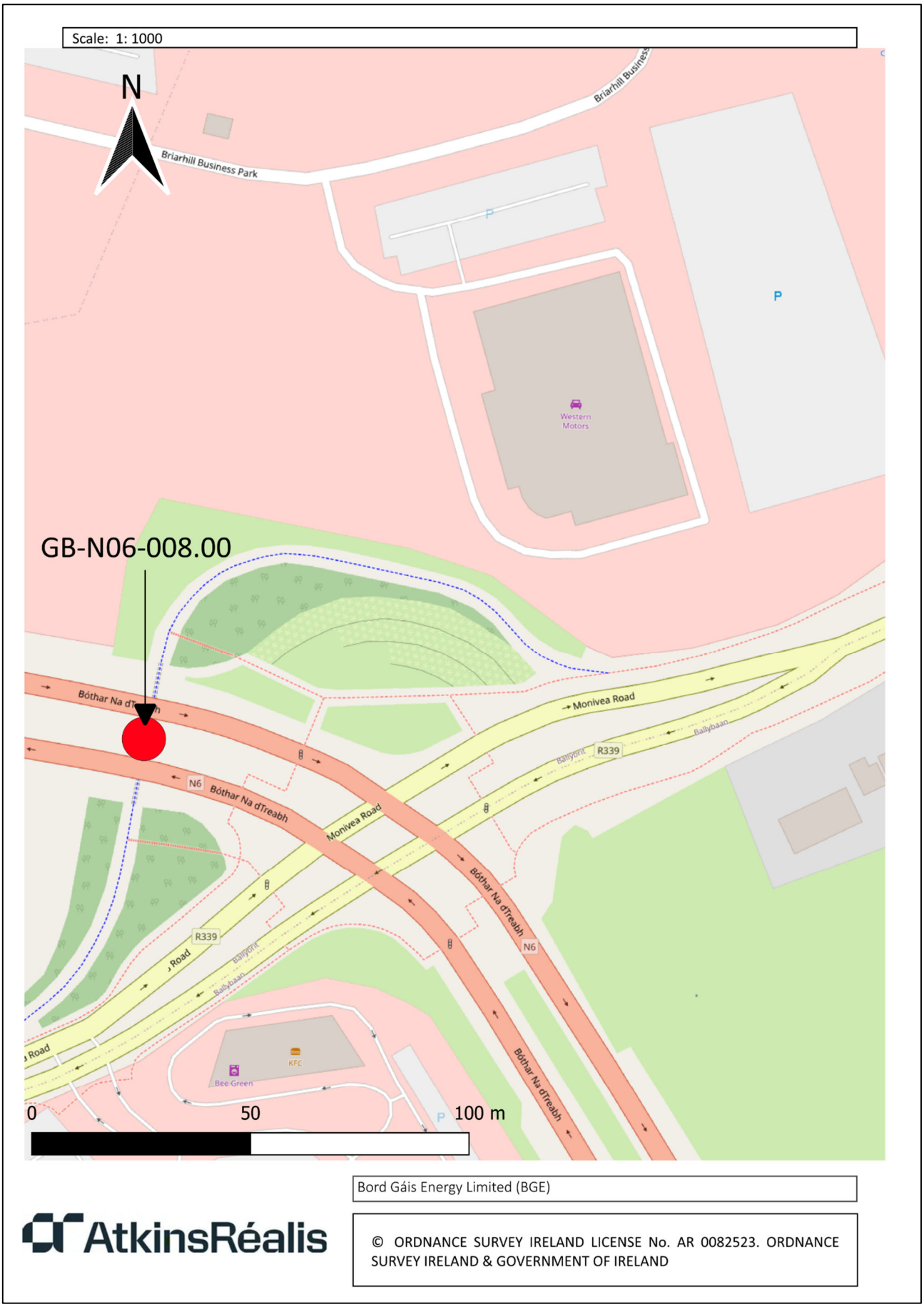
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Western Motors
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Bóthar Na dTreabh
N6
Monivea Road
R339
Ballybaan
KFC
Bee Green
0
50
100 m
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Scale: 1: 1000

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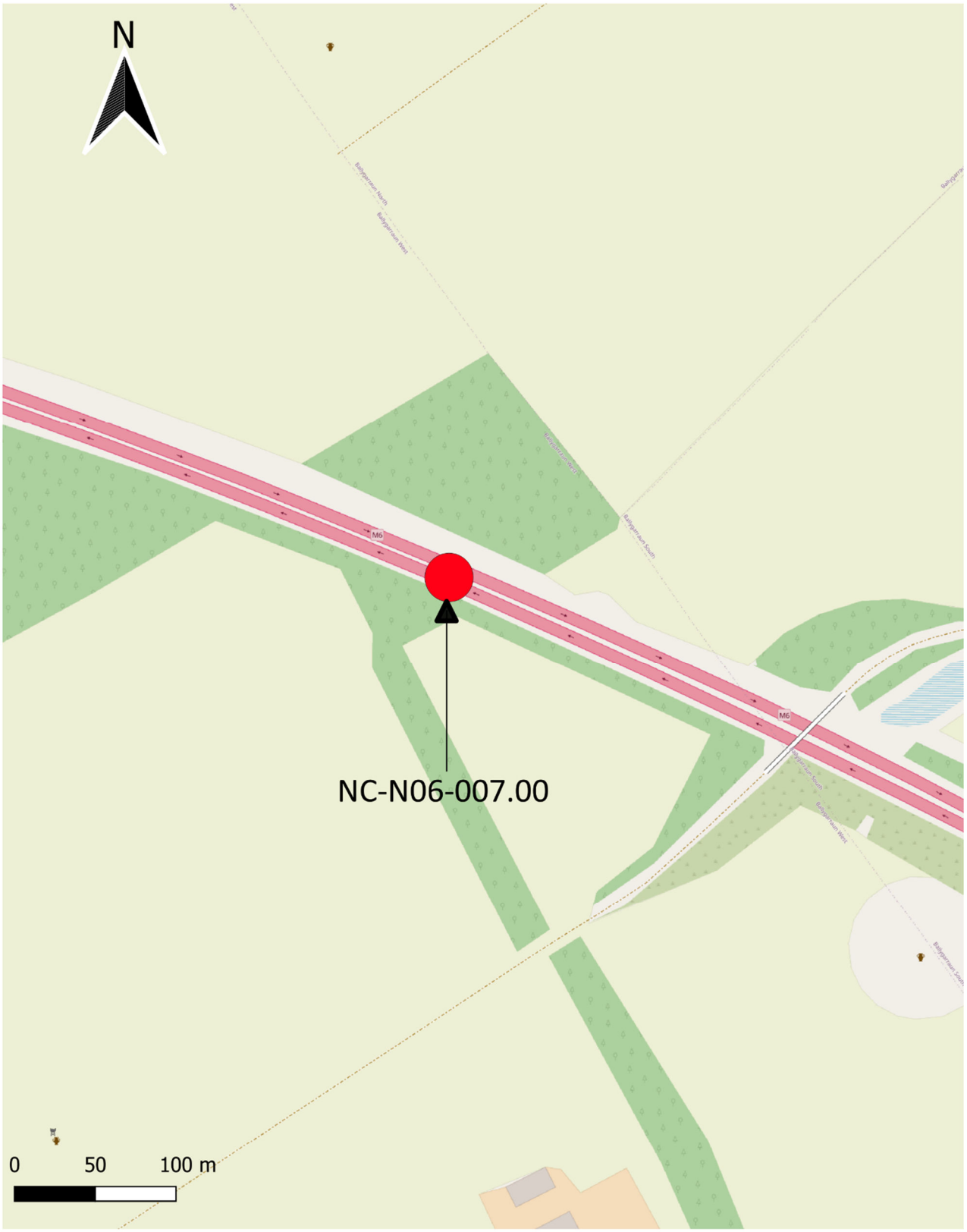

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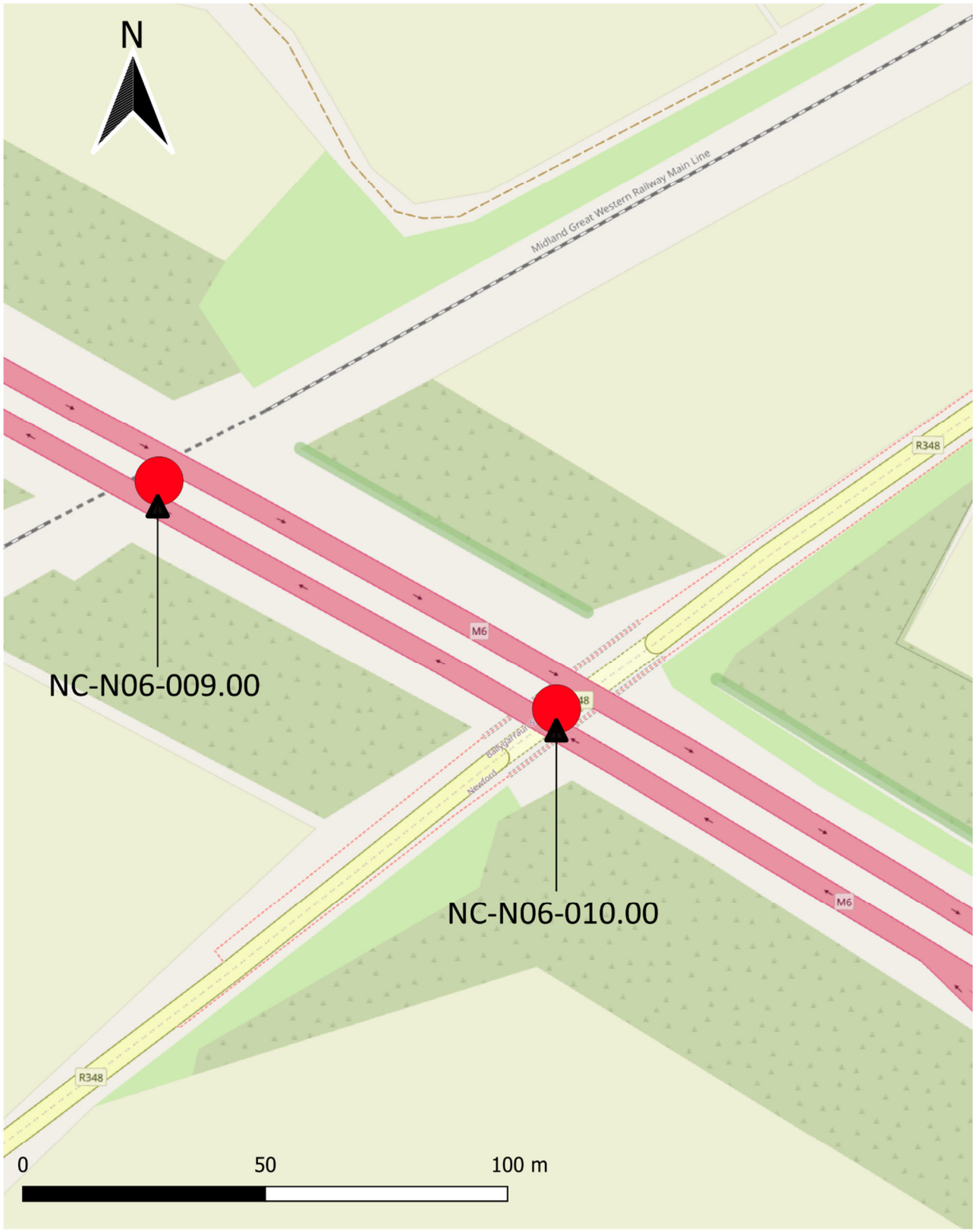

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Scale: 1:3000

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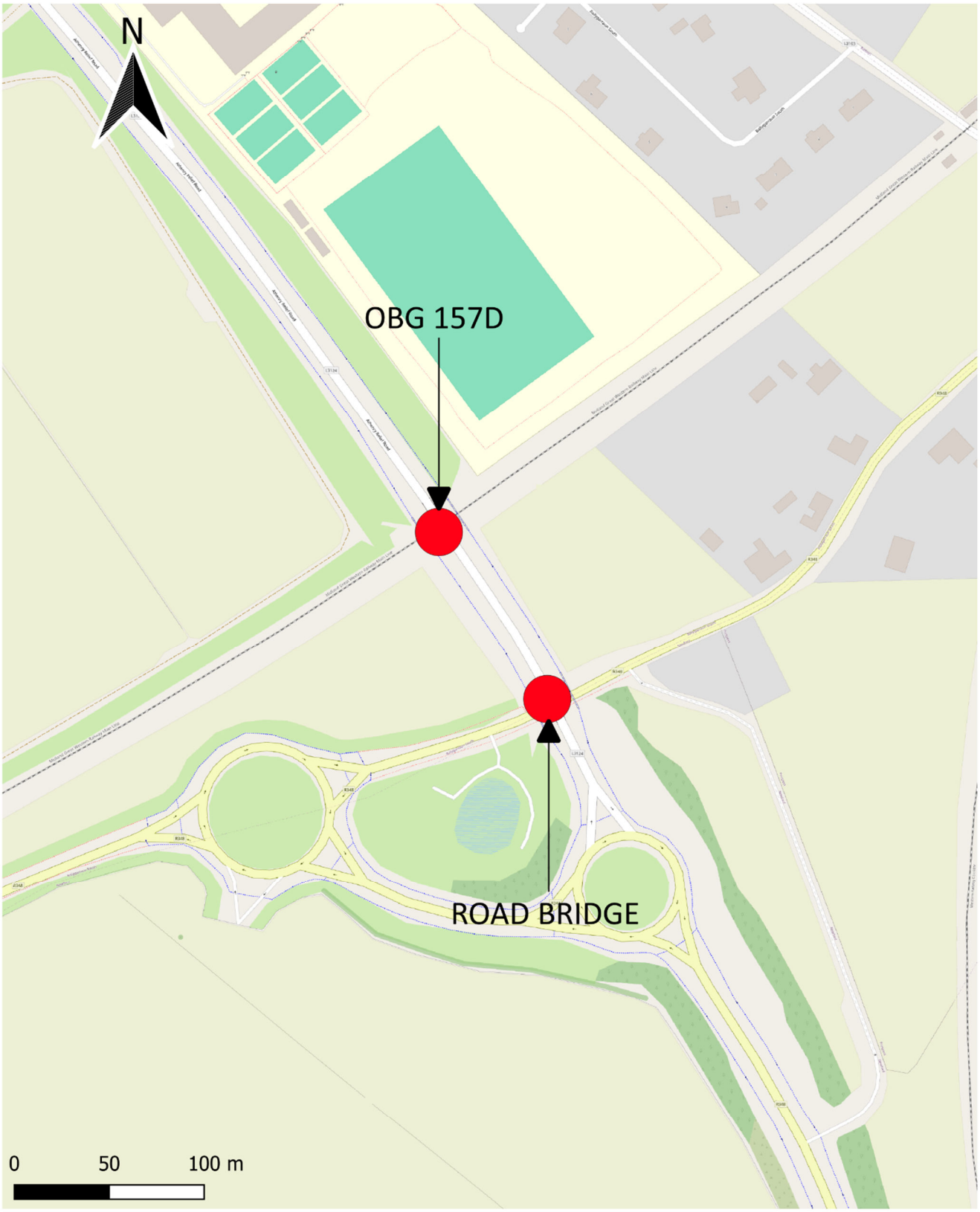
Scale: 1:2500



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Scale: 1:3000

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Appendix B. Structural Review Forms

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Garraun Road Underbridge		
Structure Number	GC-M06-001.00		
Date Commissioned	2010		
Obstacles Crossed	Road		
Bridge Carries	M06		
Brief Description of Structure			
The structure is a single span precast prestressed beams with in-situ concrete slab integral bridge. The abutments are compiled of bank seat and reinforced earth retaining walls. The underbridge is situated on spread footings. The structure carries the M06 Motorway over the local road, L7106, Garraun Road. Each precast beam spans a total length of 15.25m.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	45HB+HA	SV	SV196
Critical Elements	Deck, Beams, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2024

Conclusion:

A definitive conclusion of the design loads and technical standards cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other motorway bridges, and the construction date of 2010. Motorway structures would generally have been designed to HA + 45HB, although the Eurocode Standard began to come into use. It can therefore it cannot reasonably assumed that this structure was designed to HA+45HB or load models as it carried the National Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	12/06/2024 (PI)
Change In Condition	N/A
Change In Standards	N/A
Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure. No traffic shall be allowed on the permit vehicle (EAL) side lanes of the bridge—specifically in the Galway to Dublin direction—while the permit vehicle is crossing the bridge.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Bat Underpass 1		
Structure Number	NC-M06-007.00		
Date Commissioned	2009		
Obstacles Crossed	Watercourse		
Bridge Carries	M06		
Brief Description of Structure			
The structure is a single span precast reinforced concrete box culvert with 2.1m span and 2.1m in height. The wingwalls are reinforced concrete. The culvert is situated on spread footings. The structure carries the M06 Motorway over an watercourse.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Slab, Side walls, Foundation (Box section elements)		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2022

Conclusion:

A definitive conclusion of the design loads can be drawn from the available previous Principal Inspection. The structure was designed for 45HB loading distributed in 2 directions in accordance with British Standard. National Road structures would generally have been designed to HA + 45HB at that time. It can therefore be reasonably assumed that this structure was designed to HA+45HB as it carried the National Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	18/07/2022
Change In Condition	N/A
Change In Standards	N/A
Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Ballygaurraun road over rail bridge		
Structure Number	NC-M06-009.00		
Date Commissioned	2009		
Obstacles Crossed	Railway		
Bridge Carries	M06		
Brief Description of Structure			
The structure is a single span precast prestressed beams with in-situ concrete slab integral bridge. The abutments are compiled of bank seats and reinforced earth retaining wall. The structure is situated on spread footings. The structure carries the M06 Motorway over an Dublin-Galway Railway. Each precast beam spans a total length of 18.5m.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA + 45HB	SV	SV196
Critical Elements	Deck, Beams, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2022

Conclusion:

A definitive conclusion of the design loads and technical standards cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other motorway bridges, and the construction date of 2010. Motorway structures would generally have been designed to HA + 45HB, although the Eurocode Standard began to come into use. It can therefore it cannot reasonably assumed that this structure was designed to HA+45HB or load models as it carried the National Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	18/07/2022
Change In Condition	TBC

Change In Standards	TBC
Change In Loading	TBC

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure. No traffic shall be allowed on the permit vehicle (EAL) side lanes of the bridge—specifically in the Galway to Dublin direction—while the permit vehicle is crossing the bridge.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	R348 Ballygaurraun Underbridge		
Structure Number	NC-M06-010.00		
Date Commissioned	2009		
Obstacles Crossed	Road		
Bridge Carries	M06		
Brief Description of Structure			
The structure is a single span precast prestressed beams with in-situ concrete slab integral bridge. The abutments are compiled of bank seats and reinforced earth retaining walls on spread footings. The structure carries the M06 Motorway over the regional road, R348. The structure spans a total length of 19m.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Deck, Beams, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2022

Conclusion:

A definitive conclusion of the design loads and technical standards cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other motorway bridges, and the construction date of 2010. Motorway structures would generally have been designed to HA + 45HB, although the Eurocode Standard began to come into use. It can therefore it cannot reasonably assumed that this structure was designed to HA+45HB or load models as it carried the National Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	18/07/2022
Change In Condition	N/A
Change In Standards	N/A

Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure. No traffic shall be allowed on the permit vehicle (EAL) side lanes of the bridge—specifically in the Galway to Dublin direction—while the permit vehicle is crossing the bridge.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Teagasc Underbridge (1)		
Structure Number	NC-M06-011.00		
Date Commissioned	2009		
Obstacles Crossed	Farm Underpass		
Bridge Carries	M06		
Brief Description of Structure			
The structure is a single span precast reinforced concrete box culvert with 5.6m span and 5.2m in height. The wingwalls are constructed with reinforced concrete with spread footings. The structure carries the M06 Motorway over the regional road, R348.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Deck, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2010

Conclusion:

A definitive conclusion of the design loads can be drawn from the available previous Principal Inspection. The structure was designed for 45HB loading distributed in 2 directions in accordance with British Standard. National Road structures would generally have been designed to HA + 45HB at that time. It can therefore be reasonably assumed that this structure was designed to HA+45HB as it carried the Motorway.

However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	18/07/2022
Change In Condition	N/A
Change In Standards	N/A
Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	OBG157D Athenry IDA Overbridge		
Structure Number	OBG157D		
Date Commissioned	2018		
Obstacles Crossed	Railway		
Bridge Carries	Ballygarraun South Road		
Brief Description of Structure			
The structure is a single span precast prestressed reinforced concrete beams with cast in-situ concrete slab integral bridge. The abutments are compiled of bank seats with bored reinforced concrete piles. The structure carries the local road, Ballygarraun South Road, over an Dublin-Galway Railway. The deck is constructed with 29 no. of precast prestressed reinforced concrete TY11 beams, 2 no. of TYE 11 beams and concrete infill between the beams. Each beam spans 20.25m from the centre of the bank seats.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Beams,Deck, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2021

Conclusion:

A definitive conclusion of the design loads and technical standards cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other regional road bridges, and the construction date of 2018. Regional road structures would generally have been designed to SV196. It can therefore it cannot reasonably assumed that this structure was designed to SV196 or load models as it carried the Regional Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested..

Evaluation	
Inspection Date	16/08/2021
Change In Condition	N/A
Change In Standards	N/A

Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure. No traffic shall be allowed on the bridge while the permit vehicle is crossing the bridge.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Castlelambert Overbridge		
Structure Number	DC-M17-005.00		
Date Commissioned	2017		
Obstacles Crossed	Motorway		
Bridge Carries	L3103		
Brief Description of Structure			
The structure is a two span in situ precast prestressed beams with in-situ concrete slab integral bridge. The abutments, wing walls and piers are constructed with reinforced concrete on spread footings. The structure carries the local road, L3103, over the M17 motorway. The deck is constructed with 3 no. of W5 precast beams, FRC precast permanent formwork, and a 200mm in-situ slab. Epibear pads and high strength non shrink grout is used at the beam connections to the abutments and pier. Beams span 22790mm at the western span and 23220mm at the eastern span.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+30HB	SV	SV00
Critical Elements	Beams, Deck, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2023

Conclusion:

A definitive conclusion of the design loads and technical standards cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other local road bridges, and the construction date of 2017. Local road structures would generally have been designed to SV100. It can therefore it cannot reasonably assumed that this structure was designed to SV100 or load models as it carried the Regional Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	30/08/2017
Change In Condition	N/A
Change In Standards	N/A

Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 30HB+HA, and LM1+LM3 (SV100) load combinations indicates that the bridge remains UNSAFE under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle should NOT be allowed to pass over the bridge	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Ballybrit Cycle-lane Underpass		
Structure Number	GB-N06-008.00		
Date Commissioned	1996		
Obstacles Crossed	Foot/Cycle path		
Bridge Carries	N06		
Brief Description of Structure			
The structure is a single span precast reinforced concrete arch. The structure is compiled of precast sections. The structure carries the N06 National Road over a foot/cycle path. The spandrel and wingwalls appear to have a masonry façade.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Arch Barrel, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	N/A		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are no As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- The latest PI report available for this structure is dated 2022

Conclusion:

A definitive conclusion of the design loads cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other national road bridges, it can be taken with reasonable confidence that this bridge was designed in 1996 to carry a National Road. National Road structures would generally have been designed to HA + 45HB at that time. It can therefore be reasonably assumed that this structure was designed to HA+45HB as it carried the National Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	21/02/2022
Change In Condition	N/A
Change In Standards	N/A
Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

ANNEX B RECORD OF STRUCTURAL REVIEW FORM

NATIONAL ROADS AUTHORITY

Record of Structural Review Form

Structure Details			
Structure Name	Road over Road Bridge		
Structure Number	N/A		
Date Commissioned	2017		
Obstacles Crossed	Road		
Bridge Carries	R348		
Brief Description of Structure			
The structure is a single span precast prestressed beams with in-situ concrete slab integral bridge. The abutments are compiled of bank seats and reinforced earth retaining wall.. The structure is situated on spread footings. The structure carries the R348 Regional Road over the Prospect Road. Each precast beam spans a total length of 20.0m.			
Elements to be Reviewed (where not the whole structure)			
Reason for Structural Review	As part of the abnormal load transportation route between Galway Port and Cashla Powerplant, a series of structures along two proposed routes require load assessments to determine their suitability for accommodating the intended loadings. This particular structure lies along the abnormal load route and was therefore included in the assessment.		
Existing Assessment Details or Design Records			
Inspection for Assessment Date	N/A	Recorded Condition	N/A
Technical Acceptance Report for Assessment	N/A	Status	N/A
Assessment Date	N/A	Report Number	N/A
Current Assessed/Design Capacity (include Reserve Factors)			
HA/ALL	HA+45HB	SV	SV196
Critical Elements	Arch Barrel, Abutments		
Parapet	N/A		
Pier Impact	N/A		
Certification	N/A		
Calculations	N/A		
As built drawings	Acquired		
Comments on Assessment or Design			

Available Reports/Drawings:

- There are no As Built drawings available for this structure
- There are no technical approval reports available for this structure
- There are no assessment reports available for this structure
- There are no assessment PI reports available for this structure

Conclusion:

A definitive conclusion of the design loads cannot be drawn from the available records only but rather from judgement based in the following fact: Based on a comparison of structural form and visible details with other national road bridges, it can be taken with reasonable confidence that this bridge was designed in 2017 to carry a Regional Road. Regional Road structures would generally have been designed to SV196 at that time. It can therefore be reasonably assumed that this structure was designed to SV196 as it carried the Regional Road. However, given that no information is available to definitively confirm this, a conservative approach will be adopted and both British Standard and Eurocodes will be tested.

Evaluation	
Inspection Date	N/A
Change In Condition	N/A
Change In Standards	N/A

Change In Loading	N/A

Conclusion	A comparative assessment using EAL, 45HB+HA, and LM1+LM3 (SV196) load combinations indicates that the bridge remains safe under EAL loading conditions.
Recommendation (delete and complete as applicable)	
The permit vehicle (EAL) must remain in the slow lane at all times while crossing the structure. The permit vehicle (EAL) must travel at a speed of less than 10 mph over the structure. No traffic shall be allowed on the bridge while the permit vehicle is crossing the bridge.	

4.2. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed[1]
Name Evren Savas
Position Lead Structural Assessment Engineer

Signed
Name A.J. Browne
Position Principal Officer or Director – Design Office
_____

Date 21/08/2025

4.3. ACCEPTANCE OF REVIEW FORM

The National Roads Authority accepts this certificate

Signed _____
Name _____
Position _____- Structures, National Roads Authority

Date ____/____/____

The persons who sign as Lead Structural Assessment Engineer must be a Chartered Engineer with a recognised University degree to Level 8 or equivalent with a minimum of 10 years post graduate experience in the assessment of bridge structures.

Appendix C. As-Built Drawings

Rev G

Status X

Drawing Number 5048435/BR/DR/ST1A/001

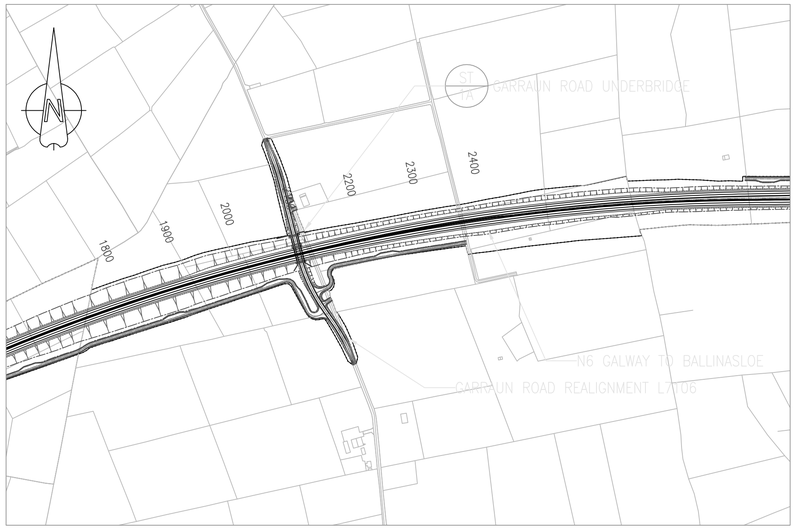
DO NOT SCALE

A1

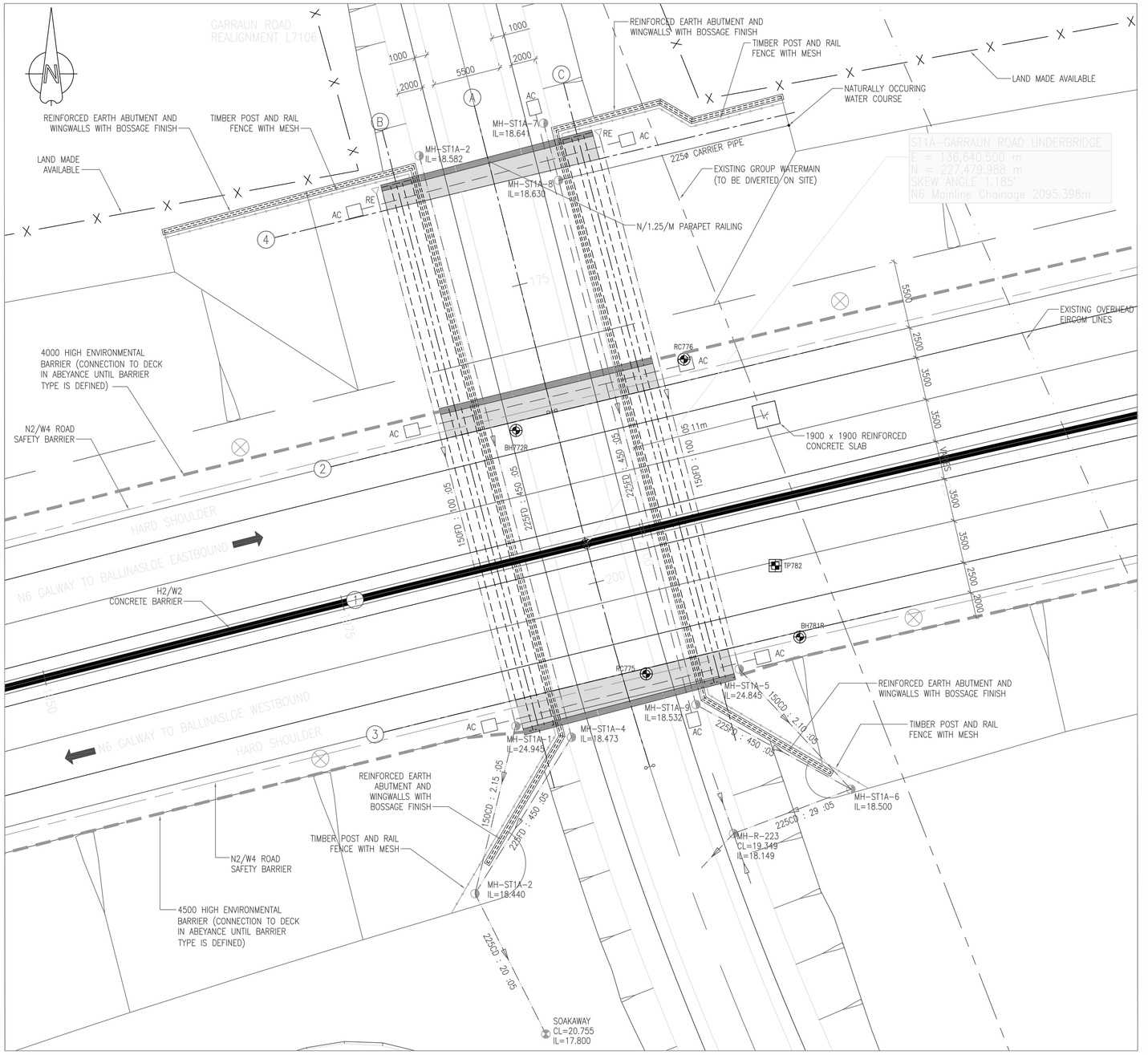
0 10 100

File: 5048435-BR-DR-ST1A-001 Rev G.dwg

Date: Feb 14, 2012 - 3:31pm Plotted by: NNaughton



SITE LOCATION PLAN – STRUCTURE ST1A
1:5000



SITE LAYOUT – STRUCTURE ST1A
1:200

LEGEND

- RE RODDING EYE
- CP CATCHPIT (OR RODDING EYE)
- MH MANHOLE
- SOAKAWAY, 1x1x2.5m DEEP WITH TYPE B FILTER MATERIAL WITH TERRAM 2000 OP SIMLIAR GEOTEXTILE SURROUND
- AC ACCESS CHAMBER FOR DUCTS (TO NRA RCD 500/5)
- 150mm DIA. HDPE OR uPVC PERFORATED OR POROUS PIPE
- SURFACE MOVEMENT MONITORING BEACONS

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE, REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST1A/025, 026 AND 027
6. FOR DETAILS OF PUBLIC LIGHTING, REFER TO DRAWING 5048435/HW/ST1A/L13/028

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluo · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth	Rev	Description	By	Date	Chk'd	Auth
X	AS-BUILT	04/11	TM	F	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
C	ISSUED FOR CONSTRUCTION	02/11	PF		SUPPLIED BY N6 CONSTRUCTION				
C	ISSUED FOR CONSTRUCTION	09/10	PF	F	DUCTS AMENDED	DC	02/11	PF	PF
C	ISSUED FOR CONSTRUCTION	12/09	PF	E	DUCTS AMENDED	PP	09/10	PF	PF
A	ISSUED FOR NRA APPROVAL	11/09	PF	D	BACK OF WALL DRAINAGE AMENDED.	PP	11/09	JG	PF
A	ISSUED FOR APPROVAL	05/09	PF	C	ADDITIONAL DRAINAGE & SLABS – CHANGES CLOUDED	KP	05/09	FM	PF
A	ISSUED FOR NRA APPROVAL	05/08	MJ	B	BRIDGE ELEVATON, SECTIONS REMOVED	AOS	05/08	PG	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ						
R	ISSUED FOR CJV REVIEW	11/07	MJ	A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · fcc CONSTRUCTION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 1 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 20/11/07	PG Date 20/11/07	MJ Date 20/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/001	G

Z:\N6\14 As Build Submissions\Structures\ST01A\A\AutoCAD\5048435-BR-DR-ST1A-001 Rev G.dwg

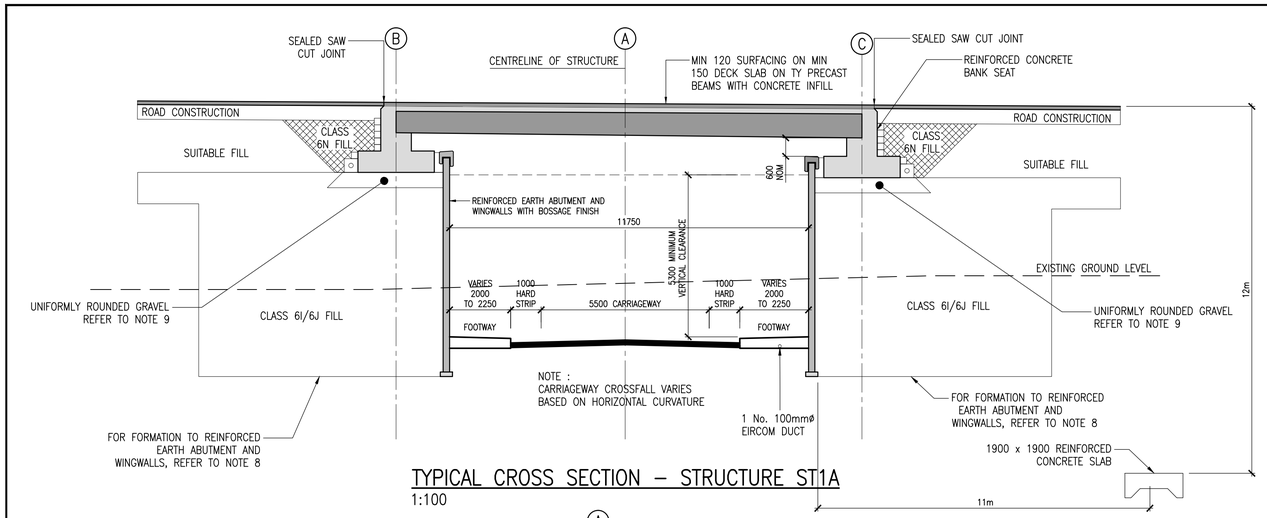
Rev E

Drawing Number 5048435/BR/DR/ST1A/002

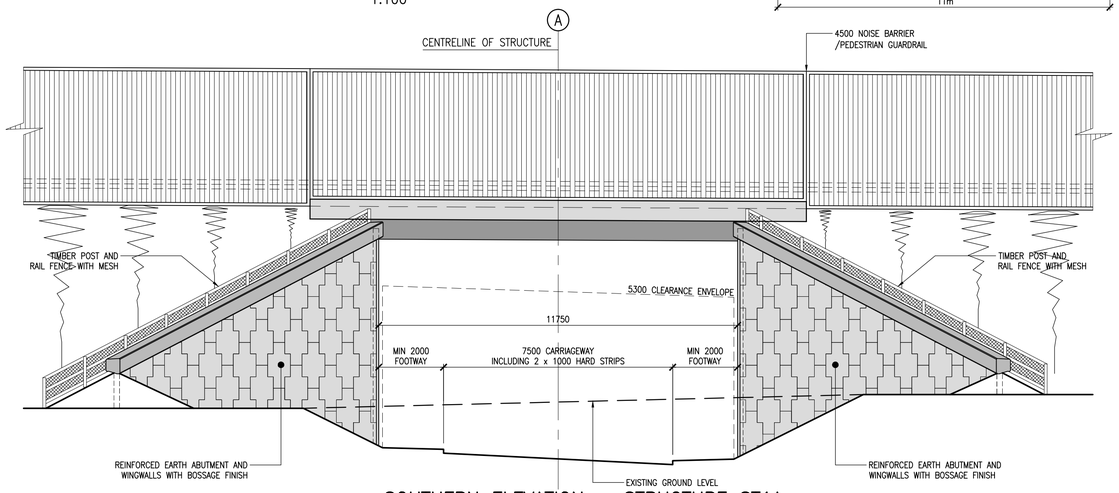
Status X

DO NOT SCALE

A1



TYPICAL CROSS SECTION – STRUCTURE ST1A
1:100



SOUTHERN ELEVATION – STRUCTURE ST1A
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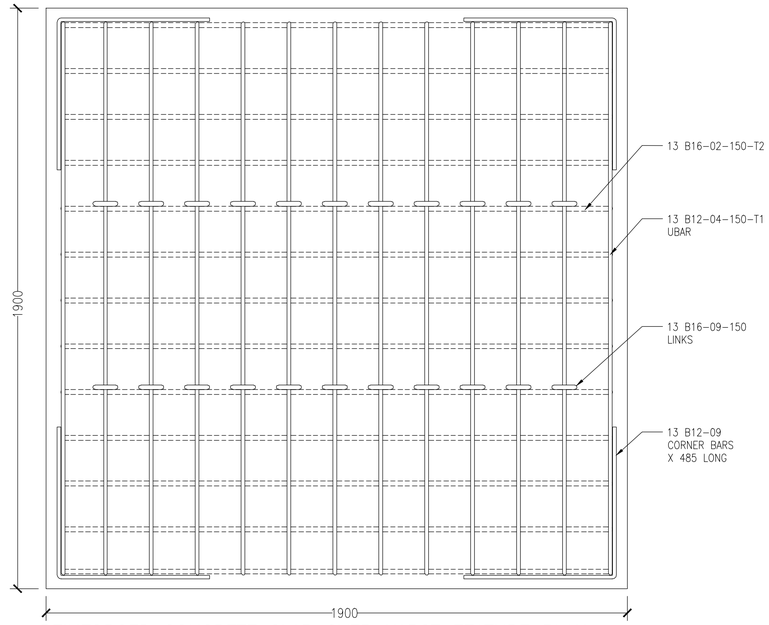
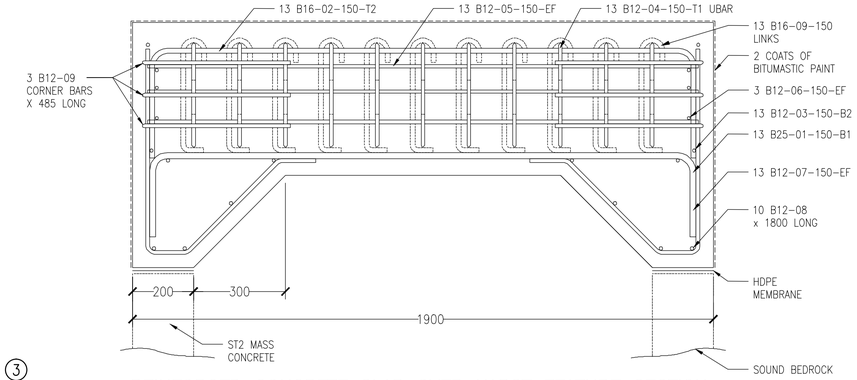
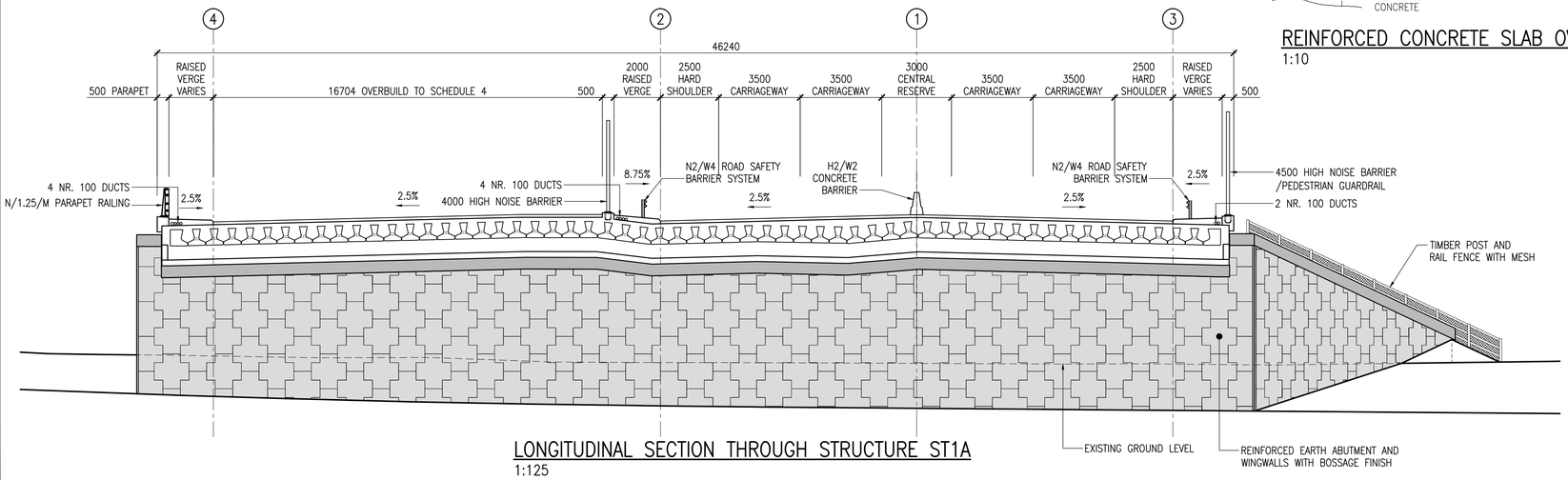


REINFORCED CONCRETE SLAB OVER KARST FEATURE PLAN
1:10



REINFORCED CONCRETE SLAB OVER KARST FEATURE SECTION
1:10



LONGITUDINAL SECTION THROUGH STRUCTURE ST1A
1:125

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE, REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST1A/025, 026 AND 027
6. FOR DETAILS OF PUBLIC LIGHTING, REFER TO DRAWING NR. 5048435/HW/ST1A/L13/028
7. FOR DETAILS OF BANKSEAT FORMATION, REFER TO DRAWING NR. 5048435/BR/DR/ST1A/041
8. IN–SITU MATERIAL AT THE BASE OF THE EXCAVATION SHALL CONSIST OF EITHER MEDIUM DENSE GRANULAR GLACIAL DEPOSITS OR STIFF COHESIVE GLACIAL DEPOSITS WITH MINIMUM UNDRAINED SHEAR STRENGTH (Cu) OF 110 kPa AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FILLING.
   IF THE MATERIAL ENCOUNTERED AT THE BASE OF THE EXCAVATION DOES NOT MEET THE DESIGN REQUIREMENTS, ADDITIONAL EXCAVATION AND REPLACEMENT WITH CLASS 6N FILL WILL BE REQUIRED.
9. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION.

   THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :
   - $\varphi \leq 32°$
   - GRADING PRECENTAGE PASSING :
     50mm 100%
     2mm < 30%
     80μm <5%

   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50kN

INSTRUMENTATION AND MONITORING NOTES

INSTRUMENTATION SHALL CONSIST OF :
- MONITORING PINS ON REINFORCED EARTH FACING
- TWO MONITORING PINS AT EACH ABUTMENT TO MONITOR STRUCTURE SETTLEMENT
- TWO SURFACE MOVEMENT BEACONS IN THE VERGES OF THE APPROACH EMBANKMENTS, 10m BACK FROM THE STRUCTURE, AT EACH ABUTMENT TO MONITOR SETTLEMENTS OF THE APPROACH EMBANKMENTS

EXACT INSTRUMENTATION LOCATIONS SHALL BE AGREED ON SITE WITH THE DESIGNER

INSTRUMENTATION SHALL BE MONITORED IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/12

CONSTRUCTION SEQUENCE NOTES

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE IMPLEMENTED :
- EXCAVATE IN–SITU MATERIAL DOWN TO BASE OF REINFORCED EARTH WALL
- BUILD REINFORCED EARTH ABUTMENTS AND WINGWALLS AND APPROACH EMBANKMENTS
- CONSTRUCT BANKSEATS
- PLACE DECK BEAMS
- LOCK INTEGRAL CONNECTIONS FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE
- BACKFILL AT THE BACK OF THE BANKSEATS
- COMPLETE DECK CONSTRUCTION
- CONSTRUCT ROAD PAVEMENT FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITOIRING ARE ACCEPTABLE

CONCRETE IMPREGNATION AND SURFACE COATING

ALL EXPOSED CONCRETE IN BRIDGE SUPERSTRUCTURES WITHIN THE SPLASH ZONE, WITH THE EXCEPTION OF PRECAST BEAMS AND PRECAST FORMWORK BETWEEN BEAMS WAS TREATED WITH 'BRIDGEGUARD' PRIOR TO ITS APPLICATION FOSROC RENDEROC FC WAS APPLIED TO ENSURE UNIFORM COLOUR. FOSROC RENDERROC FC WAS APPLIED TO PRECAST PARAPET EDGE BEAMS.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN — Transport 21 — NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	09/12	CC
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/11	PF
C	ISSUED FOR CONSTRUCTION	08/10	PF
C	ISSUED FOR CONSTRUCTION	12/09	PF
A	ISSUED FOR APPROVAL	05/09	PF
A	ISSUED FOR NRA APPROVAL	06/08	MJ
A	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
E	AS–BUILT INFORMATION	NN	09/12	LC	CC
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	DUCTING AMENDED	DC	02/11	PF	PF
C	DUCTING AMENDED	DC	08/10	PF	PF
B	PROTECTION SLABS ADDED	KP	05/09	FM	PF
A	PRELIMINARY ISSUE	AOS	05/08	PG	MJ

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Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 29/04/08	PG Date 29/04/08	MJ Date 29/04/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/002	E

File: 5048435-BR-DR-ST1A-002 Rev E.dwg Date: Sep 10, 2012 – 11:16am Plotted by: mnaughton

X:\DESIGN OFFICE\AB INFO\Rev C\Structures\ST01A\2.1 Drawings\ST1A\AutoCAD\5048435-BR-DR-ST1A-002 Rev E.dwg

Rev B | Status X | Drawing Number 5048435/BR/DR/ST1A/025

DO NOT SCALE

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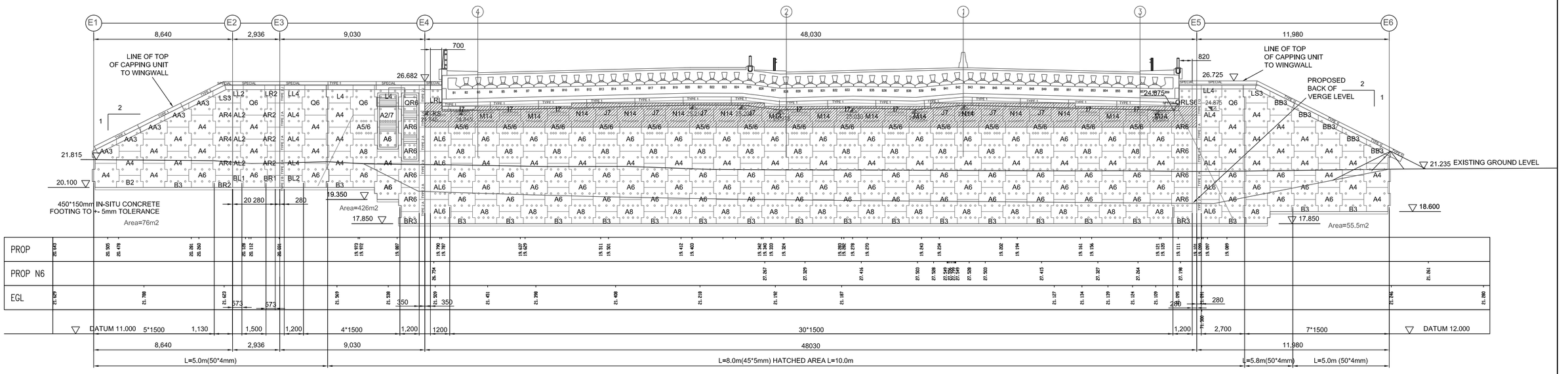
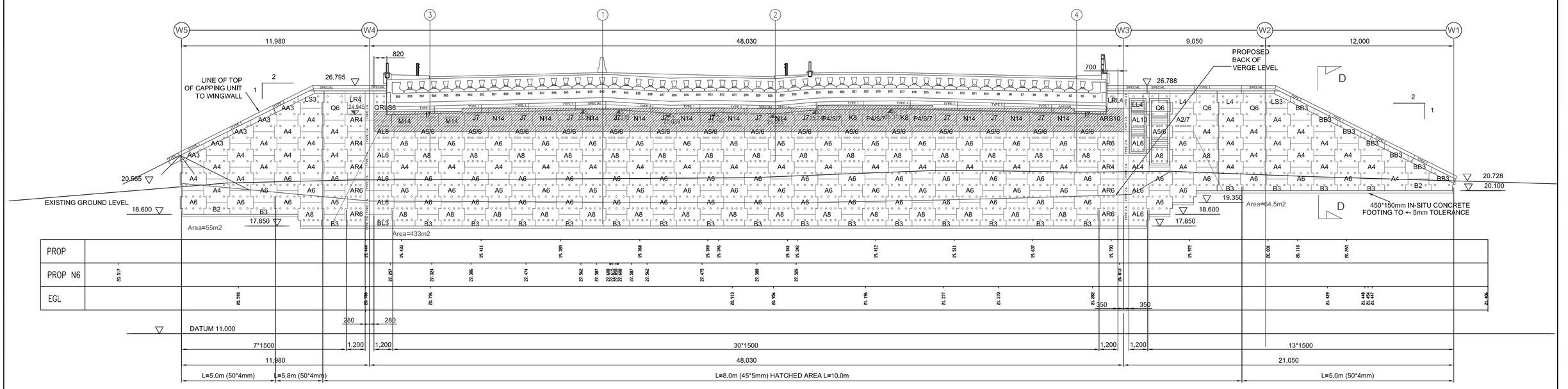


DEVELOPED ELEVATION - STA 1 E1 SCALE 1:100



DEVELOPED ELEVATION - STA 1 W1 SCALE 1:100

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional Fill to be class 6l/6J In accordance with Specification for Highways Works, as amended by Table 4. BS8006 1995 Class 6l/6j fill shall achieve a mimimum ø = 38°.
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the REINFORCED EARTH CO (IRELAND) LTD UNIT F, M7 BUSINESS PARK NAAS Co. KILDARE TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. The material under the bankseats to a depth below blinding level of the bakseat shall consist of uniformly graded rounded gravel to achieve
   ø = 32°
   Grading: Passing 50mm - 100%
   2mm - < 30%
   80um-< 5%
   Uniformity coefficient Cu < 5
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 180 thick.

NOTES :-

1). FOR DETAILS OF REINFORCEMENT IN PRECAST CONCRETE PANELS AND COPINGS REFER TO DRAWING 5048435/BR/DR/STD/075

2). UNLESS OTHERWISE INDICATED, ALL EXPOSED ARISES OF STRUCTURAL CONCRETE SHALL BE FINISHED WITH A 25 x 25mm CHAMFER

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport | NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluo | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	06/08	MJ
A	ISSUED FOR NRA APPROVAL	04/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	04/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | fcc CONSTRUCTION, S.A. | Sacyr | HEGARTY

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Title: N6 GALWAY TO BALLINASLOE ST1A - GARRAUNROE UNDERBRIDGE REINFORCED EARTH DETAILS SHEET 1 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 29/04/08	PG Date 29/04/08	MJ Date 29/04/08

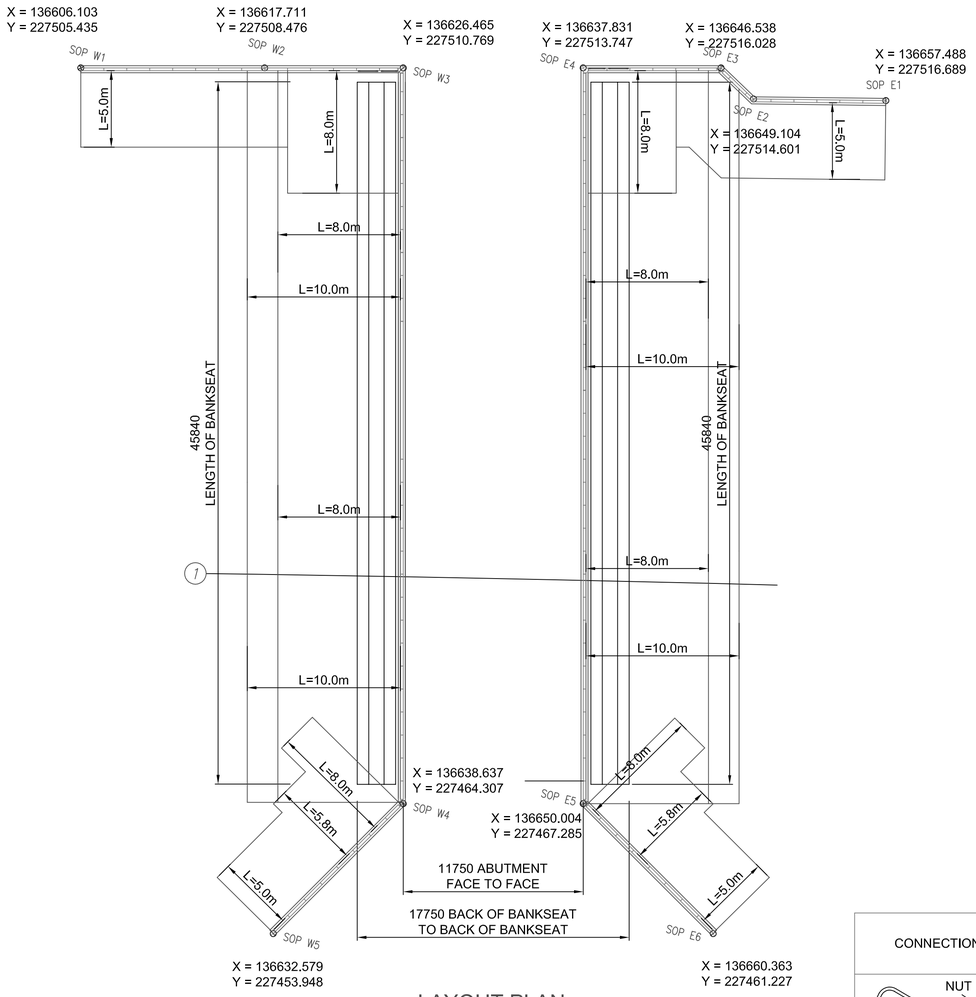
Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/025	B

File: 5048435-BR-DR-ST1A-025 Rev B.dwg Date: Feb 14, 2012 - 3:33pm Plotted by: NNaughton

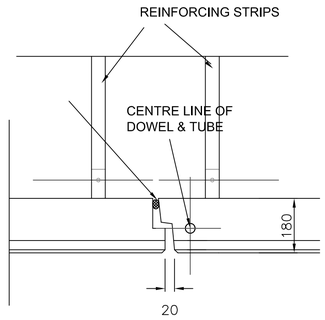
0 10 100

Z:\N6\14 As Build Submissions\Structures\ST01A\A\AutoCAD\5048435-BR-DR-ST1A-025 Rev B.dwg

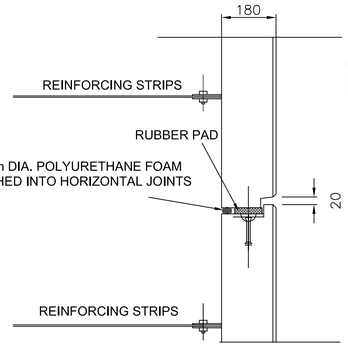
Rev C | Status X | Drawing Number 5048435/BR/DR/ST1A/026 | DO NOT SCALE | A1 | 0 10 100



LAYOUT PLAN
SCALE 1:200



SECTION BB
SCALE 1:10



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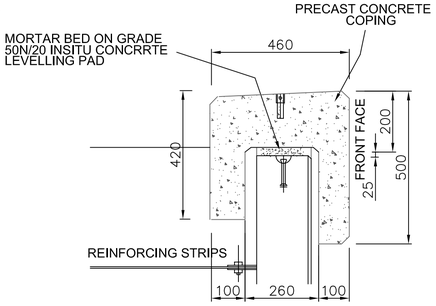
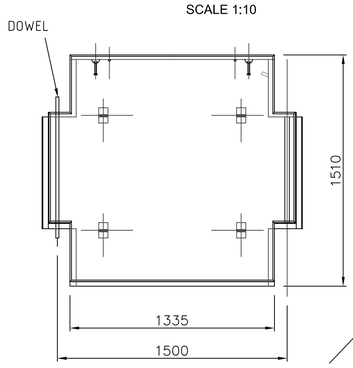
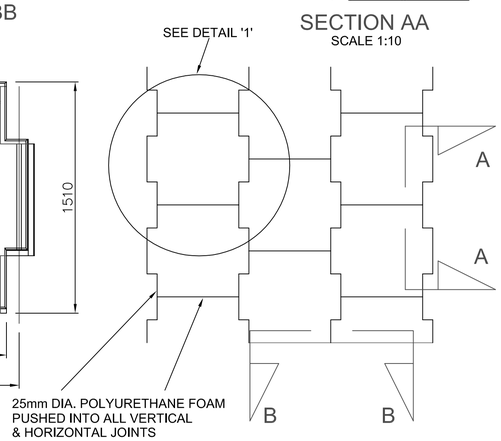


DETAIL "3"
SCALE 1:10

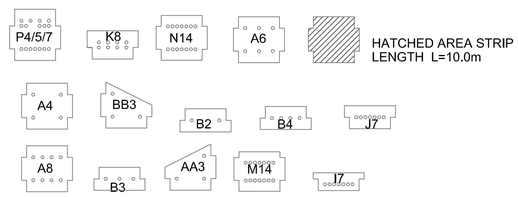


DETAIL 1
SCALE 1:20



BACK ELEVATION OF PANELS
SCALE 1:50

LEGEND:



L=LENGTH OF REINFORCING STRIPS
ALL REINFORCING STRIPS ARE TO BE OF HIGH ADHERENCE
HOT DIP GALVANIZED MEDIUM TENSILE STEEL.

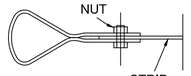
Facing Panel designation:

basic type - A,B,I,M,AA etc

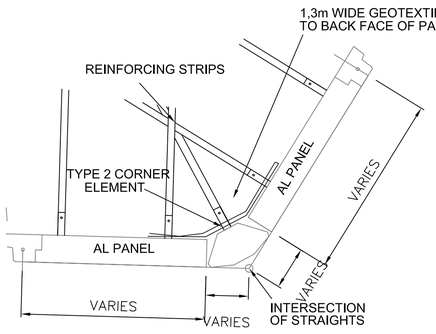
Cut (Vertical straight) - suffix d(r/hand), g(l/hand).

Standard No lugs (strip connection) - suffix 2,3,4 etc

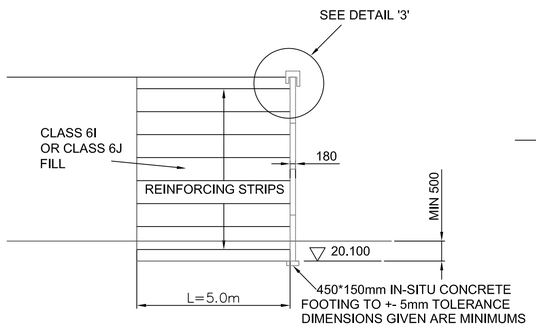
Non-standard No of lugs - suffix eg. 5/6
(strip connection) (No of lugs on a level, starting from the top)

CONNECTION DETAIL	REINF. STRIP DETAIL	TIE STRIP DIMENSION	BOLT DIAMETER	BOLT HOLE DIAMETER	GRADE OF NUT & BOLT
	50*4mm (HA)	45*4.5mm	12.0mm	13.5mm	10.9
	45*5mm (HAR)	45*4.5mm	12.0mm	13.5mm	10.9

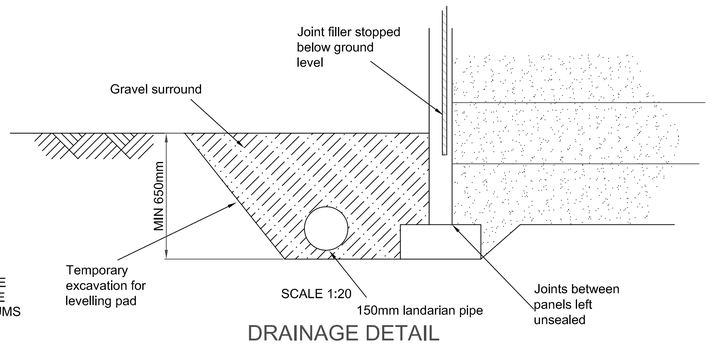
CONNECTION DETAIL



CORNER TYPE 2
SCALE 1:20



CROSS SECTION 'DD'
DETAIL 1:100



DRAINAGE DETAIL

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional Fill to be class 6I/6J in accordance with Specification for Highways Works, as amended by Table 4. BS8006 1995
   Class 6i/6j fill shall achieve a mimimum ø = 38°.
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. The material under the bankseats to a depth below blinding level of the bakseat shall consist of uniformly graded rounded gravel to achieve
   ø = 32°
   Grading: Passing 50mm - 100%
   2mm - < 30%
   80um-< 5%
   Uniformity coefficient Cu < 5
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 180 thick.

NOTES :-

1). FOR DETAILS OF REINFORCEMENT IN PRECAST CONCRETE PANELS AND COPINGS REFER TO DRAWING 5048435/BR/DR/STD/075

2). UNLESS OTHERWISE INDICATED, ALL EXPOSED ARISES OF STRUCTURAL CONCRETE SHALL BE FINISHED WITH A 25 x 25mm CHAMFER

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	12/09	PF
A	ISSUED FOR APPROVAL	05/09	PF
C	ISSUED FOR CONSTRUCTION	06/08	MJ
A	ISSUED FOR NRA APPROVAL	04/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFROMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	DIMENSIONS AMENDED – CHANGES CLOUDED	KP	05/09	FM	PF
A	PRELIMINARY ISSUE	AOS	04/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUNRAD UNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 2 OF 2
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 29/04/08	PG Date 29/04/08	MJ Date 29/04/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/026	C

File: 5048435-BR-DR-ST1A-026 Rev C.dwg Date: Feb 14, 2012 - 3:36pm Plotted by: NNaughton

Z:\N6\14 As Build Submissions\Structures\ST01A\A\AutoCAD\5048435-BR-DR-ST1A-026 Rev C.dwg

Rev B

Status X

Drawing Number 5048435/BR/DR/ST1A/027

DO NOT SCALE

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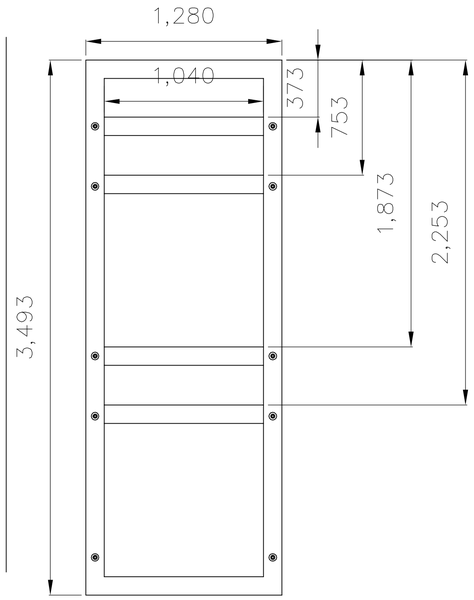
0 10 100

FRAME E4-1



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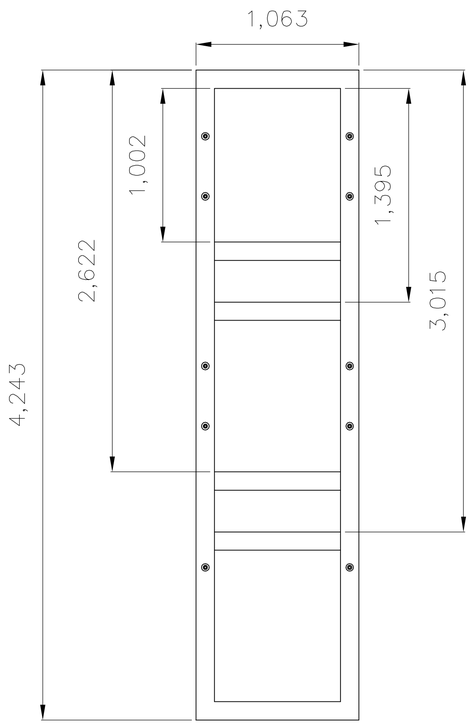

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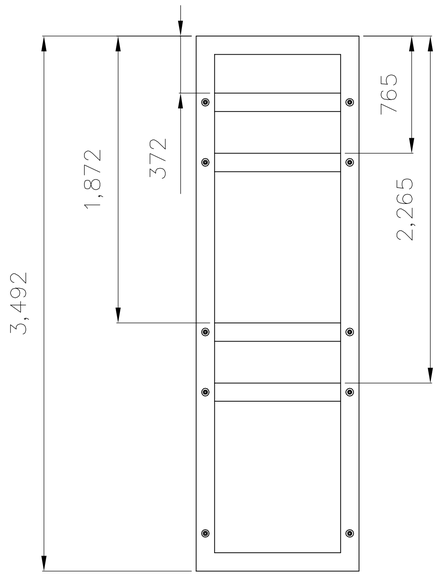

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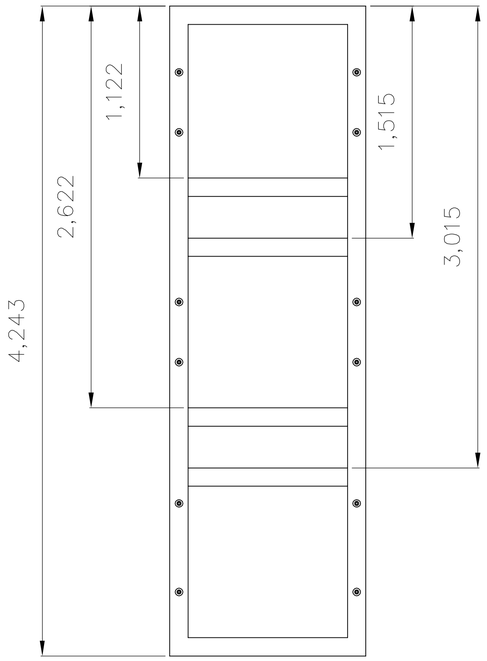
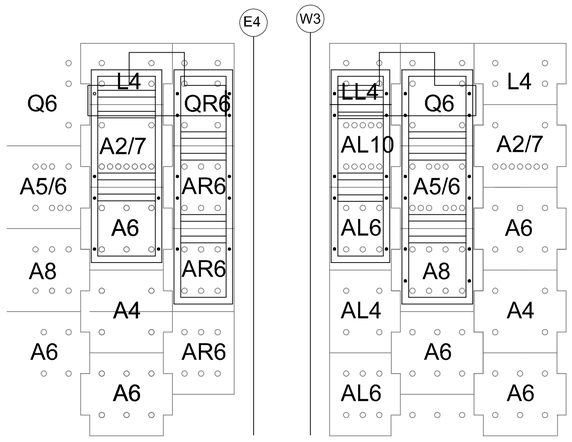


SUPPORTING STEELWORK DIMENSIONS

SCALE 1:20

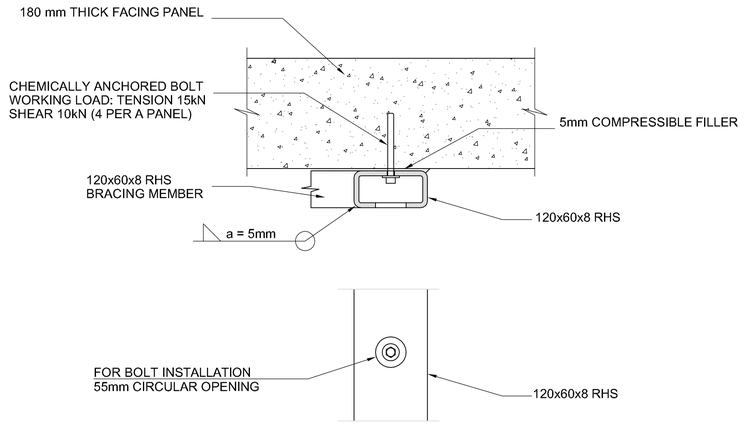


SCALE 1:50

SCALE 1:50

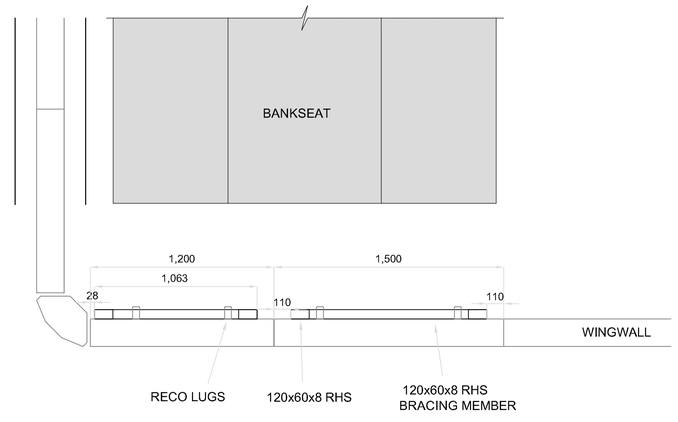
PART ELEVATION - NORTH EAST WINGWALL

PART ELEVATION - NORTH WEST WINGWALL



SUPPORTING STEELWORK FIXING DETAILS

DETAIL 1:5



SUPPORTING STEELWORK CORNER DETAILS

DETAIL 1:20

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An Ríomhaire um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	06/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
A	ISSUED FOR NRA APPROVAL	04/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	INCORPORATING NRA COMMENTS	DJO'D	06/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	04/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY Building & Civil Engineering Contractors

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST1A - GARRAUN ROAD UNDERBRIDGE LADDER FRAME SUPPORTING STEELWORK DETAILS

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 29/04/08	PG Date 29/04/08	MJ Date 29/04/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/027	B

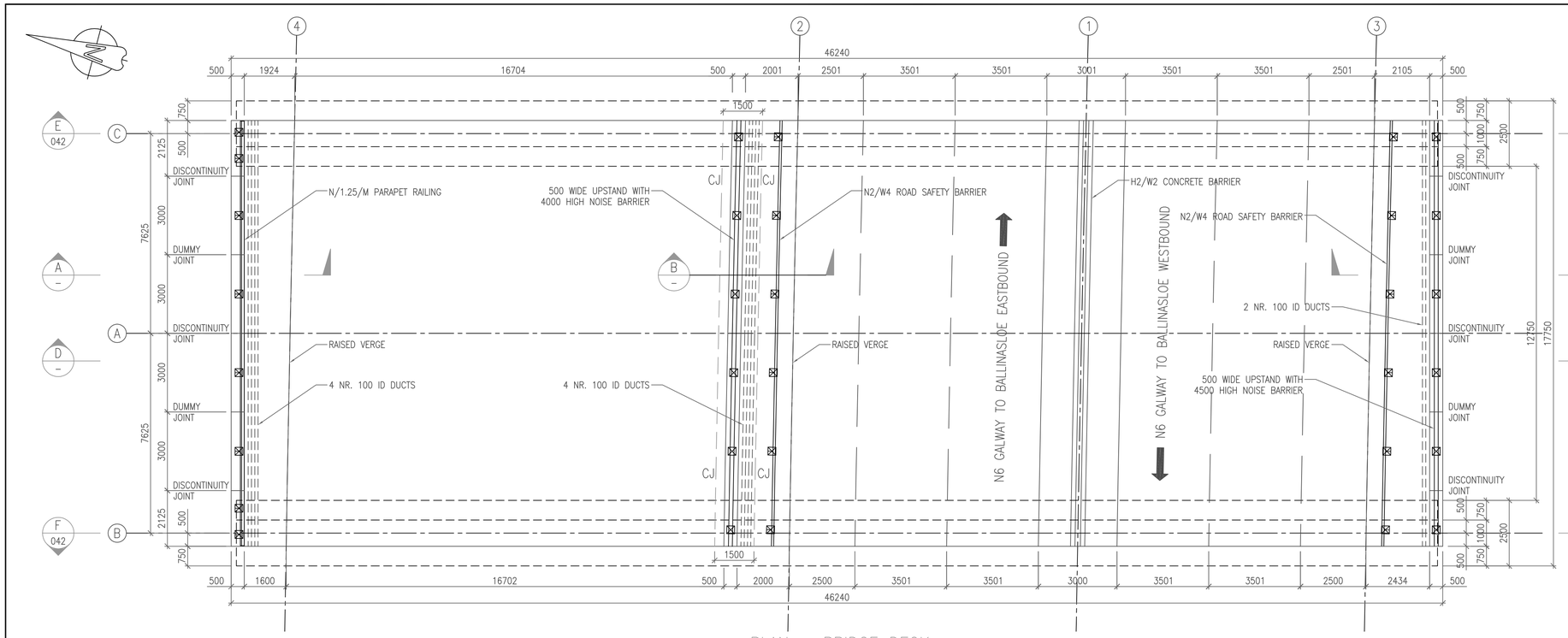
File: 5048435-BR-DR-ST1A-027 Rev B.dwg Date: Apr 06, 2011 - 4:04pm Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-027 Rev B.dwg

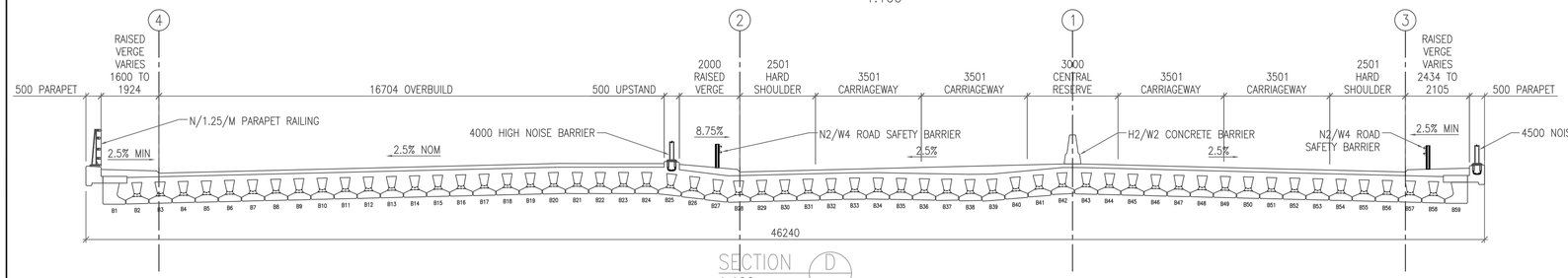
Rev E | Status X | Drawing Number 5048435/BR/DR/ST1A/040 | DO NOT SCALE | A1 | 0 10 100

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
4. FOR DETAILS OF PUBLIC LIGHTING, REFER TO DRAWING NR. 5048435/HW/ST1A/L13/028



PLAN – BRIDGE DECK
1:100



SECTION D
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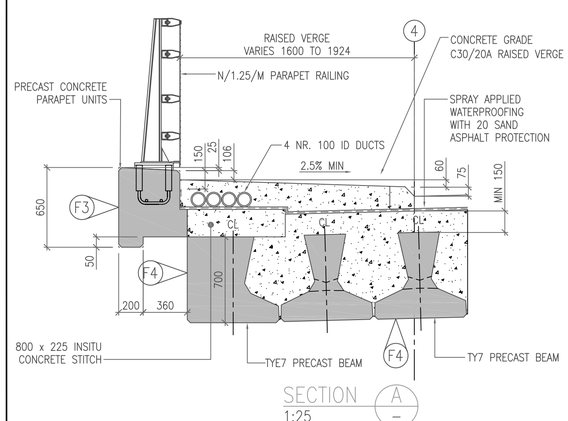

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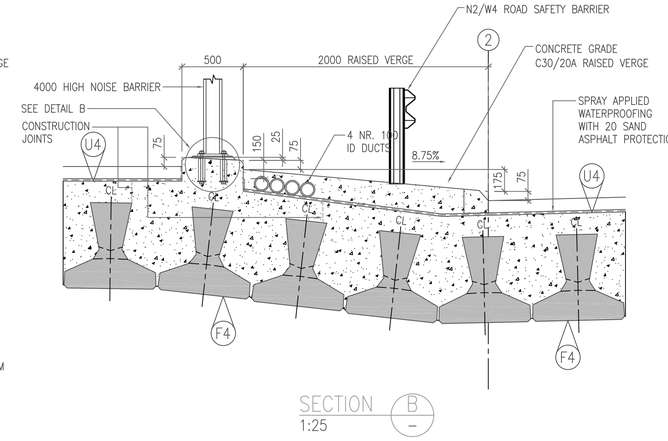

SECTION B
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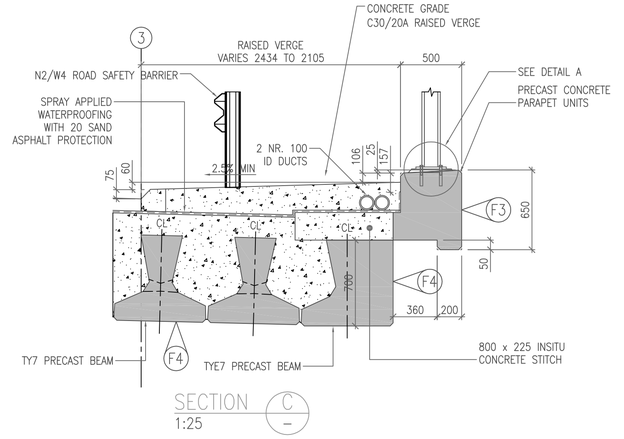

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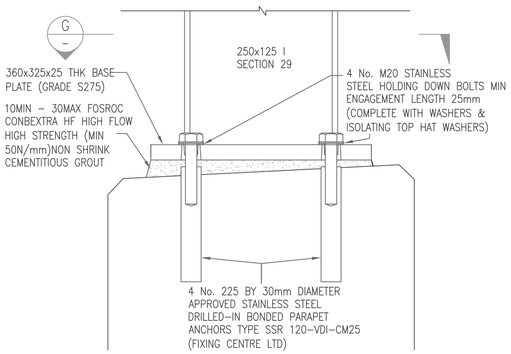
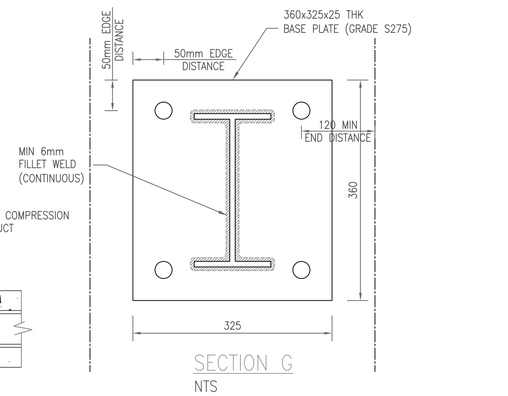


DETAIL A
(DRILLED–IN BONDED TYPE ANCHORAGE)
NTS



SECTION G
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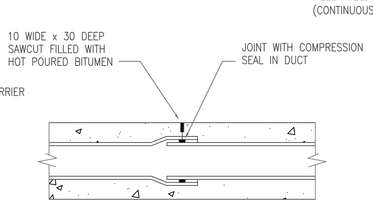
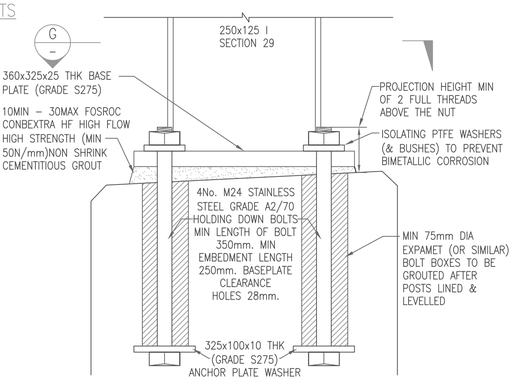


MOVEMENT JOINT – SERVICE DUCTS
NTS



DETAIL B
CAST IN PLACE NOISE BARRIER POST H.D. BOLT ANCHORAGE DETAIL
NTS

AS BUILT

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	12/09	PF
A	ISSUED FOR NRA APPROVAL	10/09	PF
A	ISSUED FOR APPROVAL	05/09	PF
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
C	SUPPLIED BY N6 CONSTRUCTION				
A	REVISIONS CLOUDED	DC	10/09	JG	PF
C	CONSTRUCTION JOINTS ADDED – CHANGES CLOUDED	KP	05/09	FM	PF
B	BANKSEAT LEVELS REVISED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUNROAD UNDERBRIDGE
BRIDGE DECK GENERAL ARRANGEMENT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/040	E

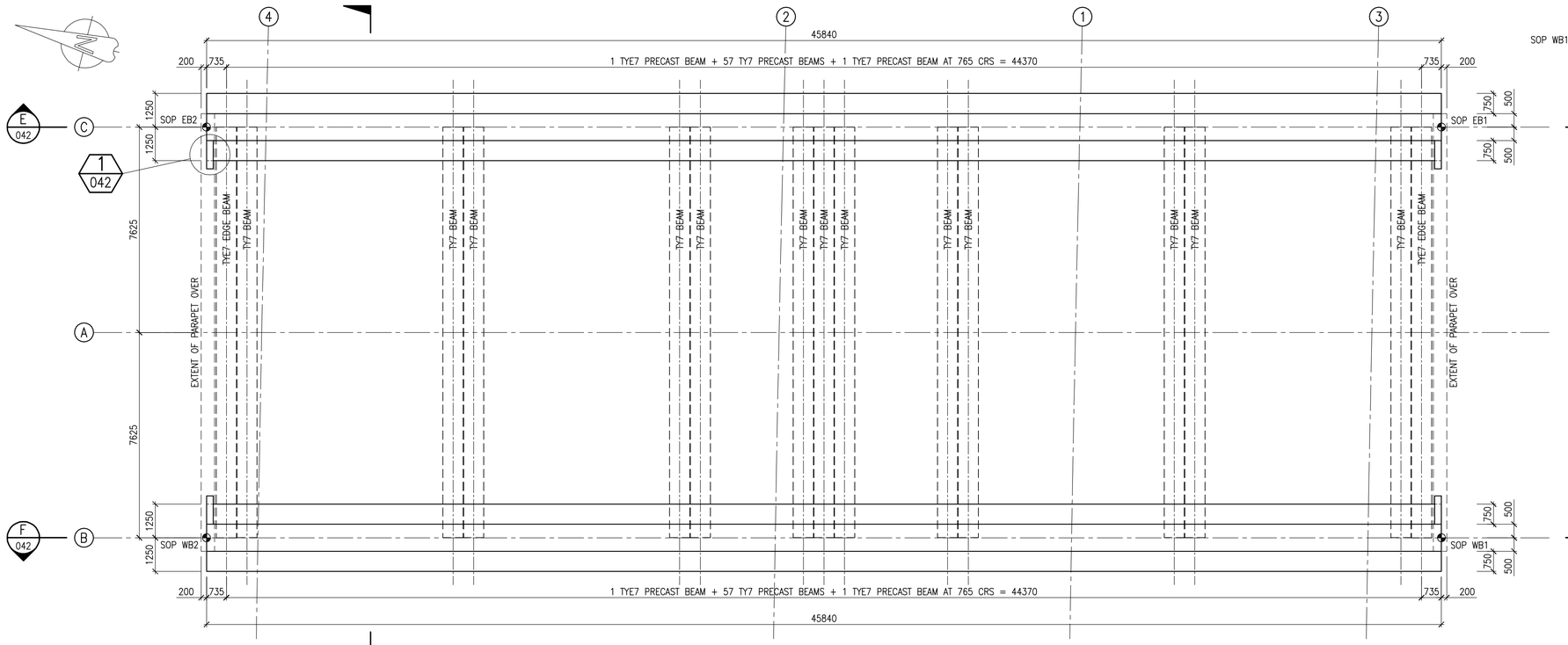
File: 5048435–BR–DR–ST1A–040 Rev E.dwg Date: Feb 14, 2012 – 3:41pm Plotted by: NNoughton

Z:\N6\14 As Build Submissions\Structures\ST01A\A\AutoCAD\5048435–BR–DR–ST1A–040 Rev E.dwg

Rev C | Status X | Drawing Number 5048435/BR/DR/ST1A/041

DO NOT SCALE

A1

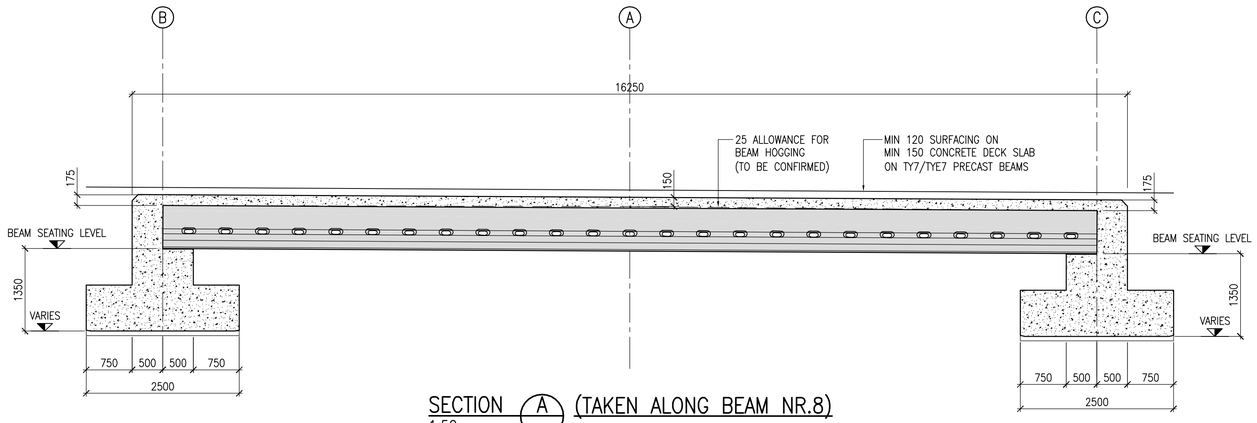


SOP	EASTING (X)	NORTHING (Y)
WB1	136,636.663	227,464.938
WB2	136,625.046	227,509.281
	----	----
EB1	136,651.415	227,468.802
EB2	136,639.798	227,513.146

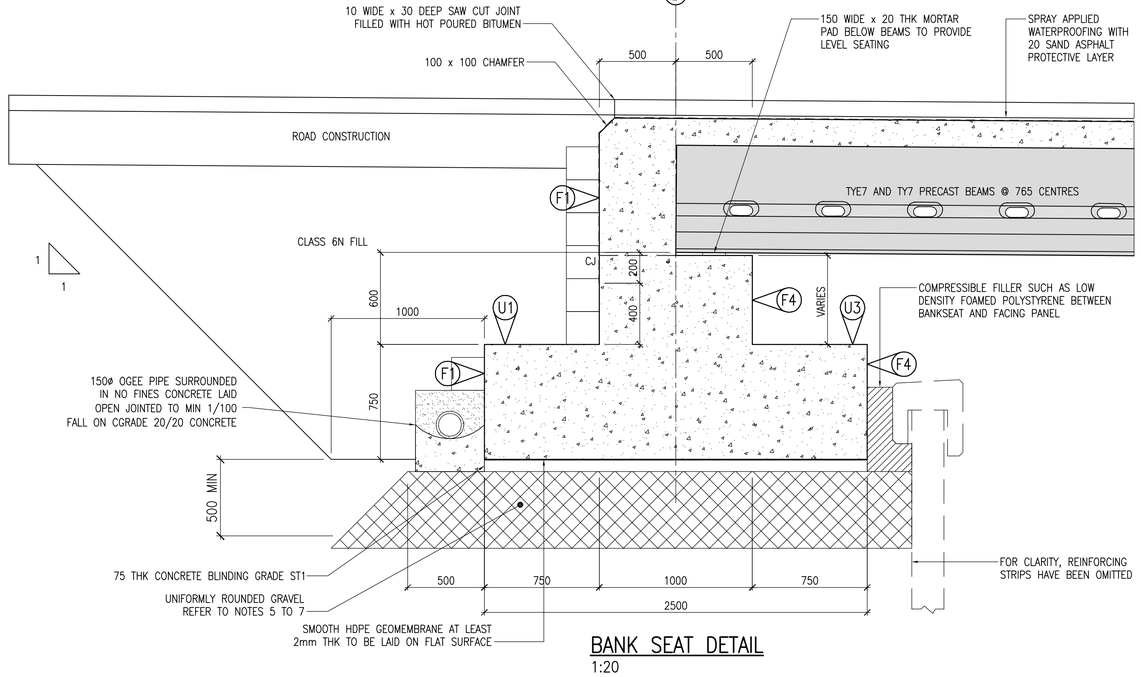
NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
4. FOR DETAILS OF PUBLIC LIGHTING, REFER TO DRAWING NR. 5048435/HW/ST1A/L13/028
5. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
6. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   $\varphi \leq 32°$
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80µm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
8. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST07/045 AND 046
9. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST07/047

PLAN – BANK SEATS
1:100



SECTION A – (TAKEN ALONG BEAM NR.8)
1:50



BANK SEAT DETAIL
1:20

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE.
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	BANKSEAT SOP'S ADDED	DJO'D	06/08	PG	MJ
B	BANKSEAT NOTES ADDED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
BANKSEAT GENERAL ARRANGEMENT
SHEET 1 OF 2
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/041	C

File: 5048435-BR-DR-ST1A-041 Rev C.dwg
Date: Apr 06, 2011 – 3:15pm Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-041 Rev C.dwg

Rev C

Drawing Number 5048435/BR/DR/ST1A/042

Status X

DO NOT SCALE

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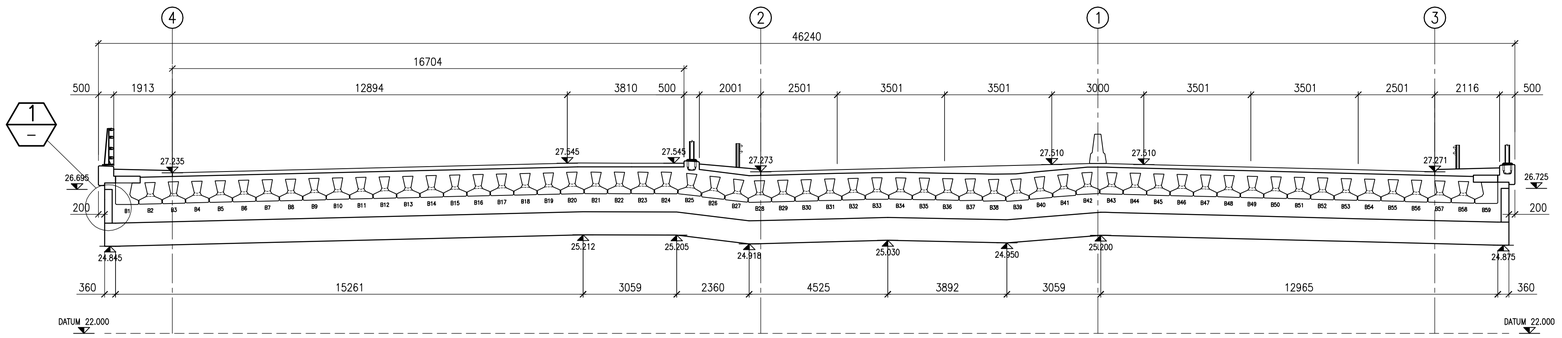
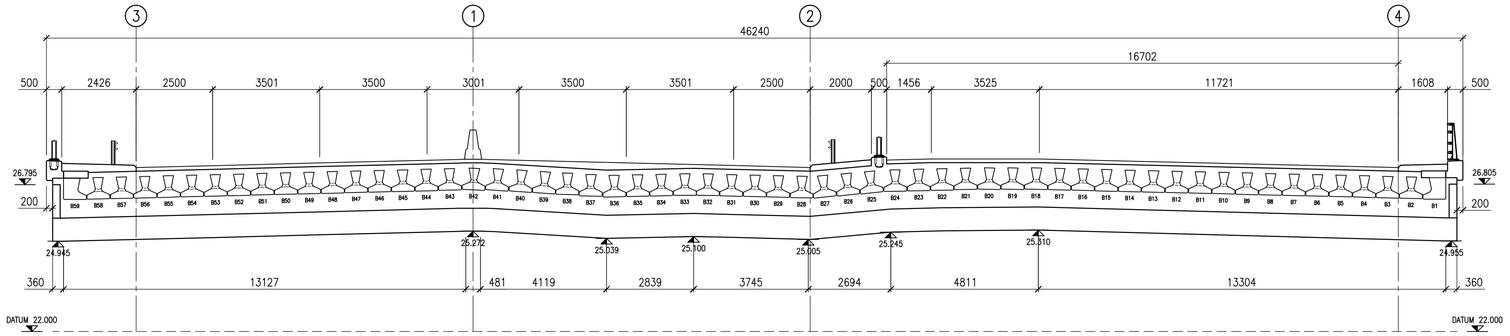
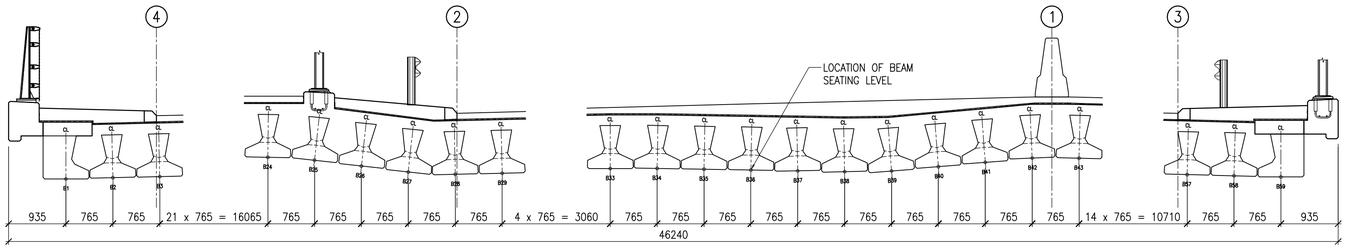


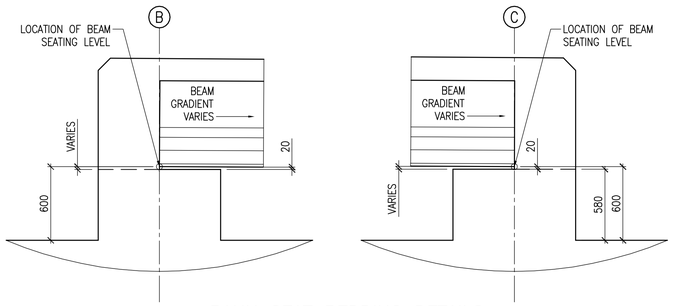
SECTION E (TAKEN ALONG GRIDLINE C – EASTERN BANKSEAT)
1:100 040



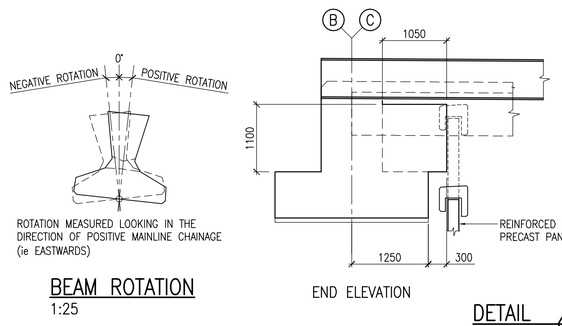
SECTION F (TAKEN ALONG GRIDLINE B – WESTERN BANKSEAT)
1:100 040



PRECAST BEAM SETTING OUT DETAILS
1:50



BANK SEAT BEDDING DETAILS
1:25



BEAM ROTATION
1:25

DETAIL 1/– 1:50 — 4 NR. THUS (2 PER BANKSEAT)

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
4. FOR DETAILS OF PUBLIC LIGHTING, REFER TO DRAWING NR. 5048435/HW/ST1A/L13/028

BEAM SEATING LEVELS

BEAM NR.	WESTERN BANKSEAT GRIDLINE B	EASTERN BANKSEAT GRIDLINE C	BEAM ROTATION ANGLE (°DEG)
B1	26.315	26.203	0.000
B2	26.342	26.222	−1.410
B3	26.361	26.240	−1.410
B4	26.379	26.258	−1.410
B5	26.398	26.277	−1.410
B6	26.416	26.295	−1.410
B7	26.434	26.314	−1.410
B8	26.453	26.332	−1.410
B9	26.471	26.351	−1.410
B10	26.490	26.369	−1.410
B11	26.508	26.388	−1.410
B12	26.527	26.406	−1.410
B13	26.545	26.425	−1.410
B14	26.564	26.443	−1.410
B15	26.582	26.461	−1.410
B16	26.600	26.480	−1.410
B17	26.619	26.498	−1.410
B18	26.635	26.517	−1.410
B19	26.635	26.535	−1.410
B20	26.634	26.554	−1.410
B21	26.629	26.557	0.750
B22	26.611	26.556	0.750
B23	26.592	26.556	0.750
B24	26.573	26.555	0.750
B25	26.527	26.508	6.240
B26	26.459	26.411	6.240
B27	26.390	26.314	6.240
B28	26.362	26.277	−1.270
B29	26.381	26.296	−1.270
B30	26.400	26.315	−1.270
B31	26.419	26.334	−1.270
B32	26.438	26.353	−1.270
B33	26.443	26.372	0.000
B34	26.427	26.374	−1.110
B35	26.410	26.361	−1.110
B36	26.394	26.347	−1.110
B37	26.420	26.334	−1.240
B38	26.466	26.321	−1.240
B39	26.513	26.332	−4.350
B40	26.559	26.402	−4.350
B41	26.605	26.472	−4.350
B42	26.622	26.542	−2.620
B43	26.609	26.540	1.430
B44	26.590	26.521	1.430
B45	26.571	26.502	1.430
B46	26.552	26.483	1.430
B47	26.533	26.463	1.430
B48	26.513	26.444	1.430
B49	26.494	26.425	1.430
B50	26.475	26.406	1.430
B51	26.456	26.386	1.430
B52	26.436	26.367	1.430
B53	26.417	26.348	1.430
B54	26.398	26.329	1.430
B55	26.379	26.310	1.430
B56	26.360	26.291	1.430
B57	26.341	26.272	1.430
B58	26.322	26.253	1.430
B59	26.303	26.234	0.000

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	DRAWING TITLE REVISED	DJO'D	06/08	PG	MJ
B	BANKSEAT LEVELS REVISED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST1A - GARRAUN ROAD UNDERBRIDGE BANKSEAT GENERAL ARRANGEMENT SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status X — Drawing Number 5048435/BR/DR/ST1A/042 — Rev C

File: 5048435-BR-DR-ST1A-042 Rev C.dwg
Date: Apr 06, 2011 – 4:58pm Plotted by: dcourtney

100 0 10

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-042 Rev C.dwg

Rev A

Drawing Number 5048435/BR/DR/ST1A/045

Status X

DO NOT SCALE

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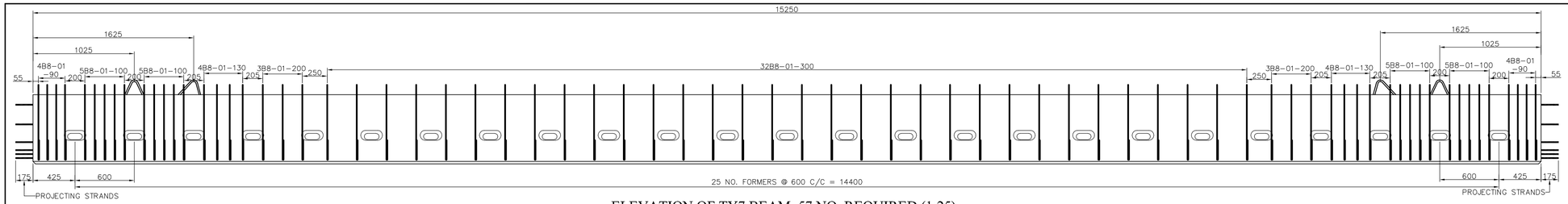
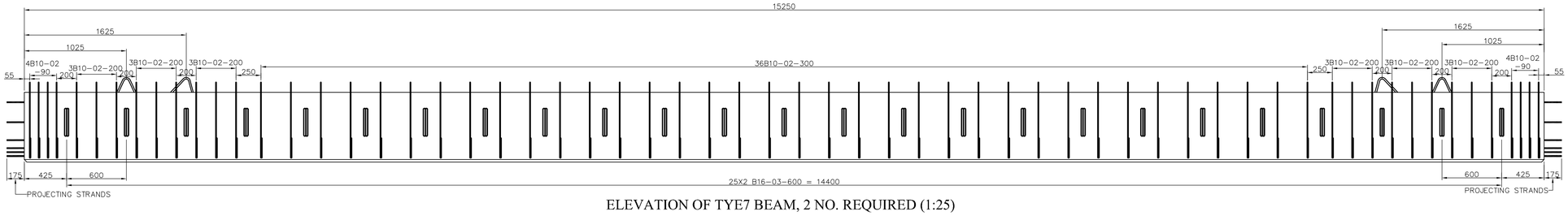
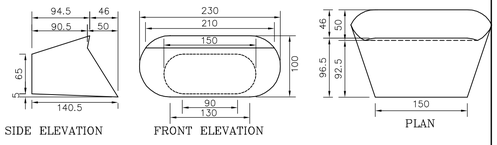


ELEVATION OF TY7 BEAM, 57 NO. REQUIRED (1:25)



ELEVATION OF TYE7 BEAM, 2 NO. REQUIRED (1:25)

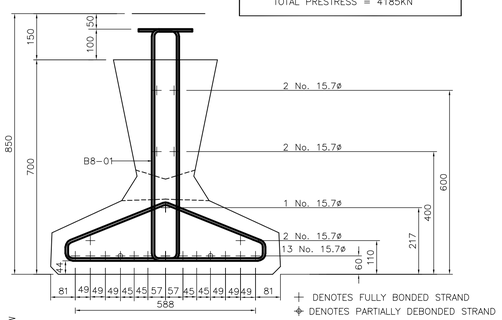


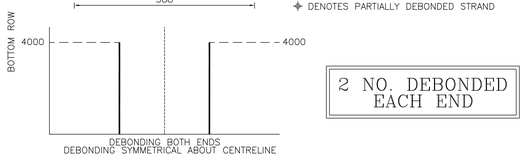
DETAILED TY BEAM FORMER (1:5)

Height of centroid of strands above soffit
= 3217 / 20 = 160.85mm
Beam centroid = 272.9
Ht of centroid of strands above soffit = 160.85
Eccentricity = 112.05mm

Concrete strength at transfer to be 40N/mm^2
Concrete strength at 28 days to be 60N/mm^2

20 NO. 15.7mmø SUPERSTRAND
ULTIMATE TENSILE STRENGTH = 279 KN
STRESSED TO 75% = 209.25 KN
TOTAL PRESTRESS = 4185KN





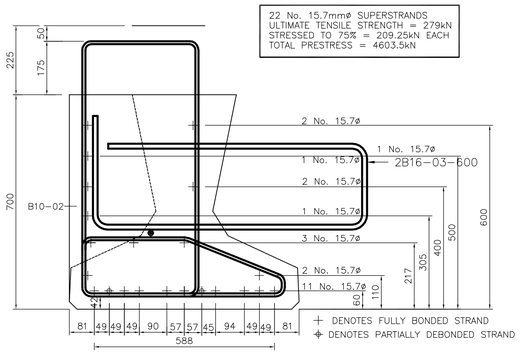
2 NO. DEBONDED EACH END

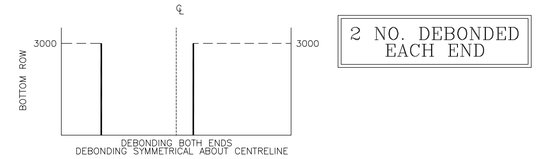
SECTION THROUGH TY7 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STR.1A-57 NO. BEAMS 15250 LONG
SK.05.697.10B REVISION 2

Concrete strength at transfer to be 35N/mm^2
Concrete strength at 28 days to be 60N/mm^2

Height of centroid of strands above soffit
= 4336 / 22 = 197.0909mm
Beam centroid = 323.9
Ht of centroid of strands above soffit = 197.0909
Eccentricity = 126.8091mm

22 No. 15.7mmø SUPERSTRANDS
ULTIMATE TENSILE STRENGTH = 279kN
STRESSED TO 75% = 209.25kN EACH
TOTAL PRESTRESS = 4603.5kN





2 NO. DEBONDED EACH END

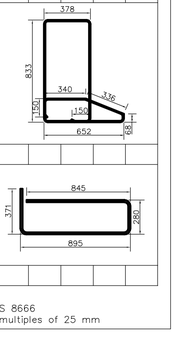
SECTION THROUGH TYE7 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STR.1A-2 NO. BEAMS 15250 LONG
POURED ON ITS OWN
SK.05.697.11B REVISION 2

BANAGHER CONCRETE LTD

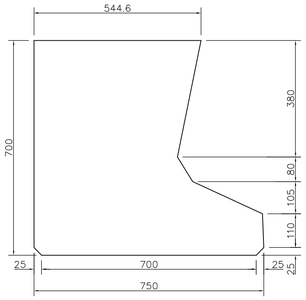
Project: N6 BALLINASLOE TO ATHLONE
STRUCTURE 1A TY7/TYE7

Bar schedule ref: 0 7 0 7 0 1 2 Rev letter B
Date prepared
Prepared by
Date revised
Checked by

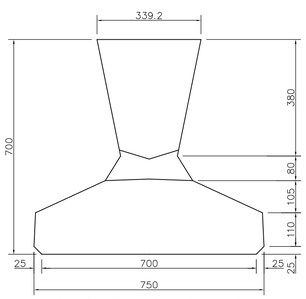
Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TY7	01	B8	57	74	4218	3210	99	BM.01		207 152		
TYE7	02	B10	2	62	124	3575	99					
	03	B16	2	50	100	2295	31					



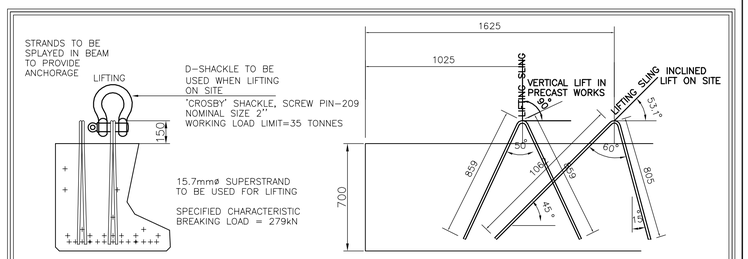
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. Specified in multiples of 25 mm



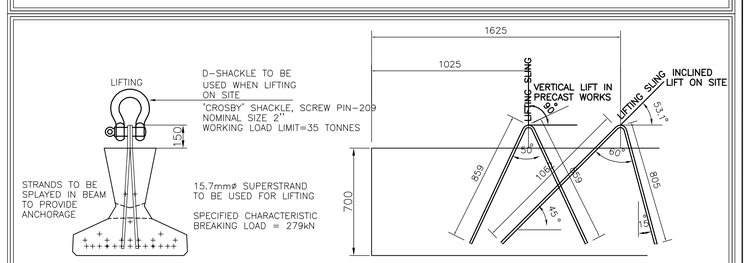
SECTION DETAILING DIMENSIONS (1:10)



SECTION DETAILING DIMENSIONS (1:10)



ANCHORAGE OF LIFTING HOOKS (1:20)



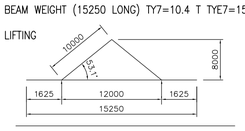
ANCHORAGE OF LIFTING HOOKS (1:20)

NOTES :-

1. FOR GENERAL NOTES AND REINFORCEMENT NOTATION, REFER TO DRAWING NR. 5048435/BR/DR/STD/050
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
3. FOR BRIDGE DECK GENERAL ARRANGEMENT REFER TO DRAWINGS 5048435/BR/DR/ST1A/040 TO 042
4. CONCRETE STRENGTH AT TRANSFER =40N/mm² (TY7)
   CONCRETE STRENGTH AT TRANSFER =35N/mm² (TYE7)
5. CONCRETE STRENGTH AT 28 DAYS = 60N/mm² (TY7)
   CONCRETE STRENGTH AT 28 DAYS = 60N/mm² (TYE7)

NOTES :-

6. STEEL REINFORCEMENT TO BE TO BS4449-05 (GRADE B500B)
7. PRESTRESSING STEEL TO BE TO EN 10138-3
8. NOMINAL COVER TO STEEL = 40mm AT SOFFIT OF TY BEAMS
9. STRAND MAY PROJECT 175mm (HALF THE GAP)
10. BEAM WEIGHT (15250 LONG) TY7=10.4 T TYE7=15.2 T
11. LIFTING



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An Údarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	AOS	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
PRECAST BEAM DETAILS

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 26/05/08	PG Date 26/05/08	MJ Date 26/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/045	A

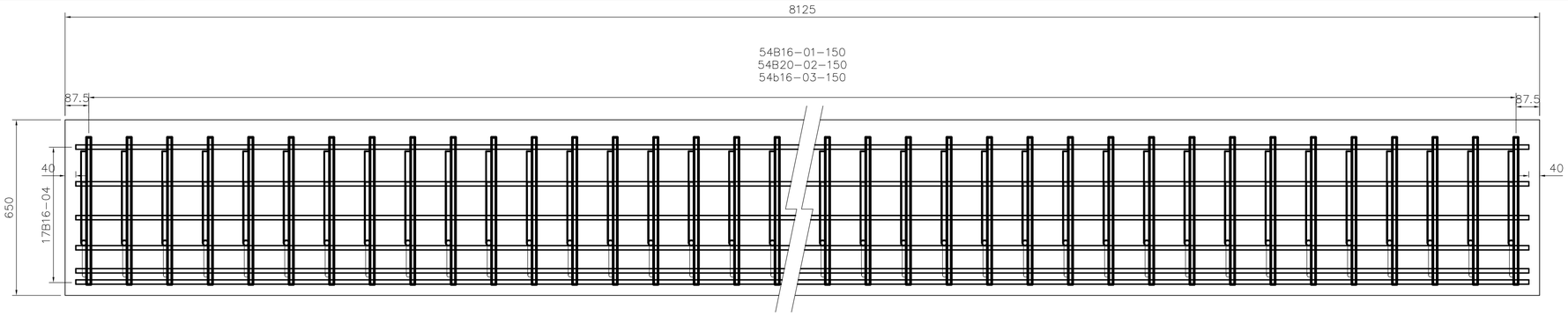
File: 5048435-BR-DR-ST1A-045 Rev A.dwg
Date: Apr 06, 2011 - 4:51pm Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-045 Rev A.dwg

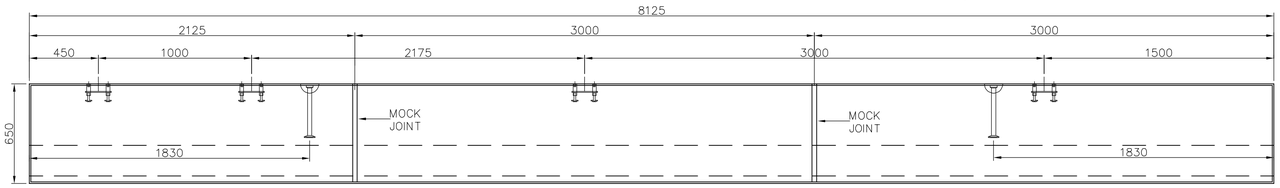
Rev A | Status X | Drawing Number 5048435/BR/DR/ST1A/046

DO NOT SCALE

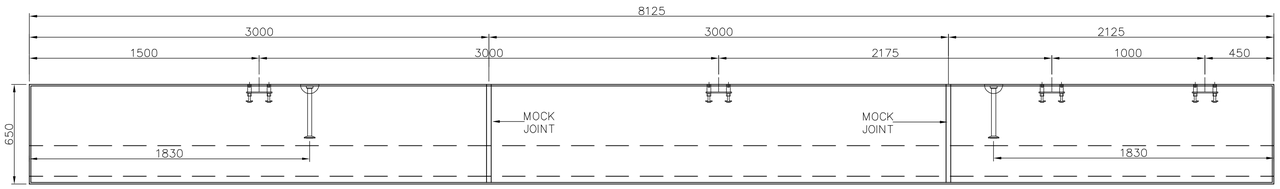
A1



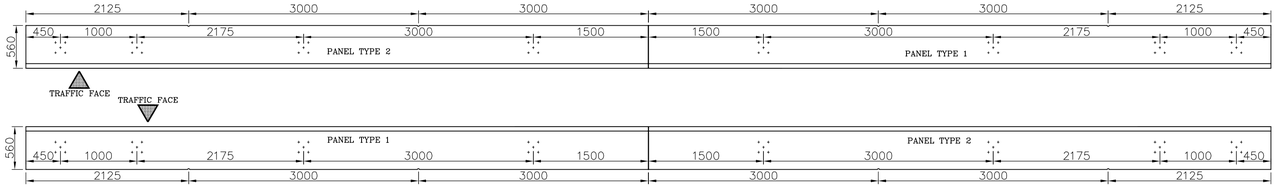
ELEVATION OF PRECAST CANTILEVER (1:10)
SHOWING REINFORCEMENT 4 NO. REQUIRED (2 NO TYPE 1 AND 2 NO. TYPE 2)



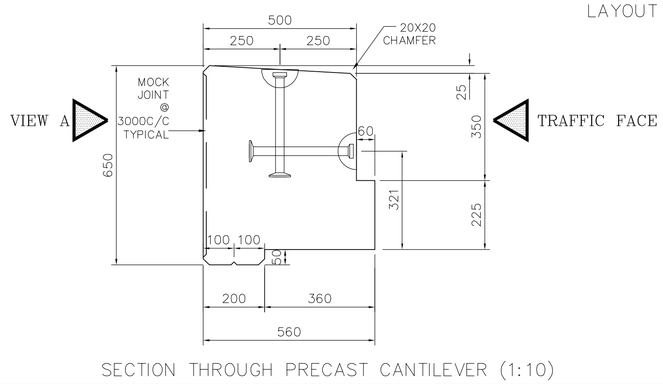
ELEVATION OF PRECAST CANTILEVER (1:20) (VIEW A,TYPE 1)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



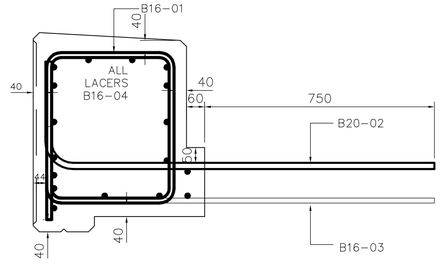
ELEVATION OF PRECAST CANTILEVER (1:20) (VIEW A,TYPE 2)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



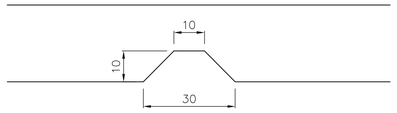
LAYOUT OF PANELS (1:40)



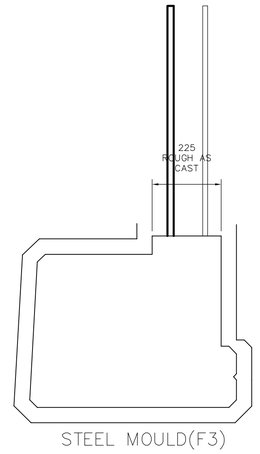
SECTION THROUGH PRECAST CANTILEVER (1:10)



SECTION THROUGH PRECAST CANTILEVER (1:10)



DETAIL A (1:1)
MOCK JOINT



STEEL MOULD(F3)

SURFACE FINISHES (1:10)

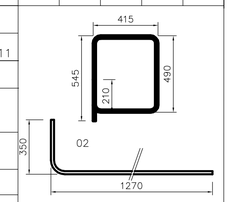
BANACHER CONCRETE LTD

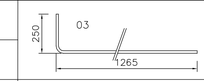
Project: N6 GALWAY TO BALLINASLOE
STRUCTURE 1A
PRECAST PANELS

Bar schedule ref: 0 5 6 9 7 6 2 Rev letter

Date prepared | Date revised
Prepared by | Checked by

Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A* mm	B* mm	C* mm	D* mm	E/R mm
	01	B16	4	54	216	1950	41	545	415	490	415	210
	02	B20	4	54	216	1575	11					
	03	B16	4	54	216	1475	11					
	04	B16	4	17	68	8045	00					





This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm

NOTES :-

1. FOR GENERAL NOTES AND REINFORCEMENT NOTATION, REFER TO DRAWING NR. 5048435/BR/DR/STD/050
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST1A/2153
4. FOR BRIDGE DECK GENERAL ARRANGEMENT REFER TO DRAWINGS 5048435/BR/DR/ST1A/040 TO 042
5. CONCRETE GRADE SHALL BE 50/20B AS PER THE SPECIFICATION
6. STEEL REINFORCEMENT TO BE TO BS4449-05 (GRADE B500B)
7. NOMINAL COVER TO STEEL TO BE AS SHOWN
8. PARAPET WEIGHT (8125 LONG) =6.4 T
9. SURFACE FINISHES TO BE AS SHOWN
10. SITE LIFTING = 2 NR. 7.5T CAPSTANS 350 LONG

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Ros Comáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	PP	10/10	PF	TM
A	PRELIMINARY ISSUE	AOS	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — *WS Atkins Ireland Limited* ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
PRECAST PARAPET DETAILS
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 26/05/08	PG Date 26/05/08	MJ Date 26/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/046	A

File: 5048435-BR-DR-ST1A-046 Rev A.dwg Date: Apr 06, 2011 - 4:44pm Plotted by: dcourtney

0 10 100

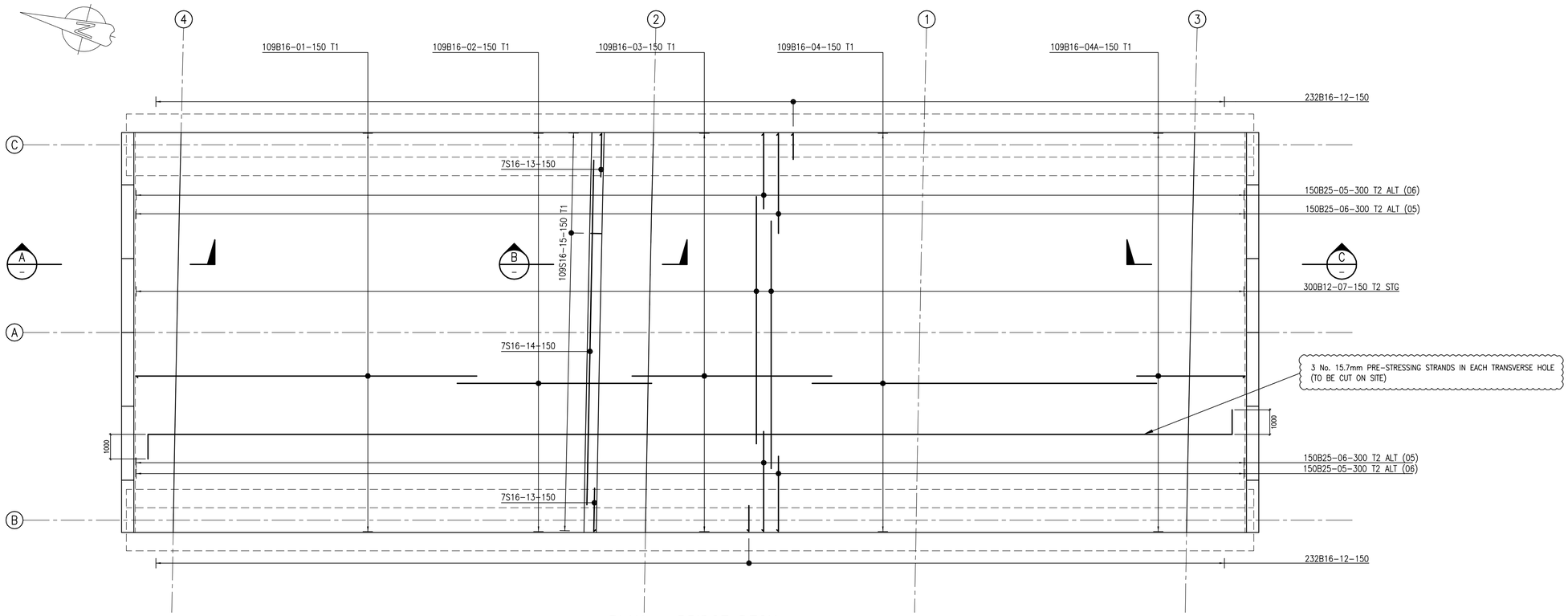
Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-046 Rev A.dwg

Rev C

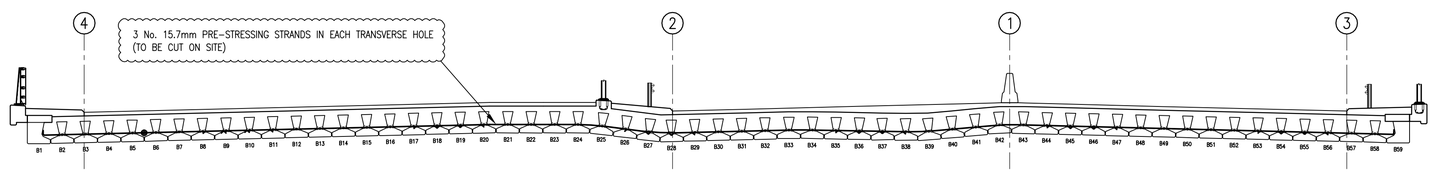
Status X | Drawing Number 5048435/BR/DR/ST1A/050

DO NOT SCALE

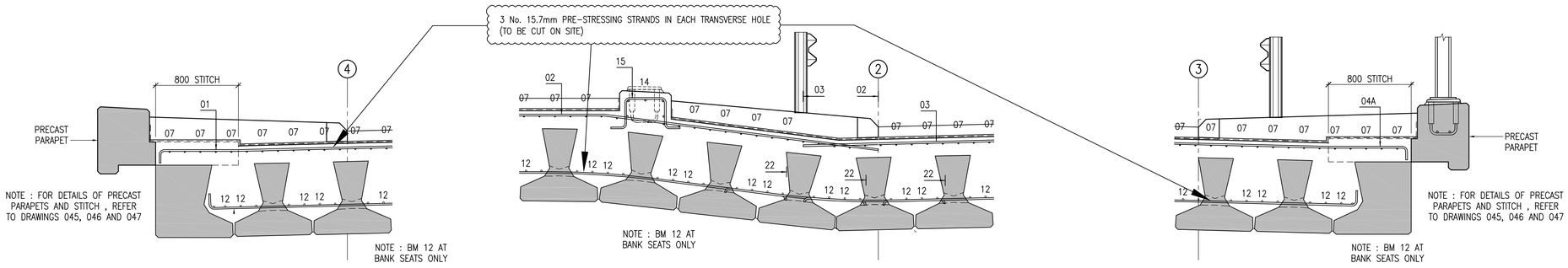
A1



PLAN – BRIDGE DECK
1:100



TYPICAL DECK SECTION SHOWING PRECAST BEAM WEB REINFORCEMENT
1:100



SECTION A – 1:25

SECTION B – 1:25

SECTION C – 1:25

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST1A/2153
4. BAR BENDING SCHEDULE REFERENCE BS-ST1A-050-01,02 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

TOP OF DECK SLAB	35MM
DECK SOFFIT	40MM
BANK SEAT BASE	40MM
BANK SEAT UPSTAND	40MM
PARAPET UPSTAND	50MM

* COVER TO BE MAINTAINED AT VERTICAL REBATES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	12/09	PF
A	ISSUE FOR APPROVAL	02/09	PF
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	FULL SUBMISSION MDC–ST–53	DC	02/09	FM	PF
B	DECK SECTION AND REINFORCEMENT REVISED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY Building & Civil Engineering

Designer: ATKINS™ WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST1A - GARRAUN ROAD UNDERBRIDGE BRIDGE DECK REINFORCEMENT DETAILS

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/050	C

File: 5048435-BR-DR-ST1A-050 Rev C.dwg Date: Apr 06, 2011 – 4:38pm Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-050 Rev C.dwg

Rev C

Drawing Number 5048435/BR/DR/ST1A/051

Status X

DO NOT SCALE

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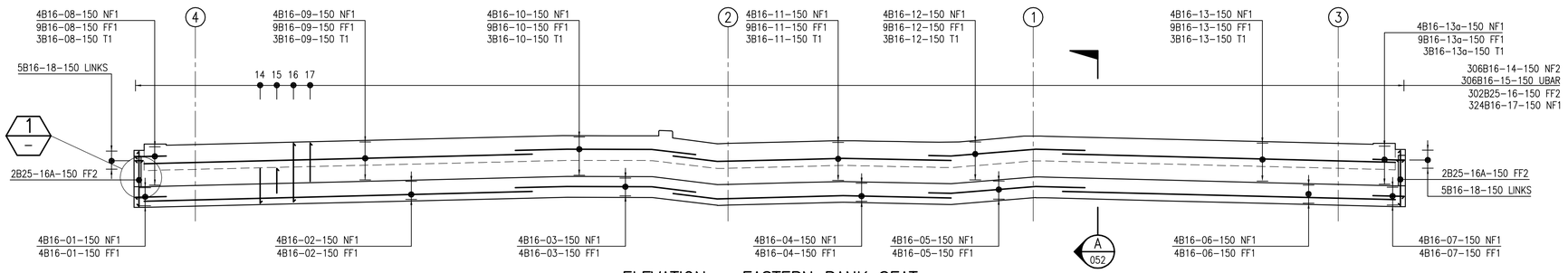
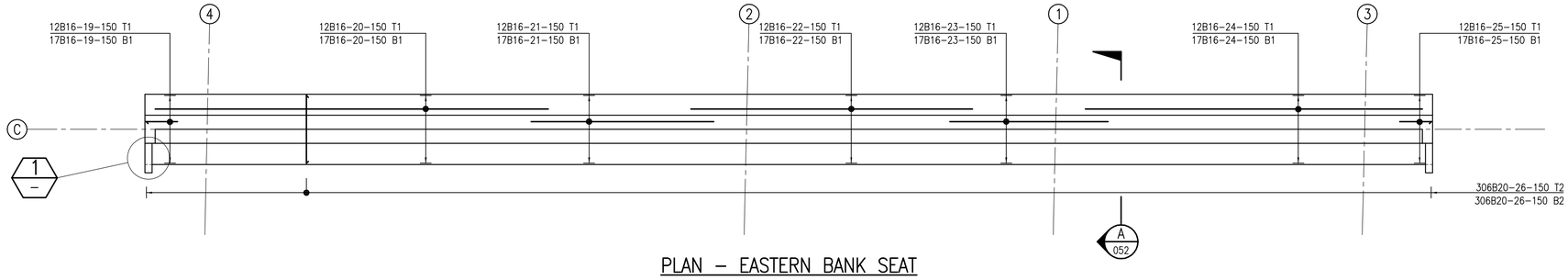
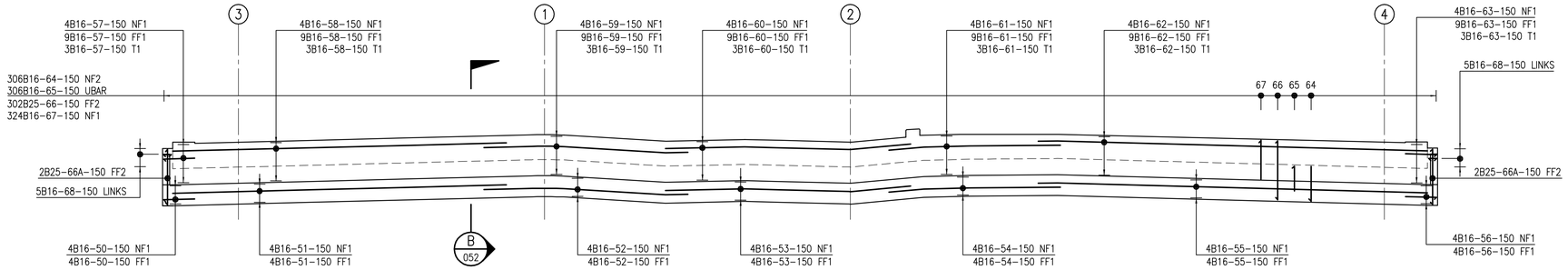


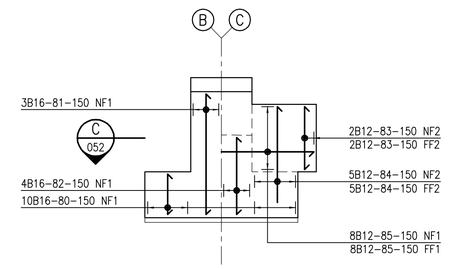
ELEVATION – EASTERN BANK SEAT
1:100



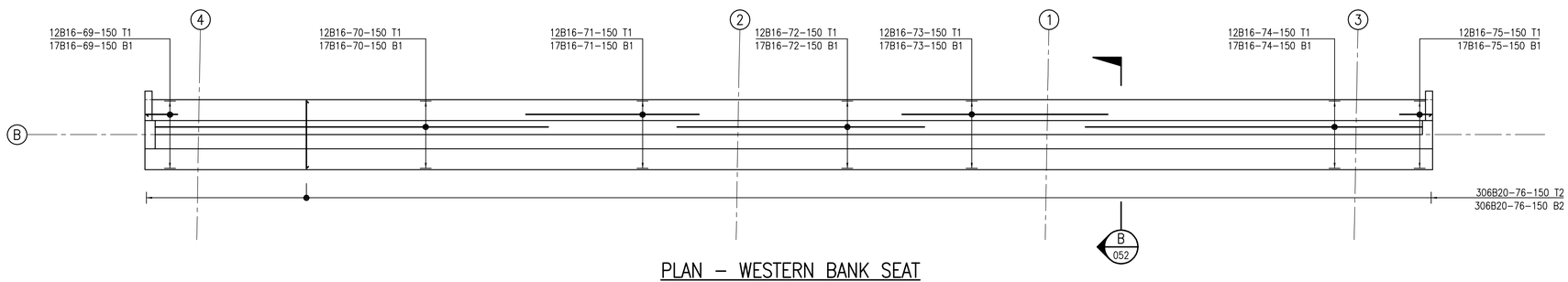
PLAN – EASTERN BANK SEAT
1:100



ELEVATION – WESTERN BANK SEAT
1:100



DETAIL 1 – 4 NR. THUS (2 PER BANKSEAT)
1:50



PLAN – WESTERN BANK SEAT
1:100

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST1A/2153
4. BAR BENDING SCHEDULE REFERENCE BS–ST1A–051–01,02 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

TOP OF DECK SLAB	35MM
DECK SOFFIT	40MM
BANK SEAT BASE	40MM
BANK SEAT UPSTAND	40MM
PARAPET UPSTAND	50MM

* COVER TO BE MAINTAINED AT VERTICAL REBATES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	REINFORCEMENT REVISED	DJO'D	06/08	PG	MJ
B	BANKSEAT LEVELS AND REINFORCEMENT REVISED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY Building & Civil Engineering Contractors

Designer: ATKINS · WS Atkins Ireland Limited © · Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
BANK SEAT REINFORCEMENT DETAILS
SHEET 1 OF 2

AS BUILT

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/051	C

File: 5048435–BR–DR–ST1A–051 Rev C.dwg
Date: Apr 06, 2011 – 4:29pm
Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435–BR–DR–ST1A–051 Rev C.dwg

Rev B | Status X | Drawing Number 5048435/BR/DR/ST1A/052

DO NOT SCALE

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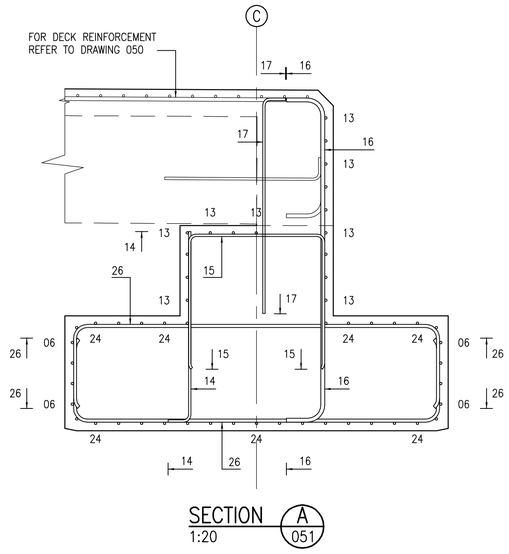
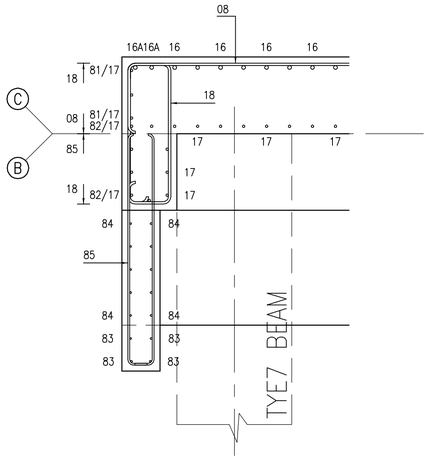
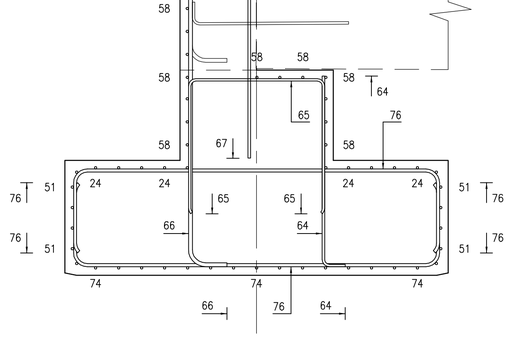


SECTION A
1:20
051



SECTION C
1:20
051



SECTION B
1:20
051

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST1A/2153

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

TOP OF DECK SLAB	35MM
DECK SOFFIT	40MM
BANK SEAT BASE	40MM
BANK SEAT UPSTAND	40MM
PARAPET UPSTAND	50MM

* COVER TO BE MAINTAINED AT VERTICAL REBATES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
WORK ON/ADJACENT TO LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	10/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ
A	ISSUED FOR NRA APPROVAL	01/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION	PP	10/10	PF	TM
	SIPPLIED BY N6 CONSTRUCTION				
B	REINFORCEMENT DETAILS UPDATED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST1A - GARRAUN ROAD UNDERBRIDGE
BANK SEAT REINFORCEMENT DETAILS
SHEET 2 OF 2
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 19/11/07	PG Date 19/11/07	MJ Date 19/11/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST1A/052	B

File: 5048435-BR-DR-ST1A-052 Rev B.dwg
Date: Apr 06, 2011 – 4:21pm Plotted by: dcourtney

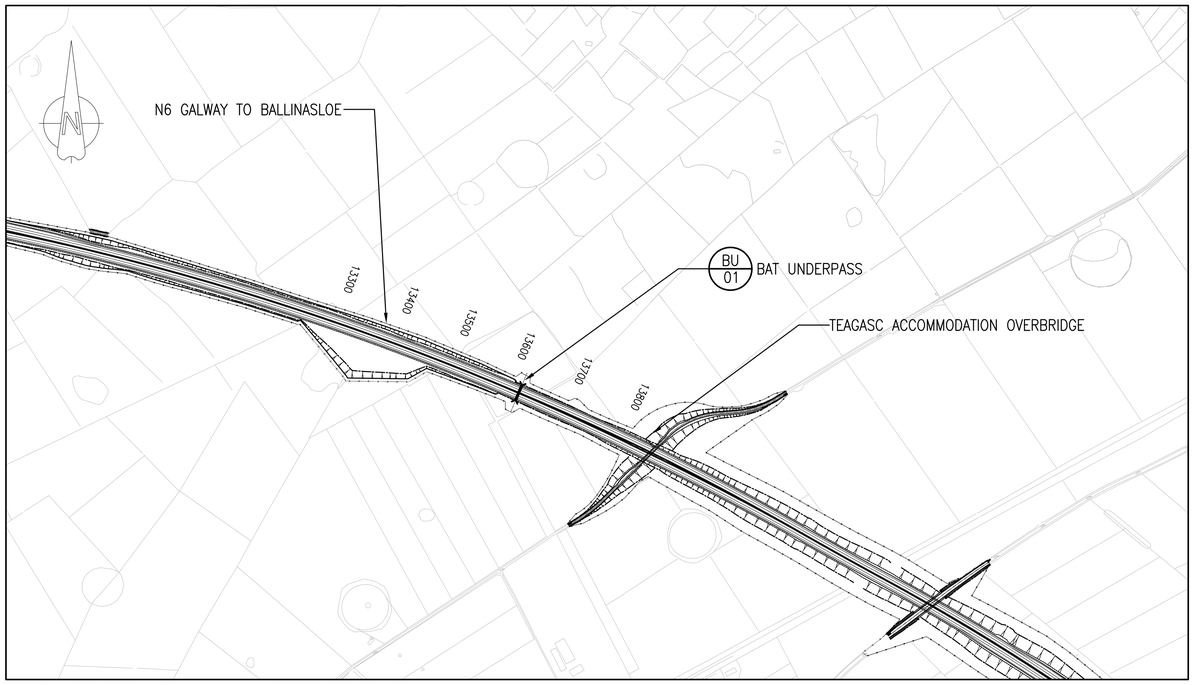
100 0 10

Z:\N6\14 As Build Submissions\Structures\ST01A\AutoCAD\5048435-BR-DR-ST1A-052 Rev B.dwg

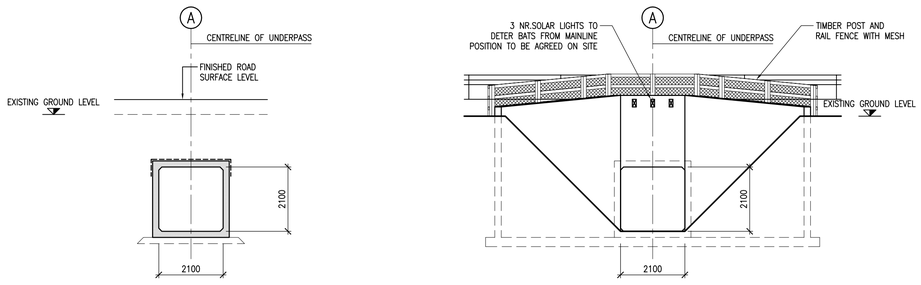
Rev B | Status X | Drawing Number 5048435/BR/DR/BU01/001

DO NOT SCALE

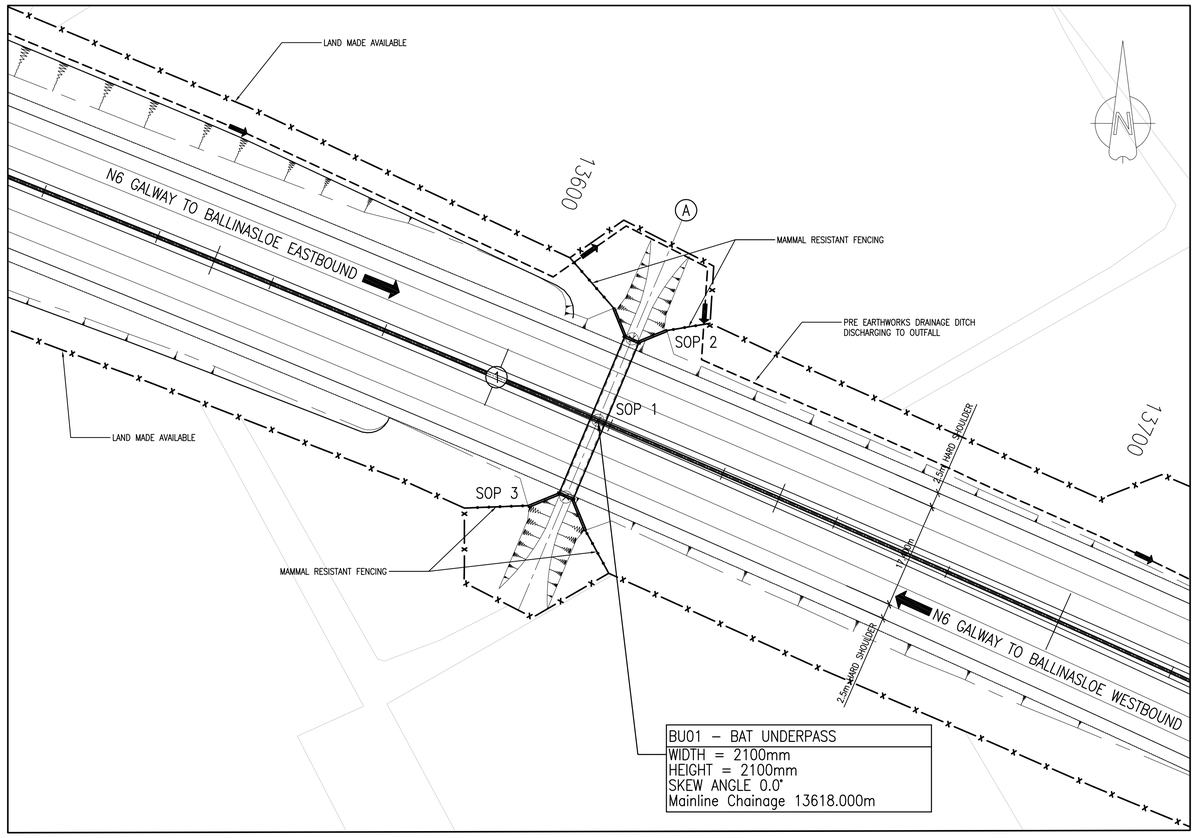
A1 0 10 100



SITE LOCATION PLAN – UNDERPASS BU01
1:5000



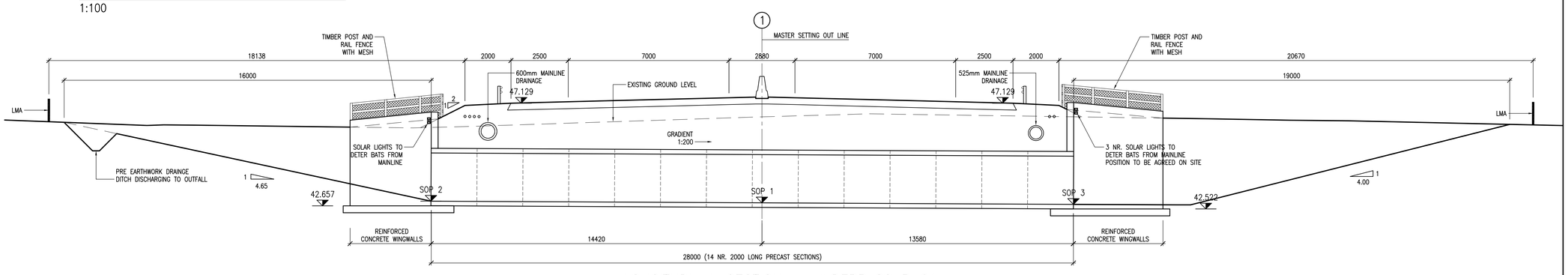
ELEVATION – UNDERPASS BU01
1:100



LAYOUT PLAN – UNDERPASS BU01
1:500

SETTING OUT DETAILS			
SOP NR.	EASTING (X)	NORTHING (Y)	ELEVATION (Z)
1	148,037.767	227,352.811	42.790
2	148,043.343	227,366.100	42.862
3	148,032.510	227,340.281	42.722

CROSS SECTION – UNDERPASS BU01
1:100



LONGITUDINAL SECTION – UNDERPASS BU01
1:100

NOTES :–

1. FORMATION LEVEL OF BOX CULVERT SHALL CONSIST OF LIMESTONE.
2. INSITU FOUNDATION MATERIAL SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION. IF THE GROUND CONDITIONS ENCOUNTERED AT CULVERT FOUNDATION LEVEL ARE WORSE THAN THOSE STATED IN 1. ABOVE EXCAVATION DOWN TO COMPETENT INSITU FOUNDATION MATERIAL AND REPLACEMENT WITH CLASS 6N FILL WILL BE REQUIRED.
3. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/090
4. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/091

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	09/10	TM
C	ISSUED FOR CONSTRUCTION	06/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	PP	09/10	PF	TM
B	SOAKAWAY REMOVED, FENCING ADDED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE BU01 - BAT UNDERPASS GENERAL ARRANGEMENT

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 18/01/08	PG Date 18/01/08	MJ Date 18/01/08

Status	Drawing Number	Rev
X	5048435/BR/DR/BU01/001	B

File: 5048435-BR-DR-BU01-001 Rev B.dwg Date: Nov 08, 2010 – 4:25pm Plotted by: pphelan

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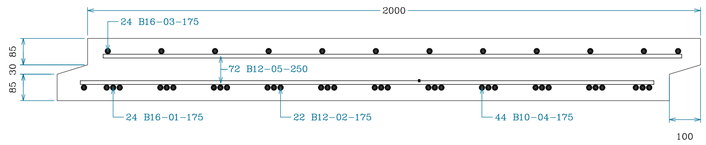
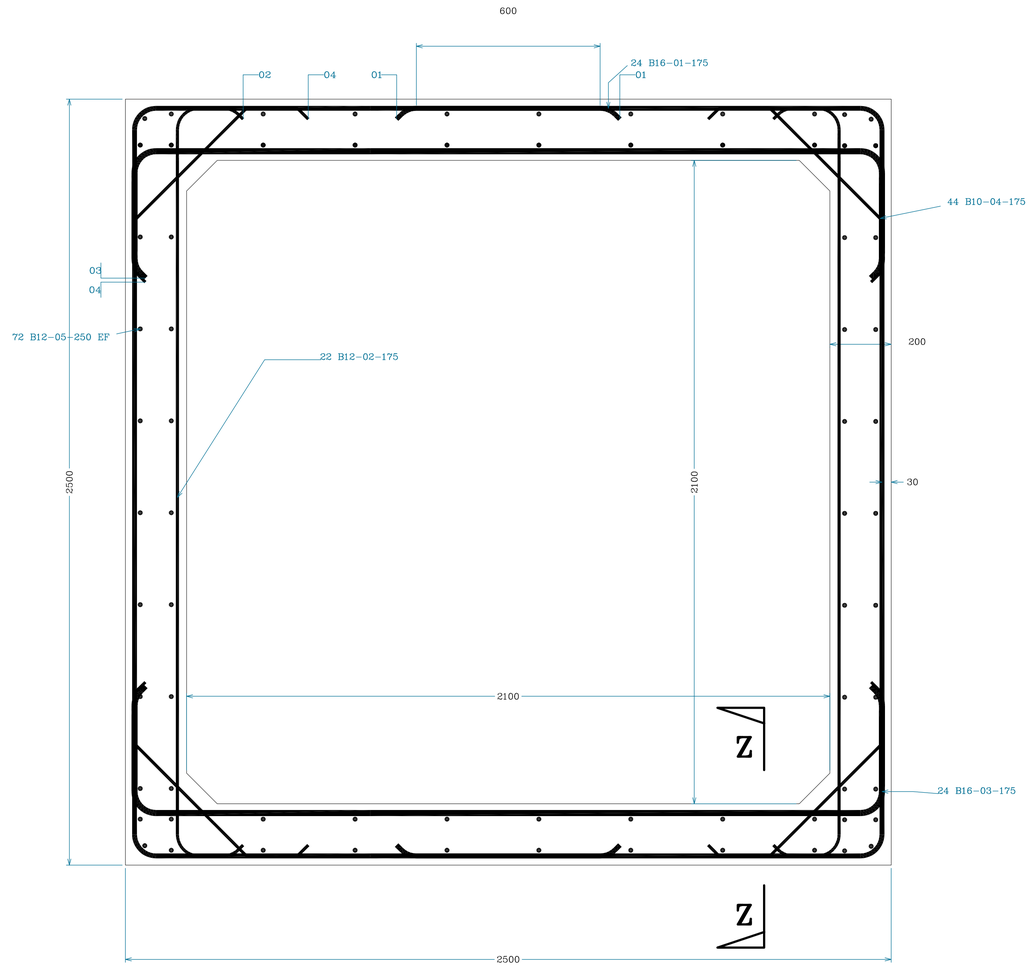


SECTION Z–Z



REINFORCEMENT DETAILS

Shay Murtagh Ltd

Bar schedule ref : 604 BU01

Insert revision date: 18.02.08C

Site ref : N6 CONSTRUCTION

Date prepared : 18.02.08

Job no : 604.BU01.100.BBS.A

Prepared by : EB

Checked by : CM

Member	Bar mark	Type and size		No. of mbrs	No. of bars in each	Total no.	Length of each bar † mm	Shape code	A * mm	B * mm	C * mm	D * mm	E/R * mm	Rev letter
BU01	01	B	16	14	24	336	5425	21	1520	2440	1520			
	02	B	12	14	22	308	3000	21	300	2440	300			
	03	B	16	14	24	336	3200	21	400	2440	400			
	04	B	12	14	44	616	800	25	150	150	105	105	500	
	05	B	12	14	72	1008	2000	11	120	1880				

This schedule complies with BS 8666:2000

Bar Schedule 8666 v3.21

* Specified in multiples of 5mm. † Specified in multiples of 25mm.

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Notes:

1. Concrete strength at 28 days : 50N/mm2
2. Steel Grade : 500N/mm2
3. Concrete cover for culverts : 30mm

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/090
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/091
3. FOR CULVERT GENERAL ARRANGEMENT DETAILS REFER TO DRAWING NR. 5048435/BR/DR/BU01/001
4. FOR REINFORCEMENT NOTES, REFER TO DRAWING NR. 5048435/BR/DR/STD/090 PRECAST CONCRETE REINFORCEMENT NOTES SET 2

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	09/10	TM
C	ISSUED FOR CONSTRUCTION	06/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION.	PP	09/10	PF	TM
B	JOINT DETAIL REMOVED, NOTES REVISED	AOS	05/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · fcc CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE BU01 - BAT UNDERPASS PRECAST CULVERT REINFORCEMENT DETAILS

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	1:10	AOS Date 19/02/08	PG Date 19/02/08	MJ Date 19/02/08

Status	Drawing Number	Rev
X	5048435/BR/DR/BU01/030	B

Rev B

Drawing Number 5048435/BR/DR/BU01/030

Status X

DO NOT SCALE

A1 (0 10 100)

File: 5048435–BR–DR–BU01–030 Rev B.dwg Date: Nov 08, 2010 – 9:33am Plotted by: pphelan

Z:\N6\14 As Build Submissions\Structures\BU01\AutoCAD\5048435–BR–DR–BU01–030 Rev B.dwg

Rev B | Status X | Drawing Number 5048435/BR/DR/BU01/031

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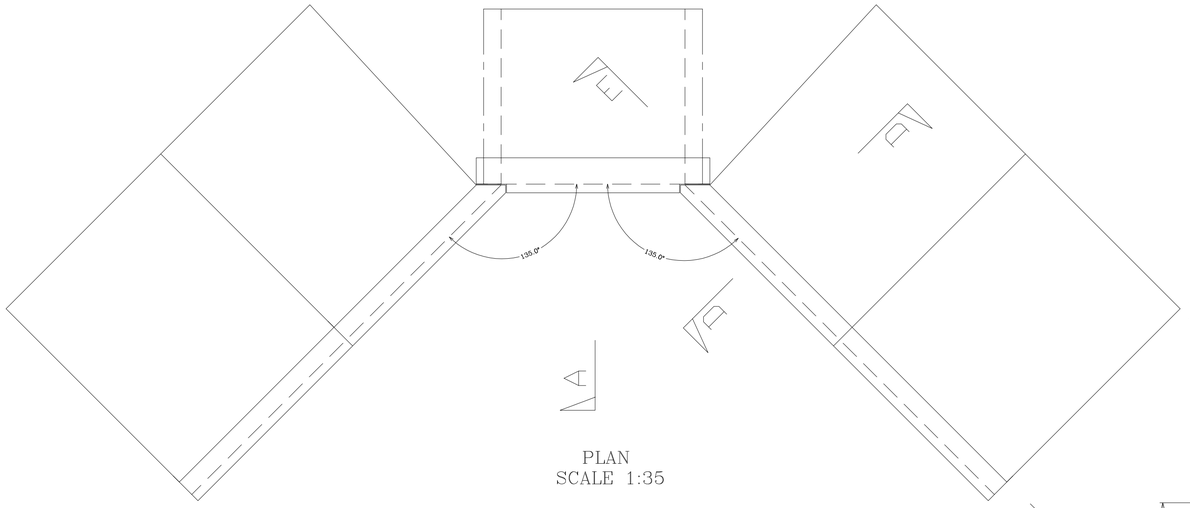
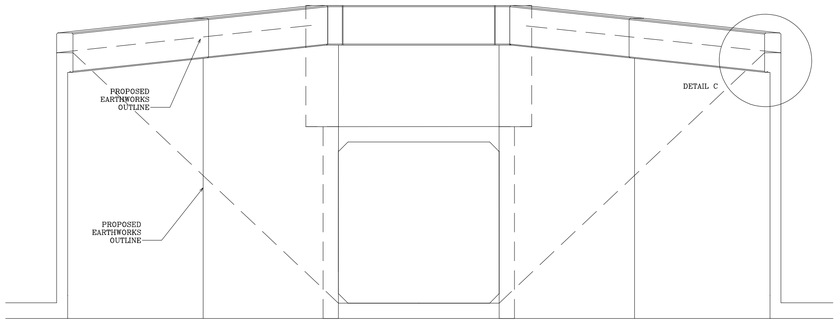
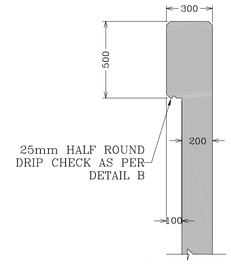


PLAN
SCALE 1:35

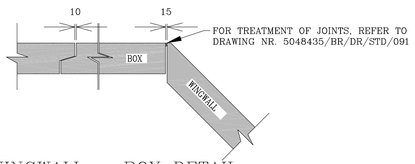


ELEVATION – NORTHERN WINGWALLS

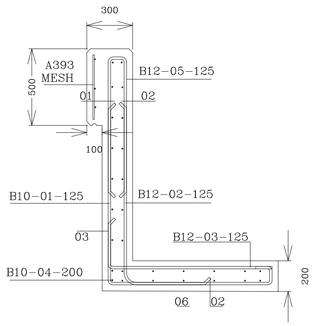
ELEVATION B–B
SCALE 1:40



DETAIL C
SCALE 1:20

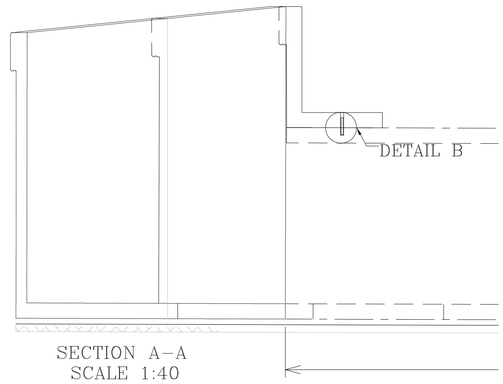


WINGWALL – BOX DETAIL
SCALE 1:20



HEADERBEAM – TYPE 1

SCALE 1:20



SECTION A–A
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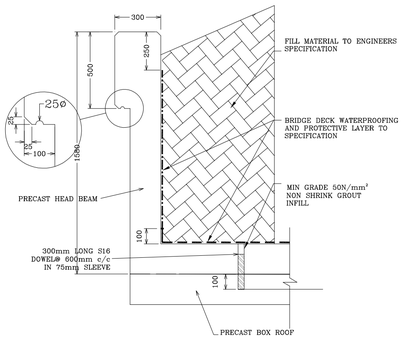
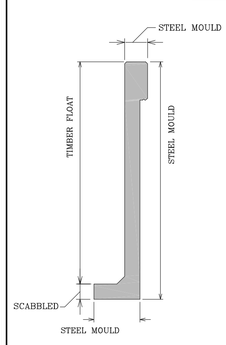
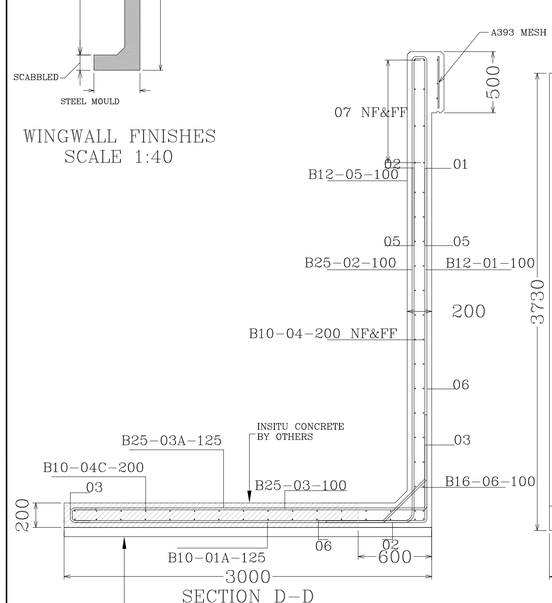


NORTHERN HEADERBEAM

DETAIL B
SCALE 1:20

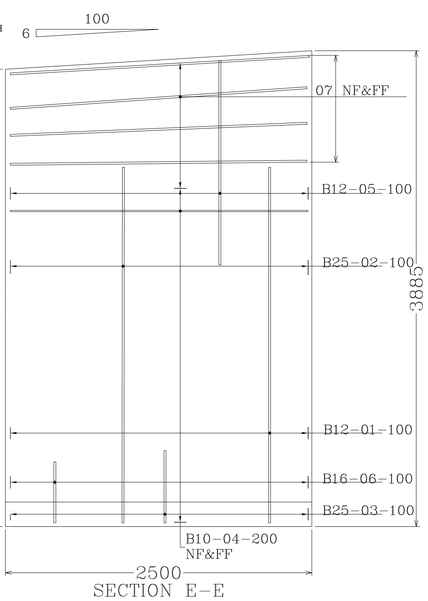


WINGWALL FINISHES
SCALE 1:40

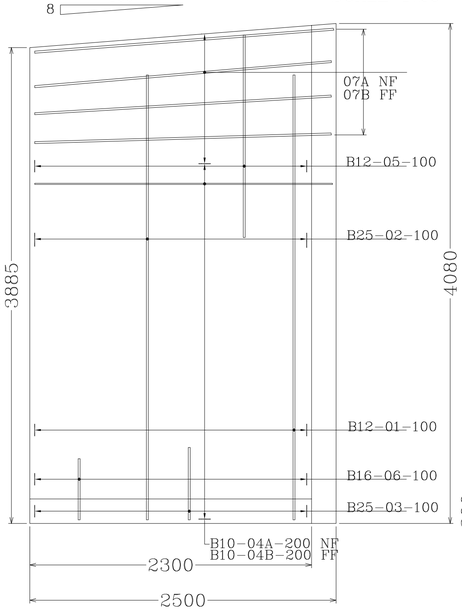


SECTION D–D
SCALE 1:25

TYPE2 – WINGWALLS



SECTION E–E
SCALE 1:25



SECTION D–D
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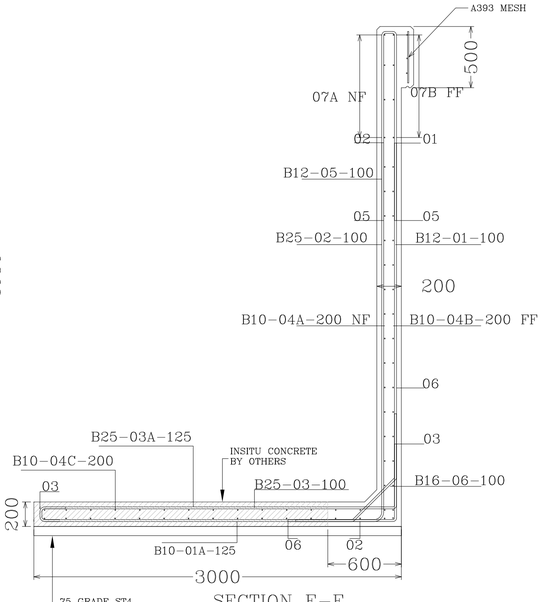

SECTION E–E
SCALE 1:25

TYPE1 – WINGWALLS

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/090
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/091
3. FOR CULVERT GENERAL ARRANGEMENT DETAILS REFER TO DRAWING NR. 5048435/BR/DR/BU01/001
4. FOR REINFORCEMENT NOTES, REFER TO DRAWING NR. 5048435/BR/DR/STD/090 PRECAST CONCRETE REINFORCEMENT NOTES SET 2
5. CONCRETE COVER = 40mm
   ALLOWABLE BEARING PRESSURE REQUIRED IS 200 kPA FOR 15mm SETTLEMENT
   DEFORMED TYPE 2 HIGH YEILD STEEL BARS GRADE 500 TO BS 4449 ARE DENOTED BY AN "B"
   MAX FILL BEHIND WALL TO BE 200mm FROM TOP
   CONCRETE GRADE SHALL BE C50/20B AS PER THE SPECIFICATION.
6. FOR BACKFILL MATERIAL AND BACK OF WALL DRAINAGE DETAILS, REFER TO DRAWING 5048435/BR/DR/STD/092

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	09/10	TM
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION.	PP	09/10	PF	TM
B	INCORPORATING NRA COMMENTS	AOS	06/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
BU01 - BAT UNDERPASS
PRECAST WINGWALLS
GA AND RC DETAILS SHEET 1 OF 2

NOT FOR CONSTRUCTION

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 14/05/08	PG Date 14/05/08	MJ Date 14/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/BU01/031	B

File: 5048435–BR–DR–BU01–031 Rev B.dwg Date: Nov 08, 2010 – 9:29am Plotted by: pphelan

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Rev B | Status X | Drawing Number 5048435/BR/DR/BU01/032

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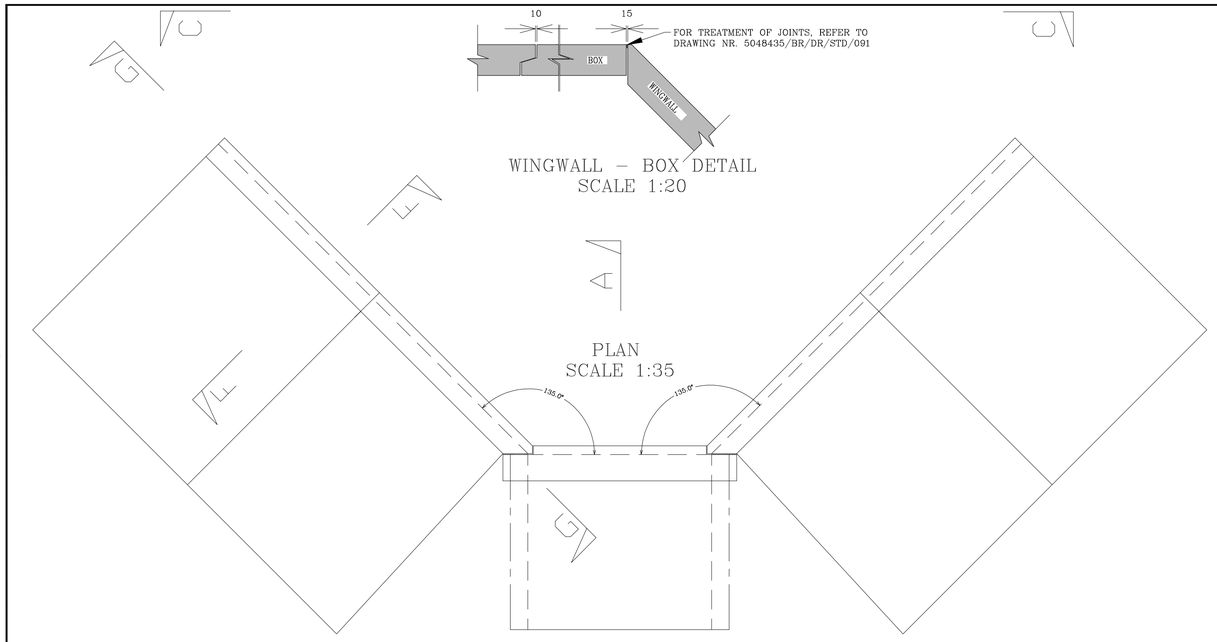
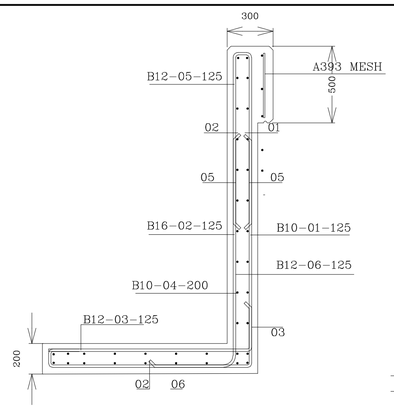


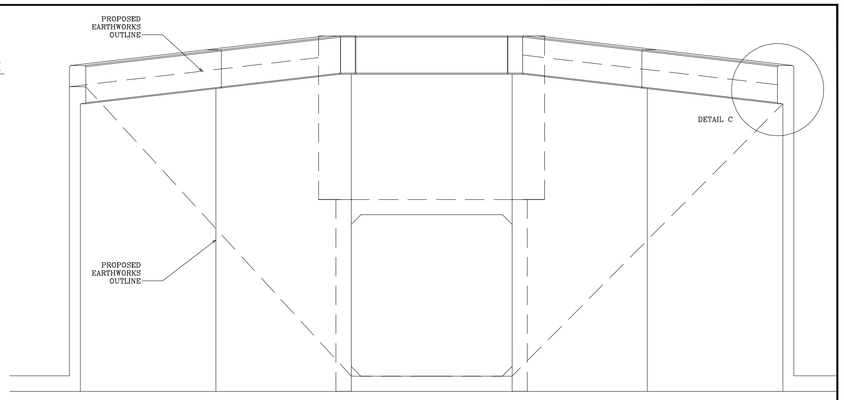
WINGWALL – BOX DETAIL
SCALE 1:20

PLAN
SCALE 1:35



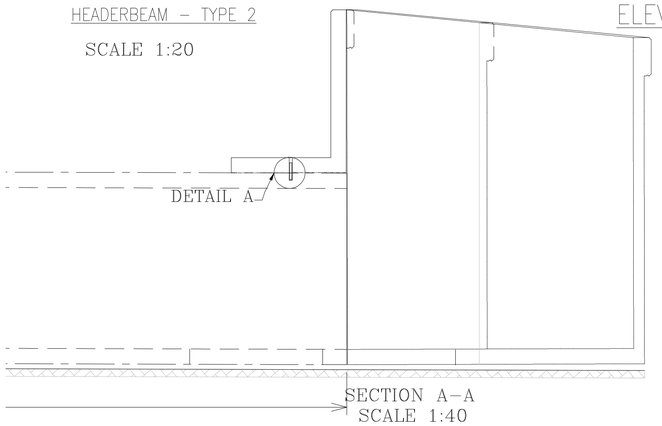
HEADERBEAM – TYPE 2

SCALE 1:20

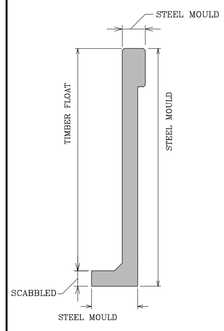


ELEVATION – SOUTHERN WINGWALLS

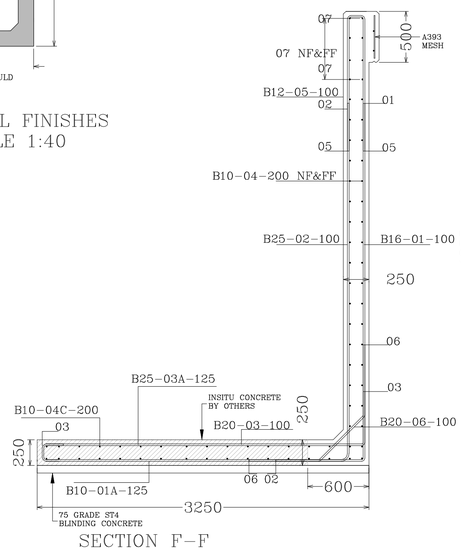
ELEVATION C–C
SCALE 1:40



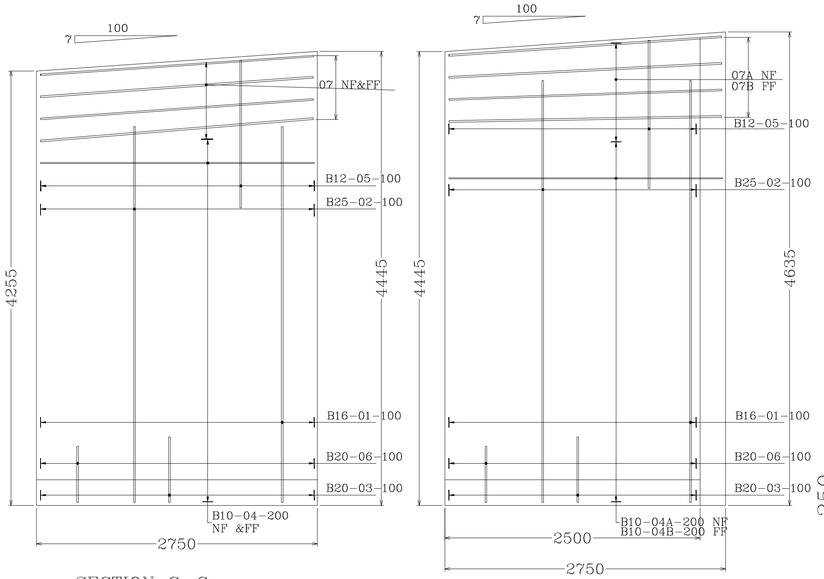
SECTION A–A
SCALE 1:40



WINGWALL FINISHES
SCALE 1:40

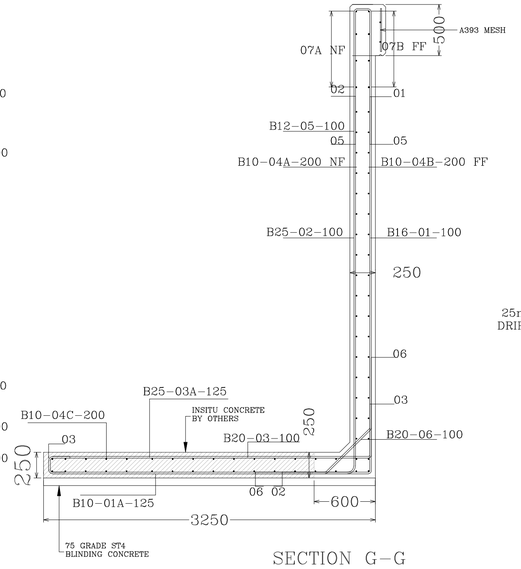


SECTION F–F
SCALE 1:30



SECTION G–G
SCALE 1:30

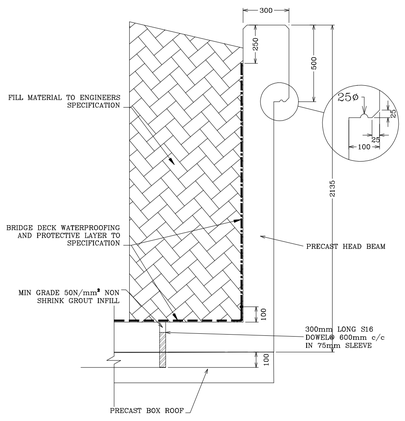
SECTION F–F
SCALE 1:30



SECTION G–G
SCALE 1:30

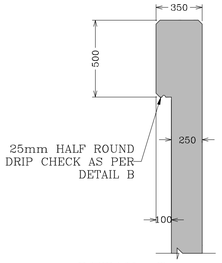
TYPE 4 – WINGWALLS

TYPE 3 – WINGWALLS



SOUTHERN HEADERBEAM

DETAIL A
SCALE 1:20



DETAIL C
SCALE 1:20

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/090
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/091
3. FOR CULVERT GENERAL ARRANGEMENT DETAILS REFER TO DRAWING NR. 5048435/BR/DR/BU01/001
4. FOR REINFORCEMENT NOTES, REFER TO DRAWING NR. 5048435/BR/DR/STD/090 PRECAST CONCRETE REINFORCEMENT NOTES SET 2
5. CONCRETE COVER = 40mm
   ALLOWABLE BEARING PRESSURE REQUIRED IS 200 kPA FOR 15mm SETTLEMENT
   DEFORMED TYPE 2 HIGH YEILD STEEL BARS GRADE 500 TO BS 4449 ARE DENOTED BY AN "B"
   MAX FILL BEHIND WALL TO BE 200mm FROM TOP
   CONCRETE GRADE SHALL BE C50/20B AS PER THE SPECIFICATION.
6. FOR BACKFILL MATERIAL AND BACK OF WALL DRAINAGE DETAILS, REFER TO DRAWING 5048435/BR/DR/STD/092

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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CONSTRUCTION
NONE.
MAINTENANCE/CLEANING
NONE.
USE
NONE.
DECOMMISSIONING/DEMOLITION
NONE.

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
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C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPLIED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION.	PP	09/10	PF	TM
B	INCORPORATING NRA COMMENTS	AOS	06/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
BU01 - BAT UNDERPASS
PRECAST WINGWALLS
GA AND RC DETAILS SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 14/05/08	PG Date 14/05/08	MJ Date 14/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/BU01/032	B

File: 5048435-BR-DR-BU01-032 Rev B.dwg
Date: Nov 08, 2010 – 9:28am Plotted by: pphelan

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Rev D

Status X

Drawing Number 5048435/BR/DR/ST07/001

DO NOT SCALE

A1

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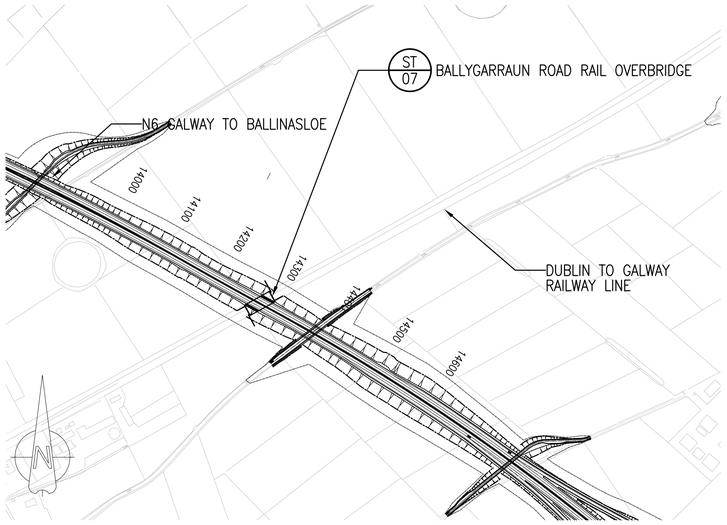
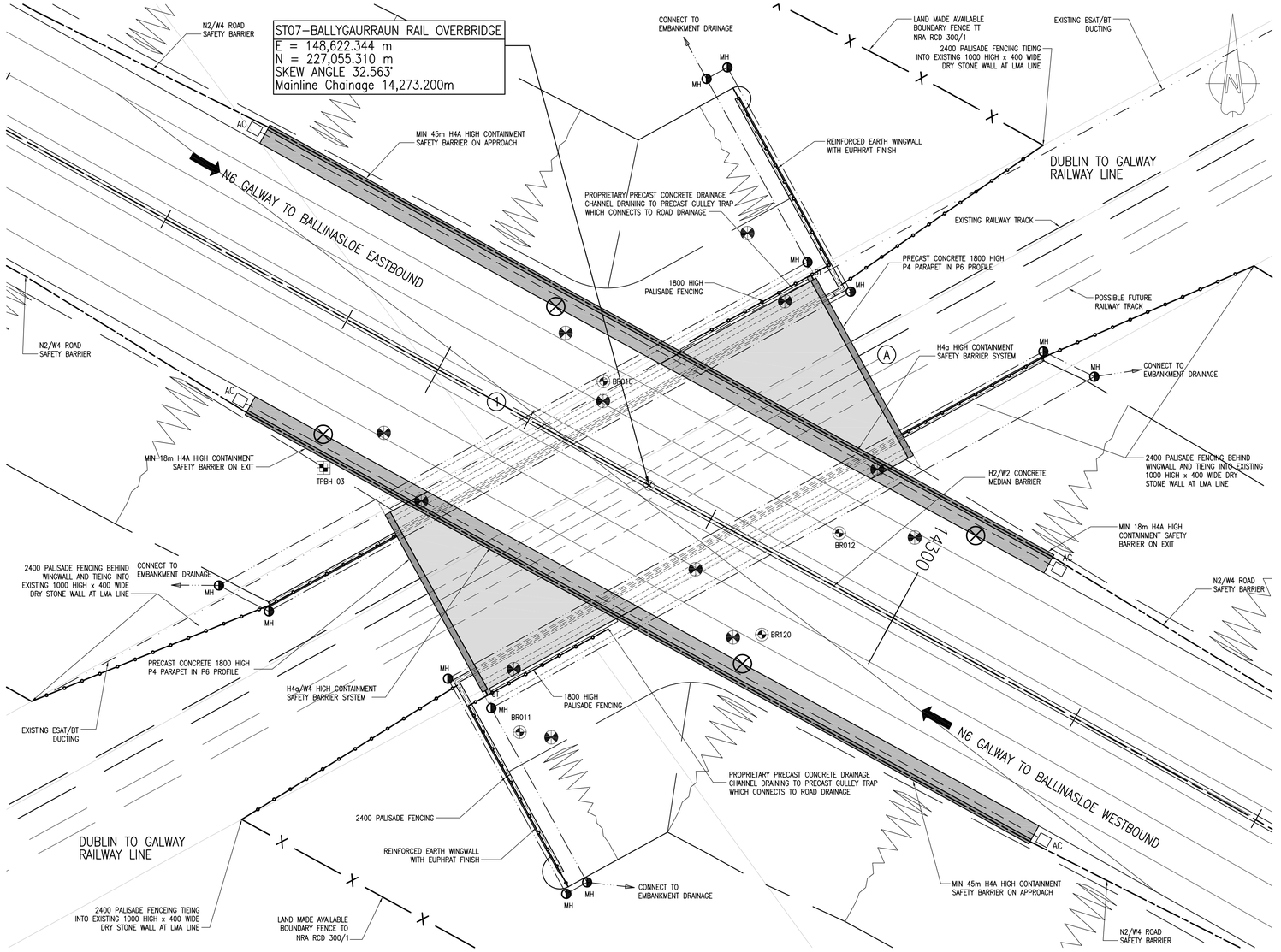


SITE LOCATION PLAN – STRUCTURE ST07
1:5000



SITE LAYOUT PLAN – STRUCTURE ST07
1:250

LEGEND

- RE RODDING EYE
- CP CATCHPIT (OR RODDING EYE)
- MH MANHOLE
- AC ACCESS CHAMBER FOR DUCTS
- 150mm DIA. HDPE OR uPVC PERFORATED OR POROUS PIPE
- SURFACE MOVEMENT MONITORING BEACONS
- ROD AND PLATE SETTLEMENT GAUGES

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/025 AND 026
5. FOR DETAILS OF LIGHTING TO STRUCTURE ST07, REFER TO DRAWINGS 5048435/HW/ST7/L13/034

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	
	WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING	
	WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE	
	NONE
DECOMMISSIONING/DEMOLITION	
	PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	11/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	INCORPORATING IRISH RAIL COMMENTS	AOS	11/08	PG	MJ
C	INCORPORATING IRISH RAIL COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING IRISH RAIL/CHECKERS COMMENTS	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS™ WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST07- BALLYGAURRAUN ROAD RAIL OVERBRIDGE GENERAL ARRANGEMENT - SHEET 1 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 16/07/07	PG Date 16/07/07	MJ Date 16/07/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/001	D

File: 5048435-BR-DR-ST07-001 Rev D.dwg Date: May 11, 2011 – 3:24pm Plotted by: sdunne

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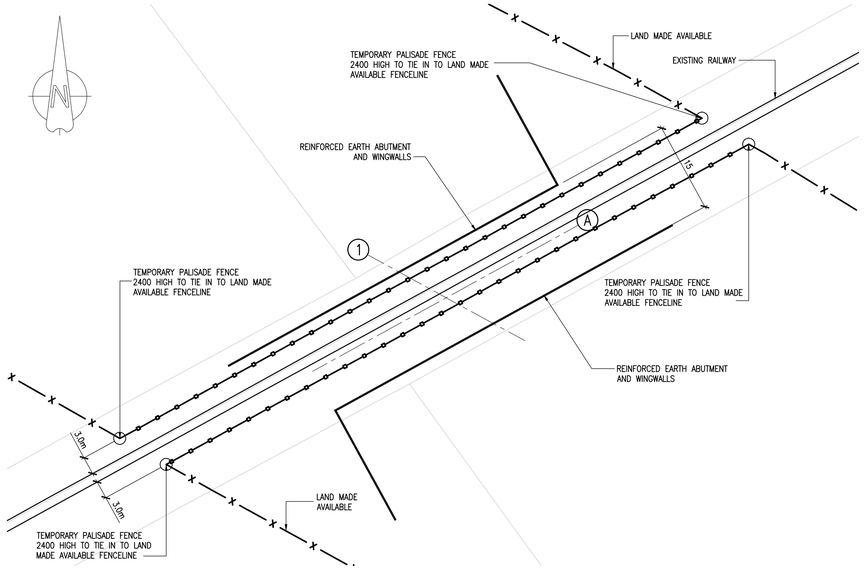
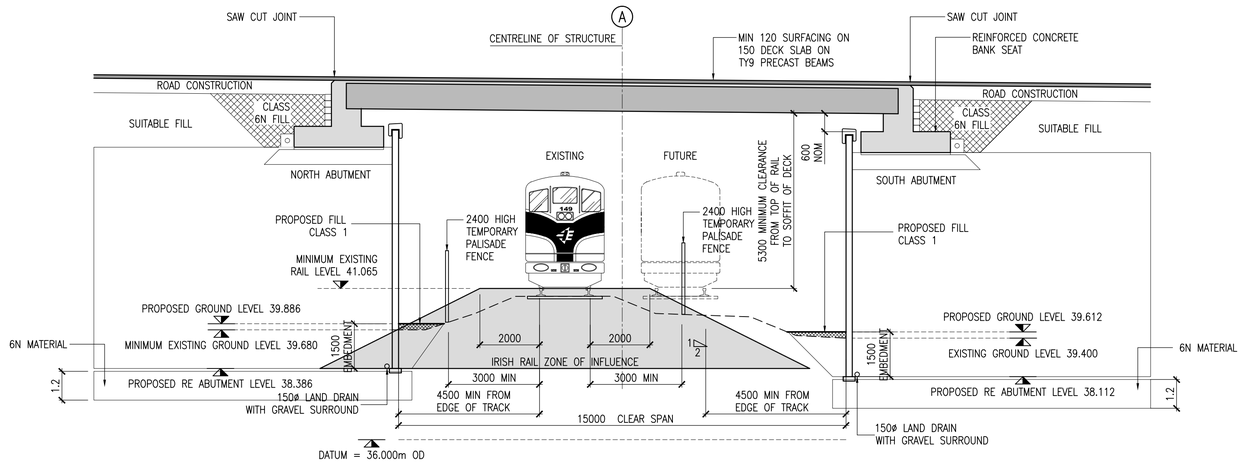


SECTION AT RAIL LEVEL THROUGH STRUCTURE
1:500



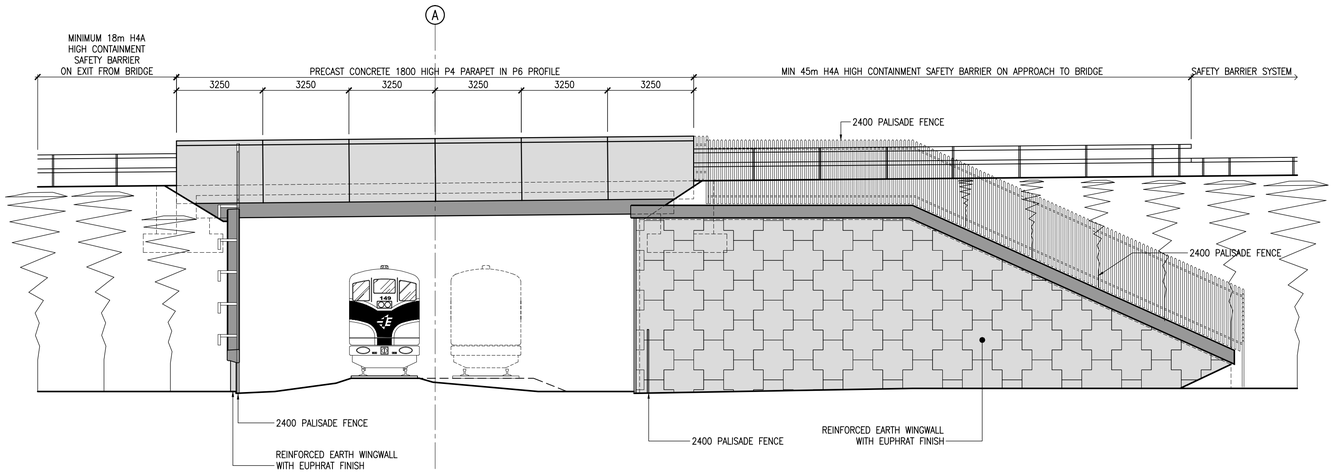
LONGITUDINAL SECTION THROUGH DECK
1:100

INSTRUMENTATION AND MONITORING NOTES :-
INSTRUMENTATION SHALL CONSIST OF :
1. MONITORING PINS ON REINFORCED EARTH WALL PANELS
2. TWO MONITORING PINS AT EACH ABUTMENT TO MONITOR STRUCTURE SETTLEMENTS
3. TWO SURFACE MOVEMENT BEACONS IN THE VERGES OF THE APPROACH EMBANKMENTS, 10.0m BACK FROM THE STRUCTURE AT EACH ABUTMENT TO MONITOR SETTLEMENTS OF APPROACH EMBANKMENTS
4. SIX ROD AND PLATE SETTLEMENT GAUGES AT EACH BANKSEAT (THREE ALONG THE BANKSEAT CENTRELINE AND THREE 7.5 METRES BACK FROM THE BANKSEAT CENTRELINE) TO MONITOR SETTLEMENT OF MATERIAL BELOW THE REINFORCED EARTH.

EXACT INSTRUMENTATION LOCATION SHALL BE AGREED ON SITE WITH THE DESIGNER
INSTRUMENTATION SHALL BE MONITORED IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/12

CONSTRUCTION SEQUENCE NOTES :-
1. EXCAVATE INSITU MATERIAL DOWN TO BASE OF REINFORCED EARTH (TEMPORARY SUPPORT TO EXCAVATION MAY BE REQUIRED)
2. BUILD REINFORCED EARTH ABUTMENTS AND WINGWALLS
3. CONSTRUCT BANKSEATS FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE
4. PLACE DECK BEAMS
5. HOLD (ANTICIPATED HOLD PERIOD DURATION IS 2 TO 4 WEEKS)
6. LOCK INTEGRAL CONNECTIONS FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE
7. BACKFILL AT THE BACK OF THE BANKSEATS
8. COMPLETE DECK CONSTRUCTION
9. CONSTRUCT ROAD PAVEMENT FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE

NOTES :-
1. EXISTING RAIL LEVELS BASED ON CJV SURVEY CARRIED OUT SEPTEMBER 2007
2. EXISTING GROUND LEVELS BASED ON 3D TOPOGRAPHICAL SURVEY AS SUPPLIED TO CJV



SOUTHERN ELEVATION – STRUCTURE ST07
1:100

NOTES :-
1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/025 AND 026
5. TEMPORARY WORKS TO BE DESIGNED BY THE CONTRACTOR
6. A HOLD PERIOD WILL BE REQUIRED BEFORE LOCKING OF THE INTEGRAL CONNECTIONS. THE HOLD PERIOD IS ANTICIPATED TO BE 2 TO 4 WEEKS

CONCRETE IMPREGNATION AND SURFACE COATING

ALL EXPOSED CONCRETE IN BRIDGE SUPERSTRUCTURES WITHIN THE SPLASH ZONE, WITH THE EXCEPTION OF PRECAST BEAMS AND PRECAST FORMWORK BETWEEN BEAMS SHALL BE TREATED WITH 'BRIDGEGUARD' PRIOR TO ITS APPLICATION FOSROC RENDEROC FC WAS APPLIED TO ENSURE UNIFORM COLOUR. FOSROC RENDERROC FC SHALL BE APPLIED TO PRECAST PARAPET EDGE BEAMS.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING	WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE	NONE
DECOMMISSIONING/DEMOLITION	PRECAST PRESTRESSED BEAMS

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	11/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
I	AS-BUILT INFORMATION	NN	09/12	LC	CC
H	AS BUILT INFORMATION	JK	08/12	LC	CC
G	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/12	JB	TM
	SUPPLIED BY N6 CONSTRUCTION				
F	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				

N6 Concession Limited

Contractor: N6 [construction] limited — fcc CONSTRUCCION, S.A. — Sacyr — HEGARTY

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Title: N6 GALWAY TO BALLINASLOE
ST07- BALLYSAURRAUN ROAD
RAIL OVERBRIDGE
GENERAL ARRANGEMENT - SHEET 2 OF 2
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 16/07/07	PG Date 16/07/07	MJ Date 16/07/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/002	I

Rev I
Status X
Drawing Number 5048435/BR/DR/ST07/002
DO NOT SCALE
100 0 10
A1
File: 5048435-BR-DR-ST07-002 Rev I.dwg
Date: Sep 07, 2012 - 11:44am
Plotted by: NNaughton

X:\DESIGN OFFICE\AB INFO\Rev C\Structures\ST07\2.1 Drawings\Autocad\5048435-BR-DR-ST07-002 Rev I.dwg

Rev A | Status X | Drawing Number 5048435/BR/DR/ST07/003

DO NOT SCALE

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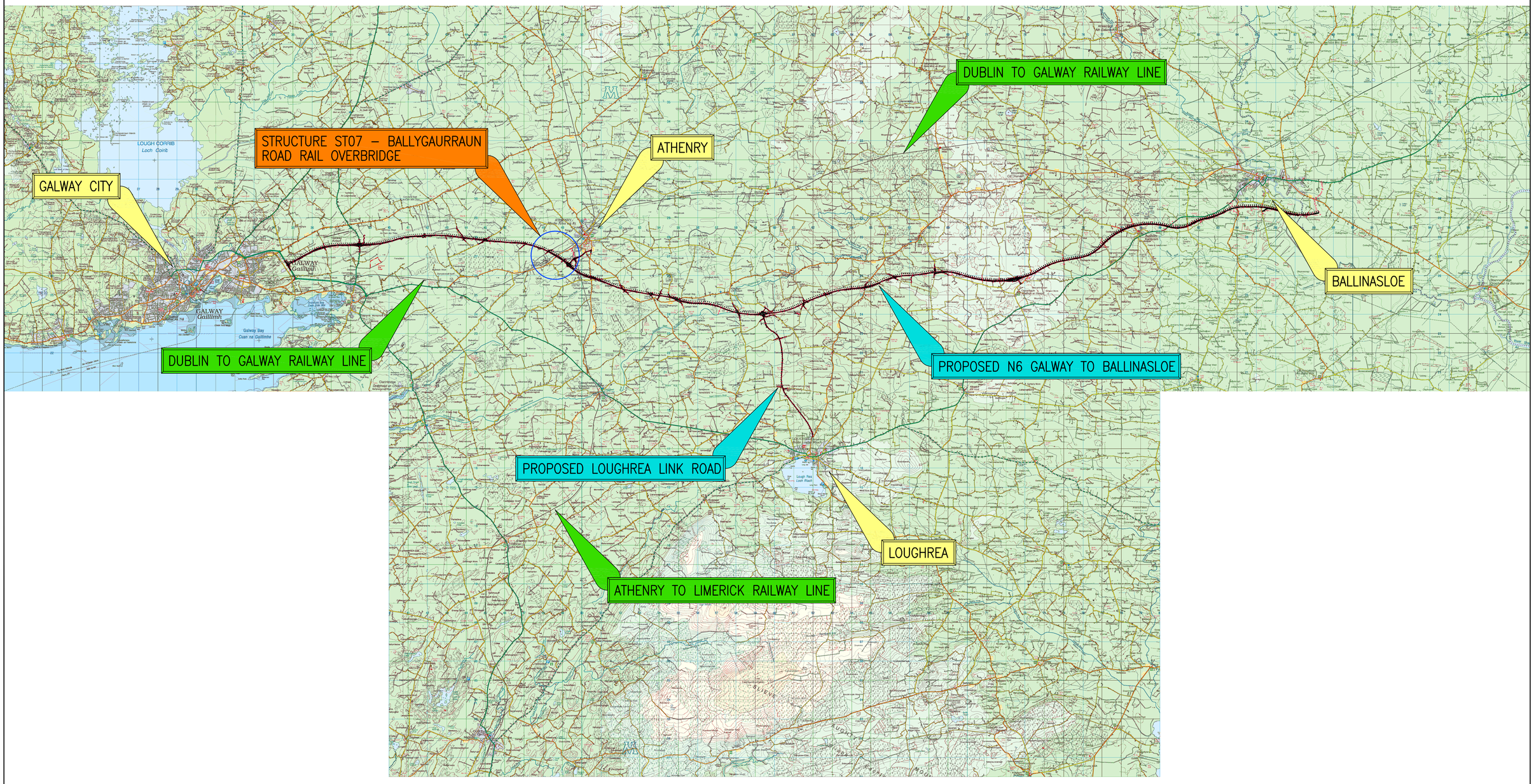

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	01/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
A	PRELIMINARY ISSUE	AOS	01/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | fcc CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS™ WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE STRUCTURE ST07 BALLYGAURRAUN ROAD RAIL OVERBRIDGE OVERALL SCHEME LAYOUT PLAN

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	1:100,000	AOS Date 30.01.08	PG Date 30.01.08	MJ Date 30.01.08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/003	A

File: 5048435-BR-DR-ST07-003 Rev A.dwg
Date: May 11, 2011 - 3:45pm Plotted by: sdunne

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DO NOT SCALE

A1

0 10 100

Rev B
Status X
Drawing Number 5048435/BR/DR/ST07/004

File: 5048435-BR-DR-ST07-004 Rev B.dwg
Date: May 25, 2011 - 2:00 pm Plotted by: sdunne

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE.
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	08/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	01/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
B	LEVEL CROSSING & SIGNAL REFERENCES ADDED	DJO'D	08/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	01/08	PG	MJ

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Title: N6 GALWAY TO BALLINASLOE ST07 - BALLYGAURRAUN ROAD RAIL OVERBRIDGE BRIDGE DECK GENERAL ARRANGEMENT

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	1:10,000	AOS Date 30.01.08	PG Date 30.01.08	MJ Date 30.01.08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/004	B

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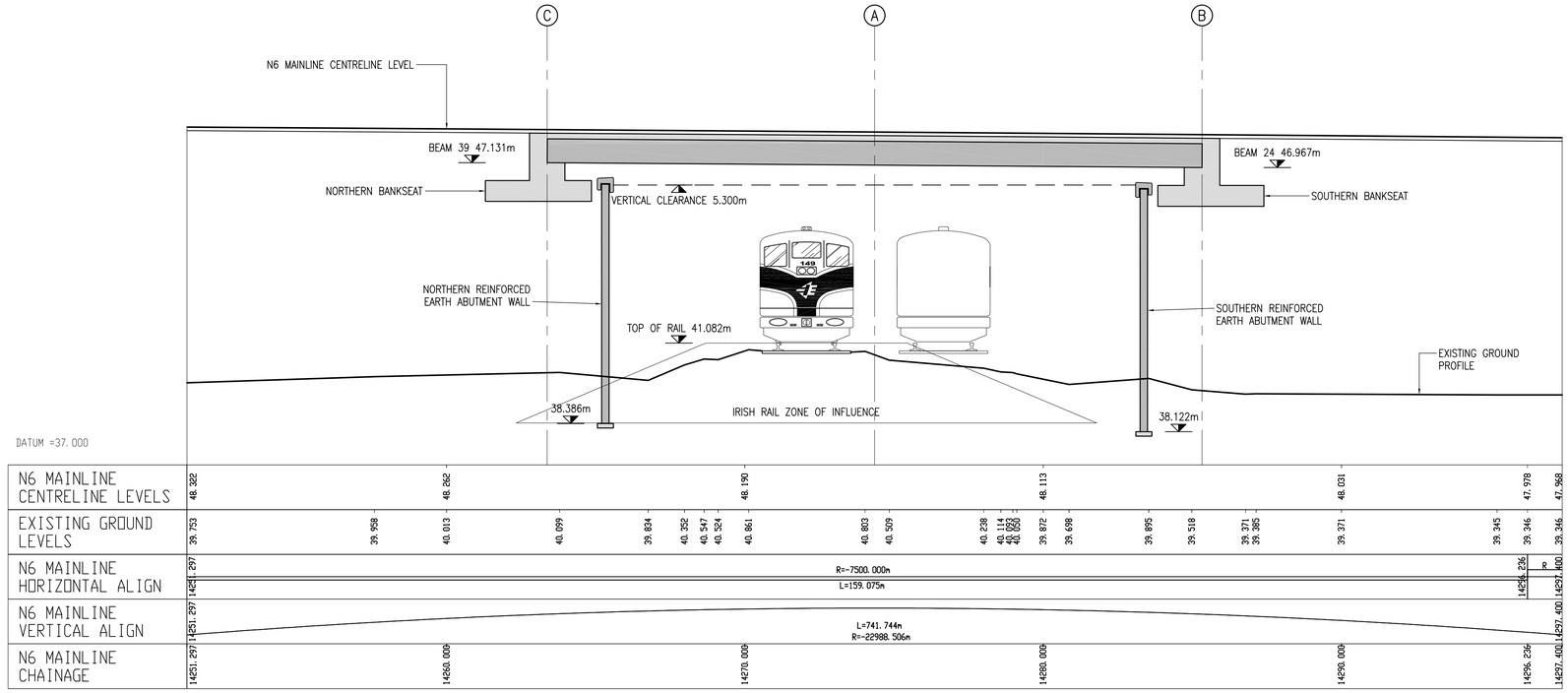

LONGITUDINAL SECTION ALONG N6 MAINLINE CENTRELINE SHOWING ROAD/RAIL INTERFACE

1:100

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/025 AND 026

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING	WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE	NONE
DECOMMISSIONING/DEMOLITION	PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	07/08	PG	MJ

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Contractor: N6 [construction] limited · fcc CONSTRUCCION, S.A. · Sacyr · HEGARTY

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AS-BUILT

Title: N6 GALWAY TO BALLINASLOE
ST07- BALLYGAURAUN ROAD RAIL OVERBRIDGE
ROAD / RAIL INTERFACE

Size	Original Scale	Drawn	Checked	Authorised
A1	1:100	AOS Date 25/07/08	PG Date 25/07/08	MJ Date 25/07/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/005	A

Rev A · Status X · Drawing Number 5048435/BR/DR/ST07/005 · DO NOT SCALE · A1 · 0 10 100

File: 5048435–BR–DR–ST07–005 Rev A.dwg Date: May 11, 2011 – 3:52pm Plotted by: sdunne

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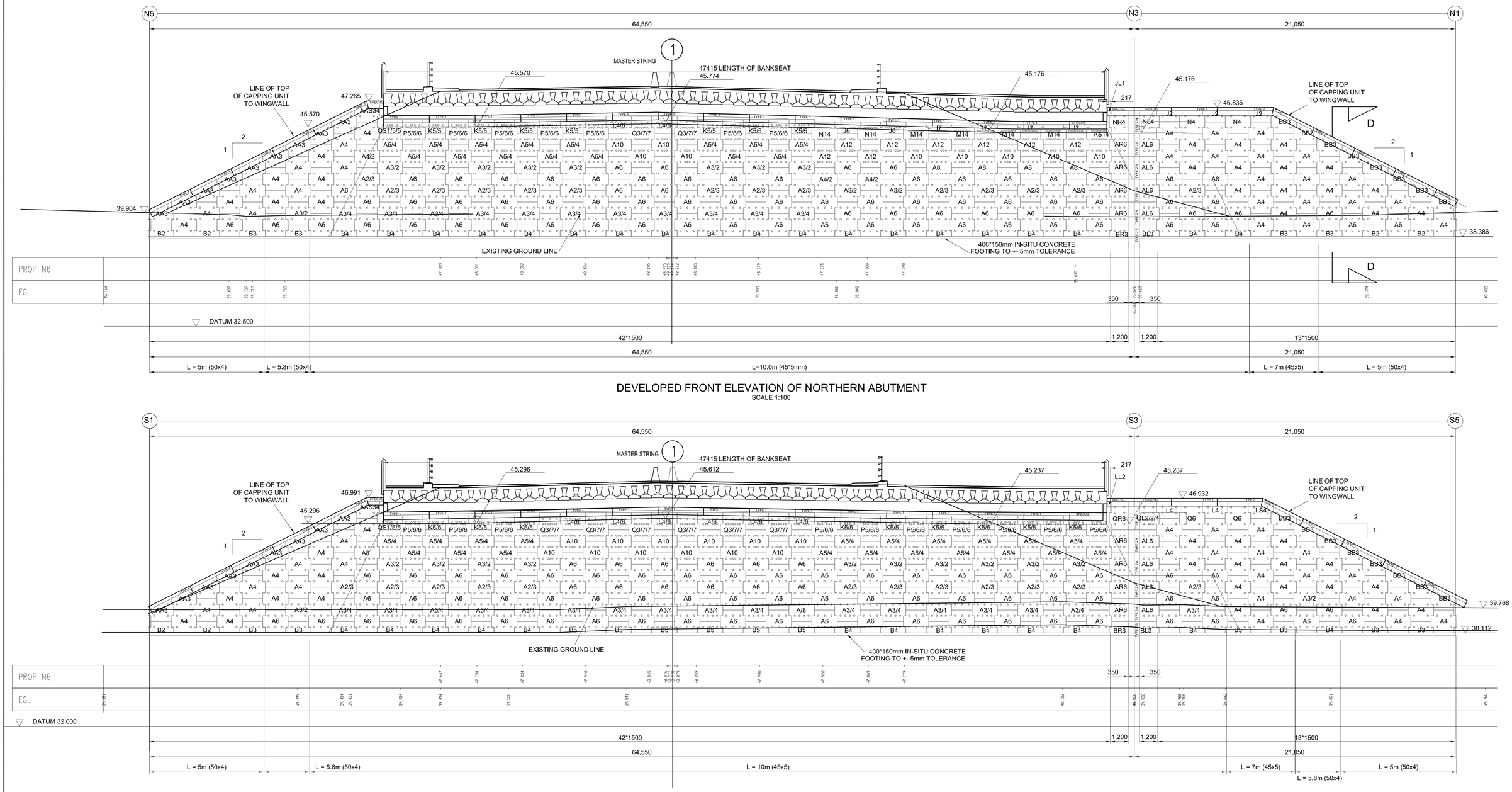

DEVELOPED FRONT ELEVATION OF NORTHERN ABUTMENT

SCALE 1:100

DEVELOPED FRONT ELEVATION OF SOUTHERN ABUTMENT

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional Fill to be class 6l/6J in accordance with Specification appendix 6/1. The material shall also comply with table 4 of BS8006. Class 6l/6j fill shall achieve a mimimum ø = 38°.
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the REINFORCED EARTH CO (IRELAND) LTD UNIT F, M7 BUSINESS PARK NAAS Co. KILDARE TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. Uniformly graded granular fill below the blinding level of Bankseat. For detail of fill under the bankseat please refer to General Arrangement drawing.
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 180 thick.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING	WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE	NONE
DECOMMISSIONING/DEMOLITION	PRECAST PRESTRESSED BEAMS

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscommáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
C	SUPPLIED BY N6 CONSTRUCTION				
C	REINFORCED EARTH FOOTING LEVELS REVISED	AOS	03/08	PG	MJ
B	REINFORCED EARTH FOOTING LEVELS REVISED	AOS	03/08	PG	MJ
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS™ — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGURRAGLIN ROAD RAIL OVERBRIDGE
REINFORCED EARTH DETAILS SHEET 1

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 05/03/08	PG Date 05/03/08	MJ Date 05/03/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/025	C

Rev C · Status X · Drawing Number 5048435/BR/DR/ST07/025 · DO NOT SCALE · A1 · 0 10 100

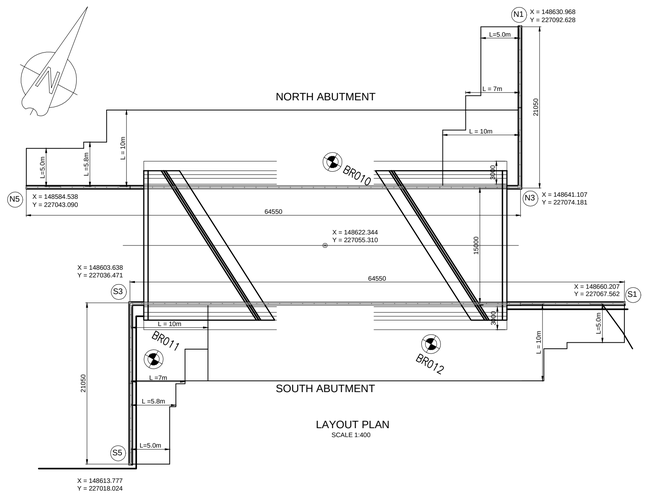
File: 5048435-BR-DR-ST07-025 Rev C.dwg Date: May 11, 2011 - 4:20pm Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-025 Rev C.dwg

Rev B | Drawing Number 5048435/BR/DR/ST07/026 | Status X

DO NOT SCALE

A1



LAYOUT PLAN
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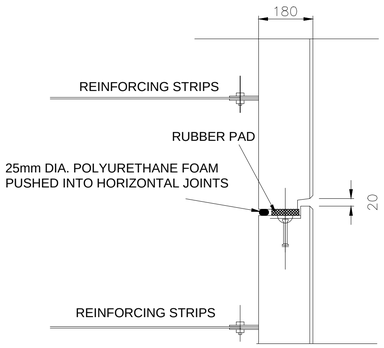
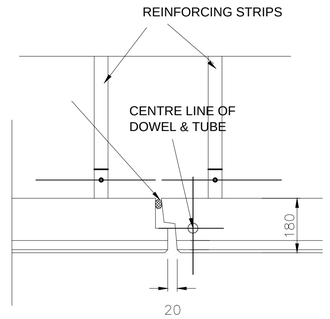
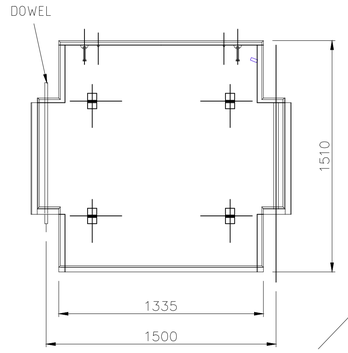


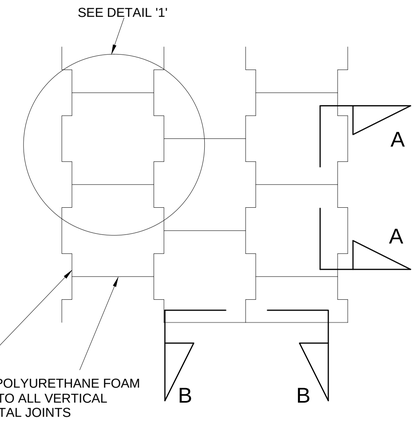
SECTION AA
SCALE 1:10



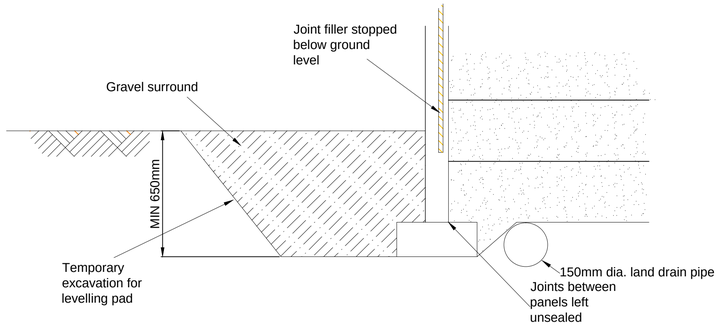
SECTION BB
SCALE 1:10



DETAIL 1
SCALE 1:20

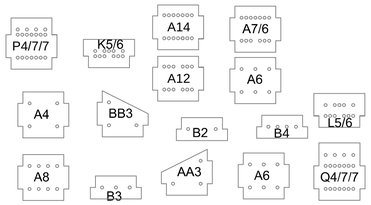


BACK ELEVATION OF PANELS SCALE 1:50



DRAINAGE DETAIL SCALE 1:10

LEGEND:



L=LENGTH OF REINFORCING STRIPS
ALL REINFORCING STRIPS ARE TO BE OF HIGH ADHERENCE HOT DIP GALVANIZED MEDIUM TENSILE STEEL.

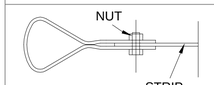
Facing Panel designation:

basic type - A,B,I,M,AA etc

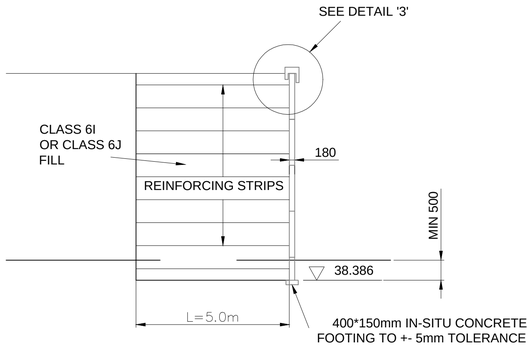
Cut (Vertical straight) - suffix d(r/hand), g(l/hand).

Standard No lugs - suffix 2,3,4 etc
(strip connection)

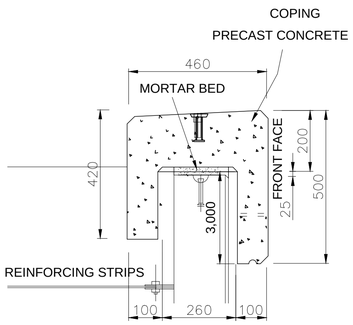
Non-standard No of lugs - suffix eg. 5/6
(strip connection) (No of lugs on a level, starting from the top)

CONNECTION DETAIL	REINF. STRIP DETAIL	TIE STRIP DIMENSION	BOLT DIAMETER	BOLT HOLE DIAMETER	GRADE OF NUT & BOLT
	50*4mm (HA) 45*5mm (HAR)	45*4.5mm 45*4.5mm	12.0mm 12.0mm	13.5mm 13.5mm	10.9 10.9

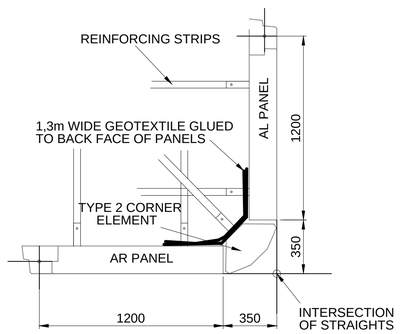
CONNECTION DETAIL



CROSS SECTION 'DD'
DETAIL NOT TO SCALE



DETAIL "3"
SCALE 1:10



CORNER TYPE 2
SCALE 1:20

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional Fill to be class 6I/6J in accordance with Specification appendix 6/1. The material shall also comply with table 4 of BS8006. Class 6i/6j fill shall achieve a mimimum ø = 38°.
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the REINFORCED EARTH CO (IRELAND) LTD UNIT F, M7 BUSINESS PARK NAAS Co. KILDARE TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. Uniformly graded granular fill below the blinding level of Bankseat. For detail of fill under the bankseat please refer to General Arrangement drawing.
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 180 thick.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
A	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION S.A. | Sacyr | HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGAURRAUN ROAD
RAIL OVERBRIDGE
REINFORCED EARTH DETAILS SHEET 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 05/03/08	PG Date 05/03/08	MJ Date 05/03/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/026	B

File: 5048435-BR-DR-ST07-026 Rev B.dwg Date: Apr 19, 2012 - 3:55pm Plotted by: dcourtney

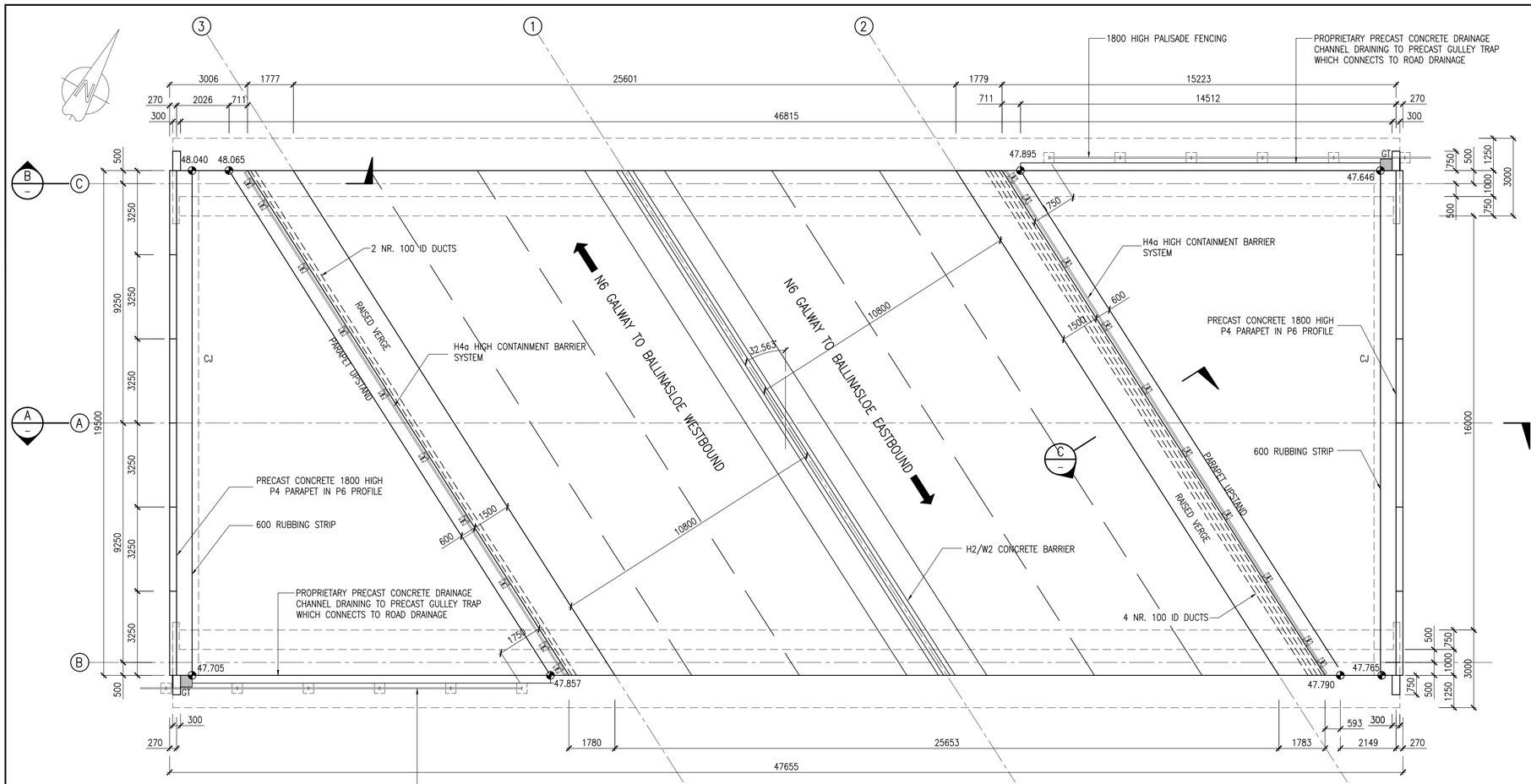
0 10 100

P:\ZDrive\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-026 Rev B.dwg

Rev E | Status X | Drawing Number 5048435/BR/DR/ST07/040

DO NOT SCALE

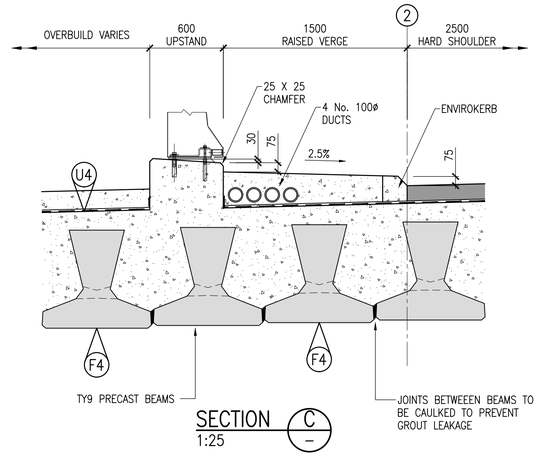
A1



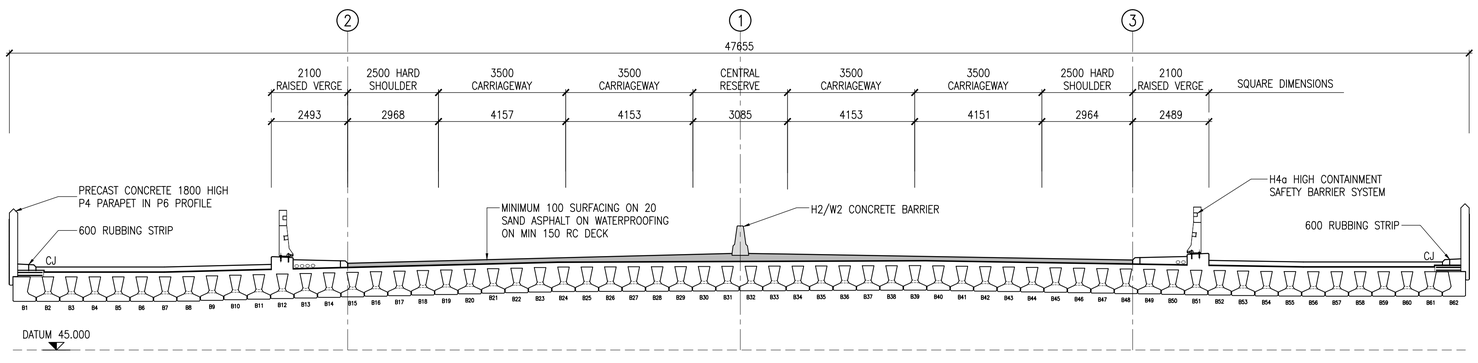
PLAN – BRIDGE DECK
1:100

NOTES :–

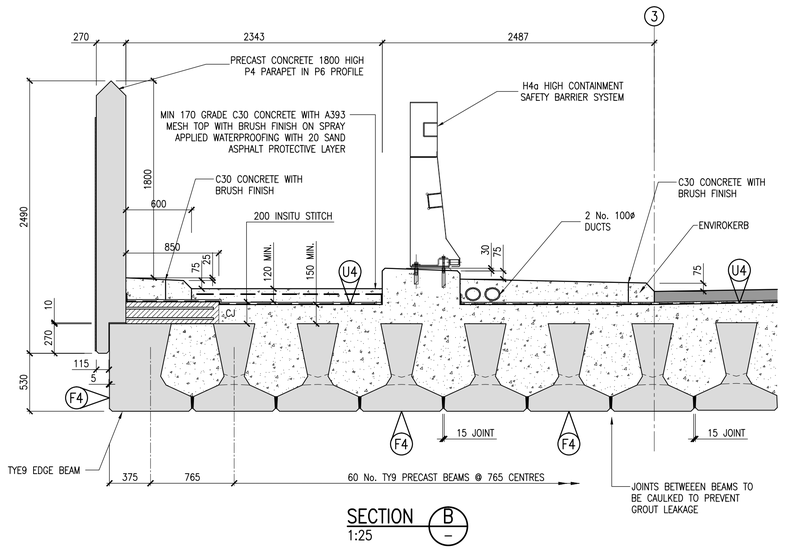
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/020 AND 021
5. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
6. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   $\varphi \leq 32°$
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80µm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
8. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST07/045 AND 046
9. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST07/047



SECTION C
1:25



SECTION A (TAKEN ALONG GRIDLINE A)
1:100



SECTION B
1:25

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | TransPort 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/12	TM
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
E	AS BUILT INFORMATION	JK	08/12	LC	CC
D	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
C	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
C	INCORPORATING IRISH RAIL COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING IRISH RAIL/CHECKERS COMMENTS	JMcM	03/08	PG	PG
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYCAUPPALIN ROAD RAIL OVERBRIDGE
BRIDGE DECK GENERAL ARRANGEMENT
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/040	E

File: 5048435-BR-DR-ST07-040 Rev E.dwg
Date: Aug 13, 2012 – 8:27am Plotted by: criaughton

\\M50dcserver\production\Justin\Structures\ST07\2.1 Drawings\Autocad\5048435-BR-DR-ST07-040 Rev E.dwg

Rev C

Drawing Number 5048435/BR/DR/ST07/041

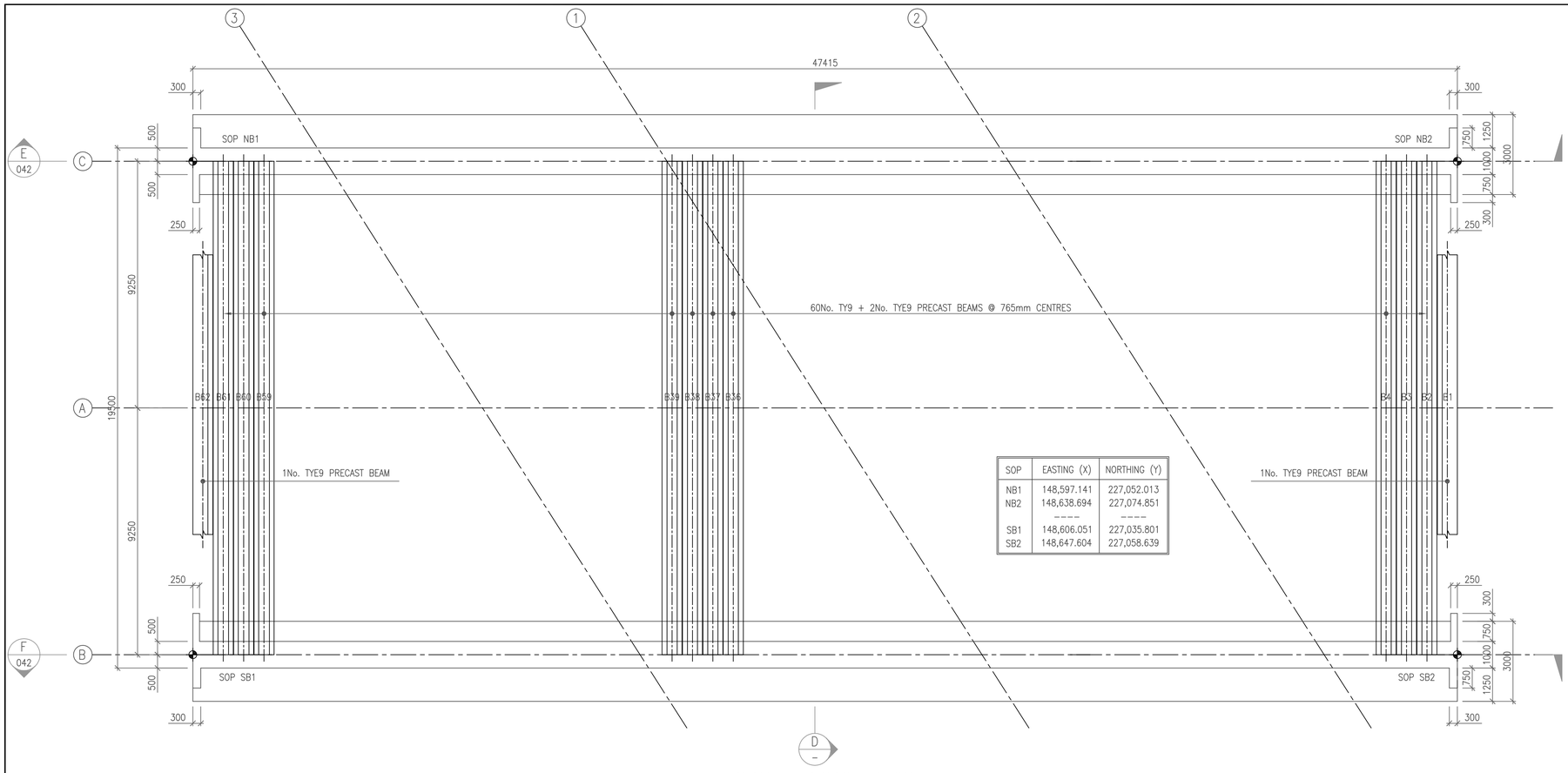
Status X

DO NOT SCALE

A1

0 10 100

File: 5048435-BR-DR-ST07-041Rev C.dwg Date: Feb 14, 2012 - 3:59pm Plotted by: NNaughton

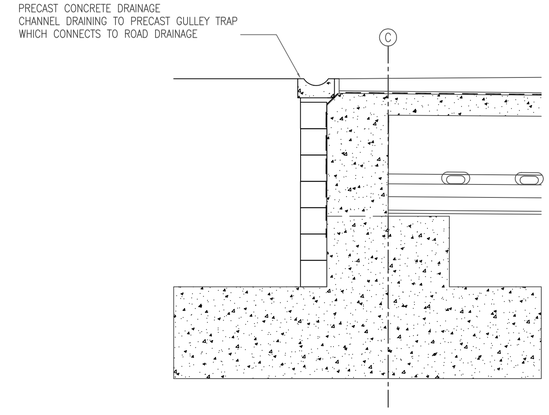


SOP	EASTING (X)	NORTHING (Y)
NB1	148,597.141	227,052.013
NB2	148,638.694	227,074.851
----	----	----
SB1	148,606.051	227,035.801
SB2	148,647.604	227,058.639

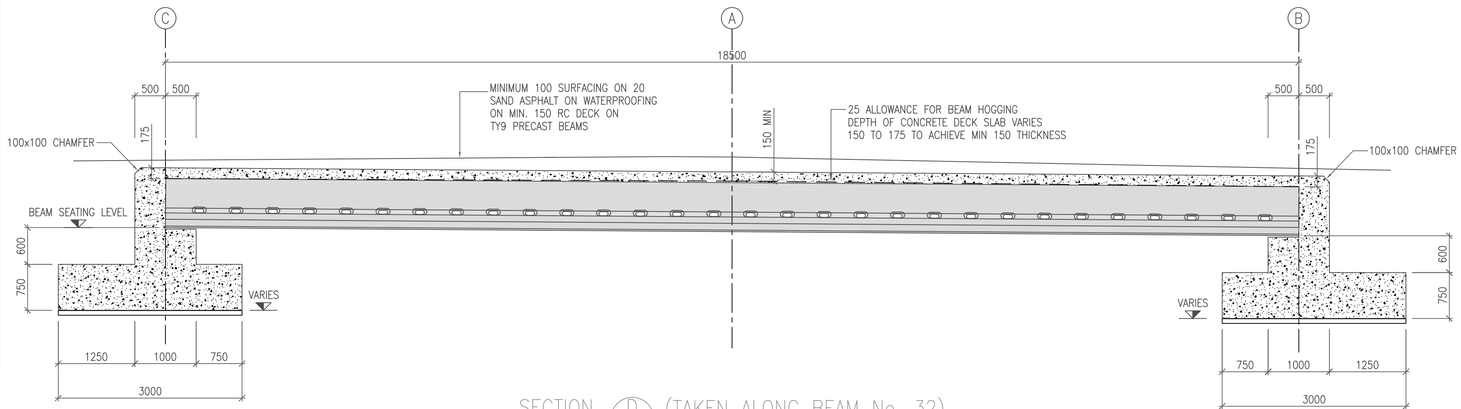
PLAN – BRIDGE DECK
1:100

NOTES :–

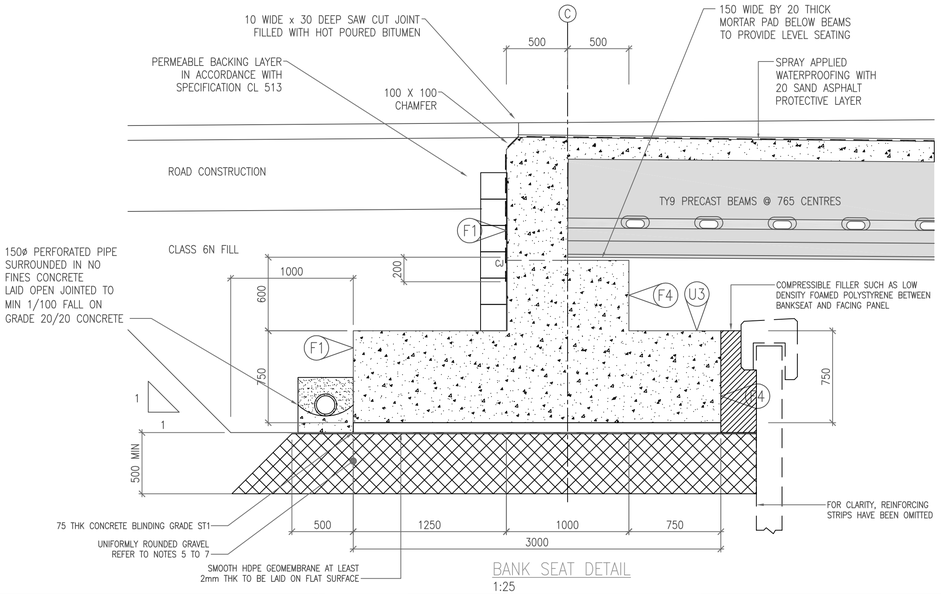
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/020 AND 021
5. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
6. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   - $\varphi \leq 32°$
   - GRADING PASSING 50mm – 100%
     2mm – < 30%
     80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
8. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST07/045 AND 046
9. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST07/047



DRAINAGE DETAIL FOR OVERBUILD AREAS
1:25



SECTION D (TAKEN ALONG BEAM No. 32)
1:50



BANK SEAT DETAIL
1:25

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport21 · NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	INCORPORATING IRISH RAIL/CHECKERS COMMENTS	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · fcc CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGAURRAUN ROAD
RAIL OVERBRIDGE - BANKSEAT
GENERAL ARRANGEMENT SHEET 1 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/041	C

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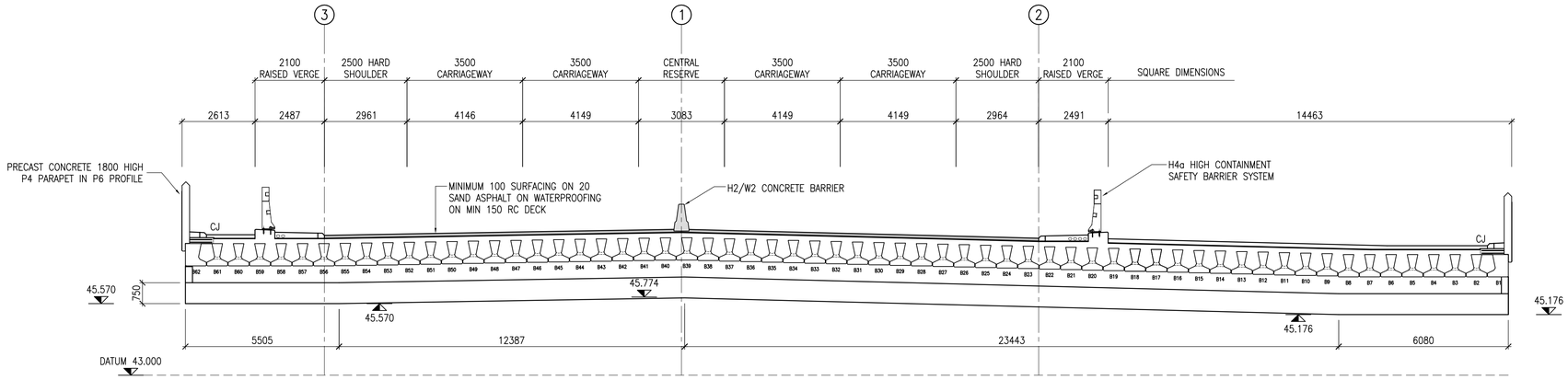
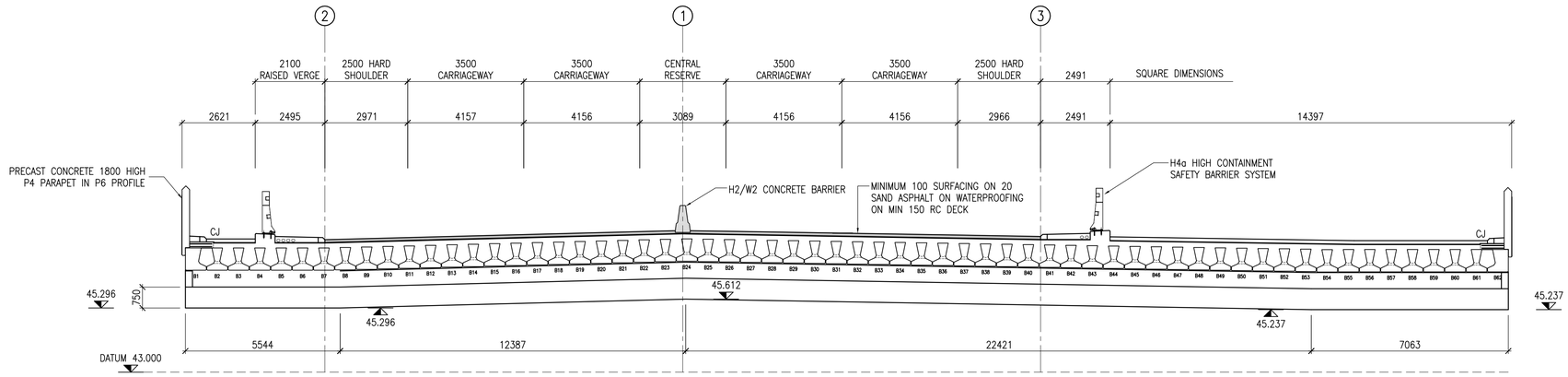


SECTION E (041) (TAKEN ALONG GRIDLINE C)
1:100



SECTION F (041) (TAKEN ALONG GRIDLINE B)
1:100

BEAM SEATING LEVELS		
BEAM NR.	NORTHERN BANKSEAT GRIDLINE C	SOUTHERN BANKSEAT GRIDLINE B
B1	46.526	46.646
B2	46.526	46.646
B3	46.526	46.646
B4	46.526	46.646
B5	46.526	46.646
B6	46.526	46.646
B7	46.526	46.646
B8	46.526	46.660
B9	46.560	46.679
B10	46.578	46.699
B11	46.596	46.718
B12	46.616	46.738
B13	46.635	46.757
B14	46.654	46.777
B15	46.673	46.796
B16	46.693	46.816
B17	46.712	46.835
B18	46.730	46.855
B19	46.750	46.874
B20	46.768	46.894
B21	46.788	46.914
B22	46.807	46.933
B23	46.825	46.952
B24	46.844	46.967
B25	46.863	46.954
B26	46.883	46.941
B27	46.902	46.929
B28	46.921	46.916
B29	46.940	46.903
B30	46.959	46.891
B31	46.978	46.878
B32	46.998	46.865
B33	47.017	46.853
B34	47.036	46.840
B35	47.055	46.827
B36	47.074	46.814
B37	47.093	46.802
B38	47.112	46.788
B39	47.131	46.775
B40	47.128	46.762
B41	47.115	46.750
B42	47.102	46.737
B43	47.089	46.725
B44	47.076	46.712
B45	47.063	46.700
B46	47.050	46.687
B47	47.036	46.674
B48	47.023	46.660
B49	47.009	46.650
B50	46.996	46.636
B51	46.982	46.624
B52	46.969	46.614
B53	46.956	46.600
B54	46.943	46.587
B55	46.929	46.587
B56	46.920	46.587
B57	46.920	46.587
B58	46.920	46.587
B59	46.920	46.587
B60	46.920	46.587
B61	46.920	46.587
B62	46.920	46.587

NOTES :-

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
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4. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST07/020 AND 021
5. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
6. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :-
   - $\varphi \leq 32°$
   - GRADING PASSING 50mm – 100%, 2mm – < 30%, 80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
8. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST07/045 AND 046
9. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST07/047

Rev C
Drawing Number 5048435/BR/DR/ST07/042
Status X
DO NOT SCALE
A1
0 10 100
File: 5048435-BR-DR-ST07-042 Rev C.dwg
Date: May 11, 2011 – 4:46pm
Plotted by: sdunne

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.

MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY

USE
NONE

DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	PARAPET RAILING REVISED	JMcM	07/08	PG	MJ
B	INCORPORATING IRISH RAIL/CHECKERS COMMENTS	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS™ WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST07 - BALLYGAURAUN ROAD RAIL OVERBRIDGE - BANKSEAT GENERAL ARRANGEMENT SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status X · Drawing Number 5048435/BR/DR/ST07/042 · Rev C

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-042 Rev C.dwg

Rev A | Status X | Drawing Number 5048435/BR/DR/ST07/043

DO NOT SCALE

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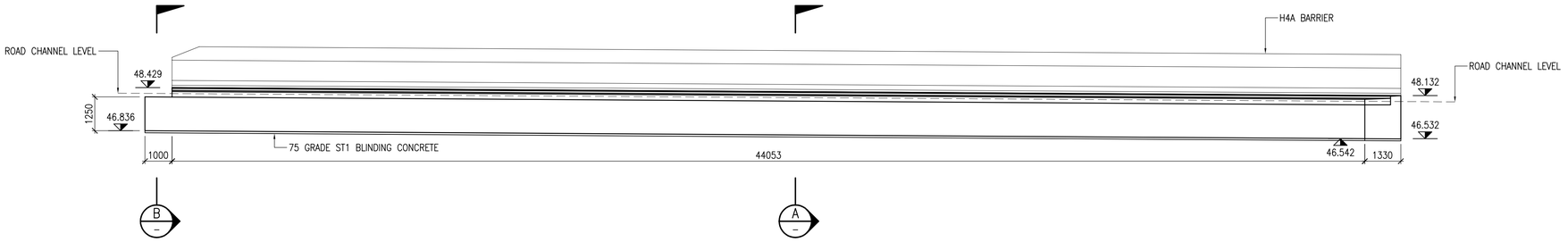
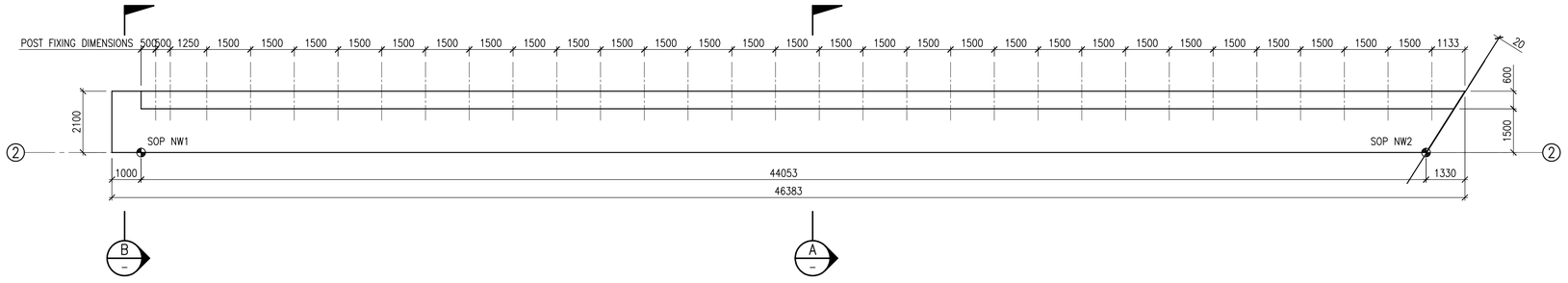
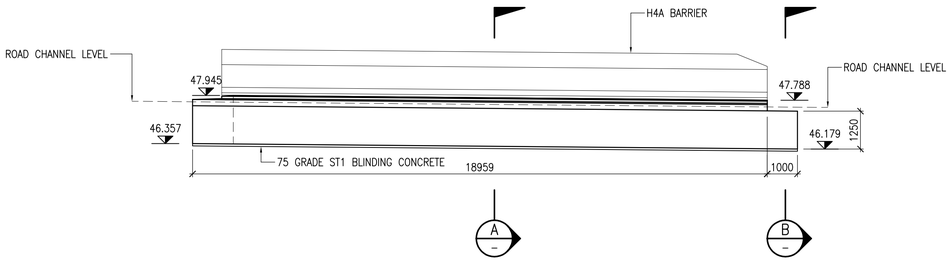


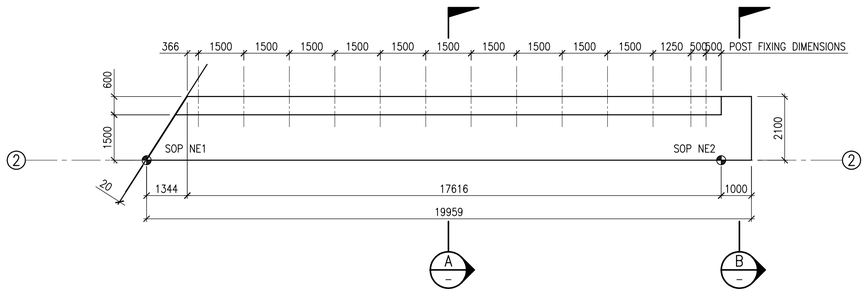
ELEVATION – NORTHERN APPROACH H4A BARRIER BASE
1:100



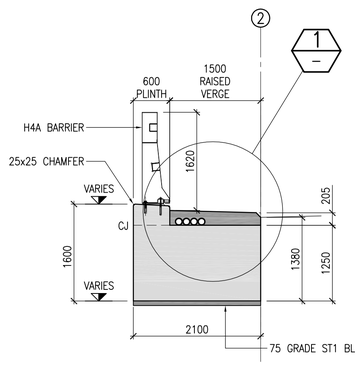
PLAN – NORTHERN APPROACH H4A BARRIER BASE
1:100



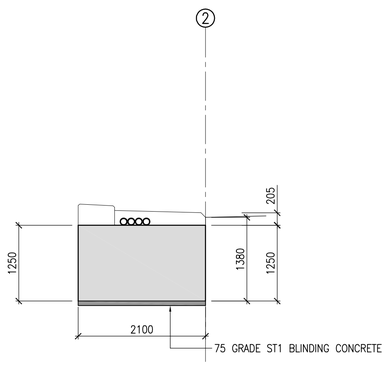
ELEVATION – NORTHERN DEPARTURE H4A BARRIER BASE
1:100



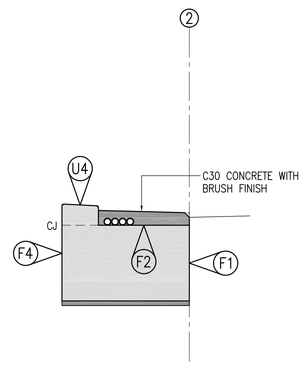
PLAN – NORTHERN DEPARTURE H4A BARRIER BASE
1:100



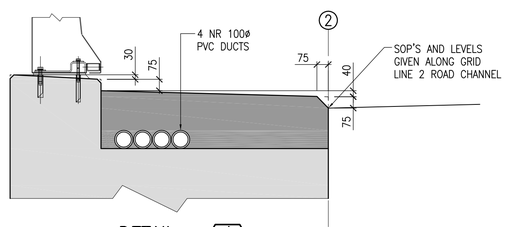
SECTION A
1:50



SECTION B
1:50



FINISHES
1:50



DETAIL 1
1:20

NOTES :–

1. FOR GENERAL NOTES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST07/040 TO 042
5. POST SPACINGS SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPPLIER
6. THE FOUNDATION LEVEL OF THE H4A BARRIER BASE WILL VARY WITH THE ROAD LEVEL. THE FOUNDATION LEVEL OF THE BASE WILL BE 1380mm BELOW THE ROAD CHANNEL LEVELS AT GRIDLINES 2 AND 3
7. CONCRETE IN H4A BARRIER BASE TO BE GRADE C50/20B TO SPECIFICATION. CONCRETE IN RAISED VERGE TO BE C30/20 A TO SPECIFICATION

SOP	EASTING (X)	NORTHING (Y)	LEVEL (Z)
NW1	148,584.818	227,088.299	48.209
NW2	148,623.401	227,067.040	47.922
-----	-----	-----	-----
NE1	148,643.768	227,055.937	47.737
NE2	148,660.416	227,046.864	47.568

FOR LOCATION OF SOP'S, REFER TO DETAIL 1

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION	AOS	07/08	PG	MJ
A	PRELIMINARY ISSUE				

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS™ WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST07 - BALLYSUMPLIN ROAD RAIL OVERBRIDGE H4A BARRIER BASE DETAILS - SHEET 1

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 25/07/08	PG Date 25/07/08	MJ Date 05/07/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/043	A

File: 5048435-BR-DR-ST07-043 Rev A.dwg Date: May 12, 2011 - 10:08am Plotted by: sdunne

0 10 100

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-043 Rev A.dwg

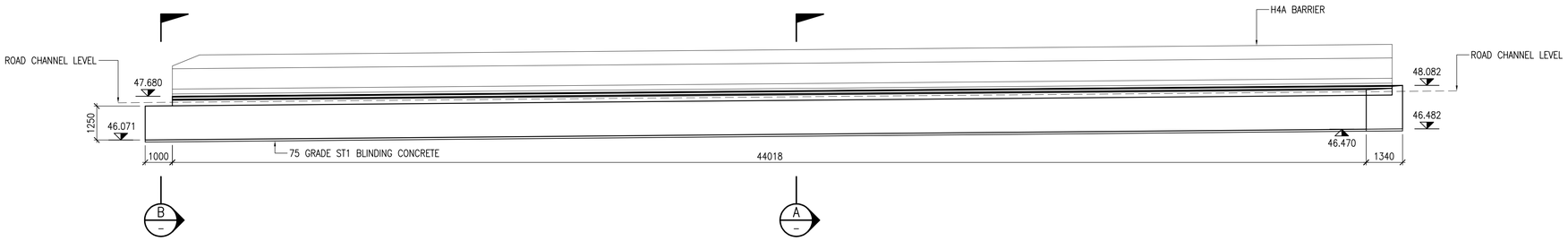
Rev A

Drawing Number 5048435/BR/DR/ST07/044

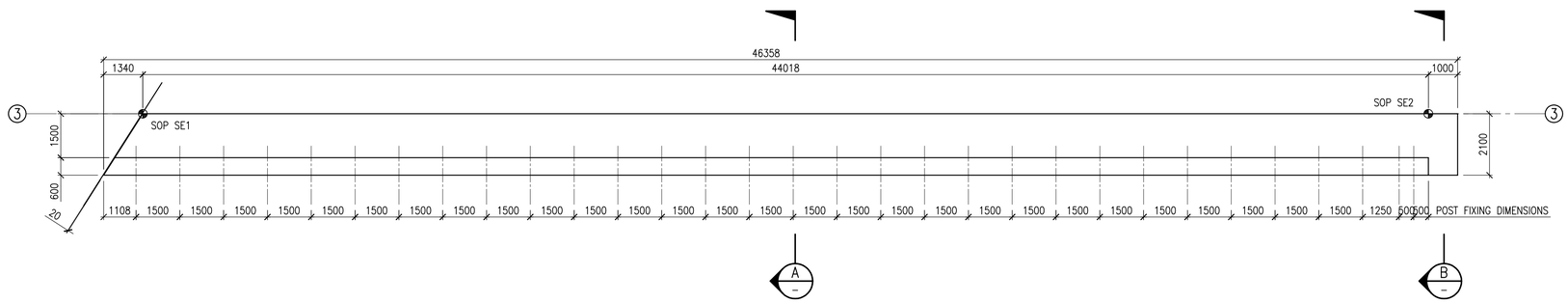
Status X

DO NOT SCALE

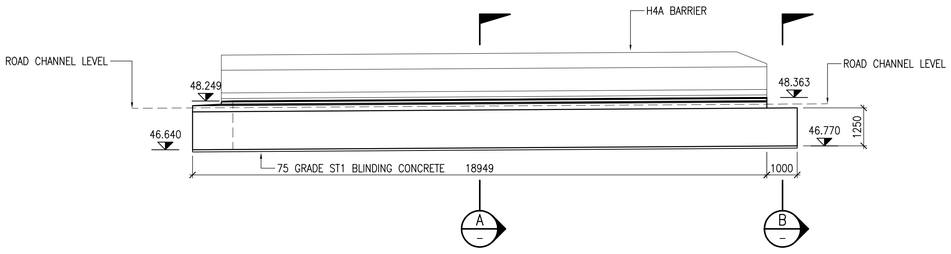
A1



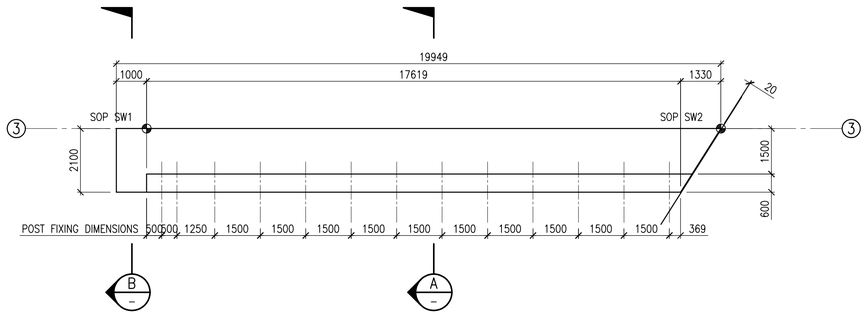
ELEVATION – SOUTHERN APPROACH H4A BARRIER BASE
1:100



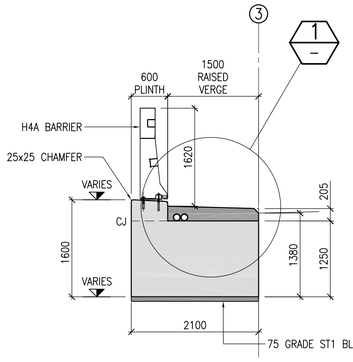
PLAN – SOUTHERN APPROACH H4A BARRIER BASE
1:100



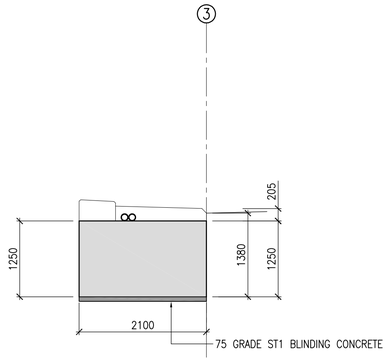
ELEVATION – SOUTHERN DEPARTURE H4A BARRIER BASE
1:100



PLAN – SOUTHERN DEPARTURE H4A BARRIER BASE
1:100



SECTION A
1:50



SECTION B
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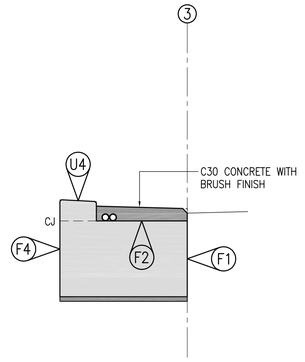
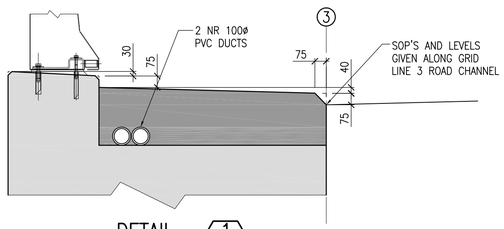


FINISHES
1:50



DETAIL 1
1:20

NOTES :–

1. FOR GENERAL NOTES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST07/040 TO 042
5. POST SPACINGS SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPPLIER
6. THE FOUNDATION LEVEL OF THE H4A BARRIER BASE WILL VARY WITH THE ROAD LEVEL. THE FOUNDATION LEVEL OF THE BASE WILL BE 1380mm BELOW THE ROAD CHANNEL LEVELS AT GRIDLINES 2 AND 3
7. CONCRETE IN H4A BARRIER BASE TO BE GRADE C50/20B TO SPECIFICATION. CONCRETE IN RAISED VERGE TO BE C30/20 A TO SPECIFICATION

SOP	EASTING (X)	NORTHING (Y)	LEVEL (Z)
SE1	148,621.288	227,043.582	47.850
SE2	148,659.914	227,022.472	47.460
-----	-----	-----	-----
SW1	148,584.370	227,063.855	48.143
SW2	148,600.966	227,054.709	48.020

FOR LOCATION OF SOP'S, REFER TO DETAIL 1

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	07/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited

Designer: ATKINS – WS Atkins Ireland Limited © – Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGAURAUN ROAD RAIL OVERBRIDGE
H4A BARRIER BASE DETAILS - SHEET 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 25/07/08	PG Date 25/07/08	MJ Date 05/07/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/044	A

File: 5048435–BR–DR–ST07–044 Rev A.dwg
Date: May 11, 2011 – 5:06pm Plotted by: sdunne

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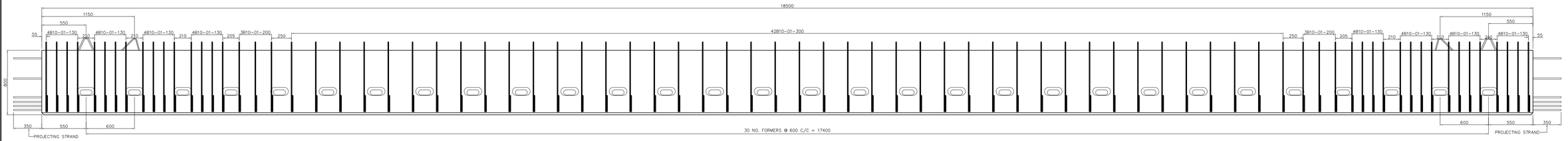
Rev A

Drawing Number 5048435/BR/DR/ST07/045

Status X

DO NOT SCALE

A1 0 10 100



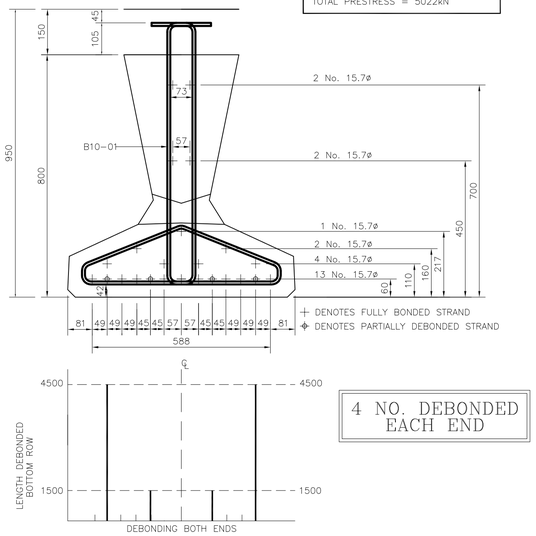
ELEVATION OF TY9 – 60 NO. REQUIRED

Concrete strength at transfer to be 46N/mm^2
Concrete strength at 28 days to be 70N/mm^2

Height of centroid of strands above soffit
= 4057 / 24 = 169.04mm

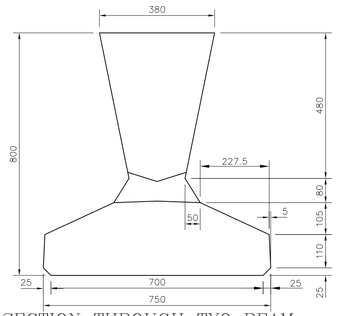
Beam centroid = 328.6
Ht of centroid of strands above soffit = 169.04
Eccentricity = 159.56mm

24 No. 15.7mmø SUPERSTRANDS
ULTIMATE TENSILE STRENGTH = 279kN
STRESSED TO 75% = 209.25kN EACH
TOTAL PRESTRESS = 5022kN

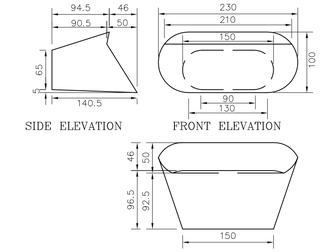


4 NO. DEBONDED EACH END

SECTION THROUGH TY9 BEAM (1:10)



SECTION THROUGH TY9 BEAM SHOWING DIMENSIONS (1:10)



DETAILED TY BEAM FORMER (1:5)

BANACHER CONCRETE LTD

Project: TY9 N6 GALWAY TO BALLINASLOE STRUCTURE 7

Bar schedule ref: 0 5 6 9 7 1 8 A (Rev letter)
Date prepared
Prepared by
Date revised
Checked by

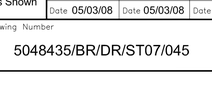
Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar T mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TY9	01	B10	60	80	4800	3425	99	863	145	145	456	324
								BM.01				196

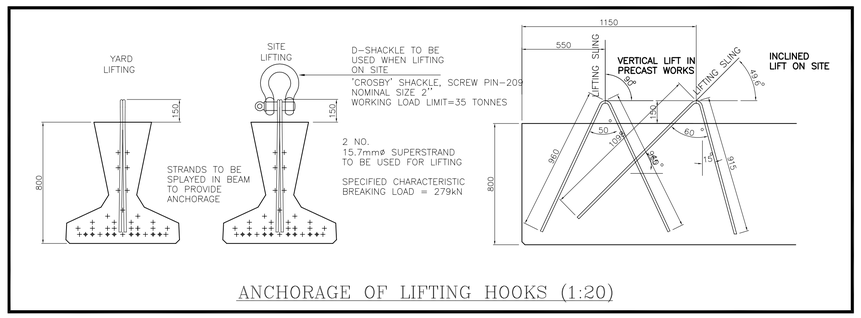
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. T Specified in multiples of 25 mm

NOTES

1./ Concrete strength at transfer for to be 46N/mm2.
2./ Concrete strength at 28 days to be 70N/mm2.
3/ Steel reinforcements to B.S. 4449-05 (grade B500B)
4./ Prestressing steel to E.N. 10138-3
5./ Nominal cover to steel =40mm at soffit of TYbeams.
6./ Beam wt TY9 18500 LONG = 14.3T
7./ Strand may project 350mm (half the gap)
8./ Lifting:

18500 LONG





ANCHORAGE OF LIFTING HOOKS (1:20)

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST07/040 TO 042

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE
NONE
DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscommán

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X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST07 - BALLYGARRAUN ROAD RAIL OVERBRIDGE PRECAST TY9 BEAMS DETAILS

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 05/03/08	PG Date 05/03/08	MJ Date 05/03/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/045	A

File: 5048435-BR-DR-ST07-045 Rev A.dwg Date: May 11, 2011 - 5:10pm Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-045 Rev A.dwg

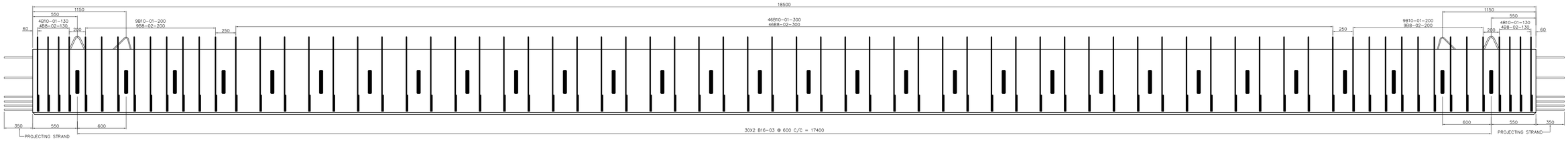
Rev A

Drawing Number 5048435/BR/DR/ST07/046

Status X

DO NOT SCALE

A1



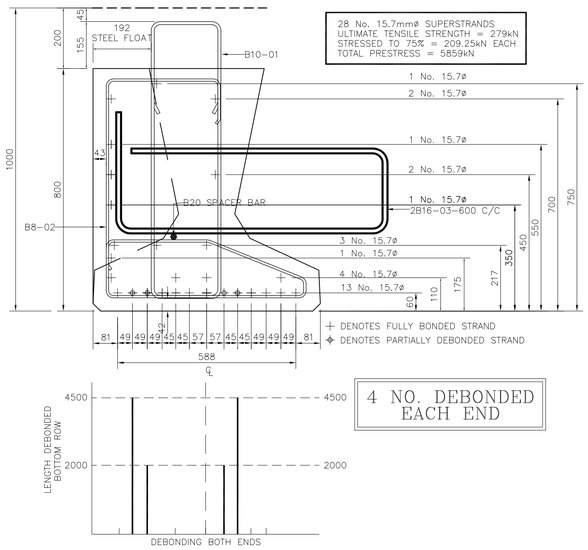
ELEVATION OF TYE9 – 2 NO. REQUIRED

Concrete strength at transfer to be 39N/mm^2
Concrete strength at 28 days to be 60N/mm^2

Height of centroid of strands above soffit
= 5996 / 28 = 214.14mm

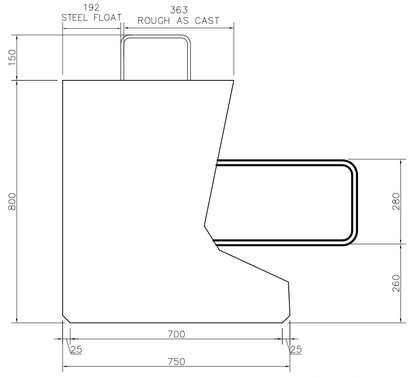
Beam centroid = 376.0
Ht of centroid of strands above soffit = 214.14
Eccentricity = 161.86mm

28 No. 15.7mmø SUPERSTRANDS
ULTIMATE TENSILE STRENGTH = 279kN
STRESSED TO 75% = 209.25kN EACH
TOTAL PRESTRESS = 5859kN



4 NO. DEBONDED EACH END

SECTION THROUGH TYE9 BEAM (1:10)



SECTION DETAILING DIMENSIONS (1:10)

BANACHER CONCRETE LTD

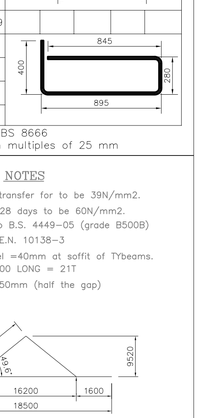
Project: TYE9 N6 GALWAY TO BALLINASLOE STRUCTURE 7

Bar schedule ref: 05 69 71 9 Rev letter A

Date prepared | Date revised

Prepared by | Checked by

Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TYE9	01	B10	2	72	144	3010	99					
	02	B8	2	72	144	2695	99					
	03	B16	2	60	120	2325	99					

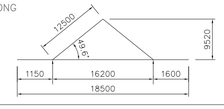


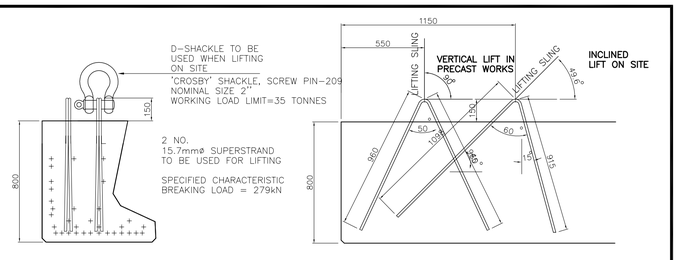
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm

NOTES

1./ Concrete strength at transfer for to be 39N/mm2.
2./ Concrete strength at 28 days to be 60N/mm2.
3/ Steel reinforcements to B.S. 4449-05 (grade B500B)
4./ Prestressing steel to E.N. 10138-3
5./ Nominal cover to steel =40mm at soffit of TYbeams.
6./ Beam wt TYE9 18500 LONG = 21T
7./ Strand may project 350mm (half the gap)
8./ Lifting:

18500 LONG





ANCHORAGE OF LIFTING HOOKS (1:20)

NOTES :-

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST07/040 TO 042

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.

MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY

USE
NONE

DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AOS	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST07 - BALLYGARRAUN ROAD RAIL OVERBRIDGE PRECAST TYE9 BEAMS DETAILS

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AOS Date 05/03/08	PG Date 05/03/08	MJ Date 05/03/08

Status X | Drawing Number 5048435/BR/DR/ST07/046 | Rev A

File: 5048435-BR-DR-ST07-046 Rev A.dwg
Date: May 11, 2011 - 5:16pm Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-046 Rev A.dwg

Rev A

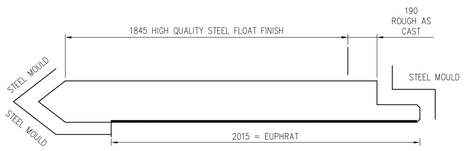
Drawing Number 5048435/BR/DR/ST07/047

Status X

DO NOT SCALE

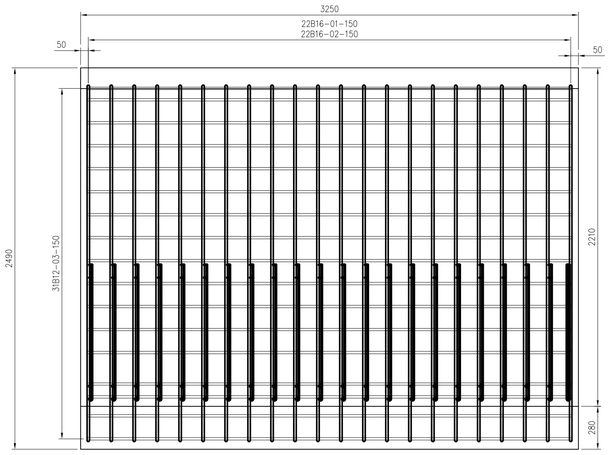
A1

lifting
2 no. 5t capstans 350mm long site lift
2 no. M30 stainless steel 1200-G sockets for demoulding (top)
2 no. M30 zinc plated 1200-G sockets for demoulding (bottom)

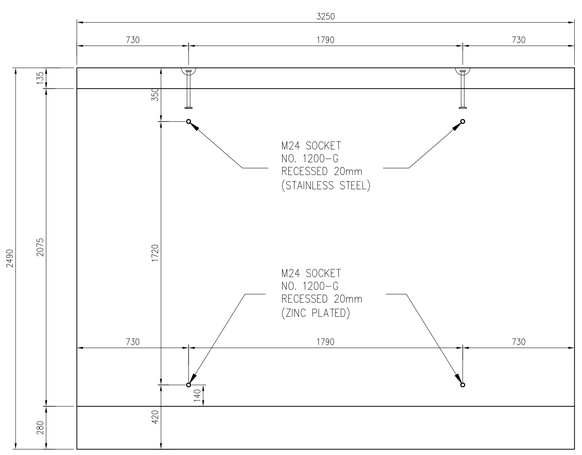


SURFACE FINISHES (1:20)

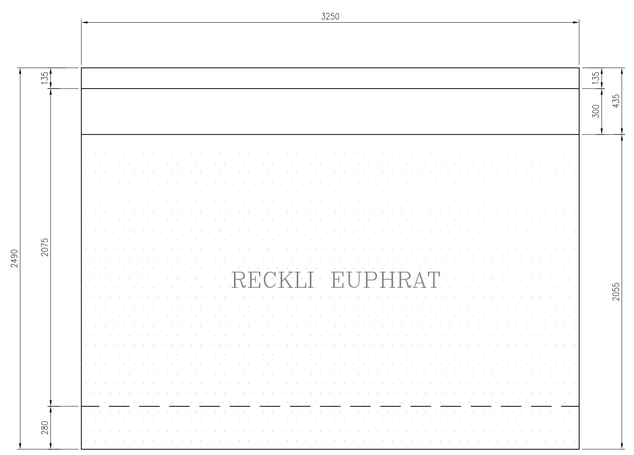
NOTE
12 no. PANELS REQUIRED FOR STRUCTURE 7



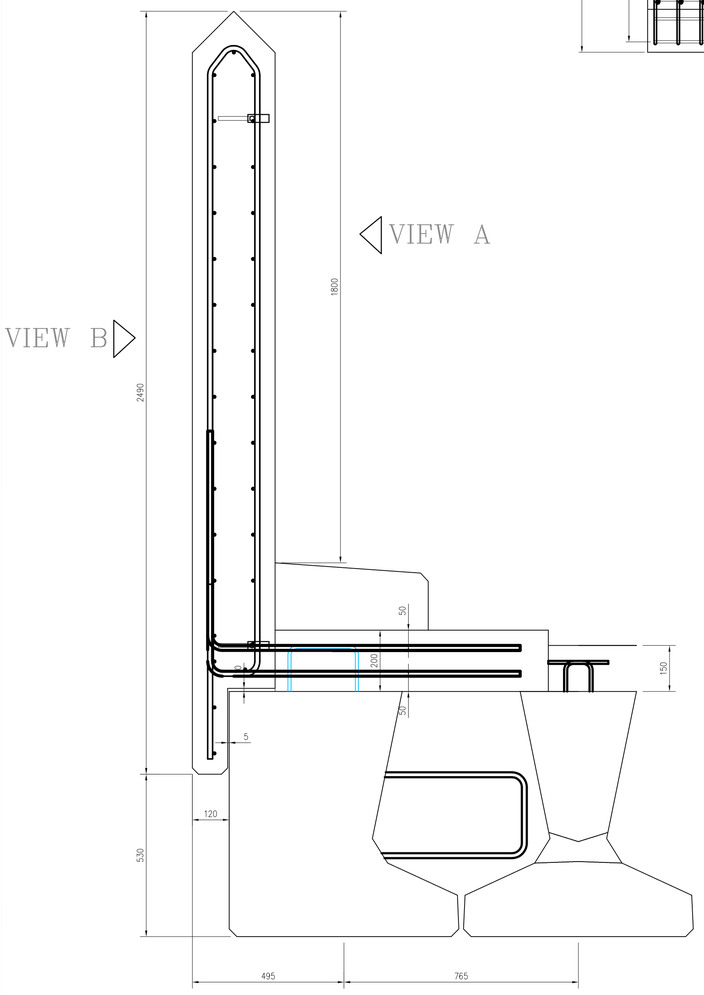
ELEVATION SHOWING
REINFORCEMENT (VIEW A) (1:20)



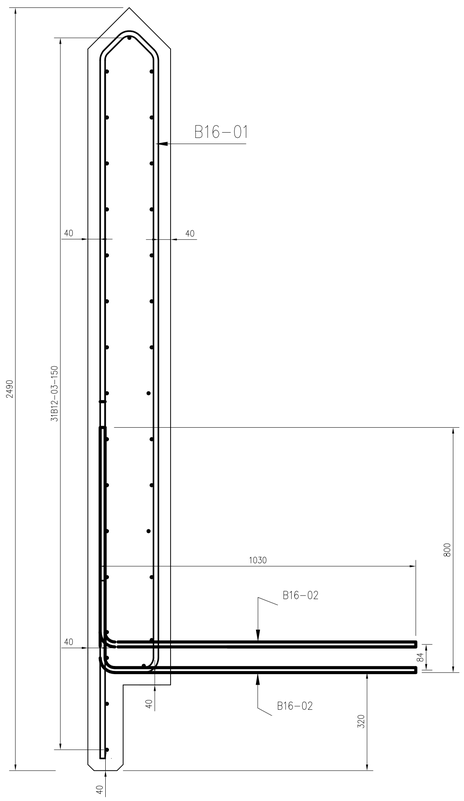
ELEVATION SHOWING
DIMENSIONS (VIEW A) (1:20)



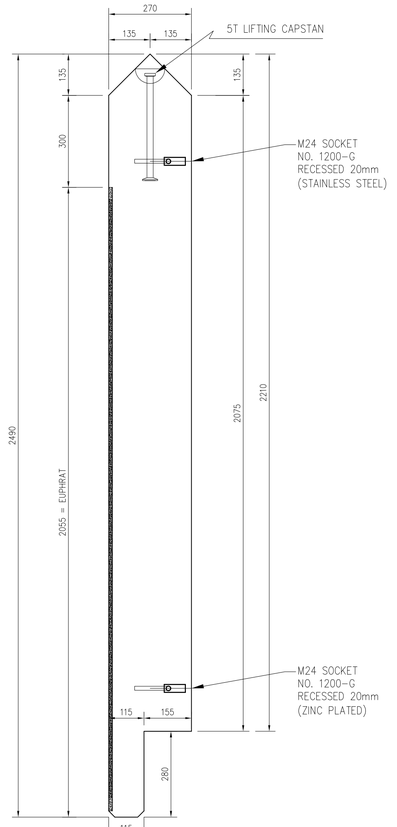
ELEVATION SHOWING
RECKLI (VIEW B) (1:20)



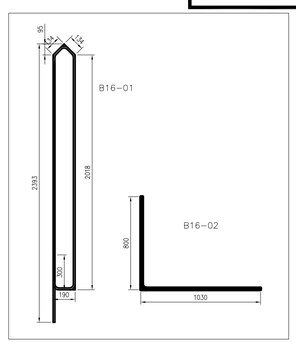
PART SECTION THROUGH BRIDGE
(1:10)



SECTION SHOWING
REINFORCEMENTS (1:10)



SECTION SHOWING
ALL DIMENSIONS (1:10)



BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
STRUCTURE 7
PARAPET PANELS

Bar schedule ref: 0 5 6 9 7 — Rev letter 2 5

Date prepared — Date revised
Prepared by — Checked by

Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar T mm	Shape code	A * mm	B * mm	C * mm	D * mm	E/R * mm
PARAPET PANELS	01	B16	12	22	264	5025	99					
	02	B16	12	22	264	1800	11					
	03	B12	12	31	372	3170	00					

This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm

NOTES:
[1] Concrete strength at 28 days to be 50N/mm^2
[2] Steel reinforcement to B.S. 4449
[3] Concrete cover to reinforcement to be as shown
[4] Weight of Parapets = 4.9T EACH
[5] Surface finishes as shown.

NOTES :-
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/070
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST07/2154
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST07/040 TO 042

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.

MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY

USE
NONE

DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

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Galway City Council Comhairle Cathrach na Gaillimhe
Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua
Roscommon County Council Comhairle Chontae Roscomáin

Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	AO'S	03/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited

Designer: ATKINS — WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGAURAUN ROAD
RAIL OVERBRIDGE
PRECAST PARAPET DETAILS

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	AO'S	PG	MJ
		Date 05/03/08	Date 05/03/08	Date 05/03/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/047	A

File: 5048435-BR-DR-ST07-047 Rev A.dwg
Date: May 25, 2011 - 12:50pm Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-047 Rev A.dwg

Rev C | Status X | Drawing Number 5048435/BR/DR/ST07/050

DO NOT SCALE

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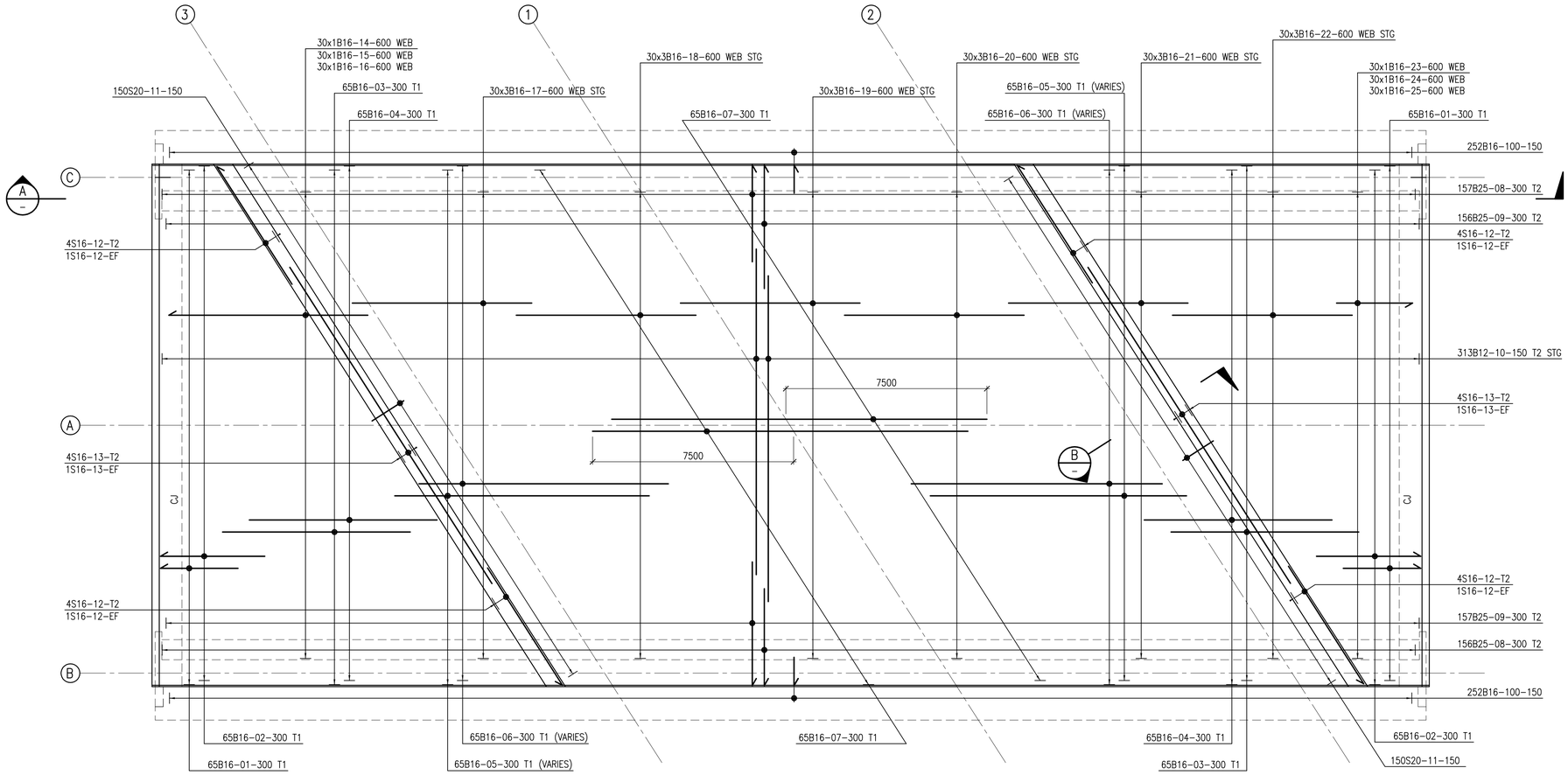
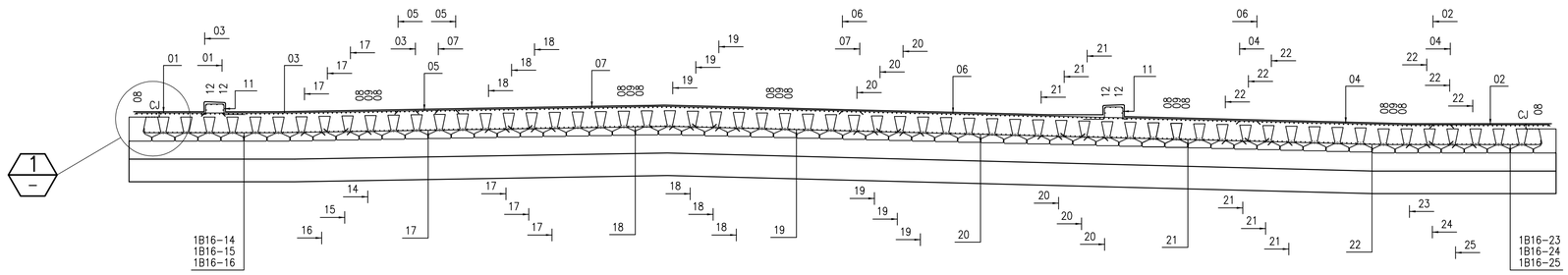
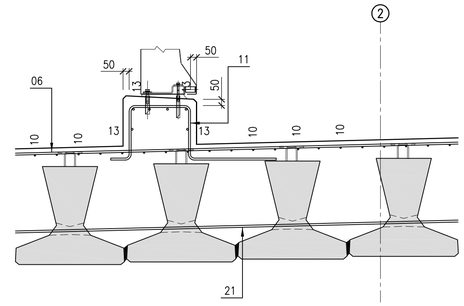


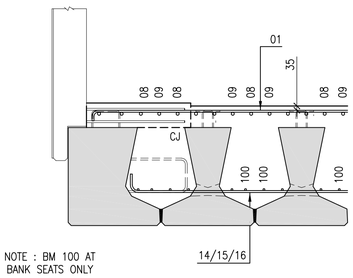
PLAN – BRIDGE DECK REINFORCEMENT
1:100



SECTION A
1:100



SECTION B
1:25



NOTE : BM 100 AT BANK SEATS ONLY

DETAIL 1
1:25

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST07/2154
3. BAR BENDING SCHEDULE REFERENCE BS–ST07–050–01,02 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

TOP OF DECK SLAB	35MM
H4A BARRIER UPSTAND	50MM MIN.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	WORK OVER / ADJACENT TO LIVE RAIL LINE.
MAINTENANCE/CLEANING	WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY
USE	NONE
DECOMMISSIONING/DEMOLITION	PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
PG	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	PARAPET UPSTAND WIDENED	JMcM	07/08	PG	MJ
B	EDGE DETAIL, BANKSEAT MODIFIED	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLINASLOE RAOD RAIL OVERBRIDGE
BRIDGE DECK REINFORCEMENT DETAILS

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/050	C

File: 5048435–BR–DR–ST07–050 Rev C.dwg
Date: May 25, 2011 – 12:53pm Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435–BR–DR–ST07–050 Rev C.dwg

Rev C | Status X | Drawing Number 5048435/BR/DR/ST07/051

DO NOT SCALE

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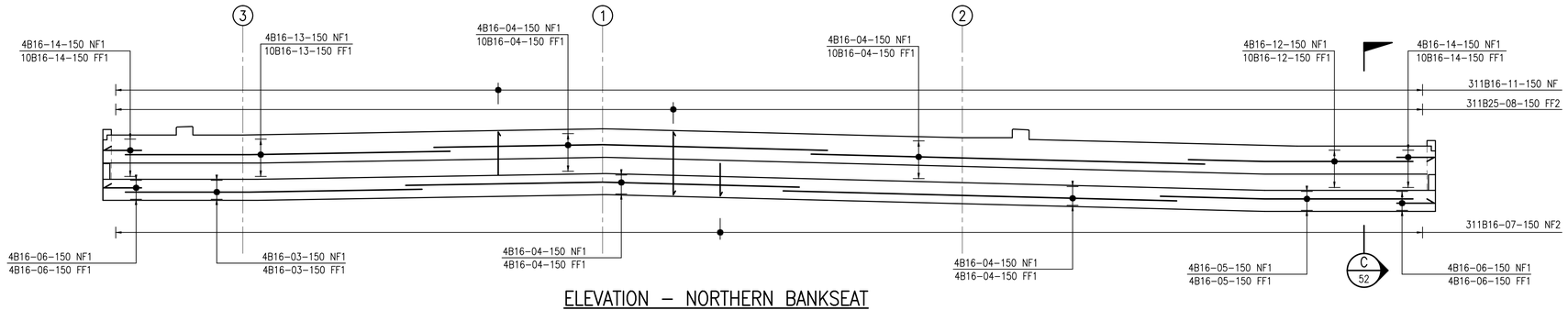
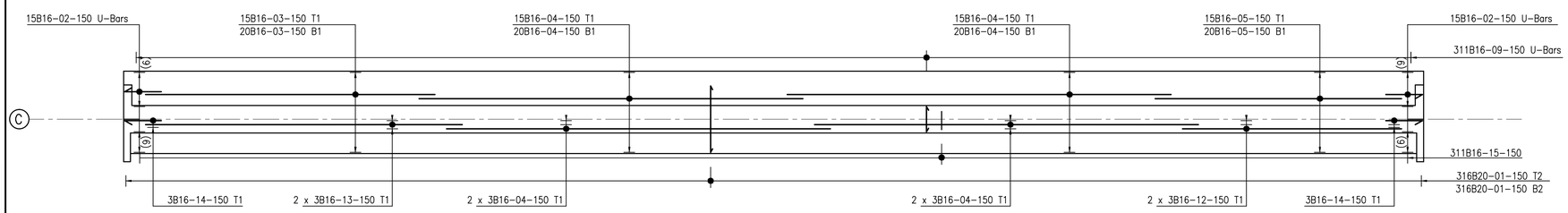
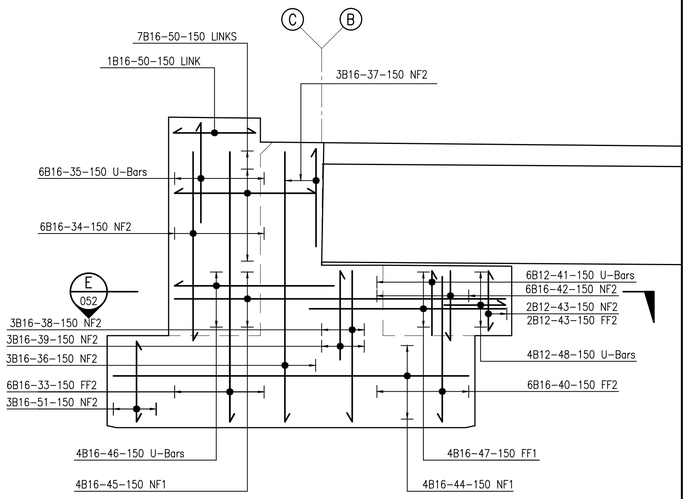


ELEVATION – NORTHERN BANKSEAT
1:100

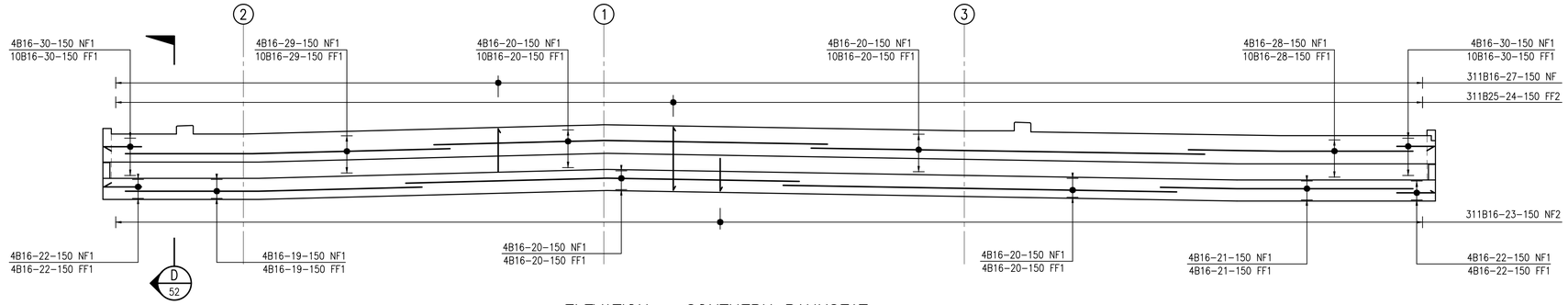


PLAN – NORTHERN BANKSEAT
1:100

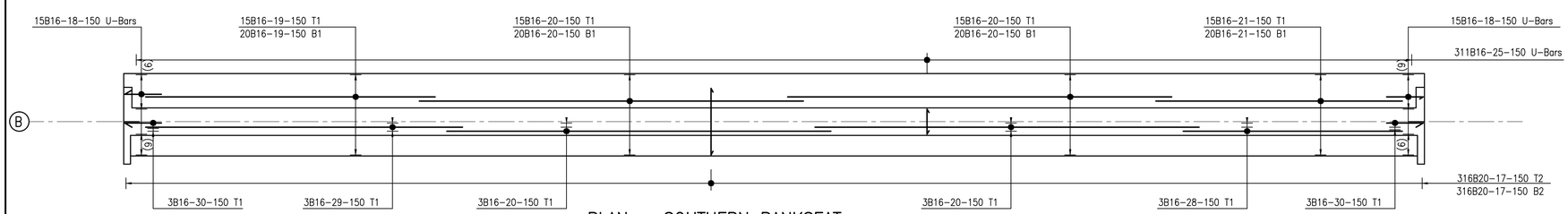


END WALL ELEVATION – BANKSEAT
1:25

4 NR. THUS
(2 PER BANKSEAT)



ELEVATION – SOUTHERN BANKSEAT
1:100



PLAN – SOUTHERN BANKSEAT
1:100

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST07/2154
3. BAR BENDING SCHEDULE REFERENCE BS–ST07–051–01,03 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.

MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY

USE
NONE

DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN | TransPort 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaí | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/12	TM
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
B	AS–BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
B	EDGE DETAIL, BANKSEAT MODIFIED	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited | FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYSAUPRAUN ROAD RAIL OVERBRIDGE BANKSEAT REINFORCEMENT DETAILS SHEET 1 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/051	C

File: 5048435–BR–DR–ST07–051 Rev C.dwg Date: Apr 19, 2012 – 2:27pm Plotted by: dcourtney

P:\JDrive\N6\14_As_Built_Submissions\Structures\ST07\Autocad\5048435–BR–DR–ST07–051_Rev_C.dwg

Rev D

Status X

Drawing Number 5048435/BR/DR/ST07/052

DO NOT SCALE

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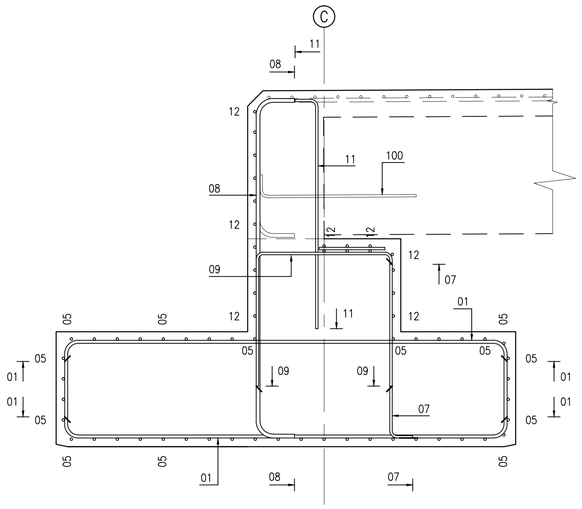
File: 5048435-BR-DR-ST07-052 Rev D.dwg

Date: Nov 15, 2012 - 4:13pm Plotted by: NNaughton



SECTION C
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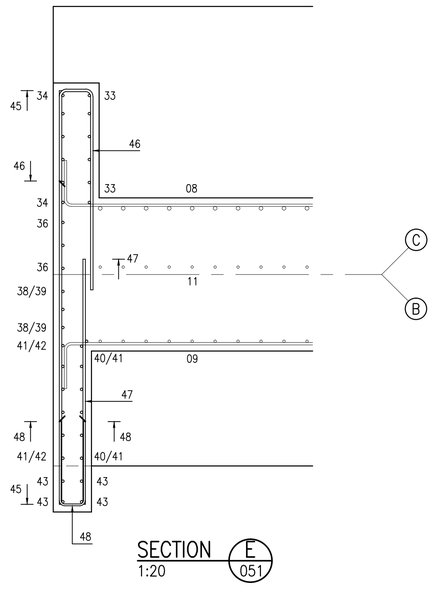

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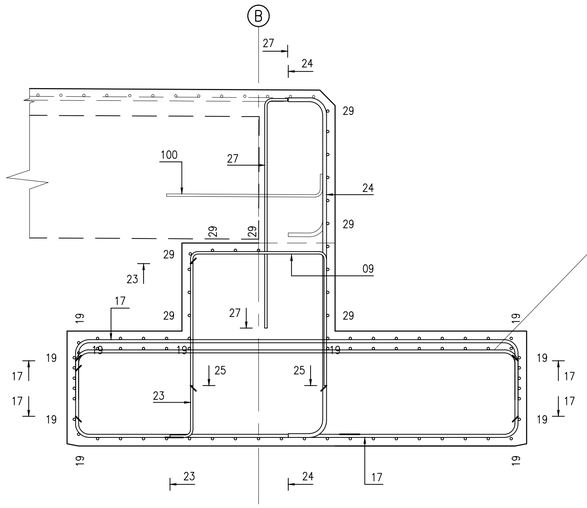

SECTION D
1:20 051

ADDITIONAL REINFORCEMENT DUE TO EXCESS COVERAS PER NCR 4337

NOTES :-

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST07/2154
3. BAR BENDING SCHEDULE REFERENCE BS-ST07-051-01,03 INCL.

COVER :-

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
WORK OVER / ADJACENT TO LIVE RAIL LINE.

MAINTENANCE/CLEANING
WORK OVER / ADJACENT TO LIVE RAIL LINE, AND LIVE CARRIAGEWAY

USE
NONE

DECOMMISSIONING/DEMOLITION
PRECAST PRESTRESSED BEAMS

NDP NATIONAL DEVELOPMENT PLAN
Transport 21
NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe
Galway City Council Comhairle Cathrach na Gaillimhe
Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua
Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	03/08	MJ
R	ISSUED FOR CJV REVIEW	11/07	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS-BUILT INFORMATION	NN	11/12	LC	CC
C	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
B	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	05/11	PF	TM
B	EDGE DETAIL, BANKSEAT MODIFIED	JMcM	03/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	11/07	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

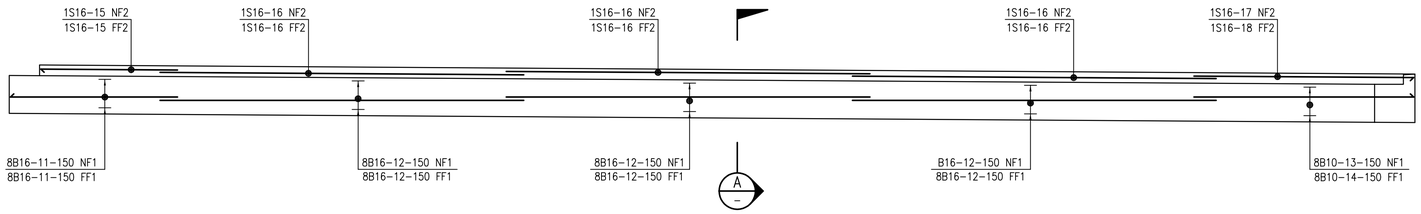
Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYGAURRAUN RAOD
RAIL OVERBRIDGE BANKSEAT
REINFORCEMENT DETAILS SHEET 2 OF 2

AS BUILT

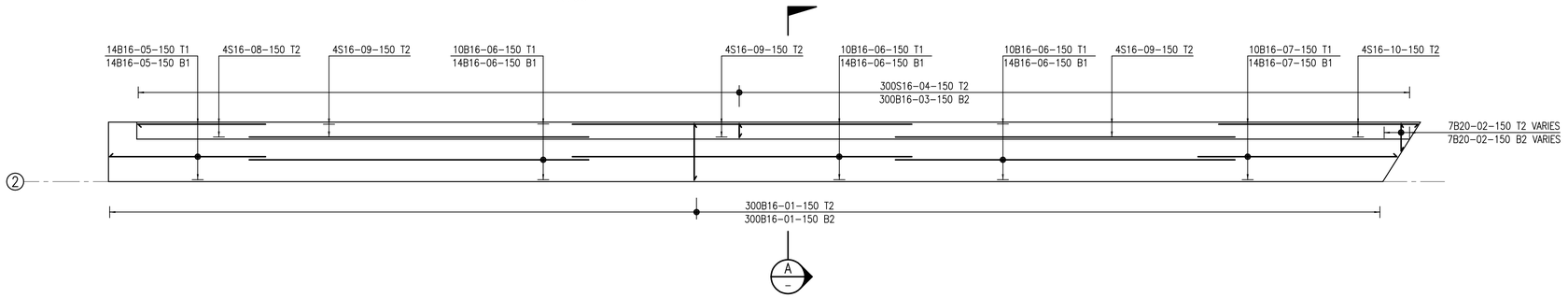
Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 26/10/07	PG Date 26/10/07	MJ Date 26/10/07

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/052	D

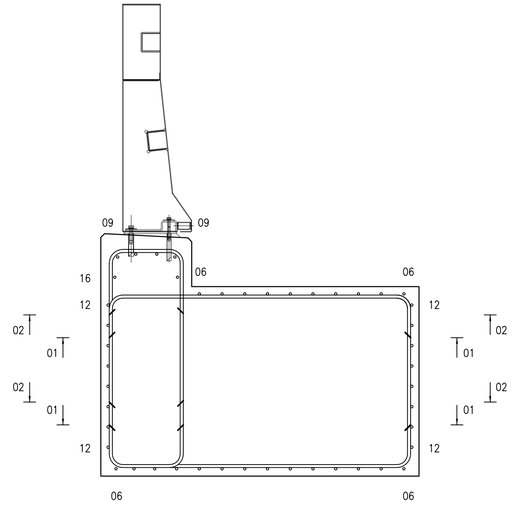
X:\DESIGN OFFICE\AB INFO\Rev D\Structures\ST07\2.1 Drawings\Autocad\5048435-BR-DR-ST07-052 Rev D.dwg



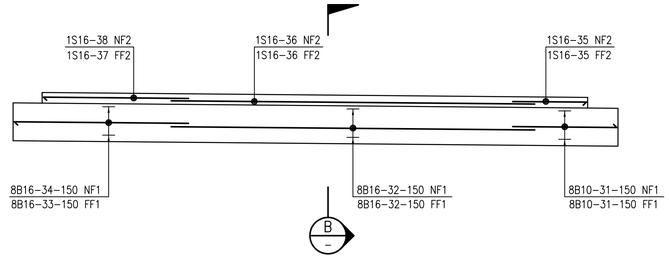
ELEVATION – NORTHERN APPROACH H4A BARRIER BASE
1:100



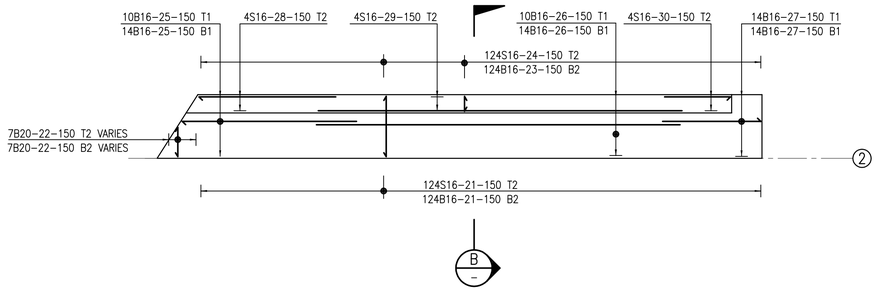
PLAN – NORTHERN APPROACH H4A BARRIER BASE
1:100



SECTION A
1:20



ELEVATION – NORTHERN DEPARTURE H4A BARRIER BASE
1:100



PLAN – NORTHERN DEPARTURE H4A BARRIER BASE
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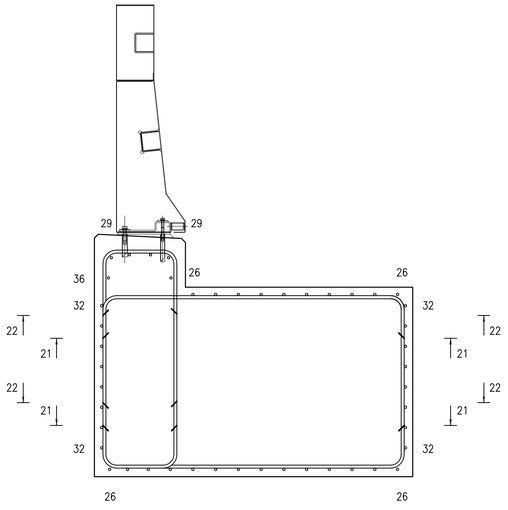

SECTION B
1:20

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST07/2154
3. BAR BENDING SCHEDULE REFERENCE BS–ST07–053–01,02 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

H4A BARRIER UPSTAND 50mm min
H4A BARRIER BASE 40mm min.

CONCRETE :–

GRADE C50/20 B TO SPECIFICATION

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

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Rev	Stat	Purpose of Issue	Date	Auth
X		AS–BUILT	05/11	TM
C		ISSUED FOR CONSTRUCTION	03/09	MJ
A		ISSUED FOR NRA APPROVAL	07/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
A	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	JMcM	07/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS™ WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLYBURRALIN ROAD
RAIL OVERBRIDGE - H4A BARRIER BASES
REINFORCEMENT DETAILS - SHEET 1 OF 2
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	JMcM Date 28/07/08	PG Date 28/07/08	MJ Date 28/07/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/053	A

Rev A
Drawing Number 5048435/BR/DR/ST07/053
Status X
DO NOT SCALE
A1
0 10 100
File: 5048435-BR-DR-ST07-053 Rev A.dwg
Date: May 12, 2011 - 9:05am Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-053 Rev A.dwg

Rev A | Status X | Drawing Number 5048435/BR/DR/ST07/054

DO NOT SCALE

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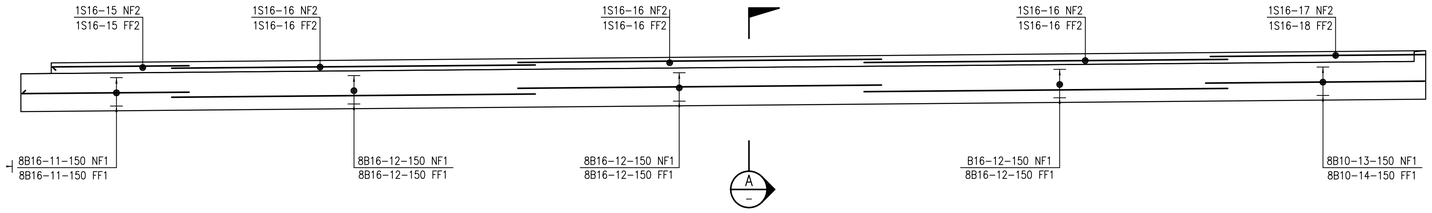
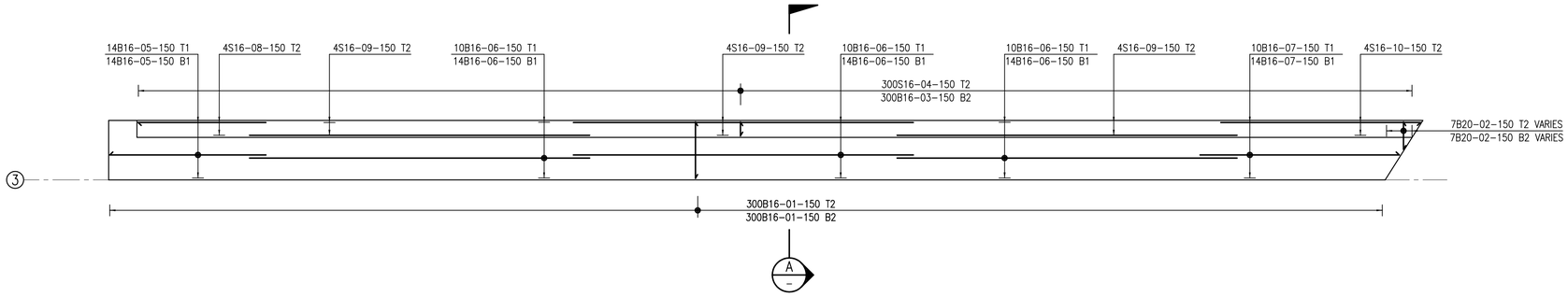
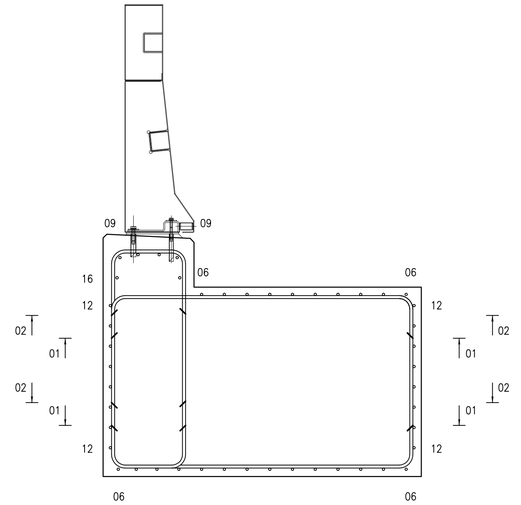


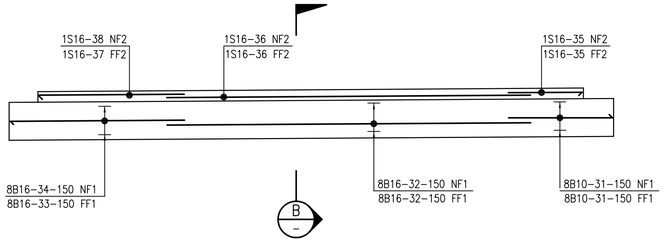
ELEVATION – SOUTHERN APPROACH H4A BARRIER BASE
1:100



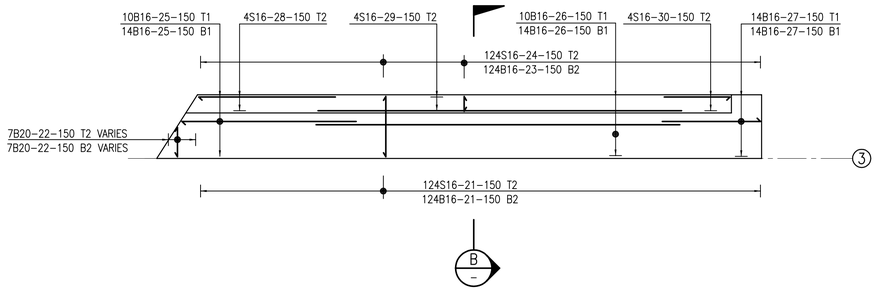
PLAN – SOUTHERN APPROACH H4A BARRIER BASE
1:100



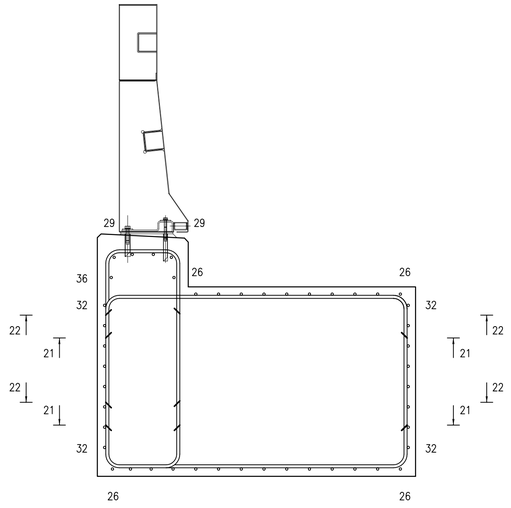
SECTION A
1:20



ELEVATION – SOUTHERN DEPARTURE H4A BARRIER BASE
1:100



PLAN – SOUTHERN DEPARTURE H4A BARRIER BASE
1:100



SECTION B
1:20

NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST07/2154
3. BAR BENDING SCHEDULE REFERENCE BS–ST07–054–01,02 INCL.

COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

H4A BARRIER UPSTAND	50mm min
H4A BARRIER BASE	40mm min.

CONCRETE :–

GRADE C50/20 B TO SPECIFICATION

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
NONE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	05/11	TM
C	ISSUED FOR CONSTRUCTION	03/09	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ

Rev	Description	By	Date	Chk'd	Auth
A	AS–BUILT DRAWING COMPILED ON INFORMATION	SD	05/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
A	PRELIMINARY ISSUE	JMcM	07/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — fcc CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST07 - BALLINSAURRALIN ROAD
RAIL OVERBRIDGE H4A BARRIER BASES
REINFORCEMENT DETAILS - SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	JMcM Date 28/07/08	PG Date 28/07/08	MJ Date 28/07/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST07/054	A

File: 5048435-BR-DR-ST07-054 Rev A.dwg Date: May 12, 2011 – 9:10am Plotted by: sdunne

Z:\N6\14 As Build Submissions\Structures\ST07\Autocad\5048435-BR-DR-ST07-054 Rev A.dwg

Rev F | Status X | Drawing Number 5048435/BR/DR/ST08/001

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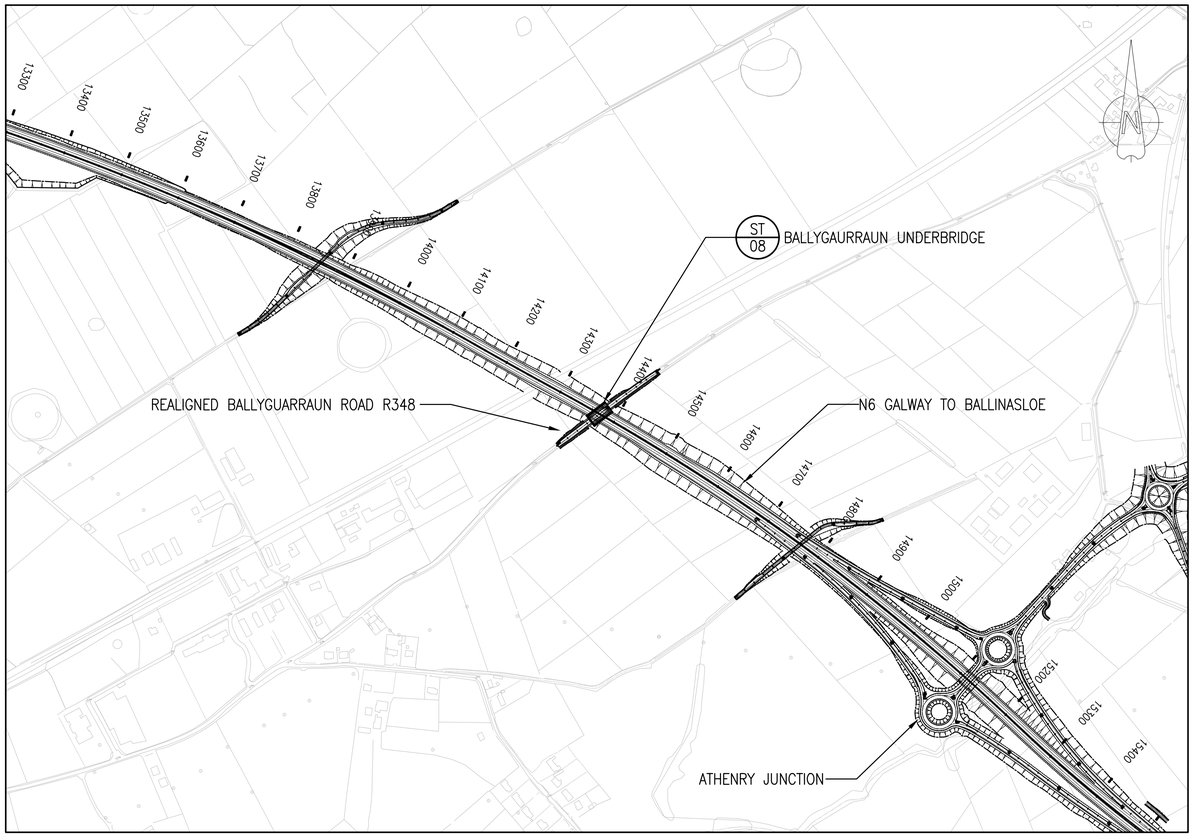
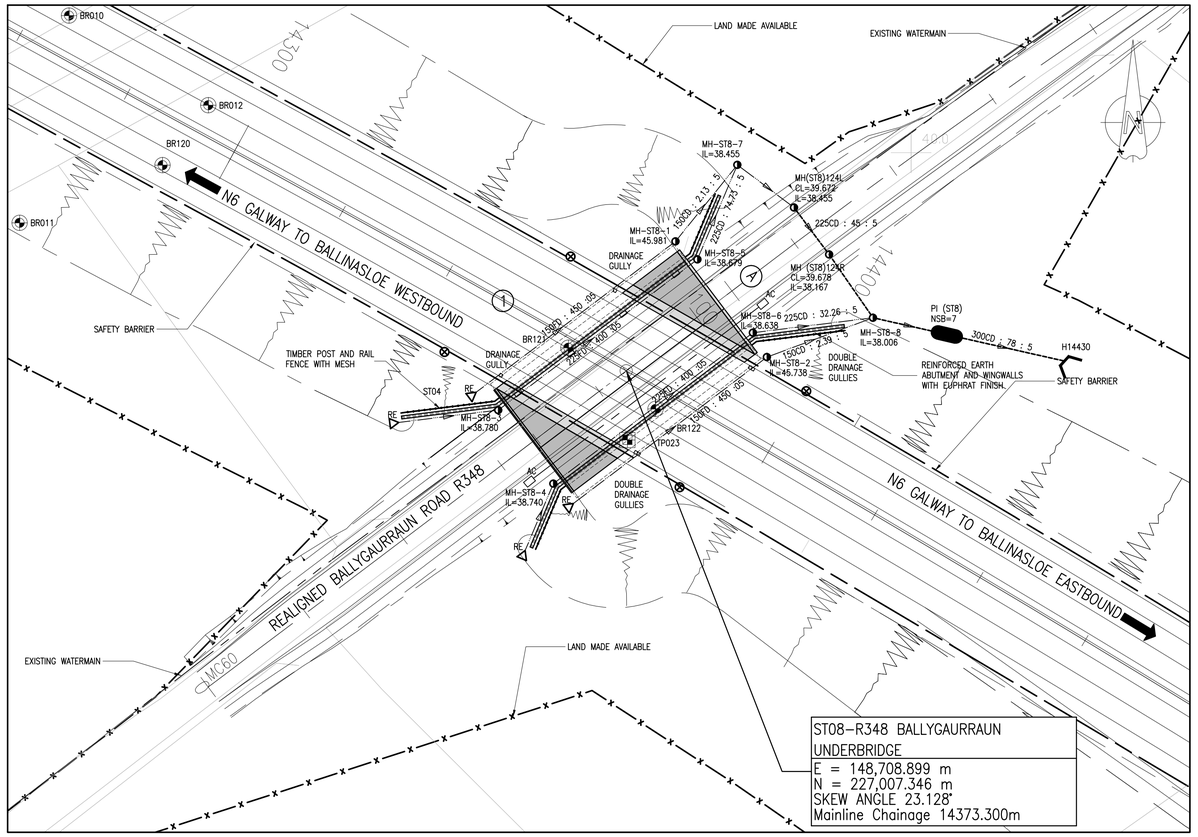
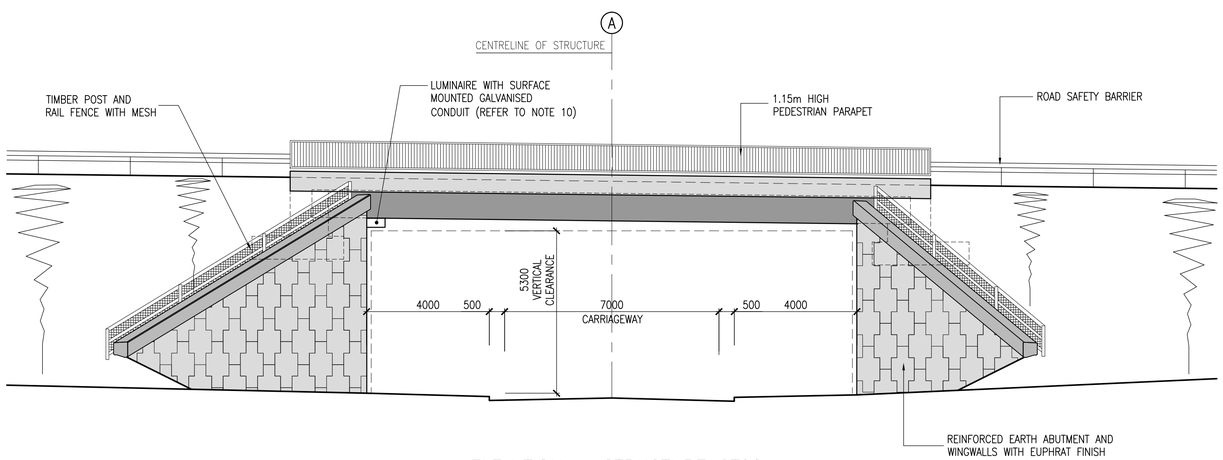


SITE LOCATION PLAN – STRUCTURE ST08
Scale 1:5000



LAYOUT PLAN – STRUCTURE ST08
Scale 1:500



ELEVATION – STRUCTURE ST08
Scale 1:100

LEGEND

- RE RODDING EYE
- CP CATCHPIT (OR RODDING EYE)
- MH MANHOLE
- AC ACCESS CHAMBER FOR DUCTS (TO NRA RCD 500/5)
- 150mm DIA. HDPE OR uPVC PERFORATED OR POROUS PIPE
- SURFACE MOVEMENT MONITORING BEACONS

GENERAL NOTES
IN-SITU MATERIAL AT THE BASE OF THE EXCAVATION SHALL CONSIST OF EITHER MEDIUM DENSE GRANULAR GLACIAL DEPOSITS OR STIFF COHESIVE GLACIAL DEPOSITS WITH MINIMUM UNDRAINED SHEAR STRENGTH (Cu) OF 115 kPa AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FILLING.
IF THE MATERIAL ENCOUNTERED AT THE BASE OF THE EXCAVATION DOES NOT MEET THE DESIGN REQUIREMENTS, ADDITIONAL EXCAVATION AND REPLACEMENT WITH CLASS 6N FILL WILL BE REQUIRED.
FRICTIONAL FILL WITH THE REINFORCED EARTH BLOCK SHALL BE CLASS 6I OR CLASS 6J FILL IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/1. THE MATERIAL SHALL ALSO COMPLY WITH TABLE 4 OF BS8006 AND SHALL ACHIEVE A MINIMUM φ = 38°.

INSTRUMENTATION AND MONITORING NOTES
INSTRUMENTATION SHALL CONSIST OF :
- MONITORING PINS ON REINFORCED EARTH FACING
- TWO MONITORING PINS AT EACH ABUTMENT TO MONITOR STRUCTURE SETTLEMENT
- TWO SURFACE MOVEMENT BEACONS IN THE VERGES OF THE APPROACH EMBANKMENTS, 10m BACK FROM THE STRUCTURE, AT EACH ABUTMENT TO MONITOR SETTLEMENTS OF THE APPROACH EMBANKMENTS

EXACT INSTRUMENTATION LOCATIONS SHALL BE AGREED ON SITE WITH THE DESIGNER
INSTRUMENTATION SHALL BE MONITORED IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/12

CONSTRUCTION SEQUENCE NOTES
THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE IMPLEMENTED :
- EXCAVATE IN-SITU MATERIAL DOWN TO BASE OF REINFORCED EARTH WALL
- BUILD REINFORCED EARTH ABUTMENTS, WINGWALLS AND APPROACH EMBANKMENTS
- CONSTRUCT BANKSEATS
- PLACE DECK BEAMS
- LOCK INTEGRAL CONNECTIONS FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE
- BACKFILL AT THE BACK OF THE BANKSEATS
- COMPLETE DECK CONSTRUCTION
- CONSTRUCT ROAD PAVEMENT FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE

CONCRETE IMPREGNATION AND SURFACE COATING
ALL EXPOSED CONCRETE IN BRIDGE SUPERSTRUCTURES WITHIN THE SPLASH ZONE, WITH THE EXCEPTION OF PRECAST BEAMS AND PRECAST FORMWORK BETWEEN BEAMS WAS TREATED WITH 'BRIDGEGUARD' PRIOR TO ITS APPLICATION FOSROC RENDEROC FC WAS APPLIED TO ENSURE UNIFORM COLOUR. FOSROC RENDERROC FC WAS APPLIED TO PRECAST PARAPET EDGE BEAMS.

NOTES :–
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   $\varphi \leq 32°$
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80µm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. THE AVAILABLE GROUND INVESTIGATION INFORMATION INDICATES THAT KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE. ADDITIONAL GROUND INVESTIGATION IS PROPOSED AT THIS STRUCTURE TO DETERMINE WHETHER SIGINIFICANT KARST CONDITONS ARE PRESENT. IF THIS IS PROVEN TO BE THE CASE THEN REMEDIAL MEASURES WILL BE SPECIFIED WHICH MAY INCLUDE GROUTING, EXCAVATION AND REPLACEMENT OR INCREASED FOUNDATION SIZES. WHERE KARST FEATURES ARE IDENTIFIED ON SITE, THE CONTRACTOR IS TO AGREE REMEDIAL MEASURES WITH THE DESIGNER.
10. FOR PUBLIC LIGHTING REQUIREMENTS, REFER TO DRAWING No. 5048435/HW/ST8/L13/033.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	09/12	CC
X	AS-BUILT	12/11	TM
C	ISSUED FOR CONSTRUCTION	03/11	PF
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
F	AS-BUILT INFORMATION	NN	09/12	LC	CC
E	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	12/11	AFM	TM
E	DUCTS AMENDED	DC	03/11	PF	PF
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

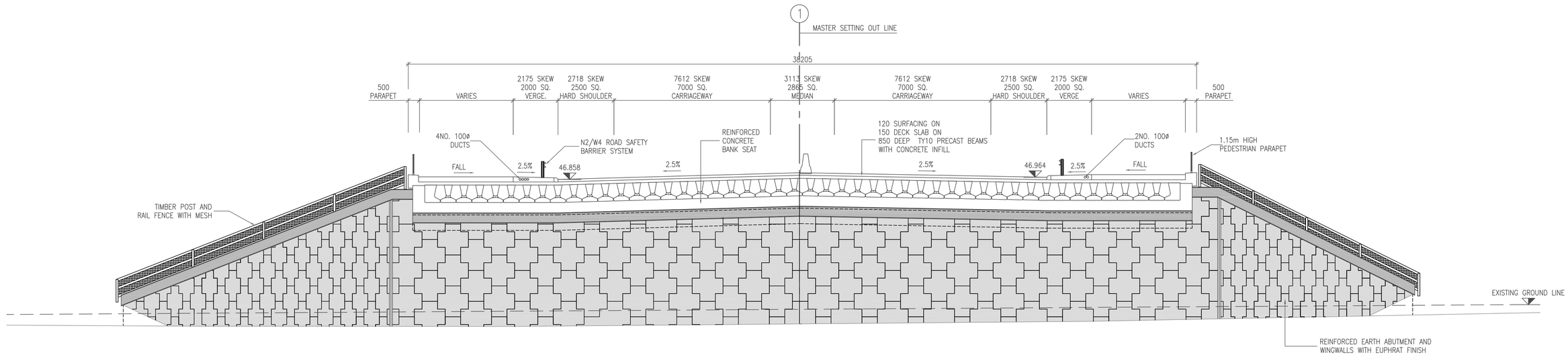
Title: N6 GALWAY TO BALLINASLOE
ST08 - R348 BALLYGAURRAUN UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 1 OF 2
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

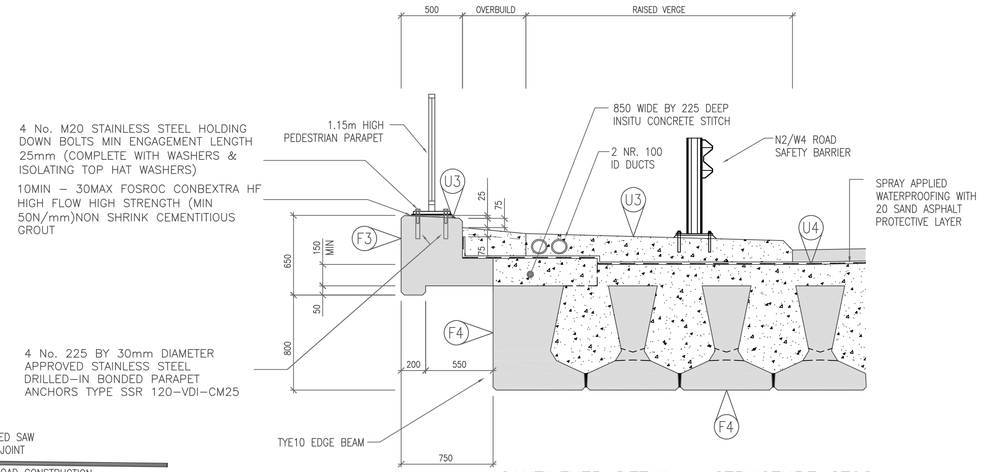
Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/001	F

File: 5048435-BR-DR-ST08-001 Rev F.dwg Date: Sep 12, 2012 – 12:02pm Plotted by: nnaughton

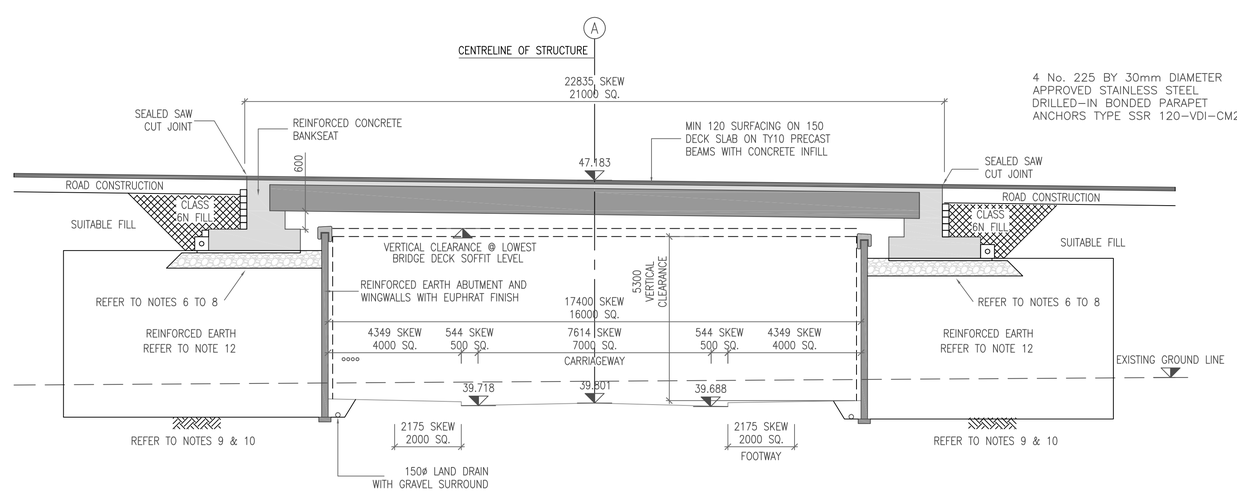
X:\DESIGN OFFICE\AB INFO\Rev C\Structures\ST08\2.1 Drawings\Brdge Specific\Autocad\5048435-BR-DR-ST08-001 Rev F.dwg



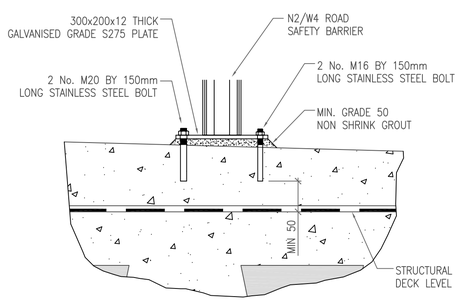
LONGITUDINAL SECTION ALONG GRID LINE A – STRUCTURE ST08
Scale 1:100



CANTILEVER DETAIL – STRUCTURE ST08
Scale 1:25



CROSS SECTION ALONG GRID LINE 1 – STRUCTURE ST08
Scale 1:100



ANCHORAGE DETAILS FOR SAFETY BARRIER ON RAISED VERGE
Scale 1:10

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS CONSISTED OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND WAS INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL ACHIEVED THE FOLLOWING REQUIREMENTS :–
   - φ ≤ 32°
   - GRADING PASSING 50mm – 100%, 2mm – < 30%, 80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. IN SITU MATERIAL UNDER THE REINFORCED EARTH BLOCK WAS BE EXCAVATED AND REPLACED WITH CLASS 6N FILL. THE BASE OF THE CLASS 6N FILL WAS BE AT (OR LOWER THAN) 25.525m AOD.
10. IN–SITU MATERIAL AT THE BASE OF THE EXCAVATION CONSISTED OF EITHER MEDIUM DENSE GRANULAR GLACIAL DEPOSITS OR STIFF COHESIVE GLACIAL DEPOSITS WITH MINIMUM UNDRAINED SHEAR STRENGTH (Cu) OF 100 kPa AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FILLING.
11. FRICTIONAL FILL WITH THE REINFORCED EARTH BLOCK SHALL BE CLASS 6I OR CLASS 6J FILL IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/1. THE MATERIAL SHALL ALSO COMPLY WITH TABLE 4 OF BS8006 AND SHALL ACHIEVE A MINIMUM φ = 38°

Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

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N6 Concession Limited

Contractor: N6 [construction] limited · fcc CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08 - R348 BALLYGAURAUN UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 2 OF 2
AS–BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/002	G

Rev G
Status X
Drawing Number 5048435/BR/DR/ST08/002
DO NOT SCALE
A1
0 10 100
File: 5048435–BR–DR–ST08–002 Rev G.dwg
Date: Feb 14, 2012 – 4:08pm Plotted by: NNaughton

Rev B

Status X

Drawing Number 5048435/BR/DR/ST08/025

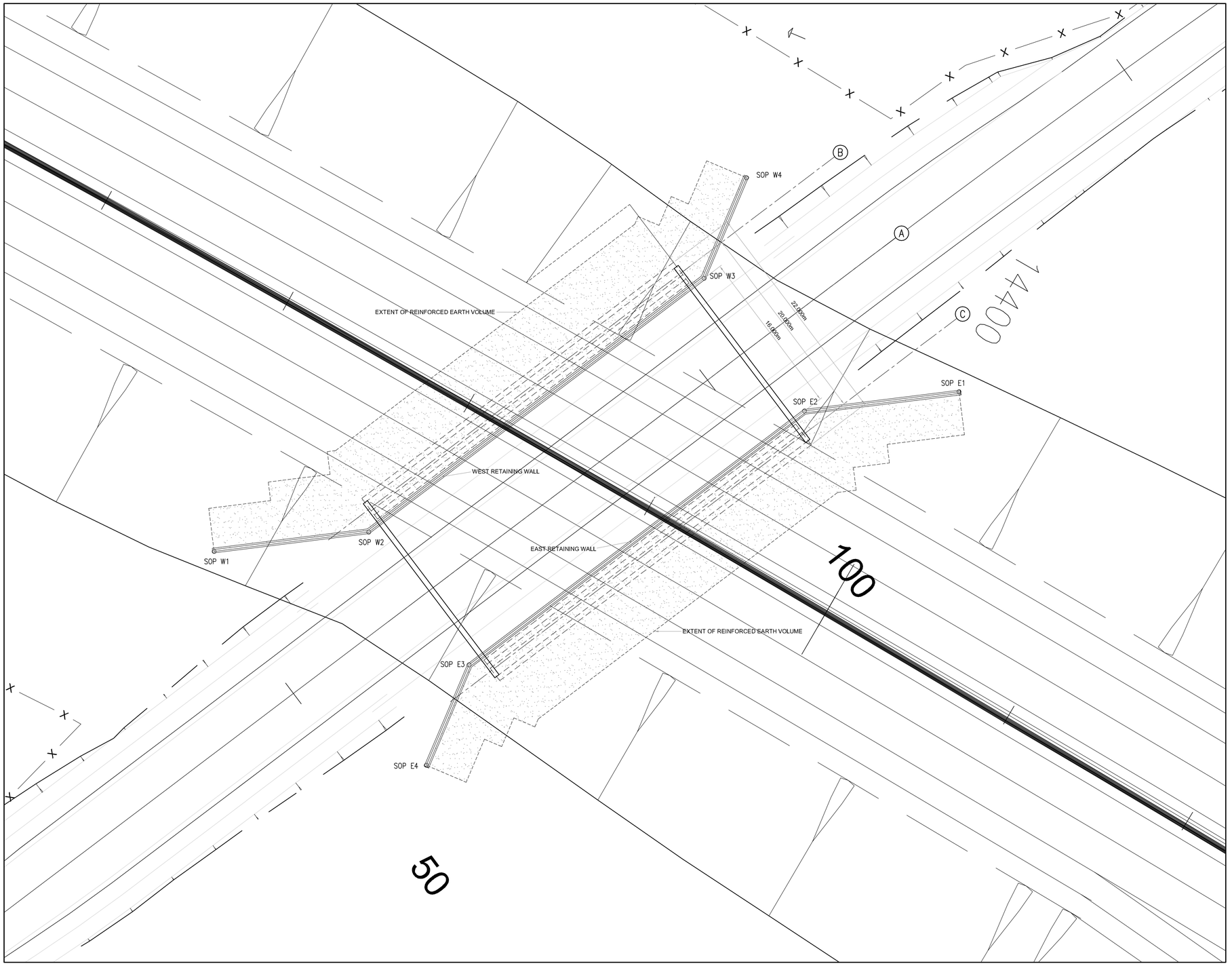
DO NOT SCALE

A1

0 10 100

File: 5048435-BR-DR-ST08-025 Rev B.dwg

Date: Apr 07, 2011 - 10:48am Plotted by: dcourtney



SETTING OUT DETAILS – REINFORCED EARTH ABUTMENTS/WINGWALLS
1:200

SOP	EASTING (X)	NORTHING (Y)
W1	148,672.923	226,999.574
W2	148,687.808	227,001.428
W3	148,720.110	227,025.858
W4	148,724.196	227,035.530
E1	148,744.649	227,014.947
E2	148,729.764	227,013.093
E3	148,697.462	226,988.663
E4	148,693.346	226,979.004

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
   0.6mm:9-15
   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe
Galway City Council Comhairle Cathrach na Gaillimhe
Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua
Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	08/08	MJ
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
X	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
A	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGURRAHILL UNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 1 OF 3

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/025	B

Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-025 Rev B.dwg

Rev B

Drawing Number 5048435/BR/DR/ST08/026

Status X

DO NOT SCALE

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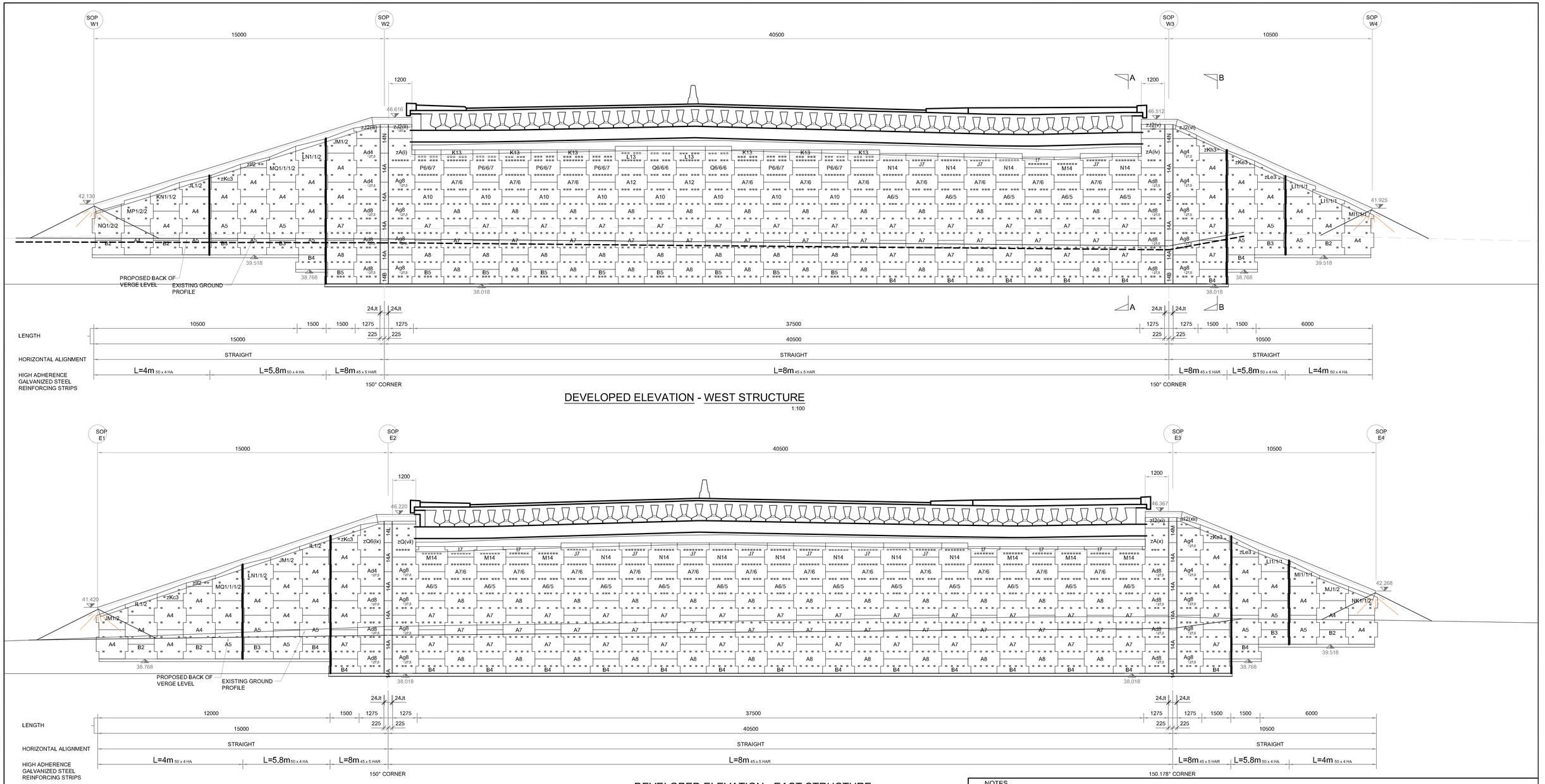


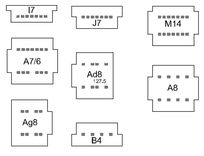
DEVELOPED ELEVATION - WEST STRUCTURE

1:100

DEVELOPED ELEVATION - EAST STRUCTURE

1:100

LEGEND :



L=LENGTH OF REINFORCING STRIPS
ALL REINFORCING STRIPS ARE TO BE OF HIGH ADHERENCE HOT DIP GALVANIZED MEDIUM TENSILE STEEL.

Facing Panel designation:

basic type - A,B,I,M,AA etc

Cut (Vertical straight) - suffix d(r/hand), g(l/hand).

Standard No lugs - suffix 2,3,4 etc (strip connection)

Non-standard No of lugs - suffix eg. 5/6 (strip connection) (No of lugs on a level, starting from the top)

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
   0.6mm:9-15
   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
USE
DECOMMISSIONING/DEMOLITION

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	08/08	MJ
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
A	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

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Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN LUNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 2 OF 3

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/026	B

File: 5048435-BR-DR-ST08-026 Rev B.dwg Date: Apr 08, 2011 - 12:40pm Plotted by: dcourtney

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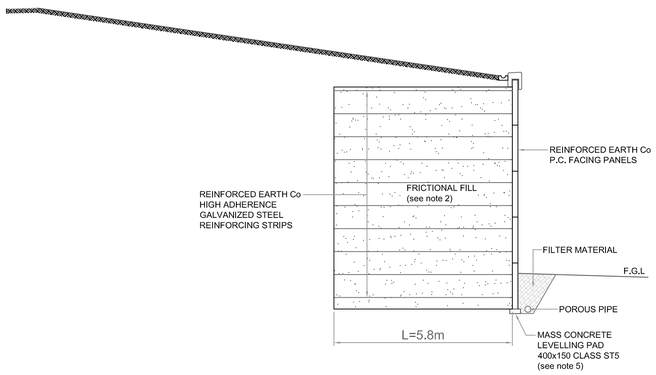

SECTION B-B
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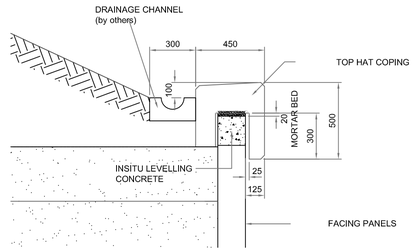
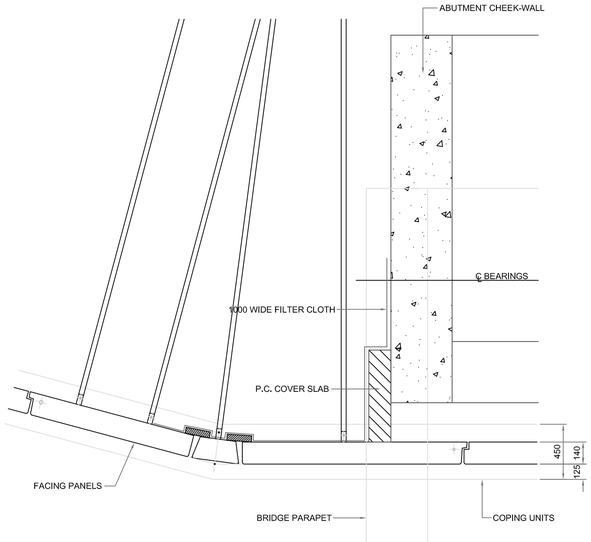
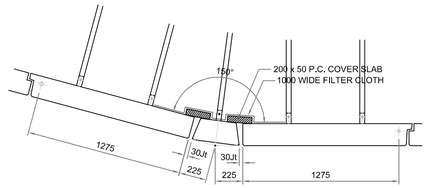


TOP OF WALL DETAIL
1:20



BANKSEAT END - FINISHING DETAIL
1:25



CORNER DETAIL
1:25

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
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   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

Rev C
Status X
Drawing Number 5048435/BR/DR/ST08/027
DO NOT SCALE
100 0 10
A1
File: 5048435-BR-DR-ST08-027 Rev C.dwg
Date: Feb 07, 2012 - 9:12am Plotted by: NNaughton

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	
NONE	
MAINTENANCE/CLEANING	
NONE	
USE	
NONE	
DECOMMISSIONING/DEMOLITION	
NONE	

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	07/11	MJ
C	ISSUED FOR CONSTRUCTION	08/08	
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	07/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · SACYR · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAN UNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 3 OF 3

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status X · Drawing Number 5048435/BR/DR/ST08/027 · Rev C

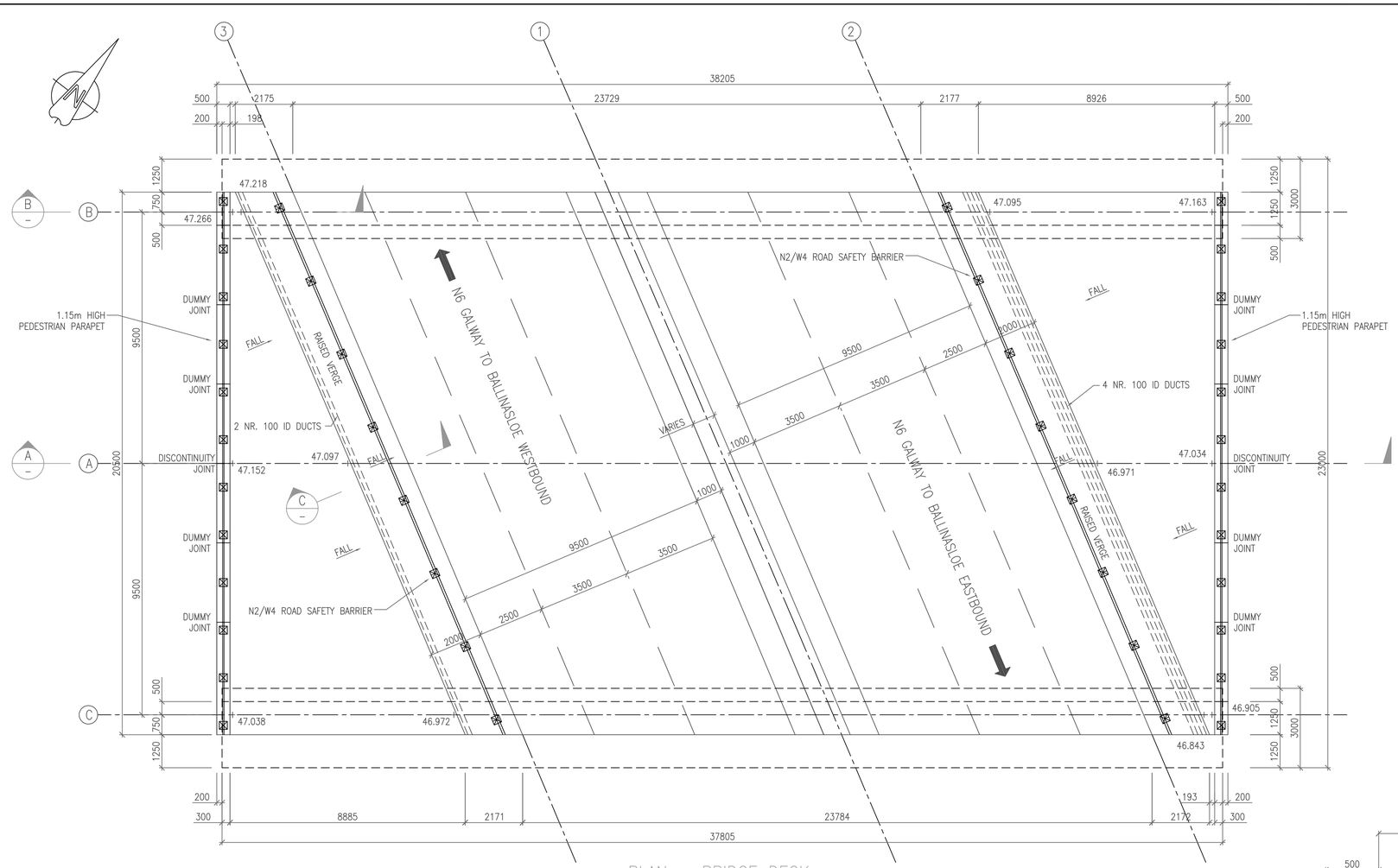
Z:\N6\14 As Build Submissions\Structures\ST08\A\AutoCAD\5048435-BR-DR-ST08-027 Rev C.dwg

Rev E | Status X | Drawing Number 5048435/BR/DR/ST08/040

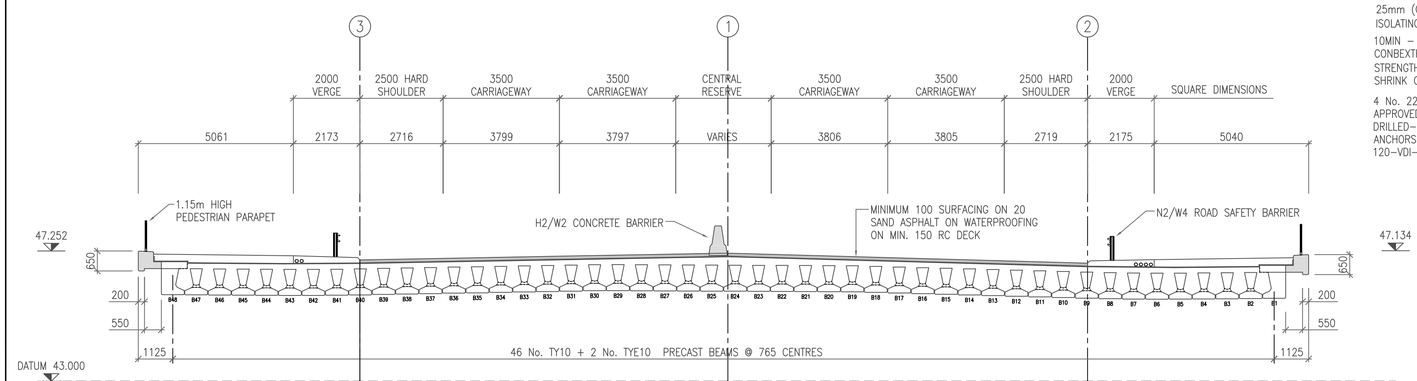
DO NOT SCALE

A1 0 10 100

File: 5048435-BR-DR-ST08-040 Rev E.dwg Date: Feb 14, 2012 - 4:10pm Plotted by: NNaughton



PLAN – BRIDGE DECK
1:100



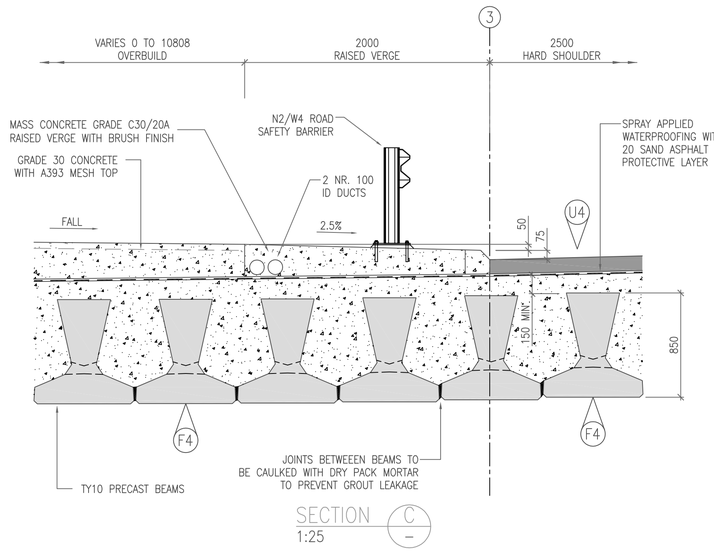
SECTION A (TAKEN ALONG GRIDLINE A)
1:100

NOTES :–

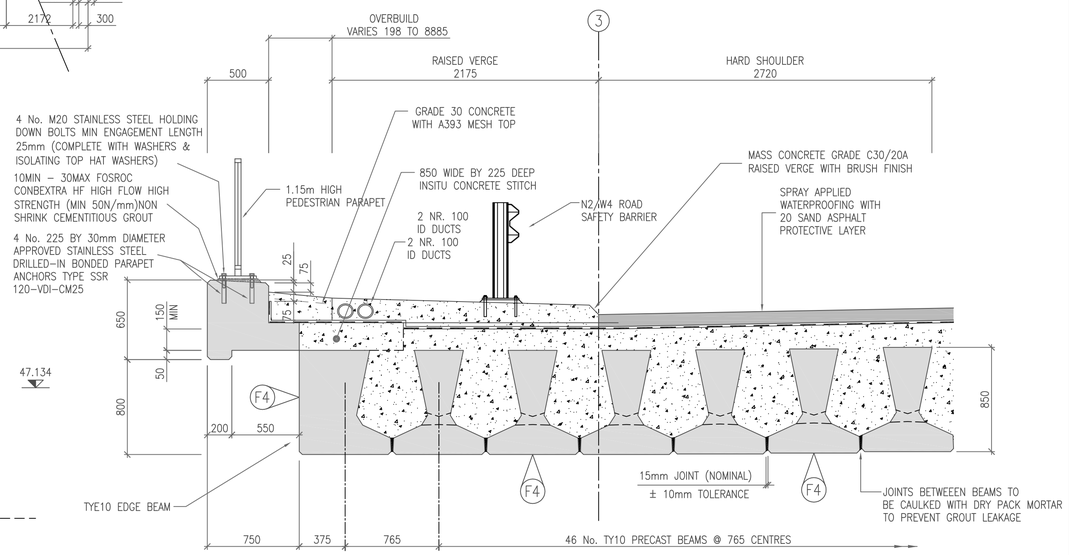
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION

NOTES :–

7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   φ ≤ 32°
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80µm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST08/045 AND 046
10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047



SECTION C
1:25



SECTION B
1:25

AS-BUILT

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — fcc CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST08-R348 BALLYGAURRAN LINDERBRIDGE BRIDGE DECK GENERL ARRANGEMENT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/040	E

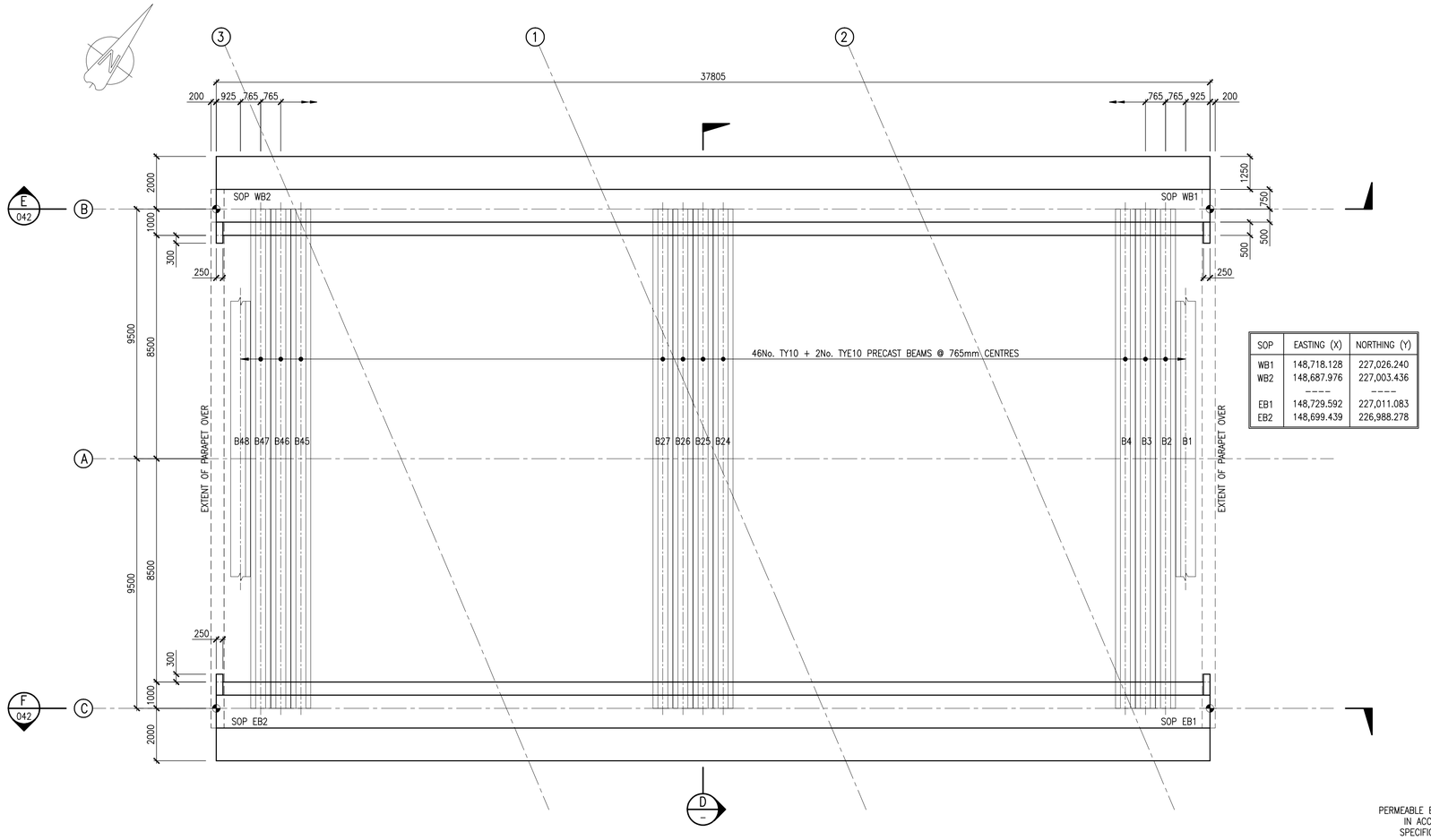
Rev C

Drawing Number 5048435/BR/DR/ST08/041

Status X

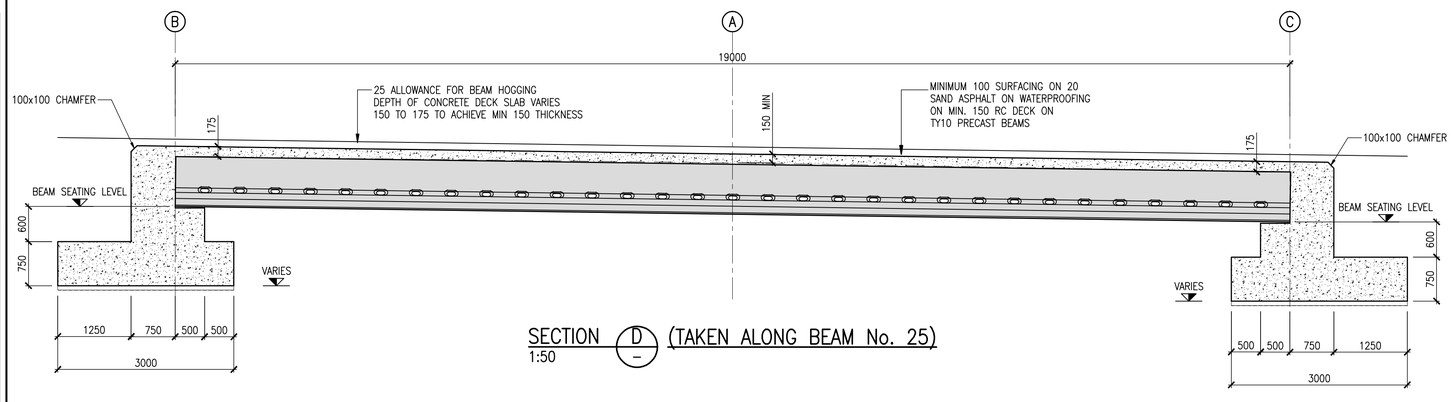
DO NOT SCALE

A1 0 10 100



SOP	EASTING (X)	NORTHING (Y)
WB1	148,718.128	227,026.240
WB2	148,687.976	227,003.436
----	----	----
EB1	148,729.592	227,011.083
EB2	148,699.439	226,988.278

PLAN – BRIDGE BANKSEATS
1:100



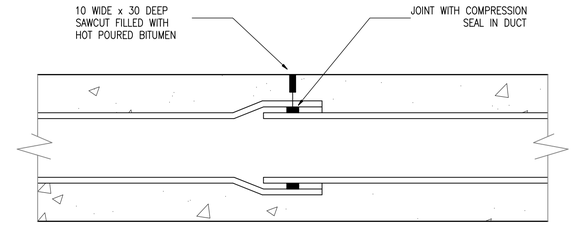
SECTION D (TAKEN ALONG BEAM No. 25)
1:50

NOTES :–

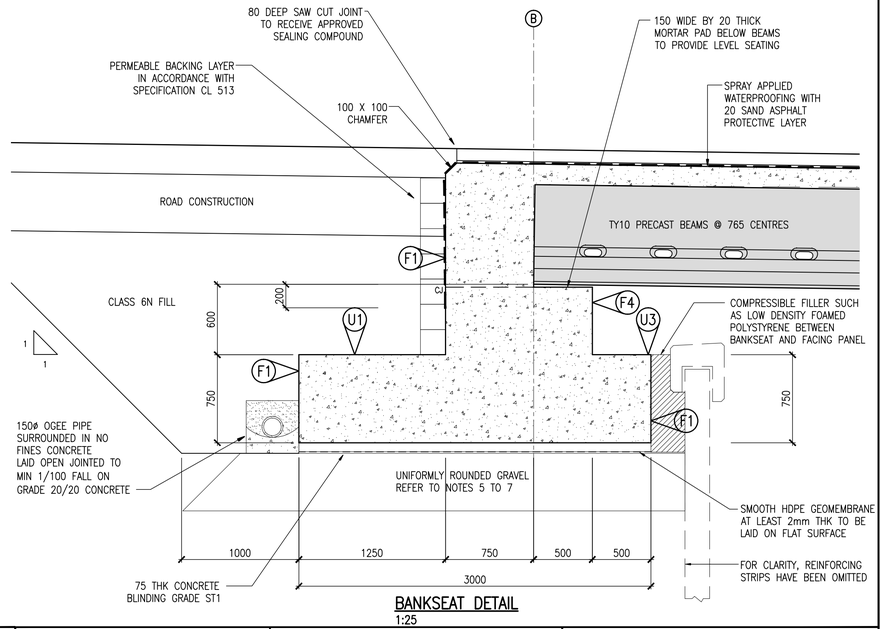
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION

NOTES :–

7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   φ ≤ 32°
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80μm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST08/045 AND 046
10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047



MOVEMENT JOINT – SERVICE DUCTS
NTS



BANKSEAT DETAIL
1:25

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING	NONE
USE	NONE
DECOMMISSIONING/DEMOLITION	NONE

NDP NATIONAL DEVELOPMENT PLAN · Transport · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscomáin

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Rev	Stat	Purpose of Issue	Date	Auth
X	AS-BUILT		07/11	MJ
C	ISSUED FOR CONSTRUCTION		09/08	MJ
A	ISSUED FOR NRA APPROVAL		07/08	MJ
A	ISSUED FOR NRA APPROVAL		05/08	MJ
R	ISSUED FOR CJV REVIEW		05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
X	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	07/11	PG	MJ
	SUPPLIED BY N6 CONSTRUCTION				
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCURRIN UNDERBRIDGE
BANKSEAT GENERAL ARRANGEMENT
SHEET 1 OF 2

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 08/05/08	PG Date 08/05/08	MJ Date 08/05/08

Status X · Drawing Number 5048435/BR/DR/ST08/041 · Rev C

File: 5048435-BR-DR-ST08-041 Rev C.dwg
Date: Apr 07, 2011 – 3:27pm Plotted by: sdunne

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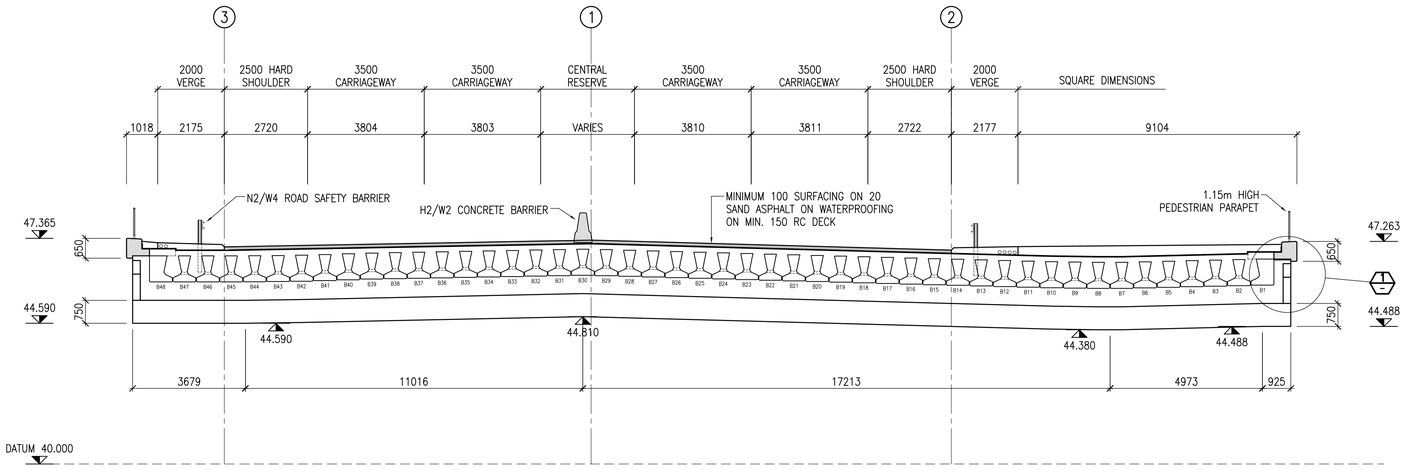
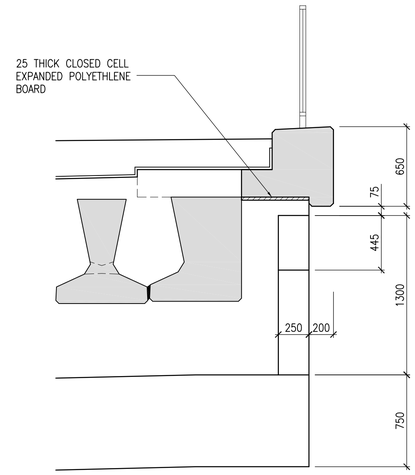
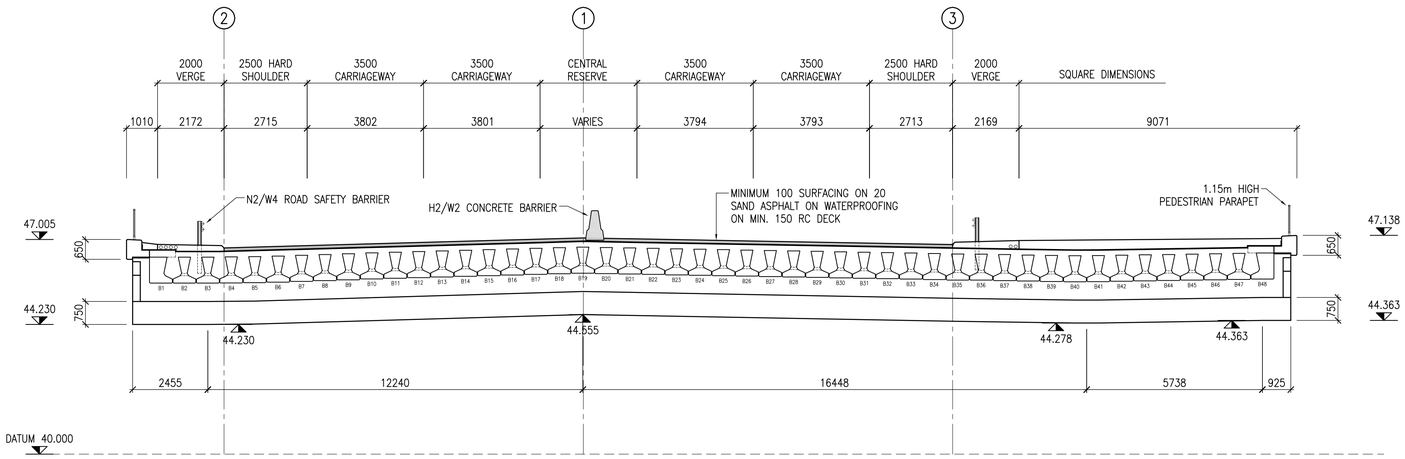


SECTION E (041) (TAKEN ALONG GRIDLINE B)
1:100



DETAIL 1 (–)
1:25



SECTION F (041) (TAKEN ALONG GRIDLINE C)
1:100

BEAM SEATING LEVELS		
BEAM NR.	WESTERN BANKSEAT GRIDLINE B	EASTERN BANKSEAT GRIDLINE C
B1	45.838	45.580
B2	45.820	45.580
B3	45.802	45.580
B4	45.784	45.587
B5	45.766	45.595
B6	45.748	45.612
B7	45.730	45.637
B8	45.730	45.662
B9	45.740	45.688
B10	45.750	45.718
B11	45.769	45.739
B12	45.790	45.761
B13	45.810	45.782
B14	45.831	45.803
B15	45.850	45.825
B16	45.871	45.846
B17	45.893	45.867
B18	45.914	45.888
B19	45.935	45.905
B20	45.956	45.892
B21	45.977	45.878
B22	45.998	45.865
B23	46.019	45.850
B24	46.040	45.837

BEAM SEATING LEVELS		
BEAM NR.	WESTERN BANKSEAT GRIDLINE B	EASTERN BANKSEAT GRIDLINE C
B25	46.061	45.823
B26	46.082	45.809
B27	46.103	45.795
B28	46.124	45.781
B29	46.146	45.767
B30	46.159	45.753
B31	46.145	45.739
B32	46.131	45.725
B33	46.117	45.712
B34	46.103	45.698
B35	46.089	45.681
B36	46.075	45.677
B37	46.061	45.662
B38	46.047	45.648
B39	46.033	45.634
B40	46.010	45.626
B41	45.986	45.629
B42	45.965	45.641
B43	45.953	45.653
B44	45.945	45.665
B45	45.941	45.677
B46	45.941	45.689
B47	45.941	45.701
B48	45.941	45.713

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   - $\Phi \leq 32°$
   - GRADING PASSING 50mm – 100%
     2mm – < 30%
     80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
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9. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST08/045 AND 046
10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILES ON INFORMATION	SD	07/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	07/11	PF
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Client: Sacyr

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
BANKSEAT GENERAL ARRANGEMENT
SHEET 2 OF 2

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
C	5048435/BR/DR/ST08/042	D

Rev D | Status C | Drawing Number 5048435/BR/DR/ST08/042 | DO NOT SCALE | A1 | 0 10 100

File: 5048435–BR–DR–ST08–042 Rev D.dwg Date: Apr 07, 2011 – 12:16pm Plotted by: dcourtney

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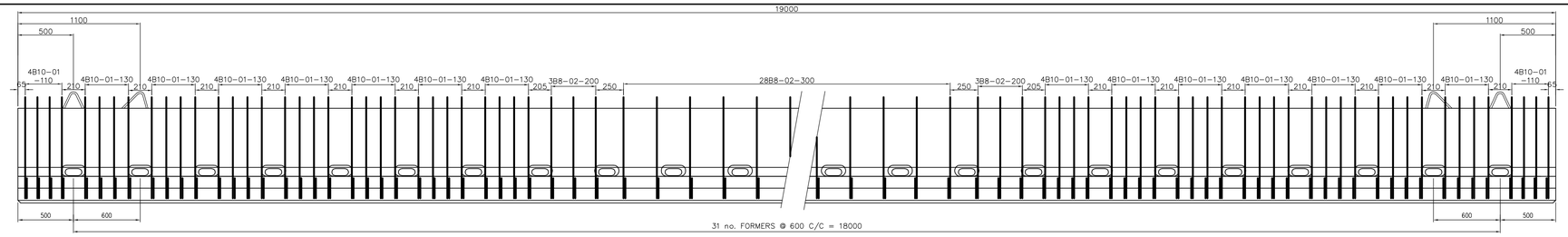
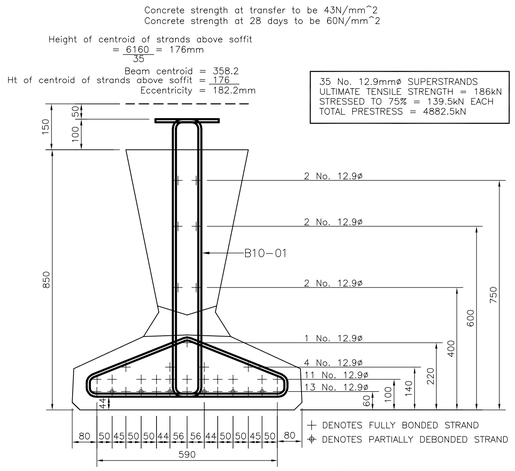
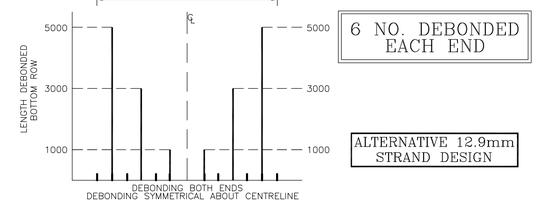


ELEVATION OF TY10 BEAM SHOWING REINFORCING (1:25)
STRUCTURE 8 (46no)

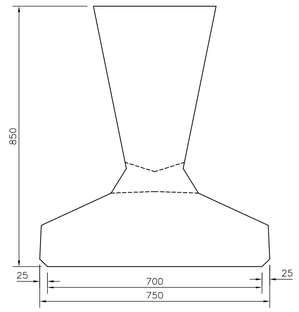




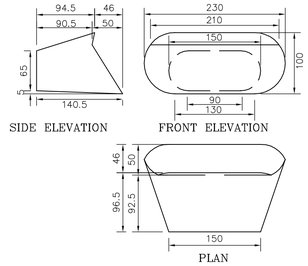
6 NO. DEBONDED EACH END

ALTERNATIVE 12.9mm STRAND DESIGN

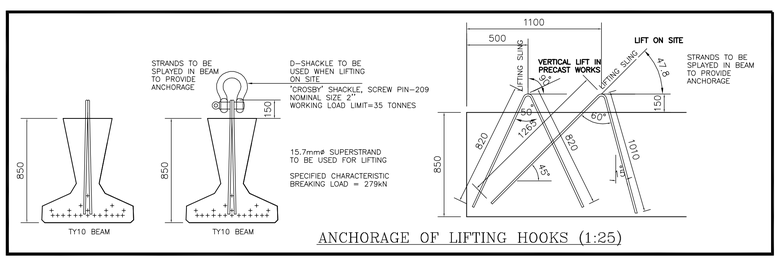
SECTION THROUGH TY10 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STRUCTURE-08
19000 LONG, 46 NO. IN TOTAL



SECTION THROUGH TY10 BEAM (1:10)



DETAILED TY BEAM FORMER (1:5)



ANCHORAGE OF LIFTING HOOKS (1:25)

BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
TY10 FOR STR 08

Bar schedule ref: 05 69 74 5 Rev letter

Date prepared Date revised

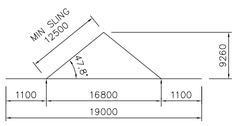
Prepared by Checked by

Member BEAM LENGTH	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TY10 – STR 08	01	B10	46	64	2944	3250	99	908	65	353	73	207 / 151 / 328 / 374 / 656 / 196
	02	B8	46	34	1564	3250	99	906	62	351	73	207 / 148 / 326 / 370 / 652

This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm

NOTES

1./ Concrete strength at transfer for to be:
TY10 = 42.5N/mm2.
TYE10 = 37N/mm2.
2./ Concrete strength at 28 days to be:
TY10 = 60N/mm2.
TYE10 = 60N/mm2.
3./ Steel reinforcements to BS4449-05. (GRADE B500B)
4./ Prestressing steel to E.N. 10138-3.
5./ Nominal cover to steel =40mm at soffit of TYbeams.
6./ Beam wts TY10 = 15.6T TYE10 = 22.9T
7./ Strand may project up to 175mm (HALF OF GAP).
8./ Surface Finishes To All Formed Surfaces Shall be F4.
9./ Lifting:



NOTES :-
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
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MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	REVISED PRECAST BEAM STRAND ARRANGEMENT	DJO'D	09/08	PG	MJ
B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Contractor

Designer

ATKINS
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Consulting Engineers,
Atkins House,
150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

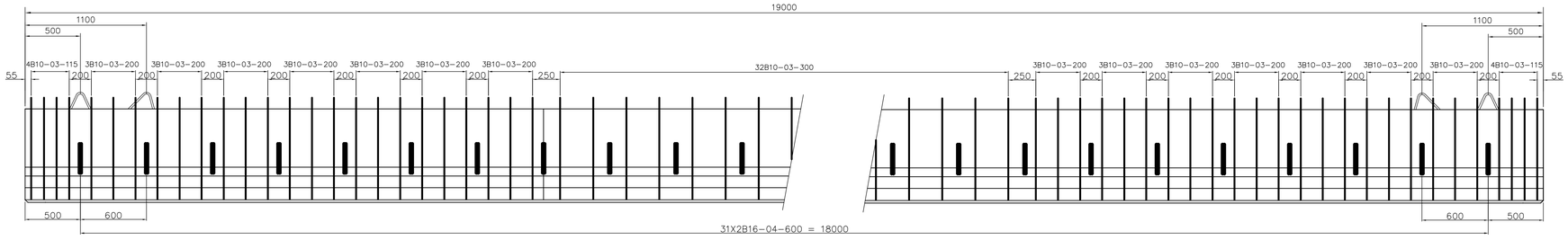
Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
TY10 PRECAST BEAM DETAILS
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/045	C

Rev C
Status X
Drawing Number 5048435/BR/DR/ST08/045
DO NOT SCALE
A1
0 10 100
File: 5048435-BR-DR-ST08-045 Rev C.dwg
Date: Apr 08, 2011 - 12:04pm Plotted by: dcourtney
Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-045 Rev C.dwg

Rev B | Drawing Number 5048435/BR/DR/ST08/046 | Status X | DO NOT SCALE | A1



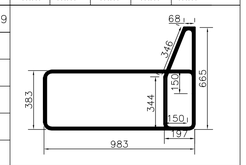
ELEVATION OF TYE10 BEAM SHOWING REINFORCING (1:25)
STRUCTURES 8 (2no)

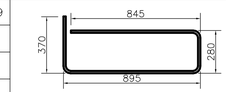
BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
TYE10 FOR STR 8

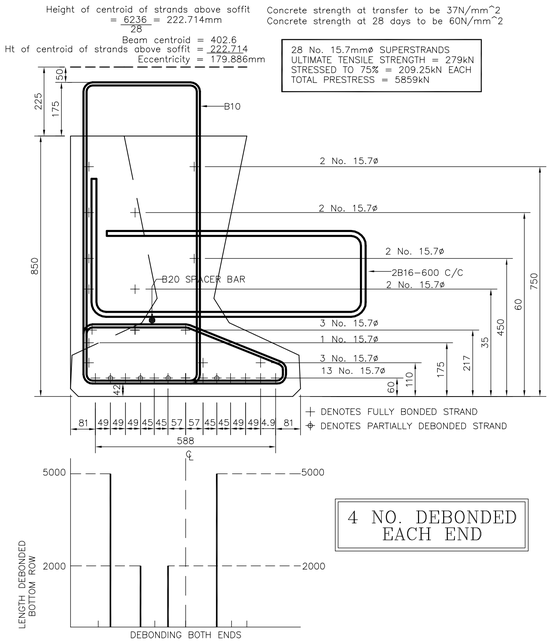
Bar schedule ref: 0 5 6 9 7 4 5 Rev letter
Date prepared Date revised
Prepared by Checked by

Member BEAM LENGTH	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TYE10 –STRS 8,10,13 & 17	03	B10	8	82	656	3865	99					
TYE10 –STRS 8,10,13 & 17	04	B16	8	62	496	2295	99					

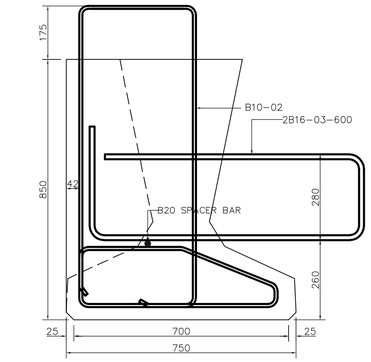




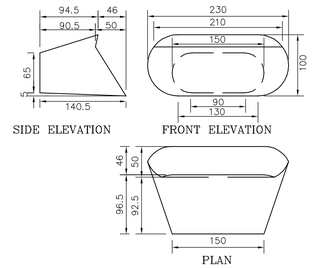
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm



SECTION THROUGH TYE10 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STRUCTURES–08(2)–10(2)–13(2)–17(2)
19000 LONG, 8 NO. IN TOTAL



SECTION DETAILING DIMENSIONS TYE10 (1:10)



DETAILED TY BEAM FORMER (1:5)

NOTES

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TYE10 = 37N/mm2.
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TYE10 = 60N/mm2.
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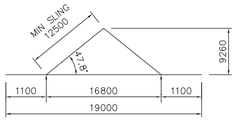

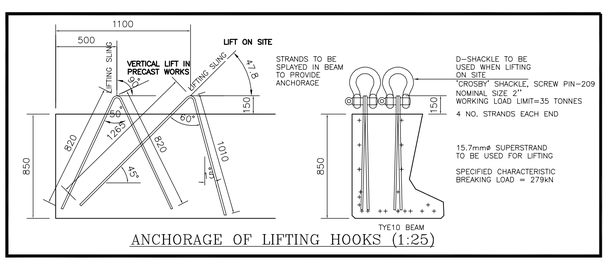

ANCHORAGE OF LIFTING HOOKS (1:25)

NOTES :–
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155

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USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Contractor

Designer
ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers,
Atkins House,
150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08–R348 BALLYCAURRAUN UNDERBRIDGE
TYE10 PRECAST CONCRETE BEAM DETAILS
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/046	B

File: 5048435–BR–DR–ST08–046 Rev B.dwg Date: Apr 08, 2011 – 11:50am Plotted by: dcourtney

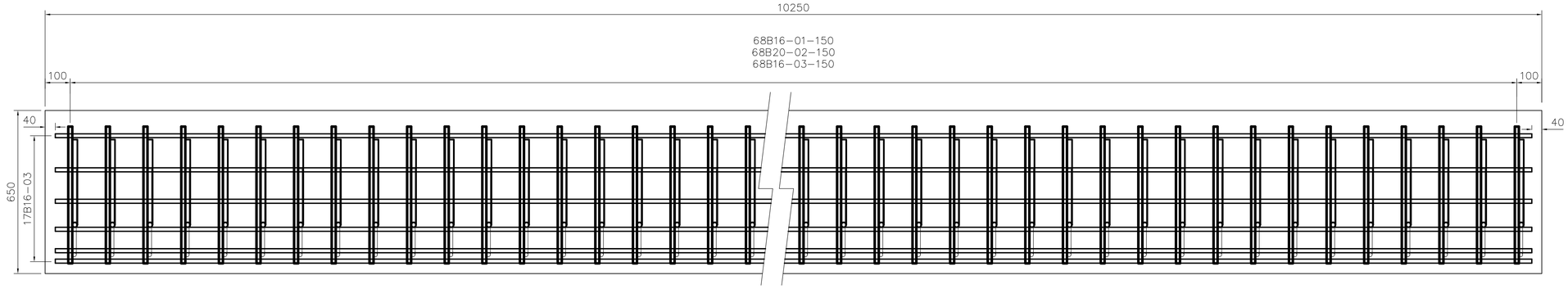
Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435–BR–DR–ST08–046 Rev B.dwg

Rev C | Status X | Drawing Number 5048435/BR/DR/ST10/047

DO NOT SCALE

100 0 10

A1

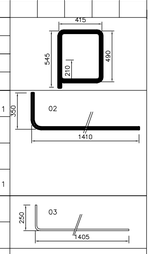


ELEVATION OF PRECAST CANTILEVER (1:10)
SHOWING REINFORCEMENT 4 NO. REQUIRED

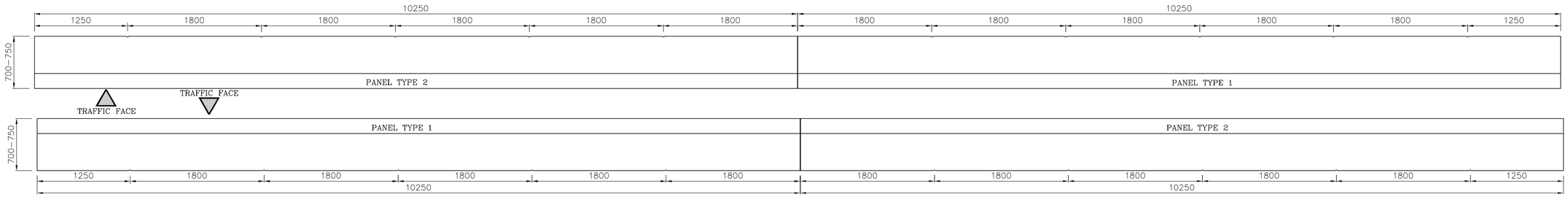
BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
STRUCTURE 08
PRECAST PANELS

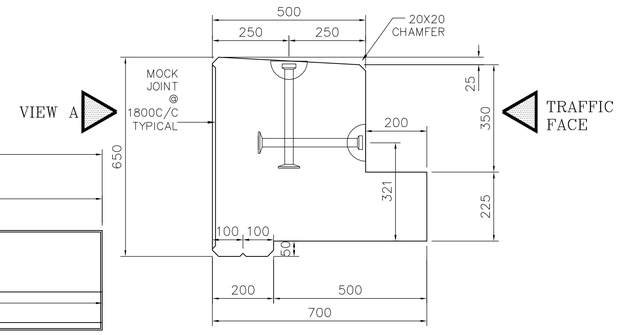
Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar T mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
PANELS	01	B16	4	68	272	1950	41	545	415	490	415	210
	02	B20	4	68	272	1725	11					
	03	B16	4	68	272	1625	11					
	04	B16	4	17	68	10175	00					



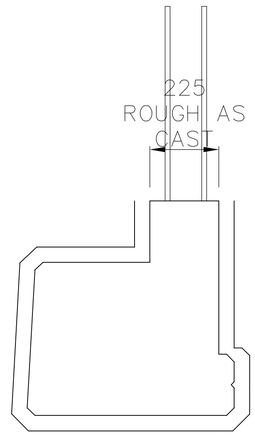
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm



LAYOUT OF PANELS (1:30)

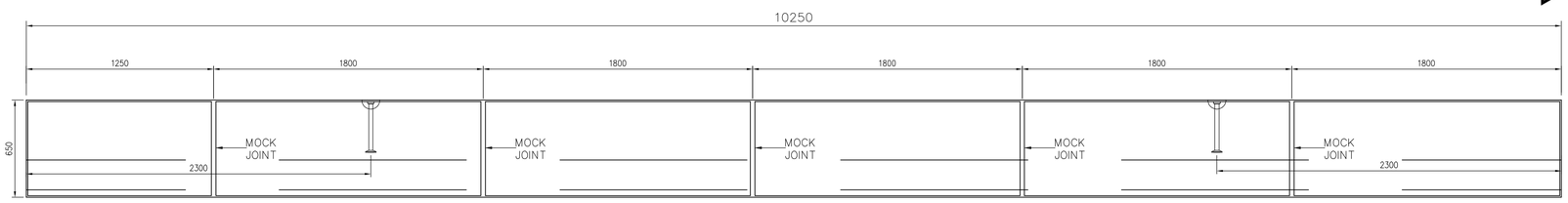


SECTION THROUGH PRECAST CANTILEVER (1:10)

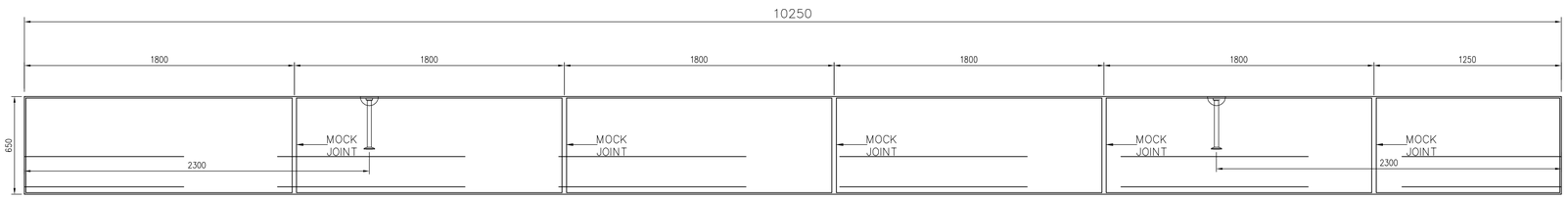


STEEL MOULD (F3)

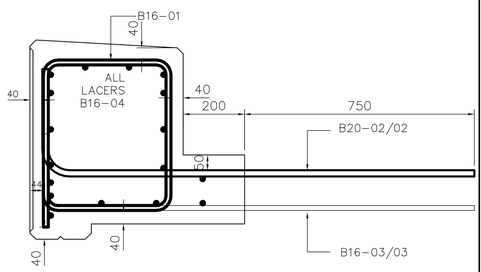
SURFACE FINISHES (1:10)



ELEVATION OF PRECAST CANTILEVER (1:10) (VIEW A,TYPE 1)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



ELEVATION OF PRECAST CANTILEVER (1:10) (VIEW A,TYPE 2)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



SECTION THROUGH PRECAST CANTILEVER (1:10)

CONCRETE TO CONTAIN MIN 50% GGBS

ANCHORS FOR PARAPETS TO BE DRILLED ON SITE

NOTES :-

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST08/040 TO 042
5. CONCRETE GRADE SHALL BE 50/20B AS PER THE SPECIFICATION
6. SURFACES FINISHES SHALL BE AS SHOWN.
7. CONCRETE COVER TO REINFORCEMENT TO BE AS SHOWN
8. WEIGHT OF PARAPETS 10250 LONG = 8.9T EACH
9. SITE LIFTING = 2NO. 7.5t CAPSTANS 350 LONG
10. SHEAR LINKS (BAR MARK 01) SHALL BE PLACED TO AVOID THE MOCK JOINT.

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NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	PARAPET ANCHORAGES REMOVED	DJO'D	09/08	PG	MJ
B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
A	PRELIMINARY ISSUE	JMCM	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — *WS Atkins Ireland Limited* ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
PRECAST PARAPET DETAILS
PRECAST PARAPET DETAILS

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	JMcM Date 22/05/08	PG Date 22/05/08	MJ Date 22/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/047	C

AS BUILT

File: 5048435-BR-DR-ST08-047 Rev C.dwg Date: Apr 08, 2011 - 11:41am Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-047 Rev C.dwg

Rev D | Status X | Drawing Number 5048435/BR/DR/ST08/050

DO NOT SCALE

A1

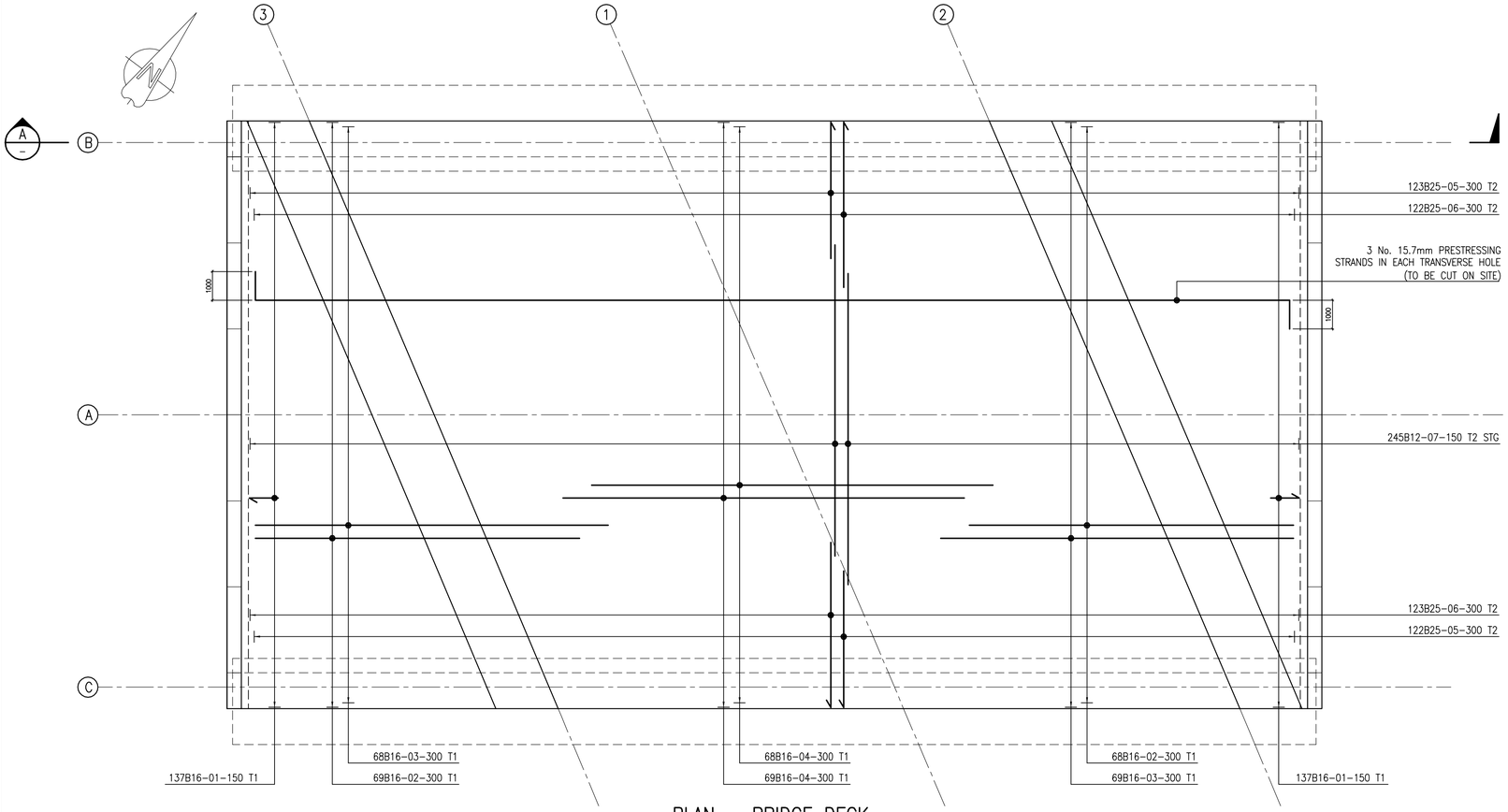
NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS–ST08–050–01 INCL.

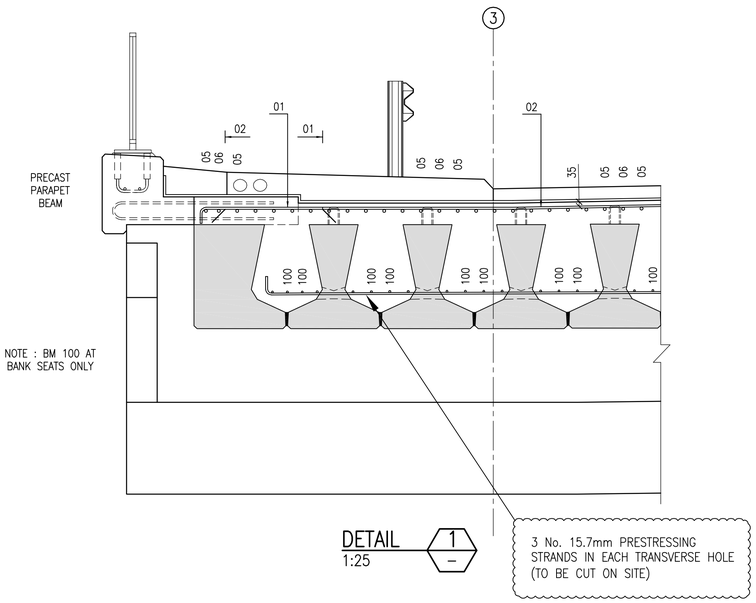
COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

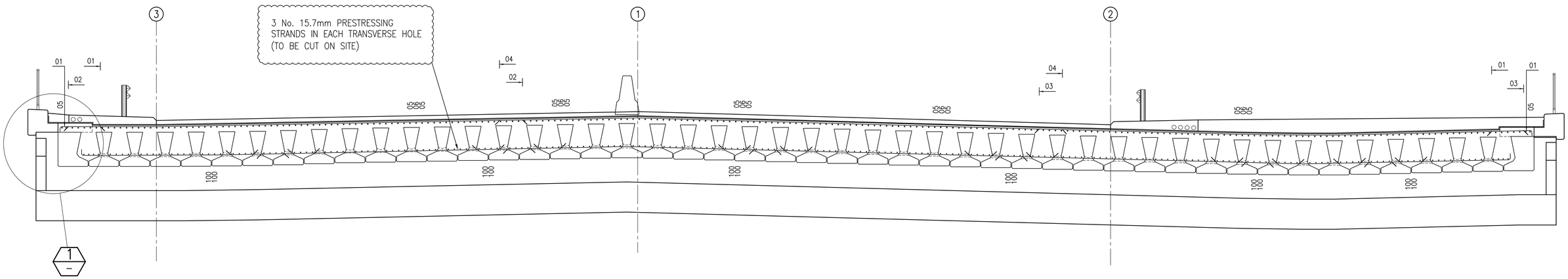
TOP OF DECK SLAB 35MM



PLAN – BRIDGE DECK
1:100



DETAIL 1/– 1:25



SECTION A/– (TAKEN ALONG GRIDLINE B)
1:50

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
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Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPILED BY N6 CONSTRUCTION				
D	FULL SUBMISSION MDC–ST–54	DC	02/09	FM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Client

Designer

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WS Atkins Ireland Limited ©
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150–155 Airside Business Park, Swords, Co. Dublin.
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Fax: (+353) 01 890 9001
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Title
N6 GALWAY TO BALLINASLOE
ST08–R348 BALLYGAURRAUN UNDERBRIDGE
BRIDGE DECK REINFORCEMENT DETAILS
AS BUILT

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/050	D

File: 5048435–BR–DR–ST08–050 Rev D.dwg
Date: Apr 08, 2011 – 11:30am Plotted by: dcourtney

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Rev D
Status X
Drawing Number 5048435/BR/DR/ST08/051

DO NOT SCALE

A1

0 10 100

File: 5048435-BR-DR-ST08-051 Rev D.dwg
Date: Apr 19, 2012 - 6:21pm Plotted by: dcourtney

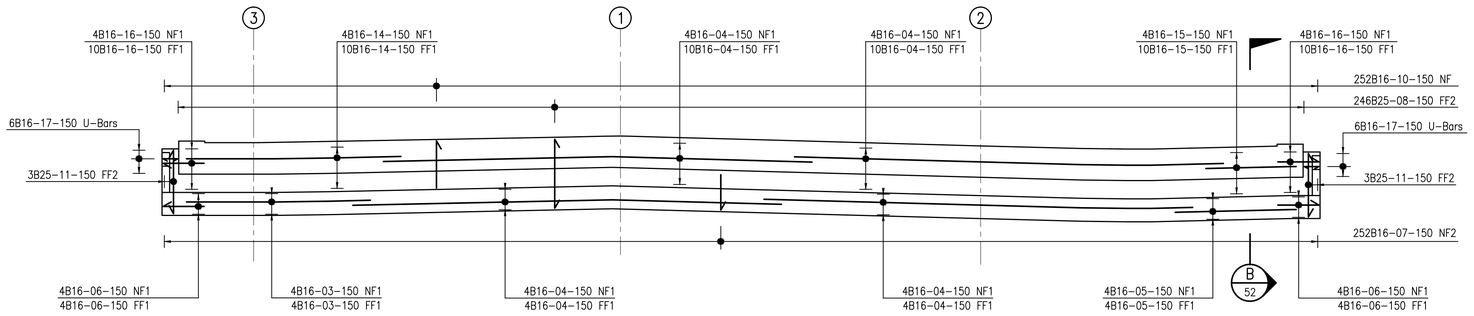
NOTES :-

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS-ST08-051-01,02 & 03.

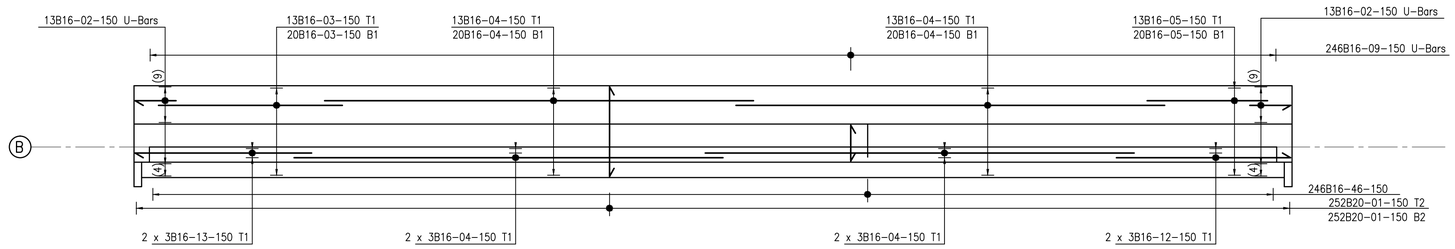
COVER :-

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

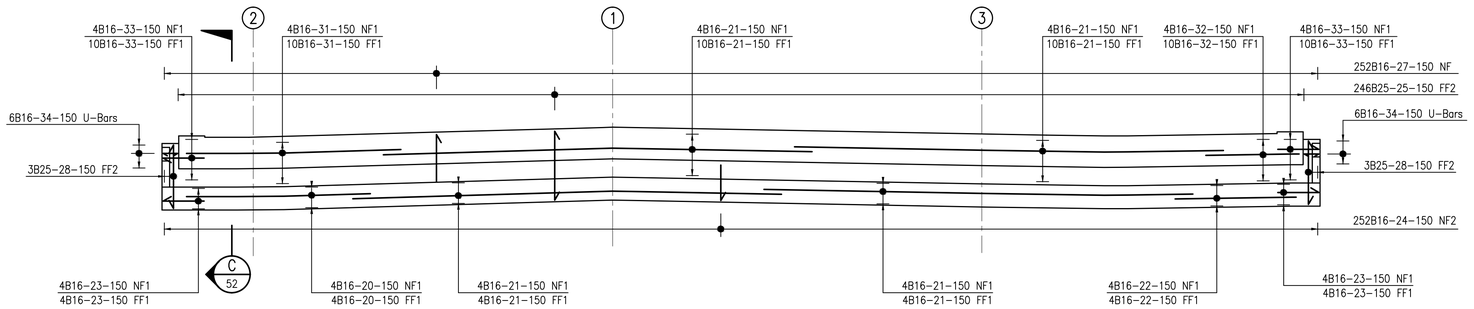
BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM



ELEVATION – WESTERN BANKSEAT
1:100



PLAN – WESTERN BANKSEAT
1:100



ELEVATION – EASTERN BANKSEAT
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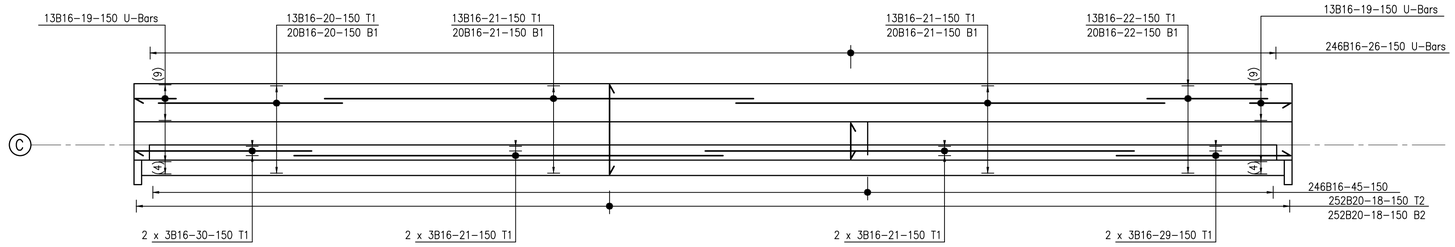

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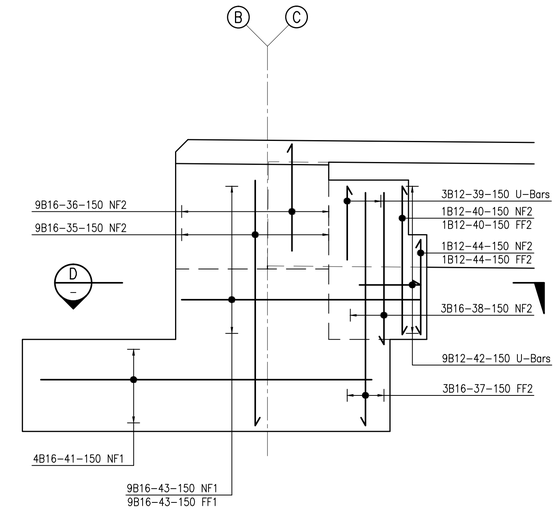

END WALL ELEVATION – BANKSEAT
1:25

4 NR. THUS
(2 PER BANKSEAT)

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
C	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/11	PF	TM
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Client

Designer

ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers,
Atkins House,
150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN UNDERBRIDGE
BANKSEAT REINFORCEMENT DETAILS
SHEET 1 OF 2
AS BUILT

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/051	D

P:\ZDrive\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-051 Rev D.dwg

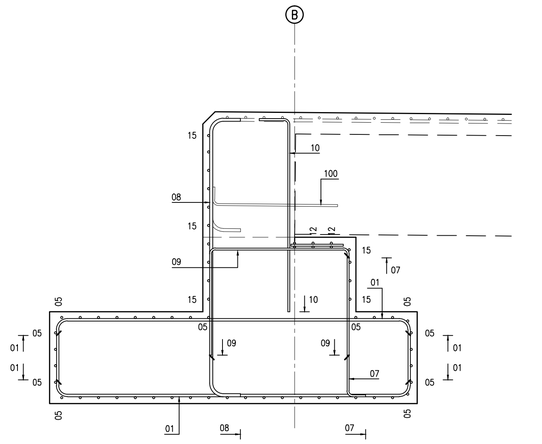
Rev D

Status X

Drawing Number 5048435/BR/DR/ST08/052

DO NOT SCALE

A1



SECTION B 051
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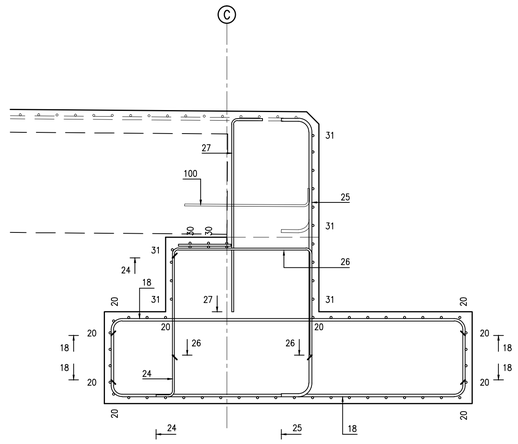

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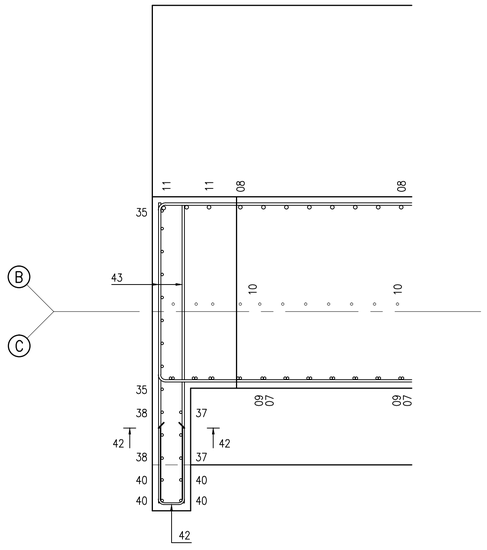

SECTION D —
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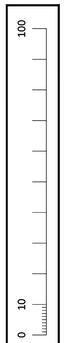

NOTES :-

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS-ST08-051-01,02 & 03.

COVER :-

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE

MAINTENANCE/CLEANING
NONE

USE
NONE

DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
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C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
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R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
C	AS-BUILT DRAWING COMPILED ION INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	07/11	PF	TM
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Contractor

Designer

ATKINS
WS Atkins Ireland Limited ©
Consulting Engineers,
Atkins House,
150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN UNDERBRIDGE
BANKSEAT REINFORCEMENT DETAILS
SHEET 2 OF 2

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/052	D

File: 5048435-BR-DR-ST08-052 Rev D.dwg
Date: Apr 19, 2012 - 6:27pm Plotted by: dcourtney

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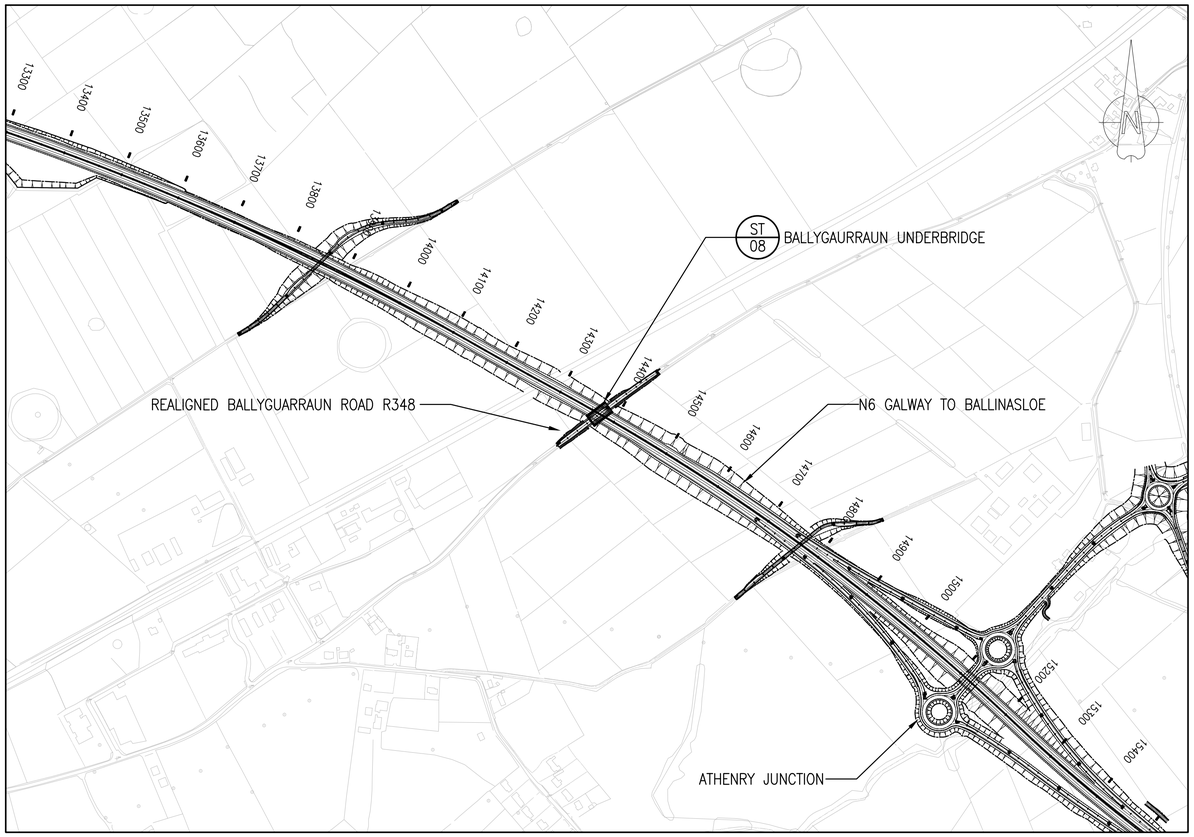
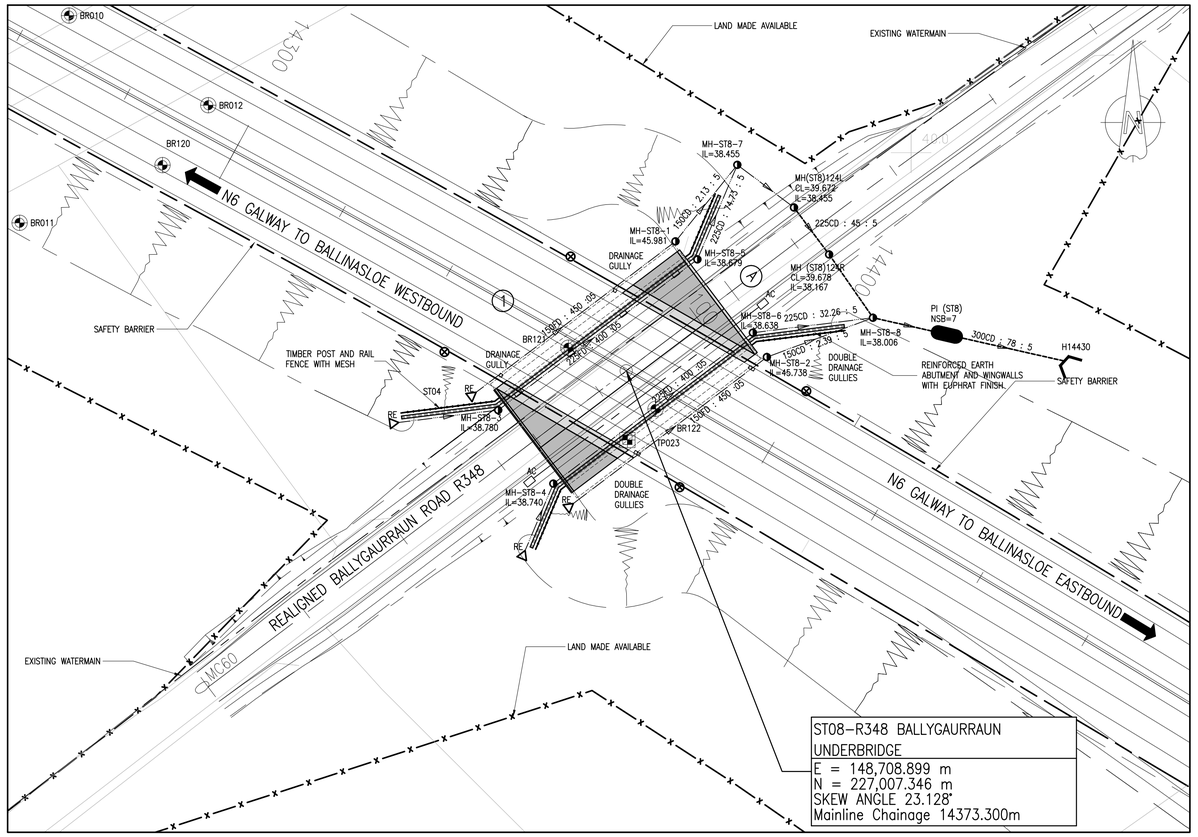
Rev F | Status X | Drawing Number 5048435/BR/DR/ST08/001

DO NOT SCALE

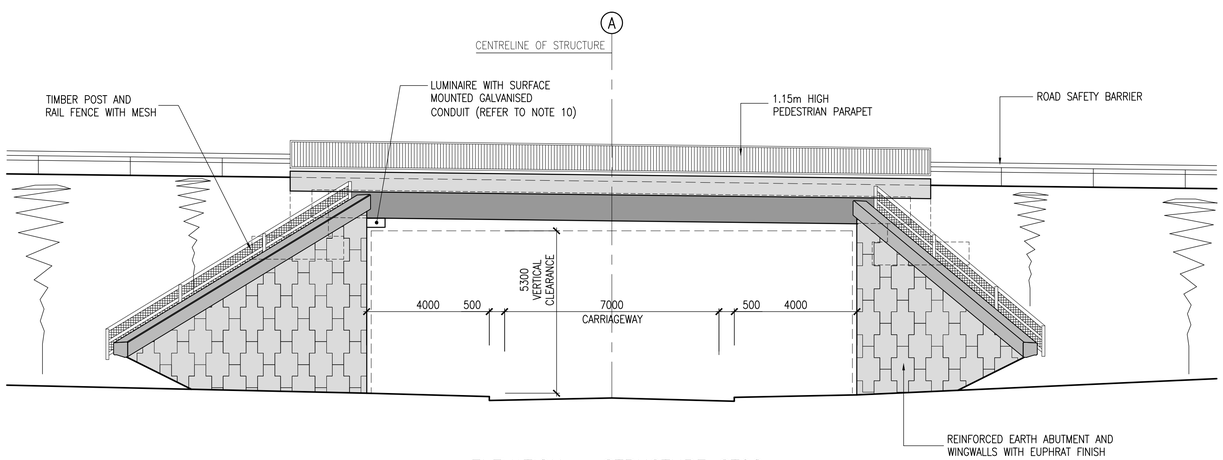
A1



SITE LOCATION PLAN – STRUCTURE ST08
Scale 1:5000



LAYOUT PLAN – STRUCTURE ST08
Scale 1:500



ELEVATION – STRUCTURE ST08
Scale 1:100

LEGEND

- RE RODDING EYE
- CP CATCHPIT (OR RODDING EYE)
- MH MANHOLE
- AC ACCESS CHAMBER FOR DUCTS (TO NRA RCD 500/5)
- 150mm DIA. HDPE OR uPVC PERFORATED OR POROUS PIPE
- SURFACE MOVEMENT MONITORING BEACONS

GENERAL NOTES
IN-SITU MATERIAL AT THE BASE OF THE EXCAVATION SHALL CONSIST OF EITHER MEDIUM DENSE GRANULAR GLACIAL DEPOSITS OR STIFF COHESIVE GLACIAL DEPOSITS WITH MINIMUM UNDRAINED SHEAR STRENGTH (Cu) OF 115 kPa AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FILLING.
IF THE MATERIAL ENCOUNTERED AT THE BASE OF THE EXCAVATION DOES NOT MEET THE DESIGN REQUIREMENTS, ADDITIONAL EXCAVATION AND REPLACEMENT WITH CLASS 6N FILL WILL BE REQUIRED.
FRICTIONAL FILL WITH THE REINFORCED EARTH BLOCK SHALL BE CLASS 6I OR CLASS 6J FILL IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/1. THE MATERIAL SHALL ALSO COMPLY WITH TABLE 4 OF BS8006 AND SHALL ACHIEVE A MINIMUM φ = 38°.

INSTRUMENTATION AND MONITORING NOTES
INSTRUMENTATION SHALL CONSIST OF :
- MONITORING PINS ON REINFORCED EARTH FACING
- TWO MONITORING PINS AT EACH ABUTMENT TO MONITOR STRUCTURE SETTLEMENT
- TWO SURFACE MOVEMENT BEACONS IN THE VERGES OF THE APPROACH EMBANKMENTS, 10m BACK FROM THE STRUCTURE, AT EACH ABUTMENT TO MONITOR SETTLEMENTS OF THE APPROACH EMBANKMENTS

EXACT INSTRUMENTATION LOCATIONS SHALL BE AGREED ON SITE WITH THE DESIGNER
INSTRUMENTATION SHALL BE MONITORED IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/12

CONSTRUCTION SEQUENCE NOTES
THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE IMPLEMENTED :
- EXCAVATE IN-SITU MATERIAL DOWN TO BASE OF REINFORCED EARTH WALL
- BUILD REINFORCED EARTH ABUTMENTS, WINGWALLS AND APPROACH EMBANKMENTS
- CONSTRUCT BANKSEATS
- PLACE DECK BEAMS
- LOCK INTEGRAL CONNECTIONS FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE
- BACKFILL AT THE BACK OF THE BANKSEATS
- COMPLETE DECK CONSTRUCTION
- CONSTRUCT ROAD PAVEMENT FOLLOWING CONFIRMATION FROM THE DESIGNER THAT SETTLEMENT RESULTS FROM THE MONITORING ARE ACCEPTABLE

CONCRETE IMPREGNATION AND SURFACE COATING
ALL EXPOSED CONCRETE IN BRIDGE SUPERSTRUCTURES WITHIN THE SPLASH ZONE, WITH THE EXCEPTION OF PRECAST BEAMS AND PRECAST FORMWORK BETWEEN BEAMS WAS TREATED WITH 'BRIDGEGUARD' PRIOR TO ITS APPLICATION FOSROC RENDEROC FC WAS APPLIED TO ENSURE UNIFORM COLOUR. FOSROC RENDERROC FC WAS APPLIED TO PRECAST PARAPET EDGE BEAMS.

NOTES :–
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   $\varphi \leq 32°$
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80µm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. THE AVAILABLE GROUND INVESTIGATION INFORMATION INDICATES THAT KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE. ADDITIONAL GROUND INVESTIGATION IS PROPOSED AT THIS STRUCTURE TO DETERMINE WHETHER SIGINIFICANT KARST CONDITONS ARE PRESENT. IF THIS IS PROVEN TO BE THE CASE THEN REMEDIAL MEASURES WILL BE SPECIFIED WHICH MAY INCLUDE GROUTING, EXCAVATION AND REPLACEMENT OR INCREASED FOUNDATION SIZES. WHERE KARST FEATURES ARE IDENTIFIED ON SITE, THE CONTRACTOR IS TO AGREE REMEDIAL MEASURES WITH THE DESIGNER.
10. FOR PUBLIC LIGHTING REQUIREMENTS, REFER TO DRAWING No. 5048435/HW/ST8/L13/033.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	09/12	CC
X	AS-BUILT	12/11	TM
C	ISSUED FOR CONSTRUCTION	03/11	PF
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
F	AS-BUILT INFORMATION	NN	09/12	LC	CC
E	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	12/11	AFM	TM
E	DUCTS AMENDED	DC	03/11	PF	PF
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08 - R348 BALLYGAURRAUN UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 1 OF 2
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/001	F

File: 5048435-BR-DR-ST08-001 Rev F.dwg Date: Sep 12, 2012 – 12:02pm Plotted by: nnaughton

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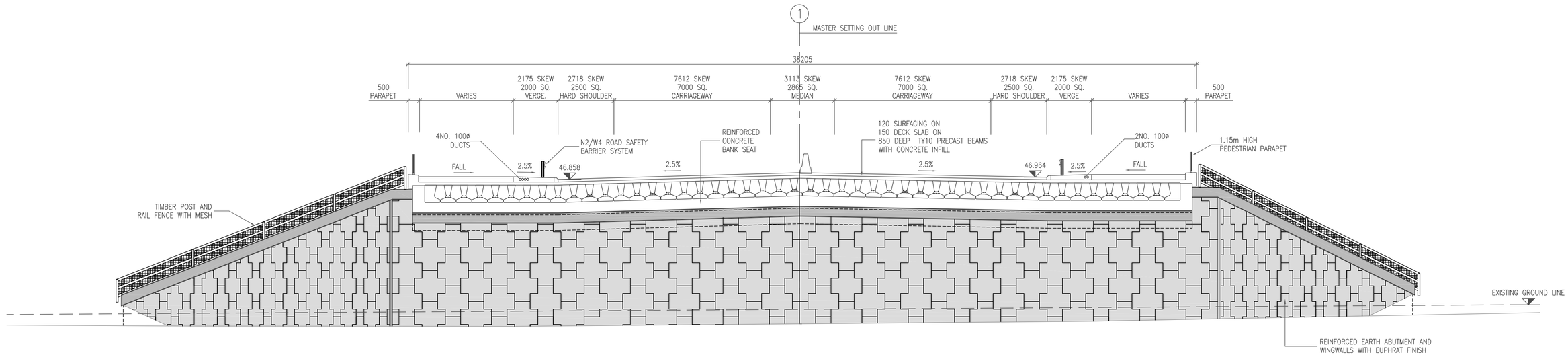
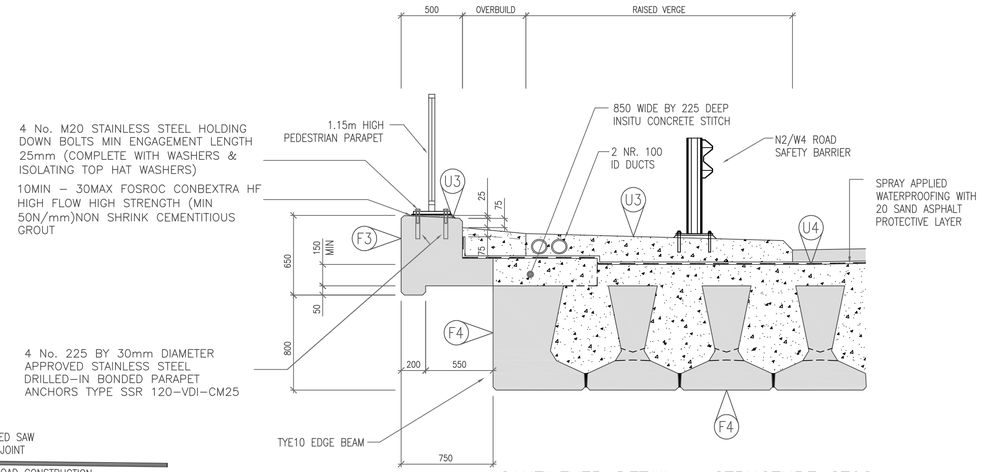
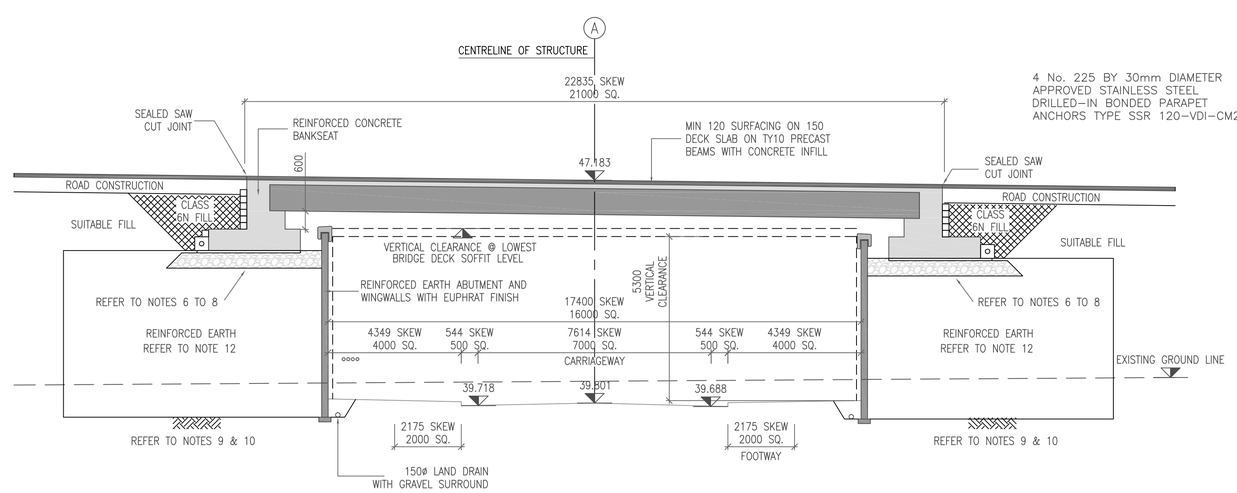


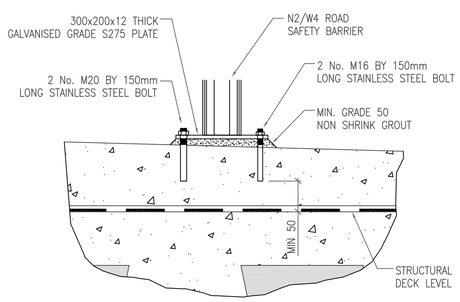
LONGITUDINAL SECTION ALONG GRID LINE A – STRUCTURE ST08
Scale 1:100



CANTILEVER DETAIL – STRUCTURE ST08
Scale 1:25



CROSS SECTION ALONG GRID LINE 1 – STRUCTURE ST08
Scale 1:100



ANCHORAGE DETAILS FOR SAFETY BARRIER ON RAISED VERGE
Scale 1:10

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS CONSISTED OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND WAS INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL ACHIEVED THE FOLLOWING REQUIREMENTS :–
   - φ ≤ 32°
   - GRADING PASSING 50mm – 100%, 2mm – < 30%, 80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. IN SITU MATERIAL UNDER THE REINFORCED EARTH BLOCK WAS BE EXCAVATED AND REPLACED WITH CLASS 6N FILL. THE BASE OF THE CLASS 6N FILL WAS BE AT (OR LOWER THAN) 25.525m AOD.
10. IN–SITU MATERIAL AT THE BASE OF THE EXCAVATION CONSISTED OF EITHER MEDIUM DENSE GRANULAR GLACIAL DEPOSITS OR STIFF COHESIVE GLACIAL DEPOSITS WITH MINIMUM UNDRAINED SHEAR STRENGTH (Cu) OF 100 kPa AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FILLING.
11. FRICTIONAL FILL WITH THE REINFORCED EARTH BLOCK SHALL BE CLASS 6I OR CLASS 6J FILL IN ACCORDANCE WITH SPECIFICATION APPENDIX 6/1. THE MATERIAL SHALL ALSO COMPLY WITH TABLE 4 OF BS8006 AND SHALL ACHIEVE A MINIMUM φ = 38°

Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

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Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

N6 Concession Limited

Contractor: N6 [construction] limited · fcc CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08 - R348 BALLYGAURAUN UNDERBRIDGE
GENERAL ARRANGEMENT
SHEET 2 OF 2
AS–BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/002	G

Rev G
Status X
Drawing Number 5048435/BR/DR/ST08/002
DO NOT SCALE
A1
0 10 100
File: 5048435–BR–DR–ST08–002 Rev G.dwg
Date: Feb 14, 2012 – 4:08pm Plotted by: NNaughton

Rev B

Status X

Drawing Number 5048435/BR/DR/ST08/025

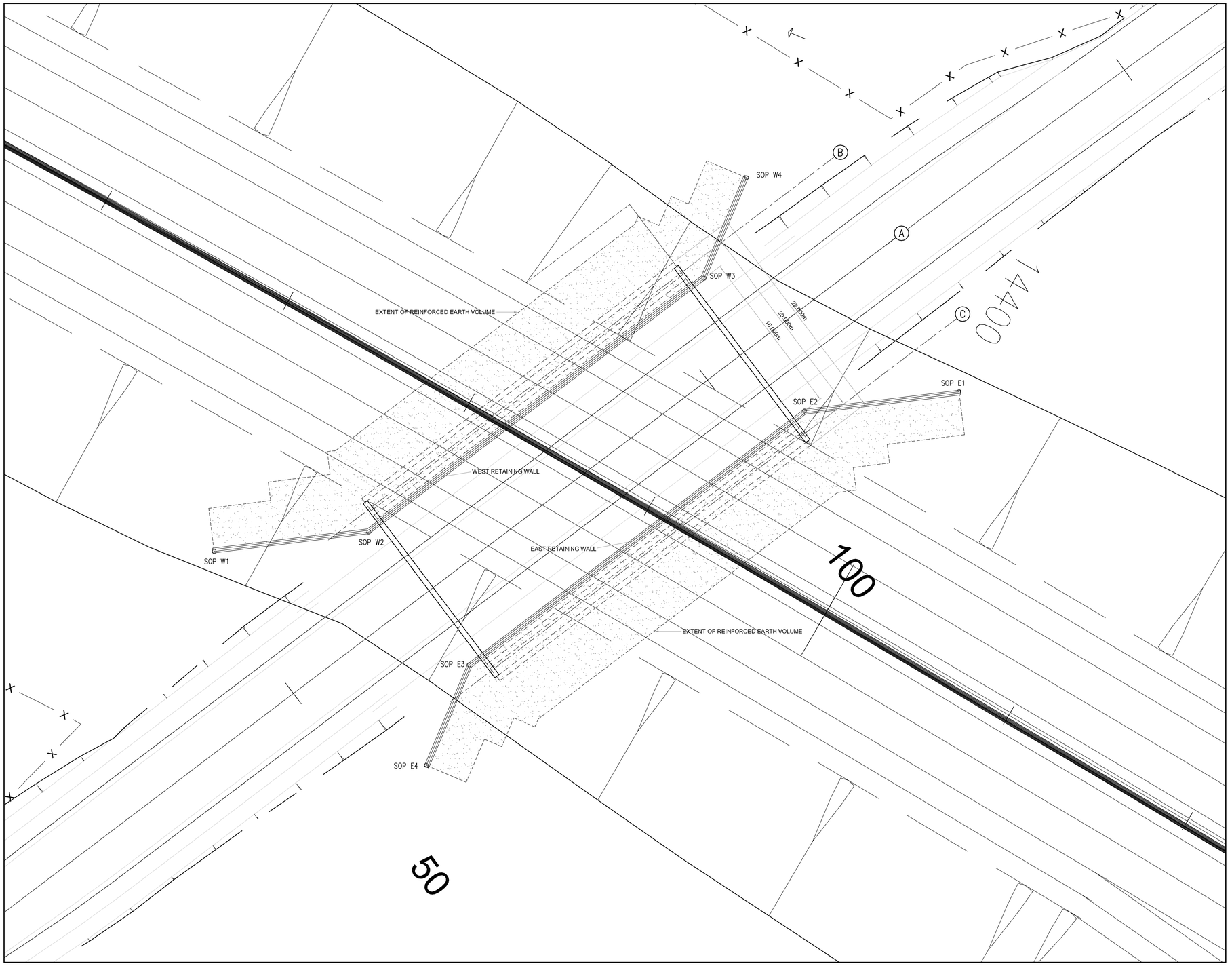
DO NOT SCALE

A1

0 10 100

File: 5048435-BR-DR-ST08-025 Rev B.dwg

Date: Apr 07, 2011 - 10:48am Plotted by: dcourtney



SETTING OUT DETAILS – REINFORCED EARTH ABUTMENTS/WINGWALLS
1:200

SOP	EASTING (X)	NORTHING (Y)
W1	148,672.923	226,999.574
W2	148,687.808	227,001.428
W3	148,720.110	227,025.858
W4	148,724.196	227,035.530
E1	148,744.649	227,014.947
E2	148,729.764	227,013.093
E3	148,697.462	226,988.663
E4	148,693.346	226,979.004

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
   0.6mm:9-15
   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe
Galway City Council Comhairle Cathrach na Gaillimhe
Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua
Roscommon County Council Comhairle Chontae Roscamán

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	08/08	MJ
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
X	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
A	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. — Sacyr — HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGURRAHILL UNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 1 OF 3

AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/025	B

Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-025 Rev B.dwg

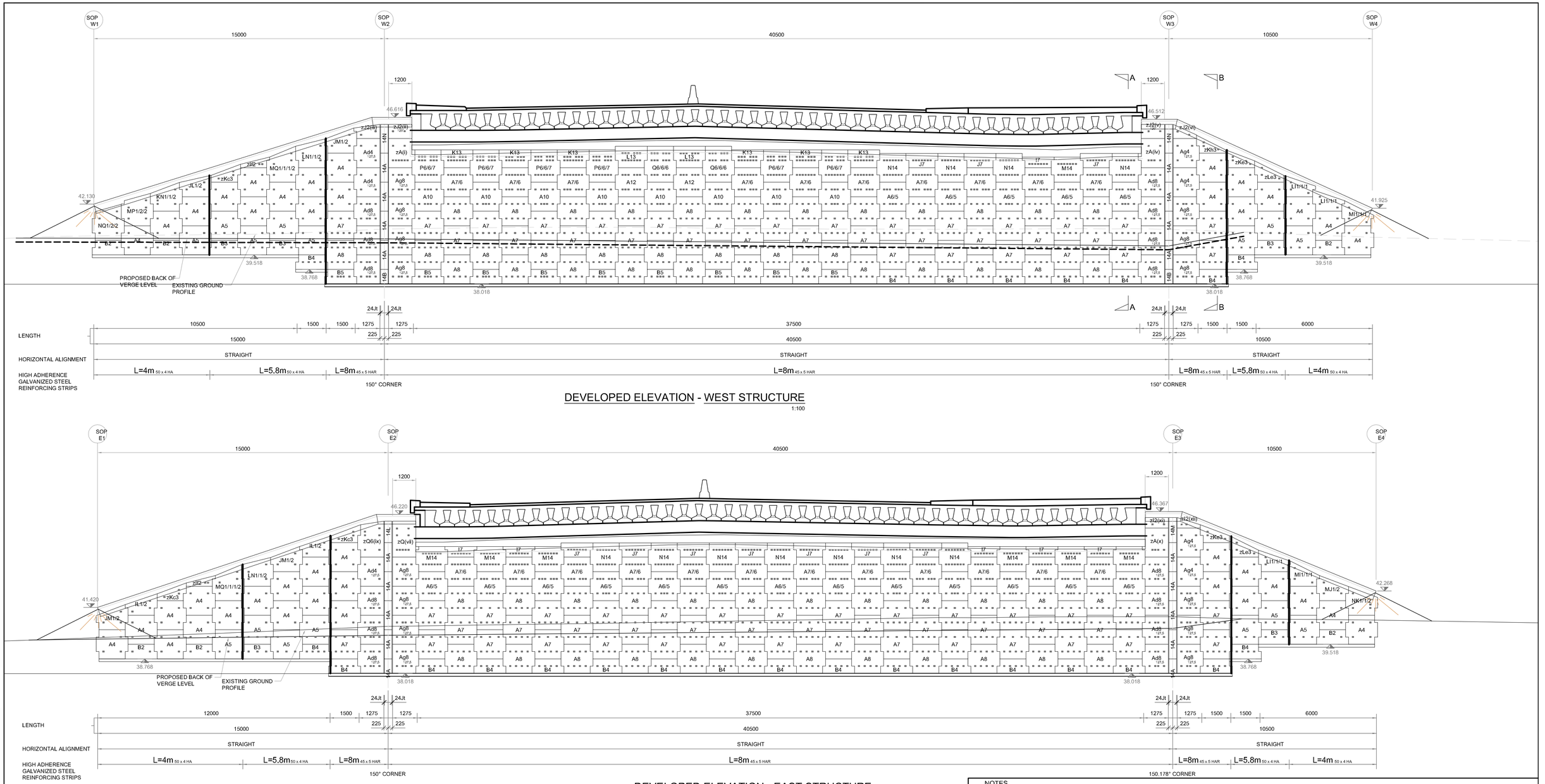
Rev B

Drawing Number 5048435/BR/DR/ST08/026

Status X

DO NOT SCALE

A1 0 10 100



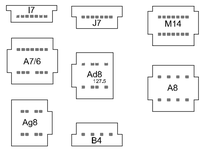
DEVELOPED ELEVATION - WEST STRUCTURE

1:100

DEVELOPED ELEVATION - EAST STRUCTURE

1:100

LEGEND :



L=LENGTH OF REINFORCING STRIPS
ALL REINFORCING STRIPS ARE TO BE OF HIGH ADHERENCE HOT DIP GALVANIZED MEDIUM TENSILE STEEL.

Facing Panel designation:

basic type - A,B,I,M,AA etc

Cut (Vertical straight) - suffix d(r/hand), g(l/hand).

Standard No lugs - suffix 2,3,4 etc (strip connection)

Non-standard No of lugs - suffix eg. 5/6 (strip connection) (No of lugs on a level, starting from the top)

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
   0.6mm:9-15
   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
USE
DECOMMISSIONING/DEMOLITION

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Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	08/08	MJ
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
A	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN LUNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 2 OF 3

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/026	B

File: 5048435-BR-DR-ST08-026 Rev B.dwg Date: Apr 08, 2011 - 12:40pm Plotted by: dcourtney

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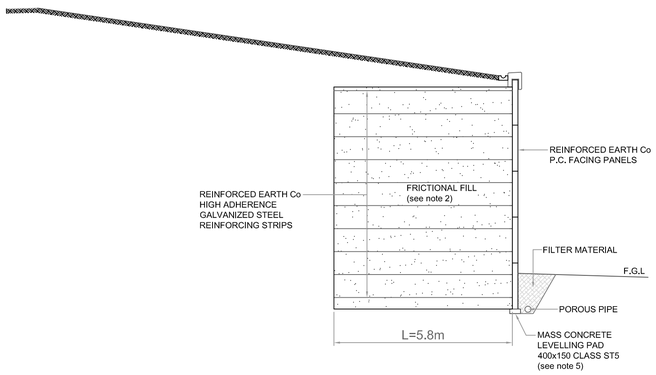
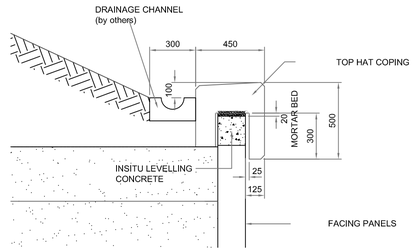
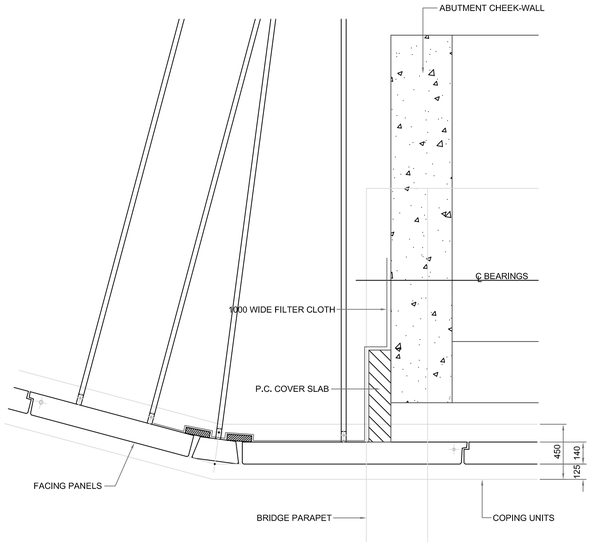


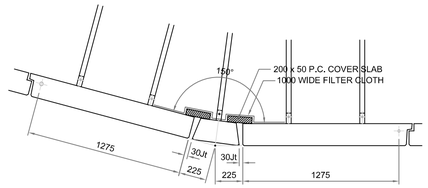
SECTION B-B
1:100



TOP OF WALL DETAIL
1:20



BANKSEAT END - FINISHING DETAIL
1:25



CORNER DETAIL
1:25

NOTES

1. All dimensions are in millimetres unless otherwise shown.
2. Frictional fill to be Class6I/6J Fill in accordance with specification appendix 6/1.
   The material shall also comply with table 4 of BS8006 and shall achieve:
   Minimum Phi ' = 38°
   Grading, percentage passing
   14mm: 40-100
   2mm:15-40
   0.6mm:9-15
   0.063mm:0
3. Supply of High Adherence galvanized steel reinforcing strips, Reinforced Earth facing panels,fastenings, jointing materials, by the
   REINFORCED EARTH CO (IRELAND) LTD
   UNIT F, M7 BUSINESS PARK
   NAAS
   Co. KILDARE
   TEL 00353 45 84 6176
4. Levelling pad, mass concrete class 25/20, to be smooth and level to within +5mm of the levels shown on this drawing.
5. For method of construction of the Reinforced Earth structure, see the Construction Manual as issued by the REINFORCED EARTH CO LTD.
6. Fill to be placed and compacted to a level 750mm above the underside of the Bankseat. over the entire length of the reinforcing strips, prior to any bankseat/deck construction.
7. For detail of fill under bankseat please refer to general arrangement drawing
8. All High Adherence strips are 45x5mm and 50x4mm section.
9. All Facing Panels are 140 thick.
10. For details of fill under the bankseat please refer to Atkins General Arrangement drawing.
11. Temporary fill level to be placed and compacted to a level 750mm above the underside of the bankseat over the entire length of the Reinforcing Strips prior to any deck / bankseat construction.
12. Upper reinforcing strips to be bent below bankseat where required.

Rev C
Status X
Drawing Number 5048435/BR/DR/ST08/027
DO NOT SCALE
100 0 10
A1
File: 5048435-BR-DR-ST08-027 Rev C.dwg
Date: Feb 07, 2012 - 9:12am Plotted by: NNaughton

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	
NONE	
MAINTENANCE/CLEANING	
NONE	
USE	
NONE	
DECOMMISSIONING/DEMOLITION	
NONE	

NDP NATIONAL DEVELOPMENT PLAN · Transport 21 · NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua · Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	07/11	MJ
C	ISSUED FOR CONSTRUCTION	08/08	
C	ISSUED FOR CONSTRUCTION	07/08	MJ
A	ISSUED FOR NRA APPROVAL	06/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	07/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	FACING PANEL THICKNESS REVISED	DJO'D	08/08	PG	MJ
	HEALTH & SAFETY CONSTRUCTION NOTE ADDED				
	PRELIMINARY ISSUE	DJO'D	06/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · SACYR · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAN UNDERBRIDGE
REINFORCED EARTH DETAILS
SHEET 3 OF 3

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 03/06/08	PG Date 03/06/08	MJ Date 03/06/08

Status X · Drawing Number 5048435/BR/DR/ST08/027 · Rev C

Z:\N6\14 As Build Submissions\Structures\ST08\A\AutoCAD\5048435-BR-DR-ST08-027 Rev C.dwg

Rev E | Status X | Drawing Number 5048435/BR/DR/ST08/040

DO NOT SCALE

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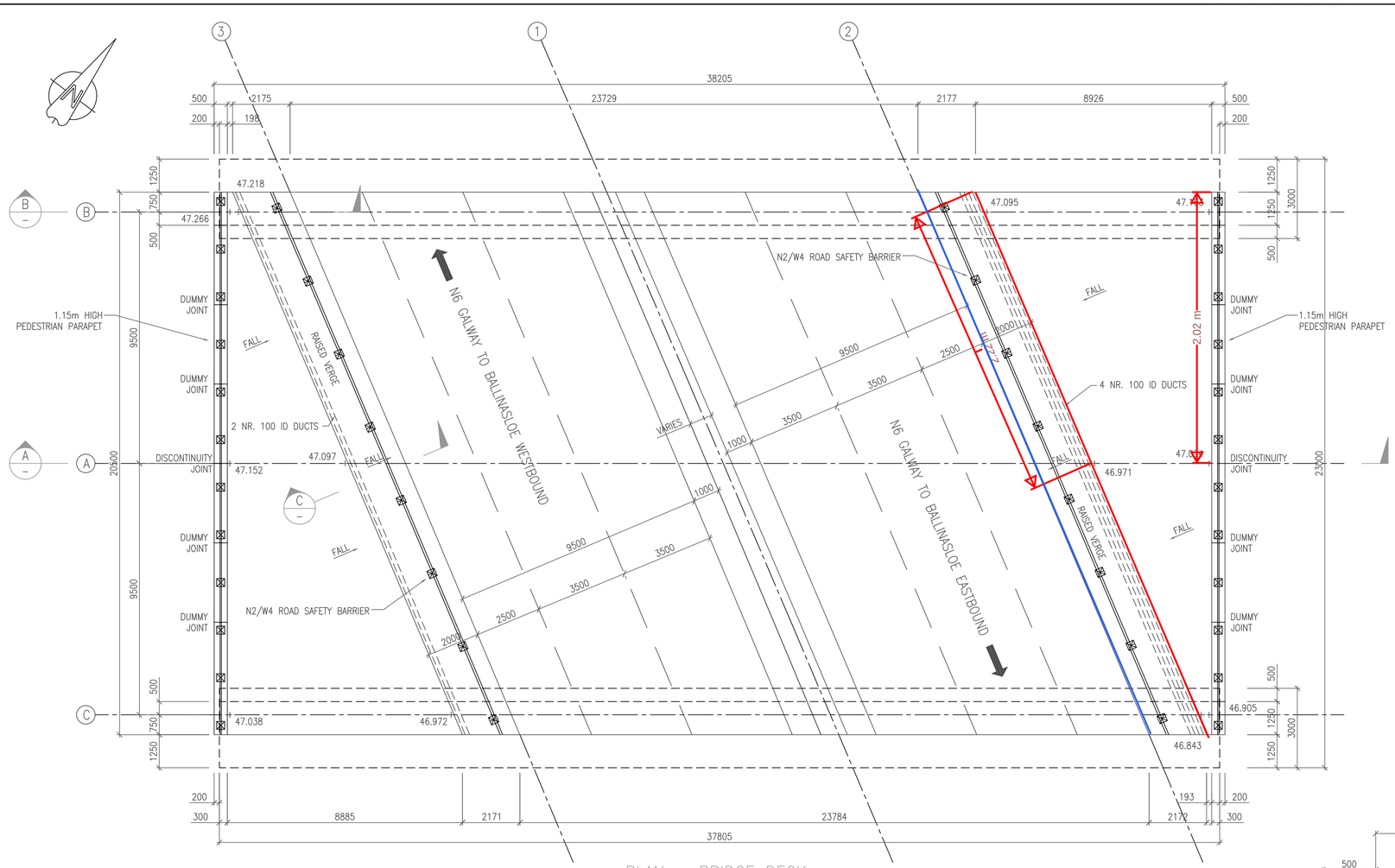
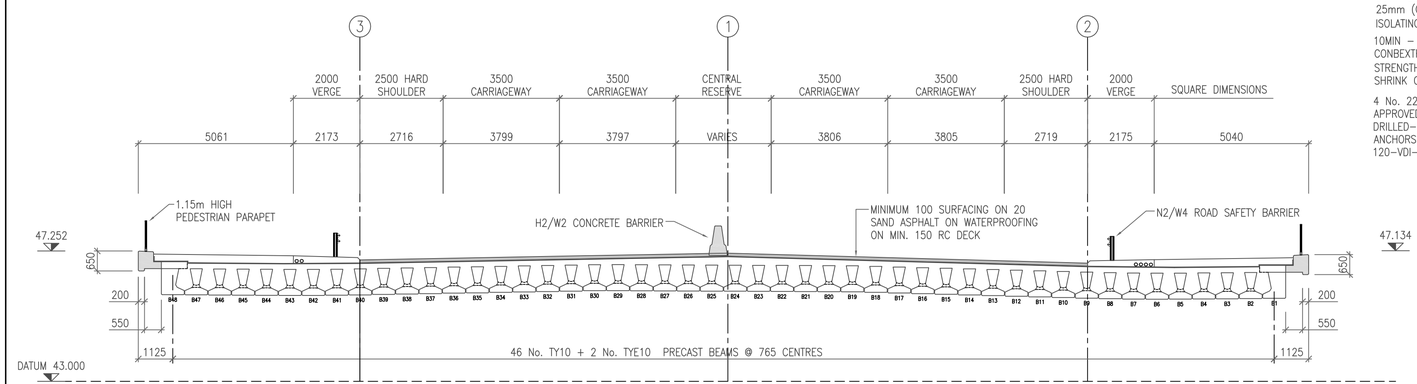
File: 5048435-BR-DR-ST08-040 Rev E.dwg Date: Feb 14, 2012 - 4:10pm Plotted by: NNaughton



PLAN – BRIDGE DECK
1:100



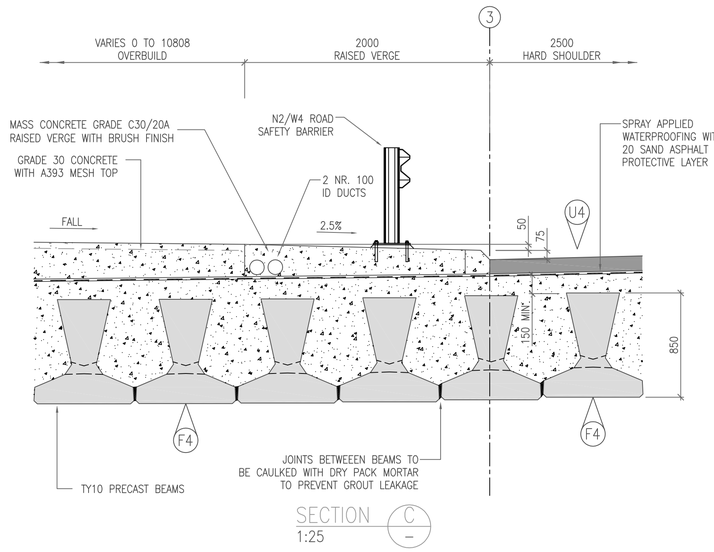
SECTION A (TAKEN ALONG GRIDLINE A)
1:100

NOTES :–

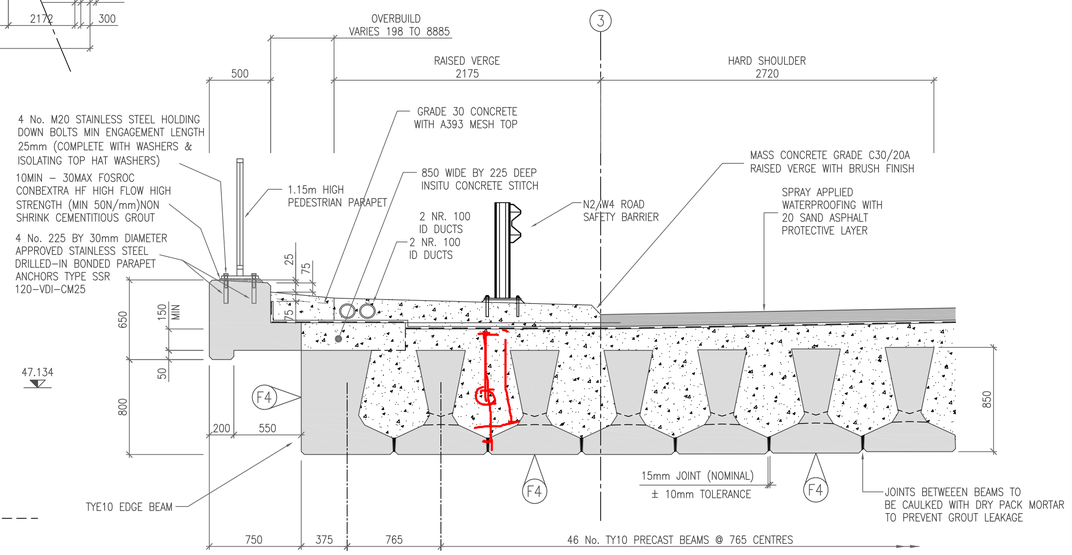
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION

NOTES :–

7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   φ ≤ 32°
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80μm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST08/045 AND 046
10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047



SECTION C
1:25



SECTION B
1:25

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — fcc CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE ST08-R348 BALLYGAURRAN UNDERBRIDGE BRIDGE DECK GENERL ARRANGEMENT

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/040	E

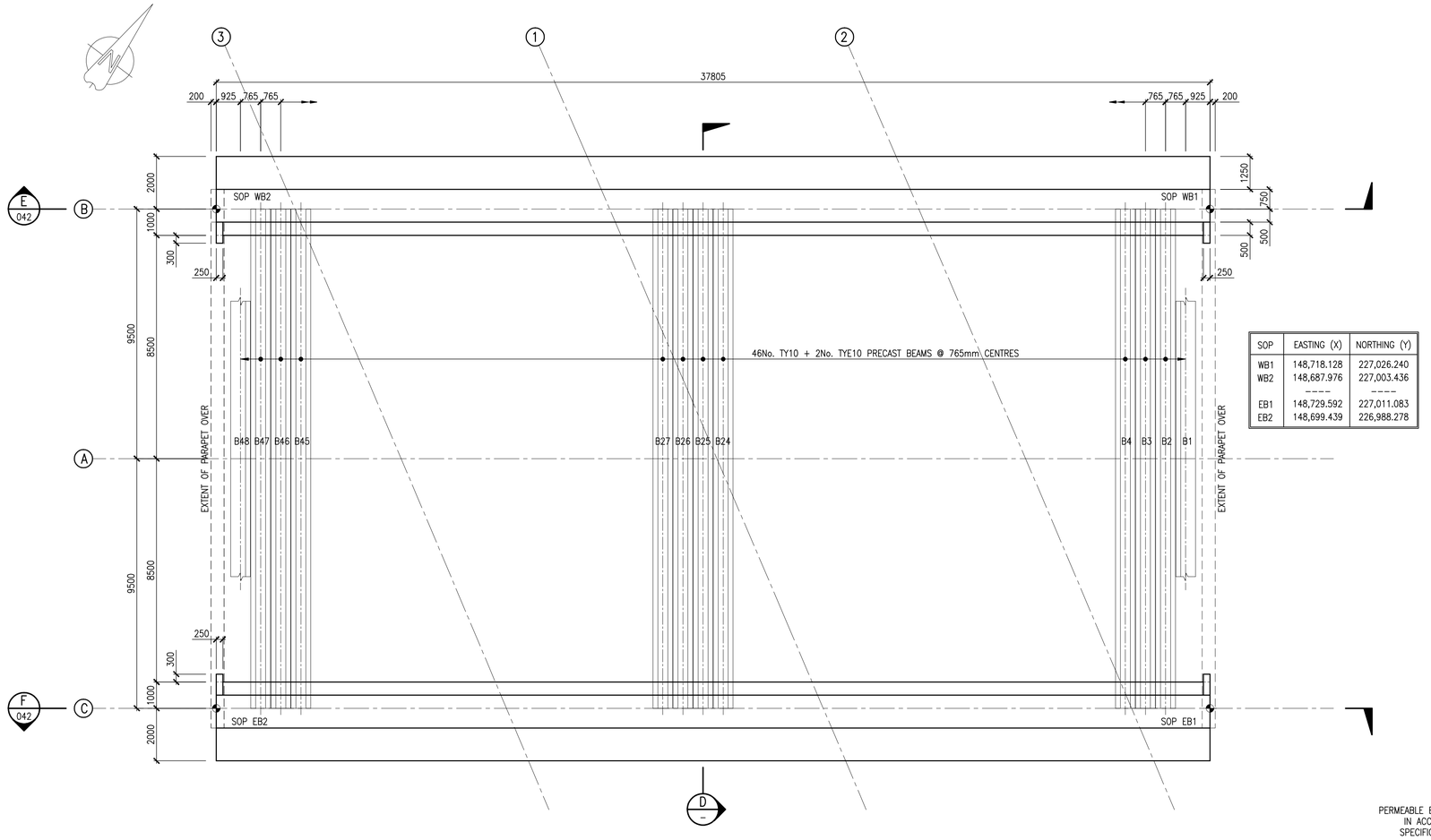
Rev C

Drawing Number 5048435/BR/DR/ST08/041

Status X

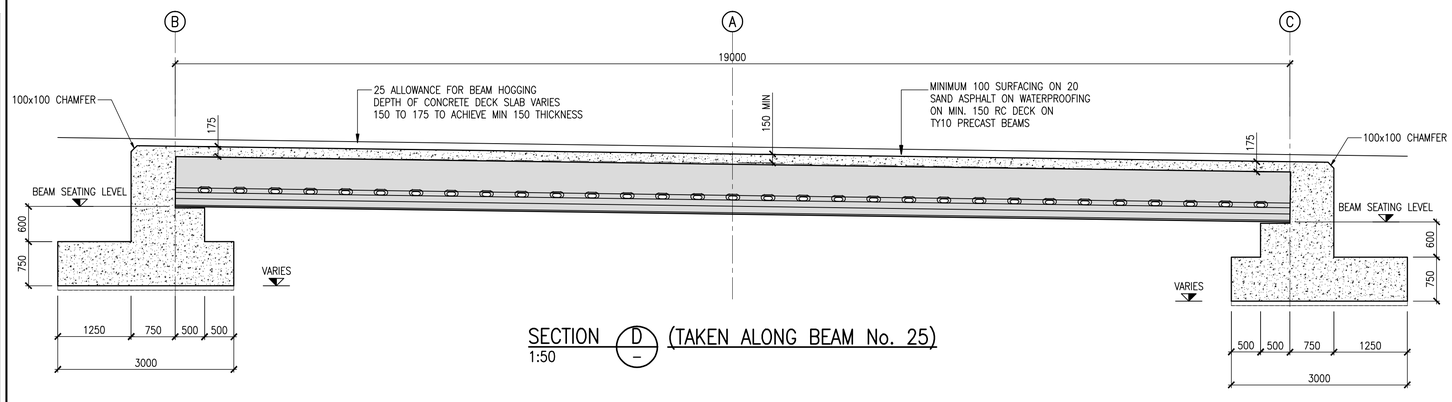
DO NOT SCALE

A1 0 10 100



SOP	EASTING (X)	NORTHING (Y)
WB1	148,718.128	227,026.240
WB2	148,687.976	227,003.436
----	----	----
EB1	148,729.592	227,011.083
EB2	148,699.439	226,988.278

PLAN – BRIDGE BANKSEATS
1:100



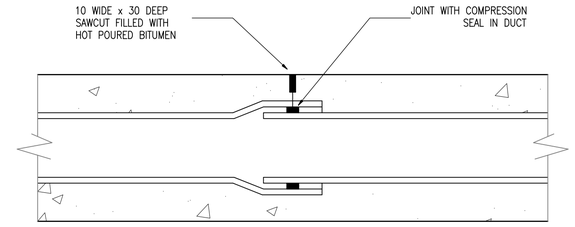
SECTION D (TAKEN ALONG BEAM No. 25)
1:50

NOTES :–

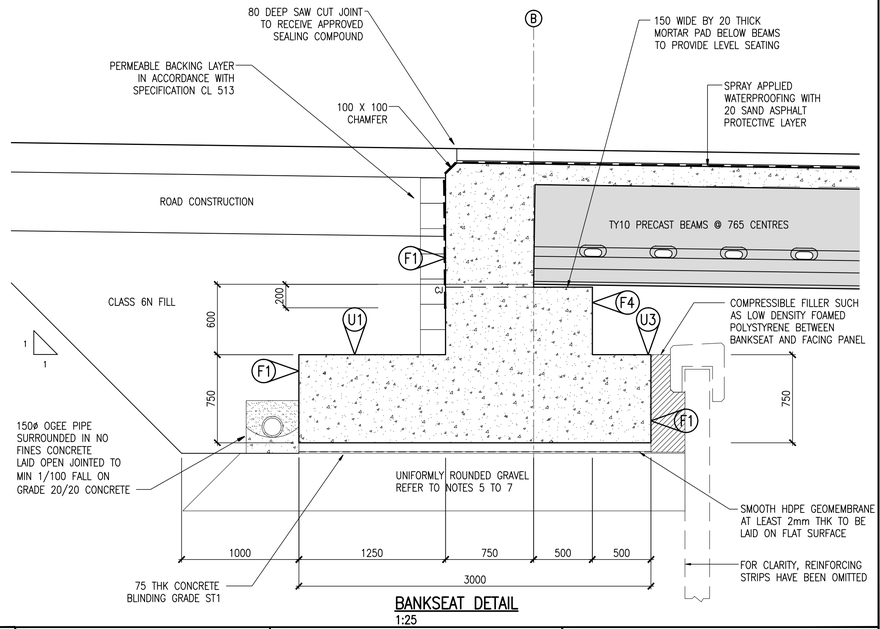
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION

NOTES :–

7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   φ ≤ 32°
   GRADING PASSING 50mm – 100%
   2mm – < 30%
   80μm – < 5%
   UNIFORMITY COEFFICIENT CU < 5
   10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
9. FOR DETAILS OF PRECAST BEAMS, REFER TO DRAWING 5048435/BR/DR/ST08/045 AND 046
10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047



MOVEMENT JOINT – SERVICE DUCTS
NTS



BANKSEAT DETAIL
1:25

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING	NONE
USE	NONE
DECOMMISSIONING/DEMOLITION	NONE

NDP NATIONAL DEVELOPMENT PLAN · Transport · NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe · Galway City Council Comhairle Cathrach na Gaillimhe · Ballinasloe Town Council Comhairle Bhaile Béal Átha na Sluaighe · Roscommon County Council Comhairle Chontae Roscomáin

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Rev	Stat	Purpose of Issue	Date	Auth
X	AS-BUILT		07/11	MJ
C	ISSUED FOR CONSTRUCTION		09/08	MJ
A	ISSUED FOR NRA APPROVAL		07/08	MJ
A	ISSUED FOR NRA APPROVAL		05/08	MJ
R	ISSUED FOR CJV REVIEW		05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
X	AS-BUILT DRAWING COMPILED ON INFORMATION	SD	07/11	PG	MJ
	SUPPLIED BY N6 CONSTRUCTION				
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited · FCC CONSTRUCCION, S.A. · Sacyr · HEGARTY

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCURRIN UNDERBRIDGE
BANKSEAT GENERAL ARRANGEMENT
SHEET 1 OF 2

AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 08/05/08	PG Date 08/05/08	MJ Date 08/05/08

Status X · Drawing Number 5048435/BR/DR/ST08/041 · Rev C

File: 5048435-BR-DR-ST08-041 Rev C.dwg
Date: Apr 07, 2011 – 3:27pm Plotted by: sdunne

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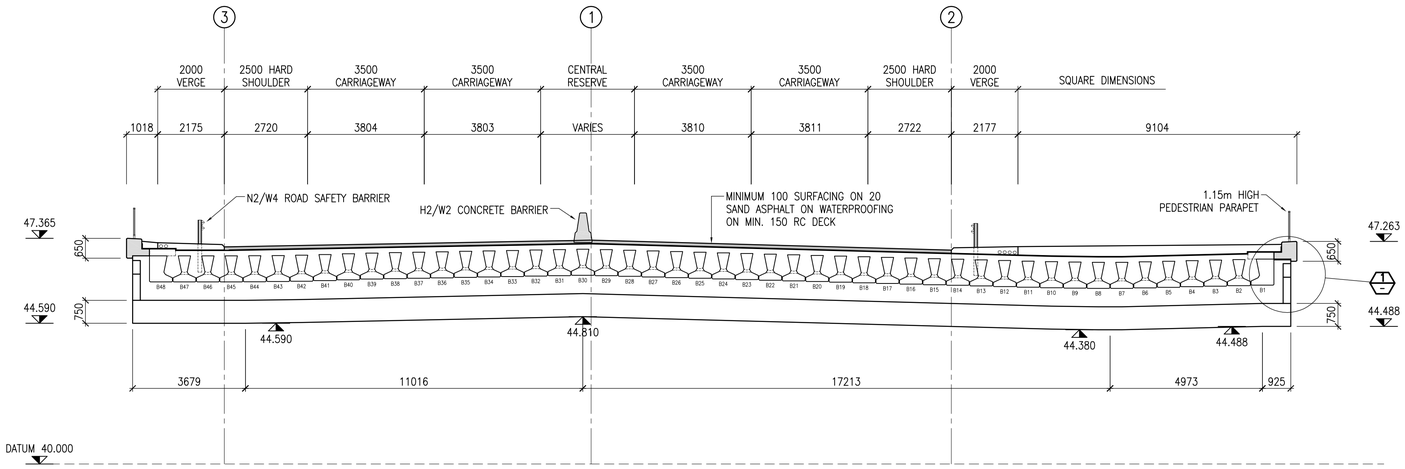
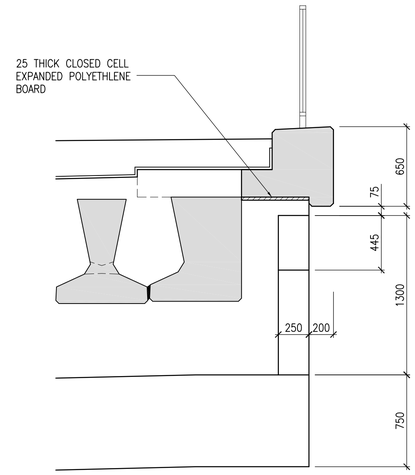
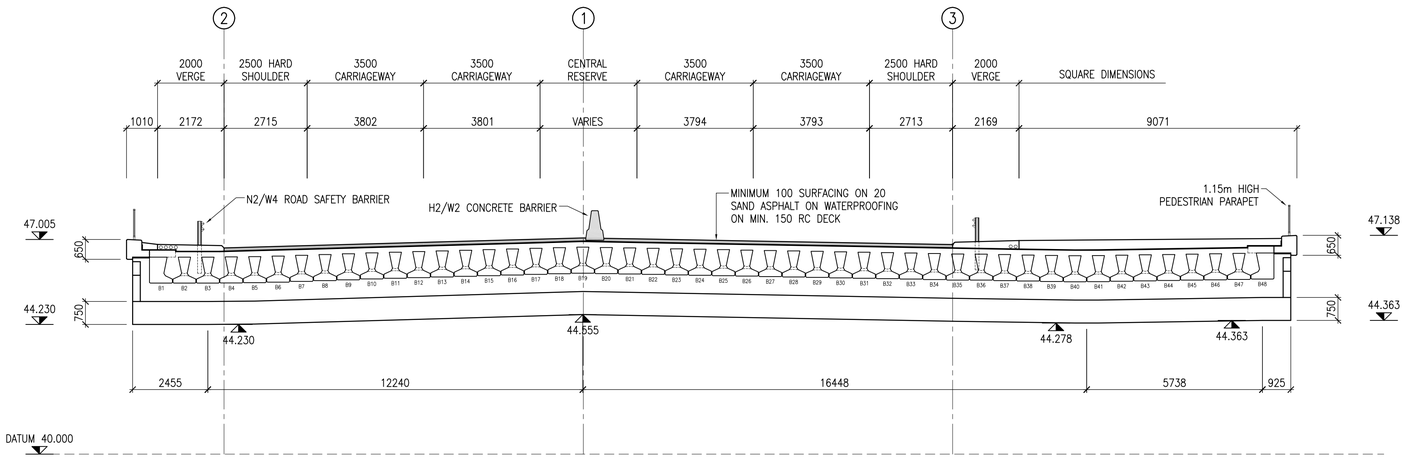


SECTION E (041) (TAKEN ALONG GRIDLINE B)
1:100



DETAIL 1 (–)
1:25



SECTION F (041) (TAKEN ALONG GRIDLINE C)
1:100

BEAM SEATING LEVELS		
BEAM NR.	WESTERN BANKSEAT GRIDLINE B	EASTERN BANKSEAT GRIDLINE C
B1	45.838	45.580
B2	45.820	45.580
B3	45.802	45.580
B4	45.784	45.587
B5	45.766	45.595
B6	45.748	45.612
B7	45.730	45.637
B8	45.730	45.662
B9	45.740	45.688
B10	45.750	45.718
B11	45.769	45.739
B12	45.790	45.761
B13	45.810	45.782
B14	45.831	45.803
B15	45.850	45.825
B16	45.871	45.846
B17	45.893	45.867
B18	45.914	45.888
B19	45.935	45.905
B20	45.956	45.892
B21	45.977	45.878
B22	45.998	45.865
B23	46.019	45.850
B24	46.040	45.837

BEAM SEATING LEVELS		
BEAM NR.	WESTERN BANKSEAT GRIDLINE B	EASTERN BANKSEAT GRIDLINE C
B25	46.061	45.823
B26	46.082	45.809
B27	46.103	45.795
B28	46.124	45.781
B29	46.146	45.767
B30	46.159	45.753
B31	46.145	45.739
B32	46.131	45.725
B33	46.117	45.712
B34	46.103	45.698
B35	46.089	45.681
B36	46.075	45.677
B37	46.061	45.662
B38	46.047	45.648
B39	46.033	45.634
B40	46.010	45.626
B41	45.986	45.629
B42	45.965	45.641
B43	45.953	45.653
B44	45.945	45.665
B45	45.941	45.677
B46	45.941	45.689
B47	45.941	45.701
B48	45.941	45.713

NOTES :–

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR RECO CONSTRUCTION SEQUENCE REFER TO DRAWING NR. 5048435/BR/DR/STD/072
4. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
5. FOR DETAILS OF REINFORCED EARTH ABUTMENTS AND WINGWALLS, REFER TO DRAWINGS 5048435/BR/DR/ST08/025, 026 AND 027
6. FORMATION FOR THE BANKSEATS SHALL CONSIST OF A 500mm THICK LAYER OF LOW FRICTION UNIFORMLY GRADED ROUNDED GRAVEL AND SHALL BE INSPECTED AND APPROVED BY THE DESIGNER PRIOR TO FOUNDATION CONSTRUCTION
7. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL ACHIEVE THE FOLLOWING REQUIREMENTS :–
   - $\Phi \leq 32°$
   - GRADING PASSING 50mm – 100%
     2mm – < 30%
     80µm – < 5%
   - UNIFORMITY COEFFICIENT CU < 5
   - 10% FINES OF MINIMUM 50 kN
8. THE UNIFORMLY GRADED ROUNDED GRAVEL SHALL BE PLACED TO ACHIEVE END PRODUCT COMPACTION TO 95% OF MAXIMUM DRY DENSITY OF BS 1377 : PART 4 (VIBRATORY HAMMER METHOD)
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10. FOR DETAILS OF PRECAST PARAPETS, REFER TO DRAWING 5048435/BR/DR/ST08/047

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILES ON INFORMATION	SD	07/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
D	REVISIONS CLOUDED	PP	02/10	CM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	07/11	PF
C	ISSUED FOR CONSTRUCTION	02/10	PF
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Client: Sacyr

Designer: ATKINS — WS Atkins Ireland Limited © — Consulting Engineers, Atkins House, 150–155 Airside Business Park, Swords, Co. Dublin. Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
BANKSEAT GENERAL ARRANGEMENT
SHEET 2 OF 2

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
C	5048435/BR/DR/ST08/042	D

Rev D | Status C | Drawing Number 5048435/BR/DR/ST08/042 | DO NOT SCALE | A1 | 0 10 100

File: 5048435–BR–DR–ST08–042 Rev D.dwg Date: Apr 07, 2011 – 12:16pm Plotted by: dcourtney

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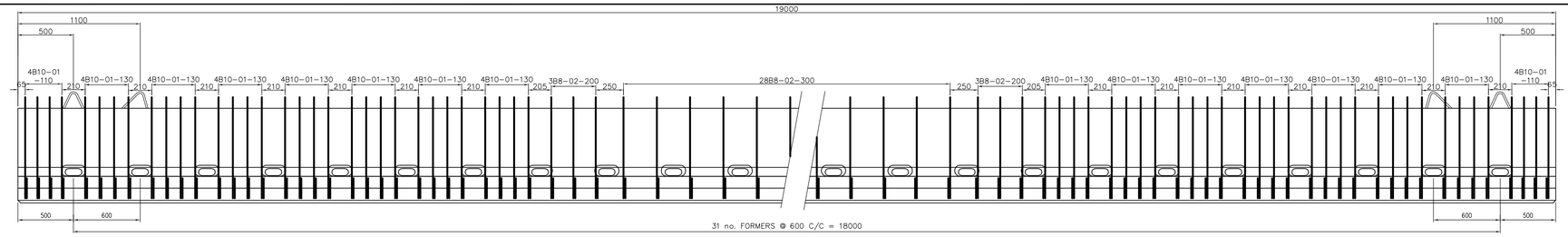
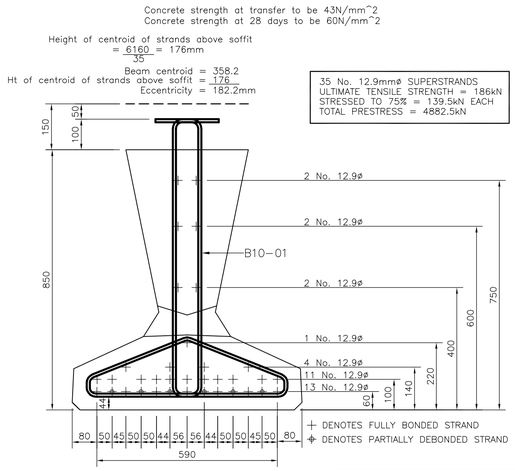
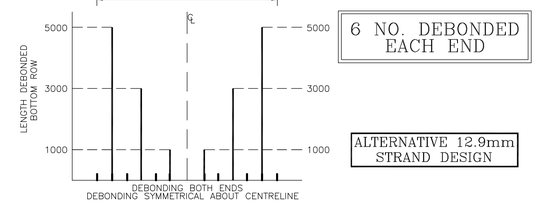


ELEVATION OF TY10 BEAM SHOWING REINFORCING (1:25)
STRUCTURE 8 (46no)

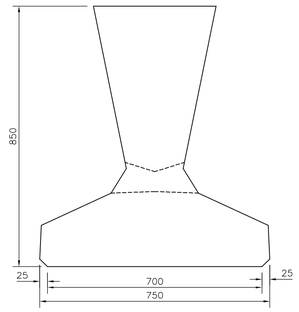




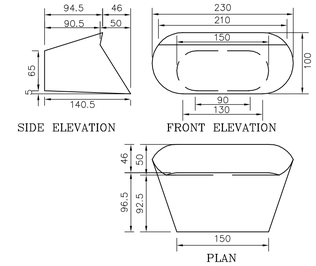
6 NO. DEBONDED EACH END

ALTERNATIVE 12.9mm STRAND DESIGN

SECTION THROUGH TY10 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STRUCTURE-08
19000 LONG, 46 NO. IN TOTAL



SECTION THROUGH TY10 BEAM (1:10)



DETAILED TY BEAM FORMER (1:5)

BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
TY10 FOR STR 08

Bar schedule ref: 05 69 74 5 Rev letter

Date prepared Date revised

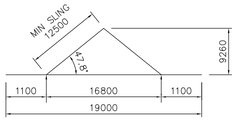
Prepared by Checked by

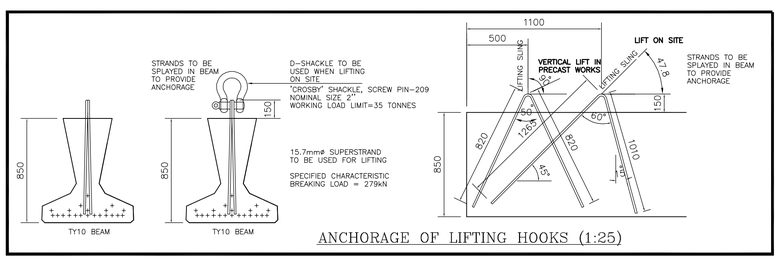
Member BEAM LENGTH	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TY10 – STR 08	01	B10	46	64	2944	3250	99	908	65	353	73	207 / 151 / 328 / 374 / 656 / 196
	02	B8	46	34	1564	3250	99	906	62	351	73	207 / 148 / 326 / 370 / 652

This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm

NOTES

1./ Concrete strength at transfer for to be:
TY10 = 42.5N/mm2.
TYE10 = 37N/mm2.
2./ Concrete strength at 28 days to be:
TY10 = 60N/mm2.
TYE10 = 60N/mm2.
3./ Steel reinforcements to BS4449-05. (GRADE B500B)
4./ Prestressing steel to E.N. 10138-3.
5./ Nominal cover to steel =40mm at soffit of TYbeams.
6./ Beam wts TY10 = 15.6T TYE10 = 22.9T
7./ Strand may project up to 175mm (HALF OF GAP).
8./ Surface Finishes To All Formed Surfaces Shall be F4.
9./ Lifting:





ANCHORAGE OF LIFTING HOOKS (1:25)

NOTES :-
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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X	AS-BUILT	04/11	TM	C	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ		SUPPLIED BY N6 CONSTRUCTION				
A	ISSUED FOR NRA APPROVAL	07/08	MJ	C	REVISED PRECAST BEAM STRAND ARRANGEMENT	DJO'D	09/08	PG	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ	B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ	A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ
Stat	Purpose of Issue	Date	Auth	Rev	Description	By	Date	Chk'd	Auth

Contractor

Designer

ATKINS™
WS Atkins Ireland Limited ©
Consulting Engineers,
Atkins House,
150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
TY10 PRECAST BEAM DETAILS
AS-BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/045	C

Rev C
Status X
Drawing Number 5048435/BR/DR/ST08/045
DO NOT SCALE
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Date: Apr 08, 2011 - 12:04pm Plotted by: dcourtney
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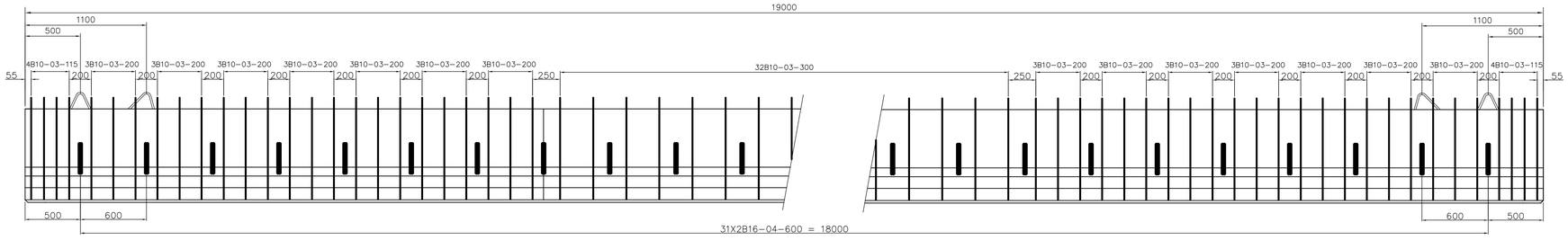
Rev B | Drawing Number 5048435/BR/DR/ST08/046 | Status X | DO NOT SCALE | A1



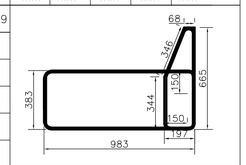
ELEVATION OF TYE10 BEAM SHOWING REINFORCING (1:25)
STRUCTURES 8 (2no)

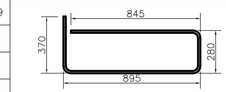
BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
TYE10 FOR STR 8

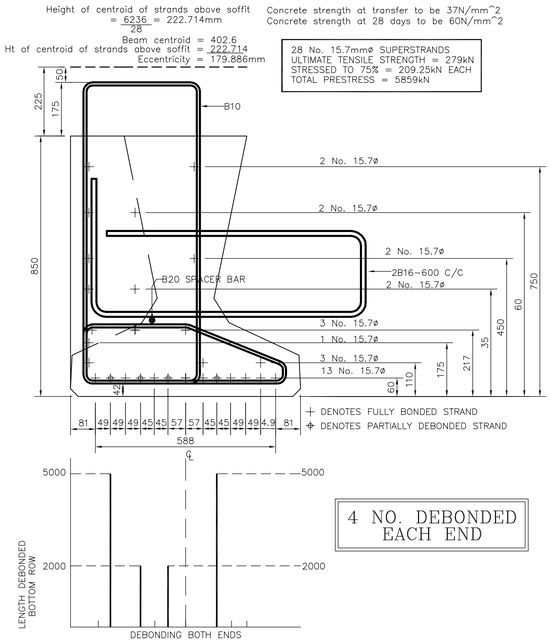
Bar schedule ref: 0 5 6 9 7 4 5 Rev letter
Date prepared Date revised
Prepared by Checked by

Member BEAM LENGTH	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar † mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
TYE10 –STRS 8,10,13 & 17	03	B10	8	82	656	3865	99					
TYE10 –STRS 8,10,13 & 17	04	B16	8	62	496	2295	99					

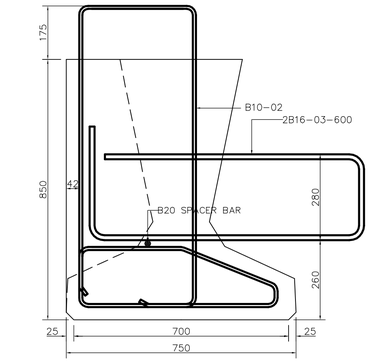




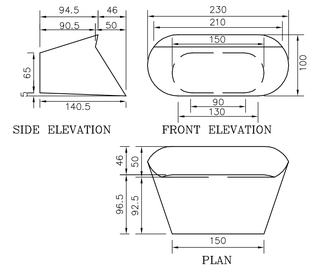
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm



SECTION THROUGH TYE10 BEAM (1:10)
N6 GALWAY TO BALLINASLOE
STRUCTURES–08(2)–10(2)–13(2)–17(2)
19000 LONG, 8 NO. IN TOTAL



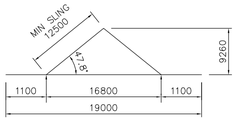
SECTION DETAILING DIMENSIONS TYE10 (1:10)

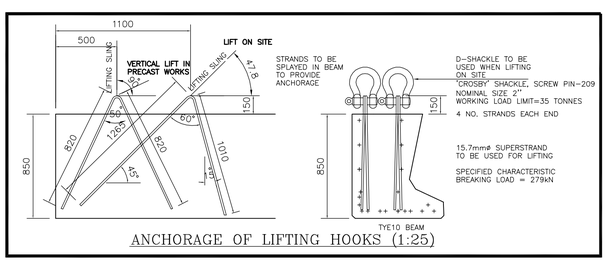


DETAILED TY BEAM FORMER (1:5)

NOTES

1./ Concrete strength at transfer for to be:
TY10 = 42.5N/mm2.
TYE10 = 37N/mm2.
2./ Concrete strength at 28 days to be:
TY10 = 60N/mm2.
TYE10 = 60N/mm2.
3./ Steel reinforcements to BS4449–05. (GRADE B500B)
4./ Prestressing steel to E.N. 10138–3.
5./ Nominal cover to steel =40mm at soffit of TYbeams.
6./ Beam wts TY10 = 15.6T TYE10 = 22.9T
7./ Strand may project up to 175mm (HALF OF GAP).
8./ Surface Finishes To All Formed Surfaces Shall be F4.
9./ Lifting:





ANCHORAGE OF LIFTING HOOKS (1:25)

NOTES :–
1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
B	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Contractor

Designer
ATKINS
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Consulting Engineers,
Atkins House,
150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08–R348 BALLYCAURRAUN UNDERBRIDGE
TYE10 PRECAST CONCRETE BEAM DETAILS
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/046	B

File: 5048435–BR–DR–ST08–046 Rev B.dwg Date: Apr 08, 2011 – 11:50am Plotted by: dcourtney

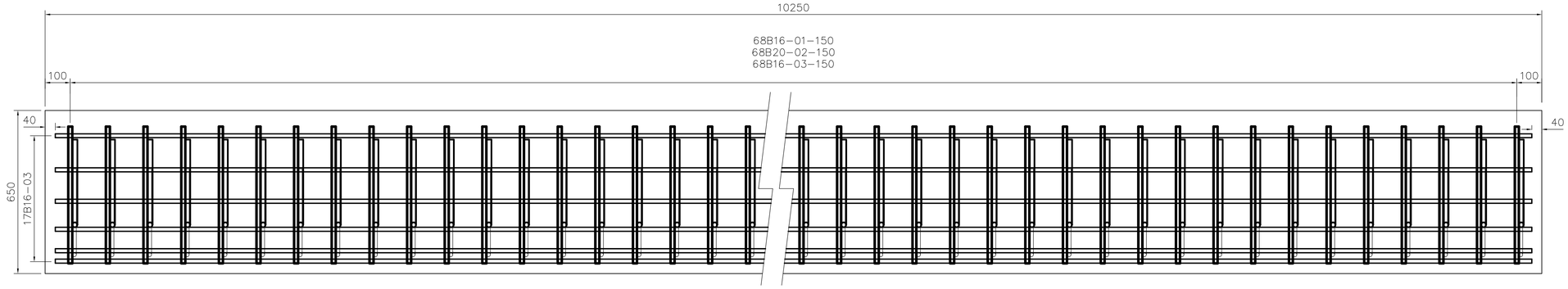
Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435–BR–DR–ST08–046 Rev B.dwg

Rev C | Status X | Drawing Number 5048435/BR/DR/ST10/047

DO NOT SCALE

100 0 10

A1

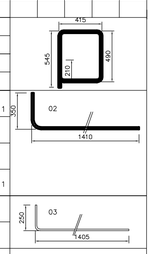


ELEVATION OF PRECAST CANTILEVER (1:10)
SHOWING REINFORCEMENT 4 NO. REQUIRED

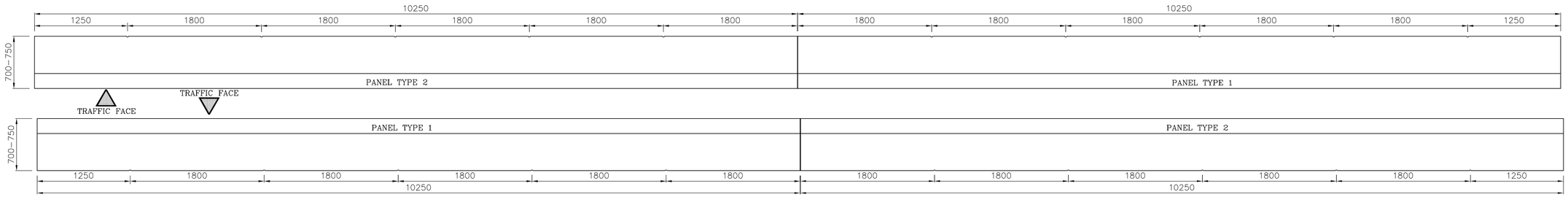
BANACHER CONCRETE LTD

Project: N6 GALWAY TO BALLINASLOE
STRUCTURE 08
PRECAST PANELS

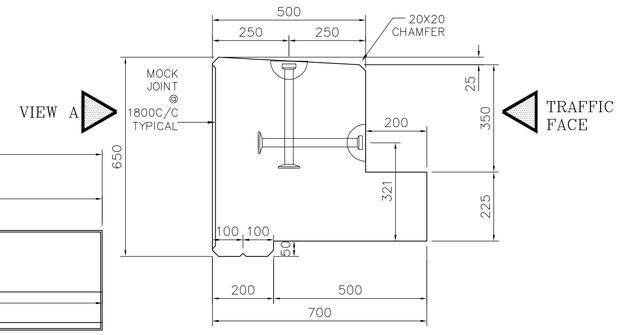
Member	Bar mark	Type and Size	No of mbrs	No of bars in each	Total no	Length of each bar T mm	Shape code	All Outside Dimensions A mm	B mm	C mm	D mm	E/R mm
PANELS	01	B16	4	68	272	1950	41	545	415	490	415	210
	02	B20	4	68	272	1725	11					
	03	B16	4	68	272	1625	11					
	04	B16	4	17	68	10175	00					



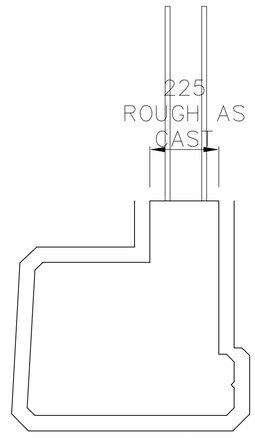
This schedule complies with the requirements of BS 8666
*Specified in multiples of 5 mm. † Specified in multiples of 25 mm



LAYOUT OF PANELS (1:30)

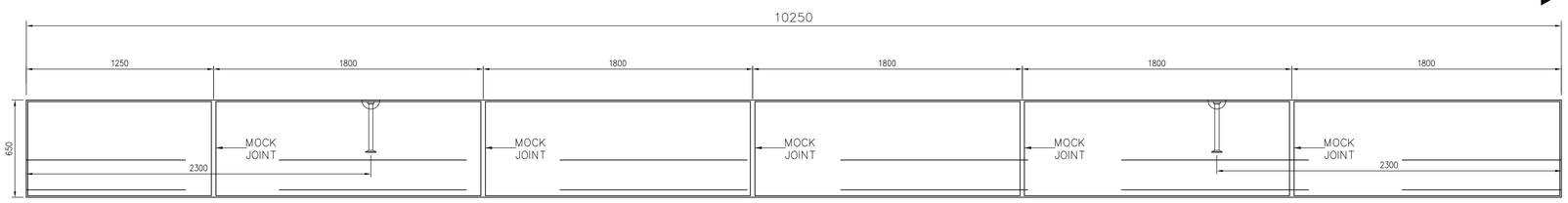


SECTION THROUGH PRECAST CANTILEVER (1:10)

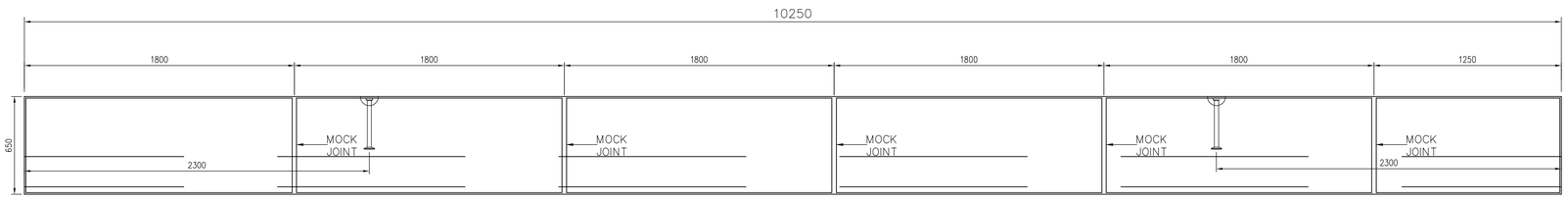


STEEL MOULD (F3)

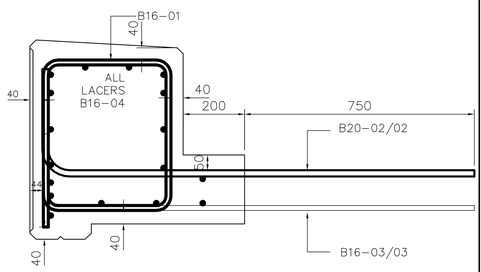
SURFACE FINISHES (1:10)



ELEVATION OF PRECAST CANTILEVER (1:10) (VIEW A,TYPE 1)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



ELEVATION OF PRECAST CANTILEVER (1:10) (VIEW A,TYPE 2)
SHOWING MOCK JOINT AND PARAPET POSITION 2 NO. REQUIRED



SECTION THROUGH PRECAST CANTILEVER (1:10)

CONCRETE TO CONTAIN MIN 50% GGBS

ANCHORS FOR PARAPETS TO BE DRILLED ON SITE

NOTES :-

1. FOR GENERAL NOTES AND CONCRETE GRADES, REFER TO DRAWING NR. 5048435/BR/DR/STD/050.
2. FOR STANDARD DETAILS REFER TO DRAWING NR. 5048435/BR/DR/STD/071
3. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NR. 5048435/BR/DRA/ST08/2155
4. FOR GENERAL ARRANGEMENT DRAWINGS, REFER TO DRAWINGS 5048435/BR/DR/ST08/040 TO 042
5. CONCRETE GRADE SHALL BE 50/20B AS PER THE SPECIFICATION
6. SURFACES FINISHES SHALL BE AS SHOWN.
7. CONCRETE COVER TO REINFORCEMENT TO BE AS SHOWN
8. WEIGHT OF PARAPETS 10250 LONG = 8.9T EACH
9. SITE LIFTING = 2NO. 7.5t CAPSTANS 350 LONG
10. SHEAR LINKS (BAR MARK 01) SHALL BE PLACED TO AVOID THE MOCK JOINT.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
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NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

NDP NATIONAL DEVELOPMENT PLAN | Transport 21 | NRA National Roads Authority An tÚdarás um Bóithre Náisiúnta

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Atha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
C	AS-BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPLIED BY N6 CONSTRUCTION				
C	PARAPET ANCHORAGES REMOVED	DJO'D	09/08	PG	MJ
B	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
A	PRELIMINARY ISSUE	JMCM	05/08	PG	MJ

N6 Concession Limited

Contractor: N6 [construction] limited — FCC CONSTRUCCION, S.A. | Sacyr | HEGARTY

Designer: ATKINS — *WS Atkins Ireland Limited* ©
Consulting Engineers, Atkins House, 150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000 Fax: (+353) 01 890 9001 www.atkinsglobal.com

Title: N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYGAURRAUN UNDERBRIDGE
PRECAST PARAPET DETAILS
PRECAST PARAPET DETAILS

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	JMcM Date 22/05/08	PG Date 22/05/08	MJ Date 22/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/047	C

AS BUILT

File: 5048435-BR-DR-ST08-047 Rev C.dwg Date: Apr 08, 2011 - 11:41am Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-047 Rev C.dwg

Rev D | Status X | Drawing Number 5048435/BR/DR/ST08/050

DO NOT SCALE

A1

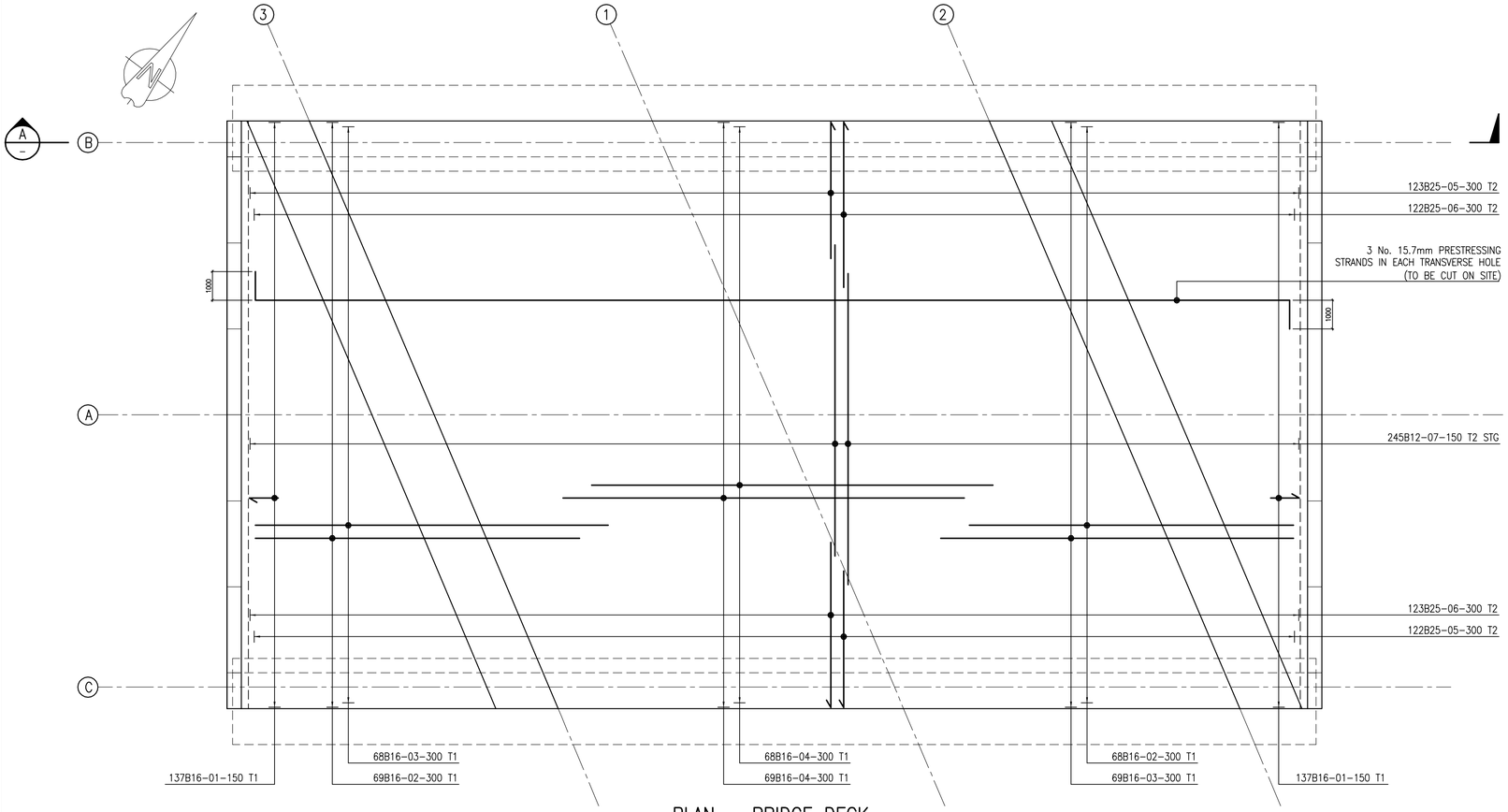
NOTES :–

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS–ST08–050–01 INCL.

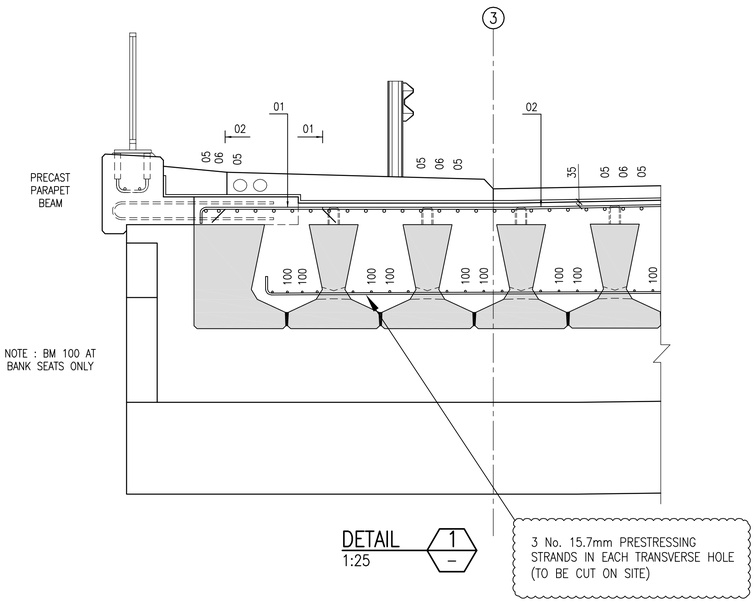
COVER :–

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

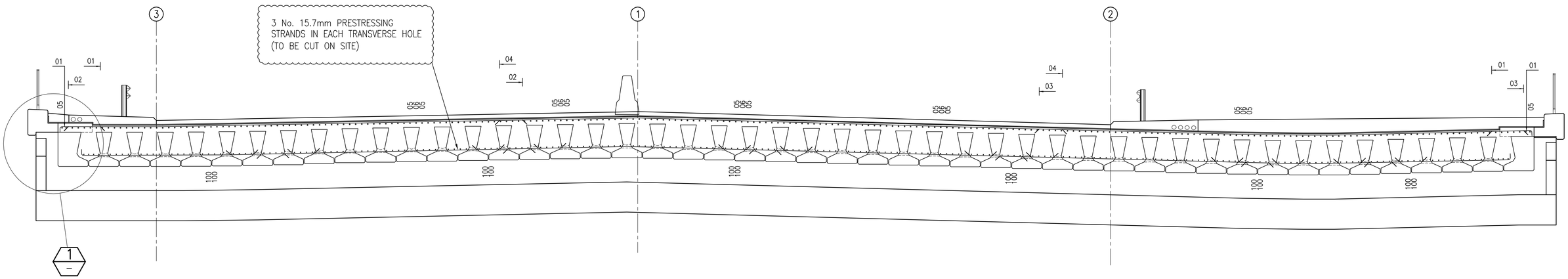
TOP OF DECK SLAB 35MM



PLAN – BRIDGE DECK
1:100



DETAIL 1/– 1:25



SECTION A/– (TAKEN ALONG GRIDLINE B)
1:50

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE
MAINTENANCE/CLEANING
NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS–BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	02/10	PF
A	FOR APPROVAL	02/09	PF
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS–BUILT DRAWING COMPILED ON INFORMATION	DC	04/11	PF	TM
	SUPPILED BY N6 CONSTRUCTION				
D	FULL SUBMISSION MDC–ST–54	DC	02/09	FM	PF
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

N6 Concession Limited

Client

Designer

ATKINS
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Consulting Engineers,
Atkins House,
150–155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08–R348 BALLYGAURRAUN UNDERBRIDGE
BRIDGE DECK REINFORCEMENT DETAILS
AS BUILT

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/050	D

File: 5048435–BR–DR–ST08–050 Rev D.dwg
Date: Apr 08, 2011 – 11:30am Plotted by: dcourtney

Z:\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435–BR–DR–ST08–050 Rev D.dwg

Rev D
Status X
Drawing Number 5048435/BR/DR/ST08/051

DO NOT SCALE

A1

0 10 100

File: 5048435-BR-DR-ST08-051 Rev D.dwg
Date: Apr 19, 2012 - 6:21pm Plotted by: dcourtney

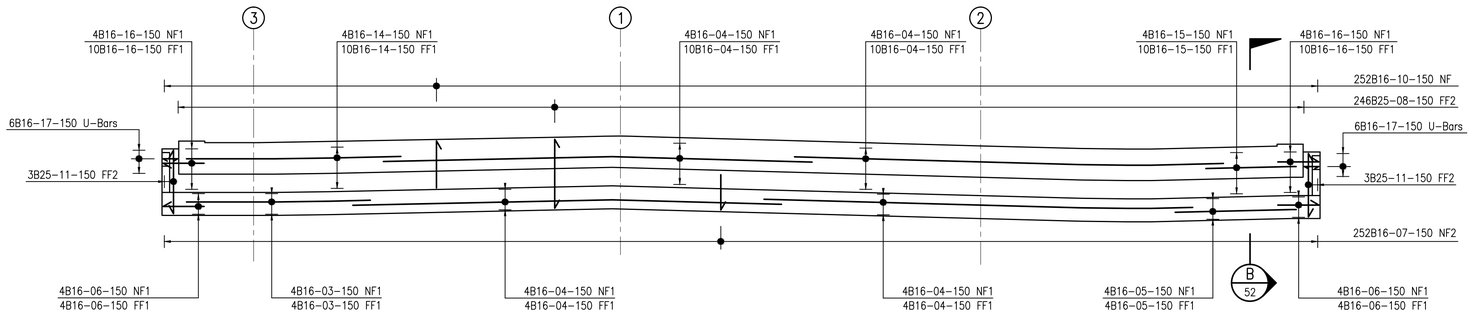
NOTES :-

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS-ST08-051-01,02 & 03.

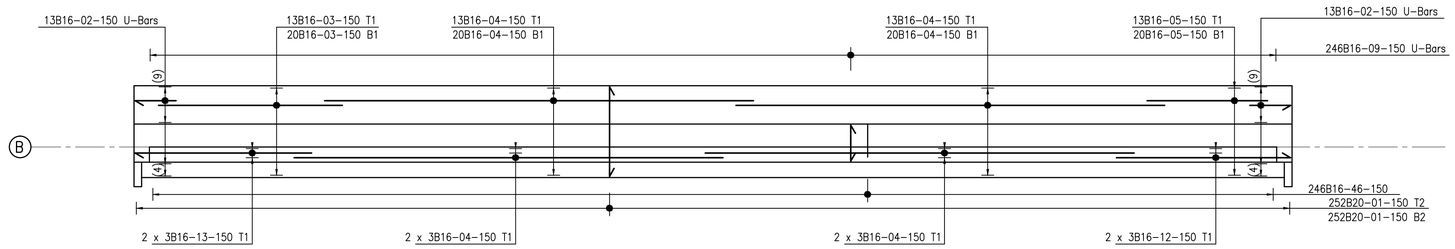
COVER :-

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

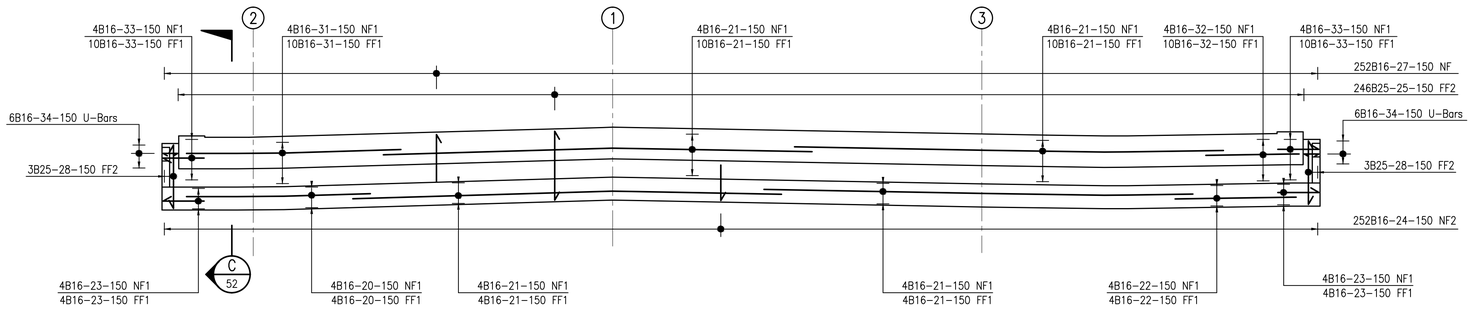
BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM



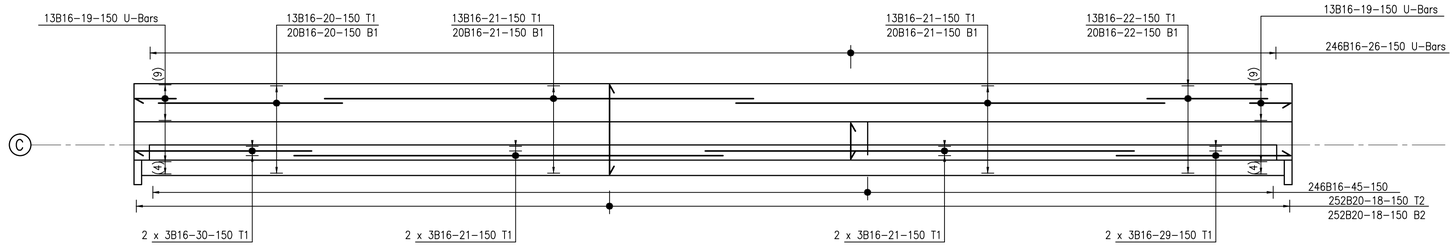
ELEVATION – WESTERN BANKSEAT
1:100



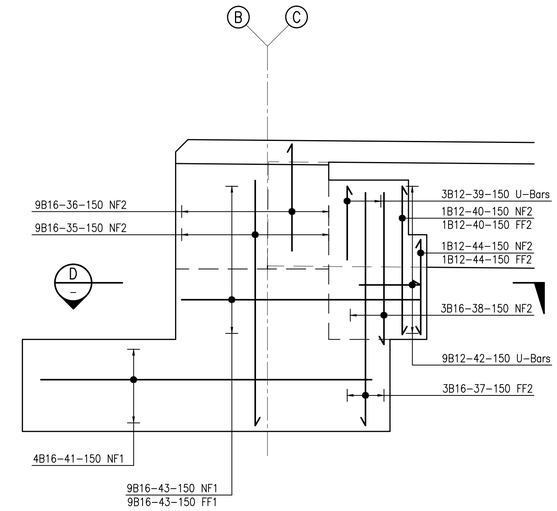
PLAN – WESTERN BANKSEAT
1:100



ELEVATION – EASTERN BANKSEAT
1:100



PLAN – EASTERN BANKSEAT
1:100



END WALL ELEVATION – BANKSEAT
1:25

4 NR. THUS
(2 PER BANKSEAT)

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
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NONE
USE
NONE
DECOMMISSIONING/DEMOLITION
NONE

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	04/11	TM
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
C	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/11	PF	TM
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Client

Designer

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Consulting Engineers,
Atkins House,
150-155 Airside Business Park, Swords, Co. Dublin.
Tel: (+353) 01 890 9000
Fax: (+353) 01 890 9001
www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN UNDERBRIDGE
BANKSEAT REINFORCEMENT DETAILS
SHEET 1 OF 2
AS BUILT

Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/051	D

P:\ZDrive\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-051 Rev D.dwg

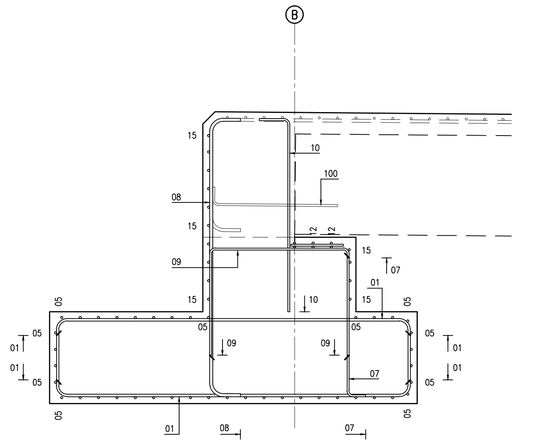
Rev D

Status X

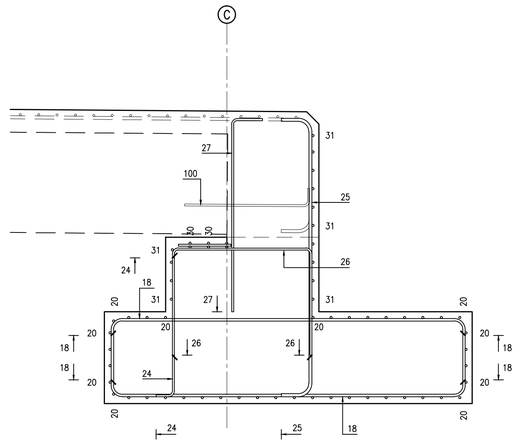
Drawing Number 5048435/BR/DR/ST08/052

DO NOT SCALE

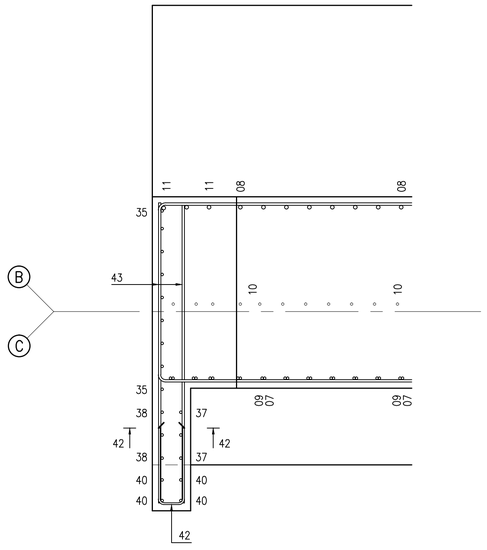
A1



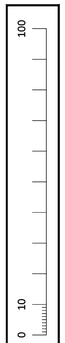
SECTION B 051
1:20



SECTION C 051
1:20



SECTION D —
1:20



NOTES :-

1. FOR GENERAL NOTES REFER TO DRAWING NO. 5048435/BR/DR/STD/050.
2. FOR DESIGN RISK ASSESSMENT REFER TO DOCUMENT NO. 5048435/BR/DRA/ST08/2155
3. BAR BENDING SCHEDULE REFERENCE BS-ST08-051-01,02 & 03.

COVER :-

UNLESS OTHERWISE NOTED ON THE DRAWING, NOMINAL COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:

BANKSEAT BASE	40MM
BANKSEAT UPSTAND	40MM

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
KARST CONDITIONS MAY BE PRESENT AT THIS STRUCTURE

MAINTENANCE/CLEANING
NONE

USE
NONE

DECOMMISSIONING/DEMOLITION
NONE

Galway County Council Comhairle Chontae na Gaillimhe | Galway City Council Comhairle Cathrach na Gaillimhe | Ballinasloe Town Council Comhairle Bhaile Béal Átha na Slua | Roscommon County Council Comhairle Chontae Roscomáin

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Stat	Purpose of Issue	Date	Auth
X	AS-BUILT	04/12	TM
X	AS-BUILT	07/11	MJ
C	ISSUED FOR CONSTRUCTION	09/08	MJ
A	ISSUED FOR NRA APPROVAL	07/08	MJ
A	ISSUED FOR NRA APPROVAL	05/08	MJ
R	ISSUED FOR CJV REVIEW	05/08	MJ

Rev	Description	By	Date	Chk'd	Auth
D	AS-BUILT DRAWING COMPILED ON INFORMATION SUPPLIED BY N6 CONSTRUCTION	DC	04/12	JB	TM
C	AS-BUILT DRAWING COMPILED ION INFORMATION SUPPLIED BY N6 CONSTRUCTION	SD	07/11	PF	TM
C	INCORPORATING NRA COMMENTS	DJO'D	07/08	PG	MJ
B	INCORPORATING CJV COMMENTS	JMcM	05/08	PG	MJ
A	PRELIMINARY ISSUE	DJO'D	05/08	PG	MJ

Contractor

Designer

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Tel: (+353) 01 890 9000
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www.atkinsglobal.com

Title
N6 GALWAY TO BALLINASLOE
ST08-R348 BALLYCAURRAUN UNDERBRIDGE
BANKSEAT REINFORCEMENT DETAILS
SHEET 2 OF 2

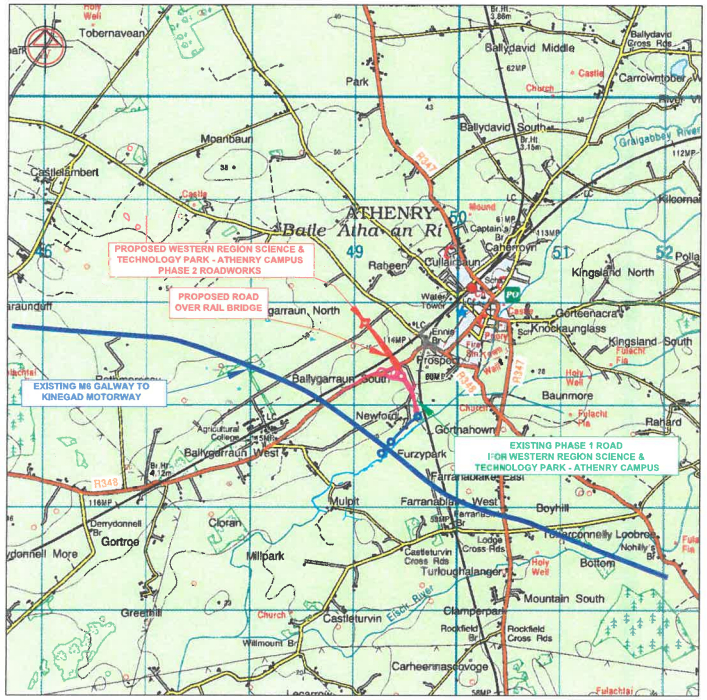
AS BUILT

Size	Original Scale	Drawn	Checked	Authorised
A1	As Shown	DJO'D Date 06/05/08	PG Date 06/05/08	MJ Date 06/05/08

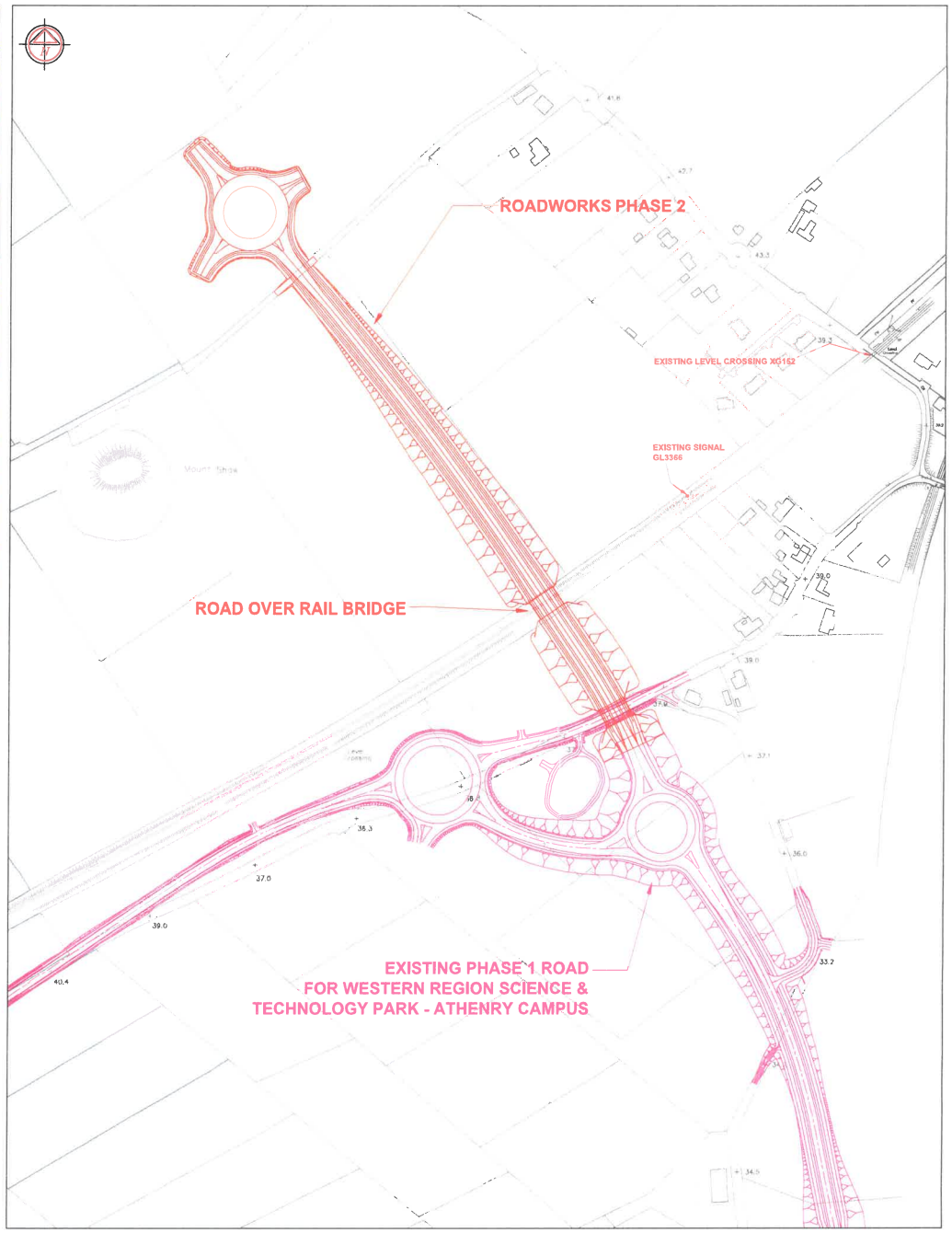
Status	Drawing Number	Rev
X	5048435/BR/DR/ST08/052	D

File: 5048435-BR-DR-ST08-052 Rev D.dwg
Date: Apr 19, 2012 - 6:27pm Plotted by: dcourtney

P:\ZDrive\N6\14 As Build Submissions\Structures\ST08\Autocad\5048435-BR-DR-ST08-052 Rev D.dwg



SITE LOCATION MAP (Scale =1:25000 A1)



SITE LOCATION MAP (Scale =1:2000 A1)

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
C	29/11/2016	AL	PROJECT NAME UPDATED ROAD PLAN UPDATED	RW	DPH
B	02/12/2015	RW	M6 AND PHASE 1 ROAD INDICATED AS 'EXISTING'	DPH	DPH
A	FEB. 2010	IGF	POSITION OF LEVEL CROSSING AND SIGNAL ADDED TO 1:2000 PLAN	DPH	DPH

REVISIONS

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DRAWING STATUS

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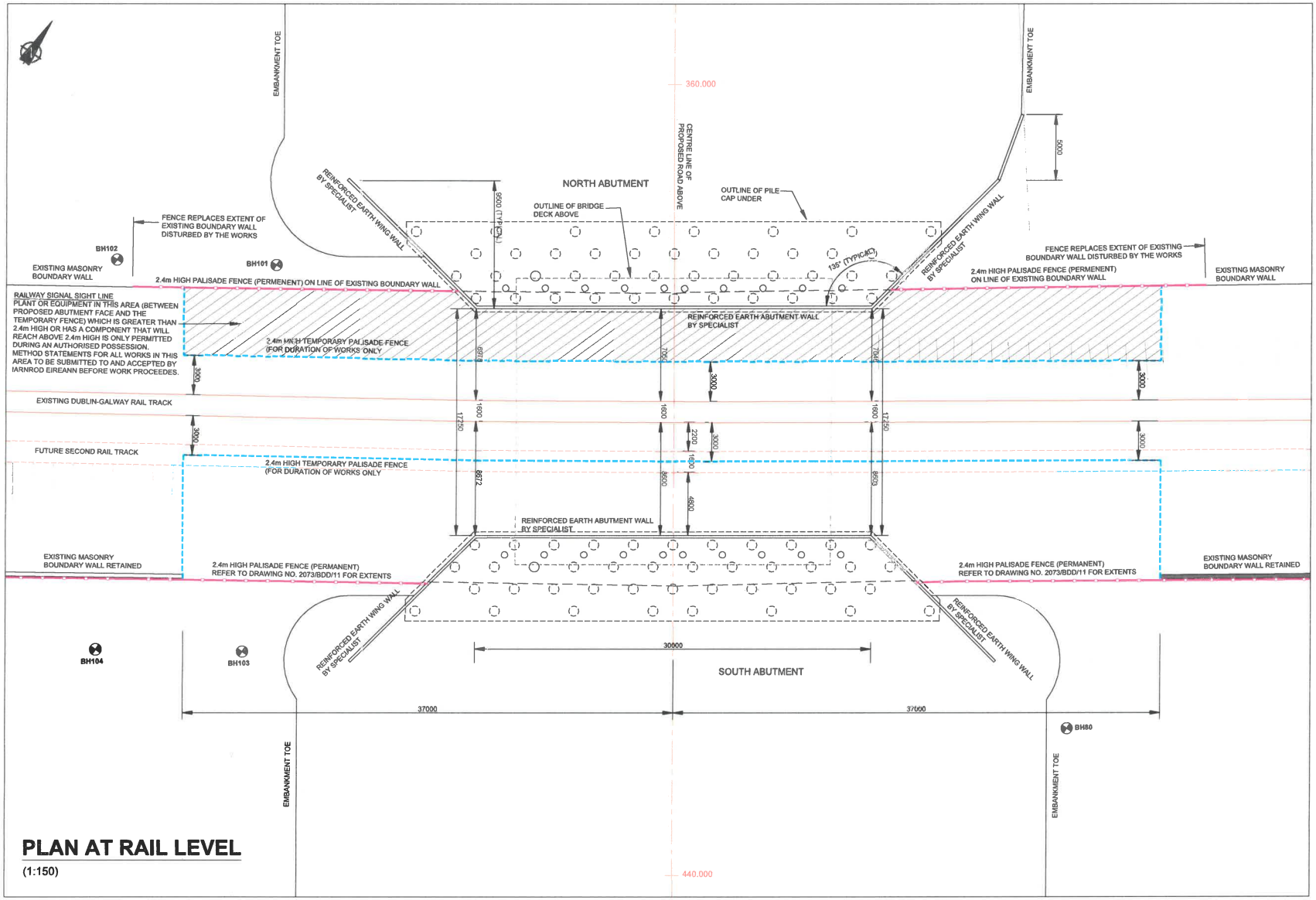
PROJECT
IDA IRELAND ATHENRY
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE
ROAD OVER RAIL BRIDGE
SITE LOCATION MAP

SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
AS NOTED @ A1	SEPT 2009	IGF	DPH	DPH

JOB No.	DRAWING No.	REV.
2073	2073/BDD/01	C



PLAN AT RAIL LEVEL

(1:150)

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
F	NOV. 2016	AL	PROJECT NAME UPDATED	RW	DPH
E	APRIL 2011	IGF	STEEL COLUMNS REPLACED WITH CONCRETE. NOTE REGARDING SIGNAL SIGHT LINE ADDED	DPH	DPH
D	JULY 2010	IGF	PILED FOUNDATIONS ADDED. STEELWORK SUPPORT ADDED TO SOUTH ABUTMENT. DECK LENGTH AMENDED.	DPH	DPH
C	MAY 2010	IGF	FOUNDATION AND COLUMNS ADDED TO NORTH ABUTMENT.	DPH	DPH
B	APR. 2010	IGF	EXTENT OF WING WALL TO EAST OF NORTH ABUTMENT EXTENDED. EARTHWORKS EXTENTS AMENDED.	DPH	DPH
A	FEB. 2010	IGF	PALLISADE FENCING NOTED AS "PERMANENT" WHERE APPLICABLE. EXTENTS OF PERMANENT FENCING ON SOUTHERN BOUNDRY OF RAILWAY LANDS EXTENDED AND CROSS REFERENCED TO DRAWING 2073/BDD/11	DPH	DPH

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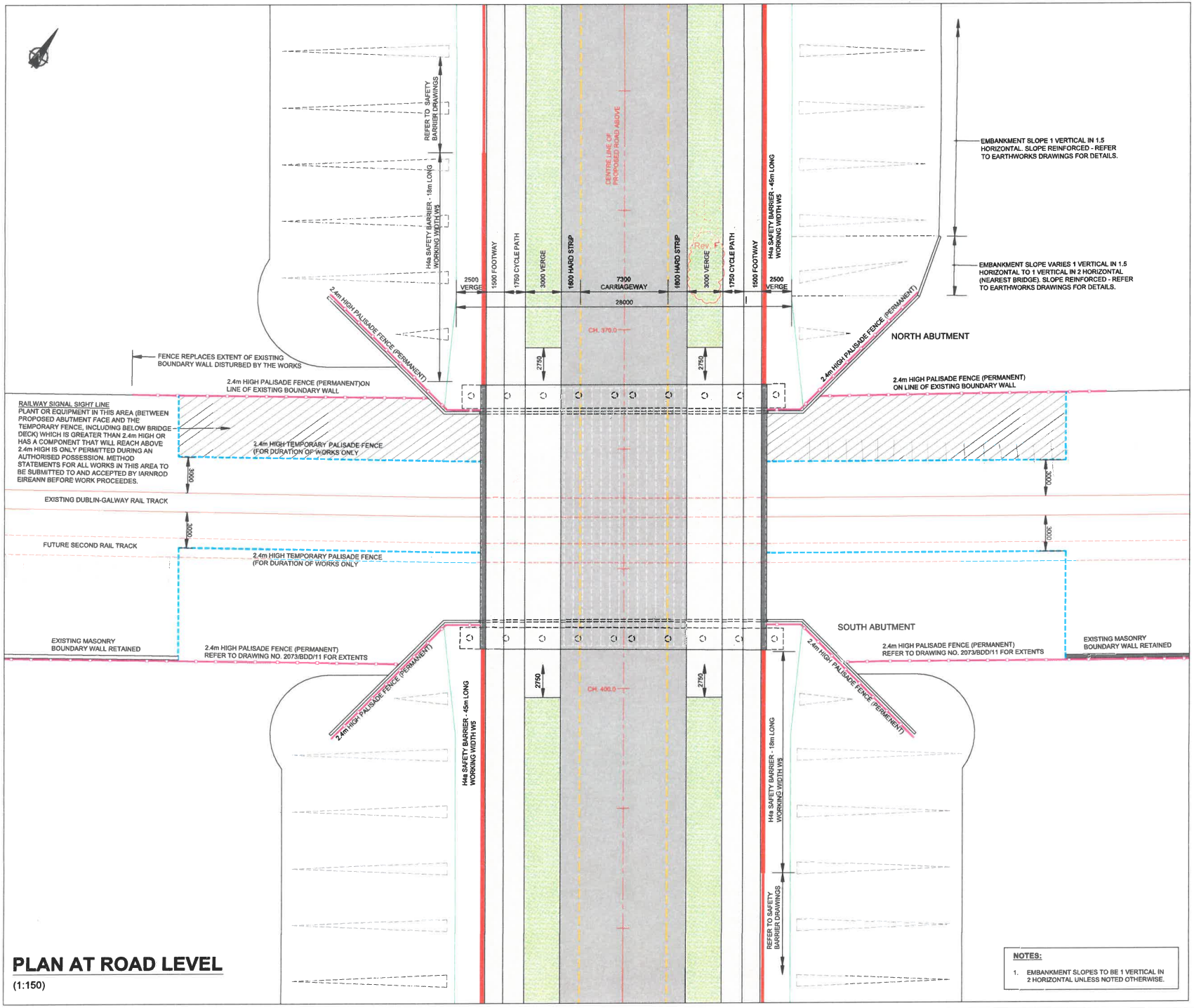
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE
ROAD OVER RAIL BRIDGE
PLAN AT RAIL LEVEL

SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
1:150 @ A1	SEPT 2009	IGF	DPH	DPH

JOB No.	DRAWING No.	REV.
2073	2073/BDD/02	F



PLAN AT ROAD LEVEL

(1:150)

NOTES:

1. EMBANKMENT SLOPES TO BE 1 VERTICAL IN 2 HORIZONTAL UNLESS NOTED OTHERWISE.

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
F	NOV. 2016	AL	EAST VERGE DIMENSION CORRECTED PROJECT NAME UPDATED	RW	DPH
E	APRIL 2011	IGF	PRECAST BEAM LENGTH INCREASED, STEEL COLUMNS REPLACED WITH CONCRETE, NOTE REGARDING SIGHT LINES ADDED.	DPH	DPH
D	JULY 2010	IGF	STEELWORK SUPPORT ADDED TO SOUTH ABUTMENT. DECK LENGTH AMENDED.	DPH	DPH
C	MAY 2010	IGF	NORTH ABUTMENT AMENDED, COLUMNS ADDED	DPH	DPH
B	APRIL 2010	IGF	EXTENT OF WING WALL TO EAST OF NORTH ABUTMENT EXTENDED, EARTHWORKS EXTENTS AMENDED.VERGE WIDTH AMENDED. H4a BARRIER WORKING WIDTH ADDED, NOTES ADDED.	DPH	DPH
A	FEB. 2010	IGF	PALLISADE FENCING NOTED AS "PERMANENT" WHERE APPLICABLE. EXTENTS OF PERMANENT FENCING ON SOUTHERN BOUNDRY OF RAILWAY LANDS EXTENDED AND CROSS REFERENCED TO DRAWING 2073/BDD/11	DPH	DPH

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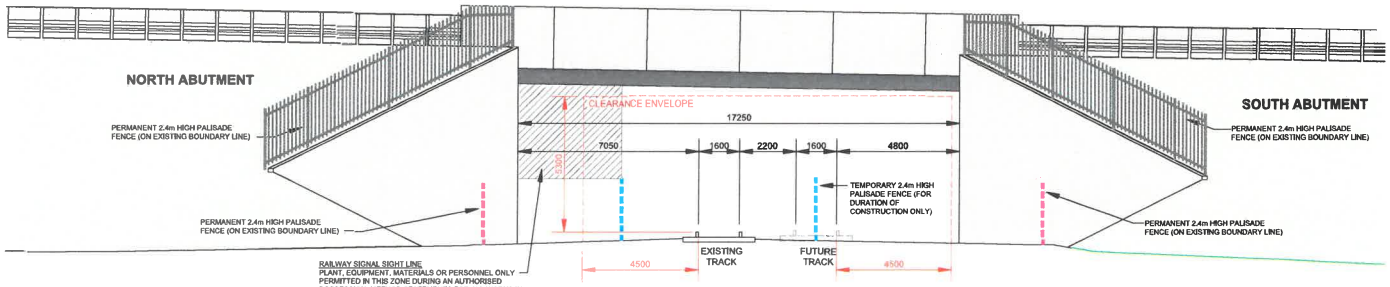
PROJECT
IDA IRELAND ATHENRY
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE
ROAD OVER RAIL BRIDGE
PLAN AT ROAD LEVEL

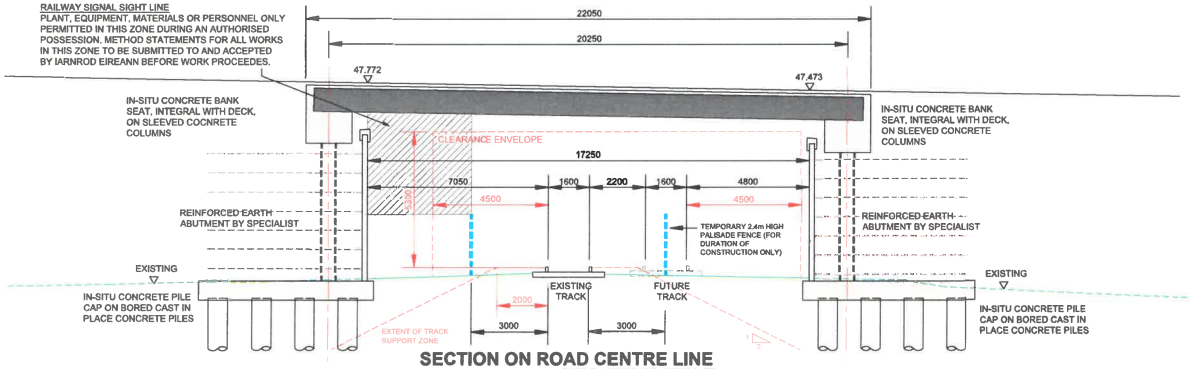
SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
1:150 @ A1	SEPT 2009	IGF	DPH	DPH

JOB No.	DRAWING No.	REV.
2073	2073/BDD/03	F



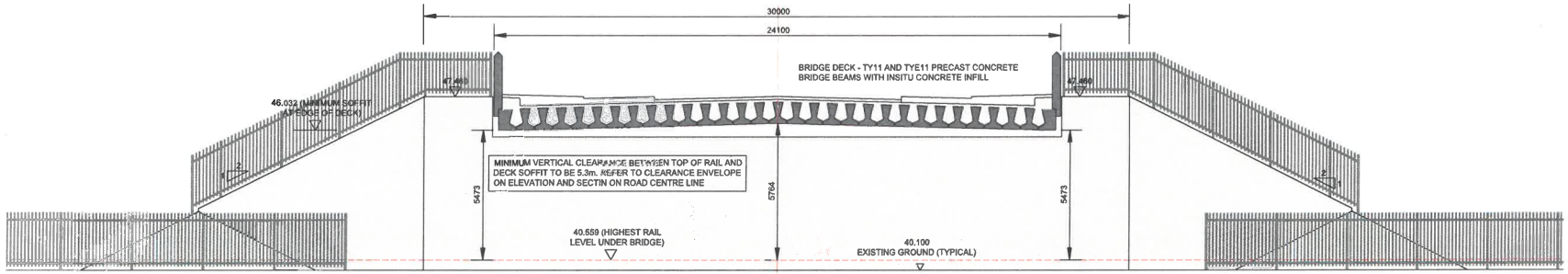
SOUTH WEST ELEVATION

(1:100)



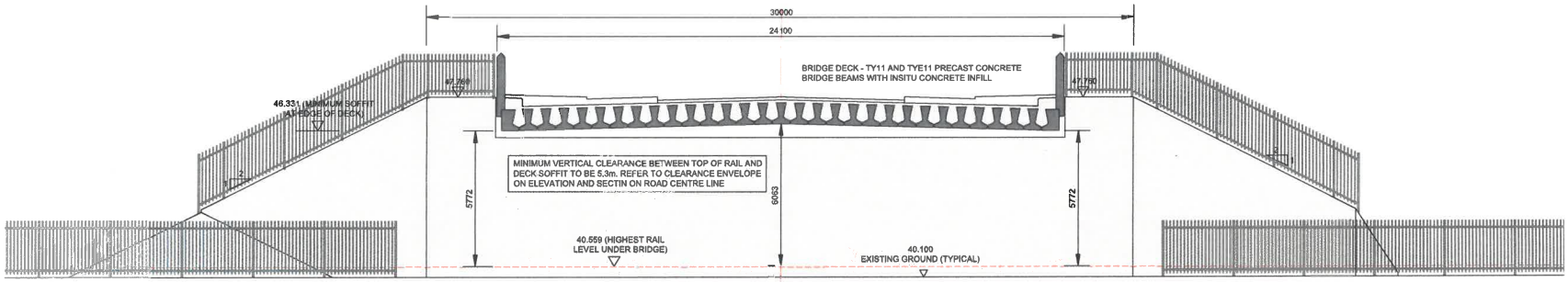
SECTION ON ROAD CENTRE LINE

(1:100)



SECTIONAL ELEVATION - SOUTH ABUTMENT

(1:100)



SECTIONAL ELEVATION - NORTH ABUTMENT

(1:100)

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
F	NOV. 2016	AL	PROJECT NAME UPDATED	RW	DPH
E	APRIL 2011	IGF	Precast beam length increased, steel columns replaced with concrete. Notes regarding sight lines added.	DPH	DPH
D	JULY 2010	IGF	Piled foundations added, steelwork support added to south abutment, deck length amended.	DPH	DPH
C	MAY 2010	IGF	North abutment amendes, columns added.	DPH	DPH
B	APRIL 2010	IGF	Extent of wing wall to east of North Abutment extended.	DPH	DPH
A	Feb. 2010	IGF	Beam size added. Minimum headroom noted. Clearance envelope highlighted. Bank seat width increased to match Reinforced Earth design. Parapet amended.	DPH	DPH

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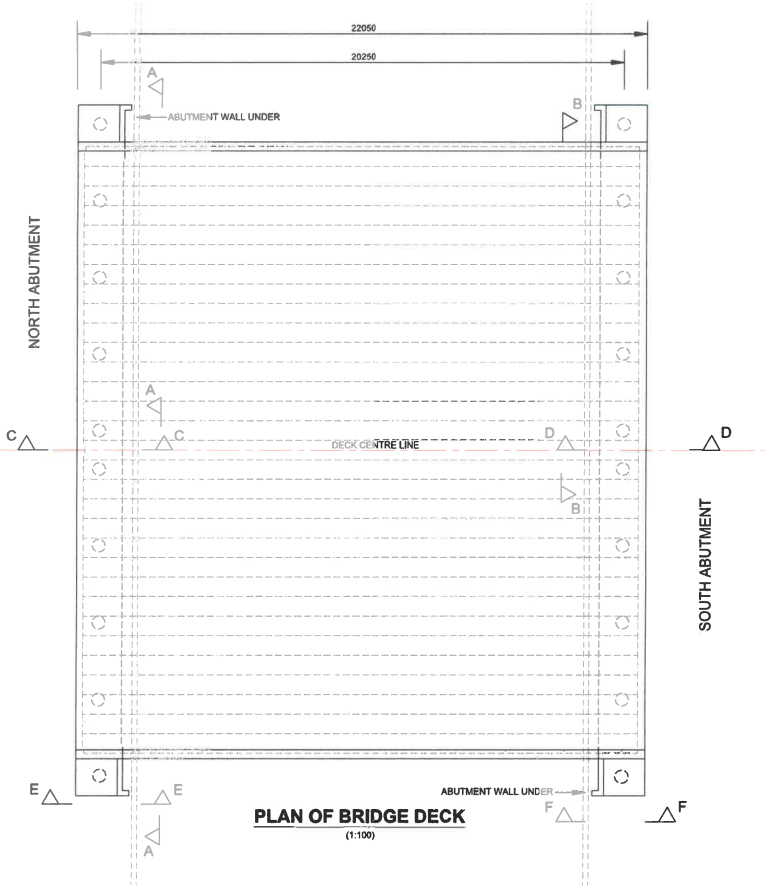
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE

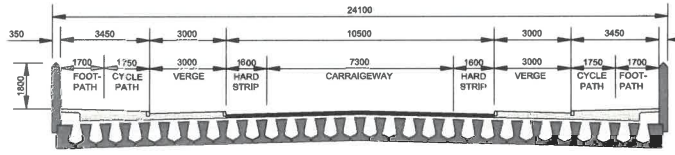
ROAD OVER RAIL BRIDGE ELAVATION AND SECTIONS

SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
1:100 @ A1	SEPT 2009	IGF	DPH	DPH

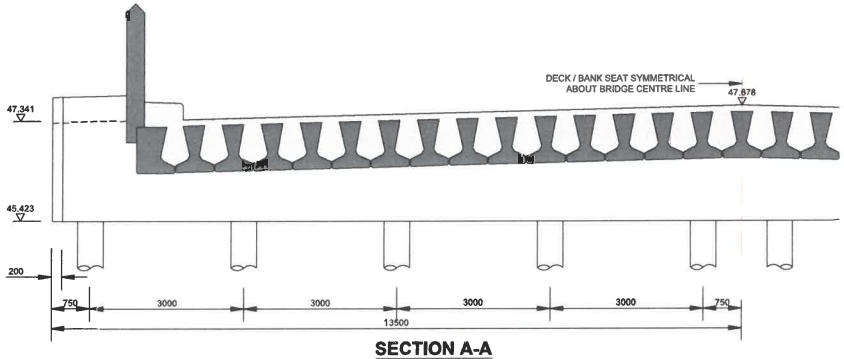
JOB No.	DRAWING No.	REV.
2073	2073/BDD/04	F



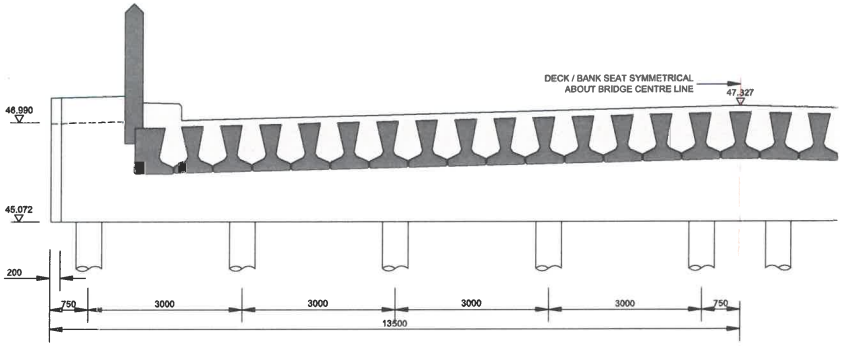
PLAN OF BRIDGE DECK
(1:100)



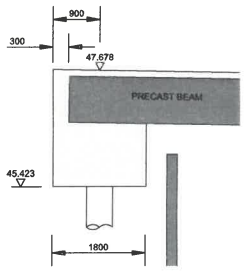
DECK CROSS SECTION
(1:100)



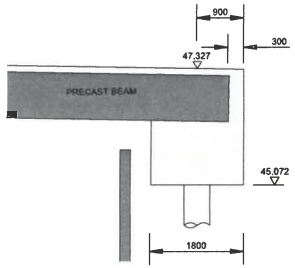
SECTION A-A
(1:50)



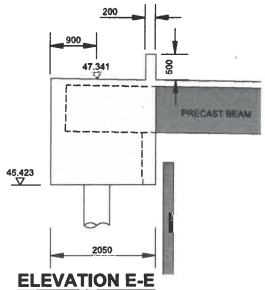
SECTION B-B
(1:50)



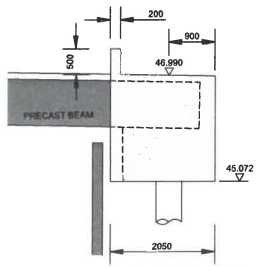
SECTION C-C
(1:50)



SECTION D-D
(1:50)



ELEVATION E-E
(1:50)



ELEVATION F-F
(1:50)

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
E	NOV. 2016	AL	PROJECT NAME UPDATED	RW	DPH
D	APRIL 2011	IGF	Precast beam length incrased, steel columns replaced with concrete.	DPH	DPH
C	JULY 2010	IGF	Piled foundations added, steelwork support added to south abutment, deck length amended.	DPH	DPH
B	MAY 2010	IGF	North abutment amended, columns added.	DPH	DPH
A	FEB. 2010	IGF	Parapet amended. Slab depth above beams noted. Bank seat width increased to match Reinforced Earth design.	DPH	DPH

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PROJECT
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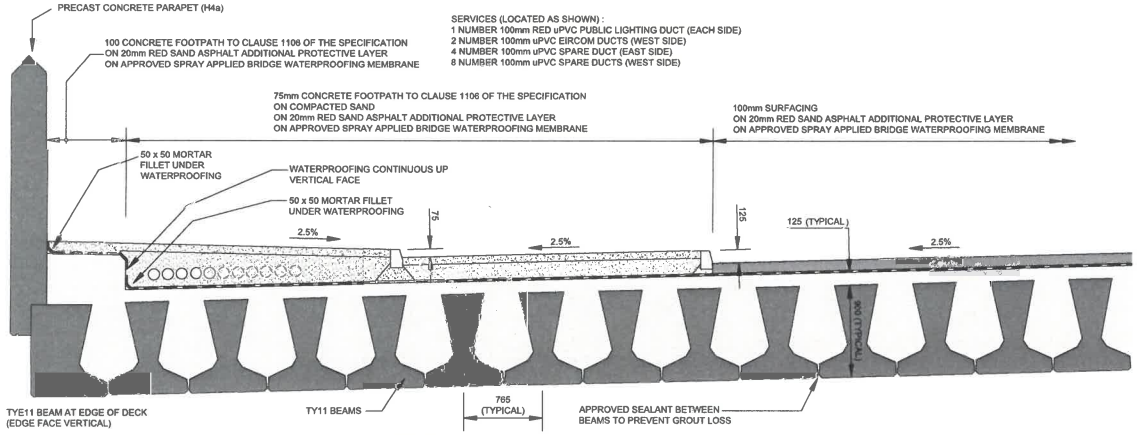
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

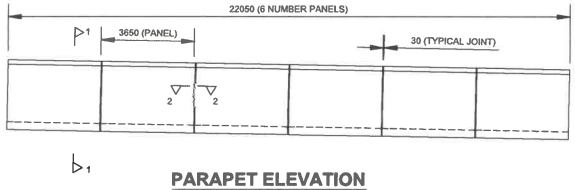
TITLE
ROAD OVER RAIL BRIDGE
DECK GENERAL ARRANGEMENT

SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
AS NOTED @ A1	SEPT 2009	IGF	DPH	DPH

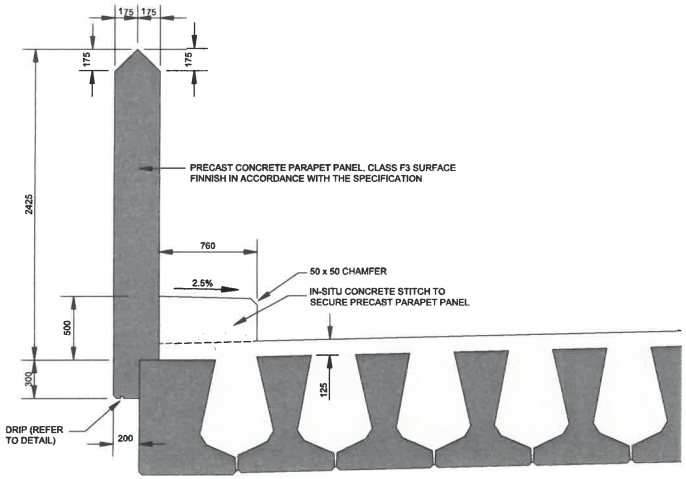
JOB No.	DRAWING No.	REV.
2073	2073/BDD/05	E



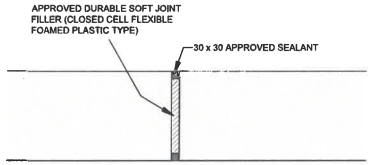
DECK DETAILS CROSS SECTION
(1:25)



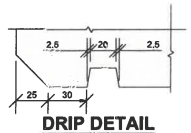
PARAPET ELEVATION
(1:100)



SECTION A-A
(1:20)



SECTION 2-2
(1:10)



DRIP DETAIL
(1:2)

NOTES

REV	DATE	DRN	DESCRIPTION	CHK	APD
E	NOV. 2016	AL	PROJECT NAME UPDATED	RW	DPH
D	APRIL 2011	IGF	Parapet length amended.	DPH	DPH
C	July 2010	IGF	Parapet length amended.	DPH	DPH
B	April 2010	IGF	Services amended.	DPH	DPH
A	Feb. 2010	IGF	Beam size added. Parapet amended. Section 2-2 added.	DPH	DPH

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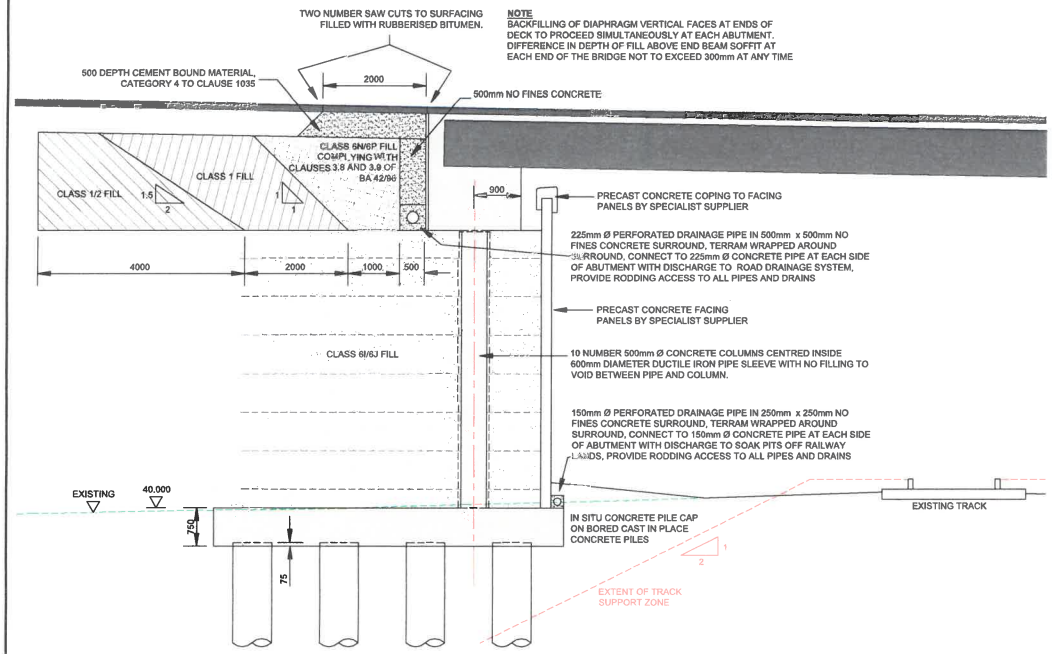
PROJECT
IDA IRELAND ATHENRY
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE
ROAD OVER RAIL BRIDGE
DECK DETAILS

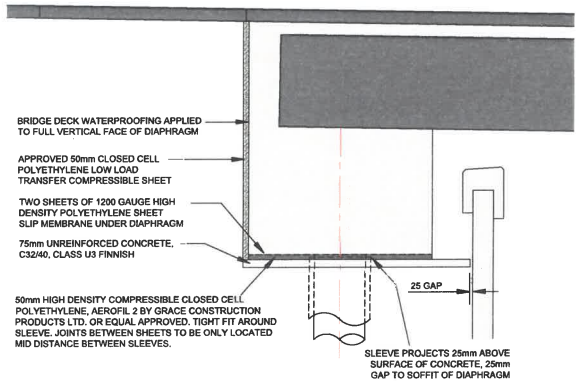
SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
AS NOTED @ A1	SEPT 2009	IGF	DPH	DPH

JOB No.	DRAWING No.	REV.
2073	2073/BDD/06	E



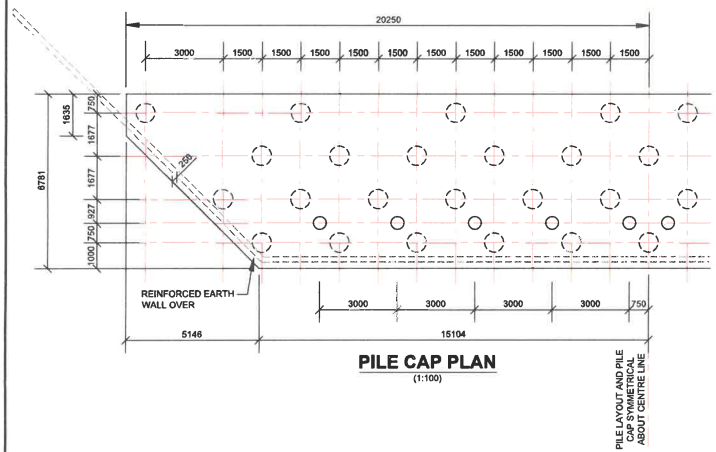
TYPICAL ABUTMENT SECTION (NORTH ABUTMENT SHOWN - SOUTH ABUTMENT SIMILAR)

(1:50)



TYPICAL ABUTMENT DIAPHRAGM SECTION

(1:25)



PILE CAP PLAN

(1:100)

PILES

1. 42 NUMBER BORED CAST IN PLACE CONCRETE PILES PER ABUTMENT.
2. PILES TO BE DESIGNED AND CONSTRUCTED BY A SPECIALIST.
3. PILES TO BE FOUNDED IN UNWEATHERED BEDROCK.
4. THE CONTRACTOR SHALL CARRY OUT A GEOPHYSICAL SURVEY USING THE MICRO GRAVITY METHOD OF THE AREA OF BEDROCK IN THE VACINITY OF THE STRUCTURE TO IDENTIFY THE PRESENCE OF VOIDS. ANY VOIDS IDENTIFIED SHALL BE FILLED. THE SURVEY SHALL COVER THE FULL AREA OF ROCK THAT WILL SUPPORT THE PILE LOADS.
5. PILE SPECIFIED WORKING LOADS: VERTICAL = 2070kN HORIZONTAL = 64kN
6. OPEN BORE TO BE SUPPORTED BY TEMPORARY CASING PRIOR TO CONCRETING. MINIMUM HEAD OF 1m OF CONCRETE TO BE MAINTAINED ABOVE THE END OF THE CASING AS IT IS BEING WITHDRAWN.
7. A STATIC PROOF LOAD TEST SHALL BE CARRIED OUT ON ONE WORKING PILE TO BE SELECTED BY THE ENGINEER.
8. ALL PILES SHALL BE INTEGRITY TESTED USING ONE OF THE METHODS LISTED IN THE SPECIFICATION.

NOTES

REV	DATE	ORIGN	DESCRIPTION	CHK	APD
D	NOV. 2016	AL	PROJECT NAME UPDATED	RW	DPH
C	April 2011	IGF	Precast beam length increased, steel columns replaced with concrete, sub-surface drainage added.	DPH	DPH
B	July 2010	IGF	Redrawn.	DPH	DPH
A	May 2010	IGF	North abutment redrawn.	DPH	DPH

REVISIONS

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DRAWING STATUS

☐ PRELIMINARY ☐ CONTRACT ☒ TENDER
☐ PLANNING ☐ CONSTRUCTION ☐ FOR APPROVAL
☐ FOR YOUR INFORMATION ☐ AS CONSTRUCTED ☐ DRAFT

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CLIENT
IDA IRELAND

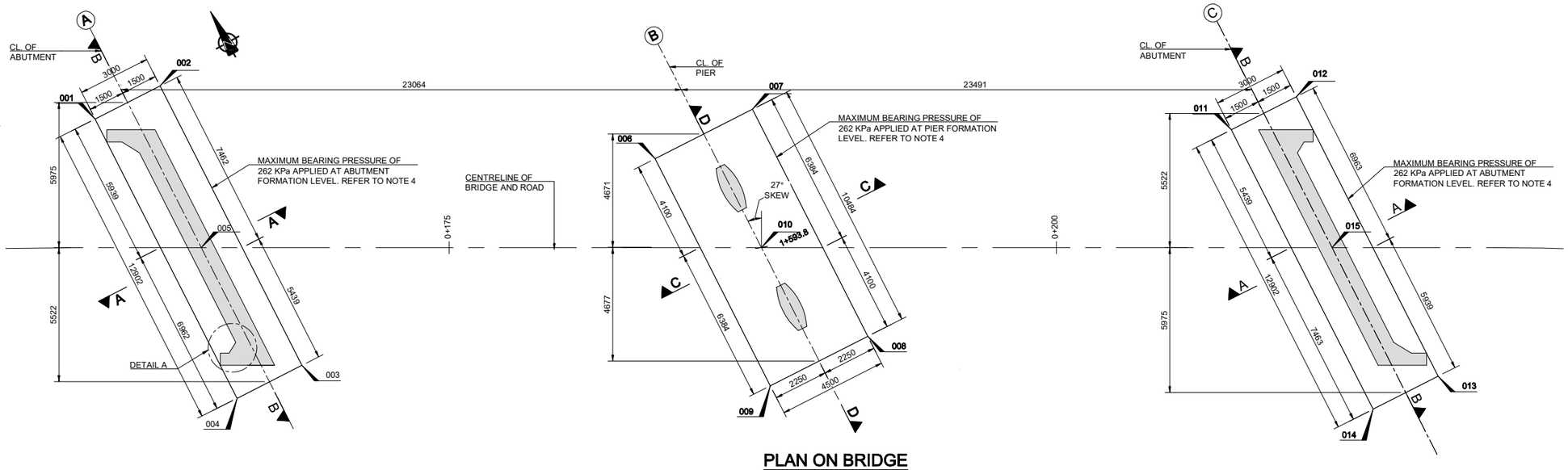
PROJECT
IDA IRELAND ATHENRY
STRATEGIC SITE INFRASTRUCTURE
ROADWORKS PHASE 2

TITLE
ROAD OVER RAIL BRIDGE
ABUTMENT DETAILS

SCALE @ A1	DATE	DRAWN	CHECKED	APPROVED
AS NOTED @ A1	SEPT 2009	IGF	DPH	DPH

JOB No.	DRAWING No.	REV.
2073	2073/BDD/07	D

AS - BUILT RECORD

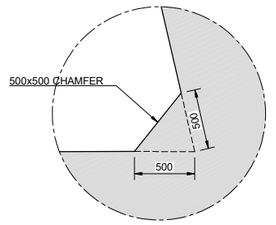


PLAN ON BRIDGE

SCALE: 1:100

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No.
   M17_1700_OB016_001_AB_A
   M17_1700_OB016_010_AB_A
   M17_1700_OB016_020_AB_A
   M17_1700_OB016_030_AB_A
4. FORMATION ACCEPTANCE HAS BEEN CONFIRMED BY DSR BASED ON IN-SITU TESTING. PROOF ROLLING, AND VISUAL INSPECTION. PLATE BEARING TEST (PBT) ARE FOR INFORMATION ONLY. AN INDICATIVE YOUNG'S MODULUS OF 40.000 MPa OR GREATER IS REQUIRED AT FORMATION LEVEL. ANY SOFT SPOTS IF PRESENT TO BE EXCAVATED AND REPLACED WITH CLASS 6N2 MATERIAL. FORMATION LEVEL SHOULD ALSO BE INSPECTED FOR ANY WARST FEATURES BY THE DSR.



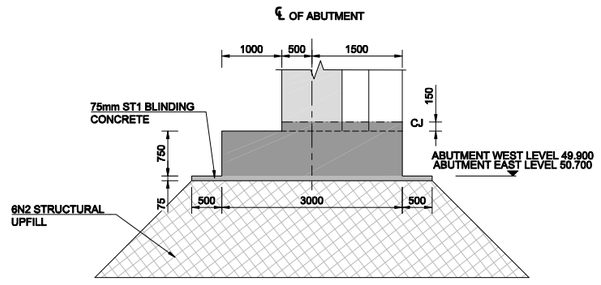
DETAIL A

SCALE 1:25

SETTING OUT POINTS FOR ABUTMENT BASE AT GL. A		
SOP	Position X	Position Y
001	146714.957	229377.374
002	146717.955	229377.271
003	146717.510	229364.377
004	146714.512	229364.480
005	146716.225	229370.626

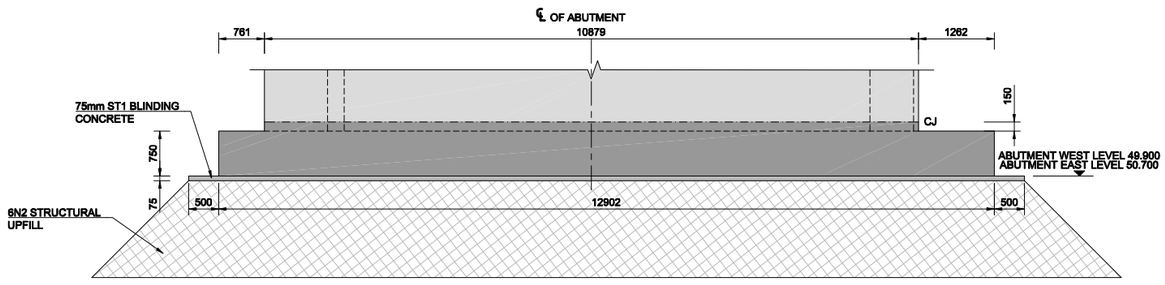
SETTING OUT POINTS FOR PIER BASE AT GL. B		
SOP	Position X	Position Y
006	146734.351	229364.798
007	146738.848	229364.643
008	146738.487	229354.165
009	146733.989	229354.321
010	146736.419	229359.482

SETTING OUT POINTS FOR ABUTMENT BASE AT GL. C		
SOP	Position X	Position Y
011	146755.700	229354.381
012	146758.698	229354.277
013	146758.254	229341.383
014	146755.256	229341.487
015	146756.986	229348.132



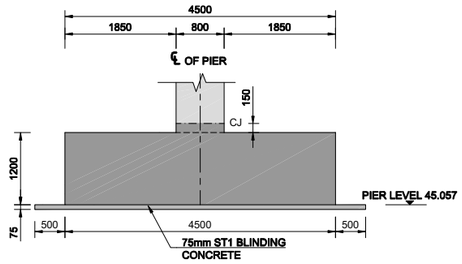
SECTION A-A (ABUTMENT)

SCALE: 1:50



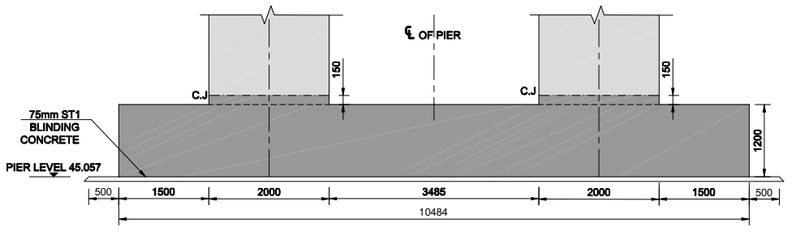
SECTION B-B (ABUTMENT)

SCALE: 1:50



SECTION C-C (PIER)

SCALE: 1:50



SECTION D-D (PIER)

SCALE: 1:50

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP
STRABAG
BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	07.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AB_A	JH	29.03.17	Issue for As-Builts
AB_B	PD	01.08.18	Issue for As Built

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) Setting Out Points
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 07/03/2016
Approved: SC	
Drawing No.	M17_1700_OB016_002
Revision.	AB_B

Rev C (13 October 2015)

Drawing file path & name : \\gtsfsfileuroze\Dublin Jobs\238000\238194-004_Internal\4-02 Drawings\4-02-5 Highways\As Built\Central\Highways\1700 Structures\OB016\M17_1700_OB016_002_AB_A.dwg
Date/Time Plotted : 3/7/2018 - 7:07 pm
User and Plot Date : Philip Dunwoody : 3/7/2018 - 7:07 pm

AS - BUILT RECORD

NOTES:

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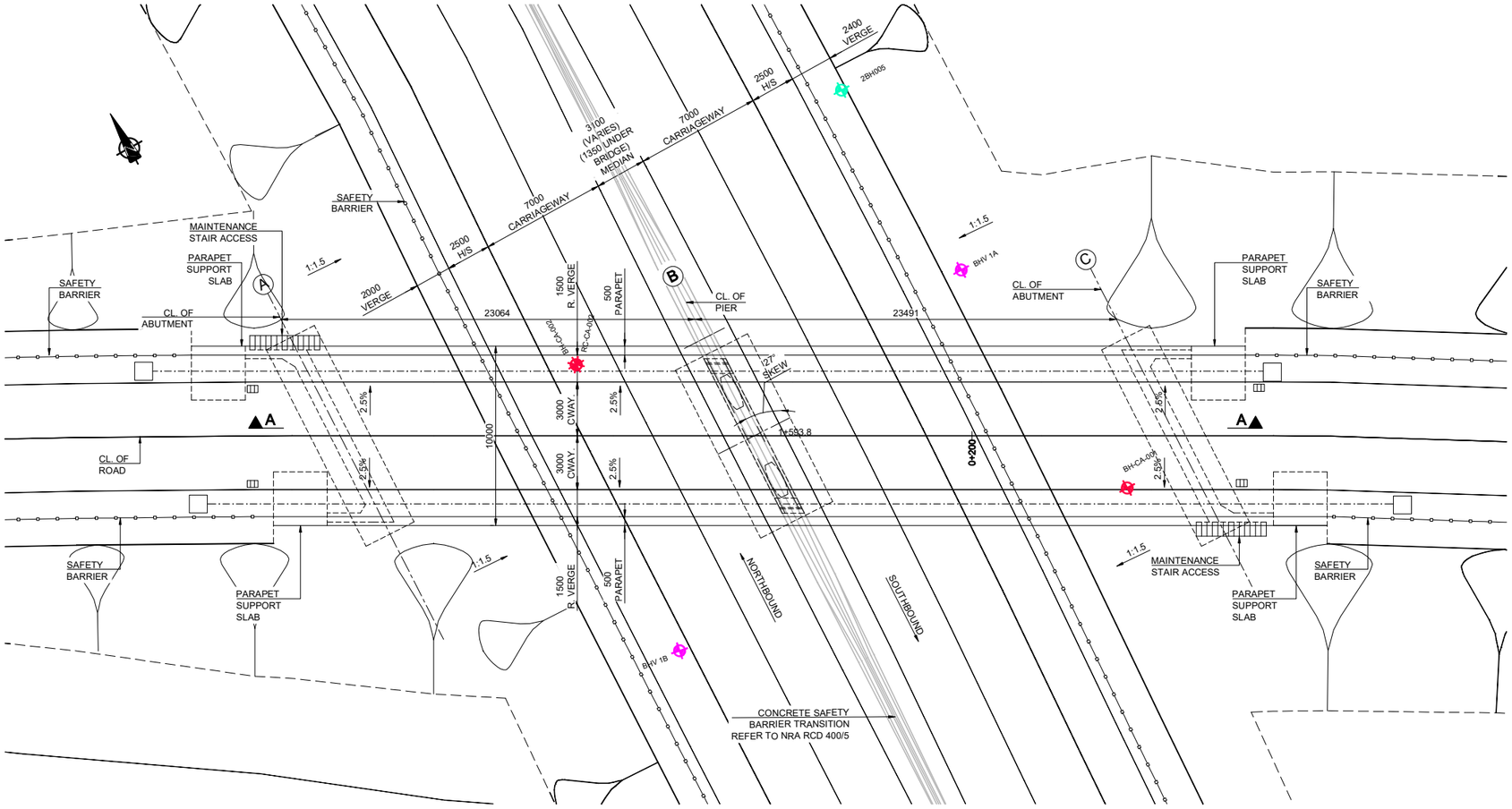
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No.
   M17_1700_OB016_001
   M17_1700_OB016_010
   M17_1700_OB016_020
   M17_1700_OB016_030

KEY:

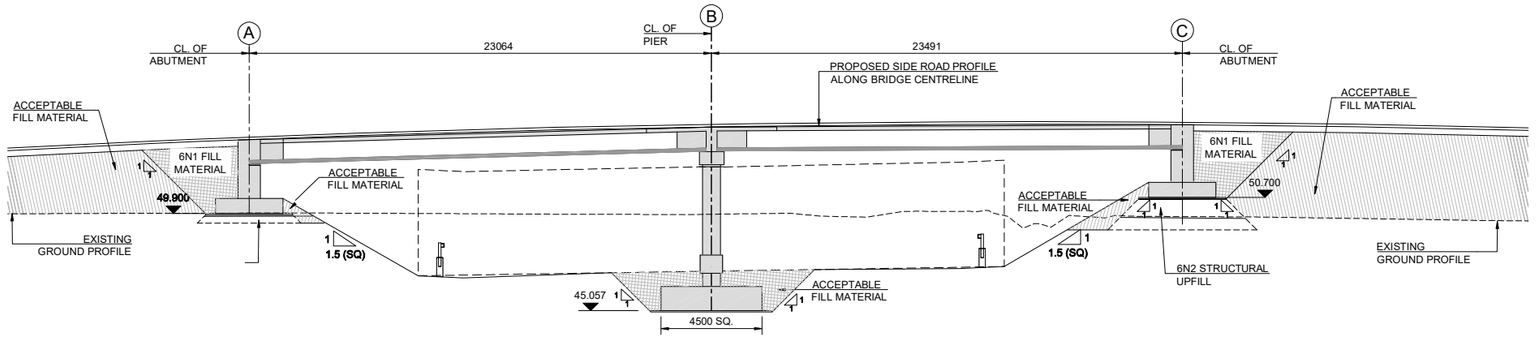
BOREHOLE

GEOPHYSICAL SURVEY



PLAN ON BRIDGE

SCALE: 1:150



SECTION A-A

SCALE: 1:150

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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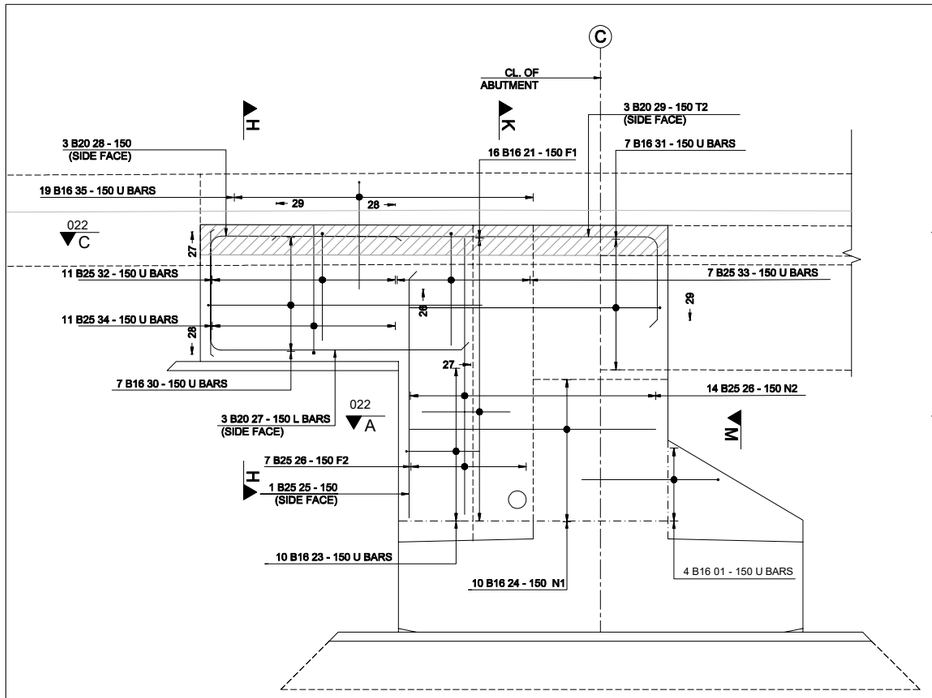
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	07.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AS-A	HC	16/08/16	Issue for As Built
AB_B	PD	01.08.18	Issue for As Built

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) Borehole & Earthworks Details
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 07/03/2016
Approved: SC	
Drawing No.	M17_1700_OB016_003
Revision.	AB_B

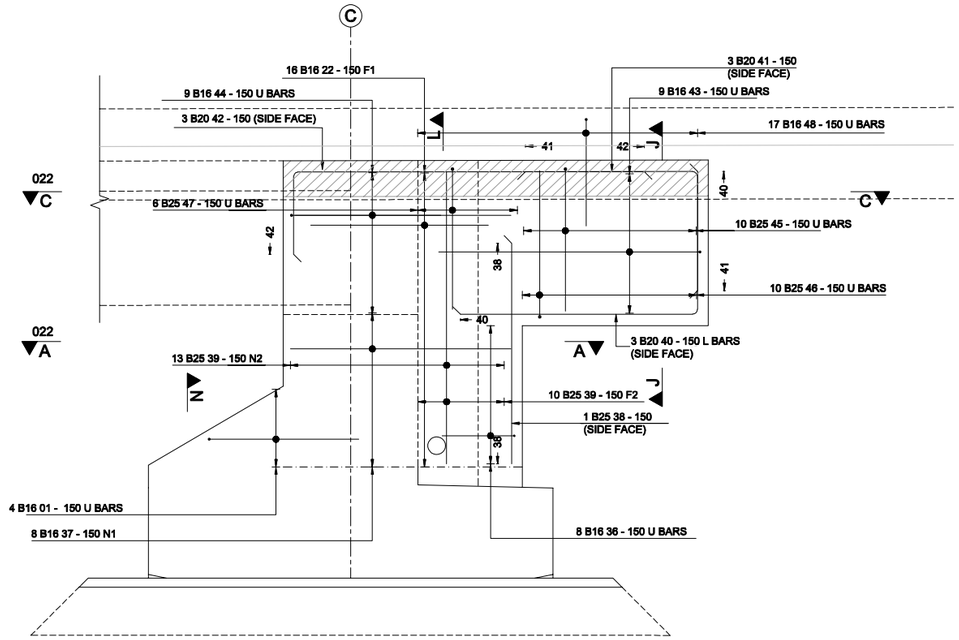
Rev C (13 October 2015)

Drawing file path & name : \\jobs\europa\Dublin\Jobs\226000\226139-004\ Internal\4-02 Drawings\4-02-4 Highways\As Built\Central\Highways\1700 Structures\OB016\M17_1700_OB016_003_AB_A.dwg
Date Plotted : 31/7/2018 - 1:17 pm
User and Plot Date : Philip.Domecoly ; 31/7/2018 - 1:17 pm



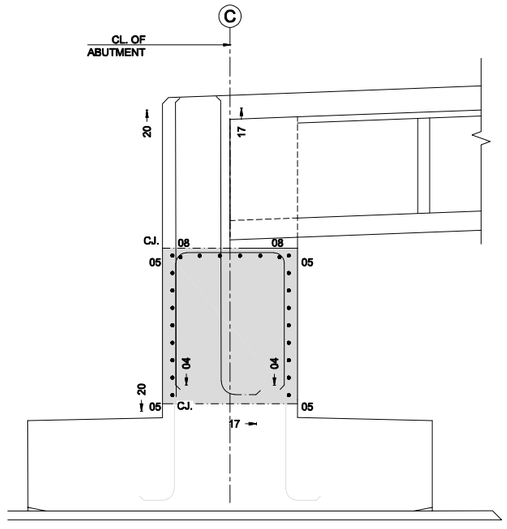
ELEVATION D-D (NORTH EAST WINGWALL)

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_022)



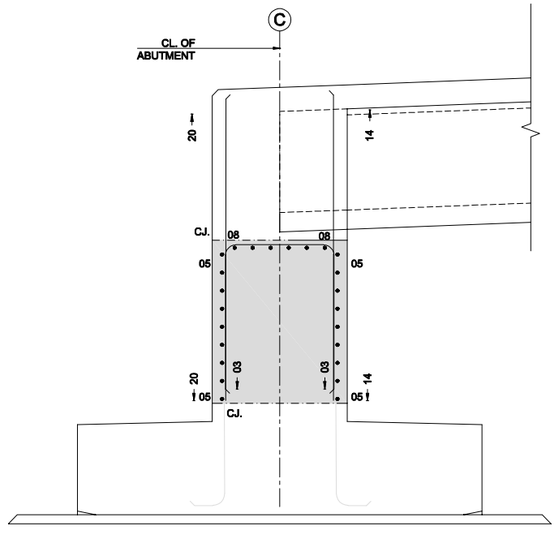
ELEVATION E-E (SOUTH EAST WINGWALL)

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_022)



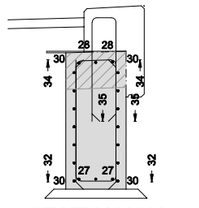
SECTION G-G

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_022)



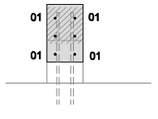
SECTION F-F

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_022)



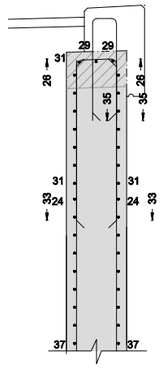
SECTION H-H

SCALE: 1:25



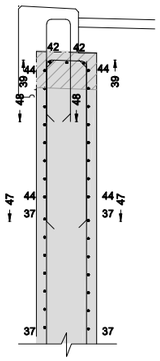
SECTION M-M

SCALE 1:25



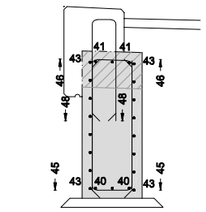
SECTION K-K

SCALE: 1:25



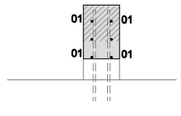
SECTION L-L

SCALE: 1:25



SECTION J-J

SCALE: 1:25



SECTION N-N

SCALE 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_022_AB_A.

4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_022&023 _AB_A_BS.

5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.

6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.

7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   ABUTMENT CONSTRUCTION JOINT FACES = 25mm.
   ABUTMENT BOTTOM, SIDE + TOP FACES = 60mm.

9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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BUILDERS SISK CONTRACTORS Established 1899

DIRECT ROUTE

Rev	By	Date	Description
CE_A	GD	28.10.15	Issue for Certification
CO_A	JR	08.02.16	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) East Abutment Reinforced Concrete Details Sheet 2 of 2
Drawn: GD	Original scales: As shown @ A1
Checked: JR	Date: 28/10/2015
Approved: SC	
Drawing No.	M17_1700_OB16_023
Revision.	AB_A

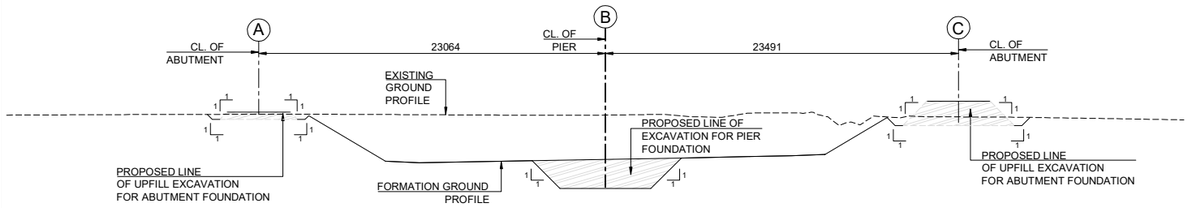
Rev B (28 October 2015)

Drawing file path & name
Date Plotted
User and Plot Date

AS - BUILT RECORD

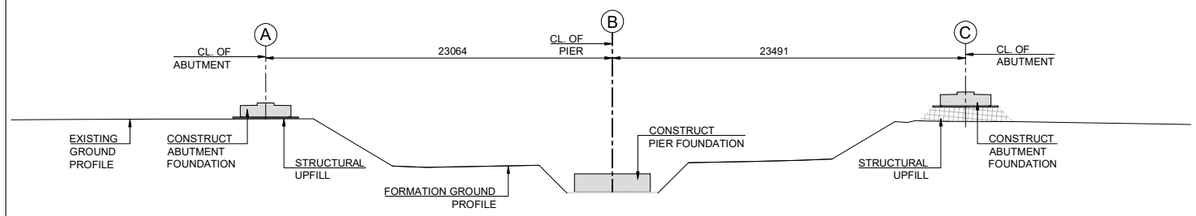
NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.



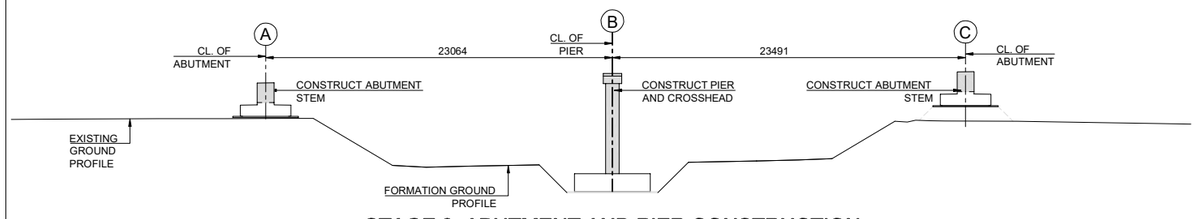
STAGE 1: EXCAVATION AND EMBANKMENT CONSTRUCTION

SCALE: 1:200



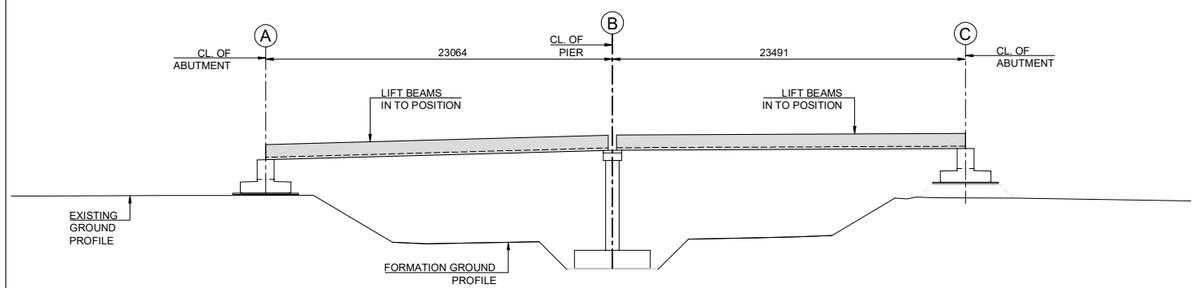
STAGE 2: ABUTMENT AND PIER FOUNDATION CONSTRUCTION

SCALE: 1:200



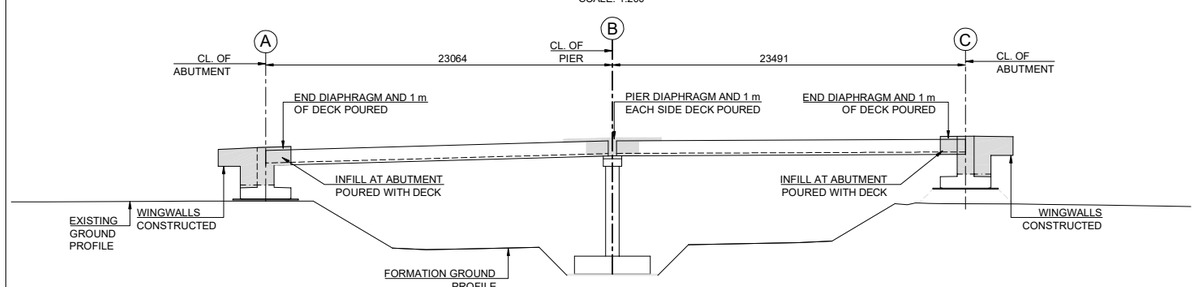
STAGE 3: ABUTMENT AND PIER CONSTRUCTION

SCALE: 1:200



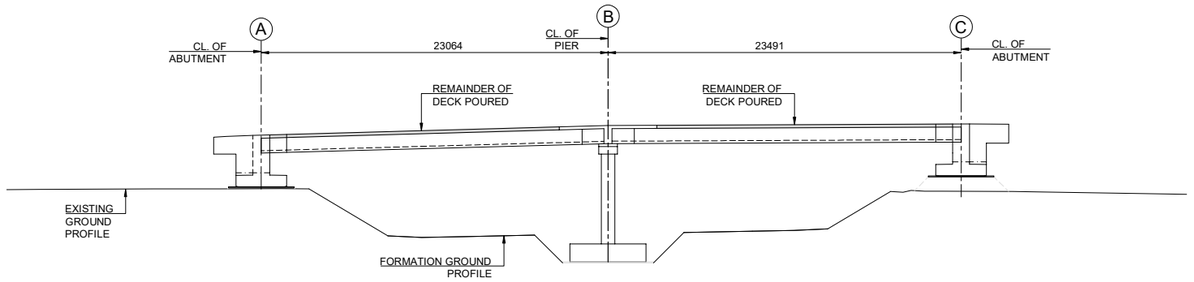
STAGE 4: ERECT PRECAST BEAMS

SCALE: 1:200



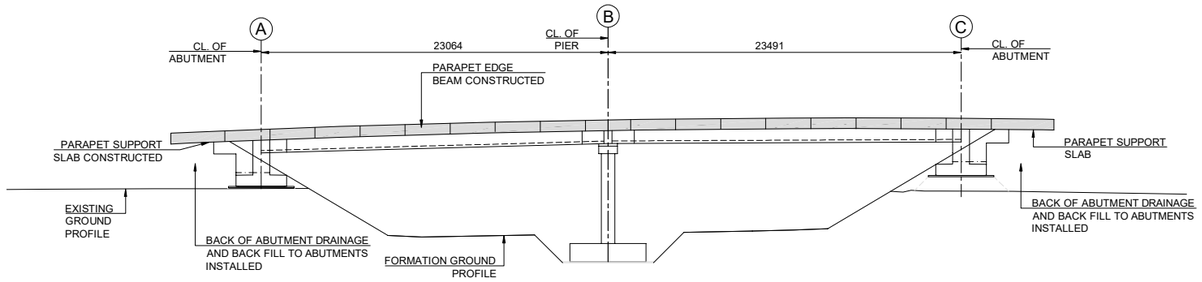
STAGE 5: DECK POUR SEQUENCE PART A

SCALE: 1:200



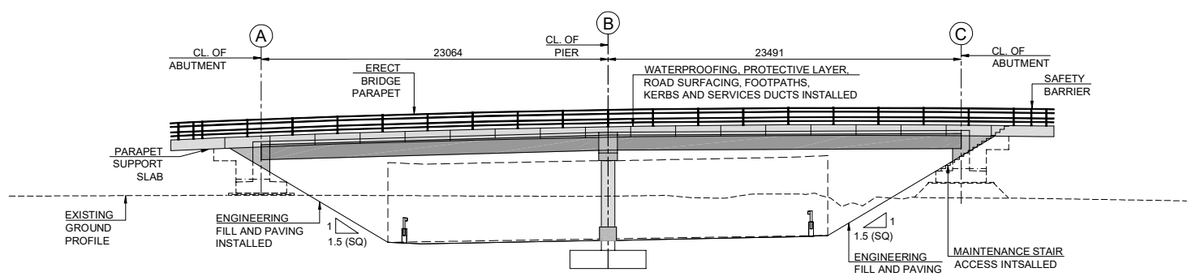
STAGE 5: DECK POUR SEQUENCE PART B

SCALE: 1:200



STAGE 6: PARAPET EDGE BEAM CONSTRUCTION AND BACKFILL INSTALLED

SCALE: 1:200



STAGE 7: BRIDGE FINISHES INSTALLED

SCALE: 1:200

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	07.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AB_A	HC	16/08/16	Issue for As-Built

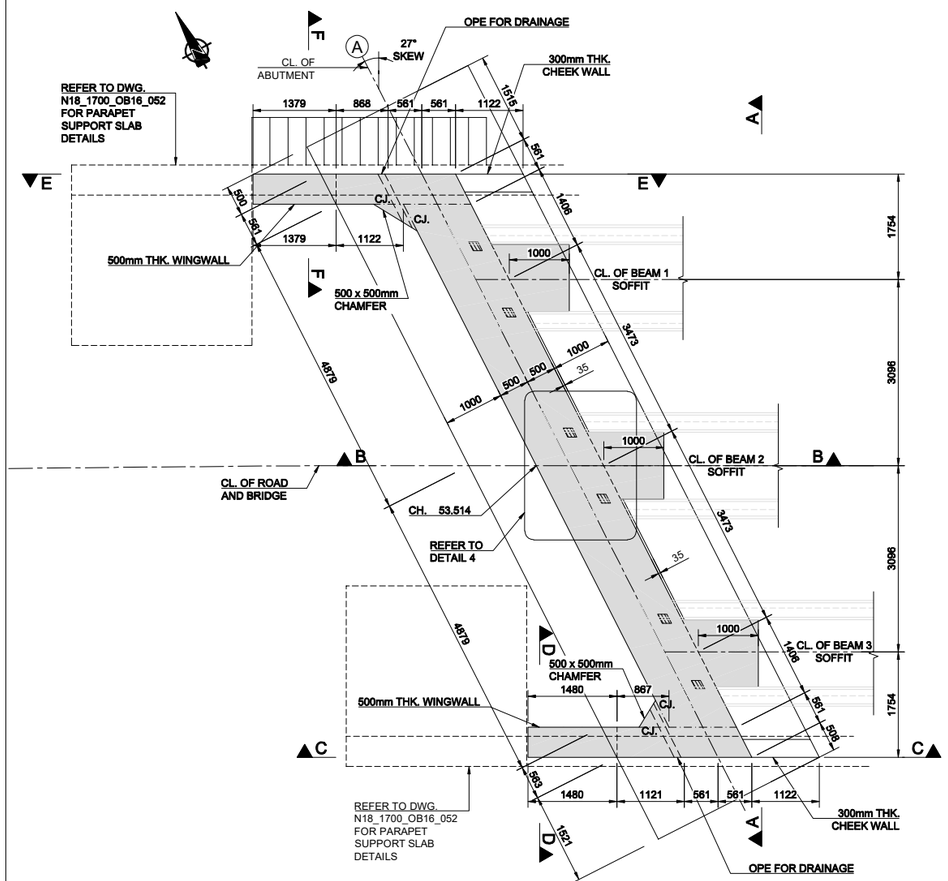
Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) Construction Sequence

Drawn: BR	Original scale: As shown @ A1	Drawing No.	Revision.
Checked: JR	Date: 07/03/2016	M17_1700_OB016_004	AB_A
Approved: SC			

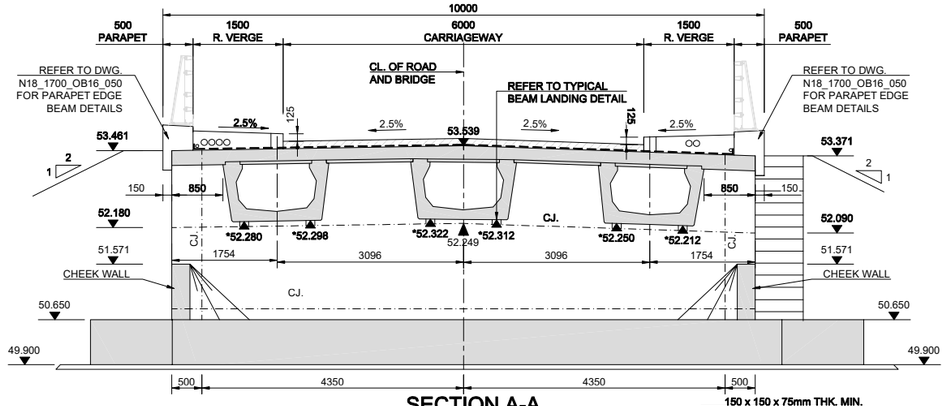
Rev C (13 October 2015)

Drawing file path & name : M:\Drawings\Bridges\M17_1700_OB016_004.dgn
User and Plot Date

AS - BUILT RECORD

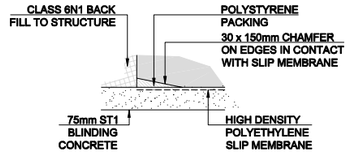


PLAN ON ABUTMENT
SCALE: 1:50

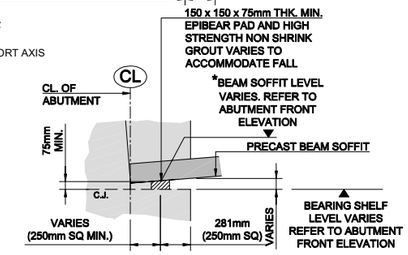


SECTION A-A
SCALE: 1:50

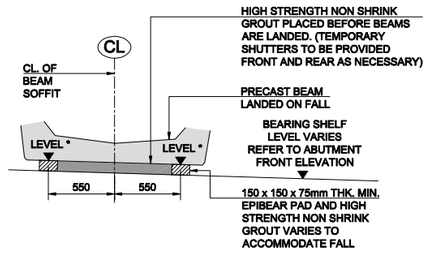
NOTE: LEVELS REFER TO BEAM SUPPORT AXIS



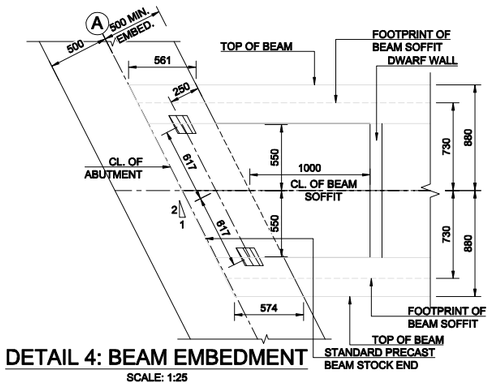
DETAIL 1: FOUNDATION CHAMFER
SCALE: 1:10



DETAIL 2: BEAM LANDING
SCALE: 1:25



DETAIL 3: BEAM LANDING
SCALE: 1:25



DETAIL 4: BEAM EMBEDMENT
SCALE: 1:25

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. FINISHES:

BURIED UNFORMED SURFACES	- U1
EXPOSED UNFORMED SURFACES (EXCLUDING AREAS TO RECEIVE WATERPROOFING AND EXPOSED TOP FACE OF ABUTMENT BASE)	- U3
EXPOSED TOP FACE OF ABUTMENT BASE (INSPECTION PLATFORM)	- BRUSHED FINISH
BURIED SURFACES	- F1
END SUPPORTS - ABUTMENT STEM	- F4
END SUPPORTS - WINGWALLS	- F4
INTERMEDIATE SUPPORTS	- F4
PARAPET EDGE BEAMS	- F3/U3
PRECAST BEAMS	- F4
EXPOSED PARAPET SUPPORT SLAB	- F3/U3
PRECAST ELEMENTS	- F4
DECK CANTILEVER	- F4
DECK SOFFIT (BETWEEN BEAMS)	- PERMANENT FORMWORK IN ACCORDANCE WITH BA36
INSITU DECK SOFFIT	-F4
AREA OF DECK TO BE WATERPROOFED	-U4

4. MATERIALS:

LOCATION	MIX REFERENCE
PIER & ABUTMENT FOUNDATIONS	- GRADE C35/45-1
ABUTMENT STEM AND PIER COLUMNS	- GRADE C40/50-2 (50% GGBS)
WINGWALLS	- GRADE C40/50-2 (50% GGBS)
CROSSHEAD	- GRADE C40/50-2 (50% GGBS)
NON STRUCTURAL CONCRETE	CONCRETE GRADE
FOOTWAY/VERGE INFILL CONCRETE	- C25/30
BLINDING CONCRETE	- ST1

NOTE: FOR DETAILS OF MIX REFERENCES REFER TO APPENDIX 17/1 OF THE SPECIFICATION.

NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG (GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.

5. WATERPROOFING:

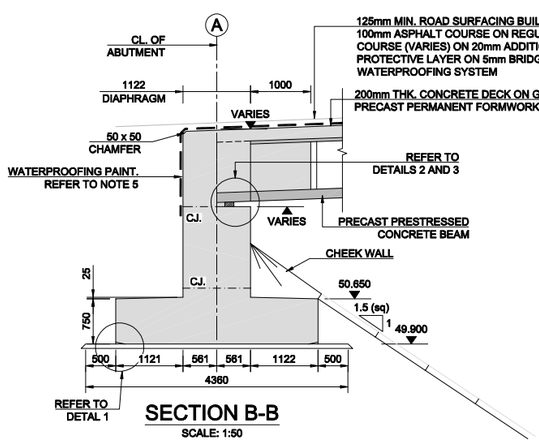
BRIDGE DECK WATERPROOFING SHALL BE TWO COATS SPRAY APPLIED, SATISFY THE REQUIREMENTS OF BD47/99, BD57/10.

BRIDGE DECK WATERPROOFING HAS BEEN APPLIED TO:

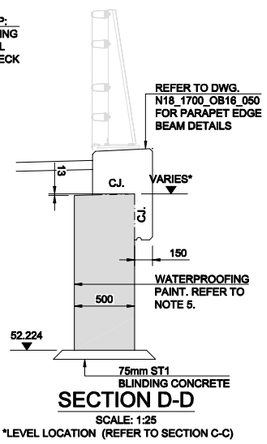
(i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
(ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
(iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE .

ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.

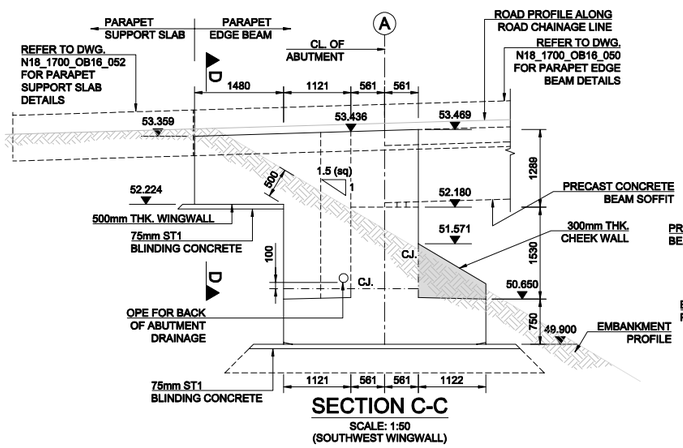
6. ALL EXPOSED CONCRETE HAVE BEEN IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.



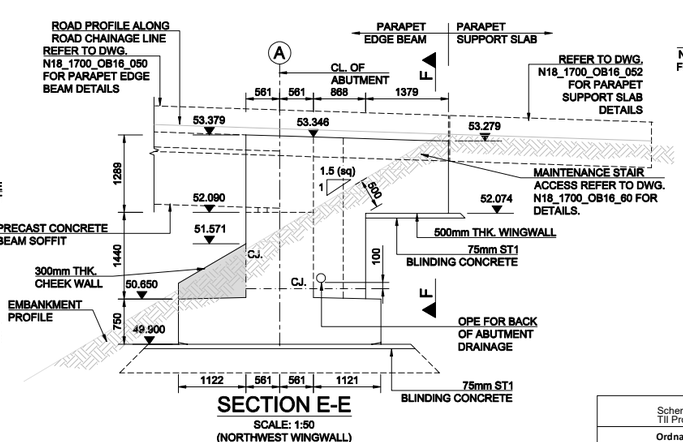
SECTION B-B
SCALE: 1:50



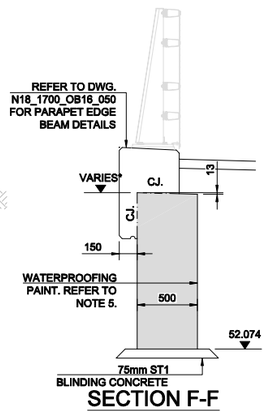
SECTION D-D
SCALE: 1:25
*LEVEL LOCATION (REFER TO SECTION C-C)



SECTION C-C
SCALE: 1:50
(SOUTHWEST WINGWALL)



SECTION E-E
SCALE: 1:50
(NORTHWEST WINGWALL)



SECTION F-F
SCALE: 1:25
*LEVEL LOCATION (REFER TO SECTION E-E)

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP
STRABAG
BUILDERS SISK CONTRACTORS Established 1839

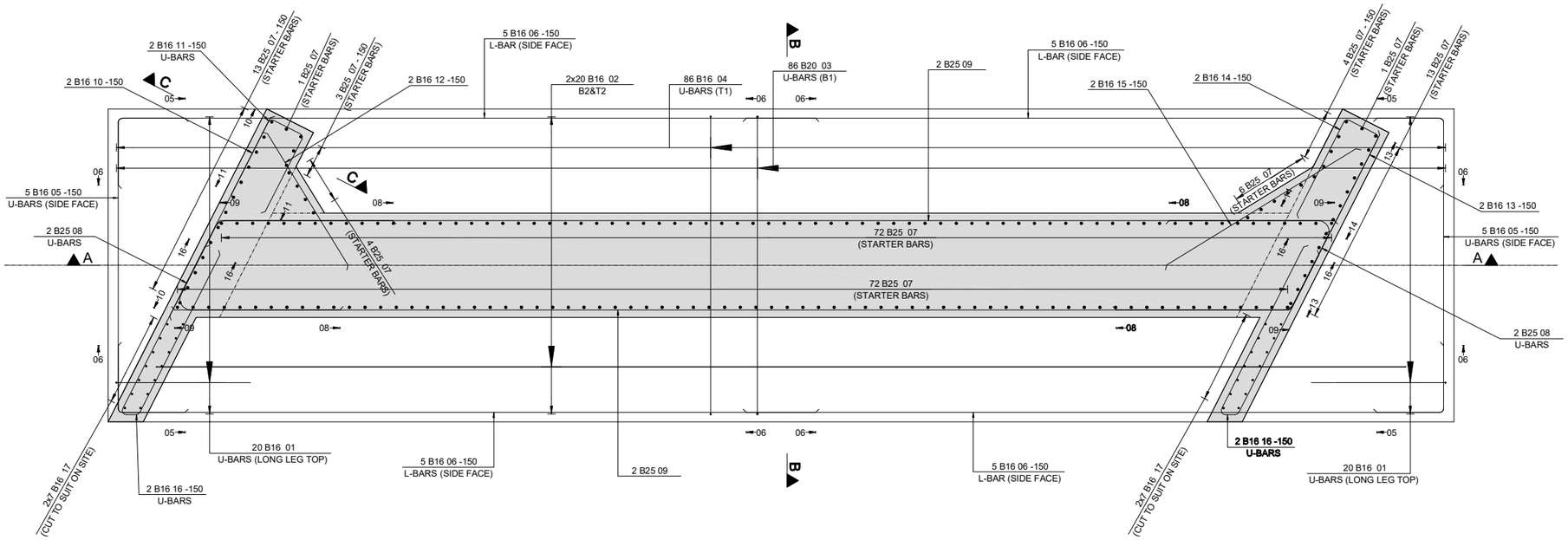
DIRECT ROUTE

Rev	By	Date	Description
CE_A	GD	08.10.2015	Issue for Certification
CO_A	JR	08.02.2016	Issue For Construction
CO_A(1	HC	26.04.2016	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Built

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) West Abutment General Arrangement
Drawn: GD	Original scales: As shown @ A1
Checked: JR	Date: 08/10/2015
Approved: SC	Drawing No. M17_1700_OB16_010
	Revision. AB_A

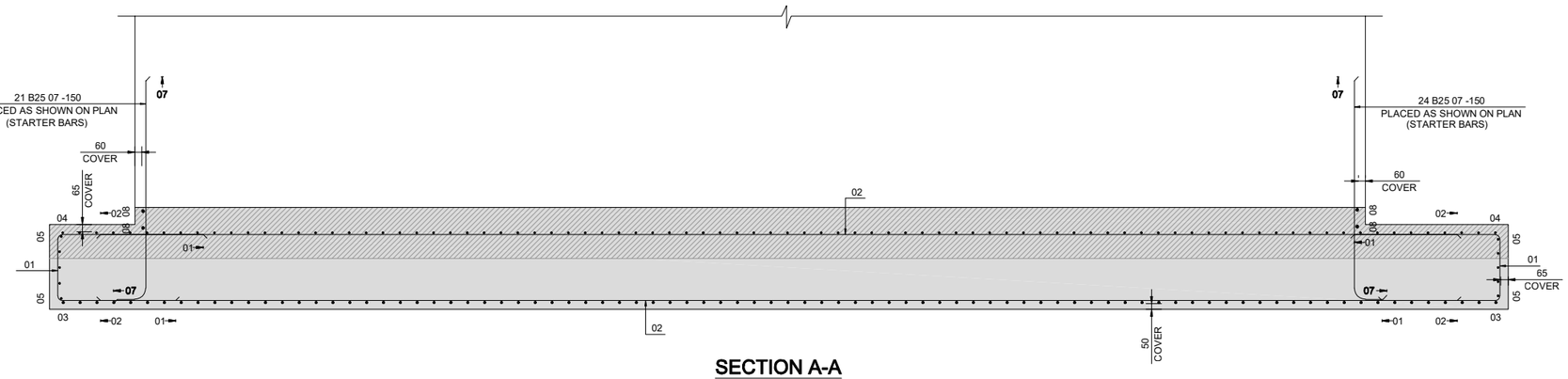
Rev C (16 October 2015)

Drawing file path & name: Z:\Drawings\Roads\User and Plot Data



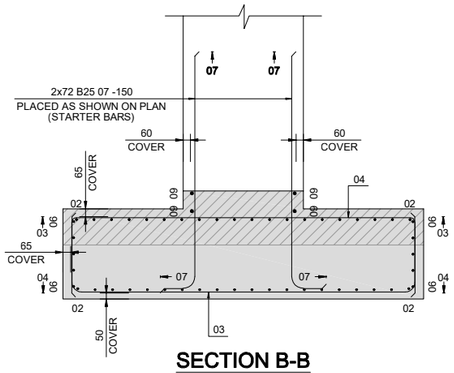
PLAN ON ABUTMENT BASE

SCALE: 1:25



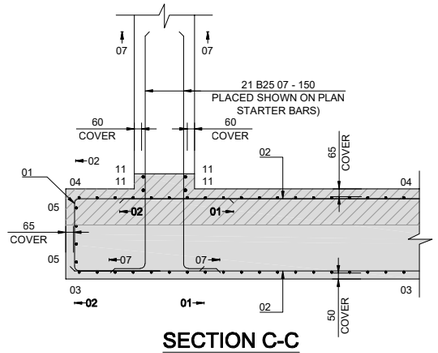
SECTION A-A

SCALE: 1:25



SECTION B-B

SCALE: 1:25



SECTION C-C

SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_0B016_010_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB016_011_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

   NF1 - NEAR FACE OUTERMOST BAR
   NF2 - NEAR FACE NEXT OUTERMOST BAR
   FF1 - FAR FACE OUTERMOST BAR
   FF2 - FAR FACE NEXT OUTERMOST BAR
   EF1 - EACH FACE OUTERMOST BAR
   EF2 - EACH FACE NEXT OUTERMOST BAR
   B1 - BOTTOM FACE OUTERMOST BAR
   B2 - BOTTOM FACE NEXT OUTERMOST BAR
   T1 - TOP FACE OUTERMOST BAR
   T2 - TOP FACE NEXT OUTERMOST BAR
   ABR - ALTERNATE BARS REVERSED
   STG - ALTERNATELY STAGGERED BARS
   ABP - ALTERNATE BARS PLACED
   UB - UBARS
   LB - LBARS

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   BOTTOM FACE = 50mm
   SIDE AND TOP FACE = 65mm
   PIER KICKER SIDE FACE = 60mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C35/45 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	270	375	525	710	970
MIN LAP NO STAGGER	410	565	790	1065	1455
MIN LAP 2 BAR STAGGER	380	525	735	995	1360

C35/45 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	390	540	750	1015	1385
MIN LAP NO STAGGER	580	810	1125	1520	2080
MIN LAP 2 BAR STAGGER	540	750	1050	1420	1940

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

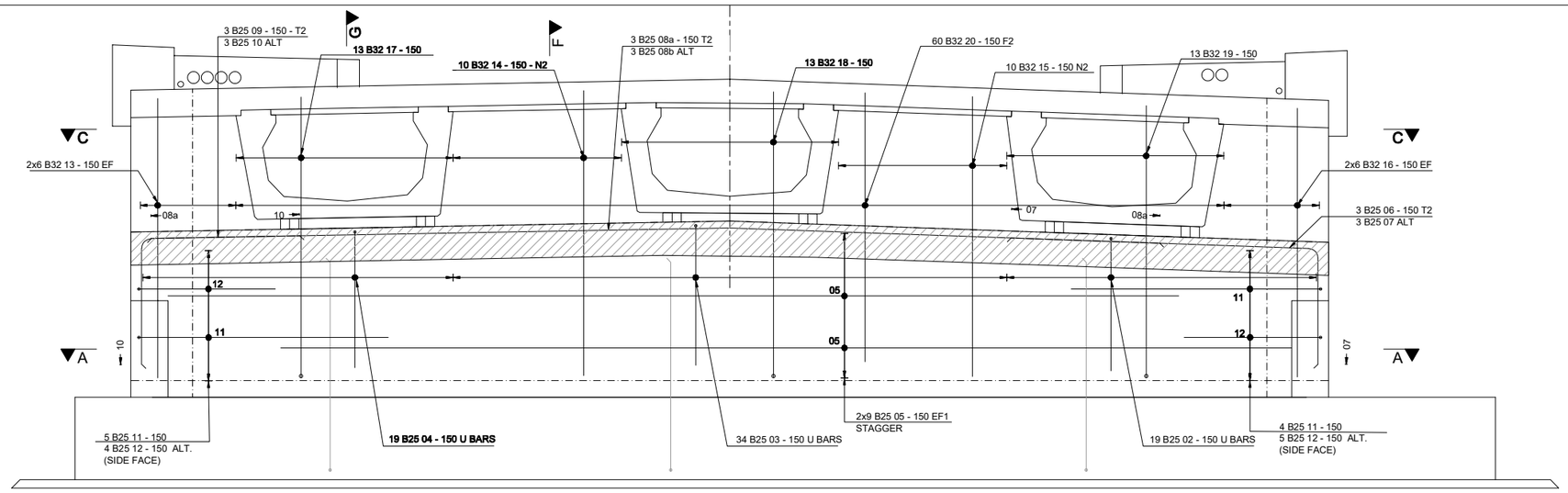
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	07.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AB_A	HC	22.08.16	Issue for As-Builts

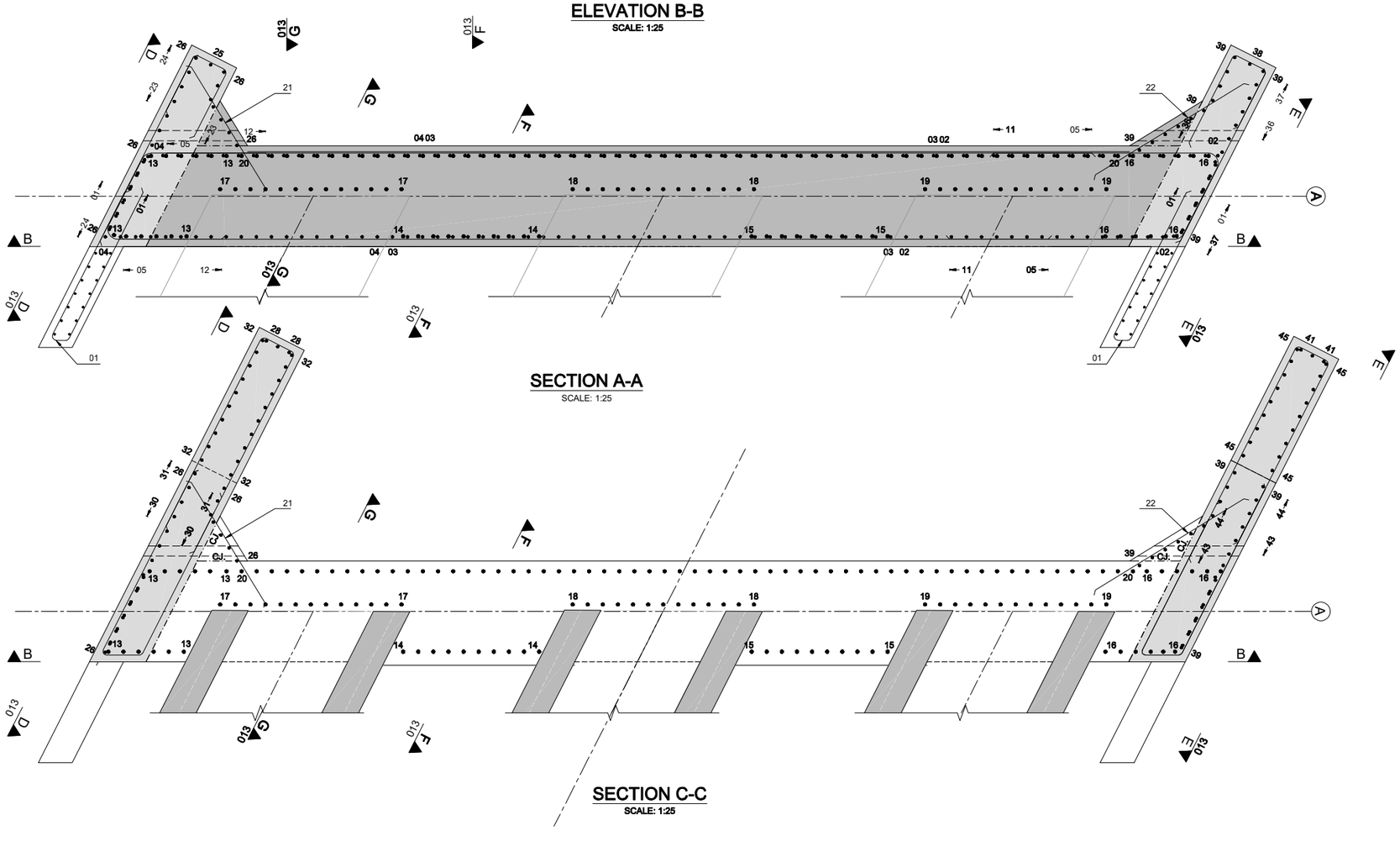
Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) West Abutment Reinforced Concrete Details (sheet 1 of 1)
Drawn: BR	Original scales: As shown @ A1
Checked: CF	Date: 07/03/2016
Approved: SC	
Drawing No.	M17_1700_OB016_011
Revision.	AB_A

Rev C (15 October 2015)

Drawing file path & name
User and Plot Date



ELEVATION B-B
SCALE: 1:25



SECTION A-A
SCALE: 1:25

SECTION C-C
SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_013_AB_A.

4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_012&013_AB_A_BS.

5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.

6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.

7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
ABUTMENT CONSTRUCTION JOINT FACES = 25mm.
ABUTMENT BOTTOM, SIDE + TOP FACES = 60mm.

9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

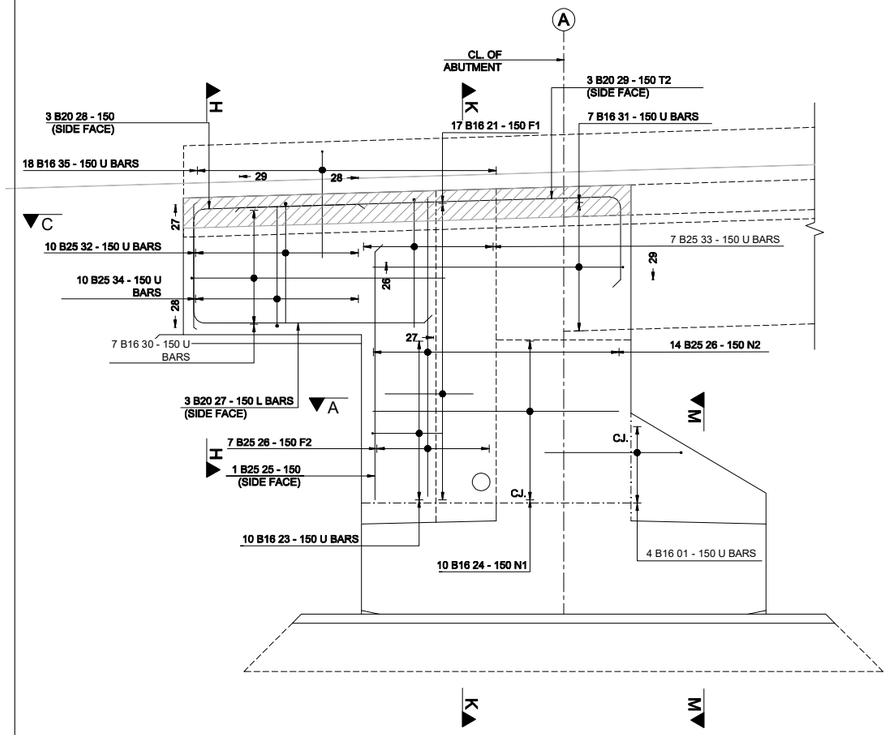
Rev	By	Date	Description
CE_A	GD	28.10.15	Issue for Certification
CO_A	JR	08.02.16	Issue for Construction
CO_A(1)	HC	26.04.2016	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project: N17 / M18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103)
West Abutment Reinforced Concrete Details Sheet 1 of 2

Drawn: GD | Original scales: As shown @ A1 | Drawing No. M17_1700_OB16_012 | Revision. AB_A
Checked: JR | Date: 28/10/2015
Approved: SC

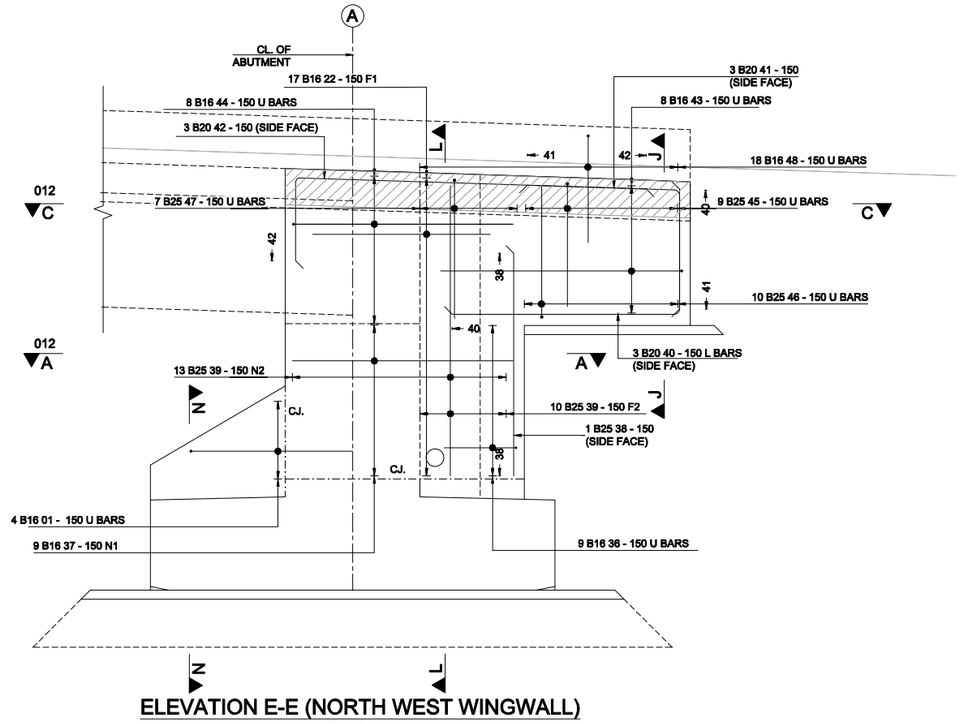
Rev B (28 October 2015)

Drawing file path & name:
Xrefs/xref file path
User and Plot Date



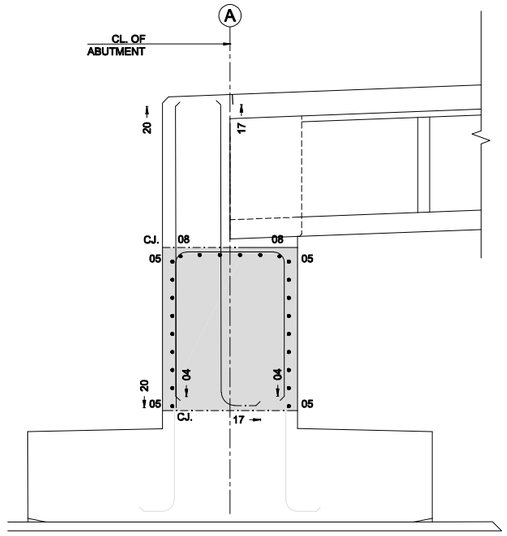
ELEVATION D-D (SOUTH WEST WINGWALL)

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_012)



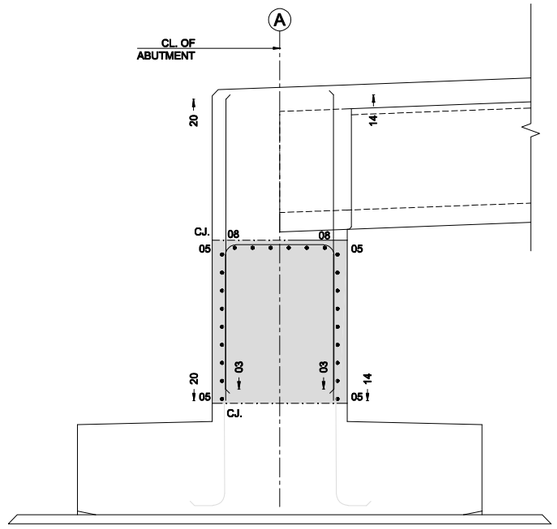
ELEVATION E-E (NORTH WEST WINGWALL)

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_012)



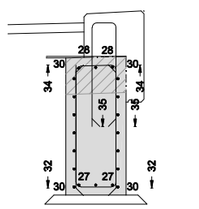
SECTION G-G

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_012)



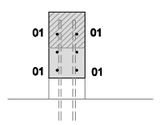
SECTION F-F

SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_012)



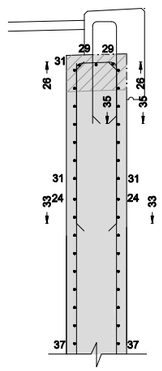
SECTION H-H

SCALE: 1:25



SECTION M-M

SCALE 1:25



SECTION K-K

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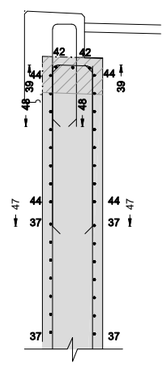

SECTION L-L

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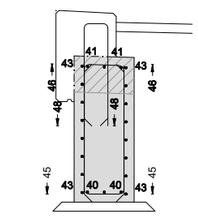
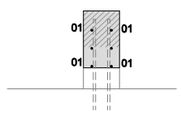


SECTION J-J

SCALE: 1:25



SECTION N-N

SCALE 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_012_AB_A.

4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_012&013_AB_A_BS.

5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.

6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.

7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
ABUTMENT CONSTRUCTION JOINT FACES = 25mm.
ABUTMENT BOTTOM, SIDE + TOP FACES = 60mm.

9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

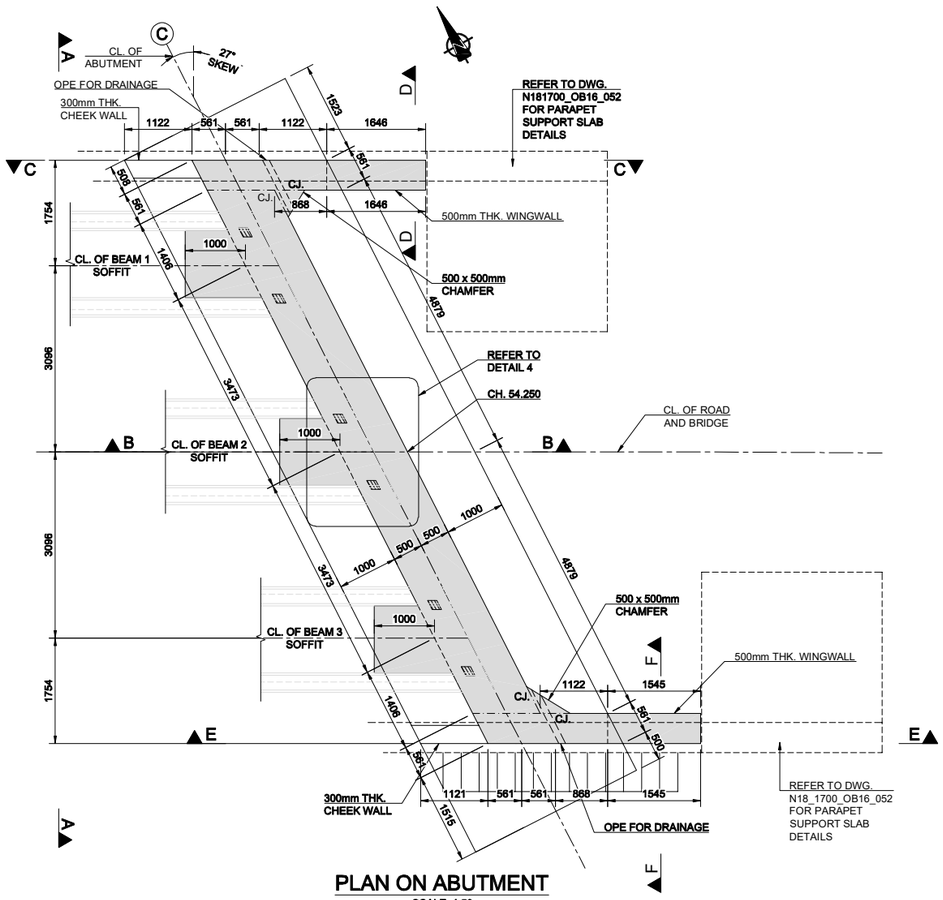
Rev	By	Date	Description
CE_A	GD	28.10.15	Issue for Certification
CO_A	JR	08.02.16	Issue for Construction
CO_A(1)	HC	26.04.2016	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project: N17 / N18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103)
West Abutment Reinforced Concrete Details Sheet 2 of 2

Drawn: GD	Original scales: As shown @ A1	Drawing No.	Revision.
Checked: JR	Date: 28/10/2015	M17_1700_OB16_013	AB_A
Approved: SC			

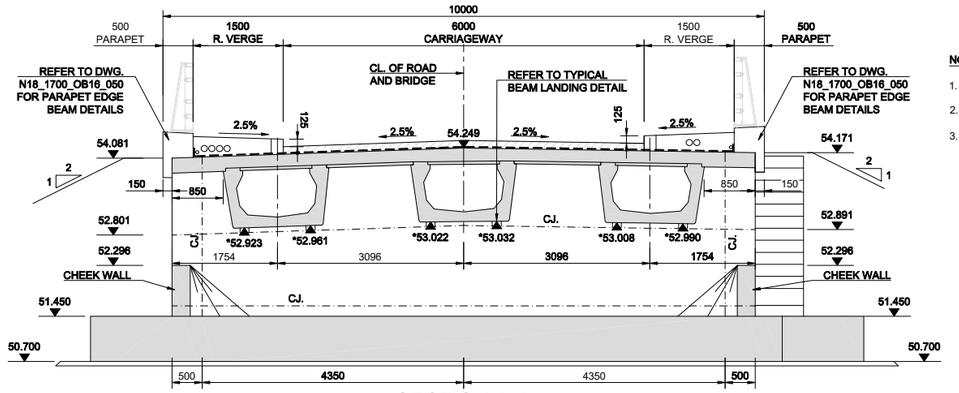
Rev B (26 October 2015)

Drawing file path & name :
M:\M17_1700_OB16_013_AB_A.dwg
User and Plot Date:



PLAN ON ABUTMENT

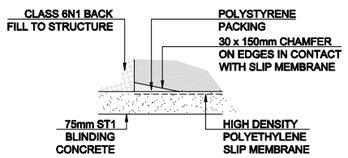
SCALE: 1:50



SECTION A-A

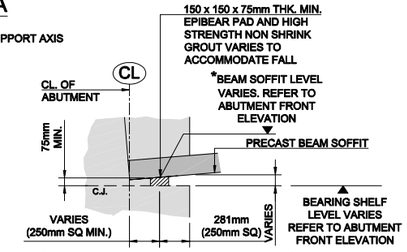
SCALE: 1:50

NOTE: LEVELS REFER TO BEAM SUPPORT AXIS



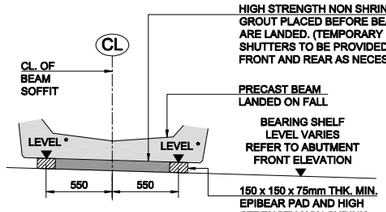
DETAIL 1: FOUNDATION CHAMFER

SCALE: 1:10



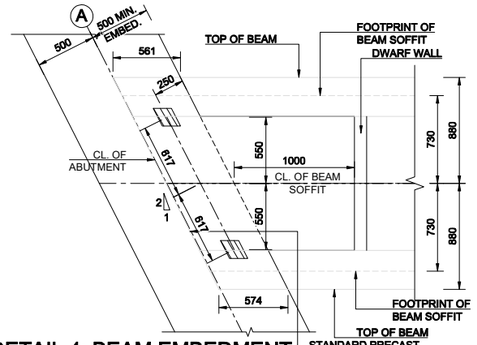
DETAIL 2: BEAM LANDING

SCALE: 1:25



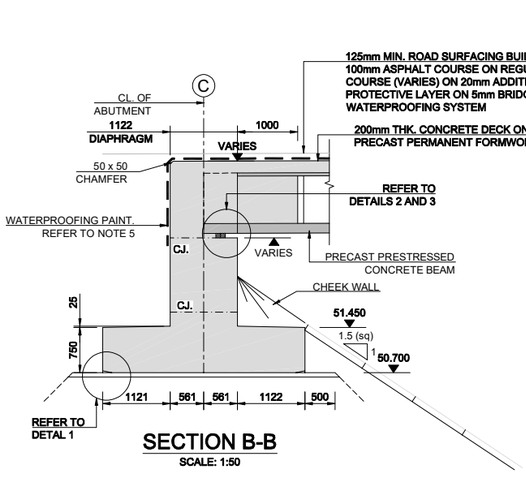
DETAIL 3: BEAM LANDING

SCALE: 1:25



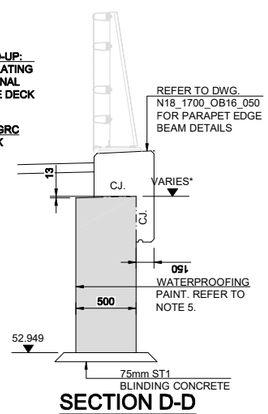
DETAIL 4: BEAM EMBEDMENT

SCALE: 1:25



SECTION B-B

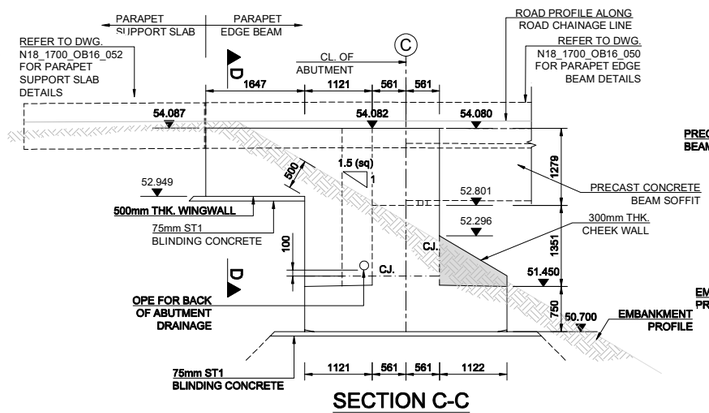
SCALE: 1:50



SECTION D-D

SCALE: 1:25

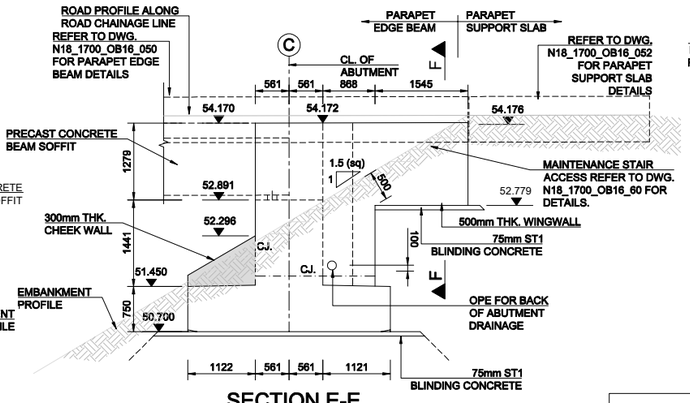
*LEVEL LOCATION (REFER TO SECTION C-C)



SECTION C-C

SCALE: 1:50

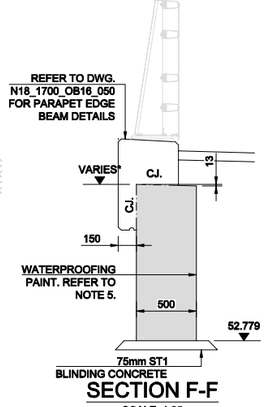
(NORTHEAST WINGWALL)



SECTION E-E

SCALE: 1:50

(SOUTHEAST WINGWALL)



SECTION F-F

SCALE: 1:25

*LEVEL LOCATION (REFER TO SECTION E-E)

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. FINISHES:

BURIED UNFORMED SURFACES	- U1
EXPOSED UNFORMED SURFACES (EXCLUDING AREAS TO RECEIVE WATERPROOFING AND EXPOSED TOP FACE OF ABUTMENT BASE)	- U3
EXPOSED TOP FACE OF ABUTMENT BASE (INSPECTION PLATFORM)	- BRUSHED FINISH
BURIED SURFACES	- F1
END SUPPORTS - ABUTMENT STEM	- F4
END SUPPORTS - WINGWALLS	- F4
INTERMEDIATE SUPPORTS	- F4
PARAPET EDGE BEAMS	- F3/U3
PRECAST BEAMS	- F4
EXPOSED PARAPET SUPPORT SLAB	- F3/U3
PRECAST ELEMENTS	- F4
DECK CANTILEVER	- F4
DECK SOFFIT (BETWEEN BEAMS)	- PERMANENT FORMWORK IN ACCORDANCE WITH BA36
INSITU DECK SOFFIT	-F4
AREA OF DECK TO BE WATERPROOFED	-U4

4. MATERIALS:

LOCATION	MIX REFERENCE
PIER & ABUTMENT FOUNDATIONS	- GRADE C35/45-1
ABUTMENT STEM AND PIER COLUMNS	- GRADE C40/50-2 (50% GGBS)
WINGWALLS	- GRADE C40/50-2 (50% GGBS)
CROSSHEAD	- GRADE C40/50-2 (50% GGBS)
NON STRUCTURAL CONCRETE	CONCRETE GRADE
FOOTWAY/VERGE INFILL CONCRETE	- C25/30
BLINDING CONCRETE	- ST1

NOTE: FOR DETAILS OF MIX REFERENCES REFER TO APPENDIX 17/1 OF THE SPECIFICATION.

NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG (GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.

5. WATERPROOFING:

BRIDGE DECK WATERPROOFING HAS TWO COATS SPRAY APPLIED, SATISFYING THE REQUIREMENTS OF BD47/99, BD57/10.

BRIDGE DECK WATERPROOFING HAS BEEN APPLIED TO:

(i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
(ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
(iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE .

ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.

6. ALL EXPOSED CONCRETE HAS BEEN IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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STRABAG
BUILDERS SISK CONTRACTORS Established 1859

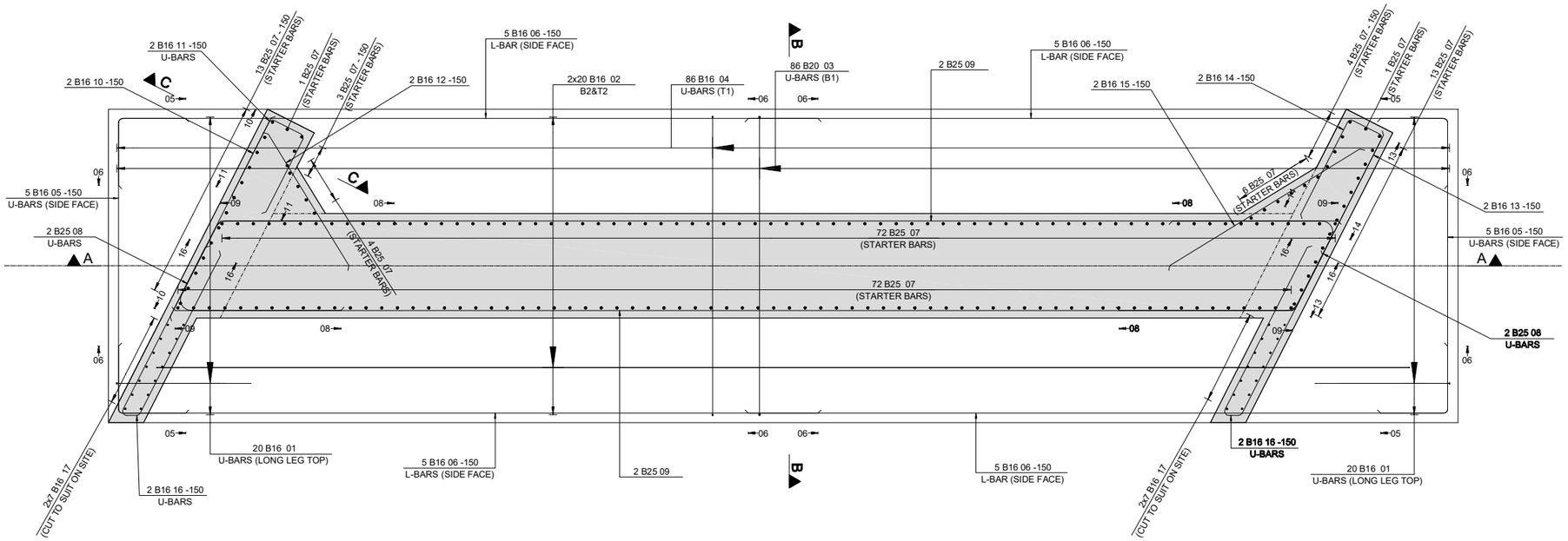
DIRECT ROUTE

Rev	By	Date	Description
CE_A	GD	08.10.2015	Issue for Certification
CO_A	JR	08.02.2016	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) East Abutment General Arrangement
Drawn: GD	Original scales: As shown @ A1
Checked: JR	Date: 08/10/2015
Approved: SC	Drawing No. M17_1700_OB16_020
	Revision. AB_A

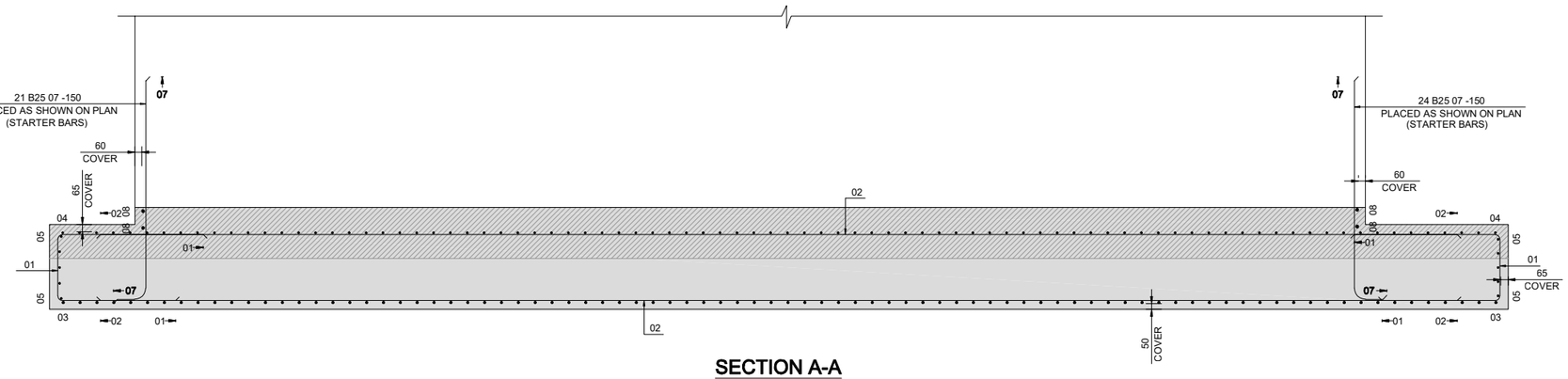
Rev C (16 October 2015)

Drawing file path & name Drawing Number and Plot Date



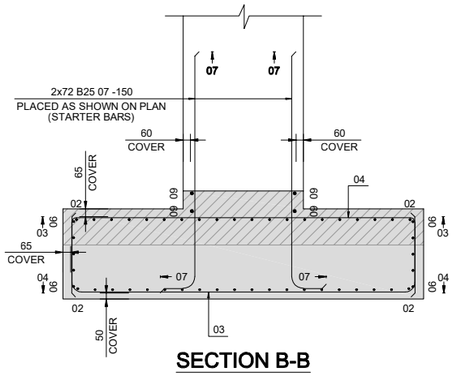
PLAN ON ABUTMENT BASE

SCALE: 1:25



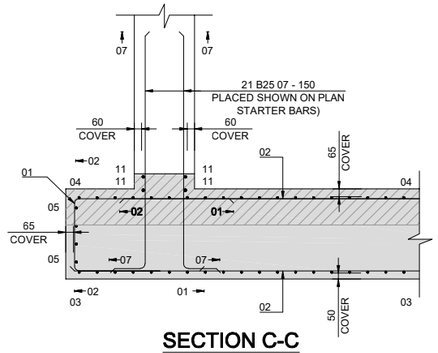
SECTION A-A

SCALE: 1:25



SECTION B-B

SCALE: 1:25



SECTION C-C

SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB016_010_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB016_011_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT TO COMPLY WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

   NF1 - NEAR FACE OUTERMOST BAR
   NF2 - NEAR FACE NEXT OUTERMOST BAR
   FF1 - FAR FACE OUTERMOST BAR
   FF2 - FAR FACE NEXT OUTERMOST BAR
   EF1 - EACH FACE OUTERMOST BAR
   EF2 - EACH FACE NEXT OUTERMOST BAR
   B1 - BOTTOM FACE OUTERMOST BAR
   B2 - BOTTOM FACE NEXT OUTERMOST BAR
   T1 - TOP FACE OUTERMOST BAR
   T2 - TOP FACE NEXT OUTERMOST BAR
   ABR - ALTERNATE BARS REVERSED
   STG - ALTERNATELY STAGGERED BARS
   ABP - ALTERNATE BARS PLACED
   UB - UBARS
   LB - LBARS

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   BOTTOM FACE = 50mm
   SIDE AND TOP FACE = 65mm
   PIER KICKER SIDE FACE = 60mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C35/45 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	270	375	525	710	970
MIN LAP NO STAGGER	410	565	790	1065	1455
MIN LAP 2 BAR STAGGER	380	525	735	995	1360

C35/45 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	390	540	750	1015	1385
MIN LAP NO STAGGER	580	810	1125	1520	2080
MIN LAP 2 BAR STAGGER	540	750	1050	1420	1940

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

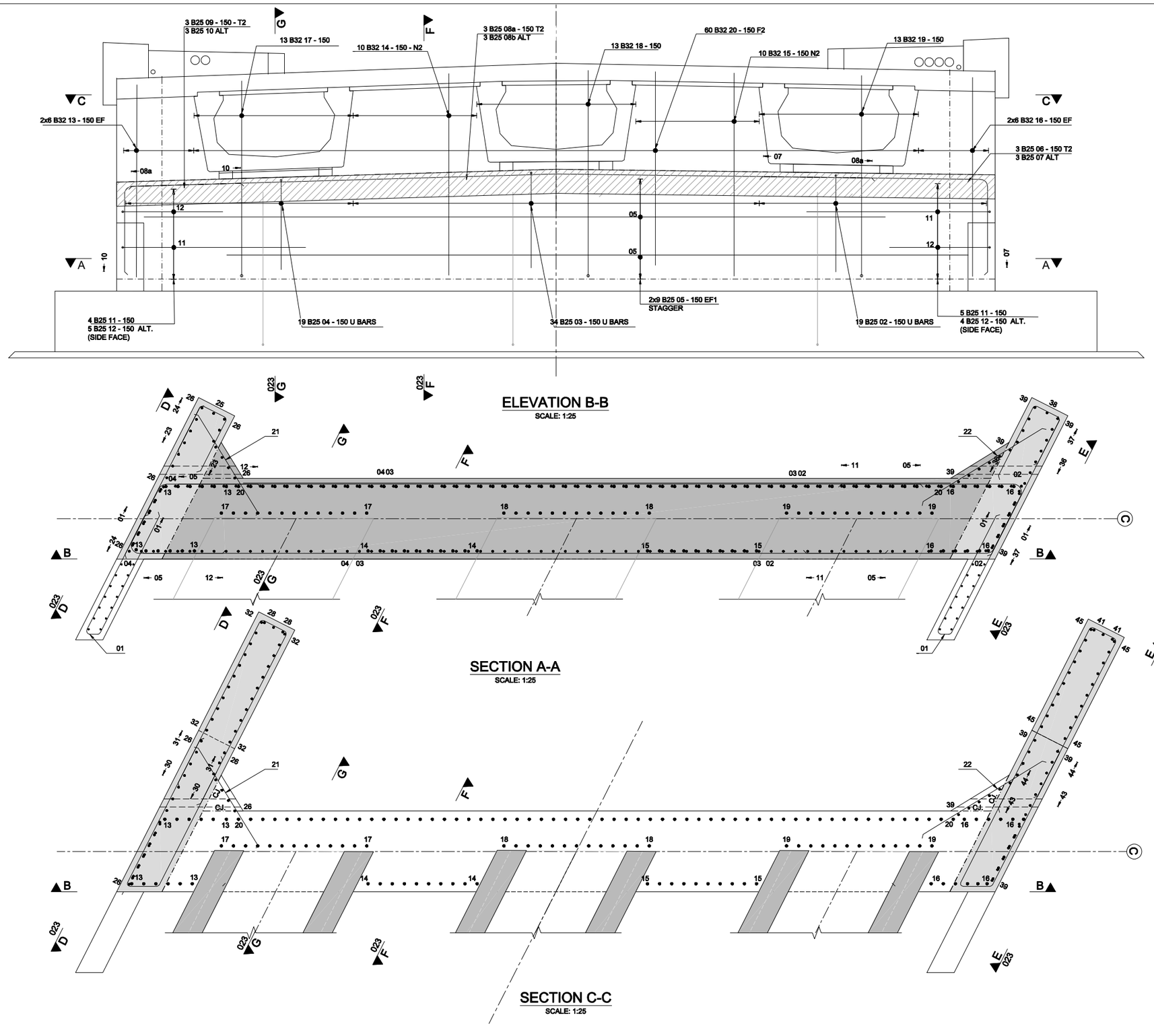
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	07.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AB_A	HC	22.08.16	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) East Abutment Reinforced Concrete Details (sheet 1 of 1)
Drawn: BR	Original scales: As shown @ A1
Checked: CF	Date: 07/03/2016
Approved: SC	
Drawing No.	M17_1700_OB016_021
Revision.	AB_A

Rev C (15 October 2015)

Drawing file path & name
User and Plot Date



ELEVATION B-B
SCALE: 1:25

SECTION A-A
SCALE: 1:25

SECTION C-C
SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_023_AB_A.

4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_022&023_AB_A_BS.

5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.

6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.

7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
ABUTMENT CONSTRUCTION JOINT FACES = 25mm.
ABUTMENT BOTTOM, SIDE + TOP FACES = 60mm.

9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	GD	28.10.15	Issue for Certification
CO_A	JR	08.02.16	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project: N17 / M18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103)
East Abutment Reinforced Concrete Details Sheet 1 of 2

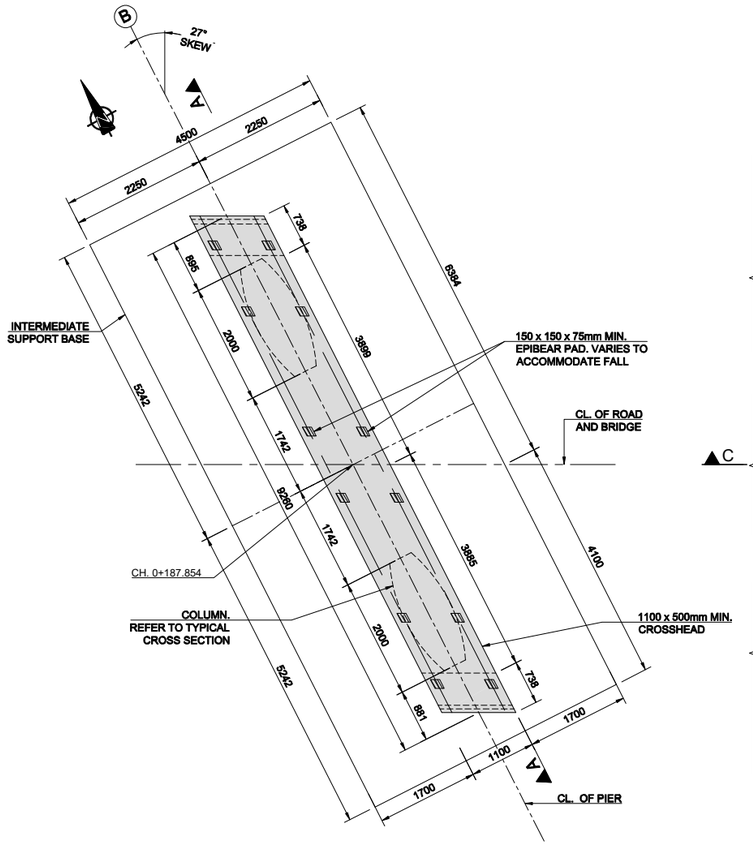
Drawn: GD | Original scales: As shown @ A1 | Drawing No. M17_1700_OB16_022 | Revision. AB_A
Checked: JR | Date: 28/10/2015
Approved: SC
Rev B (28 October 2015)

Drawing file path & name:
X:\Archive\xx files path\
User and Plot Date

AS - BUILT RECORD

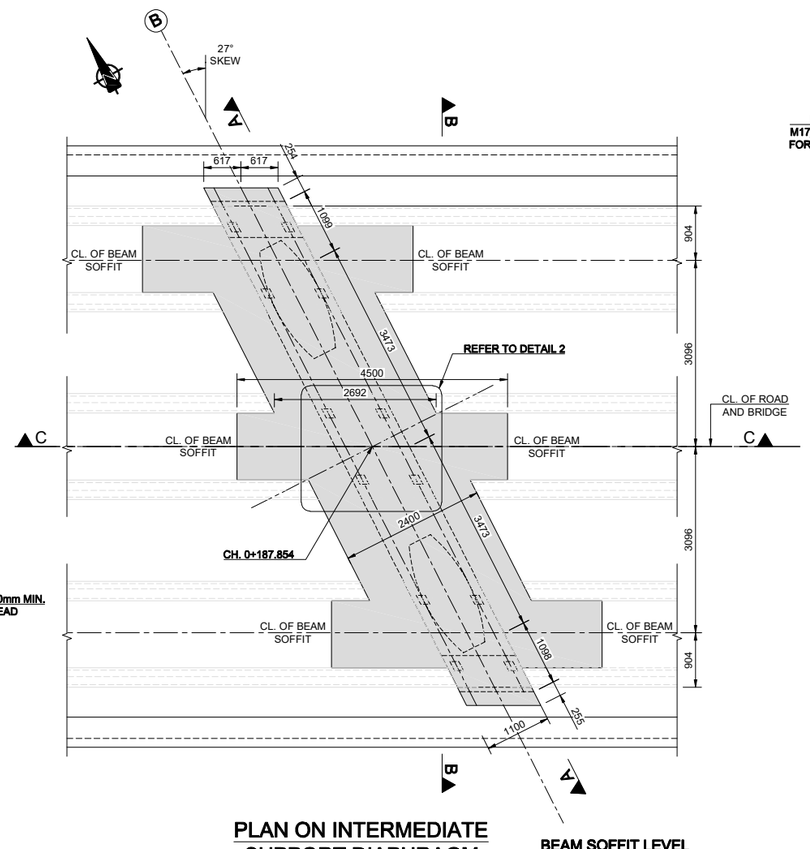
NOTES:

1. REFER TO DWG. M17_1700_OB16_010_AB_A FOR NOTES.



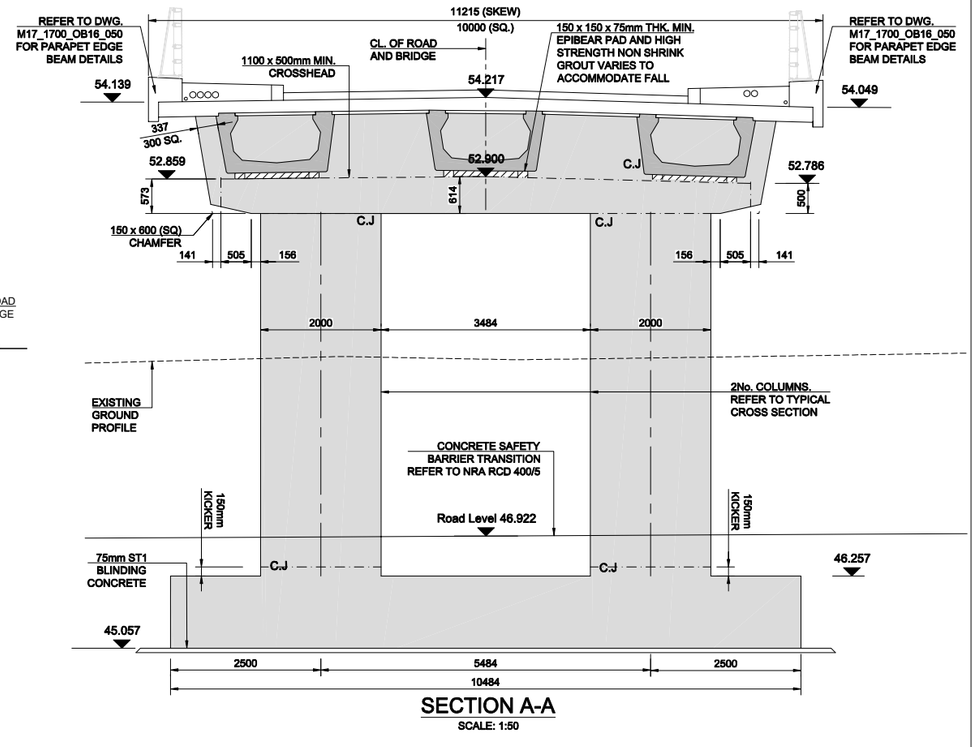
PLAN ON INTERMEDIATE SUPPORT BASE AND CROSSHEAD

SCALE: 1:50



PLAN ON INTERMEDIATE SUPPORT DIAPHRAGM

SCALE: 1:50



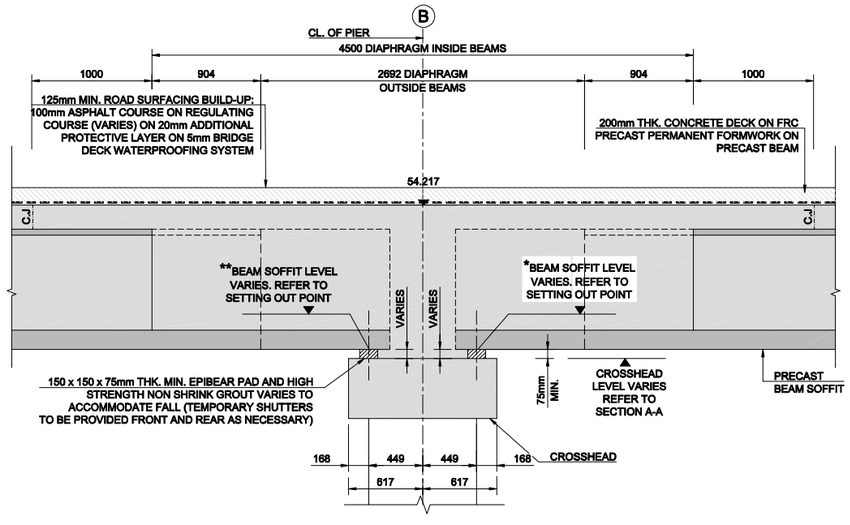
SECTION A-A

SCALE: 1:50

BEAM SOFFIT LEVEL SETTING OUT POINT

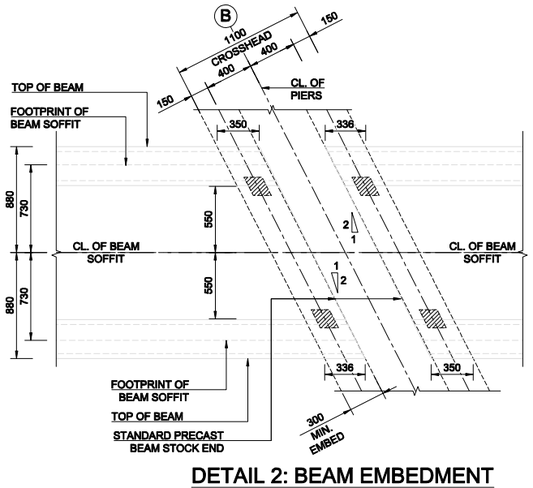
BEAM	LEFT LEVEL		RIGHT LEVEL	
	*	**	*	**
1	52.892	52.878	52.930	**52.916**
2	**52.991**	**52.977**	**53.001**	**52.987**
3	**52.977**	**52.963**	**52.959**	**52.945**

(* , ** REFER TO SECTION C-C)



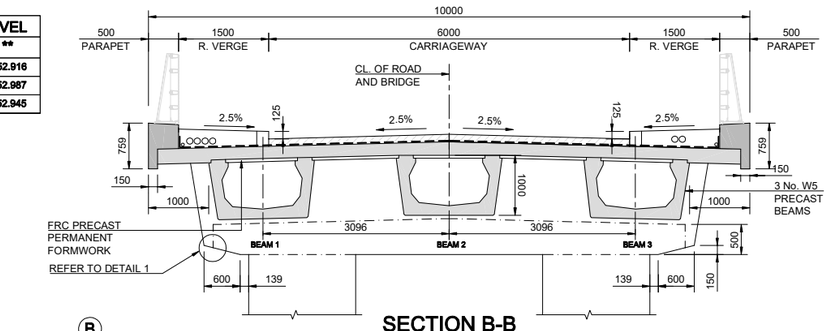
SECTION C-C

SCALE: 1:25



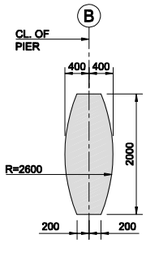
DETAIL 2: BEAM EMBEDMENT

SCALE: 1:25



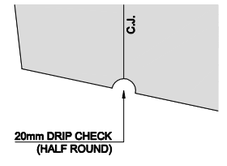
SECTION B-B

SCALE: 1:50



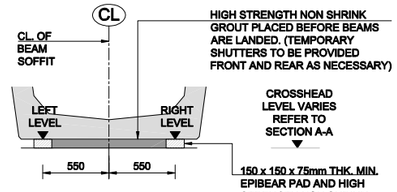
TYPICAL CROSS SECTION THROUGH COLUMN

SCALE: 1:50



DETAIL 1: DRIP CHECK

SCALE: 1:5



BEAM LANDING DETAIL

SCALE: 1:25

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

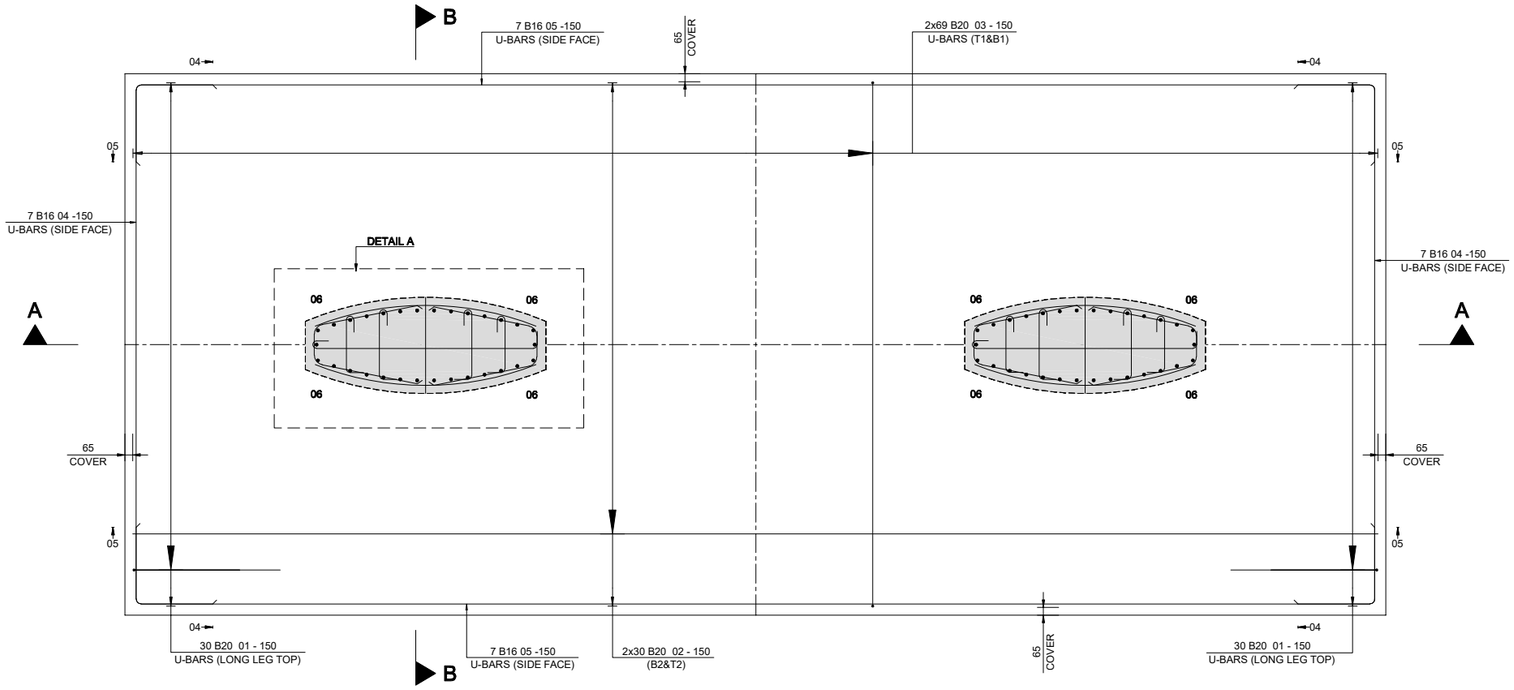
Rev	By	Date	Description
CE_A	GD	14.10.2015	Issue for Certification
CO_A	JR	08.02.2016	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Pier General Arrangement
Drawn: GD	Original scales: As shown @ A1
Checked: JR	Date: 14/10/2015
Approved: SC	
Drawing No.	M17_1700_OB16_030
Revision.	AB_A

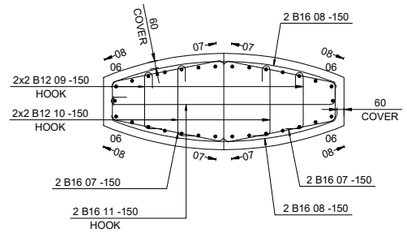
Rev B (16 October 2015)

Drawing file path & name Date Plotted Plotted by User and Plot Date

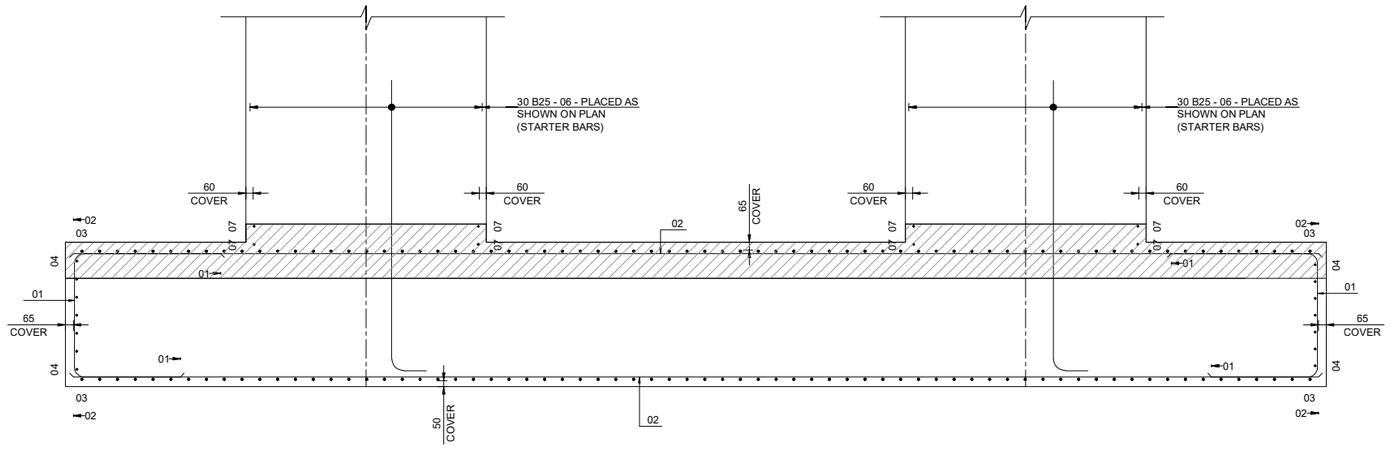
AS - BUILT RECORD



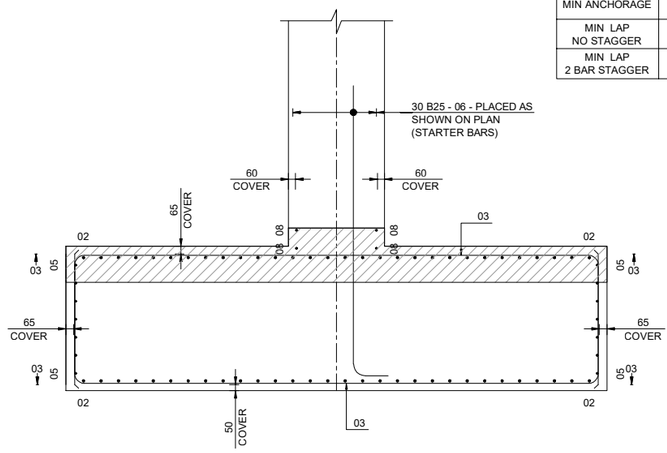
PLAN
SCALE: 1:25



DETAIL A
SCALE: 1:25



SECTION A-A
SCALE: 1:25



SECTION B-B
SCALE: 1:25

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB016_030_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB016_031_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT TO COMPLY WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

NF1	-	NEAR FACE OUTERMOST BAR
NF2	-	NEAR FACE NEXT OUTERMOST BAR
FF1	-	FAR FACE OUTERMOST BAR
FF2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED
UB	-	UBARS
LB	-	LBARS

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   BOTTOM FACE = 50mm
   SIDE AND TOP FACE = 65mm
   PIER KICKER SIDE FACE = 60mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C35/45 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	270	375	525	710	970
MIN LAP NO STAGGER	410	565	790	1065	1455
MIN LAP 2 BAR STAGGER	380	525	735	995	1360

C35/45 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	390	540	750	1015	1385
MIN LAP NO STAGGER	580	810	1125	1520	2080
MIN LAP 2 BAR STAGGER	540	750	1050	1420	1940

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

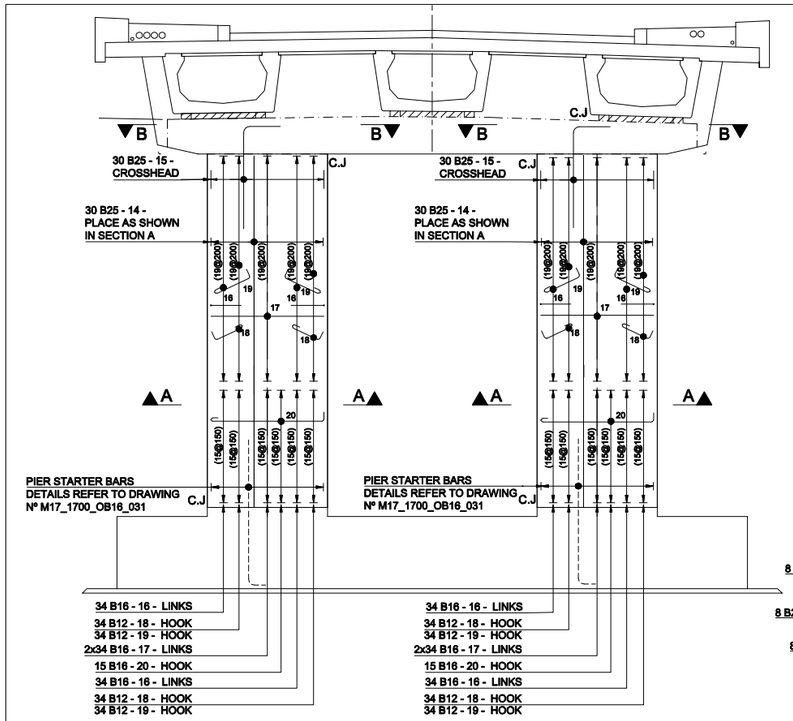
Rev	By	Date	Description
CE_A	BR	08.10.15	Issue for Certification
CO_A	PZ	07.03.16	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17 OB016 Castlelambert Overbridge (L-3103) Pier Reinforced Concrete Details

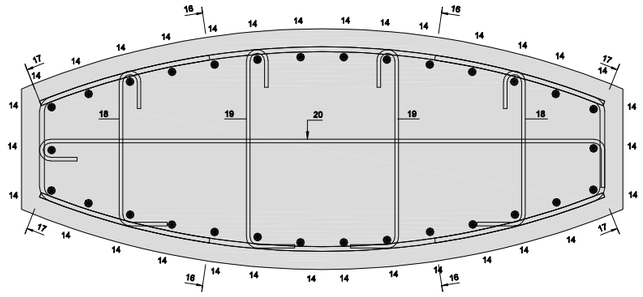
Drawn:	BR	Original scales:	As shown @ A1	Drawing No.	Revision.
Checked:	JR	Date:	07/03/2016	M17_1700_OB016_031	AB_A
Approved:	SC				

Rev B (13 October 2015)

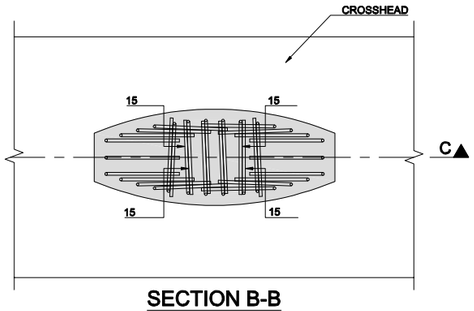
Drawing file path & name:
Date and Plot Date
User and Plot Date



ELEVATION ON PIER
SCALE: 1:50



SECTION A-A
SCALE: 1:10



SECTION B-B
SCALE: 1:25

AS - BUILT RECORD

NOTES:

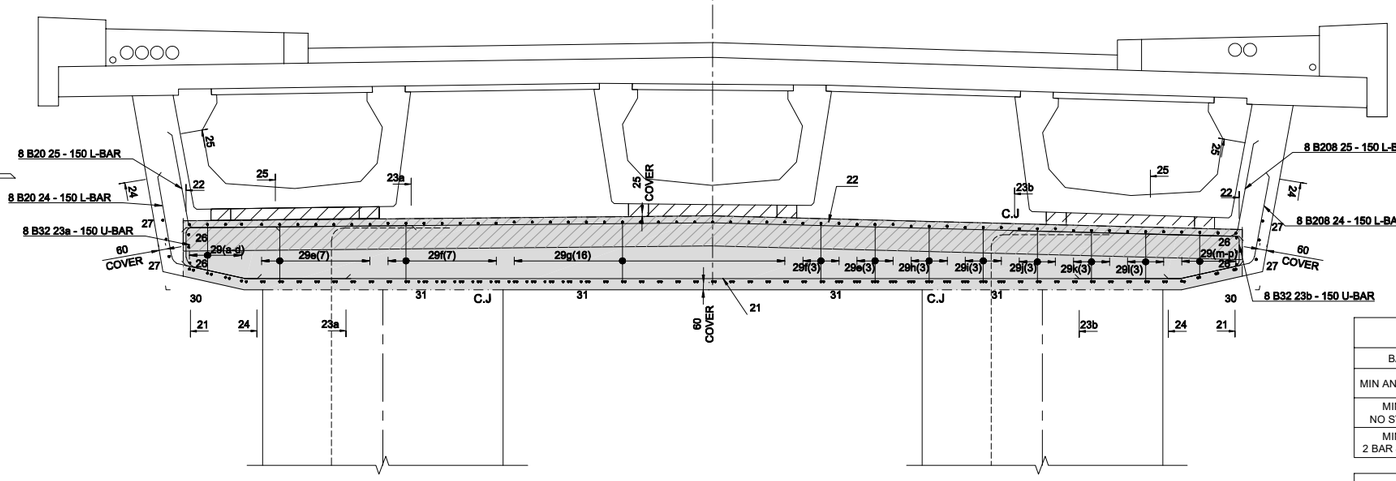
1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_0B16_030_AB_A & 031_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_032_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT TO COMPLY WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

NF1	-	NEAR FACE OUTERMOST BAR
NF2	-	NEAR FACE NEXT OUTERMOST BAR
FF1	-	FAR FACE OUTERMOST BAR
FF2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

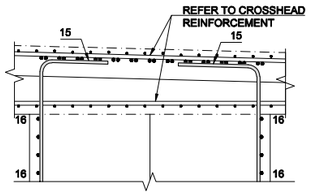
8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   SIDE + BOTTOM OF PIERS = 60 mm
   TOP FACE OF PIERS = 25 mm
   CROSSHEAD BOTTOM FACE = 60 mm
   CROSSHEAD SIDE FACE = 60 mm
   CROSSHEAD TOP FACE = 25 mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155

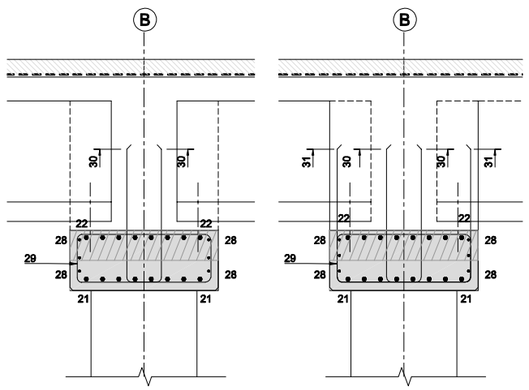
C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650



SECTION F-F
SCALE: 1:25

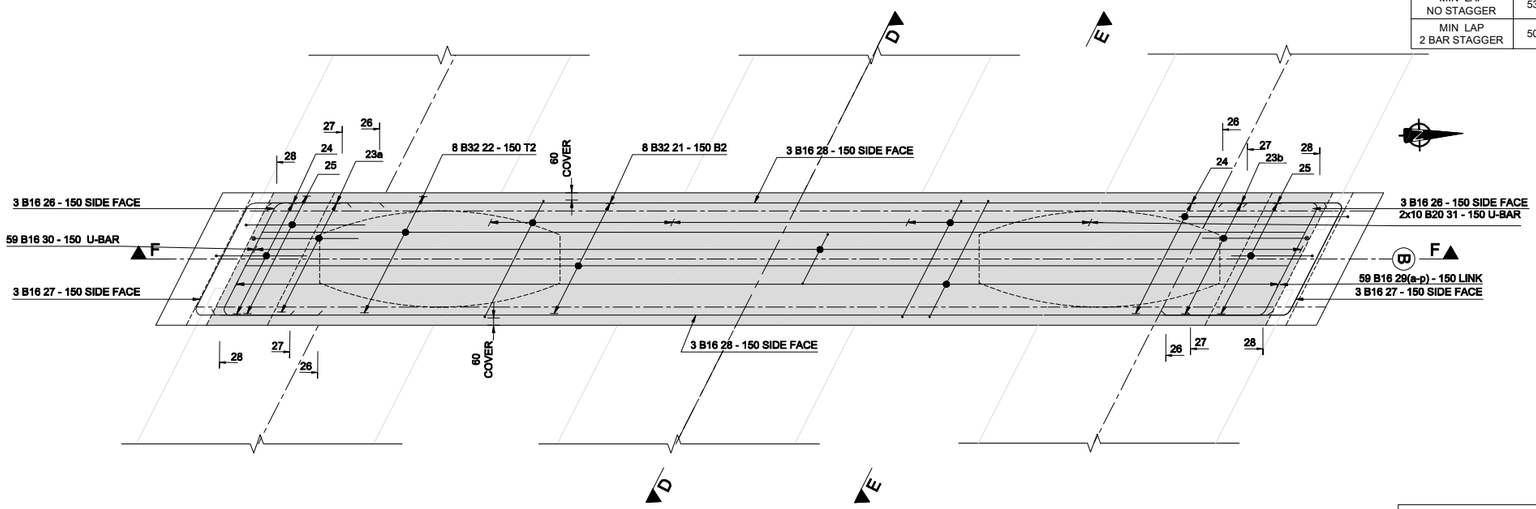


SECTION C-C
SCALE: 1:25



SECTION D-D
SCALE: 1:25

SECTION E-E
SCALE: 1:25



PLAN ON CROSSHEAD
SCALE: 1:25

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	19.10.15	Issue for Certification
CO_A	JR	08.02.16	Issue for Construction
AB_A	HC	22.08.2016	Issue for As Builts

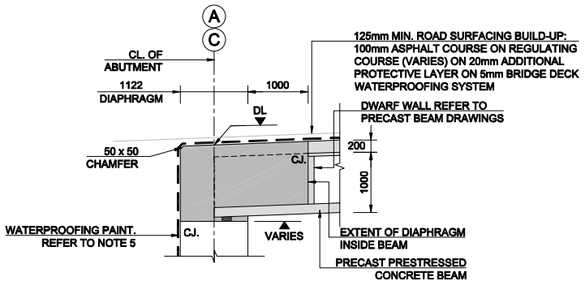
Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Pier Reinforced Concrete Details

Drawn: BR	Original scales: As shown @ A1	Drawing No. M17_1700_OB16_032	Revision. AB_A
Checked: JR	Date: 19/10/2015		
Approved: SC			

Rev C (28 October 2015)

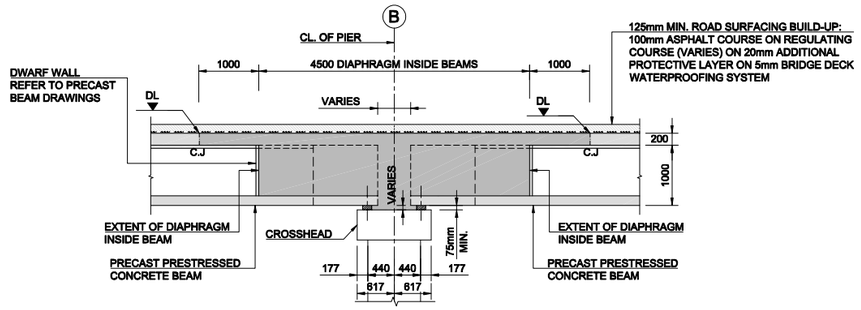
Drawing file path & name
Drawing Scale Factor
User and Plot Date

AS - BUILT RECORD



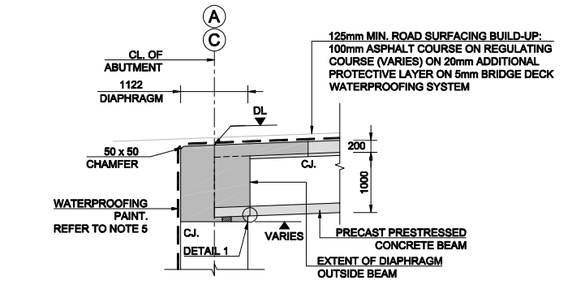
SECTION D-D (WITHIN W-BEAMS)

SCALE: 1:50



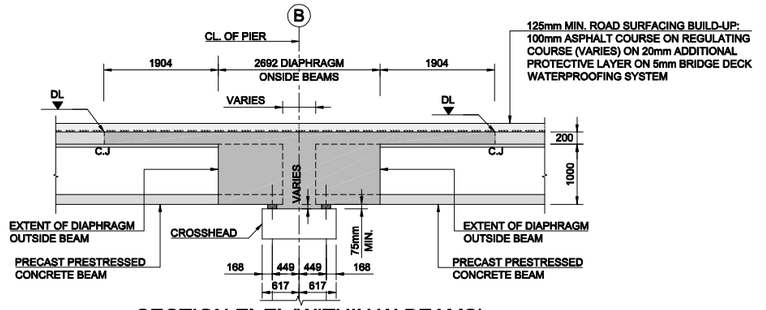
SECTION E-E (WITHIN W-BEAMS)

SCALE: 1:50



SECTION D'-D' (BETWEEN W-BEAMS)

SCALE: 1:50

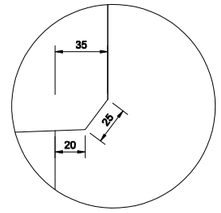


SECTION E`-E` (WITHIN W-BEAMS)

SCALE: 1:50

TABLE OF DECK LEVELS

SOP	DECK LEVEL (m)	EASTING (m)	NORTHING (m)
DL 01	53.383	146716.413	229376.062
DL 02	53.530	146716.225	229370.626
DL 03	53.453	146716.038	229365.190
DL 04	53.706	146726.509	229370.490
DL 05	53.874	146726.322	229365.054
DL 06	53.796	146726.135	229359.618
DL 07	53.952	146733.761	229366.488
DL 08	54.120	146733.573	229361.052
DL 09	54.042	146733.386	229355.616
DL 10	54.049	146736.606	229364.918
DL 11	54.217	146736.419	229359.482
DL 12	54.139	146736.231	229354.046
DL 13	54.053	146739.452	229363.348
DL 14	54.221	146739.264	229357.912
DL 15	54.143	146739.077	229352.476
DL 16	54.065	146746.890	229359.243
DL 17	54.233	146746.702	229353.807
DL 18	54.155	146746.515	229348.371
DL 19	54.081	146757.173	229353.568
DL 20	54.249	146756.986	229348.132
DL 21	54.171	146756.798	229342.700



DETAIL 1

SCALE: 1:2

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. FINISHES:
   - BURIED UNFORMED SURFACES - U1
   - BURIED FORMED SURFACES - F1
   - PRECAST BEAMS - F4
   - DECK SOFFIT (BETWEEN BEAMS) PERMANENT FORMWORK IN ACCORDANCE WITH BA36
   - AREAS TO HAVE BRIDGE DECK WATERPROOFING - U4/F4
   - EXPOSED DECK/DIAPHRAGM - U4/F4
   - PARAPET EDGE BEAM - U3/F3
4. MATERIALS:

LOCATION:	MIX REFERENCE:
SUPERSTRUCTURE INSITU CONCRETE	- C40/50-2 (50% GGBS)
PRECAST PRESTRESSED CONCRETE	- REFER TO BEAM PRODUCTION DRAWING

NOTE: FOR DETAILS OF MIX REFERENCES REFER TO APPENDIX 17/1 OF THE SPECIFICATION.

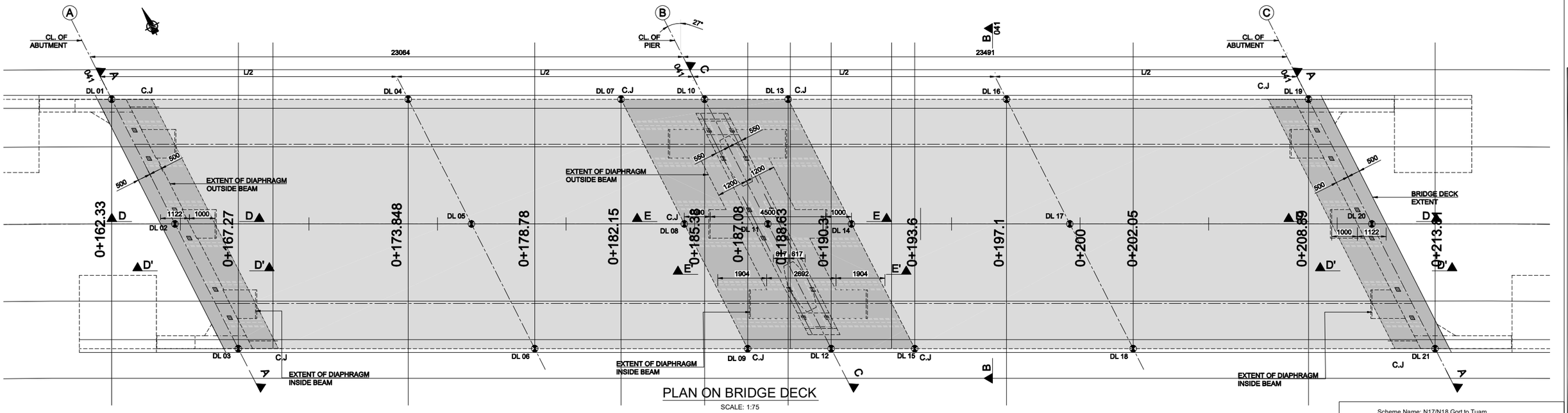
NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG (GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.

5. WATERPROOFING:
   TWO SPRAY COATS OF BRIDGE DECK WATERPROOFING HAVE BEEN APPLIED AND SATISFY THE REQUIREMENTS OF NRA BD47 AND NRA D57.

   BRIDGE DECK WATERPROOFING SHALL AT A MINIMUM BE APPLIED TO:

   (i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
   (ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
   (iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE.

   ALL OTHER BURIED CONCRETE SURFACES SHALL BE TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.
6. ALL EXPOSED CONCRETE WERE IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
7. REFER TO DWG. M17_1700_OB16_004 FOR DECK POUR SEQUENCE.
8. EXTERNAL CONCRETE ARISES TO BE CHAMFERED 25 x 25mm U.N.O.



PLAN ON BRIDGE DECK

SCALE: 1:75

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Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Department Transport, Tourism and Sport

HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP
STRABAG
BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	19.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
CO_A(1)	HC	26.04.2016	Issue for Construction
AB_A	HC	24.08.2016	Issue for As - Builts

Project: N17 / N18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103)
Deck Slab General Arrangement (Sheet 1 of 2)

Drawn: BR	Original scales: As shown @ A1	Drawing No. M17_1700_OB16_040	Revision. AB_A
Checked: JR	Date: 19/10/2015		
Approved: SC			

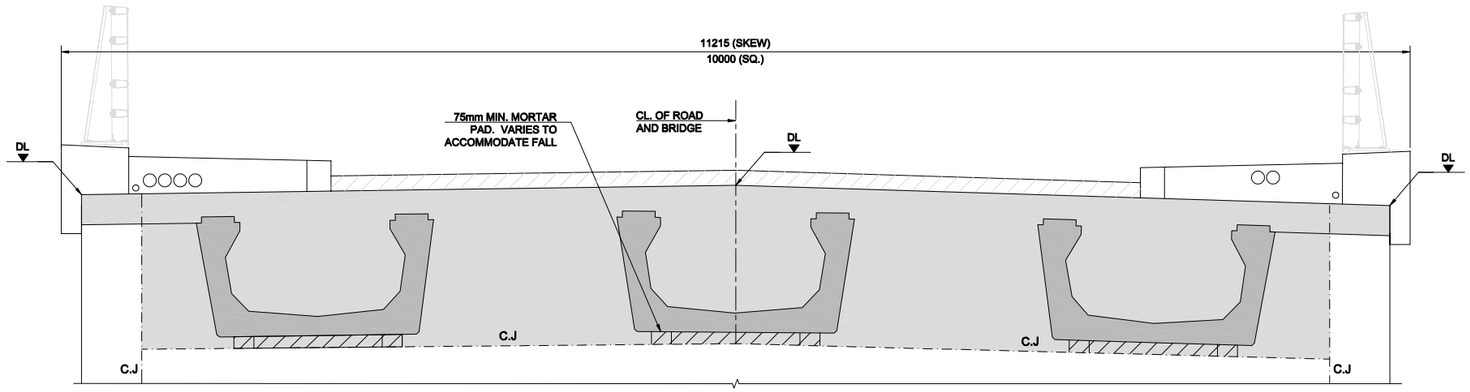
Rev B (29 October 2015)

Drawing file path & name : Do Not Delete Path User and Plot Date

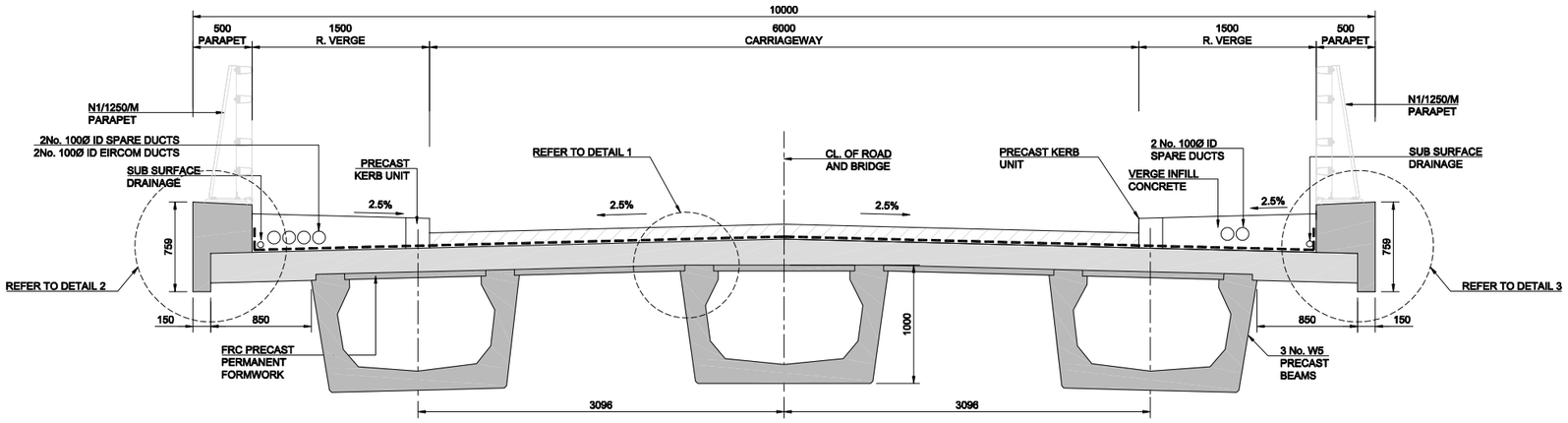
AS - BUILT RECORD

NOTES:

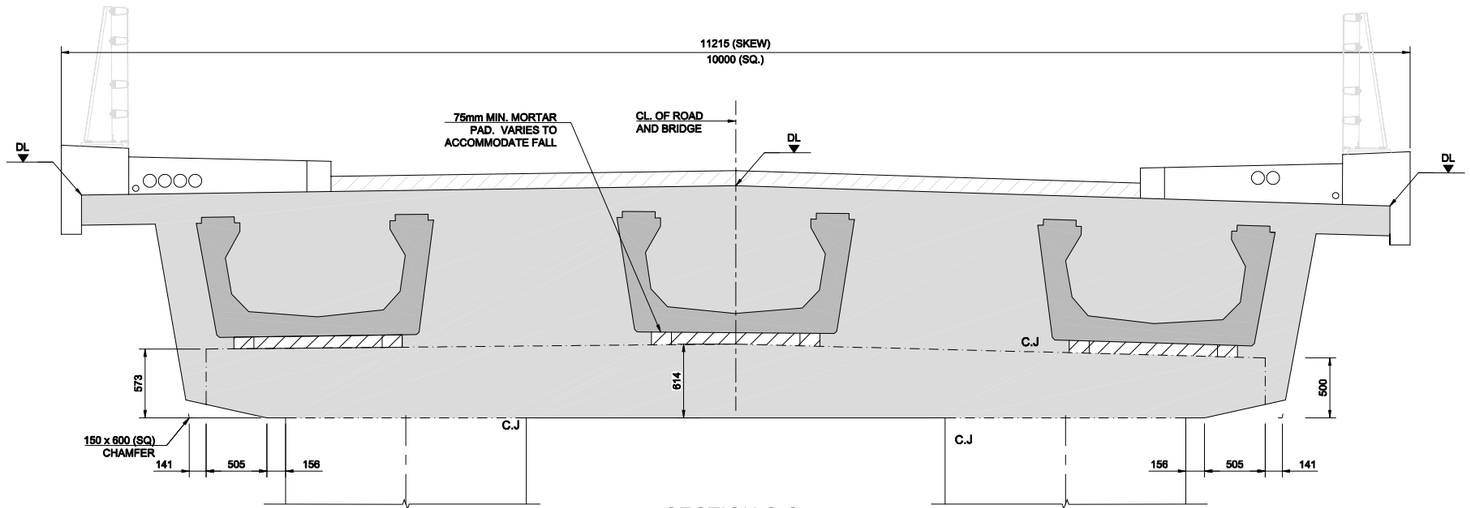
1. REFER TO DRAWING M17_1700_OB16_040_AB_A FOR NOTES.



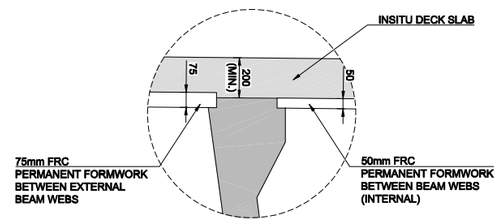
SECTION A-A
SCALE: 1:25



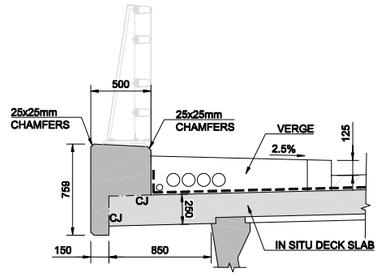
SECTION B-B
SCALE: 1:25



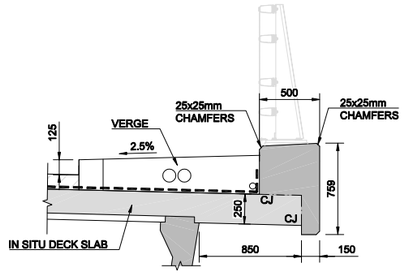
SECTION C-C
SCALE: 1:25



DETAIL 1
SCALE: 1:15



DETAIL 2
SCALE: 1:25



DETAIL 3
SCALE: 1:25

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	19.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Deck Slab General Arrangement (Sheet 2 of 2)

Drawn: BR	Original scales: As shown @ A1	Drawing No.	Revision.
Checked: JR	Date: 19/10/2015	M17_1700_OB16_041	AB_A
Approved: SC			

Rev B (29 October 2015)

Drawing file path & name: Do Not Modify Or Save User and Plot Date

AS - BUILT RECORD

NOTES:

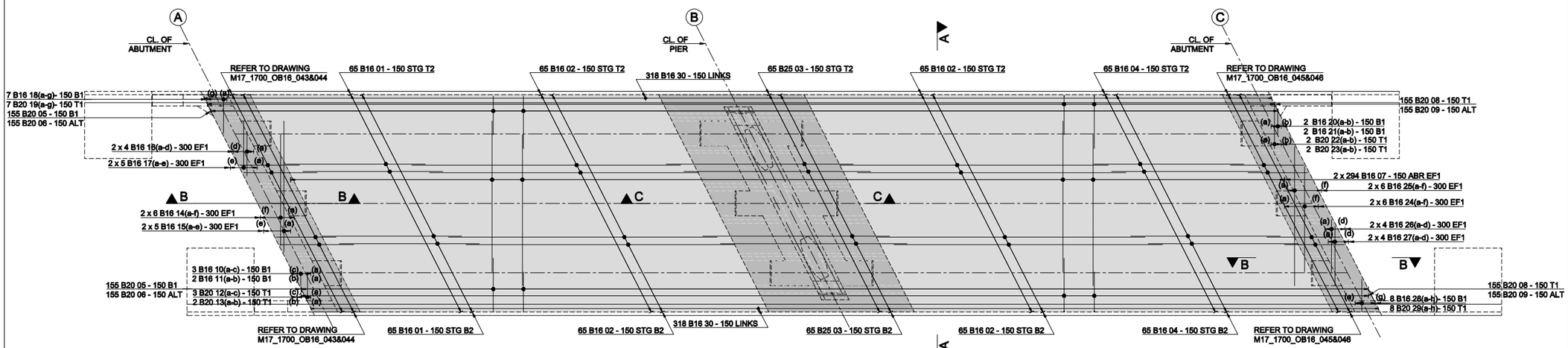
1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_042_AB_A_BS.
4. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
5. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
6. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

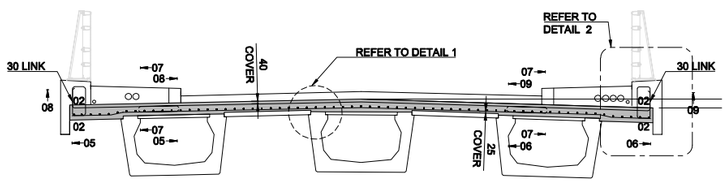
7. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   DECK BOTTOM FACE AT CANTILEVER = 60mm
   DECK BOTTOM FACE AT BEAMS / FRC = 50mm
   DECK BOTTOM FACE BETWEEN BEAMS / FRC = 25mm
   DECK TOP FACE = 40mm
   DECK SIDE FACE AT EDGE BEAM = 25 mm
8. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

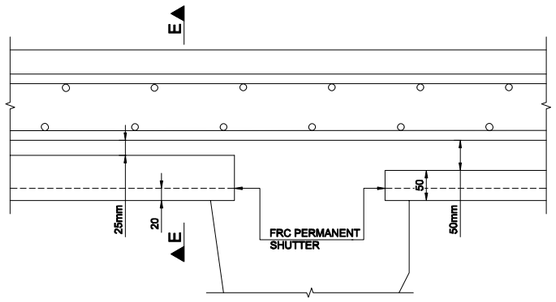
C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820



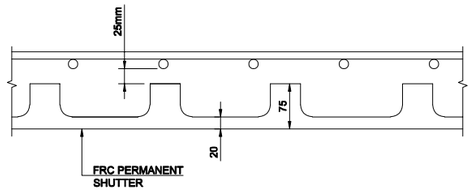
PLAN ON BRIDGE DECK
SCALE: 1:100



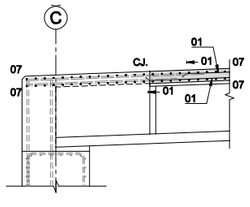
SECTION A-A
SCALE: 1:50



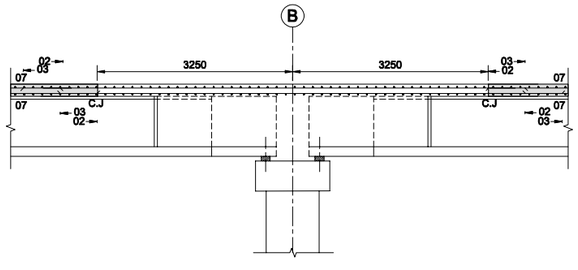
DETAIL 1
SCALE: 1:5



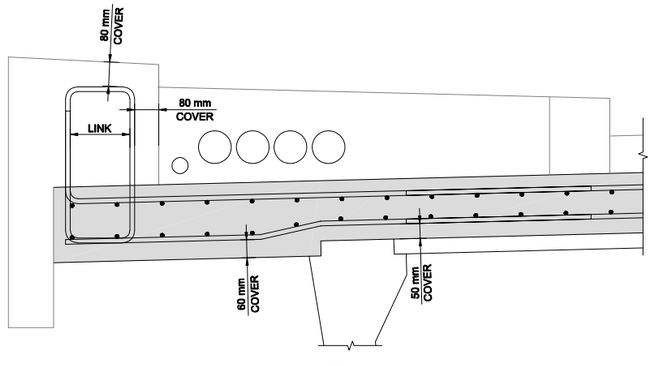
SECTION E-E
SCALE: 1:5



SECTION B-B
SCALE: 1:50



SECTION C-C
SCALE: 1:50



DETAIL 2
SCALE: 1:10

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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BUILDERS SISK CONTRACTORS Established 1859

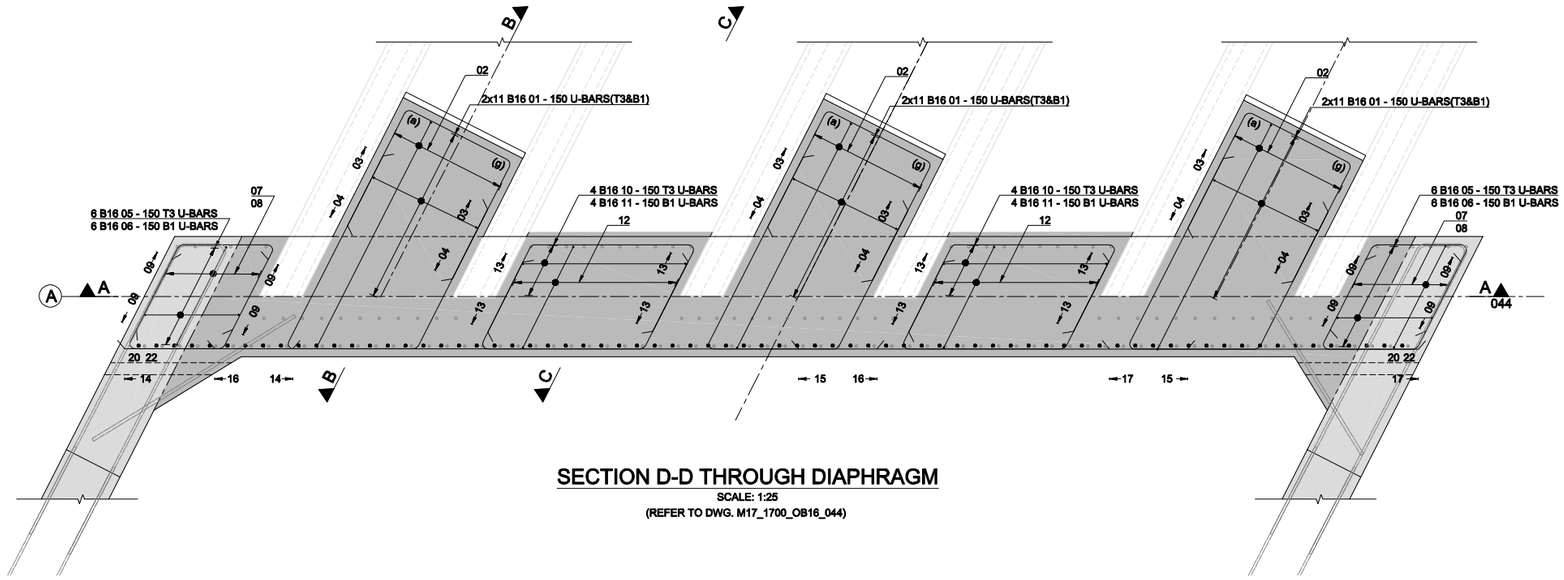
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	26.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	24.08.2016	Issue for As - Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Deck Slab Reinforcement Concrete Detail
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 26/10/2015
Approved: SC	
Drawing No.	M17_1700_OB16_042
Revision.	AB_A

Rev D (05 November 2015)

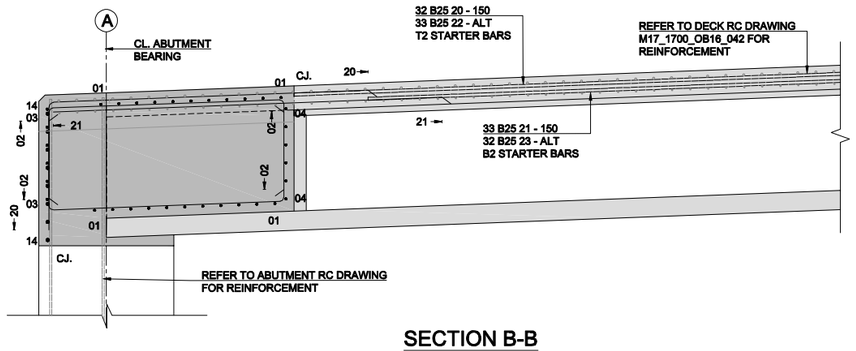
Drawing file path & name
Drawing file Author
User and Plot Date



SECTION D-D THROUGH DIAPHRAGM

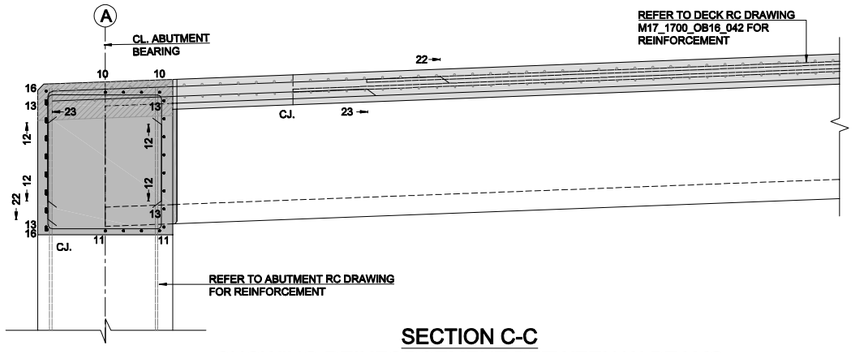
SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_044)



SECTION B-B
SHOWING REINFORCEMENT WITHIN W-BEAMS

SCALE: 1:25



SECTION C-C
SHOWING REINFORCEMENT BETWEEN W-BEAMS

SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_044_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_043&044_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
T3	-	TOP FACE NEXT OUTERMOST BAR
T4	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   ALL = 60mm
   DIAPHRAGM SIDE FACES = 60mm
   DECK/DIAPHRAGM TOP FACE = 40mm
   CJ FACE =25mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	28.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
CO_A(1)	HC	26.04.2016	Issue for Construction
AB_A	HC	24.08.2016	Issue for As - Builts

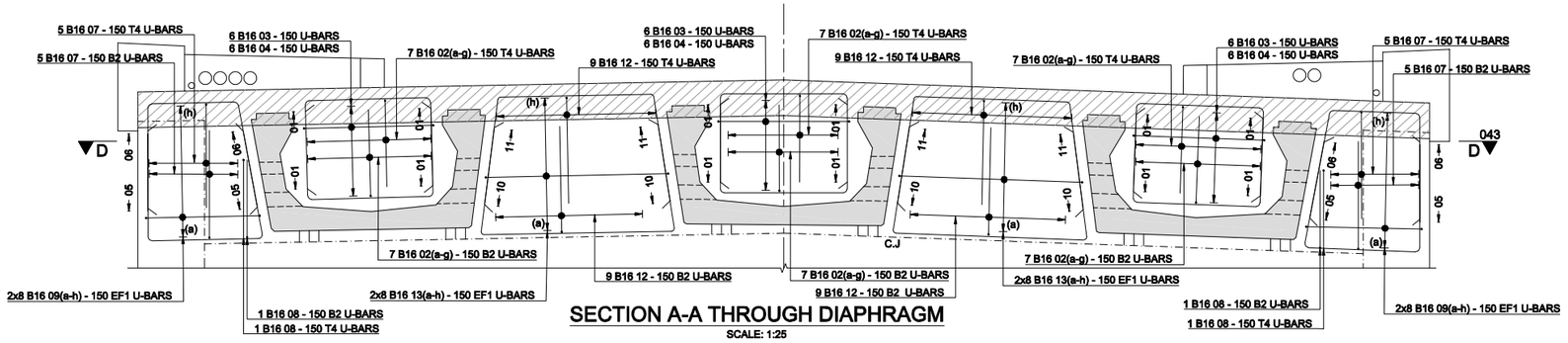
Project: N17 / N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103)
West Abutment Diaphragm RC Details (Sheet 1 of 2)

Drawn: BR	Original scales: As shown @ A1	Drawing No.	Revision.
Checked: JR	Date: 28/10/2015	M17_1700_OB16_043	AB_A
Approved: SC			

Rev D (05 November 2015)

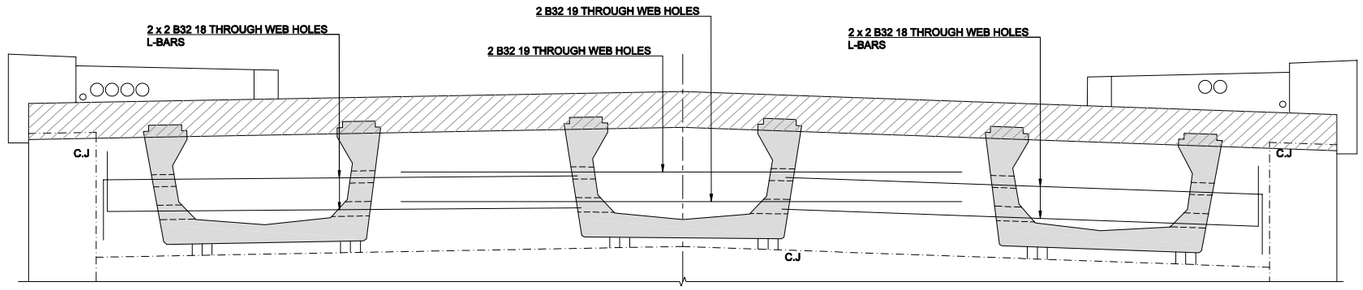
Drawing file path & name
Last Saved by User and Plot Date



SECTION A-A THROUGH DIAPHRAGM

SCALE: 1:25

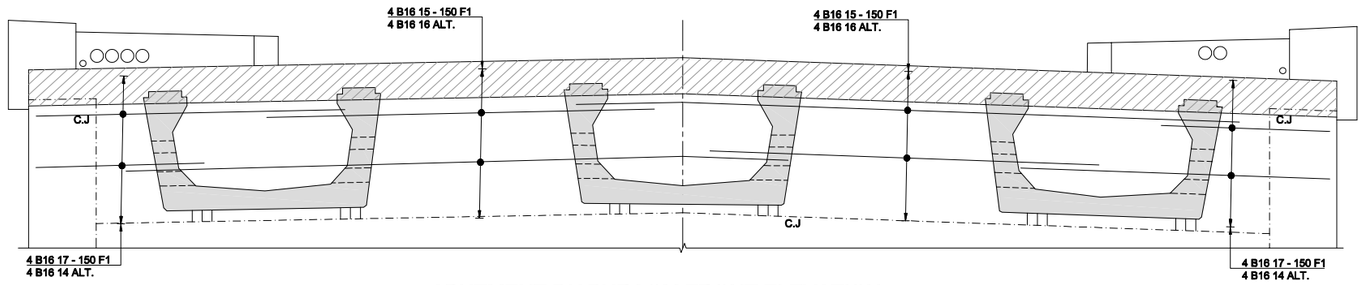
(REFER TO DWG. M17_1700_OB16_043)



SECTION A-A THROUGH DIAPHRAGM

SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_043)



ABUTMENT DIAPHRAGM FRONT ELEVATION

SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_043_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_043&044_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
T3	-	TOP FACE NEXT OUTERMOST BAR
T4	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
   ALL = 60mm
   DIAPHRAGM SIDE FACES = 60mm
   DECK/DIAPHRAGM TOP FACE = 40mm
   CJ FACE = 25mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	28.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts

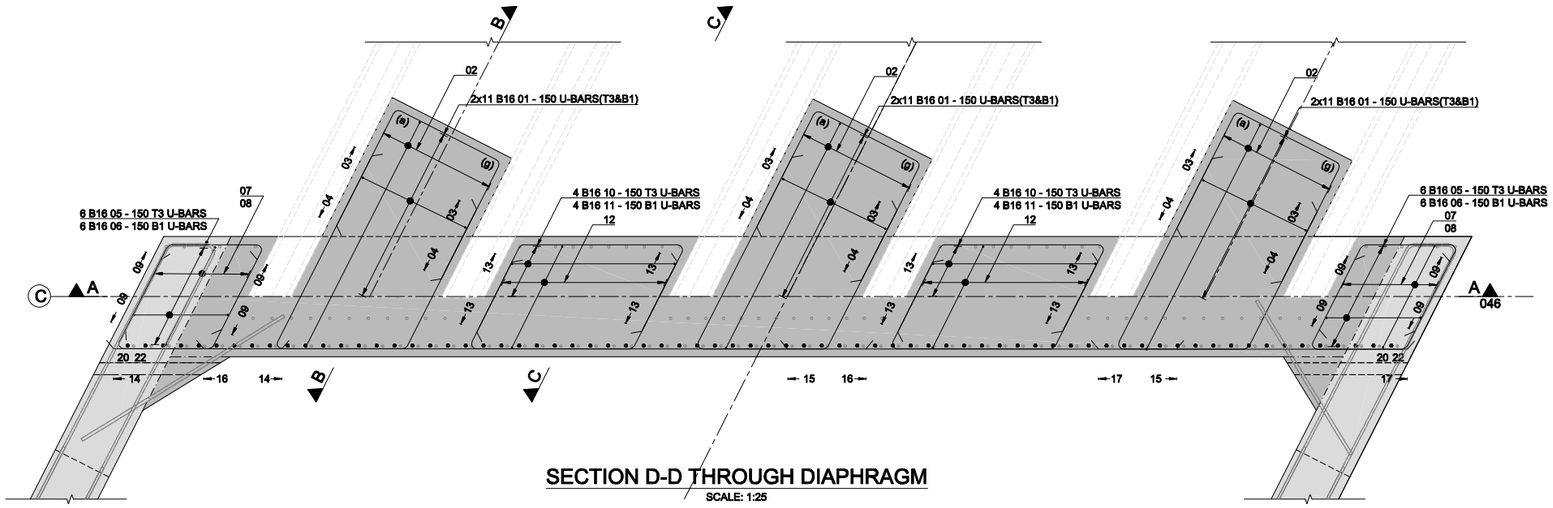
Project: N17 / N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103)
West Abutment Diaphragm RC Details (Sheet 2 of 2)

Drawn: BR	Original scales: As shown @ A1	Drawing No.		Revision.
Checked: JR	Date: 28/10/2015	M17_1700_OB16_044		AB_A
Approved: SC				

Rev C (04 November 2015)

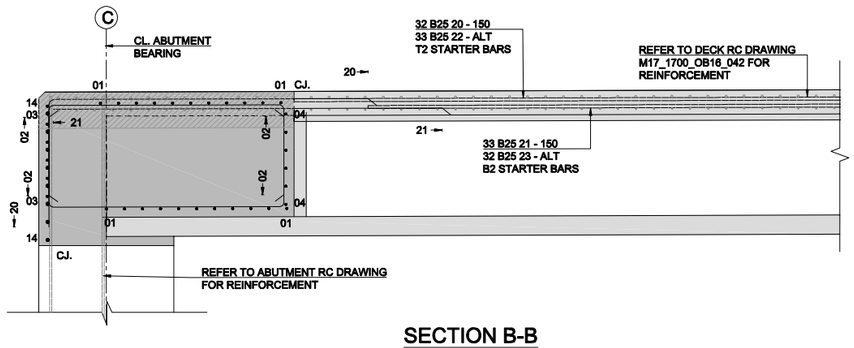
Drawing file path & name : N:\Bridges\Drawings\Rev C\M17_1700_OB16_044.dwg
User and Plot Date:



SECTION D-D THROUGH DIAPHRAGM

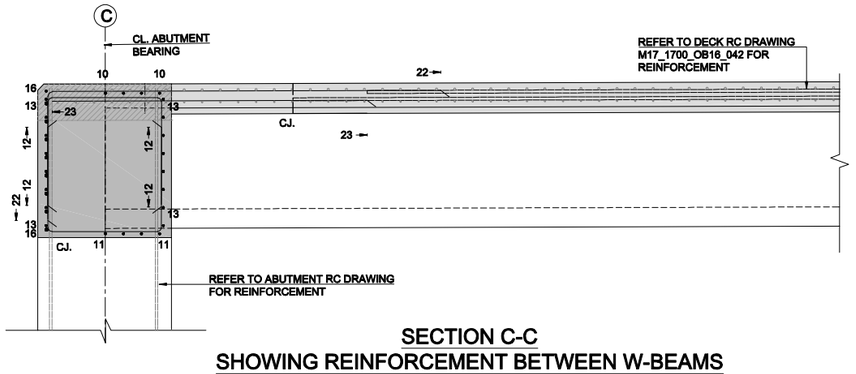
SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_046)



SECTION B-B
SHOWING REINFORCEMENT WITHIN W-BEAMS

SCALE: 1:25



SECTION C-C
SHOWING REINFORCEMENT BETWEEN W-BEAMS

SCALE: 1:25

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_046_AB_A.
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_045&046_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 GRADE 500 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
T3	-	TOP FACE NEXT OUTERMOST BAR
T4	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO. NOMINAL COVER = MIN. COVER + ΔC
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   DIAPHRAGM SIDE FACES = 60mm
   DECK/DIAPHRAGM TOP FACE = 40mm
   CJ FACE =25mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

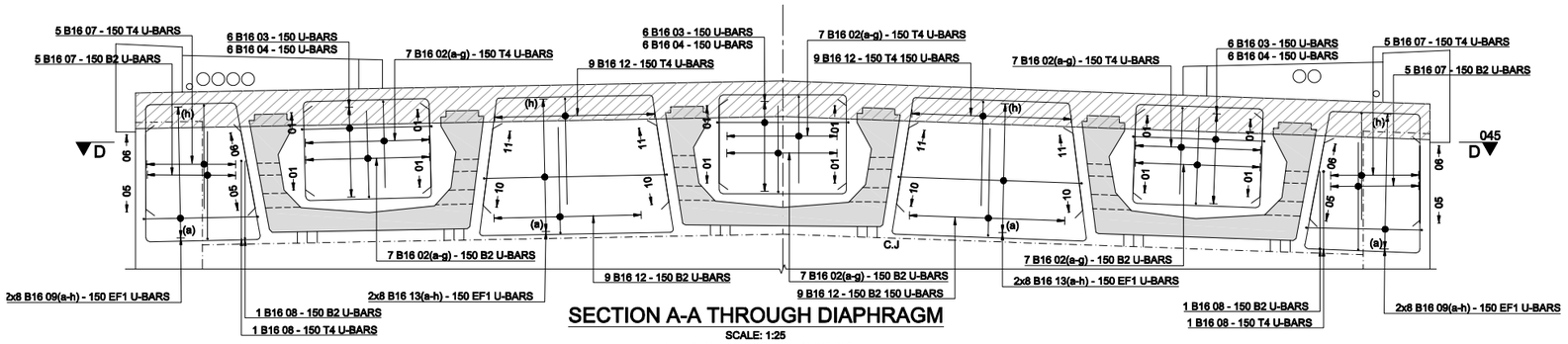
Rev	By	Date	Description
CE_A	BR	28.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) East Abutment Diaphragm RC Details (Sheet 1 of 2)

Drawn: BR	Original scales: As shown @ A1	Drawing No.	Revision.
Checked: JR	Date: 28/10/2015	M17_1700_OB16_045	AB_A
Approved: SC			

Rev D (05 November 2015)

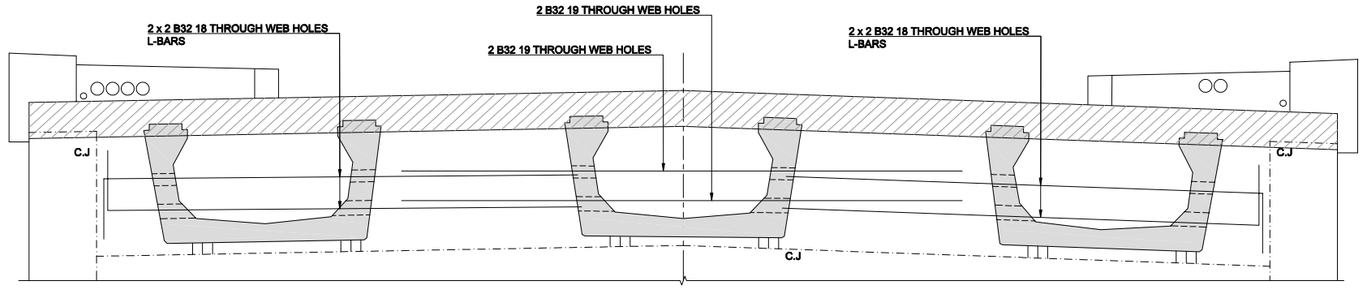
Drawing file path & name
Last Plot Date
User and Plot Date



SECTION A-A THROUGH DIAPHRAGM

SCALE: 1:25

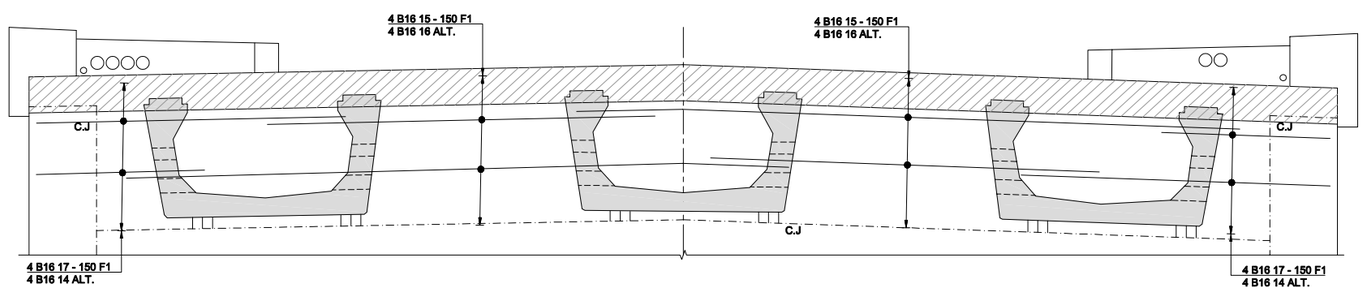
(REFER TO DWG. M17_1700_OB16_045)



SECTION A-A THROUGH DIAPHRAGM

SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_045)



ABUTMENT DIAPHRAGM FRONT ELEVATION

SCALE: 1:25

AS - BUILT RECORD

NOTES:

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6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

N1	-	NEAR FACE OUTERMOST BAR
N2	-	NEAR FACE NEXT OUTERMOST BAR
F1	-	FAR FACE OUTERMOST BAR
F2	-	FAR FACE NEXT OUTERMOST BAR
EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
T3	-	TOP FACE NEXT OUTERMOST BAR
T4	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED
STG	-	ALTERNATELY STAGGERED BARS
ABP	-	ALTERNATE BARS PLACED

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   ALL = 60mm
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C40/50 - ZONE 1 'GOOD' BOND					
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MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Department Transport, Tourism and Sport

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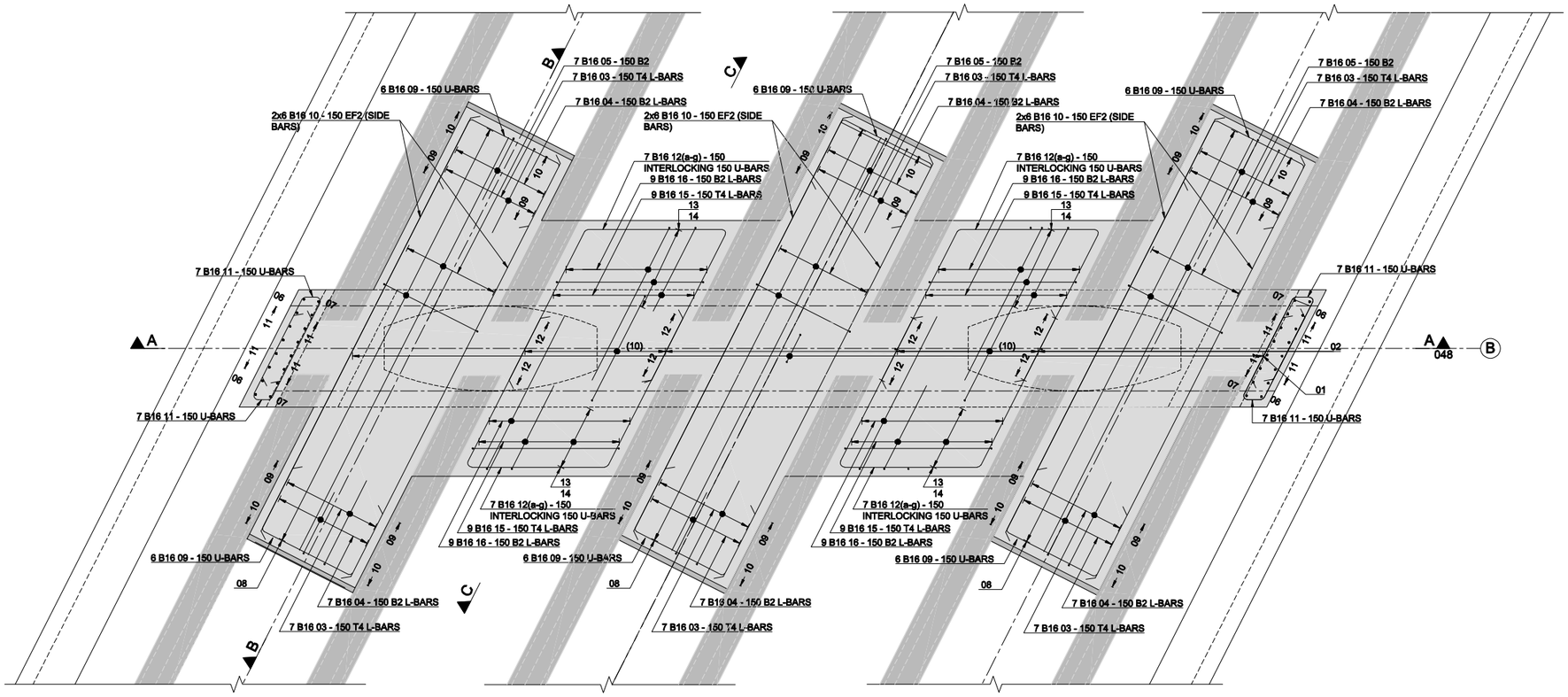
CE_A	BR	28.10.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) East Abutment Diaphragm RC Details (Sheet 2 of 2)
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 28/10/2015
Approved: SC	Drawing No. M17_1700_OB16_046
	Revision. AB_A

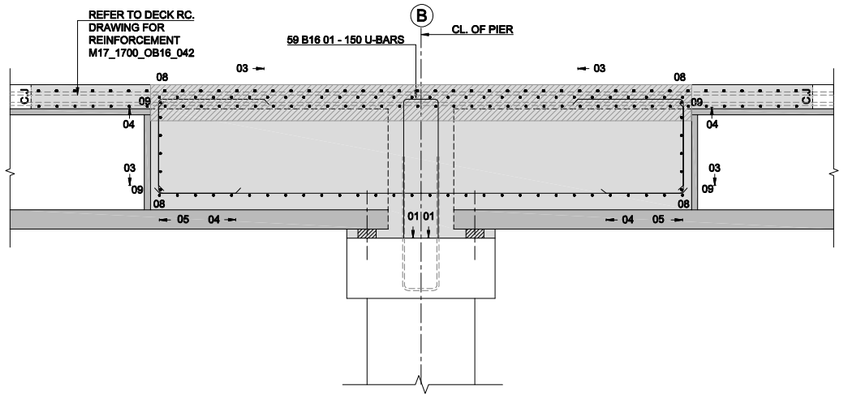
Rev C (04 November 2015)

Drawing file path & name :
Date and Plot Date
User and Plot Date

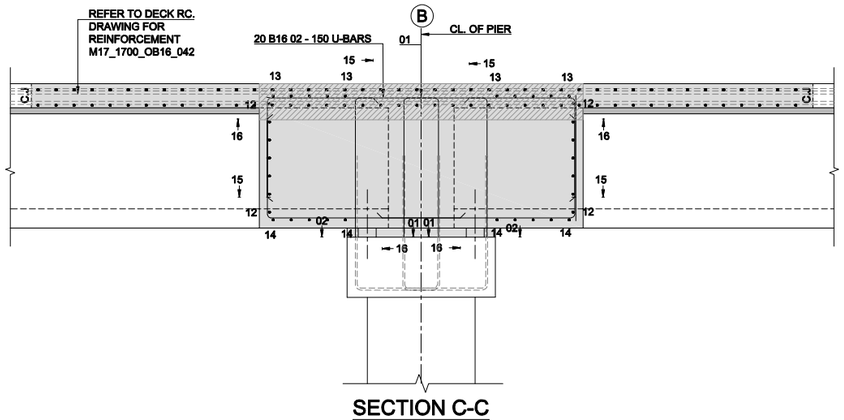
AS - BUILT RECORD



SECTION D-D
PLAN ON DIAPHRAGM
SCALE: 1:25
(REFER TO DWG. M17_1700_OB16_048)



SECTION B-B
SHOWING REINFORCEMENT WITHIN W-BEAMS
SCALE: 1:25



SECTION C-C
SHOWING REINFORCEMENT BETWEEN W-BEAMS
SCALE: 1:25

NOTES:

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EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
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Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Rev	By	Date	Description
CE_A	GD	28.10.15	Issue for Certification
CO_A	GD	08.12.15	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts

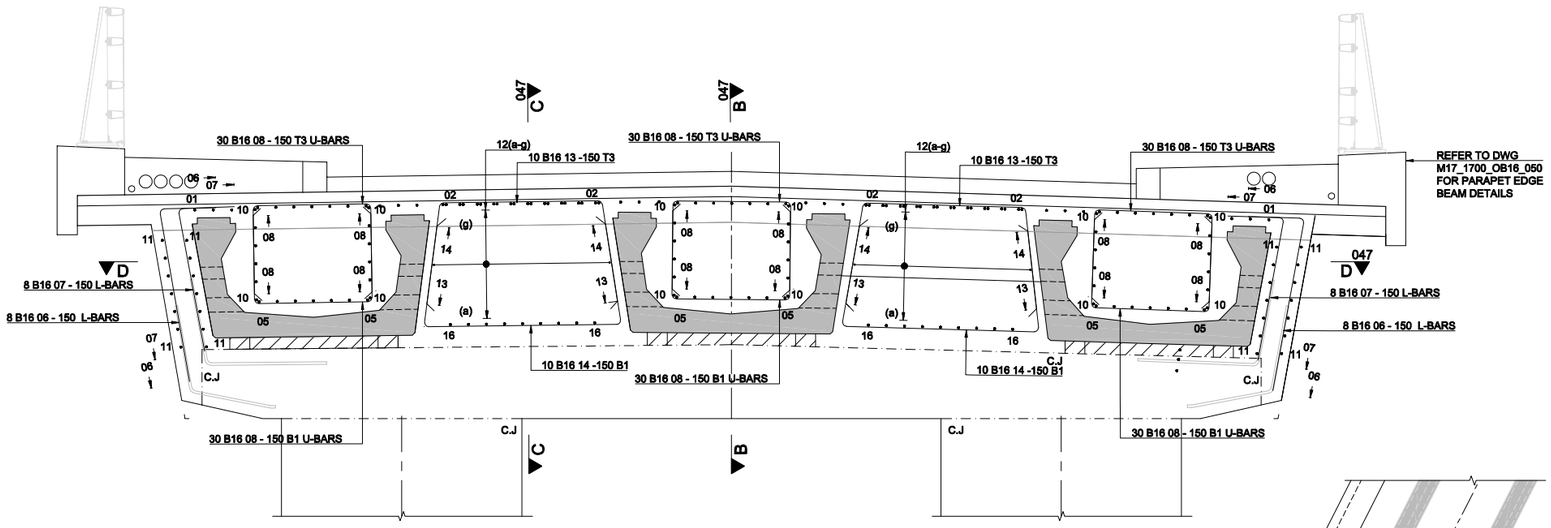
Project: N17 / N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103)
Pier Diaphragm Details (Sheet 1 of 2)

Drawn: GD | Original scales: As shown @ A1 | Drawing No. M17_1700_OB16_047 | Revision. AB_A
Checked: JR | Date: 28/10/2015
Approved: SC

Rev C (04 November 2015)

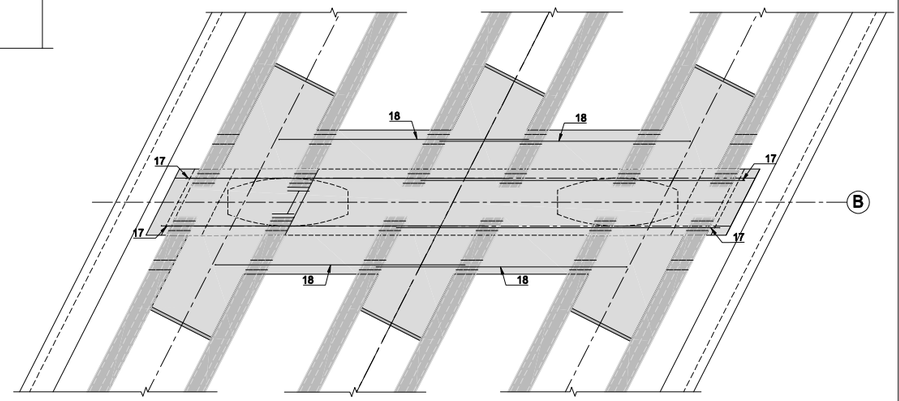
Drawing file path & name Date Plotted User and Plot Date



SECTION A-A THROUGH DIAPHRAGM

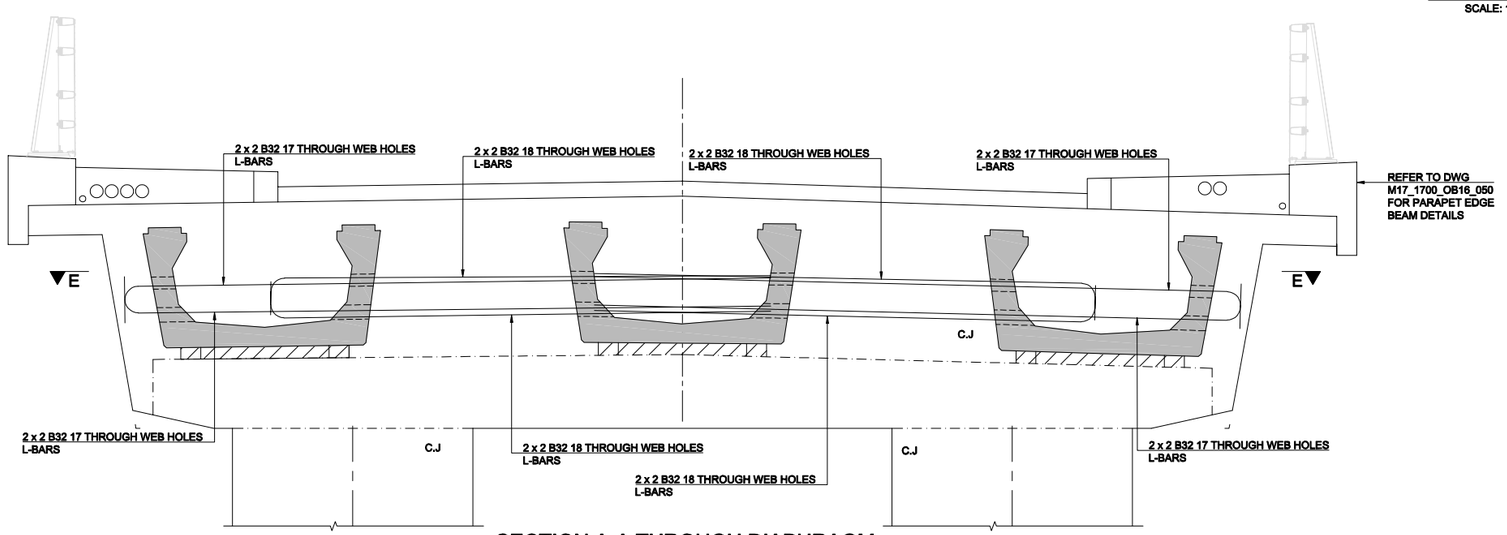
SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_047)



SECTION E-E

SCALE: 1:50



SECTION A-A THROUGH DIAPHRAGM

SCALE: 1:25

(REFER TO DWG. M17_1700_OB16_047)

AS - BUILT RECORD

NOTES:

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Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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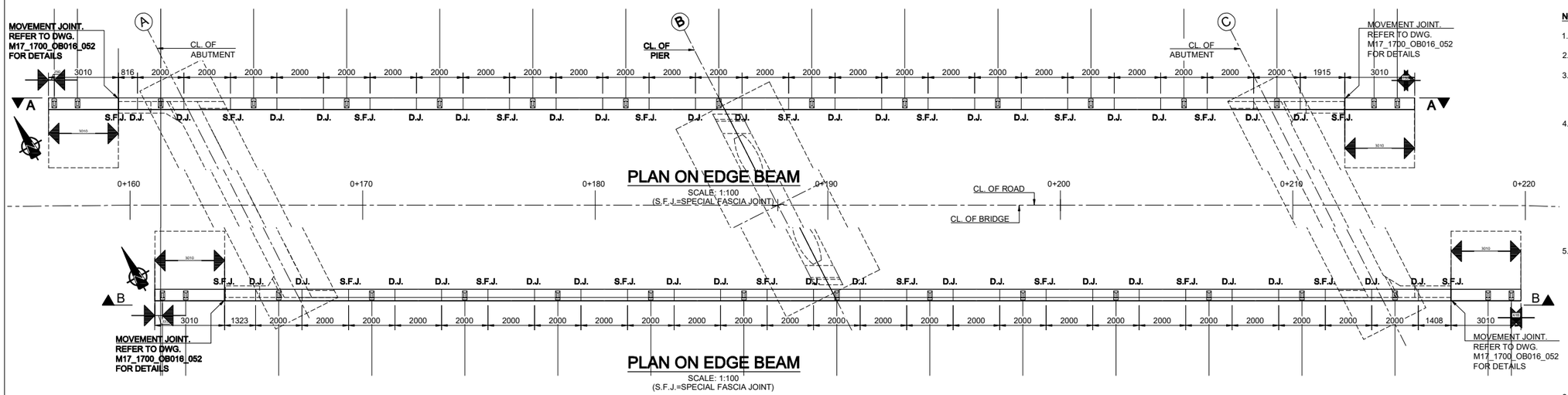
Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Pier Diaphragm Details (Sheet 2 of 2)
Drawn: GD	Original scales: As shown @ A1
Checked: JR	Date: 28/10/2015
Approved: SC	
Drawing No.	M17_1700_OB16_048
Revision.	AB_A

Rev C (04 November 2015)

Drawing file path & name
M:\Drawings\Pier Diaphragm\
User and Plot Date

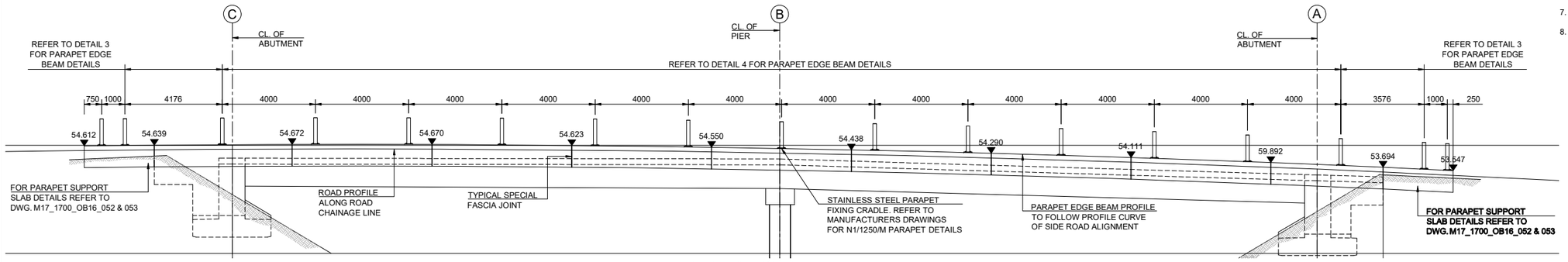


PLAN ON EDGE BEAM

SCALE: 1:100
(S.F.J.=SPECIAL FASCIA JOINT)

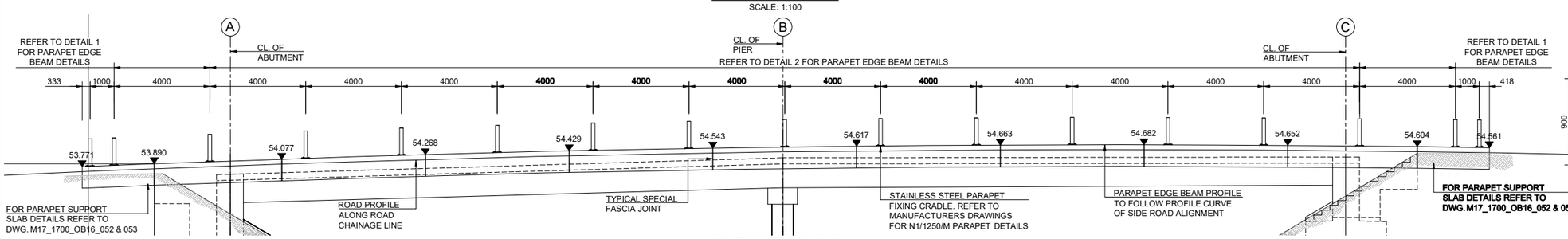
PLAN ON EDGE BEAM

SCALE: 1:100
(S.F.J.=SPECIAL FASCIA JOINT)



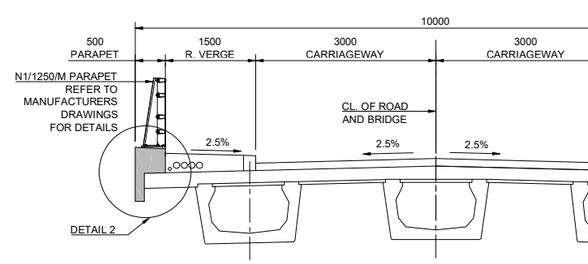
ELEVATION A-A

SCALE: 1:100



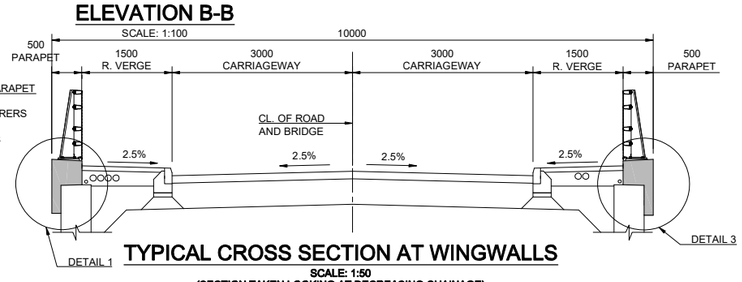
ELEVATION B-B

SCALE: 1:100



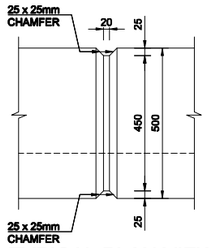
TYPICAL DECK CROSS SECTION

SCALE: 1:50
(SECTION TAKEN LOOKING AT DECREASING CHAINAGE)



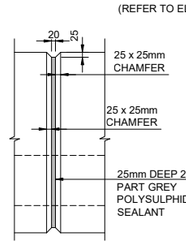
TYPICAL CROSS SECTION AT WINGWALLS

SCALE: 1:50
(SECTION TAKEN LOOKING AT DECREASING CHAINAGE)



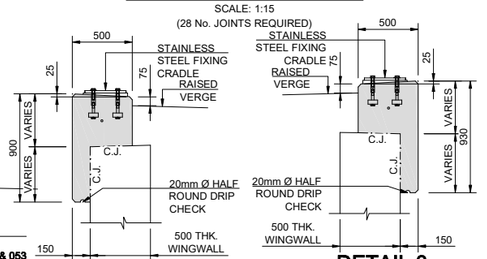
TYPICAL PLAN VIEW DUMMY JOINT

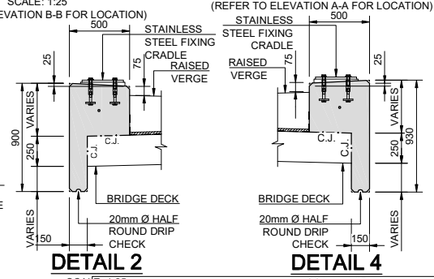
SCALE: 1:10
(12 No. JOINTS REQUIRED)

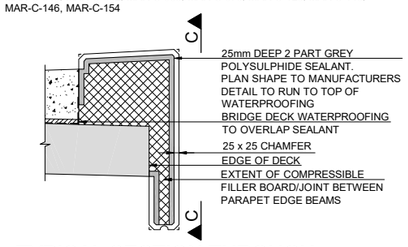


ELEVATION C-C

SCALE: 1:15







TYPICAL SECTION THROUGH SPECIAL FASCIA JOINT

SCALE: 1:15
(28 No. JOINTS REQUIRED)

AS - BUILT RECORD

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. FINISHES:

BURIED UNFORMED SURFACES	- U1
BURIED SURFACES	- F1
PARAPET EDGE BEAM	- F3/U3

4. MATERIALS:

LOCATION:	MIX REFERENCE:
SUPERSTRUCTURE INSITU CONCRETE	- C40/50-2 (50% GGBS)
PARAPET EDGE BEAM	- C40/50-2 (50% GGBS)
WINGWALLS	- C40/50-2 (50% GGBS)

NOTE: FOR DETAILS OF MIX REFERENCES REFER TO APPENDIX 17/1 OF THE SPECIFICATION.
NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG(GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.

5. WATERPROOFING:
BRIDGE DECK WATERPROOFING HAS TWO COATS SPRAY APPLIED AND SATISFIES THE REQUIREMENTS OF NRA BD47 AND BD57.

BRIDGE DECK WATERPROOFING HAS BEEN APPLIED TO:
(i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
(ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
(iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE.

ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.

6. ALL EXPOSED CONCRETE HAS BEEN IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
7. ALL EXPOSED CONCRETE CORNERS HAVE 25 x 25mm CHAMFERS.
8. REFER TO MAR-C-010, MAR-C-013, MAR-C-023, MAR-C-028, MAR-C-031, MAR-C-032, MAR-C-036, MAR-C-041, MAR-C-043, MAR-C-044, MAR-C-048, MAR-C-049, MAR-C-062, MAR-C-063, MAR-C-073, MAR-C-129, MAR-C-140, MAR-C-146, MAR-C-154

Do not scale off drawing. Use figured dimensions only.

Scheme Name: N17/N18 Gort to Tuam
Project Reference Number: GC/09/1225 NRA Road Number: N/A
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STRABAG
BUILDERS SISK CONTRACTORS Established 1859

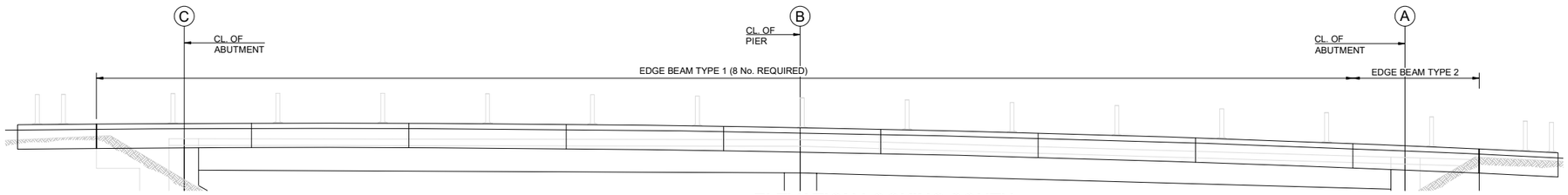
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	04.11.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
CO_A(1)	HC	23.03.16	Issue for Construction
AB_A	HC	24.08.16	Issue for As-Builts
AB_B	PD	01/08/18	Issue for As-builts

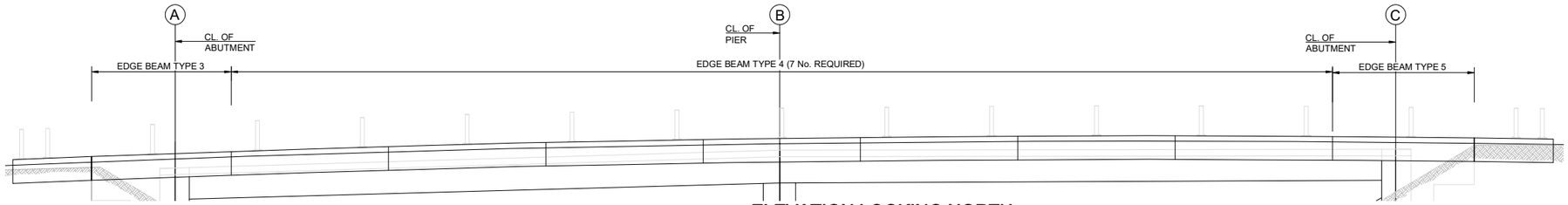
Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Parapet Edge Beam General Arrangement
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 04/11/2015
Approved: SC	
Drawing No.	M17_1700_OB16_050
Revision.	AB_B

Rev B (11 November 2015)

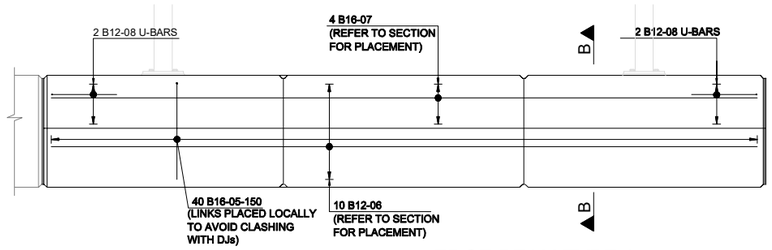
Drawing file path & name : \\gtwfsenvproj\Data\Jobs\2500\2503\2503B-004_Internal\4-02 Drawings\4-02-8 Highways\Aia Bal\Control\Highways\1700 Structures\OB016\M17_1700_OB016_050_AB_A.dwg
Date/Time Plotted : 1/08/2018 - 2:29 pm
User and Plot Date : Dominic.Sheridan - 1/08/2018 - 2:29 pm



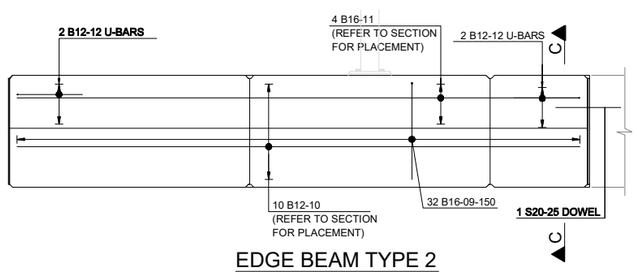
ELEVATION LOOKING SOUTH
SCALE: 1:100



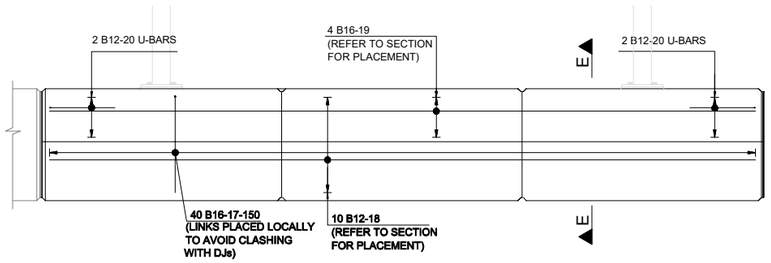
ELEVATION LOOKING NORTH
SCALE: 1:100



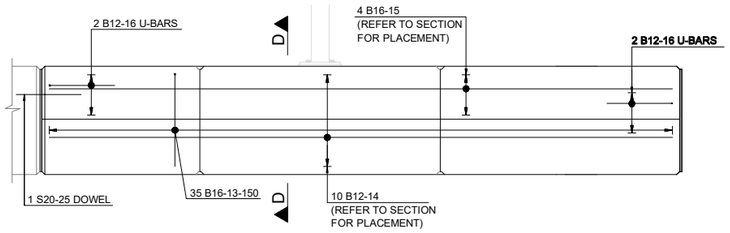
EDGE BEAM TYPE 1
SCALE: 1:25
(8 No. REQUIRED)



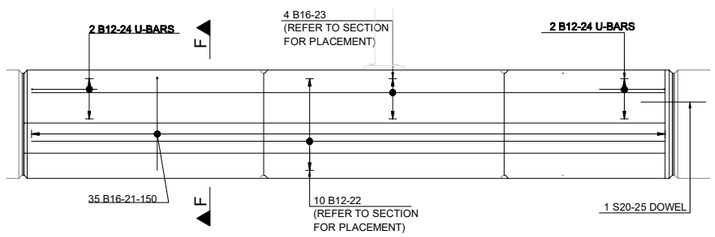
EDGE BEAM TYPE 2
SCALE: 1:25
(1 No. REQUIRED)



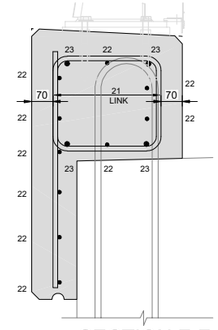
EDGE BEAM TYPE 4
SCALE: 1:25
(7 No. REQUIRED)



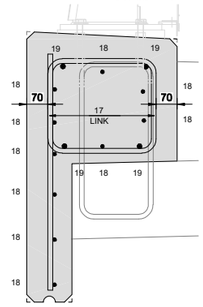
EDGE BEAM TYPE 3
SCALE: 1:25
(1 No. REQUIRED)



EDGE BEAM TYPE 5
SCALE: 1:25
(1 No. REQUIRED)



SECTION F-F
SCALE: 1:10



SECTION E-E
SCALE: 1:10

AS - BUILT RECORD

NOTES:

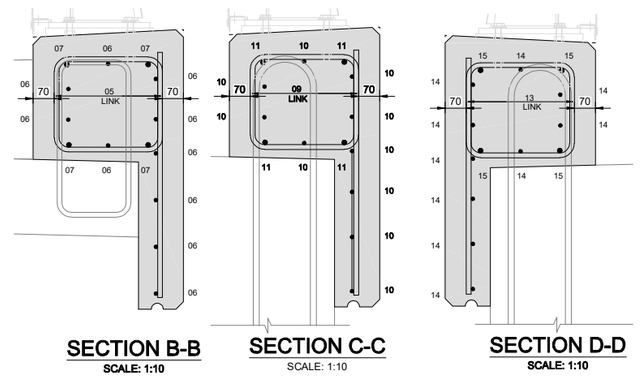
1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METERS ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No.
   M17_1700_OB16_013_AB_A
   M17_1700_OB16_023_AB_A
   M17_1700_OB16_042_AB_A
4. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB016_051_AB_A_BS.
5. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.
6. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
7. LEGEND:

   N1 - NEAR FACE OUTERMOST BAR
   N2 - NEAR FACE NEXT OUTERMOST BAR
   F1 - FAR FACE OUTERMOST BAR
   F2 - FAR FACE NEXT OUTERMOST BAR
   EF1 - EACH FACE OUTERMOST BAR
   EF2 - EACH FACE NEXT OUTERMOST BAR
   B1 - BOTTOM FACE OUTERMOST BAR
   B2 - BOTTOM FACE NEXT OUTERMOST BAR
   T1 - TOP FACE OUTERMOST BAR
   T2 - TOP FACE NEXT OUTERMOST BAR
   ABR - ALTERNATE BARS REVERSED
   STG - ALTERNATELY STAGGERED BARS
   ALT - ALTERNATE BARS PLACED

8. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN ABOVE UNO.
   NOMINAL COVER = MIN. COVER + ΔC
   PARAPET UPSTAND TOP, BOTTOM AND SIDE FACE: 60mm
   PARAPET UPSTAND BOTTOM AND SIDE FACE AT CONSTRUCTION JOINTS: 25mm
9. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.
10. PARAPET REINFORCEMENT HAS BEEN PLACED AROUND THE LOCATION OF THE PARAPET POST HOLDING DOWN BOLT ARRANGEMENT. REFER TO PARAPET POST MANUFACTURES DRAWINGS FOR EXACT LOCATIONS.

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECT. AND ELEV.)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	475	590	835	1180
MIN LAP NO STAGGER	530	710	890	1250	1770
MIN LAP 2 BAR STAGGER	500	660	830	1170	1650

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	330	415	585	825
MIN LAP NO STAGGER	375	500	620	875	1240
MIN LAP 2 BAR STAGGER	350	465	580	815	1155



SECTION B-B
SCALE: 1:10

SECTION C-C
SCALE: 1:10

SECTION D-D
SCALE: 1:10

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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STRABAG
BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	04.11.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
CO_A(1)	HC	24.03.16	Issue for Construction
AB_A	HC	29.08.16	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Parapet Edge Beam Reinforced Concrete Details
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 04/11/2015
Approved: SC	
Drawing No.	M17_1700_OB016_051
Revision	AB_A

Rev B (11 November 2015)

Drawing file path & name
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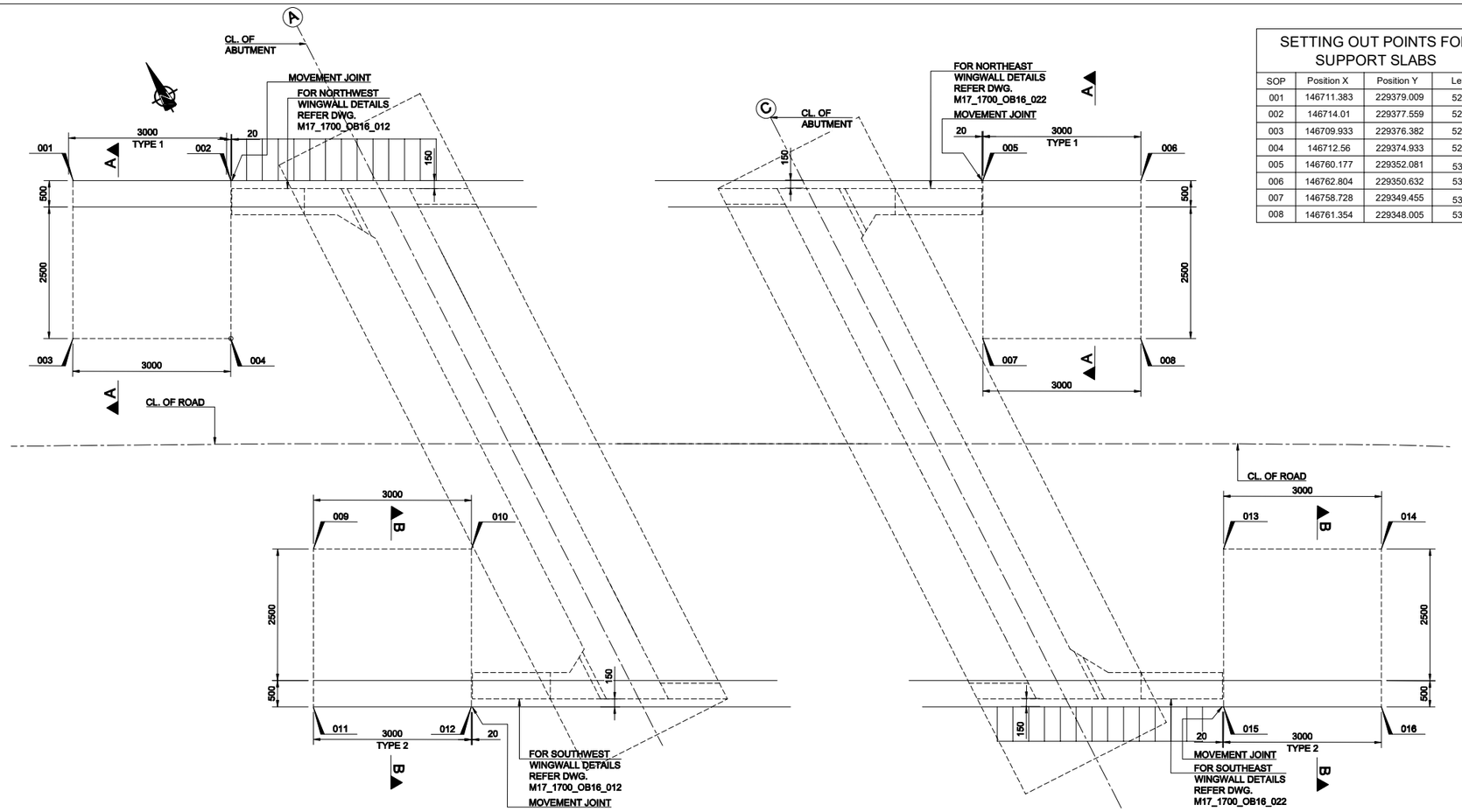


PLAN ON SUPPORT SLABS AT GL.A

SCALE: 1:50

PLAN ON SUPPORT SLABS AT GL.C

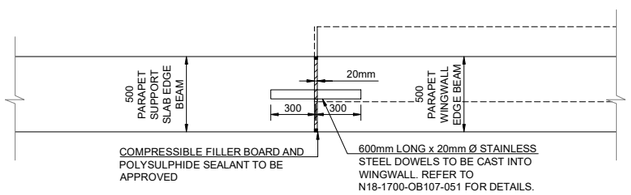
SCALE: 1:50

SETTING OUT POINTS FOR SUPPORT SLABS

SOP	Position X	Position Y	Level Z
001	146711.383	229379.009	52.617
002	146714.01	229377.559	52.764
003	146709.933	229376.382	52.617
004	146712.56	229374.933	52.764
005	146760.177	229352.081	53.709
006	146762.804	229350.632	53.682
007	146758.728	229349.455	53.709
008	146761.354	229348.005	53.682

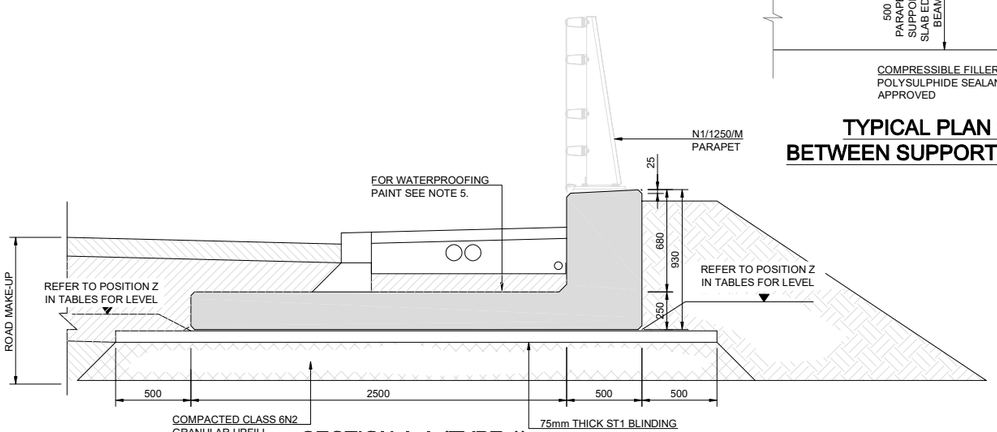
SETTING OUT POINTS FOR SUPPORT SLABS

SOP	Position X	Position Y	Level Z
009	146712.002	229370.672	52.871
010	146714.629	229369.223	52.990
011	146710.553	229368.045	52.871
012	146713.179	229366.596	52.990
013	146760.796	229343.744	53.704
014	146763.423	229342.295	53.661
015	146759.347	229341.118	53.704
016	146761.974	229339.668	53.661



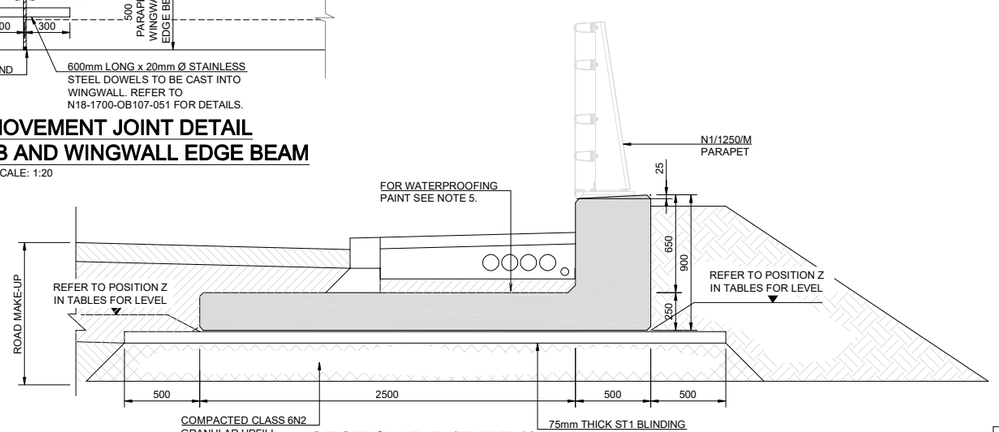
TYPICAL PLAN ON MOVEMENT JOINT DETAIL BETWEEN SUPPORT SLAB AND WINGWALL EDGE BEAM

SCALE: 1:20



SECTION A-A (TYPE 1)

SCALE: 1:20



SECTION B-B (TYPE 2)

SCALE: 1:20

NOTES: **AS - BUILT RECORD**

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_051.
4. FINISHES:

BURIED UNFORMED SURFACES	- U1
BURIED SURFACES	- F1
EXPOSED PARAPET SUPPORT SLAB	- F3/U3

5. MATERIALS:

LOCATION	MIX REFERENCE
PARAPET SUPPORT SLAB	- C40/50-2 (50% GGBS)

NON STRUCTURAL CONCRETE	CONCRETE GRADE
BLINDING CONCRETE	- ST1

   NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG (GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
6. WATERPROOFING:

   BRIDGE DECK WATERPROOFING HAS TWO COATS SPRAY APPLIED, SATISFYING THE REQUIREMENTS OF BD47/99, BD57/10. BRIDGE DECK WATERPROOFING HAS BEEN APPLIED TO:

   (i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
   (ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
   (iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE.

   ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.
7. ALL EXPOSED CONCRETE HAVE BEEN IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
8. ALL EXPOSED CONCRETE CORNERS HAVE 25 x 25mm CHAMFERS.
9. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_052_(DWG. REVISION)_BS.
10. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
11. LEGEND:

EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED

12. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO.
    NOMINAL COVER = MIN. COVER + ΔC

SLAB BOTTOM FACE	50mm
SLAB SIDE AND TOP FACE	60mm
SIDE AND TOP OF PARAPET UPSTAND FACE	60mm

13. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.
14. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT TO COMPLY WITH SPECIFICATION CLAUSE 1712.

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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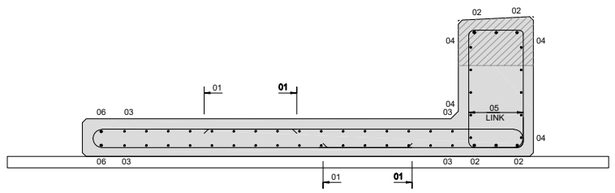
DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	04.11.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	29.08.16	Issue for As Builts

Project	N17 / N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) Parapet Support Slab General Arrangement
Drawn: BR	Original scales: As shown @ A1
Checked: JR	Date: 04/11/2015
Approved: SC	
Drawing No.	M17_1700_OB16_052
Revision.	AB_A

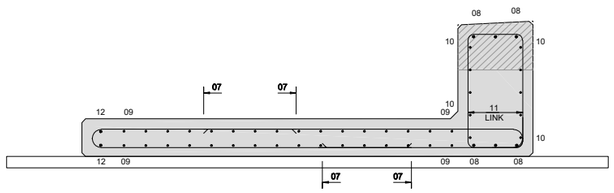
Rev B (11 November 2015)

Drawing file path & name Drawing File Form User and Plot Date



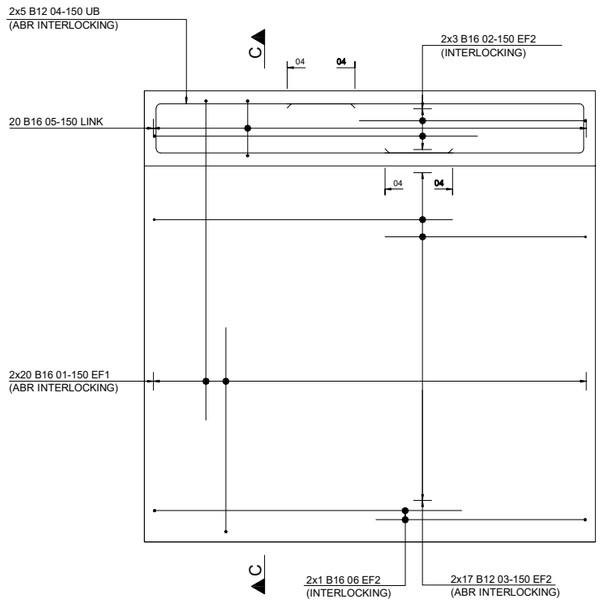
SECTION C-C

SCALE: 1:20



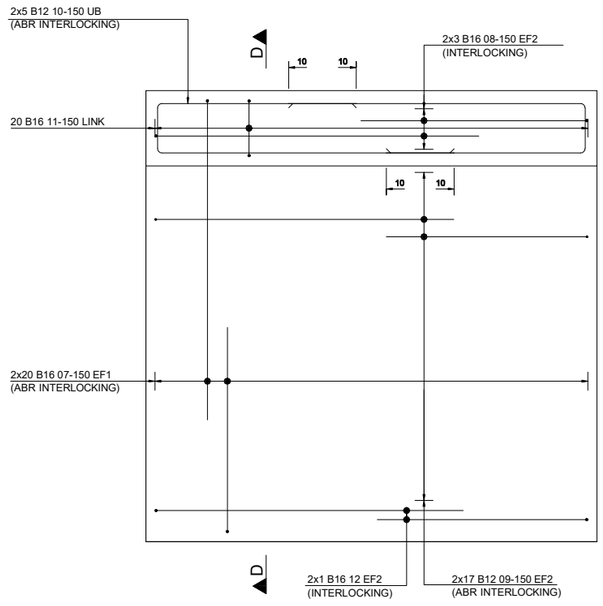
SECTION D-D

SCALE: 1:20



TYPICAL PLAN ON SUPPORT SLAB (TYPE 1)

SCALE: 1:20
(2 No. REQUIRED)



TYPICAL PLAN ON SUPPORT SLAB (TYPE 2)

SCALE: 1:20
(2 No. REQUIRED)

NOTES: **AS - BUILT RECORD**

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. M17_1700_OB16_052_AB_A.
4. FINISHES:

BURIED UNFORMED SURFACES	- U1
BURIED SURFACES	- F1
EXPOSED PARAPET SUPPORT SLAB	- F3/U3

5. MATERIALS:

LOCATION	MIX REFERENCE
PARAPET SUPPORT SLAB	- C40/50-2 (50% GGBS)

NON STRUCTURAL CONCRETE	CONCRETE GRADE
BLINDING CONCRETE	- ST1

   NOTE: AREAS WITHIN 'SPLASH ZONE' HAVE A MINIMUM CONCRETE GRADE C40/50 WITH A MINIMUM 50% GROUND GRANULATED BLAST FURNACE SLAG (GGBS) AND SURFACE IMPREGNATION IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
6. WATERPROOFING:

   BRIDGE DECK WATERPROOFING HAS TWO COATS SPRAY APPLIED, SATISFYING THE REQUIREMENTS OF BD47/99, BD57/10. BRIDGE DECK WATERPROOFING SHALL AT A MINIMUM BE APPLIED TO:

   (i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
   (ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
   (iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE.

   ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.
7. ALL EXPOSED CONCRETE HAVE BEEN IMPREGNATED WITH A HYDROPHOBIC PORE LINER IN ACCORDANCE WITH NRA MCDRW SERIES 1700.
8. ALL EXPOSED CONCRETE CORNERS HAVE 25 x 25mm CHAMFERS.
9. FOR BAR BENDING SCHEDULE REFER TO M17_1700_OB16_052_(DWG. REVISION)_BS.
10. CUTTING AND BENDING OF REINFORCEMENT COMPLIED WITH THE REQUIREMENTS OF BS8666 : (2005) AND SPECIFICATION CLAUSE 1713.
11. LEGEND:

EF1	-	EACH FACE OUTERMOST BAR
EF2	-	EACH FACE NEXT OUTERMOST BAR
B1	-	BOTTOM FACE OUTERMOST BAR
B2	-	BOTTOM FACE NEXT OUTERMOST BAR
T1	-	TOP FACE OUTERMOST BAR
T2	-	TOP FACE NEXT OUTERMOST BAR
ABR	-	ALTERNATE BARS REVERSED

12. REINFORCEMENT HAS BEEN DETAILED BASED ON NOMINAL COVER AS SHOWN UNO.
    NOMINAL COVER = MIN. COVER + ΔC

SLAB BOTTOM FACE	50mm
SLAB SIDE AND TOP FACE	60mm
SIDE AND TOP OF PARAPET UPSTAND FACE	60mm

13. ALL DETAILING INCLUDES NORMAL BENDING TOLERANCES IN ACCORDANCE WITH BS 8666:2005.
14. STAINLESS STEEL REINFORCEMENT TO BE TYPE 1.4301 TO IS.EN 10088. ALL OTHER REINFORCEMENT TO BE GRADE B500B TO BS4449. REINFORCEMENT COMPLIES WITH SPECIFICATION CLAUSE 1712..

C40/50 - ZONE 1 'GOOD' BOND					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	250	370	505	675	910
MIN LAP NO STAGGER	375	550	755	1010	1365
MIN LAP 2 BAR STAGGER	350	515	705	940	1275

C40/50 - ZONE 2 'POOR' BOND (STRIPED HATCHED AREAS ON SECTIONS)					
BAR Ø	12	16	20	25	32
MIN ANCHORAGE	355	525	720	960	1300
MIN LAP NO STAGGER	530	785	1075	1440	1950
MIN LAP 2 BAR STAGGER	500	735	1005	1345	1820

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	04.11.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	29.08.16	Issue for As Builts

Project: N17 / N18 Gort to Tuam PPP Scheme

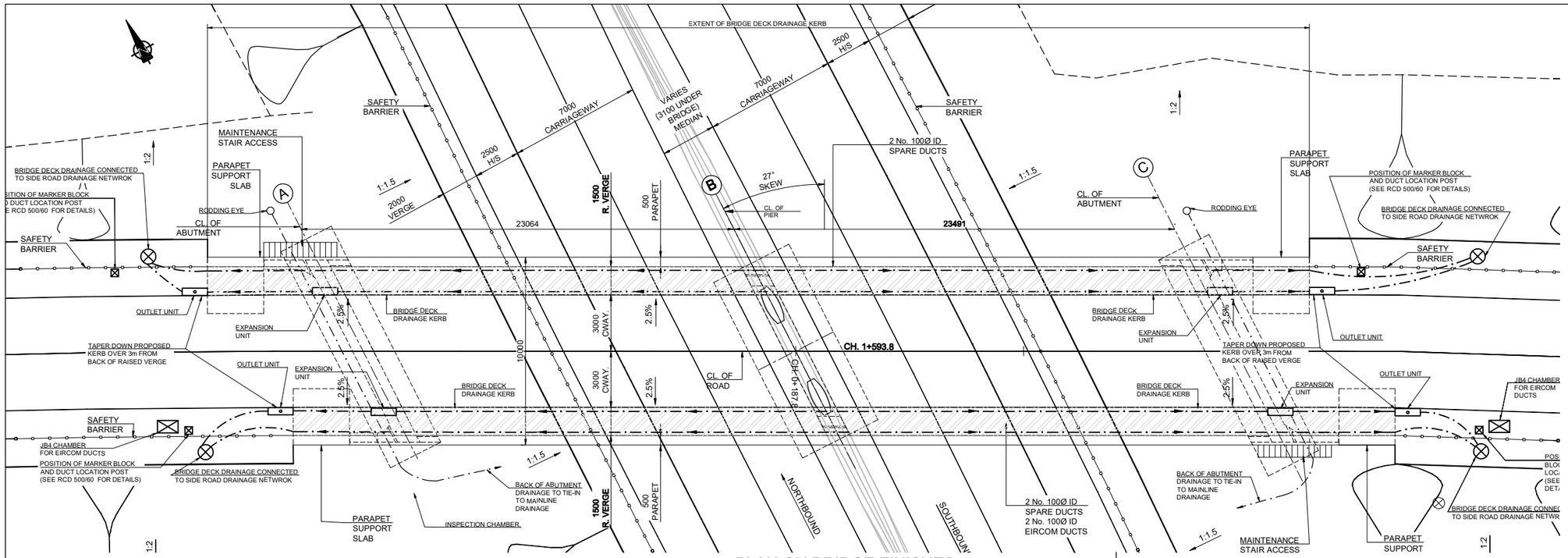
Title: M17OB16 Castlelambert Overbridge (L-3103)
Parapet Support Slab Reinforced Concrete

Drawn: BR	Original scales: As shown @ A1	Drawing No. M17_1700_OB16_053	Revision. AB_A
Checked: JR	Date: 04/11/2015		
Approved: SC			

Rev B (11 November 2015)

Drawing file path & name Dependent on both User and Plot Date

AS - BUILT



PLAN ON BRIDGE FINISHES

SCALE: 1:125

NOTES:

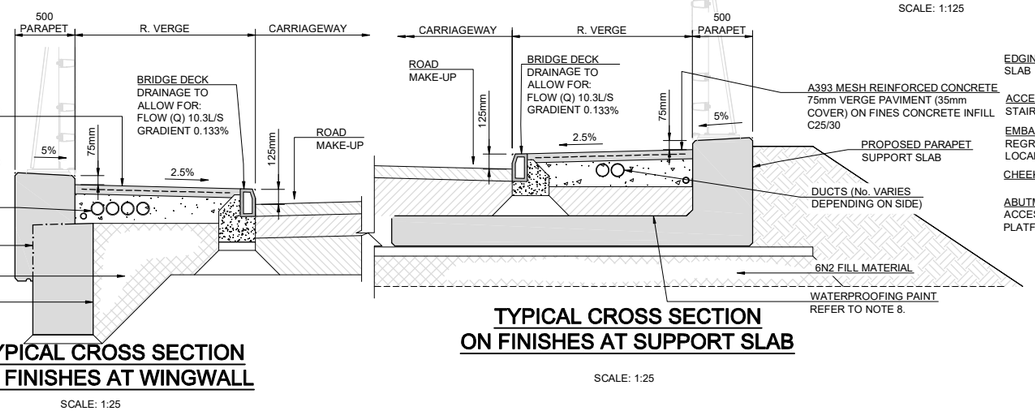
1. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
3. REFER TO MANUFACTURERS DRAWINGS FOR DRAINAGE KERB CONNECTION DETAILS AND RODDING POINTS.
4. PROVISION OF SERVICE DUCT AND ASSOCIATED CHAMBERS HAVE BEEN DETERMINED WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
5. DUCTS ARE uPVC COMPLYING WITH CLASS B OR C OF B.S. 3506 U.N.O DUCTS, JOINTED WITH PROPRIETARY COUPLERS AND RUBBER RINGS APPROPRIATE TO MAKE OF PIPE CHOSEN.
6. FOOTPATH JOINTED IN ACCORDANCE WITH CLAUSE 1106 OF THE SPECIFICATION.
7. WATERPROOFING:
   BRIDGE DECK WATERPROOFING HAS TWO COATS SPRAY APPLIED AND SATISFIES THE REQUIREMENTS OF NRA BD47 AND BD57.

BRIDGE DECK WATERPROOFING HAS BEEN APPLIED TO:

(i) THE DECK SLAB BETWEEN PARAPET UPSTANDS.
(ii) THE PARAPET UPSTAND TO A HEIGHT OF 100mm MINIMUM ABOVE ADJACENT DECK SLAB LEVEL.
(iii) THE BACK OF ABUTMENT STEM TO 200mm BELOW THE JOINT BETWEEN THE SUPERSTRUCTURE AND SUBSTRUCTURE.

ALL OTHER BURIED CONCRETE SURFACES HAVE BEEN TREATED WITH TWO COATS OF EPOXY RESIN WATERPROOFING PAINT IN ACCORDANCE WITH NRA MCDRW SERIES 2000.

8. RAISED VERGE BRUSHED FINISH. EXPANSION JOINTS HAVE BEEN PLACED TO COINCIDE WITH PARAPET UPSTAND JOINTS IN ACCORDANCE WITH CLAUSE 1106 OF THE SPECIFICATION.
9. REFER TO APPENDIX 7/1 FOR ROAD SURFACING BUILD-UP ON STRUCTURE.

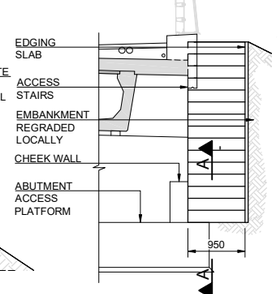


TYPICAL CROSS SECTION ON FINISHES AT WINGWALL

SCALE: 1:25

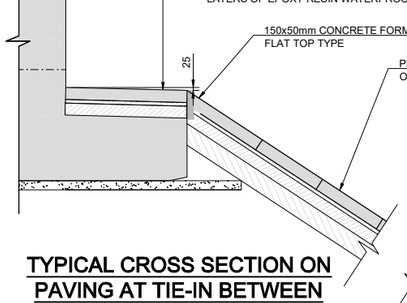
TYPICAL CROSS SECTION ON FINISHES AT SUPPORT SLAB

SCALE: 1:25



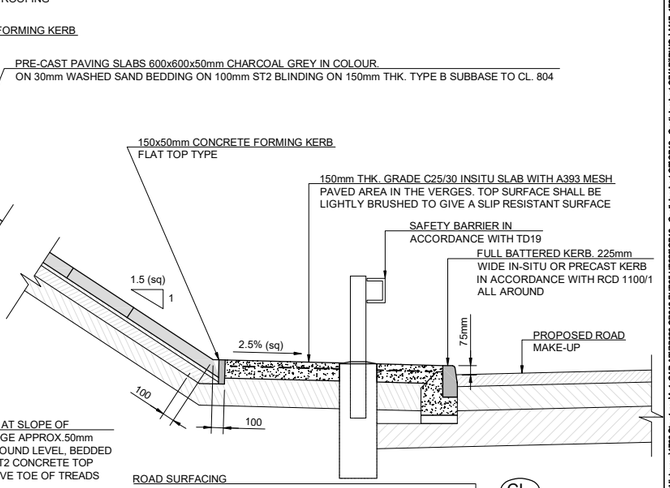
ELEVATION ON MAINTENANCE ACCESS STAIRS

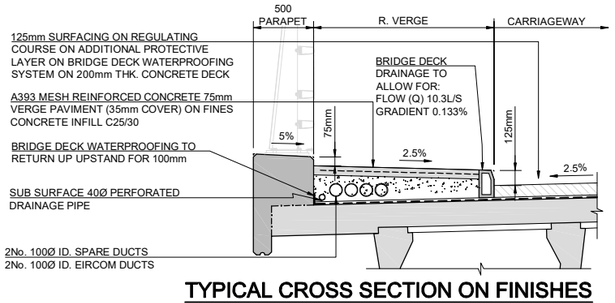
SCALE: 1:50



TYPICAL CROSS SECTION ON PAVING AT TIE-IN BETWEEN ABUTMENT AND MAINLINE

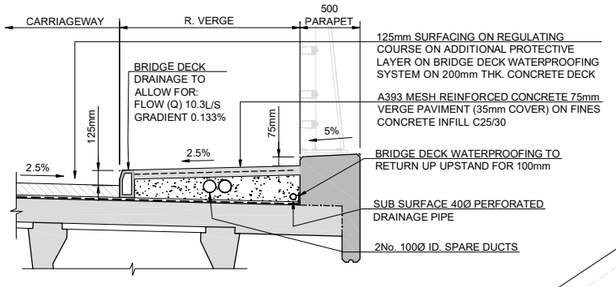
SCALE: 1:25





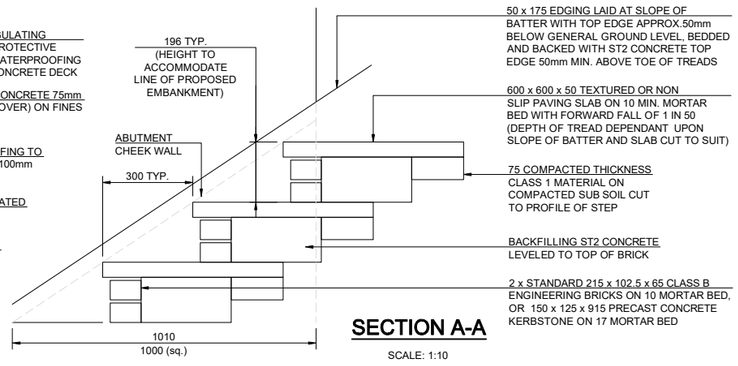
TYPICAL CROSS SECTION ON FINISHES FOR SOUTHSIDE OF BRIDGE DECK

SCALE: 1:25



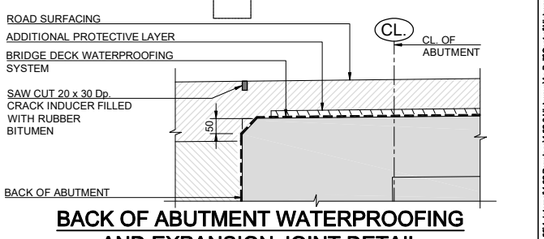
TYPICAL CROSS SECTION ON FINISHES FOR NORTHSIDE OF BRIDGE DECK

SCALE: 1:25



SECTION A-A

SCALE: 1:10



BACK OF ABUTMENT WATERPROOFING AND EXPANSION JOINT DETAIL

SCALE: 1:10

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Do not scale off drawing. Use figured dimensions only.

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DIRECT ROUTE

Rev	By	Date	Description
CE_A	BR	04.11.15	Issue for Certification
CO_A	BR	08.12.15	Issue for Construction
AB_A	HC	14.11.16	Issue for As Built
AB_B	EV	02.08.17	Issue for As Built
AB_C	EAM	12.07.18	Issue for As Built

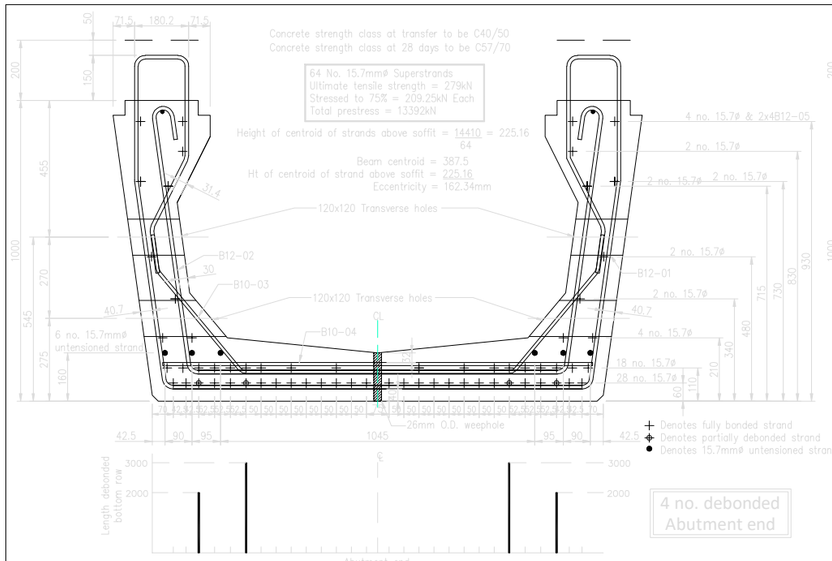
Project: N17 / N18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103) Finishes

Drawn: BR	Original scales: As shown @ A1	Drawing No. M17_1700_OB16_060	Revision. AB_C
Checked: JR	Date: 04/11/2015		
Approved: SC			

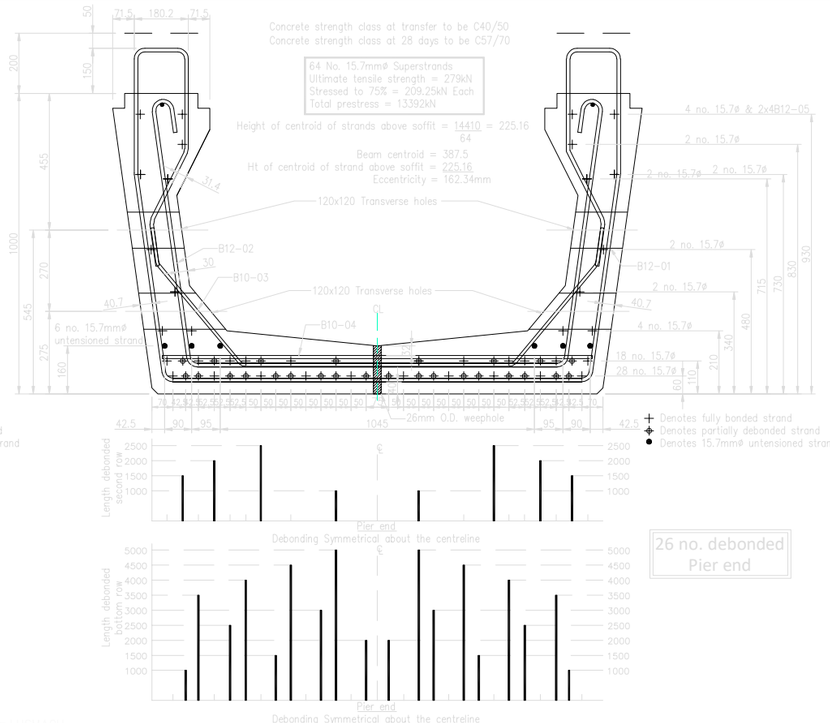
Rev B (11 November 2015)

Drawing file path & name : \\pdublfsvrgis\Dublin\Jobs\238000\238195-004\..\Internal\4-02 Drawings\4-02-4 Highways\4a BallCentral\Highways\1700 Structures\AutoCAD\ABRB020,OB016,RUB00,UB020OB16 - Castlelambert OB\ABDWGs\M17_1700_OB016_060_AB_C.dwg
User and Plot Date : : Last modified - 16/12/2016 - 1:27 pm

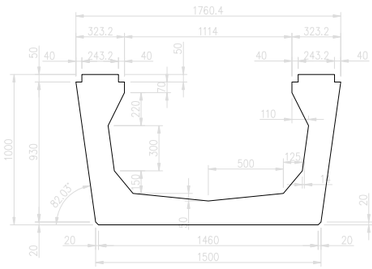
AS - BUILT RECORD



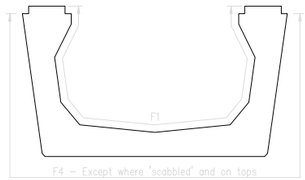
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



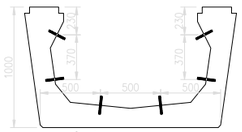
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

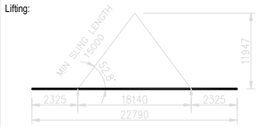


Section showing pins
for diaphragm shutter
(1:25)

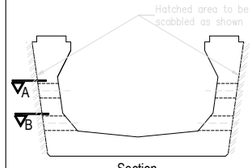
NOTES:

[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX
Untensioned strand to project as shown.
[12] Estimated steel weight = 2.6T
Estimated concrete weight = 34.8T
Estimated beam weight = 37.4T
Estimated FRC & diaphragm shutter weight = 2.3T
Estimated total beam weight = 39.7T
Volume of concrete per beam = 14.2m³

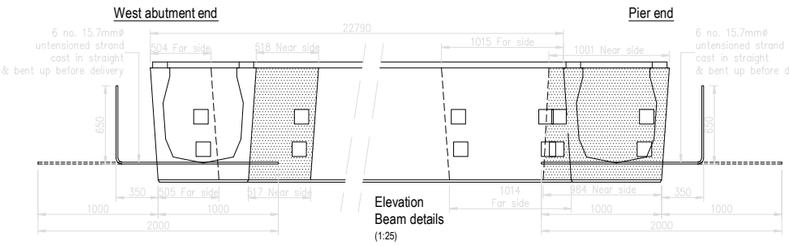
Lifting:



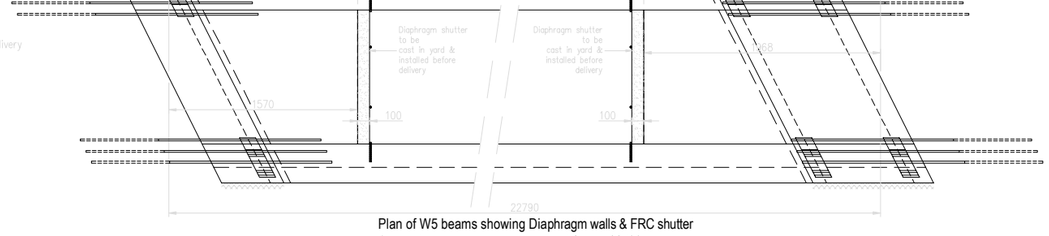
Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No



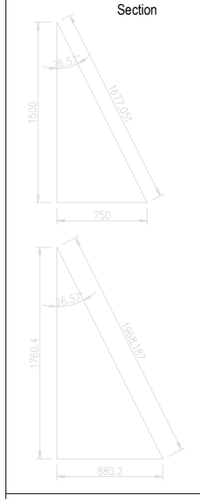
Section

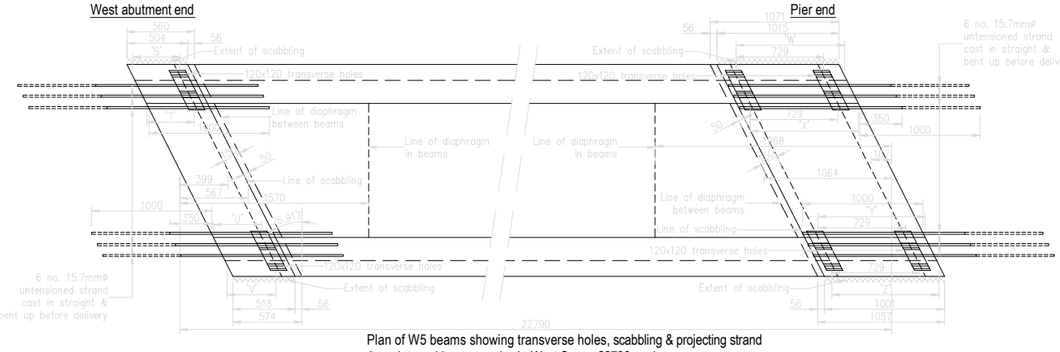


Elevation
Beam details
(1:25)



Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. Internal beam required - West Span - 22790mm long
(1:25)





Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. Internal beam required - West Span - 22790mm long
(1:25)

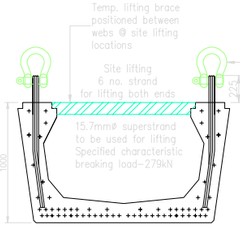
Transverse hole dimensions

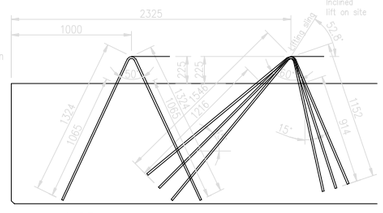
Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	902	901	891	889
B	902	900	892	890





Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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STRABAG
BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

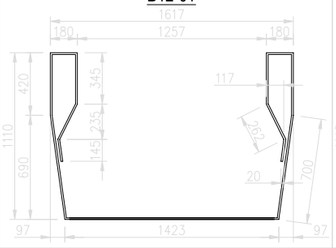
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span Internal beam - 22790mm long - 1 no. required - Sheet 1 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 11/01/16	M17-1700-OB16-070	AB_A
Approved: SC			

Drawing file path & name : N:\Roads\Gort to Tuam\User and Plot Data

BPC.09.244.94

B12-01



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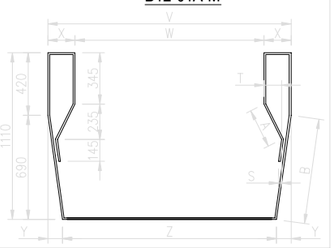

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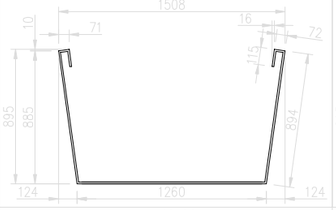

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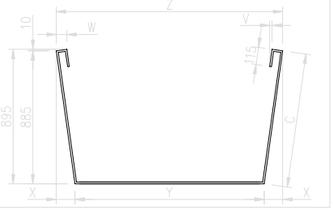

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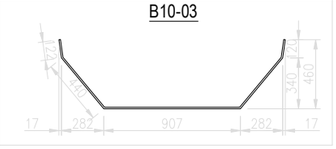


SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
A	01A	11	1	11	268	699	-	22	131	1813	1410	202	109	1596
	02A	11	1	11	-	-	896	-	-	18	80	139	1413	1691
B	01B	2	1	2	267	698	-	22	129	1779	1383	198	107	1565
	02B	2	1	2	-	-	895	-	-	18	78	136	1386	1659
C	01C	2	1	2	266	698	-	22	127	1752	1362	195	105	1541
	02C	2	1	2	-	-	895	-	-	17	77	134	1365	1634
D	01D	1	1	1	265	698	-	21	124	1718	1336	191	103	1512
	02D	1	1	1	-	-	895	-	-	17	75	132	1339	1602
E	01E	2	1	2	264	697	-	21	122	1693	1316	188	102	1490
	02E	2	1	2	-	-	894	-	-	17	74	130	1319	1579
F	01F	2	1	2	264	697	-	21	122	1680	1306	187	101	1479
	02F	2	1	2	-	-	894	-	-	17	74	129	1309	1567
G	01G	2	1	2	263	697	-	21	121	1668	1297	186	100	1468
	02G	2	1	2	-	-	894	-	-	17	73	128	1300	1556
H	01H	2	1	2	263	697	-	21	120	1658	1289	185	99	1459
	02H	2	1	2	-	-	894	-	-	16	73	127	1292	1546
J	01J	2	1	2	263	697	-	20	119	1649	1282	184	99	1451
	02J	2	1	2	-	-	894	-	-	16	72	126	1285	1537
K	01K	2	1	2	262	697	-	20	119	1640	1275	183	98	1444
	02K	2	1	2	-	-	894	-	-	16	72	126	1278	1530
L	01L	2	1	2	262	697	-	20	118	1633	1270	182	98	1437
	02L	2	1	2	-	-	894	-	-	16	72	125	1273	1523

SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	2	1	2	262	697	-	20	118	1628	1265	181	98	1432
	02M	2	1	2	-	-	894	-	-	16	71	125	1268	1518
N	01N	1	1	1	268	698	-	22	130	1794	1394	200	108	1578
	02N	1	1	1	-	-	896	-	-	18	79	138	1398	1673
O	01O	1	1	1	266	698	-	22	127	1756	1365	196	105	1546
	02O	1	1	1	-	-	895	-	-	17	77	135	1369	1638
P	01P	1	1	1	265	698	-	21	125	1723	1340	192	103	1517
	02P	1	1	1	-	-	895	-	-	17	76	132	1343	1607
Q	01Q	1	1	1	265	698	-	21	124	1708	1328	190	102	1503
	02Q	1	1	1	-	-	895	-	-	17	75	131	1331	1593

BANAGHER PRECAST CONCRETE LTD

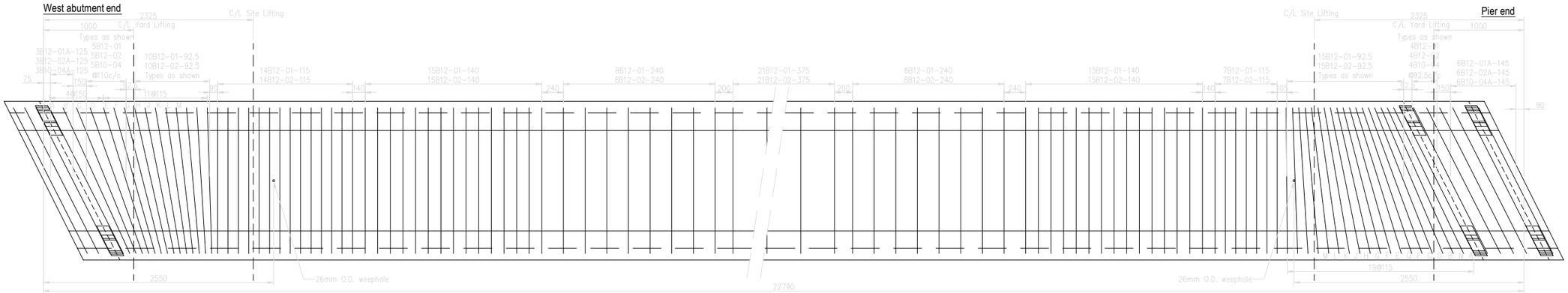
N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - West span Internal beam

Bar Schedule ref: BPC.09.244.95
Date Prepared: 15/01/2016 Date Revised:
Prepared By: RC Checked BY:

Member	Bar Mark	Type and Size		Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	95	95	5250	99						0.89	442.89	0.056
	02	B	12	24	1	95	95	3275	99						0.89	276.28	0.035
	03	B	10	20	1	75	75	1950	99						0.62	90.09	0.011
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04N	B	10	20	1	1	1	1585	00	1585					0.62	0.98	0.000
	04O	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	22790	00	22790					1.18	1721.10	0.282
Steel Vol. (m^3) = 0.39		**Concrete vol. (m^3) = 14.21**			**Steel Wgt (T) = 2.60**			**Concrete Wgt (T) = 34.80**					**Unit Wgt (T) = 37.40**		**2601.17**	**0.39447**
																Total kgs	**Total m^3**
THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005																	
*SPECIFIED IN MULTIPLES OF 5mm.																**Ave. Density**	**178.16**
**SPECIFIED IN MULTIPLES OF 25mm.																**2.56**	**kgs/m^3**

AS - BUILT RECORD

West abutment end



Plan of W5 beams showing reinforcement
1 no. Internal beam required - West Span - 22790mm long
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

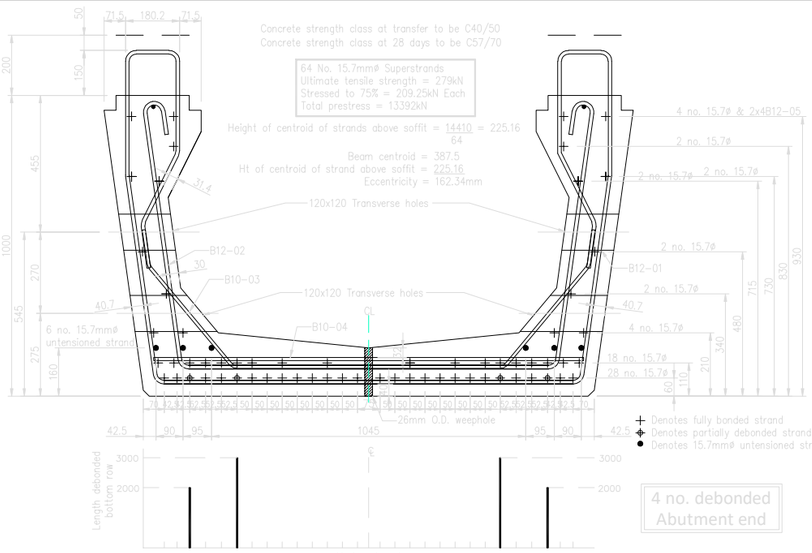
DIRECT ROUTE

Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

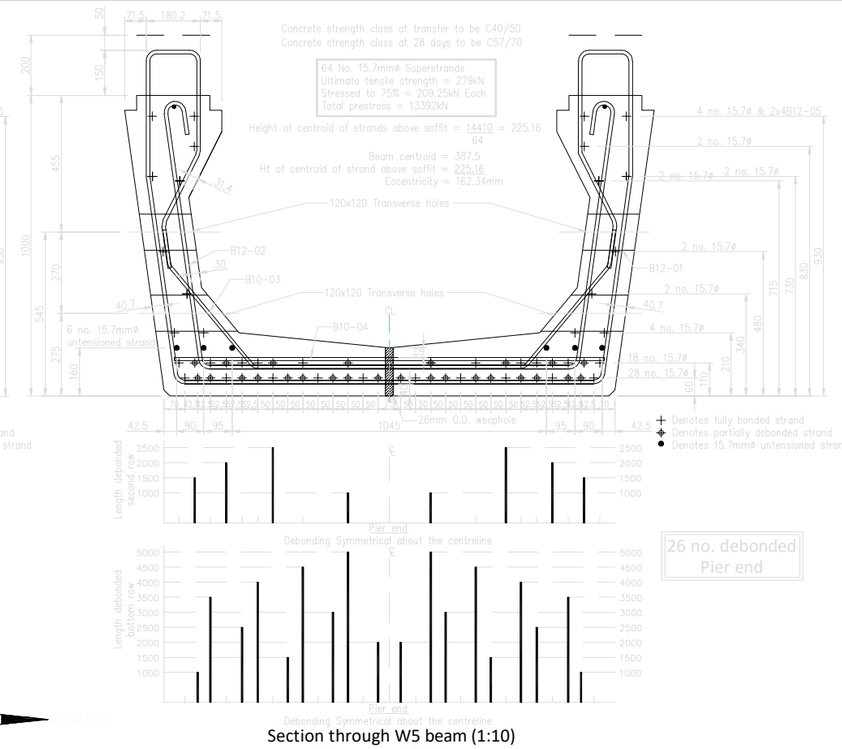
Project: N17/N18 Gort to Tuam PPP Scheme
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span Internal beam - 22790mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 11/01/16	M17-1700-OB16-071	AB_A
Approved: SC			

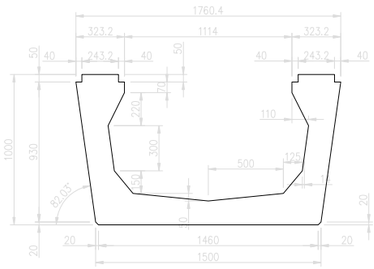
Drawing file path & name: Do Not Scale Drawing Use and Plot Date



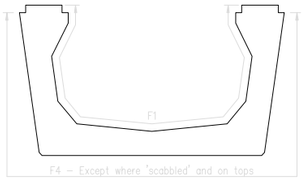
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



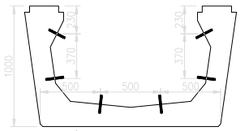
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

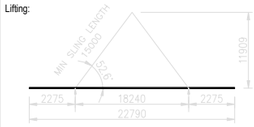


Section showing pins
for diaphragm shutter
(1:25)

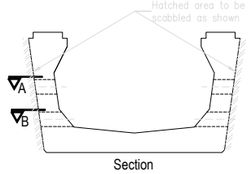
AS - BUILT RECORD

NOTES:
[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX
Untensioned strand to project as shown.
[12] Estimated steel weight = 2.8T
Estimated concrete weight = 34.7T
Estimated beam weight = 37.6T
Estimated FRC & diaphragm shutter weight = 2.3T
Estimated total beam weight = 39.9T
Volume of concrete per beam = 14.2m³

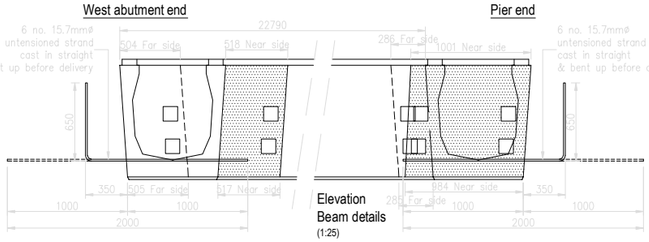
Lifting:



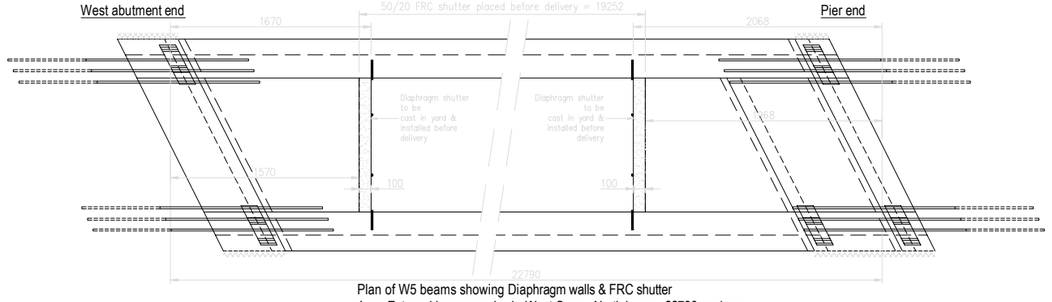
Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No



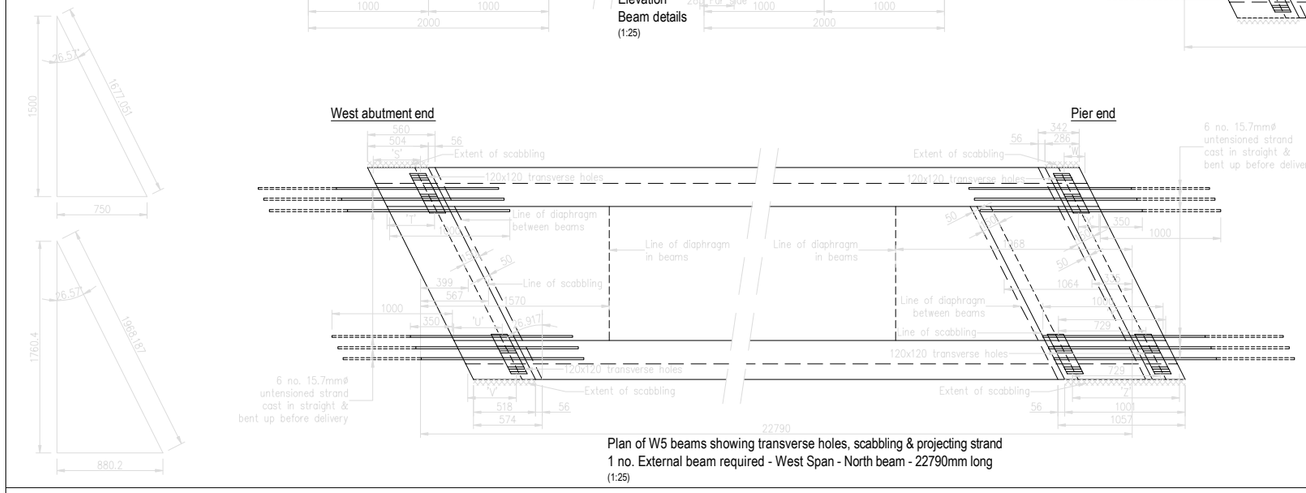
Section



Elevation
Beam details
(1:25)



Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. External beam required - West Span - North beam - 22790mm long
(1:25)



Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. External beam required - West Span - North beam - 22790mm long
(1:25)

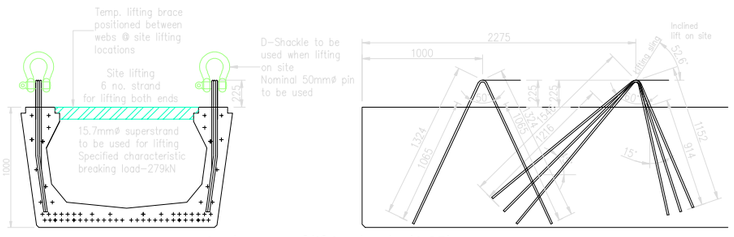
Transverse hole dimensions

Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	173	172	891	889
B	173	171	892	890



Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span North External beam - 22790mm long - 1 no. required - Sheet 1 of 2

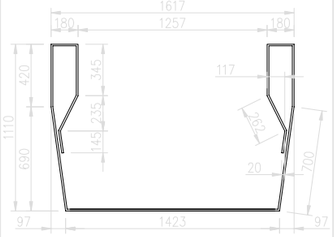
Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-072	AB_A
Approved: SC			

Drawing file path & name: J:\Projects\Gort to Tuam\User and Plot Data

BPC.09.244.96

AS - BUILT RECORD

B12-01



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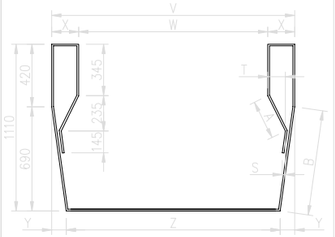
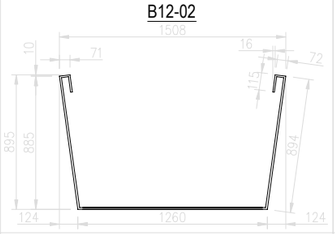


B12-02



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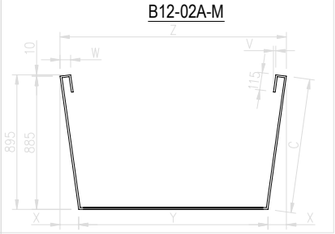


B10-03

SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
A	01A	11	1	11	268	699	-	22	131	1813	1410	202	109	1596
	02A	11	1	11	-	-	896	-	-	18	80	139	1413	1691
B	01B	2	1	2	267	698	-	22	129	1779	1383	198	107	1565
	02B	2	1	2	-	-	895	-	-	18	78	136	1386	1659
C	01C	2	1	2	266	698	-	22	126	1747	1358	194	105	1537
	02C	2	1	2	-	-	895	-	-	17	77	134	1361	1629
D	01D	2	1	2	265	698	-	21	124	1718	1336	191	103	1512
	02D	2	1	2	-	-	895	-	-	17	75	132	1339	1602
E	01E	2	1	2	264	697	-	21	122	1693	1316	188	102	1490
	02E	2	1	2	-	-	894	-	-	17	74	130	1319	1579
F	01F	2	1	2	264	697	-	21	122	1681	1307	187	101	1480
	02F	2	1	2	-	-	894	-	-	17	74	129	1310	1568
G	01G	2	1	2	263	697	-	21	121	1671	1299	186	100	1470
	02G	2	1	2	-	-	894	-	-	17	73	128	1302	1558
H	01H	2	1	2	263	697	-	21	120	1661	1291	185	100	1462
	02H	2	1	2	-	-	894	-	-	16	73	127	1295	1549
J	01J	2	1	2	263	697	-	20	120	1653	1285	184	99	1454
	02J	2	1	2	-	-	894	-	-	16	73	127	1288	1541
K	01K	2	1	2	263	697	-	20	119	1645	1279	183	99	1447
	02K	2	1	2	-	-	894	-	-	16	72	126	1282	1534
L	01L	2	1	2	262	697	-	20	119	1638	1273	182	98	1441
	02L	2	1	2	-	-	894	-	-	16	72	126	1276	1528

SPECIAL LINKS

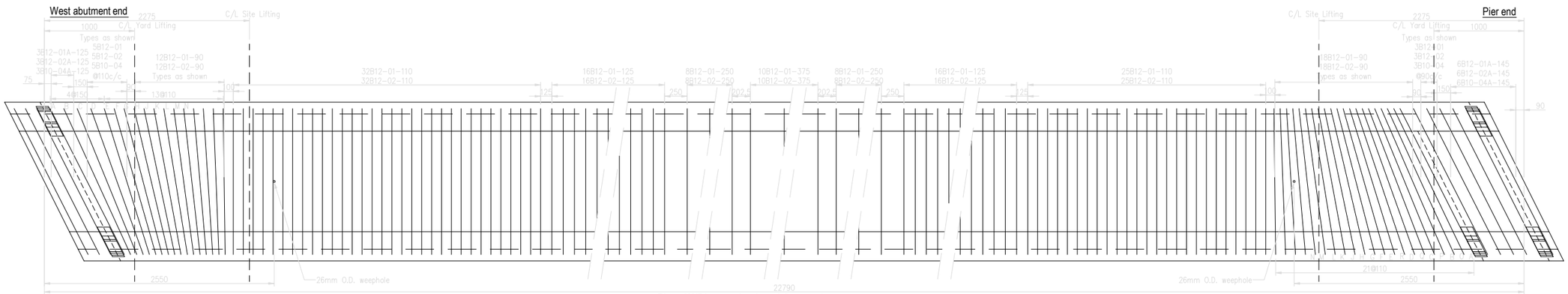
	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	2	1	2	262	697	-	20	118	1632	1269	182	98	1436
	02M	2	1	2	-	-	894	-	-	16	72	125	1272	1522
N	01N	2	1	2	262	697	-	20	118	1627	1265	181	98	1432
	02N	2	1	2	-	-	894	-	-	16	71	125	1268	1517
O	01O	1	1	1	268	698	-	22	130	1796	1396	200	108	1580
	02O	1	1	1	-	-	896	-	-	18	79	138	1399	1675
P	01P	1	1	1	266	698	-	22	128	1762	1370	196	106	1551
	02P	1	1	1	-	-	895	-	-	17	77	135	1373	1644
Q	01Q	1	1	1	265	698	-	21	125	1732	1347	193	104	1524
	02Q	1	1	1	-	-	895	-	-	17	76	133	1350	1615
R	01R	1	1	1	265	698	-	21	123	1705	1325	190	102	1501
	02R	1	1	1	-	-	895	-	-	17	75	131	1329	1590

BANAGHER PRECAST CONCRETE LTD

N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - West span North External beam

Bar Schedule ref.: BPC.09.244.97
Date Prepared: 16/01/2016 | Date Revised:
Prepared By: RC | Checked BY:

Member	Bar Mark	Type and Size		Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	123	123	5250	99						0.89	573.43	0.073
	02	B	12	24	1	123	123	3275	99						0.89	357.71	0.046
	03	B	10	20	1	75	75	1950	99						0.62	90.09	0.011
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04O	B	10	20	1	1	1	1590	00	1590					0.62	0.98	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	22790	00	22790					1.18	1721.10	0.282
Steel Vol. (m^3) = 0.42		**Concrete vol. (m^3) = 14.18**			**Steel Wgt (T) = 2.81**			**Concrete Wgt (T) = 34.74**				**Unit Wgt (T) = 37.55**			**2812.18 Total kgs**	**0.42134 Total m^3**
THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005																**Ave. Density 2.57**	**192.62 kgs/m^3**
*SPECIFIED IN MULTIPLES OF 5mm.																	
**SPECIFIED IN MULTIPLES OF 25mm.																	



Plan of W5 beams showing reinforcement
1 no. External beam required - West Span - North beam - 22790mm long
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

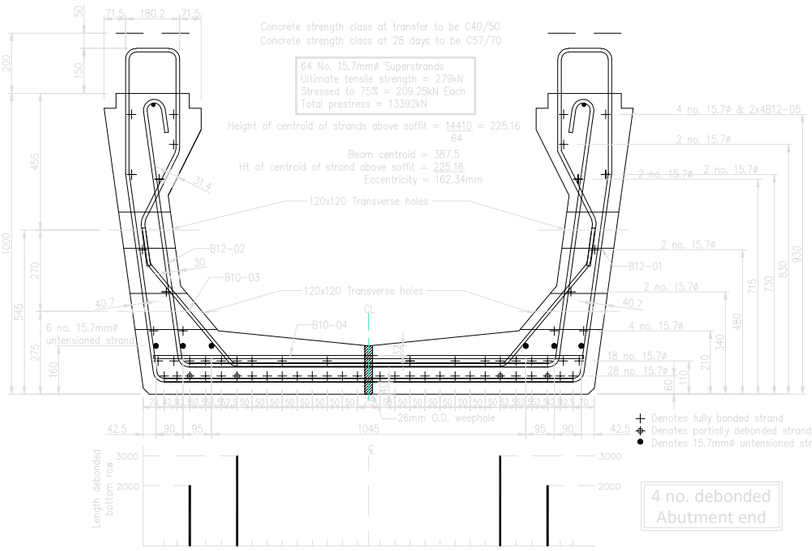
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span North External beam - 22790mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-073	AB_A
Approved: SC			

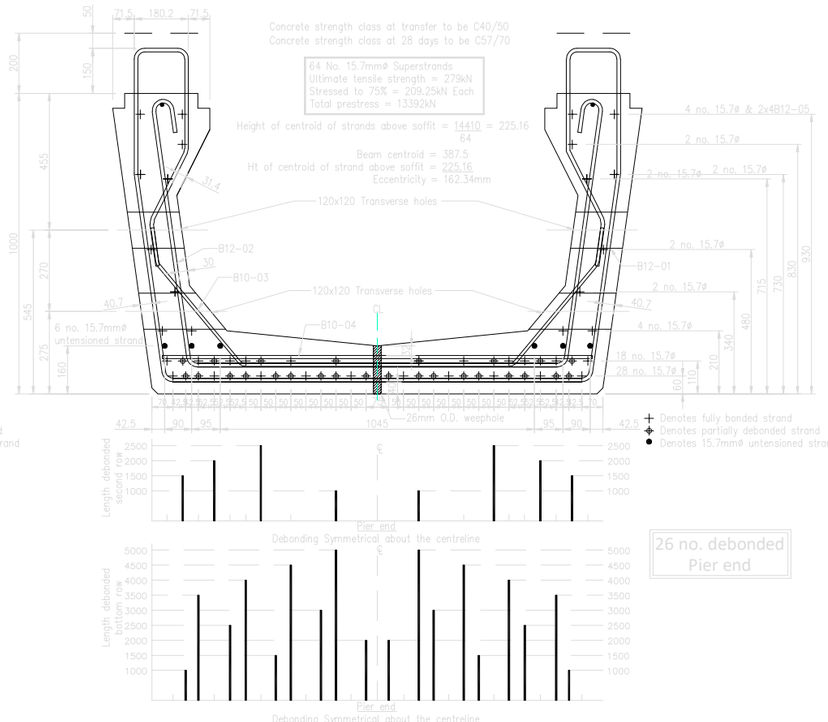
Drawing file path & name: J:\1700\Drawings\Road\User and Plot Data

BPC.09.244.97A

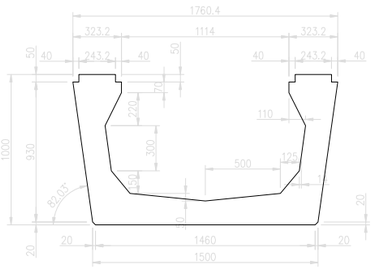
AS - BUILT RECORD



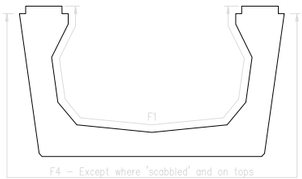
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



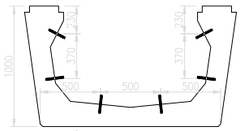
Section through W5 beam (1:10)
1 no. W5 beam - 22790mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

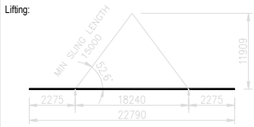


Section showing pins
for diaphragm shutter
(1:25)

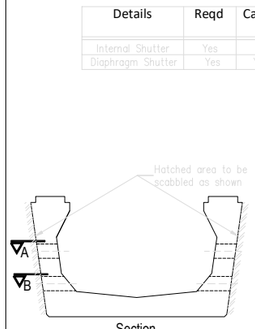
NOTES:

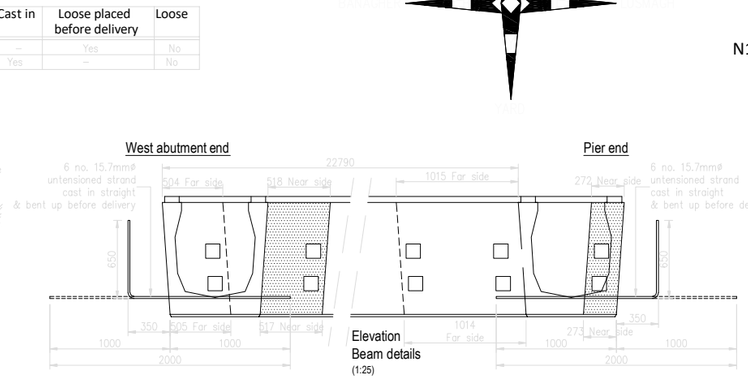
[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX
Untensioned strand to project as shown.
[12] Estimated steel weight = 2.8T
Estimated concrete weight = 34.7T
Estimated beam weight = 37.6T
Estimated FRC & diaphragm shutter weight = 2.3T
Estimated total beam weight = 39.9T
Volume of concrete per beam = 14.2m³

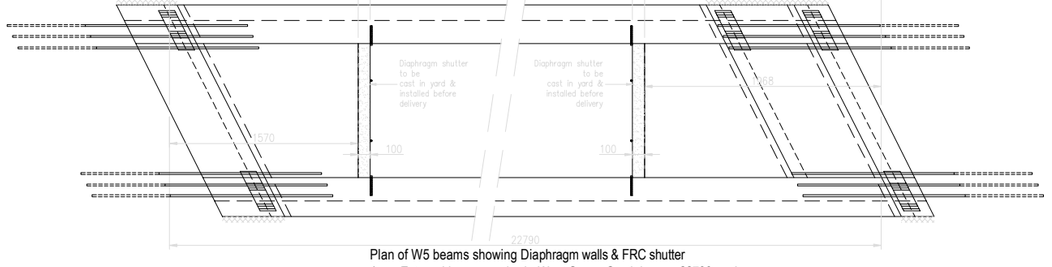
Lifting:



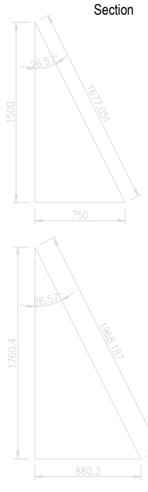
Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No

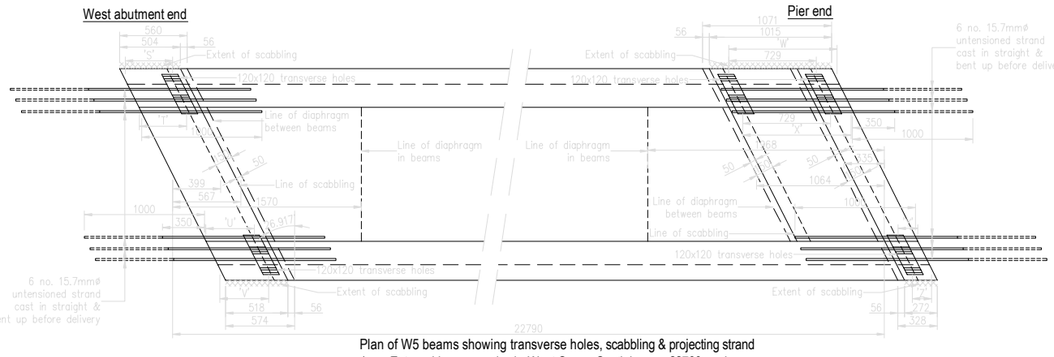






Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. External beam required - West Span - South beam - 22790mm long
(1:25)





Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. External beam required - West Span - South beam - 22790mm long
(1:25)

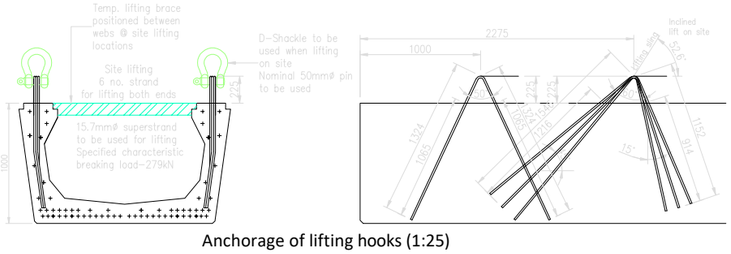
Transverse hole dimensions

Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	902	901	162	160
B	902	900	163	161



Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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COMHAIRLE CHONTAE NA GAILLIMHE
GALWAY COUNTY COUNCIL

NRA An tÚdarás um Bóithre Náisiúnta National Roads Authority

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP
STRABAG
BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span South External beam - 22790mm long - 1 no. required - Sheet 1 of 2

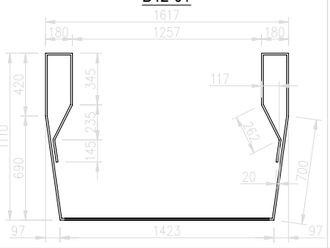
Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-074	AB_A
Approved: SC			

Drawing file path & name
Date Last Saved
User and Plot Date

BPC.09.244.98

AS - BUILT RECORD

B12-01



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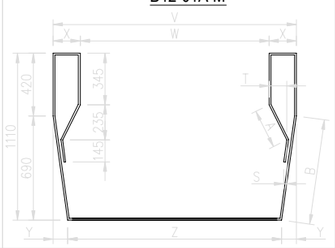

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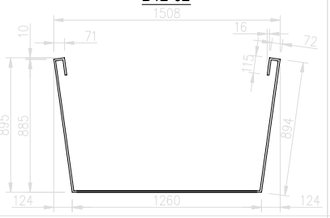

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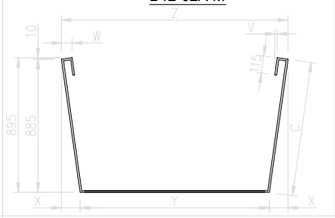

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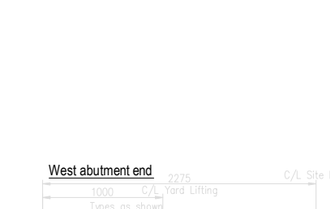


SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
A	01A	11	1	11	268	699	-	22	131	1813	1410	202	109	1596
	02A	11	1	11	-	-	896	-	-	18	80	139	1413	1691
B	01B	2	1	2	267	698	-	22	129	1779	1383	198	107	1565
	02B	2	1	2	-	-	895	-	-	18	78	136	1386	1659
C	01C	2	1	2	266	698	-	22	126	1747	1358	194	105	1537
	02C	2	1	2	-	-	895	-	-	17	77	134	1361	1629
D	01D	2	1	2	265	698	-	21	124	1718	1336	191	103	1512
	02D	2	1	2	-	-	895	-	-	17	75	132	1339	1602
E	01E	2	1	2	264	697	-	21	122	1693	1316	188	102	1490
	02E	2	1	2	-	-	894	-	-	17	74	130	1319	1579
F	01F	2	1	2	264	697	-	21	122	1681	1307	187	101	1480
	02F	2	1	2	-	-	894	-	-	17	74	129	1310	1568
G	01G	2	1	2	263	697	-	21	121	1671	1299	186	100	1470
	02G	2	1	2	-	-	894	-	-	17	73	128	1302	1558
H	01H	2	1	2	263	697	-	21	120	1661	1291	185	100	1462
	02H	2	1	2	-	-	894	-	-	16	73	127	1295	1549
J	01J	2	1	2	263	697	-	20	120	1653	1285	184	99	1454
	02J	2	1	2	-	-	894	-	-	16	73	127	1288	1541
K	01K	2	1	2	263	697	-	20	119	1645	1279	183	99	1447
	02K	2	1	2	-	-	894	-	-	16	72	126	1282	1534
L	01L	2	1	2	262	697	-	20	119	1638	1273	182	98	1441
	02L	2	1	2	-	-	894	-	-	16	72	126	1276	1528

SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	2	1	2	262	697	-	20	118	1632	1269	182	98	1436
	02M	2	1	2	-	-	894	-	-	16	72	125	1272	1522
N	01N	2	1	2	262	697	-	20	118	1627	1265	181	98	1432
	02N	2	1	2	-	-	894	-	-	16	71	125	1268	1517
O	01O	1	1	1	268	698	-	22	130	1796	1396	200	108	1580
	02O	1	1	1	-	-	896	-	-	18	79	138	1399	1675
P	01P	1	1	1	266	698	-	22	128	1762	1370	196	106	1551
	02P	1	1	1	-	-	895	-	-	17	77	135	1373	1644
Q	01Q	1	1	1	265	698	-	21	125	1732	1347	193	104	1524
	02Q	1	1	1	-	-	895	-	-	17	76	133	1350	1615
R	01R	1	1	1	265	698	-	21	123	1705	1325	190	102	1501
	02R	1	1	1	-	-	895	-	-	17	75	131	1329	1590

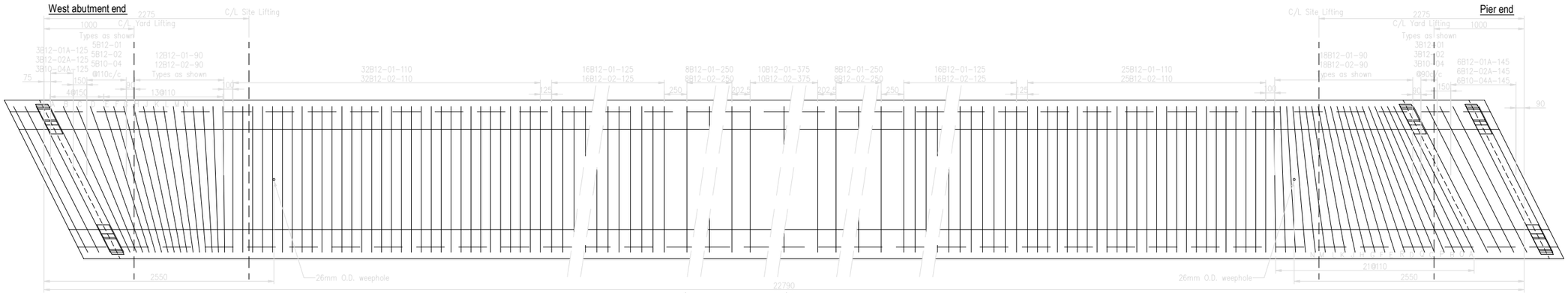
BANAGHER PRECAST CONCRETE LTD

N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - West span South External beam

Bar Schedule ref: BPC.09.244.99
Date Prepared: 16/01/2016 Date Revised:
Prepared By: RC Checked BY:

Member	Bar Mark	Type and Size		Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	123	123	5250	99						0.89	573.43	0.073
	02	B	12	24	1	123	123	3275	99						0.89	357.71	0.046
	03	B	10	20	1	75	75	1950	99						0.62	90.09	0.011
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04O	B	10	20	1	1	1	1590	00	1590					0.62	0.98	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	22790	00	22790					1.18	1721.10	0.282
Steel Vol. (m^3) = 0.42		**Concrete vol. (m^3) = 14.18**			**Steel Wgt (T) = 2.81**			**Concrete Wgt (T) = 34.74**					**Unit Wgt (T) = 37.55**		**2812.18**	**0.42134**
THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005																**Total kgs**	**Total m^3**
*SPECIFIED IN MULTIPLES OF 5mm.																**Ave. Density**	**192.62**
**SPECIFIED IN MULTIPLES OF 25mm.																**2.57**	**kgs/m^3**

West abutment end — Pier end



Plan of W5 beams showing reinforcement
1 no. External beam required - West Span - South beam - 22790mm long
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
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Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

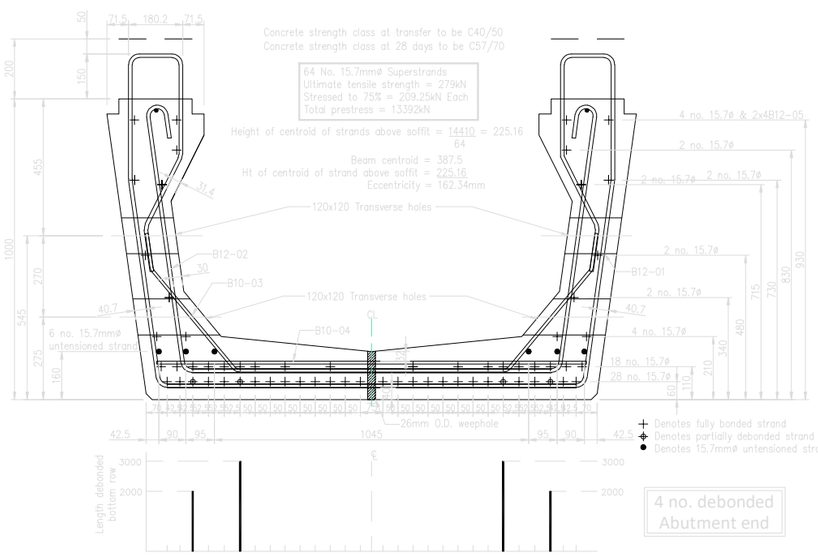
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
West span South External beam - 22790mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-075	AB_A
Approved: SC			

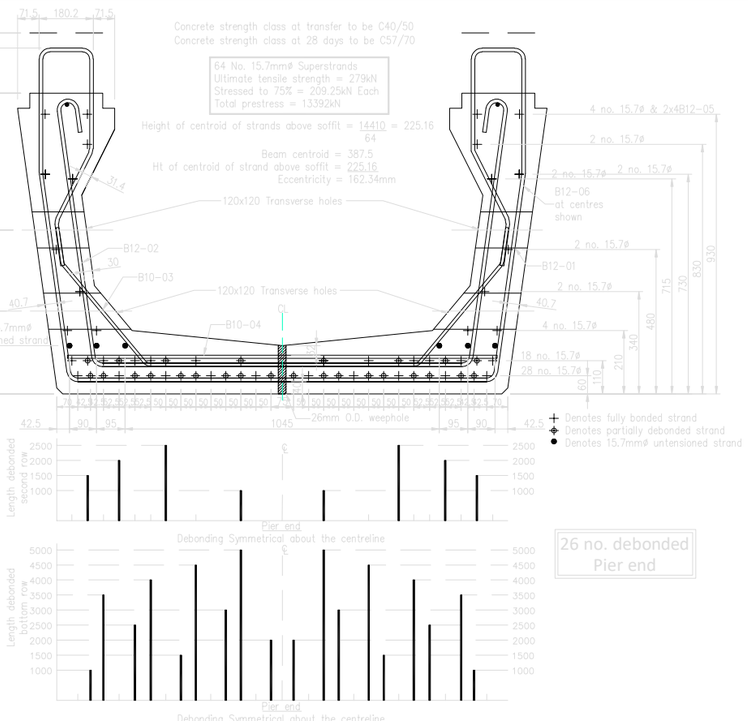
Drawing file path & name
Drawing Date Time
User and Plot Date

BPC.09.244.99A

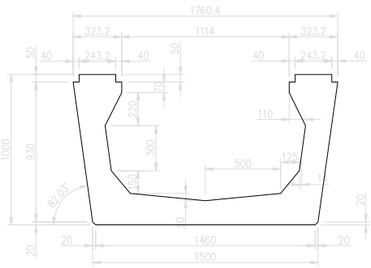
AS - BUILT RECORD



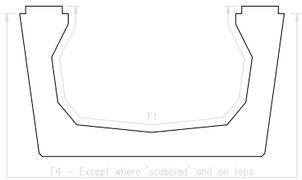
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



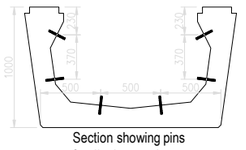
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

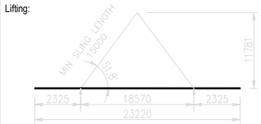


Section showing pins
for diaphragm shutter
(1:25)

NOTES:

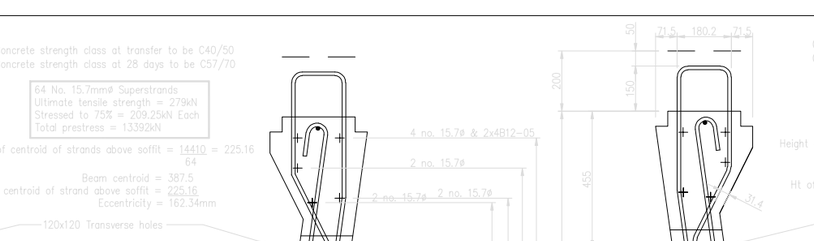
[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX Untensioned strand to project as shown.
[12] Estimated steel weight = 2.7T
Estimated concrete weight = 35.5T
Estimated beam weight = 38.2T
Estimated FRC & diaphragm shutter weight = 2.4T
Estimated total beam weight = 40.6T
Volume of concrete per beam = 14.4m³

Lifting:

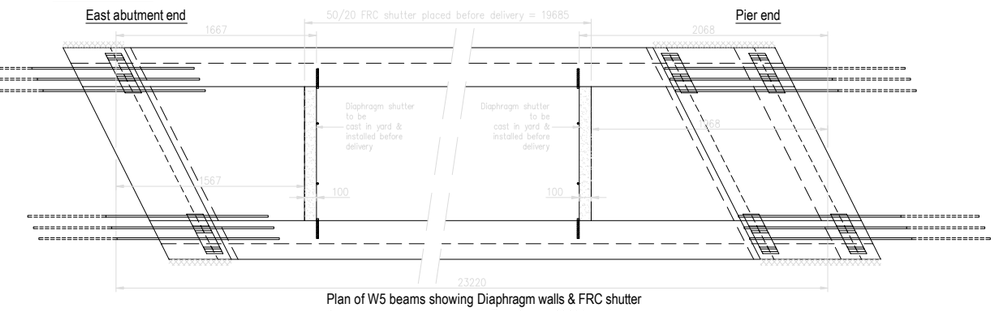


Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No

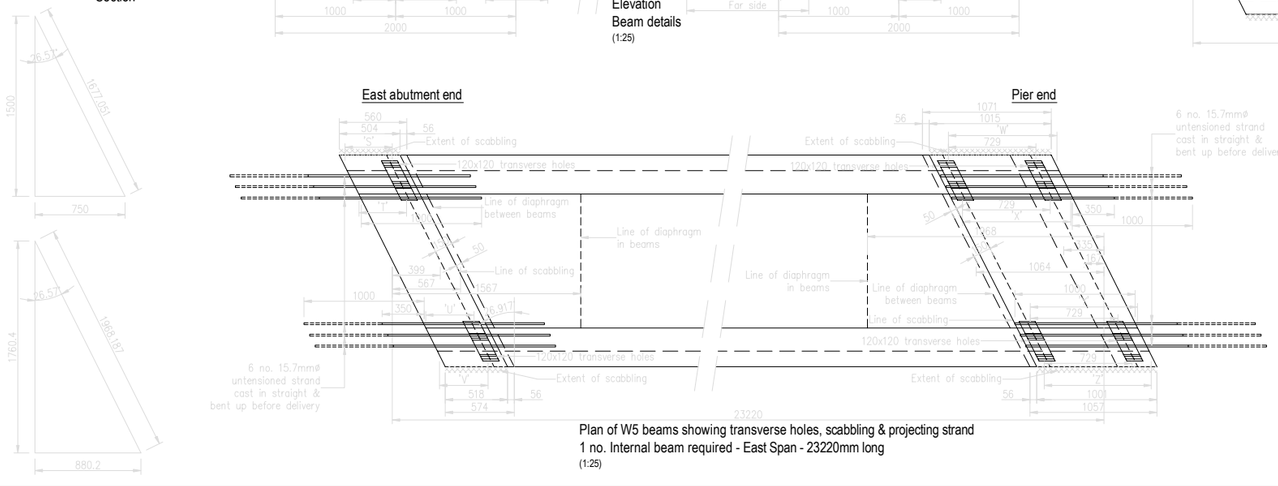
Section



Elevation
Beam details
(1:25)



Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. Internal beam required - East Span - 23220mm long
(1:25)



Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. Internal beam required - East Span - 23220mm long
(1:25)

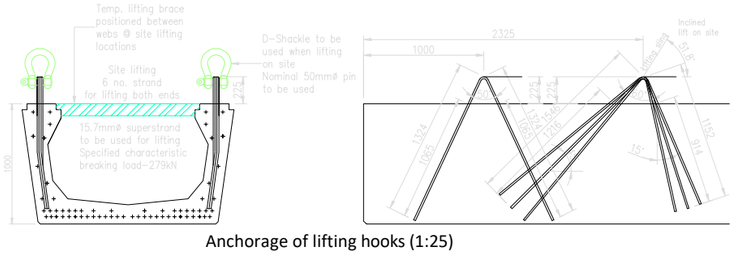
Transverse hole dimensions

Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	902	901	891	889
B	902	900	892	890



Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
East span Internal beam - 23220mm long - 1 no. required - Sheet 1 of 2

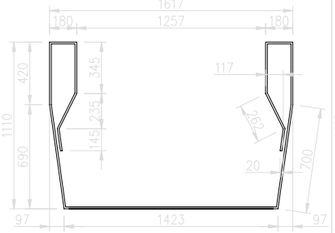
Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-076	AB_A
Approved: MS			

Drawing file path & name
Drawing Saved by User and Plot Date

BPC.09.244.100

AS - BUILT RECORD

B12-01



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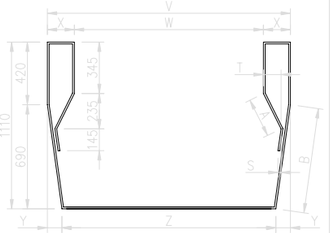

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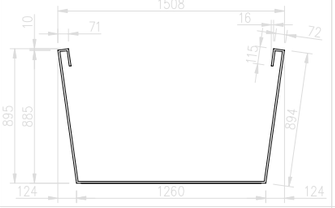

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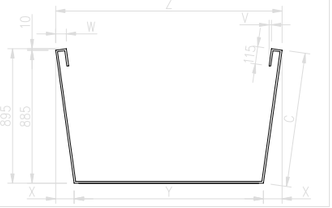

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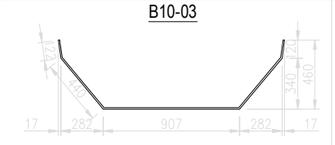


SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
A	01A	11	1	11	268	699	-	22	131	1813	1410	202	109	1596
	02A	11	1	11	-	-	896	-	-	18	80	139	1413	1691
B	01B	3	1	3	267	698	-	22	129	1779	1383	198	107	1565
	02B	3	1	3	-	-	895	-	-	18	78	136	1386	1659
C	01C	3	1	3	266	698	-	22	126	1747	1358	194	105	1537
	02C	3	1	3	-	-	895	-	-	17	77	134	1361	1629
D	01D	3	1	3	265	698	-	21	124	1718	1336	191	103	1512
	02D	3	1	3	-	-	895	-	-	17	75	132	1339	1602
E	01E	2	1	2	264	697	-	21	122	1693	1316	188	102	1490
	02E	2	1	2	-	-	894	-	-	17	74	130	1319	1579
F	01F	3	1	3	264	697	-	21	122	1684	1309	187	101	1482
	02F	3	1	3	-	-	894	-	-	17	74	129	1312	1571
G	01G	3	1	3	263	697	-	21	121	1672	1300	186	100	1472
	02G	3	1	3	-	-	894	-	-	17	73	128	1303	1559
H	01H	4	1	4	263	697	-	21	120	1658	1289	185	99	1459
	02H	4	1	4	-	-	894	-	-	16	73	127	1292	1546
J	01J	3	1	3	263	697	-	20	119	1649	1282	184	99	1451
	02J	3	1	3	-	-	894	-	-	16	72	126	1285	1537
K	01K	4	1	4	262	697	-	20	119	1640	1275	183	98	1444
	02K	4	1	4	-	-	894	-	-	16	72	126	1278	1530
L	01L	4	1	4	262	697	-	20	118	1631	1268	182	98	1436
	02L	4	1	4	-	-	894	-	-	16	72	125	1271	1521

SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	1	1	1	268	698	-	22	130	1800	1399	200	108	1584
	02M	1	1	1	-	-	896	-	-	18	79	138	1403	1679
N	01N	1	1	1	266	698	-	22	128	1762	1370	196	106	1551
	02N	1	1	1	-	-	895	-	-	17	77	135	1373	1644
O	01O	1	1	1	265	698	-	21	125	1729	1344	192	104	1521
	02O	1	1	1	-	-	895	-	-	17	76	133	1347	1612

BANAGHER PRECAST CONCRETE LTD

N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - East span Internal beam

Bar Schedule ref: BPC.09.244.101
Date Prepared: 16/01/2016 Date Revised:
Prepared By: RC Checked BY:

Member	Bar Mark	Type and Size		Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	101	101	5250	99						0.89	470.86	0.060
	02	B	12	24	1	101	101	3275	99						0.89	293.73	0.037
	03	B	10	20	1	77	77	1950	99						0.62	92.49	0.012
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04M	B	10	20	1	1	1	1590	00	1590					0.62	0.98	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	23220	00	23220					1.18	1753.57	0.288

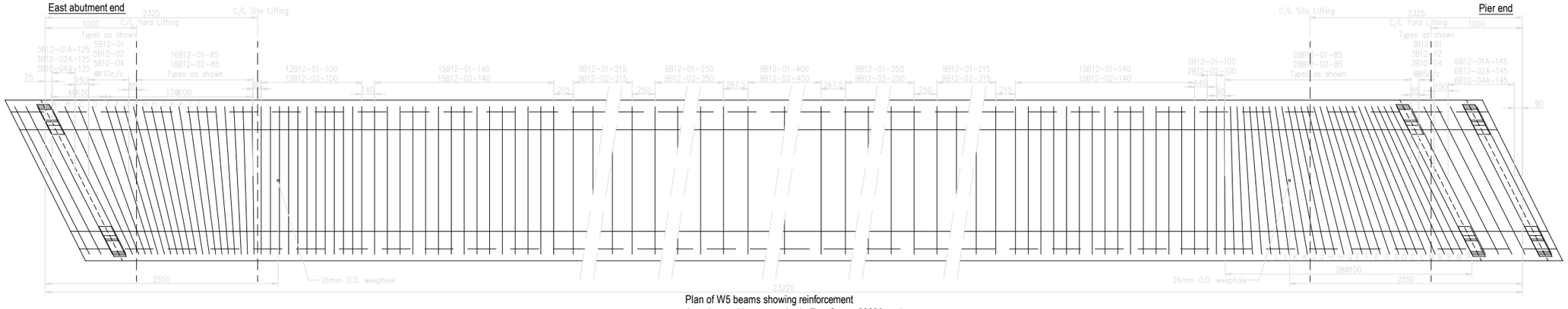
Steel Vol. (m^3) = 0.41 **Concrete vol. (m^3) = 14.49** **Steel Wgt (T) = 2.68** **Concrete Wgt (T) = 35.51** **Unit Wgt (T) = 38.19** **2680.51** **0.40577**

THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005 — **Total kgs** — **Total m^3**

*SPECIFIED IN MULTIPLES OF 5mm. — **Ave. Density** — **179.90**

SPECIFIED IN MULTIPLES OF 25mm. — **2.56 — **kgs/m^3**

East abutment end



Pier end

Plan of W5 beams showing reinforcement
1 no. Internal beam required - East Span - 23220mm long
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

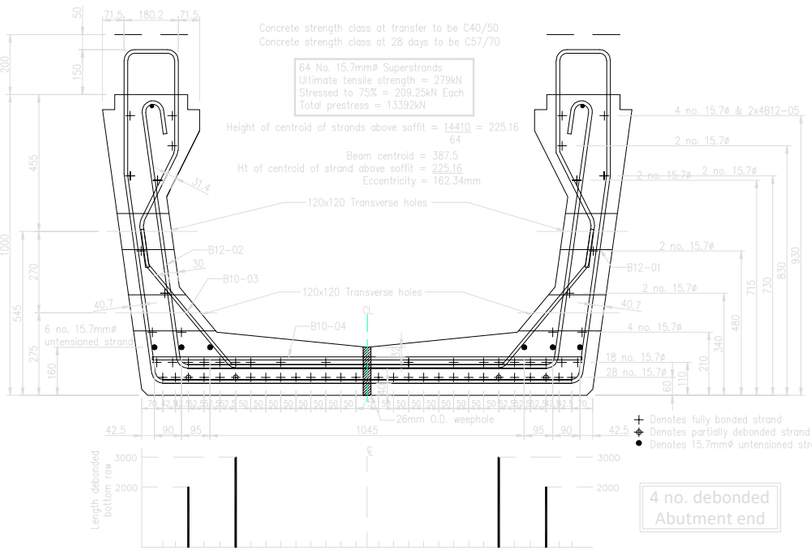
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
East span Internal beam - 23220mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-077	AB_A
Approved: SC			

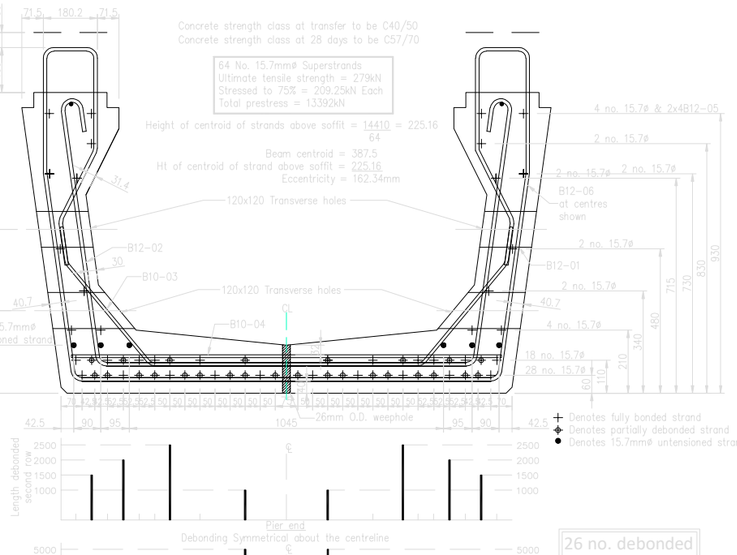
Drawing file path & name : N:\Roads\N17\Gort to Tuam\Design\User and Plot Data

BPC.09.244.101

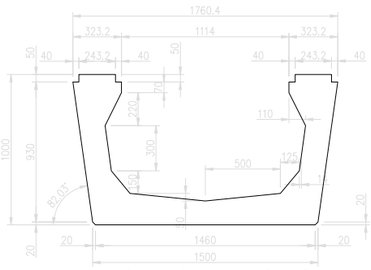
AS - BUILT RECORD



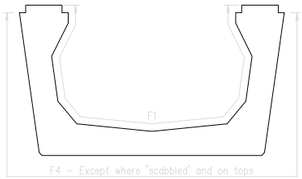
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



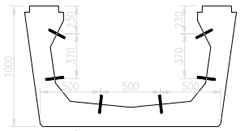
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

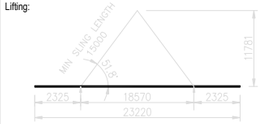


Section showing pins
for diaphragm shutter
(1:25)

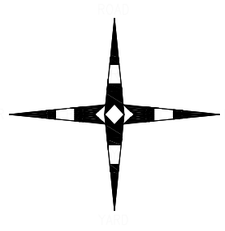
NOTES:

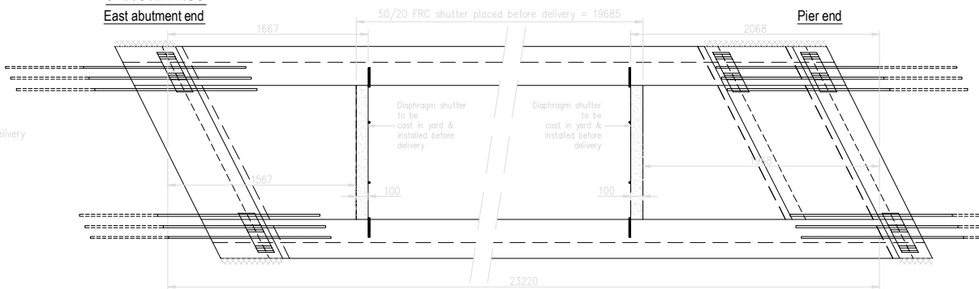
[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX
Untensioned strand to project as shown.
[12] Estimated steel weight = 2.9T
Estimated concrete weight = 35.5T
Estimated beam weight = 38.3T
Estimated FRC & diaphragm shutter weight = 2.4T
Estimated total beam weight = 40.7T
Volume of concrete per beam = 14.5m³

Lifting:

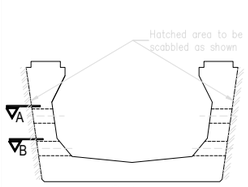


Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No

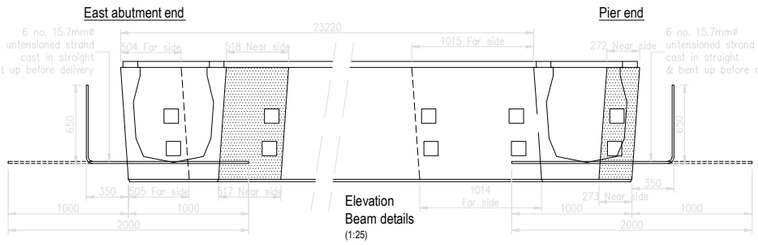




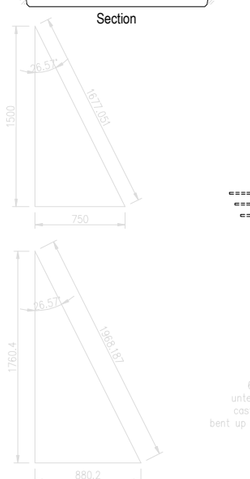
Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. External beam required - East Span - North beam - 23220mm long
(1:25)

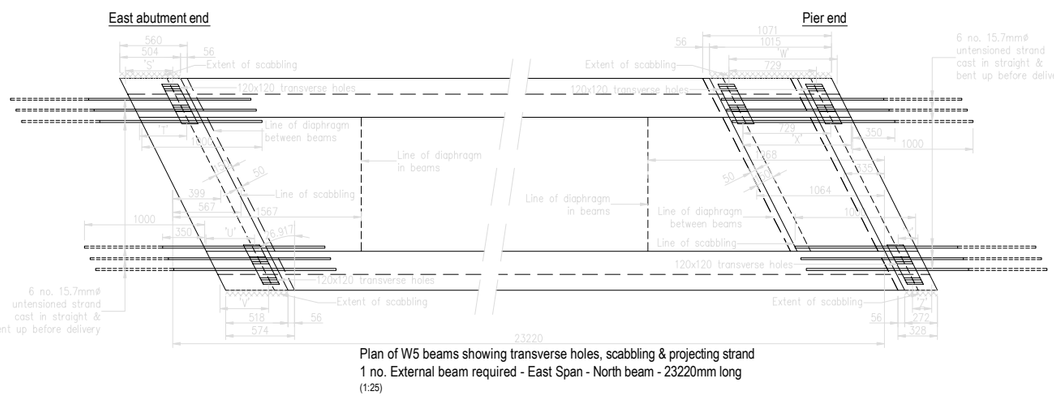


Section



Elevation
Beam details
(1:25)





Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. External beam required - East Span - North beam - 23220mm long
(1:25)

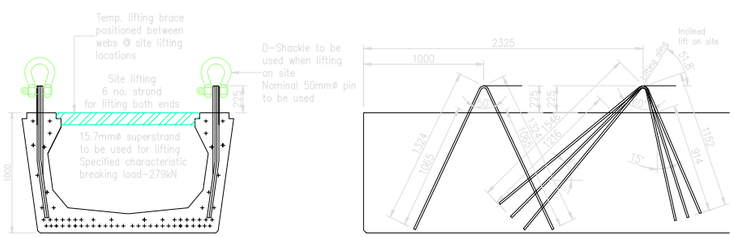
Transverse hole dimensions

Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	902	901	162	160
B	902	900	163	161



Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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Project: N17/N18 Gort to Tuam PPP Scheme

Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
East span North External beam - 23220mm long - 1 no. required - Sheet 1 of 2

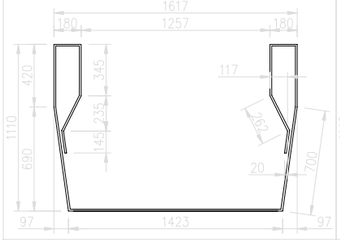
Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-078	AB_A
Approved: MS			

Drawing file path & name: I:\N17 Gort to Tuam\User and Post Data\

BPC.09.244.102

AS - BUILT RECORD

B12-01



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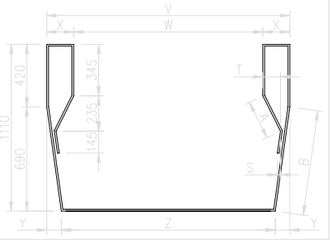

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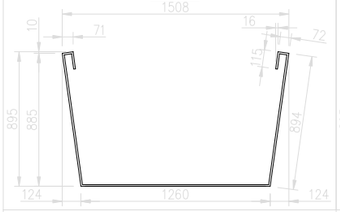

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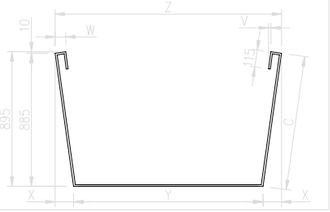

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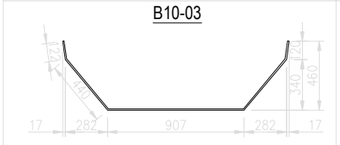

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B	01B	2	1	2	267	698	-	22	129	1779	1383	198	107	1565
	02B	2	1	2	-	-	895	-	-	18	78	136	1386	1659
C	01C	3	1	3	266	698	-	22	126	1747	1358	194	105	1537
	02C	3	1	3	-	-	895	-	-	17	77	134	1361	1629
D	01D	4	1	4	265	698	-	21	124	1718	1336	191	103	1512
	02D	4	1	4	-	-	895	-	-	17	75	132	1339	1602
E	01E	3	1	3	264	697	-	21	122	1693	1316	188	102	1490
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F	01F	2	1	2	264	697	-	21	122	1684	1309	187	101	1482
	02F	2	1	2	-	-	894	-	-	17	74	129	1312	1571
G	01G	4	1	4	263	697	-	21	121	1672	1300	186	100	1472
	02G	4	1	4	-	-	894	-	-	17	73	128	1303	1559
H	01H	4	1	4	263	697	-	21	120	1658	1289	185	99	1459
	02H	4	1	4	-	-	894	-	-	16	73	127	1292	1546
J	01J	4	1	4	263	697	-	20	119	1646	1279	183	99	1448
	02J	4	1	4	-	-	894	-	-	16	72	126	1282	1535
K	01K	6	1	6	262	697	-	20	118	1633	1270	182	98	1437
	02K	6	1	6	-	-	894	-	-	16	72	125	1273	1523
L	01L	1	1	1	267	698	-	22	129	1787	1389	199	107	1573
	02L	1	1	1	-	-	896	-	-	18	78	137	1393	1667

SPECIAL LINKS

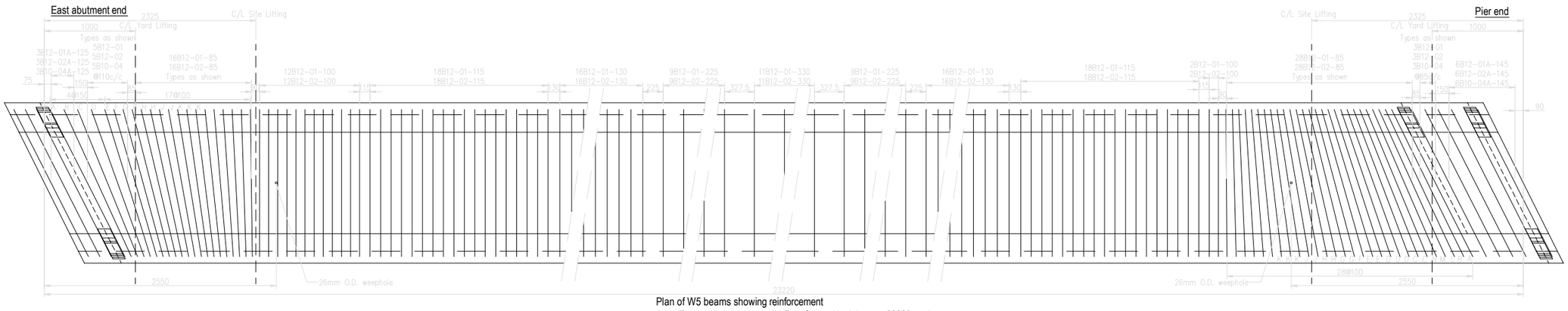
	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	1	1	1	267	698	-	22	128	1775	1379	198	106	1562
	02M	1	1	1	-	-	895	-	-	18	78	136	1383	1655
N	01N	1	1	1	266	698	-	22	128	1762	1370	196	106	1551
	02N	1	1	1	-	-	895	-	-	17	77	135	1373	1644

BANAGHER PRECAST CONCRETE LTD

N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - East span North External beam

Bar Schedule ref: BPC.09.244.103
Date Prepared: 16/01/2016 Date Revised:
Prepared By: RC Checked BY:

Member	Bar Mark	Type and Size		Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	123	123	5250	99						0.89	573.43	0.073
	02	B	12	24	1	123	123	3275	99						0.89	357.71	0.046
	03	B	10	20	1	77	77	1950	99						0.62	92.49	0.012
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04L	B	10	20	1	1	1	1580	00	1580					0.62	0.97	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	23220	00	23220					1.18	1753.57	0.288
Steel Vol. (m^3) = 0.43		**Concrete vol. (m^3) = 14.47**			**Steel Wgt (T) = 2.85**			**Concrete Wgt (T) = 35.46**					**Unit Wgt (T) = 38.31**		**2847.05**	**0.42698**
THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005																**Total kgs**	**Total m^3**
*SPECIFIED IN MULTIPLES OF 5mm.																**Ave. Density**	**191.08**
**SPECIFIED IN MULTIPLES OF 25mm.																**2.57**	**kgs/m^3**



Plan of W5 beams showing reinforcement
1 no. External beam required - East Span - North beam - 23220mm long
(1:25)

SCALE 1:1 (A1) 0 10 20 30 40 50 100 MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

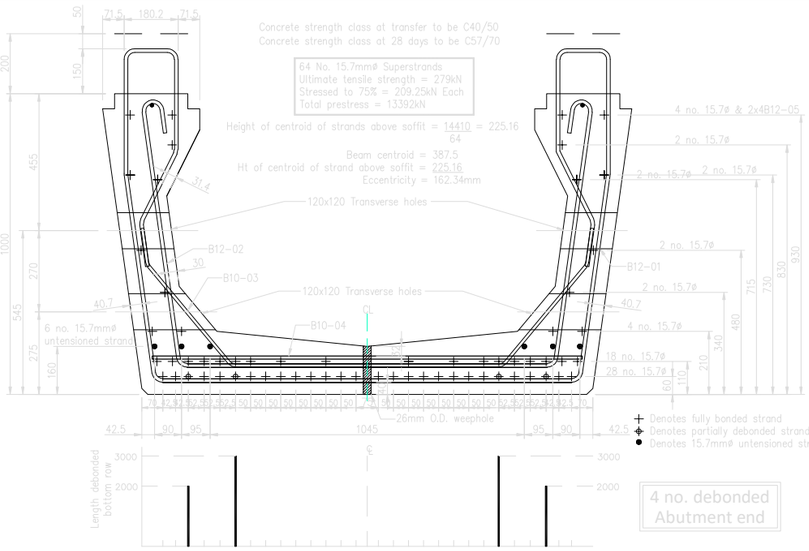
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
East span North External beam - 23220mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-079	AB_A
Approved: SC			

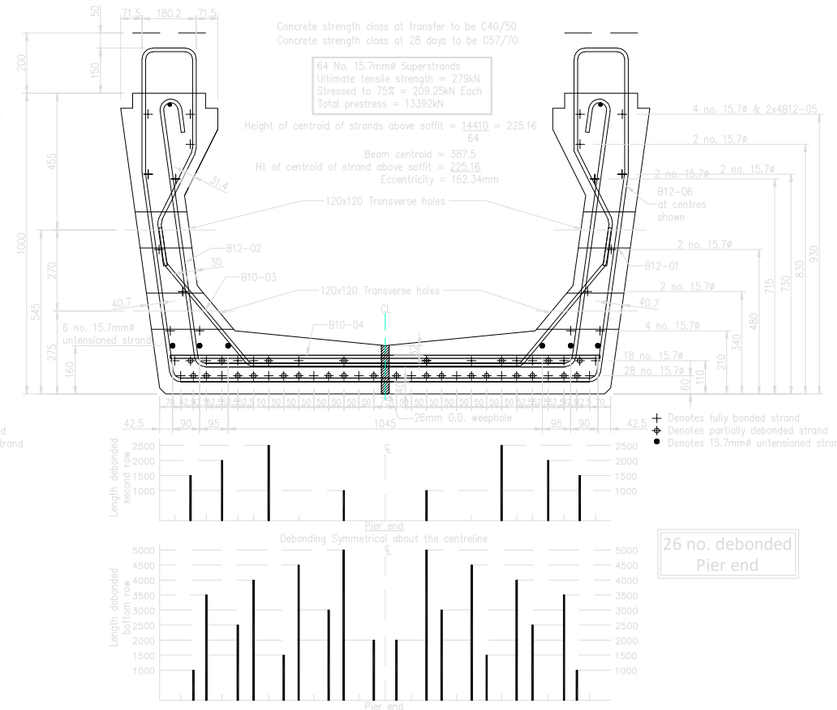
Drawing file path & name : N:\Bridges\Gort Tuam\Gort Tuam Bridges.dgn
User and Plot Date

BPC.09.244.103

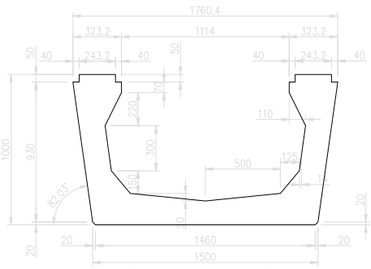
AS - BUILT RECORD



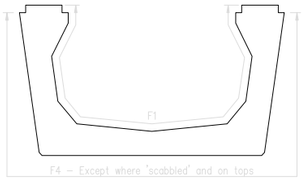
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Abutment end
SK.09.244.36A



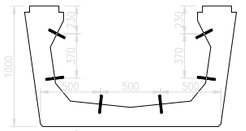
Section through W5 beam (1:10)
1 no. W5 beam - 23220mm long
N17/N18 Gort to Tuam - OB16 - Centre Section - Pier end
SK.09.244.35



W5 beam dimensions (1:20)



Surface finishes (1:20)

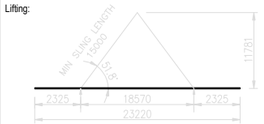


Section showing pins
for diaphragm shutter
(1:25)

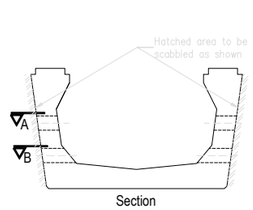
NOTES:

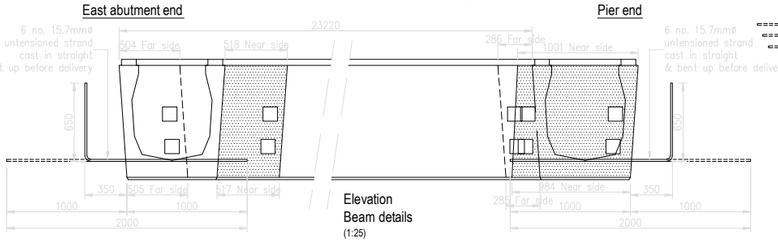
[1] Concrete strength class at transfer to be C40/50
[2] Concrete strength class at 28 days to be C57/70
[3] Cement type CEM I with no GGBS
Minimum cement content = 475kg/m³
Maximum water/cement ratio = 0.40
[4] Steel reinforcements to B.S. 4449-05 (Grade B500B).
[5] Prestressing steel to B.S. 5896:2012.
[6] Strand Mill Certificates to show a maximum 1000 hour Relaxation Loss at 70% initial stress of 1.5%.
[7] Concrete cover to steel to be as shown, complying with Exposure classes XC3/4, XD1
[8] Stainless Steel Tying Wire Required.
[9] Top surface of beam to be in accordance with EN1992-1-1:2004 6.2.5 (2) - Rough.
[10] Beam ends not to be painted.
[11] Strand may project 25mm MAX
Untensioned strand to project as shown.
[12] Estimated steel weight = 2.9T
Estimated concrete weight = 35.5T
Estimated beam weight = 38.3T
Estimated FRC & diaphragm shutter weight = 2.4T
Estimated total beam weight = 40.7T
Volume of concrete per beam = 14.5m³

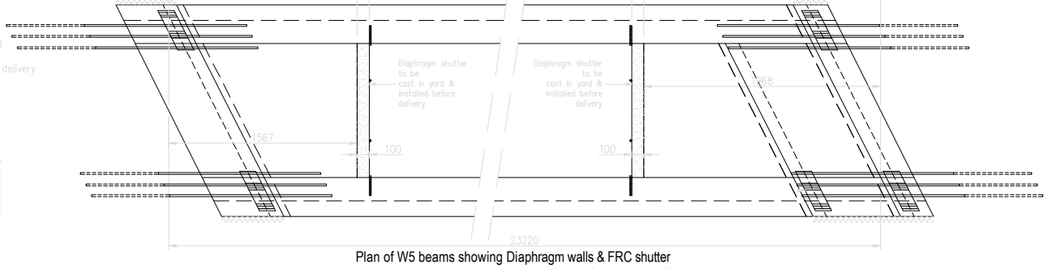
Lifting:



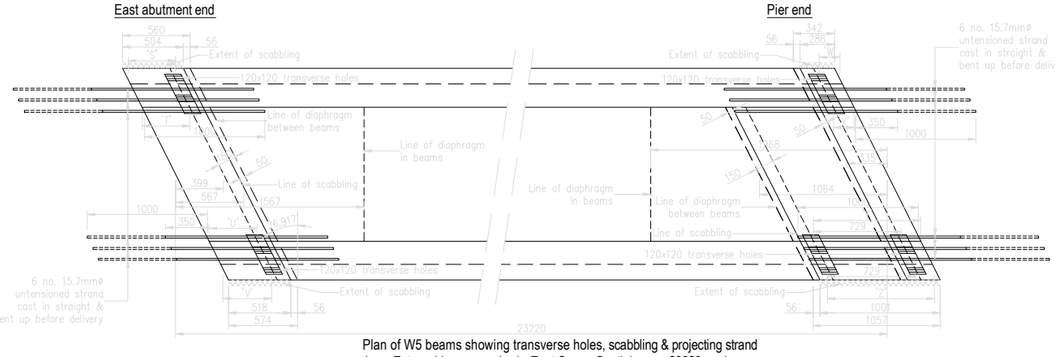
Details	Reqd	Cast in	Loose placed before delivery	Loose
Internal Shutter	Yes	–	Yes	No
Diaphragm Shutter	Yes	Yes	–	No







Plan of W5 beams showing Diaphragm walls & FRC shutter
1 no. External beam required - East Span - South beam - 23220mm long
(1:25)



Plan of W5 beams showing transverse holes, scabbling & projecting strand
1 no. External beam required - East Span - South beam - 23220mm long
(1:25)

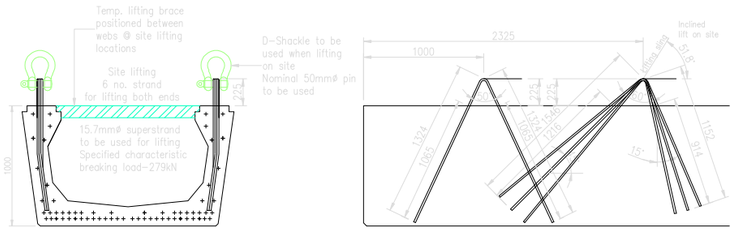
Transverse hole dimensions

Abutment end

Level	Dimensions S	T	U	V
A	392	394	404	405
B	393	395	403	405

Pier end

Level	Dimensions W	X	Y	Z
A	173	172	891	889
B	173	171	892	890



Anchorage of lifting hooks (1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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AB_A	HC	14/11/16	AS BUILT

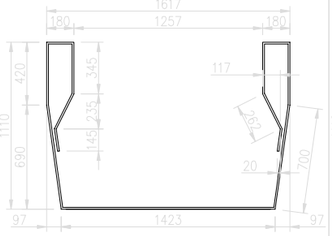
Project	N17/N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams East span South External beam - 23220mm long - 1 no. required - Sheet 1 of 2
Drawn: RC	Original scales: As Shown at A1
Checked: JR	Date: 16/01/16
Approved: SC	Drawing No.: M17-1700-OB16-080
	Revision.: AB_A

Drawing file path & name: N:\Roads\Gort Tuam\User and Plot Data\

BPC.09.244.104

AS - BUILT RECORD

B12-01



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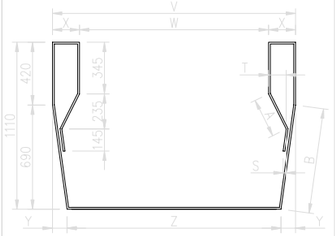

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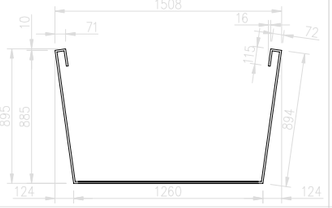

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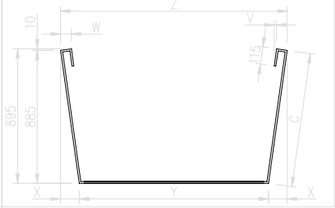
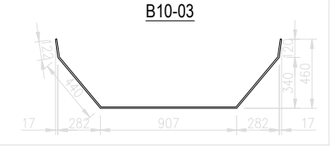


B10-03



SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
A	01A	11	1	11	268	699	-	22	131	1813	1410	202	109	1596
	02A	11	1	11	-	-	896	-	-	18	80	139	1413	1691
B	01B	2	1	2	267	698	-	22	129	1779	1383	198	107	1565
	02B	2	1	2	-	-	895	-	-	18	78	136	1386	1659
C	01C	3	1	3	266	698	-	22	126	1747	1358	194	105	1537
	02C	3	1	3	-	-	895	-	-	17	77	134	1361	1629
D	01D	4	1	4	265	698	-	21	124	1718	1336	191	103	1512
	02D	4	1	4	-	-	895	-	-	17	75	132	1339	1602
E	01E	3	1	3	264	697	-	21	122	1693	1316	188	102	1490
	02E	3	1	3	-	-	894	-	-	17	74	130	1319	1579
F	01F	2	1	2	264	697	-	21	122	1684	1309	187	101	1482
	02F	2	1	2	-	-	894	-	-	17	74	129	1312	1571
G	01G	4	1	4	263	697	-	21	121	1672	1300	186	100	1472
	02G	4	1	4	-	-	894	-	-	17	73	128	1303	1559
H	01H	4	1	4	263	697	-	21	120	1658	1289	185	99	1459
	02H	4	1	4	-	-	894	-	-	16	73	127	1292	1546
J	01J	4	1	4	263	697	-	20	119	1646	1279	183	99	1448
	02J	4	1	4	-	-	894	-	-	16	72	126	1282	1535
K	01K	6	1	6	262	697	-	20	118	1633	1270	182	98	1437
	02K	6	1	6	-	-	894	-	-	16	72	125	1273	1523
L	01L	1	1	1	267	698	-	22	129	1787	1389	199	107	1573
	02L	1	1	1	-	-	896	-	-	18	78	137	1393	1667

SPECIAL LINKS

	BAR MARKS	NUMBER REQUIRED PER BEAM	NUMBER OF BEAMS	TOTAL NUMBER REQUIRED	DIMENSIONS A	B	C	S	T	V	W	X	Y	Z
M	01M	1	1	1	267	698	-	22	128	1775	1379	198	106	1562
	02M	1	1	1	-	-	895	-	-	18	78	136	1383	1655
N	01N	1	1	1	266	698	-	22	128	1762	1370	196	106	1551
	02N	1	1	1	-	-	895	-	-	17	77	135	1373	1644

BANAGHER PRECAST CONCRETE LTD

N17/N18 - Gort to Tuam, OB16 Castlelambert Overbridge
W5 beam - East span South External beam

Bar Schedule ref: BPC.09.244.105
Date Prepared: 16/01/2016 Date Revised:
Prepared By: RC Checked BY:

Member	Bar Mark	Type	and Size	Radius	No. of Members	No. of bars in each	Total No.	Length of each bar mm	Shape Code	A* mm	B* mm	C* mm	D* mm	E* mm	Bar Weight Per m	Total Weight (kgs)	Total Volume (m^3)
	01	B	12	24	1	123	123	5250	99						0.89	573.43	0.073
	02	B	12	24	1	123	123	3275	99						0.89	357.71	0.046
	03	B	10	20	1	77	77	1950	99						0.62	92.49	0.012
	04A	B	10	20	1	11	11	1600	00	1600					0.62	10.84	0.001
	04B	B	10	20	1	2	2	1575	00	1575					0.62	1.94	0.000
	04C	B	10	20	1	1	1	1550	00	1550					0.62	0.95	0.000
	04D	B	10	20	1	1	1	1520	00	1520					0.62	0.94	0.000
	04E	B	10	20	1	1	1	1500	00	1500					0.62	0.92	0.000
	04L	B	10	20	1	1	1	1580	00	1580					0.62	0.97	0.000
	05	B	12	24	1	8	8	7500	00	7500					0.89	53.28	0.007
		Strand	15.7	32	1	64	64	23220	00	23220					1.18	1753.57	0.288

Steel Vol. (m^3) = 0.43	Concrete vol. (m^3) = 14.47	Steel Wgt (T) = 2.85	Concrete Wgt (T) = 35.46	Unit Wgt (T) = 38.31	2847.05	0.42698
THIS SCHEDULE COMPLIES WITH THE REQUIREMENTS OF BS 8666:2005					Total kgs	Total m^3
*SPECIFIED IN MULTIPLES OF 5mm.					Ave. Density	191.08
**SPECIFIED IN MULTIPLES OF 25mm.					2.57	kgs/m^3

East abutment end

Pier end

Plan of W5 beams showing reinforcement
1 no. External beam required - East Span - South beam - 23220mm long
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project: N17/N18 Gort to Tuam PPP Scheme

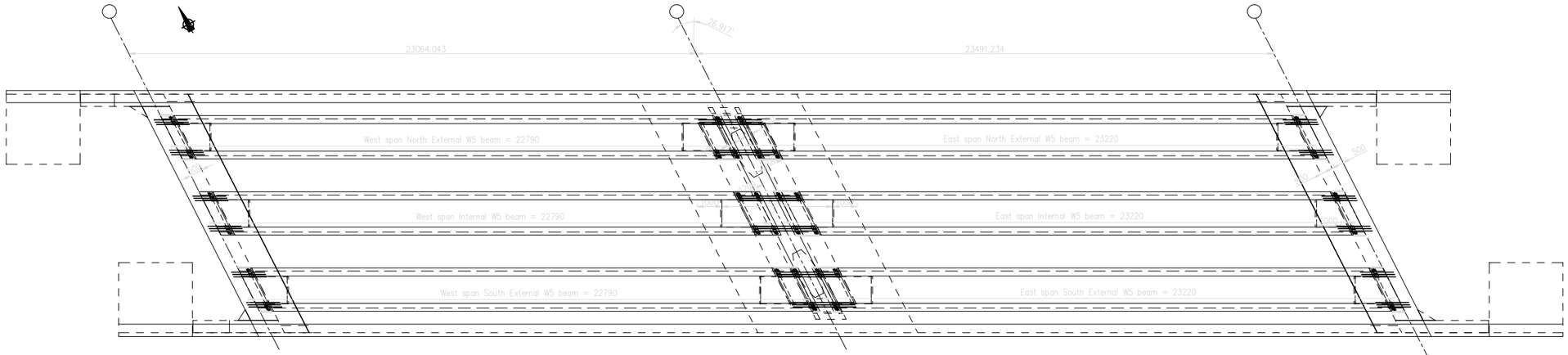
Title: M17OB16 Castlelambert Overbridge (L-3103) -Centre Section- Production details of W5 beams
East span South External beam - 23220mm long - 1 no. required - Sheet 2 of 2

Drawn: RC	Original scales: As Shown at A1	Drawing No.	Revision.
Checked: JR	Date: 16/01/16	M17-1700-OB16-081	AB_A
Approved: SC			

Drawing file path & name : N:\Bridges\Bridges Each Span\W5 East and Part Cable

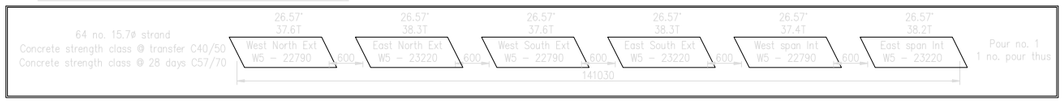
BPC.09.244.105

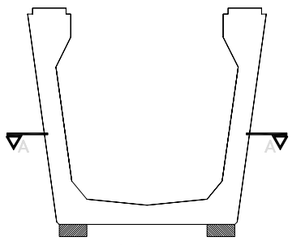
AS - BUILT RECORD



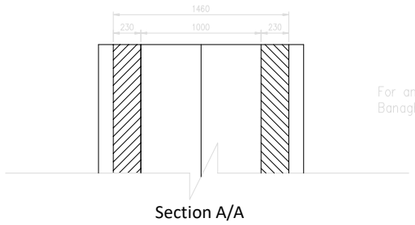
Plan
(1:100)

Pour schedule (NTS) - Line 6 - 192m long





End elevation

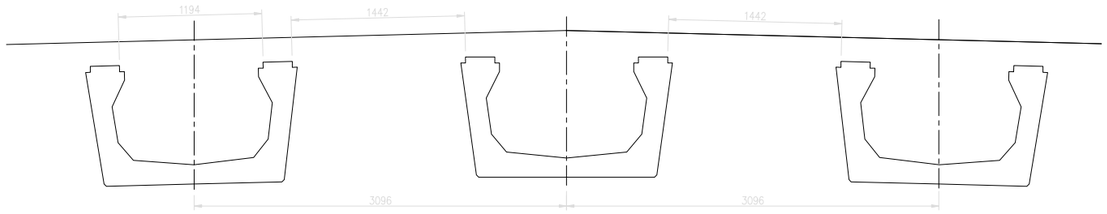


Section A/A

Any temporary support provided to the underside of the W beams should be positioned directly under the beam webs as shown by the cross hatched area.

Any permanent supports (bearings) not positioned under the webs require the use of temporary supports under the webs as shown.
The weight of the beam must be borne by these temporary supports – not the permanent ones at this stage.
Once the insitu diaphragm has reached its required strength the temporary supports may be removed.

For any clarification on this please contact Banagher Precast Concrete directly 057 9151417



Section through deck
(1:25)

0 10 20 30 40 50 100
SCALE 1:1 (A1) MILLIMETRES

Scheme Name: N17/N18 Gort to Tuam
TII Project Reference Number: GC/09/4225 NR/10/4771

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COMHAIRLE CHONTAE NA GAILLIMHE
GALWAY COUNTY COUNCIL

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An Roinn Iompair Turasóireachta agus Spóirt Department Transport, Tourism and Sport

HalcrowBarry ARUP

ROADBRIDGE CIVIL ENGINEERING & BUILDING CONTRACTORS
Lagan CONSTRUCTION GROUP STRABAG BUILDERS SISK CONTRACTORS Established 1859

DIRECT ROUTE

Rev	By	Date	Description
CE_A	MS	22/01/16	FOR CERTIFICATION
CO_A	HC	03/02/16	FOR CONSTRUCTION
AB_A	HC	14/11/16	AS BUILT

Project	N17/N18 Gort to Tuam PPP Scheme
Title:	M17OB16 Castlelambert Overbridge (L-3103) - Centre Section Layout of W5 beams
Drawn: RC	Original scales: As Shown at A1
Checked: JR	Date: 16/01/16
Approved: SC	Drawing No. M17-1700-OB16-082
	Revision. AB_A

Drawing file path & name : N:\Drawings\Bridges\M17OB16\Layout and Plot Data

BPC.09.244.106

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 1	Drawing Number M17_1700_OB16_011
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name N18OB16 Castlelambert Overbridge	Originator PZ	Date 7-Mar-2016	
Drawing Title West Abutment Foundation	Checked by JR	Date 7-Mar-2016	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	1	40	40	2900	21	1295	595	1050			
	02	B	16	1	40	40	12000	00	12000					
	03	B	20	1	86	86	4050	21	635	2870	635			
	04	B	16	1	86	86	4100	21	635	2870	635			
	05	B	16	1	10	10	4100	21	665	2830	665			
	06	B	16	1	20	20	7350	11	665	6715				
	07	B	25	1	189	189	2425	11	300	2180				
	08	B	25	1	4	4	4150	29	1670	985	1620	880		
	09	B	25	1	4	4	10775	00	10755					
	10	B	16	1	2	2	2100	00	2100					
	11	B	16	1	2	2	1975	21	825	380	825			
	12	B	16	1	2	2	1525	00	1525					
	13	B	16	1	2	2	1850	00	1850					
	14	B	16	1	2	2	2400	21	1035	380	1035			
	15	B	16	1	2	2	2125	00	2125					
	16	B	16	1	4	4	3700	29	1820	200	1725	180		
	17	B	16	1	28	28	2075	11	300	1800				

ARUP **Bending Schedule**	Job No		Sheet No. 1 of 3	Drawing Number M17_1700_OB16_012 & 013			
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment			AB_A			
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 29-Oct-2015					
Drawing Title West Abutment	Checked by JR	Date 29-Oct-2015					

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
Stem	01	B	16	1	4	4	3400	29	1635	175	1650	180		
	02	B	25	1	19	19	3200	21	1200	930	1200			
	03	B	25	1	34	34	3375	21	1280	930	1280			
	04	B	25	1	19	19	3275	21	1235	930	1235			
	05	B	25	2	9	18	9200	00	9200					
	06	B	25	1	3	3	2525	15	1065	1060	1450			
	07	B	25	1	3	3	3875	15	1065	1060	2800			
	08a	B	25	1	3	3	9175	15	5260	310	3910			
	08b	B	25	1	3	3	9175	15	3905	235	5260			
	09	B	25	1	3	3	3975	15	1155	1150	2800			
	10	B	25	1	3	3	2625	15	1155	1150	1450			
	11	B	25	1	9	9	5350	29	2250	920	2300	880		
	12	B	25	1	9	9	3400	29	1275	920	1325	880		
	13	B	32	2	6	12	2550	00	2550					
	14	B	32	1	10	10	2600	00	2585					
	15	B	32	1	10	10	2550	00	2540					
	16	B	32	2	6	12	2400	00	2400					
	17	B	32	1	13	13	2775	11	2550	305				
	18	B	32	1	13	13	2825	11	2600	305				
	19	B	32	1	13	13	2700	11	2475	305				
	20	B	32	1	60	60	2400	00	2400					
	21	B	16	1	17	17	1400	00	1400					
	22	B	16	1	17	17	1750	00	1750					

ARUP **Bending Schedule**	Job No	Sheet No. 2 of 3	Drawing Number M17_1700_OB16_012 & 013
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator GD	Date 29-Oct-2015	
Drawing Title West Abutment	Checked by JR	Date 29-Oct-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
South west wingwall	23	B	16	1	10	10	1700	21	635	380	740			
	24	B	16	1	10	10	2050	00	2050					
	25	B	25	1	1	1	2075	00	2060					
	26	B	25	1	21	21	2500	00	2500					
	27	B	20	1	3	3	2950	11	990	2010				
	28	B	20	1	3	3	2375	15	1385	1380	990			
	29	B	20	1	3	3	3800	14	3185	3180	690			
	30	B	16	1	7	7	4675	21	2115	380	2220			
	31	B	16	1	7	7	4125	29	2015	400	1760	380		
	32	B	25	1	10	10	2250	21	1020	345	1020			
	33	B	25	1	7	7	2925	21	1350	345	1350			
	34	B	25	1	10	10	2250	21	1020	345	1020			
	35	B	16	1	18	18	1925	21	885	215	885			
North west wingwall	36	B	16	1	9	9	1975	21	640	380	995			
	37	B	16	1	9	9	1875	00	1875					
	38	B	25	1	1	1	1850	00	1850					
	39	B	25	1	23	23	2450	00	2450					
	40	B	20	1	3	3	2825	11	1050	1820				
	41	B	20	1	3	3	2300	15	1000	995	1280			
	42	B	20	1	3	3	3550	14	700	695	2930			
	43	B	16	1	8	8	4725	21	2015	380	2370			
	44	B	16	1	8	8	3875	29	1670	400	1860	380		
	45	B	25	1	10	10	2400	21	1095	345	1095			

ARUP **Bending Schedule**	Job No	Sheet No. 3 of 3	Drawing Number M17_1700_OB16_012 & 013
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator GD	Date 29-Oct-2015	
Drawing Title West Abutment	Checked by JR	Date 29-Oct-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	46	B	25	1	10	10	2400	21	1095	345	1095			
	47	B	25	1	7	7	2925	21	1350	345	1350			
	48	B	16	1	18	18	1925	21	885	215	885			

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 1	Drawing Number M17_1700_OB16_021
Job Title **N17N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name N18OB16 Castlelambert Overbridge	Originator PZ	Date 7-Mar-2016	
Drawing Title East Abutment Foundation	Checked by JR	Date 7-Mar-2016	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	1	40	40	2900	21	1295	595	1050			
	02	B	16	1	40	40	12000	00	12000					
	03	B	20	1	86	86	4050	21	635	2870	635			
	04	B	16	1	86	86	4100	21	635	2870	635			
	05	B	16	1	10	10	4100	21	665	2830	665			
	06	B	16	1	20	20	7350	11	665	6715				
	07	B	25	1	189	189	2425	11	300	2180				
	08	B	25	1	4	4	4150	29	1670	985	1620	880		
	09	B	25	1	4	4	10775	00	10755					
	10	B	16	1	2	2	2100	00	2100					
	11	B	16	1	2	2	1975	21	825	380	825			
	12	B	16	1	2	2	1525	00	1525					
	13	B	16	1	2	2	1850	00	1850					
	14	B	16	1	2	2	2400	21	1035	380	1035			
	15	B	16	1	2	2	2125	00	2125					
	16	B	16	1	4	4	3700	29	1820	200	1725	180		
	17	B	16	1	28	28	2075	11	300	1800				

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 3	Drawing Number M17_1700_OB16_022 & 023
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 29-Oct-2015	
Drawing Title East Abutment	Checked by JR	Date 29-Oct-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
Stem	01	B	16	1	4	4	3400	29	1635	175	1650	180		
	02	B	25	1	19	19	3175	21	1190	930	1190			
	03	B	25	1	34	34	3125	21	1160	930	1160			
	04	B	25	1	19	19	2975	21	1080	930	1080			
	05	B	25	2	9	18	9200	00	9200					
	06	B	25	1	3	3	2600	15	1145	1140	1450			
	07	B	25	1	3	3	3950	15	1145	1140	2800			
	08a	B	25	1	3	3	9175	15	5260	250	3910			
	08b	B	25	1	3	3	9175	15	3905	190	5260			
	09	B	25	1	3	3	3875	15	1055	1050	2800			
	10	B	25	1	3	3	2525	15	1055	1050	1450			
	11	B	25	1	9	9	5350	29	2250	920	2300	880		
	12	B	25	1	9	9	3400	29	1275	920	1325	880		
	13	B	32	2	6	12	2375	00	2375					
	14	B	32	1	10	10	2475	00	2475					
	15	B	32	1	10	10	2525	00	2520					
	16	B	32	2	6	12	2475	00	2470					
	17	B	32	1	13	13	2625	11	2405	305				
	18	B	32	1	13	13	2750	11	2530	305				
	19	B	32	1	13	13	2700	11	2480	305				
	20	B	32	1	60	60	2375	00	2375					
	21	B	16	1	16	16	1400	00	1400					
	22	B	16	1	16	16	1750	00	1750					

ARUP **Bending Schedule**	Job No	Sheet No. 2 of 3	Drawing Number M17_1700_OB16_022 & 023
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 29-Oct-2015	
Drawing Title East Abutment	Checked by JR	Date 29-Oct-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
North east wingwall	23	B	16	1	10	10	1700	21	635	380	740			
	24	B	16	1	10	10	2050	00	2050					
	25	B	25	1	1	1	2000	00	2000					
	26	B	25	1	21	21	2350	00	2330					
	27	B	20	1	3	3	3025	11	990	2090				
	28	B	20	1	3	3	2500	11	1550	990				
	29	B	20	1	3	3	3850	11	3200	690				
	30	B	16	1	7	7	5000	21	2285	380	2385			
	31	B	16	1	7	7	4125	29	2015	400	1760	380		
	32	B	25	1	11	11	2250	21	1015	345	1015			
	33	B	25	1	7	7	2925	21	1350	345	1350			
	34	B	25	1	11	11	2250	21	1015	345	1015			
	35	B	16	1	19	19	1925	21	885	215	885			
South east wingwall	36	B	16	1	8	8	1975	21	640	380	995			
	37	B	16	1	8	8	1875	00	1875					
	38	B	25	1	1	1	1850	00	1850					
	39	B	25	1	23	23	2450	00	2450					
	40	B	20	1	3	3	3150	11	1200	2000				
	41	B	20	1	3	3	2400	11	1000	1450				
	42	B	20	1	3	3	3600	11	690	2945				
	43	B	16	1	9	9	5050	21	2185	380	2540			
	44	B	16	1	9	9	3875	29	1670	400	1860	380		
	45	B	25	1	10	10	2725	21	1250	345	1250			

ARUP **Bending Schedule**	Job No	Sheet No.	Drawing Number
		3 of 3	M17_1700_OB16_022 & 023
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 29-Oct-2015	
Drawing Title East Abutment	Checked by JR	Date 29-Oct-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	46	B	25	1	10	10	2725	21	1250	345	1250			
	47	B	25	1	6	6	2925	21	1350	345	1350			
	48	B	16	1	17	17	1925	21	885	215	885			

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 1	Drawing Number M17_1700_OB16_031
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB-A
Bridge Name N18OB16 Castlelambert Overbridge	Originator HC	Date 23/8/2016	
Drawing Title Pier Foundation	Checked by JR	Date 23/8/2016	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	20	2	30	60	3050	21	1225	1045	890			
	02	B	20	2	30	60	10350	00	10350					
	03	B	20	2	69	138	6450	21	1085	4370	1085			
	04	B	16	2	7	14	5600	21	665	4330	665			
	05	B	16	2	7	14	11600	21	665	10310	665			
	06	B	25	2	30	60	2875	11	300	2625				
	07	B	16	2	4	8	2175	25	925	925	900	900	325	
	08	B	16	2	4	8	1925	67	1925	1875	175			
	09	B	12	2	4	8	800	22	160	515	70	125		
	10	B	12	2	4	8	950	22	160	660	70	125		
	11	B	16	2	2	4	2150	22	160	1880	70	125		

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 5	Drawing Number M17_1700_OB16_042
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title Deck slab	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	2	65	130	6275	00	6275					
	02	B	16	4	65	260	12000	00	12000					
	03	B	25	2	65	130	8350	00	8350					
	04	B	16	2	65	130	6700	00	6700					
	05	B	16	2	155	310	1775	26	650	200	925	55		
	06	B	16	2	155	310	2375	26	650	200	1520	55		
	07	B	16	2	294	588	6750	15	3675	200	3075			
	08	B	20	2	155	310	2025	11	300	1775				
	09	B	20	2	155	310	2650	11	300	2400				
	10a	B	16	1	1	1	2100	00	2100					
	10b	B	16	1	1	1	1525	00	1525					
	10c	B	16	1	1	1	925	00	925					
	11a	B	16	1	1	1	1200	00	1200					
	11b	B	16	1	1	1	600	00	600					
	12a	B	20	1	1	1	2100	00	2100					
	12b	B	20	1	1	1	1525	00	1525					
	12c	B	20	1	1	1	925	00	925					
	13a	B	20	1	1	1	1200	00	1200					
	13b	B	20	1	1	1	600	00	600					
	14a	B	16	2	1	2	6150	15	3065	170	3070			

ARUP **Bending Schedule**	Job No	Sheet No. 2 of 5	Drawing Number M17_1700_OB16_042
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator BR	Date 5-Nov-2015	
Drawing Title Deck slab	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	14b	B	16	2	1	2	5550	15	3065	170	2480			
	14c	B	16	2	1	2	4950	15	3065	170	1885			
	14d	B	16	2	1	2	4375	15	3065	170	1295			
	14e	B	16	2	1	2	3775	15	3065	170	705			
	14f	B	16	2	1	2	3200	15	3065	170	115			
	15a	B	16	2	1	2	6475	15	3680	200	2775			
	15b	B	16	2	1	2	5875	15	3680	200	2185			
	15c	B	16	2	1	2	5275	15	3680	200	1595			
	15d	B	16	2	1	2	4700	15	3680	200	1000			
	15e	B	16	2	1	2	4100	15	3680	200	410			
	16a	B	16	2	1	2	2600	00	2600					
	16b	B	16	2	1	2	2000	00	2000					
	16c	B	16	2	1	2	1425	00	1425					
	16d	B	16	2	1	2	825	00	825					
	17a	B	16	2	1	2	3500	00	3500					
	17b	B	16	2	1	2	2925	00	2925					
	17c	B	16	2	1	2	2325	00	2325					
	17d	B	16	2	1	2	1725	00	1725					
	17e	B	16	2	1	2	1150	00	1150					
	18a	B	16	1	1	1	1950	00	1950					
	18b	B	16	1	1	1	1650	00	1650					
	18c	B	16	1	1	1	1350	00	1350					
	18d	B	16	1	1	1	1050	00	1050					

ARUP **Bending Schedule**	Job No	Sheet No. 3 of 5	Drawing Number M17_1700_OB16_042
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator BR	Date 5-Nov-2015	
Drawing Title Deck slab	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	18e	B	16	1	1	1	750	00	750					
	18f	B	16	1	1	1	450	00	450					
	18g	B	16	1	1	1	150	00	150					
	19a	B	20	1	1	1	1950	00	1950					
	19b	B	20	1	1	1	1650	00	1650					
	19c	B	20	1	1	1	1350	00	1350					
	19d	B	20	1	1	1	1050	00	1050					
	19e	B	20	1	1	1	750	00	750					
	19f	B	20	1	1	1	450	00	450					
	19g	B	20	1	1	1	150	00	150					
	20a	B	16	1	1	1	1550	00	1550					
	20b	B	16	1	1	1	950	00	950					
	21a	B	16	1	1	1	1875	00	1875					
	21b	B	16	1	1	1	1275	00	1275					
	22a	B	20	1	1	1	1550	00	1550					
	22b	B	20	1	1	1	950	00	950					
	23a	B	20	1	1	1	1875	00	1875					
	23b	B	20	1	1	1	1275	00	1275					
	24a	B	16	2	1	2	6500	15	3065	170	3415			
	24b	B	16	2	1	2	5900	15	3065	170	2820			
	24c	B	16	2	1	2	5300	15	3065	170	2230			
	24d	B	16	2	1	2	4725	15	3065	170	1640			
	24e	B	16	2	1	2	4125	15	3065	170	1050			

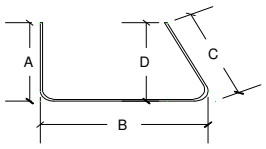
ARUP **Bending Schedule**	Job No	Sheet No. 4 of 5	Drawing Number M17_1700_OB16_042
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator BR	Date 5-Nov-2015	
Drawing Title Deck slab	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	24f	B	16	2	1	2	3525	15	3065	170	460			
	25a	B	16	2	1	2	6750	15	3680	200	3060			
	25b	B	16	2	1	2	6225	15	3680	200	2525			
	25c	B	16	2	1	2	5625	15	3680	200	1935			
	25d	B	16	2	1	2	5025	15	3680	200	1345			
	25e	B	16	2	1	2	4450	15	3680	200	755			
	25f	B	16	2	1	2	3850	15	3680	200	165			
	26a	B	16	2	1	2	2950	00	2950					
	26b	B	16	2	1	2	2350	00	2350					
	26c	B	16	2	1	2	1750	00	1750					
	26d	B	16	2	1	2	1175	00	1175					
	27a	B	16	2	1	2	3275	00	3275					
	27b	B	16	2	1	2	2675	00	2675					
	27c	B	16	2	1	2	2075	00	2075					
	27d	B	16	2	1	2	1500	00	1500					
	28a	B	16	1	1	1	2325	00	2325					
	28b	B	16	1	1	1	2025	00	2025					
	28c	B	16	1	1	1	1725	00	1725					
	28d	B	16	1	1	1	1425	00	1425					
	28e	B	16	1	1	1	1125	00	1125					
	28f	B	16	1	1	1	850	00	850					
	28g	B	16	1	1	1	550	00	550					
	28h	B	16	1	1	1	250	00	250					

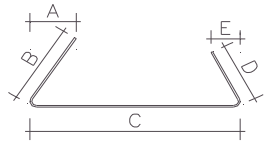
ARUP **Bending Schedule**	Job No	Sheet No. 5 of 5	Drawing Number M17_1700_OB16_042
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator BR	Date 5-Nov-2015	
Drawing Title Deck slab	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	29a	B	20	1	1	1	2325	00	2325					
	29b	B	20	1	1	1	2025	00	2025					
	29c	B	20	1	1	1	1725	00	1725					
	29d	B	20	1	1	1	1425	00	1425					
	29e	B	20	1	1	1	1125	00	1125					
	29f	B	20	1	1	1	850	00	850					
	29g	B	20	1	1	1	550	00	550					
	29h	B	20	1	1	1	250	00	250					
	30	B	16	2	318	636	1600	51	520	230	130	130		

ARUP **Bending Schedule**	Job No	Sheet No.	Drawing Number
		1 of 3	M17_1700_0B16_043&044
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title West abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	3	22	66	2400	21	745	960	745			
	02a	B	16	3	2	6	3625	21	740	2190	740			
	02b	B	16	3	2	6	3550	21	740	2115	740			
	02c	B	16	3	2	6	3475	21	740	2040	740			
	02d	B	16	3	2	6	3400	21	740	1960	740			
	02e	B	16	3	2	6	3325	21	740	1885	740			
	02f	B	16	3	2	6	3250	21	740	1810	740			
	02g	B	16	3	2	6	3175	21	740	1735	740			
	03	B	16	3	6	18	4175	29	1825	1085	1325	995		
	04	B	16	3	6	18	3150	21	1100	995	1100			
	05	B	16	2	6	12	2500	27	890	760	880	880		
	06	B	16	2	6	12	2825	99	925	950	935	925		
														
	07	B	16	2	10	20	3125	21	1115	950	1115			
	08	B	16	2	2	4	2275	21	690	950	690			
	09a	B	16	2	2	4	2575	29	825	985	825	900		
	09b	B	16	2	2	4	2550	29	825	960	825	880		
	09c	B	16	2	2	4	2525	29	825	930	825	850		
	09d	B	16	2	2	4	2500	29	825	905	825	830		
	09e	B	16	2	2	4	2475	29	825	875	825	800		
	09f	B	16	2	2	4	2450	29	825	850	825	780		

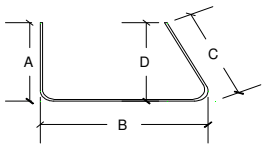
ARUP **Bending Schedule**	Job No	Sheet No. 2 of 3	Drawing Number M17_1700_0B16_043&044
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title West abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	09g	B	16	2	2	4	2425	29	825	820	825	755		
	09h	B	16	2	2	4	2400	29	825	790	825	730		
	10	B	16	2	4	8	3175	25	920	920	910	910	1320	
	11	B	16	2	4	8	3475	99	130	920	1635	920	130	
														
	12	B	16	2	18	36	2750	21	925	945	925			
	13a	B	16	2	2	4	3250	29	825	1650	825	1500		
	13b	B	16	2	2	4	3200	29	825	1610	825	1460		
	13c	B	16	2	2	4	3175	29	825	1565	825	1425		
	13d	B	16	2	2	4	3125	29	825	1525	825	1385		
	13e	B	16	2	2	4	3075	29	825	1480	825	1345		
	13f	B	16	2	2	4	3050	29	825	1440	825	1310		
	13g	B	16	2	2	4	3000	29	825	1395	825	1270		
	13h	B	16	2	2	4	2950	29	825	1355	825	1230		
	14	B	16	2	4	8	1400	00	1400					
	15	B	16	2	4	8	5525	15	885	70	4630			
	16	B	16	2	4	8	3250	00	3250					
	17	B	16	2	4	8	2600	00	2600					
	18	B	32	2	4	8	4375	11	500	3940				
	19	B	32	1	4	4	4675	00	4675					
	20	B	25	1	32	32	3725	15	2660	2655	1060			

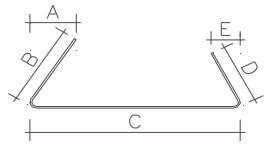
ARUP **Bending Schedule**	Job No	Sheet No. 3 of 3	Drawing Number M17_1700_0B16_043&044
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title West abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	21	B	25	1	33	33	3250	00	3250					
	22	B	25	1	33	33	4350	15	3275	3270	1060			
	23	B	25	1	32	32	2650	00	2635					

ARUP **Bending Schedule**	Job No	Sheet No.	Drawing Number
		1 of 3	M17_1700_0B16_045&046
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title East abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	3	22	66	2400	21	745	960	745			
	02a	B	16	3	2	6	3625	21	740	2190	740			
	02b	B	16	3	2	6	3550	21	740	2115	740			
	02c	B	16	3	2	6	3475	21	740	2040	740			
	02d	B	16	3	2	6	3400	21	740	1960	740			
	02e	B	16	3	2	6	3325	21	740	1885	740			
	02f	B	16	3	2	6	3250	21	740	1810	740			
	02g	B	16	3	2	6	3175	21	740	1735	740			
	03	B	16	3	6	18	4175	29	1825	1085	1325	995		
	04	B	16	3	6	18	3150	21	1100	995	1100			
	05	B	16	2	6	12	2500	27	890	760	880	880		
	06	B	16	2	6	12	2825	99	925	950	935	925		
														
	07	B	16	2	10	20	3125	21	1115	950	1115			
	08	B	16	2	2	4	2275	21	690	950	690			
	09a	B	16	2	2	4	2575	29	825	985	825	900		
	09b	B	16	2	2	4	2550	29	825	960	825	880		
	09c	B	16	2	2	4	2525	29	825	930	825	850		
	09d	B	16	2	2	4	2500	29	825	905	825	830		
	09e	B	16	2	2	4	2475	29	825	875	825	800		
	09f	B	16	2	2	4	2450	29	825	850	825	780		

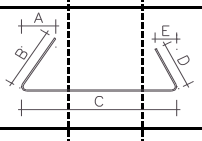
ARUP **Bending Schedule**	Job No	Sheet No. 2 of 3	Drawing Number M17_1700_0B16_045&046
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title East abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	09g	B	16	2	2	4	2425	29	825	820	825	755		
	09h	B	16	2	2	4	2400	29	825	790	825	730		
	10	B	16	2	4	8	3175	25	920	920	910	910	1320	
	11	B	16	2	4	8	3475	99	130	920	1635	920	130	
														
	12	B	16	2	18	36	2750	21	925	945	925			
	13a	B	16	2	2	4	3250	29	825	1650	825	1500		
	13b	B	16	2	2	4	3200	29	825	1610	825	1460		
	13c	B	16	2	2	4	3175	29	825	1565	825	1425		
	13d	B	16	2	2	4	3125	29	825	1525	825	1385		
	13e	B	16	2	2	4	3075	29	825	1480	825	1345		
	13f	B	16	2	2	4	3050	29	825	1440	825	1310		
	13g	B	16	2	2	4	3000	29	825	1395	825	1270		
	13h	B	16	2	2	4	2950	29	825	1355	825	1230		
	14	B	16	2	4	8	1400	00	1400					
	15	B	16	2	4	8	5525	15	885	70	4630			
	16	B	16	2	4	8	3250	00	3250					
	17	B	16	2	4	8	2600	00	2600					
	18	B	32	2	4	8	4375	11	500	3940				
	19	B	32	1	4	4	4675	00	4675					
	20	B	25	1	32	32	3675	11	2660	1060				

ARUP **Bending Schedule**	Job No	Sheet No. 3 of 3	Drawing Number M17_1700_0B16_045&046
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator BR	Date 5-Nov-2015	
Drawing Title East abutment diaphragm	Checked by JR	Date 5-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	21	B	25	1	33	33	3250	00	3250					
	22	B	25	1	33	33	4275	11	3275	1060				
	23	B	25	1	32	32	2650	00	2635					

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 2	Drawing Number M17_1700_OB16_047 & 048
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 3-Nov-2015	
Drawing Title Pier Diaphragm	Checked by JR	Date 3-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	1	59	59	2575	21	1160	300	1160			
	02	B	16	2	10	20	3375	21	1160	1110	1160			
	03	B	16	3	14	42	1600	11	725	885				
	04	B	16	3	14	42	1350	11	725	650				
	05	B	16	3	7	21	4375	00	4375					
	06	B	16	2	8	16	1875	14	470	475	1460			
	07	B	16	2	8	16	1625	14	470	475	1210			
	08	B	16	3	60	180	2425	21	740	995	740			
	09	B	16	3	12	36	2200	21	650	960	650			
	10	B	16	3	12	36	4350	00	4350					
	11	B	16	2	14	28	1850	29	850	175	870	185		
	12a	B	16	2	2	4	4700	29	1575	1580	1595	1435		
	12b	B	16	2	2	4	4650	29	1575	1540	1595	1395		
	12c	B	16	2	2	4	4625	29	1575	1495	1595	1355		
	12d	B	16	2	2	4	4575	29	1575	1455	1595	1320		
	12e	B	16	2	2	4	4525	29	1575	1410	1595	1280		
	12f	B	16	2	2	4	4500	29	1575	1370	1595	1240		
	12g	B	16	2	2	4	4450	29	1575	1325	1595	1205		
	13	B	16	2	10	20	3075	25	855	855	845	845	1360	
	14	B	16	2	10	20	3350	99	130	850	1650	850	130	
														
	15	B	16	2	18	36	1700	11	885	835				

ARUP **Bending Schedule**	Job No	Sheet No. 2 of 2	Drawing Number M17_1700_OB16_047 & 048
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator GD	Date 3-Nov-2015	
Drawing Title Pier Diaphragm	Checked by JR	Date 3-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	16	B	16	2	18	36	2425	11	835	1615				
	17	B	32	1	16	16	5625	11	305	5400				
	18	B	32	1	16	16	4400	11	305	4180				

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 1	Drawing Number M17_1700_OB16_051
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB-A
Bridge Name N18OB16 Castlelambert Overbridge	Originator HC	Date 29-Aug-2016	
Drawing Title Parapet	Checked by JR	Date 29-Aug-2016	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
TYPE 1	05	B	16	8	40	320	2025	41	765	360	325	360	325	
	06	B	12	8	10	80	5870	00	5870					
	07	B	16	8	4	32	5870	00	5870					
	08	B	12	8	4	32	1250	21	475	330	475			
TYPE 2	09	B	16	1	32	32	1950	41	765	360	295	360	295	
	10	B	12	1	10	10	4700	00	4680					
	11	B	16	1	4	4	4700	00	4680					
	12	B	12	1	4	4	1250	21	475	330	475			
TYPE 3	13	B	16	1	35	35	2200	41	735	360	425	360	425	
	14	B	12	1	10	10	5200	00	5185					
	15	B	16	1	4	4	5200	00	5185					
	16	B	12	1	4	4	1250	21	475	330	475			
TYPE 4	17	B	16	7	40	280	2000	41	735	360	325	360	325	
	18	B	12	7	10	70	5875	00	5870					
	19	B	16	7	4	28	5875	00	5870					
	20	B	12	7	4	28	1250	21	475	330	475			
TYPE 5	21	B	16	1	35	35	2000	41	735	360	330	360	330	
	22	B	12	1	10	10	5275	00	5270					
	23	B	16	1	4	4	5275	00	5270					
	24	B	12	1	4	4	1250	21	475	330	475			
	25	S	20	1	4	4	600	00	600					

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 1	Drawing Number M17_1700_OB16_053
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB-A
Bridge Name N18OB16 Castlelambert Overbridge	Originator HC	Date 29-Aug-2016	
Drawing Title Support slab	Checked by JR	Date 29-Aug-2016	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
TYPE 1	01	B	16	2	40	80	3575	21	2130	140	1365			
	02	B	16	2	6	12	4425	21	1510	760	2205			
	03	B	12	2	34	68	3400	21	1340	105	1990			
	04	B	12	2	10	20	3625	21	1330	345	1980			
	05	B	16	2	20	40	2625	51	795	380	210	210		
	06	B	16	2	2	4	3550	21	1400	105	2095			
TYPE 2	07	B	16	2	40	80	3575	21	2130	140	1365			
	08	B	16	2	6	12	4400	21	1510	730	2205			
	09	B	12	2	34	68	3400	21	1340	105	1990			
	10	B	12	2	10	20	3625	21	1330	345	1980			
	11	B	16	2	20	40	2550	51	765	380	210	210		
	12	B	16	2	2	4	3550	21	1400	105	2095			

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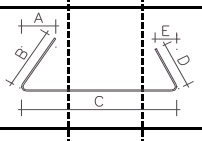
Discipline:	OB 016				Sheet No:									
Project title:	Stage:	Design Cert			Acknowledged?	Construction					As Builts			
	Date of issue:													
N17/N18 Gort to Tuam PPP Scheme Central Section	Day										20	8	1	
	Month										6	8	8	
	Year										17	17	18	
Drawing title:	Drg No													
Construction Complete														
Construction Ongoing														
Location Plan	M17-1700-OB016-000												AB_A	
Foundation Design Report	M17_RP_OB016_001										AB_A	AB_A		
Foundation Setting Out Points	M17-1700-OB016-002										AB_A	AB_A	AB_B	
Borehole and Earthworks Details	M17-1700-OB016-003										AB_A	AB_A	AB_B	
Construction Sequence	M17-1700-OB016-004										AB_A	AB_A		
West Abutment General Arrangement	M17-1700-OB016-010										AB_A	AB_A		
West Abutment Reinforced Concrete Details Sheet 1 of 1	M17-1700-OB016-011										AB_A	AB_A		
West Abutment Reinforced Concrete Details Sheet 1 of 1 - Bending Schedule	M17-1700-OB016-011_BS										AB_A	AB_A		
West Abutment Reinforced Concrete Details Sheet 1 of 2	M17-1700-OB016-012										AB_A	AB_A		
West Abutment Reinforced Concrete Schedule	M17-1700-OB016-012&013_BS										AB_A	AB_A		
West Abutment Reinforced Concrete Details Sheet 2 of 2	M17-1700-OB016-013										AB_A	AB_A		
East Abutment General Arrangement	M17-1700-OB016-020										AB_A	AB_A		
East Abutment Reinforced Concrete Details Sheet 1 of 1	M17-1700-OB016-021										AB_A	AB_A		
East Abutment Reinforced Concrete Details Sheet 1 of 1 - Bending Schedule	M17-1700-OB016-021_BS										AB_A	AB_A		
East Abutment Reinforced Concrete Details Sheet 1 of 2	M17-1700-OB016-022										AB_A	AB_A		
East Abutment Reinforced Concrete Schedule	M17-1700-OB016-022&023_BS										AB_A	AB_A		
East Abutment Reinforced Concrete Details Sheet 2 of 2	M17-1700-OB016-023										AB_A	AB_A		
Pier General Arrangement	M17-1700-OB016-030										AB_A	AB_A		
Pier Reinforced Concrete Details Sheet 1 of 1	M17-1700-OB016-031										AB_A	AB_A		
Pier Reinforced Concrete Details Sheet 1 of 1 - Bending Schedule	M17-1700-OB016-031_BS										AB_A	AB_A		
Pier Reinforced Concrete Details	M17-1700-OB016-032										AB_A	AB_A		
Pier Reinforced Concrete Schedule	M17-1700-OB016-032_BS										AB_A	AB_A		
Deck Slab General Arrangement (Sheet 1 of 2)	M17-1700-OB016-040										AB_A	AB_A		
Deck Slab General Arrangement (Sheet 2 of 2)	M17-1700-OB016-041										AB_A	AB_A		
Deck Slab Reinforced Concrete Details	M17-1700-OB016-042										AB_A	AB_A		
Deck Slab Reinforced Concrete Schedule	M17-1700-OB016-042_BS										AB_A	AB_A		
West Abutment Diaphragm RC Details (Sheet 1 of 2)	M17-1700-OB016-043										AB_A	AB_A		
West Abutment Diaphragm RC Schedule	M17-1700-OB016-043&044_BS										AB_A	AB_A		
West Abutment Diaphragm RC Details (Sheet 2 of 2)	M17-1700-OB016-044										AB_A	AB_A		
East Abutment Diaphragm RC Details (Sheet 1 of 2)	M17-1700-OB016-045										AB_A	AB_A		
East Abutment Diaphragm RC Schedule	M17-1700-OB016-045_BS										AB_A	AB_A		
East Abutment Diaphragm RC Details (Sheet 2 of 2)	M17-1700-OB016-046										AB_A	AB_A		
Pier Diaphragm RC Details (Sheet 1 of 2)	M17-1700-OB016-047										AB_A	AB_A		
Pier Diaphragm RC Schedule	M17-1700-OB016-047&048_BS										AB_A	AB_A		
Pier Diaphragm RC Details (Sheet 2 of 2)	M17-1700-OB016-048										AB_A	AB_A		
Parapet Edge Beam General Arrangement	M17-1700-OB016-050										AB_A	AB_A	AB_B	
Parapet Edge Beam Reinforced Concrete Details	M17-1700-OB016-051										AB_A	AB_A		
Parapet Edge Beam Reinforced Concrete Schedule	M17-1700-OB016-051_BS										AB_A	AB_A		
Parapet Support Slab General Arrangement	M17-1700-OB016-052										AB_A	AB_A		
Parapet Support Slab RC Details	M17-1700-OB016-053										AB_A	AB_A		
Parapet Support Slab RC Schedule	M17-1700-OB016-053_BS										AB_A	AB_A		
Finishes	M17-1700-OB016-060										AB_A	AB_B	AB_C	DSC-C-095
Production details of W5 beams - West span Internal beam - 22790mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_070										AB_A	AB_A		
Production details of W5 beams - West span Internal beam - 22790mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_071										AB_A	AB_A		
Production details of W5 beams - West span North External beam - 22790mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_072										AB_A	AB_A		
Production details of W5 beams - West span North External beam - 22790mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_073										AB_A	AB_A		
Production details of W5 beams - West span South External beam - 22790mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_074										AB_A	AB_A		
Production details of W5 beams - West span South External beam - 22790mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_075										AB_A	AB_A		
Production details of W5 beams - East span Internal beam - 23220mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_076										AB_A	AB_A		
Production details of W5 beams - East span Internal beam - 23220mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_077										AB_A	AB_A		
Production details of W5 beams - East span North External beam - 23220mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_078										AB_A	AB_A		
Production details of W5 beams - East span North External beam - 23220mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_079										AB_A	AB_A		
Production details of W5 beams - East span South External beam - 23220mm long - 1 no. required - Sheet 1 of 2	M17_1700_OB016_080										AB_A	AB_A		
Production details of W5 beams - East span South External beam - 23220mm long - 1 no. required - Sheet 2 of 2	M17_1700_OB016_081										AB_A	AB_A		
Layout of W5 Beams	M17_1700_OB016_082										AB_A	AB_A		
Distribution (Company & Name)														
FusionLive (DirectRoute PPP Co.)														
Alan Mullane (Sisk)											D	D	D	
Name - Design Team Leader (Halcrow Barry & ARUP)														
Record Print/Working Copies														
Under Status/Purpose of Issue											C	R	R	
A = Approval C = For Comment F = For Construction/Erection I = Information P = Preliminary T = Tender R = Record (As Built)	File Location Issued by										J.HALPIN	E.Valavicius	TS	
Under Number of Copies Number = Prints N = Negative D = Disk or Digital X = Issue Sheet Only														

ARUP **Bending Schedule**	Job No	Sheet No. 1 of 2	Drawing Number M17_1700_OB16_047 & 048
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert Overbridge	Originator GD	Date 3-Nov-2015	
Drawing Title Pier Diaphragm	Checked by JR	Date 3-Nov-2015	

Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	01	B	16	1	59	59	2575	21	1160	300	1160			
	02	B	16	2	10	20	3375	21	1160	1110	1160			
	03	B	16	3	14	42	1600	11	725	885				
	04	B	16	3	14	42	1350	11	725	650				
	05	B	16	3	7	21	4375	00	4375					
	06	B	16	2	8	16	1875	14	470	475	1460			
	07	B	16	2	8	16	1625	14	470	475	1210			
	08	B	16	3	60	180	2425	21	740	995	740			
	09	B	16	3	12	36	2200	21	650	960	650			
	10	B	16	3	12	36	4350	00	4350					
	11	B	16	2	14	28	1850	29	850	175	870	185		
	12a	B	16	2	2	4	4700	29	1575	1580	1595	1435		
	12b	B	16	2	2	4	4650	29	1575	1540	1595	1395		
	12c	B	16	2	2	4	4625	29	1575	1495	1595	1355		
	12d	B	16	2	2	4	4575	29	1575	1455	1595	1320		
	12e	B	16	2	2	4	4525	29	1575	1410	1595	1280		
	12f	B	16	2	2	4	4500	29	1575	1370	1595	1240		
	12g	B	16	2	2	4	4450	29	1575	1325	1595	1205		
	13	B	16	2	10	20	3075	25	855	855	845	845	1360	
	14	B	16	2	10	20	3350	99	130	850	1650	850	130	
														
	15	B	16	2	18	36	1700	11	885	835				

ARUP **Bending Schedule**	Job No	Sheet No. 2 of 2	Drawing Number M17_1700_OB16_047 & 048
Job Title **N17/N18 Gort to Tuam PPP Scheme**	Revision comment		AB_A
Bridge Name M17OB16 Castlelambert	Originator GD	Date 3-Nov-2015	
Drawing Title Pier Diaphragm	Checked by JR	Date 3-Nov-2015	

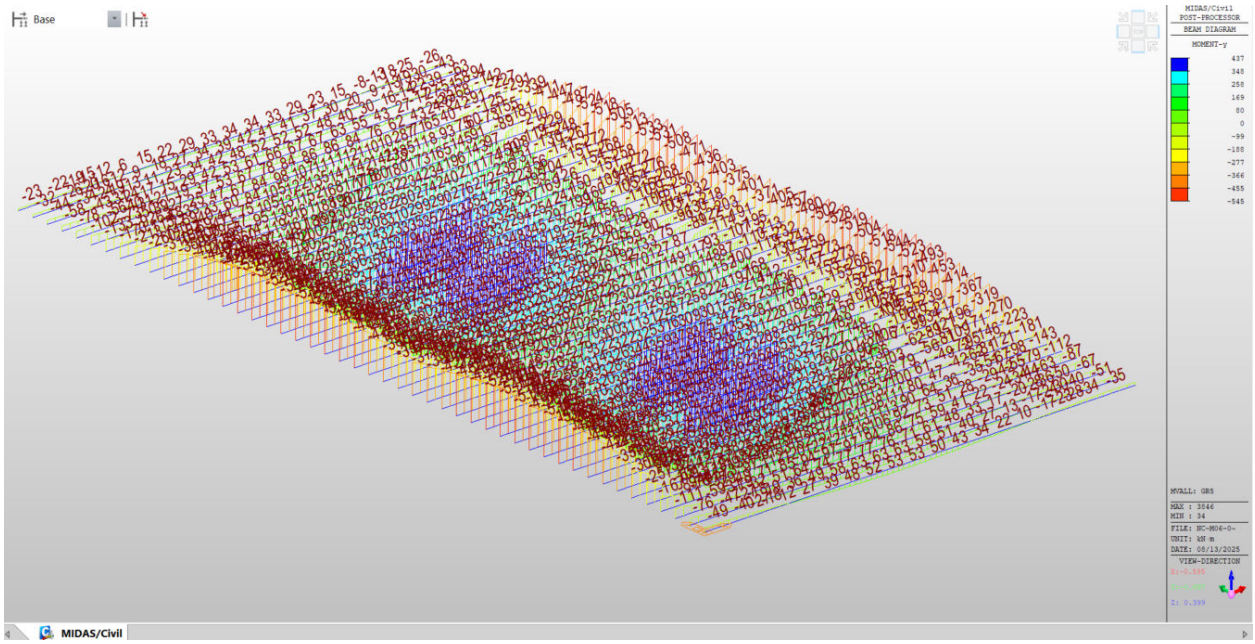
Location	Bar mark	Type and size		Number of members	Number in each	Total number	Length of each bar mm	Shape code	All bending dimensions are in accordance with BS 8666					REV
									A	*B*	*C*	*D*	*E/R*	
		type	Ø mm						mm	mm	mm	mm	mm	
	16	B	16	2	18	36	2425	11	835	1615				
	17	B	32	1	16	16	5625	11	305	5400				
	18	B	32	1	16	16	4400	11	305	4180				

Appendix D. Load Application Diagrams Example

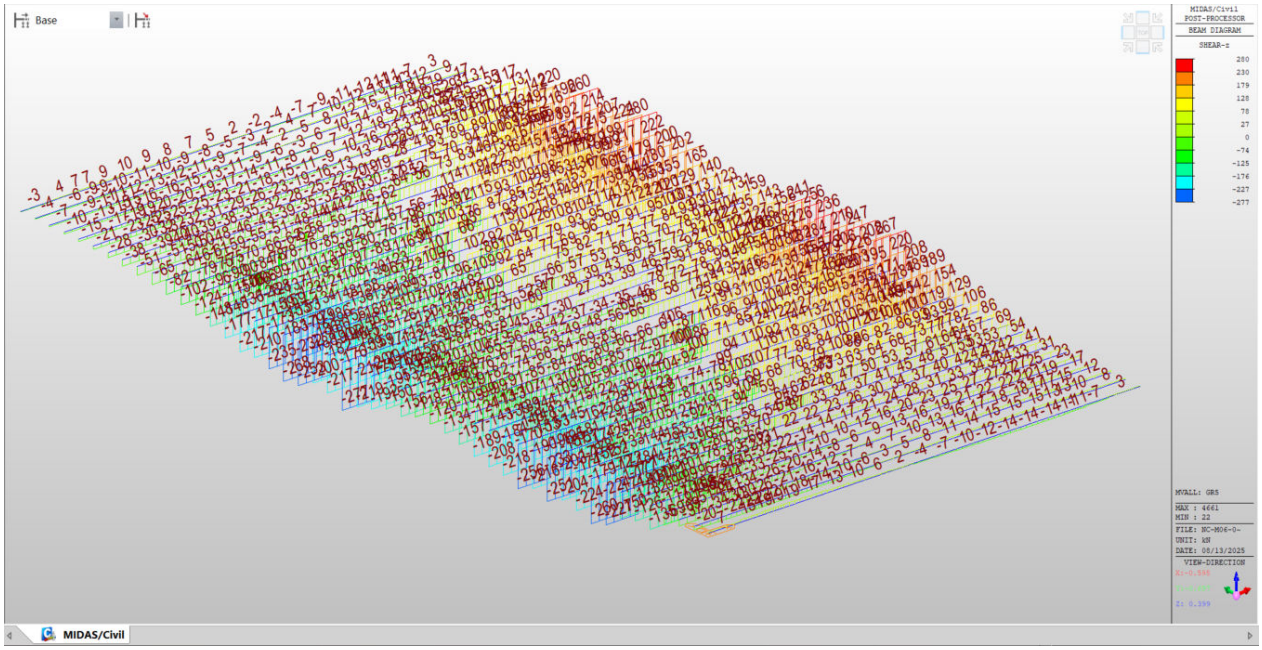
NC-M06-010.00

Load case: Group 5 (LM1+SV196)

Maximum sagging and hogging moments

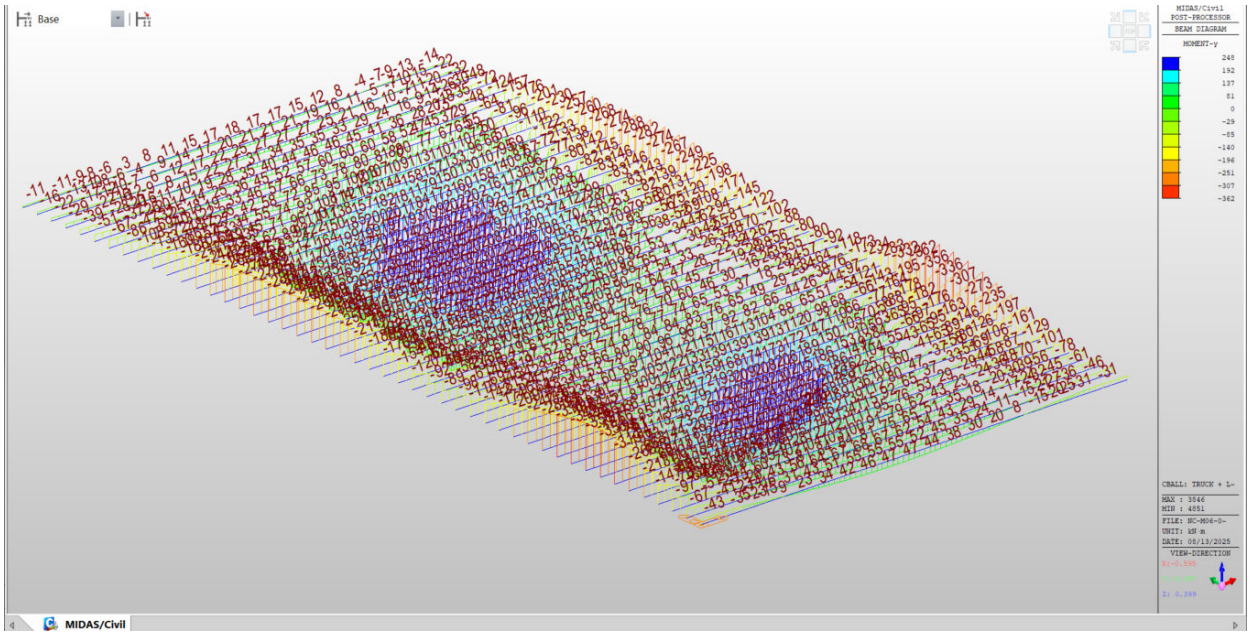


Maximum shear force

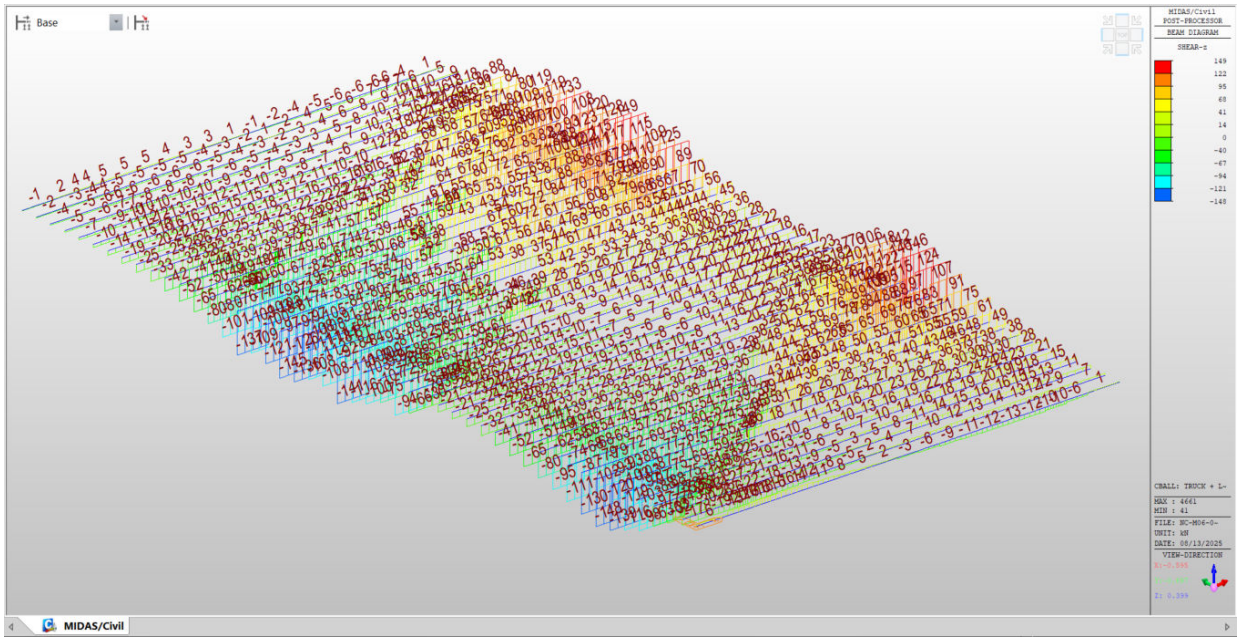


Load case: Permit Truck (Env) + LM1

Maximum sagging and hogging moments

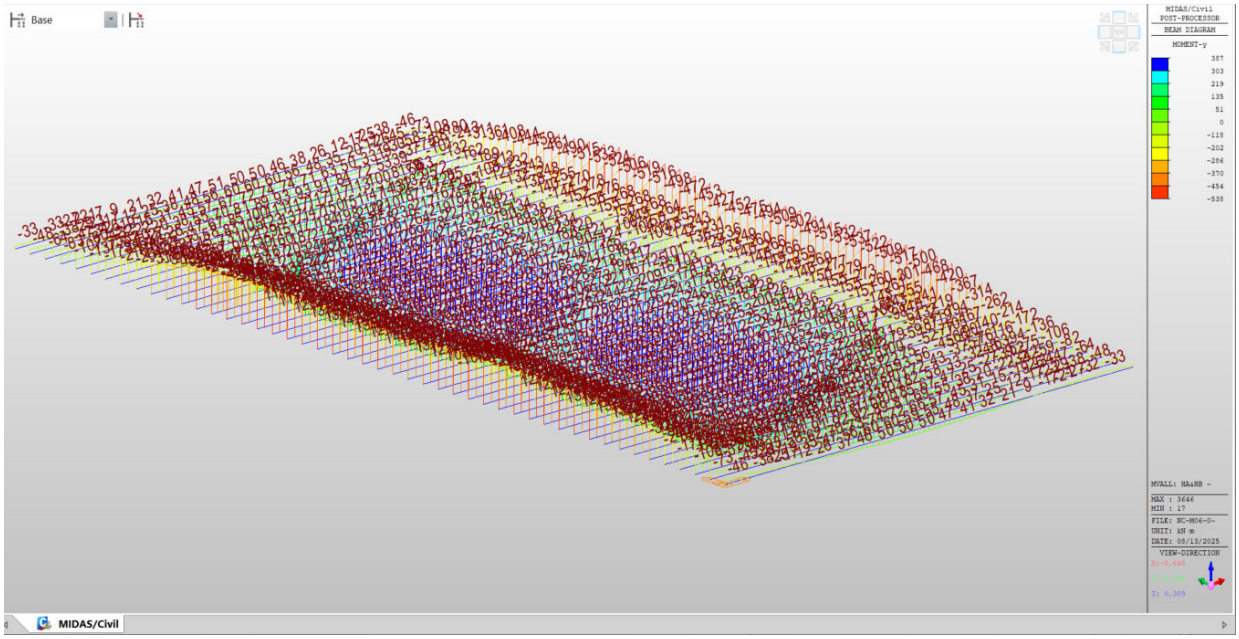


Maximum shear force

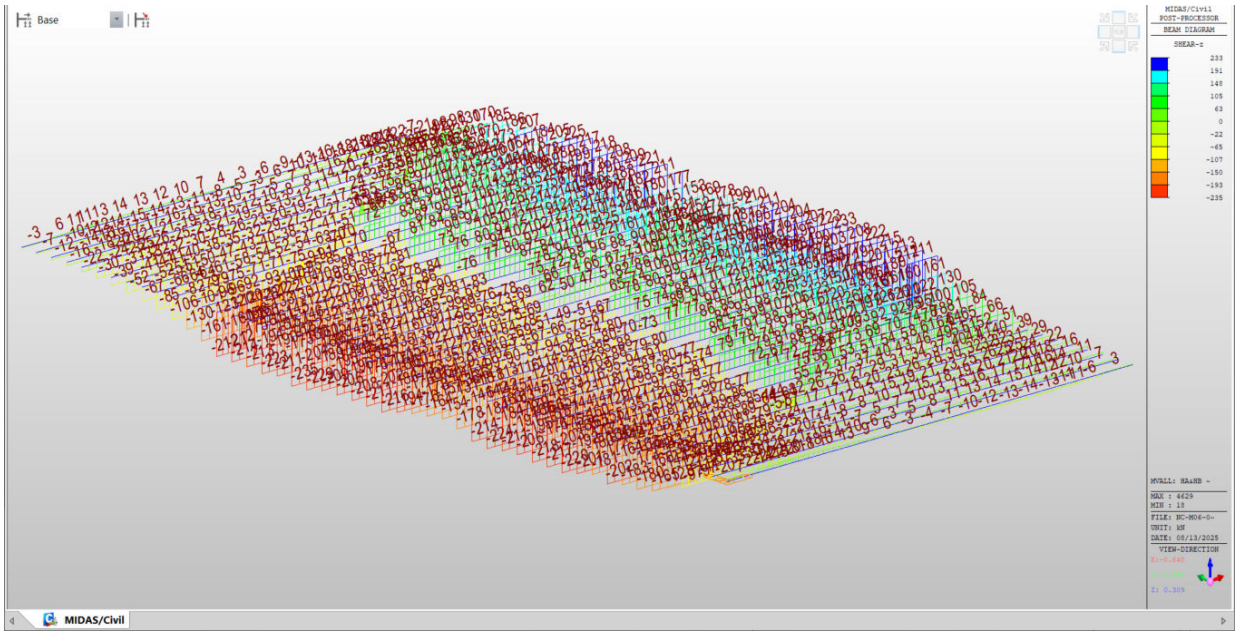


Load case: HA & HB (SLS)

Maximum sagging and hogging moments

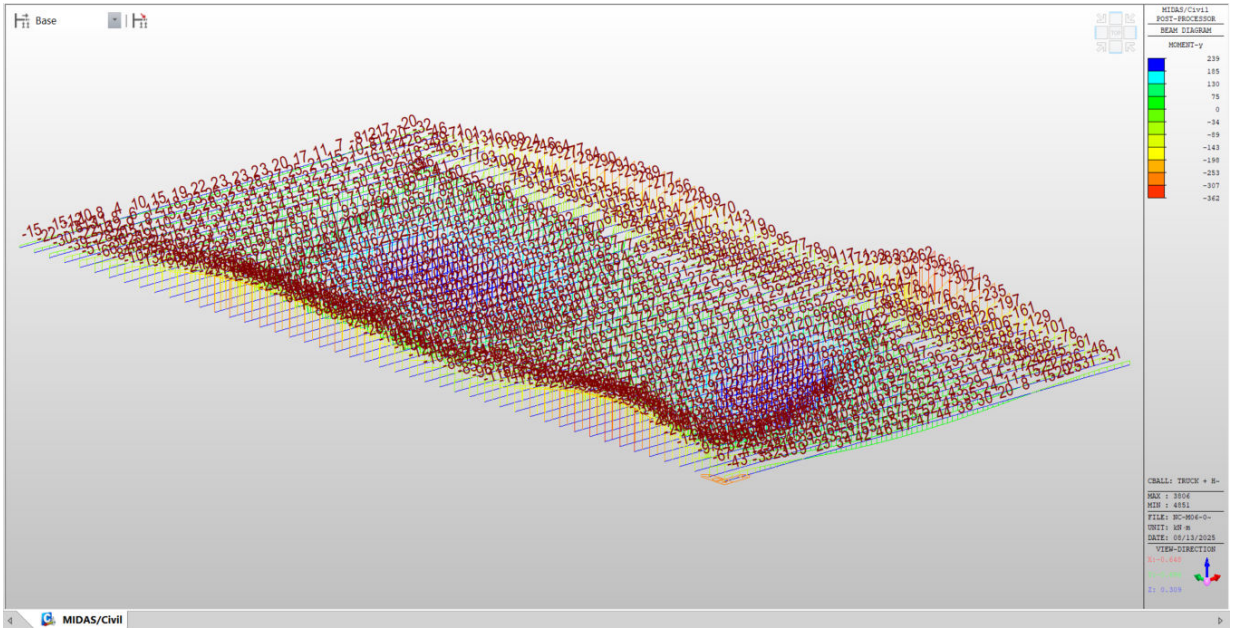


Maximum shear force

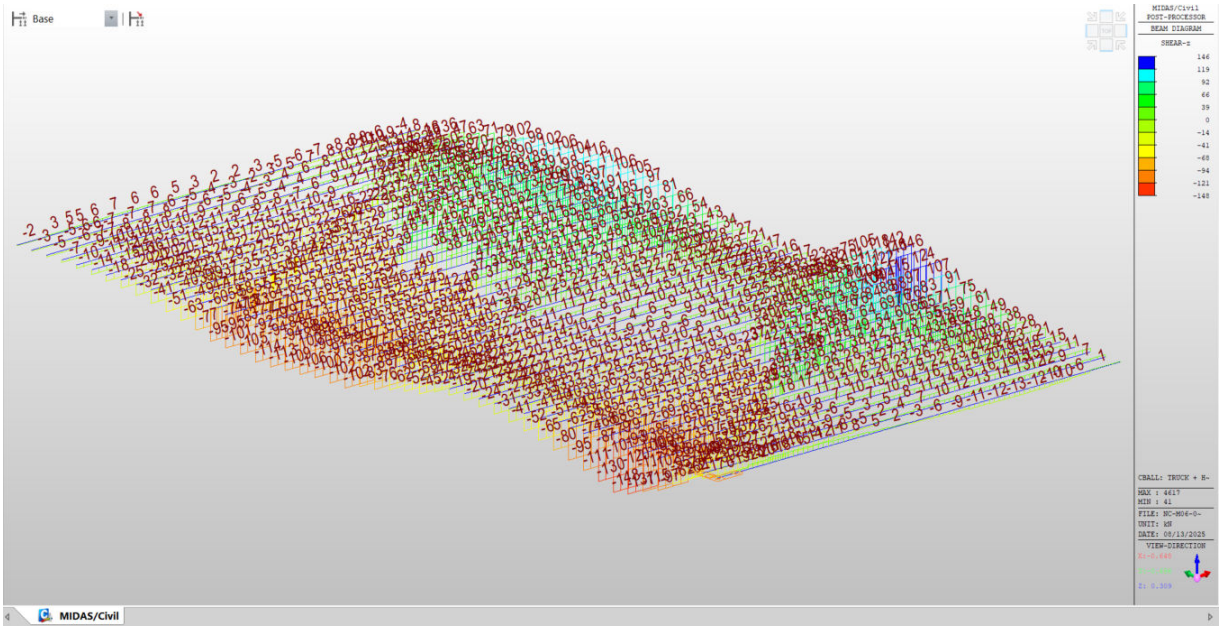


Load case: Permit Truck (Env) + HA

Maximum sagging and hogging moments



Maximum shear force

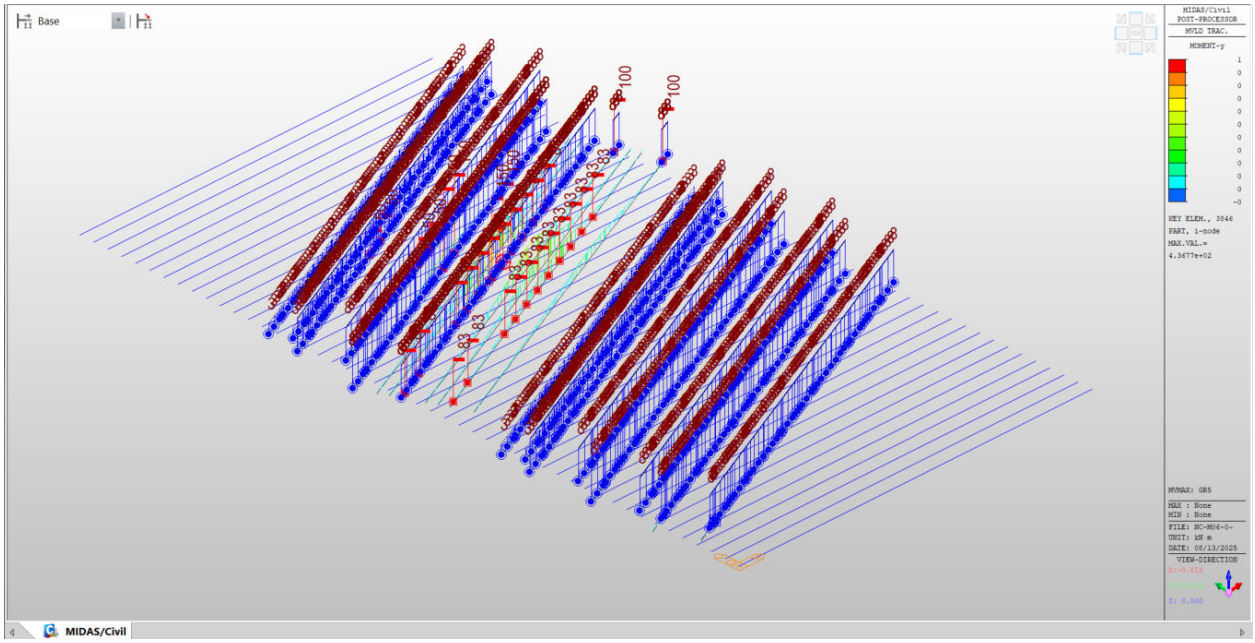


Loading diagram

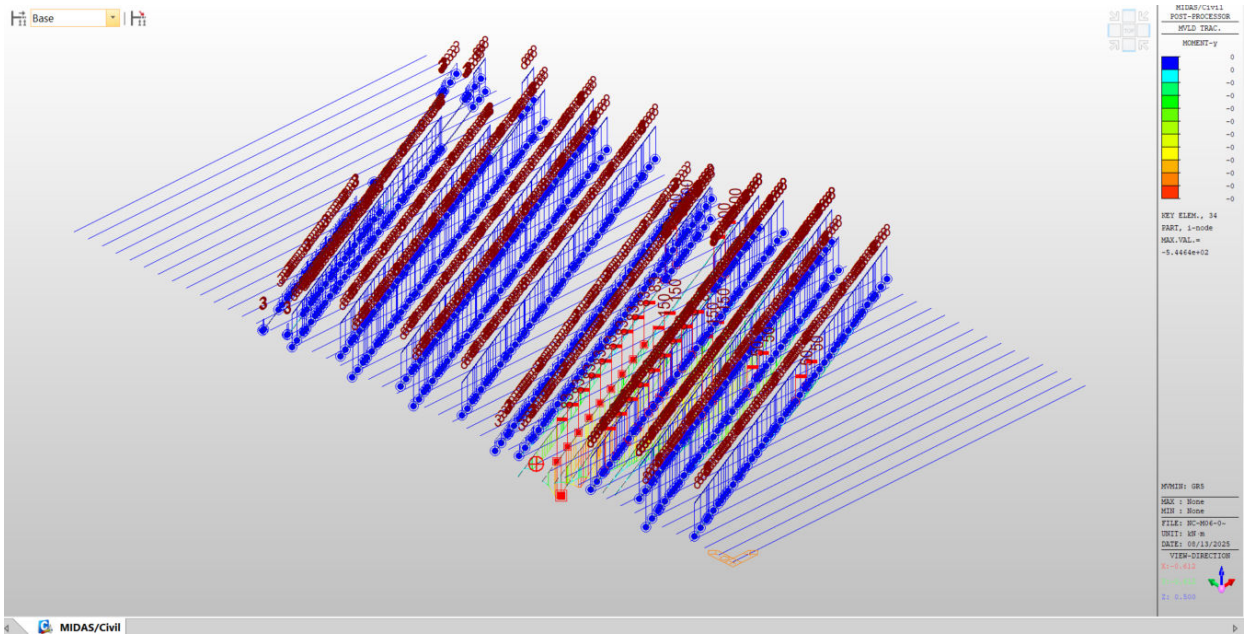
NC-M06-010.00

Load case: Group 5 (LM1+SV196)

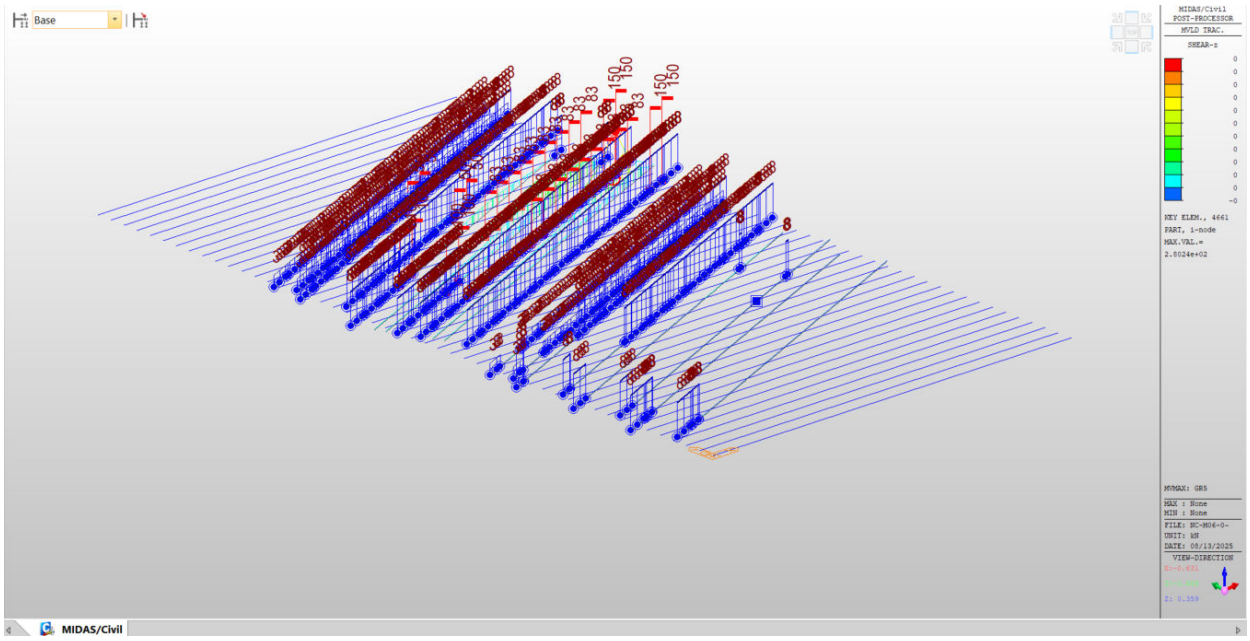
Maximum sagging moment



Maximum hogging moment

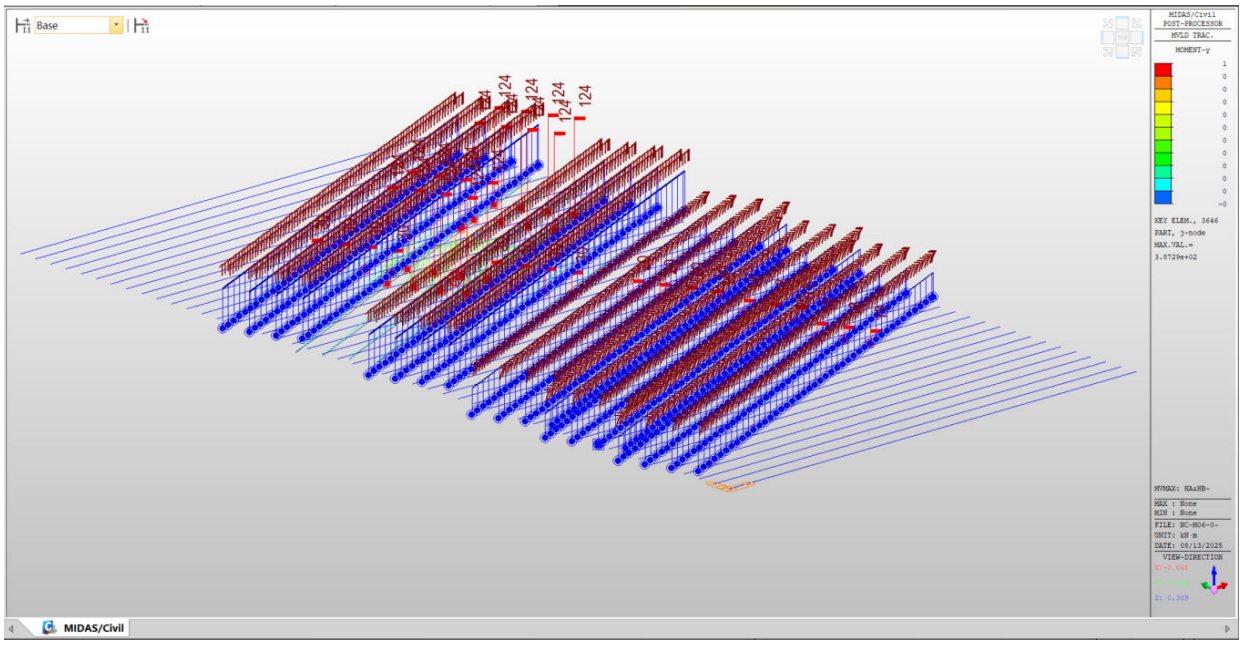


Maximum shear force

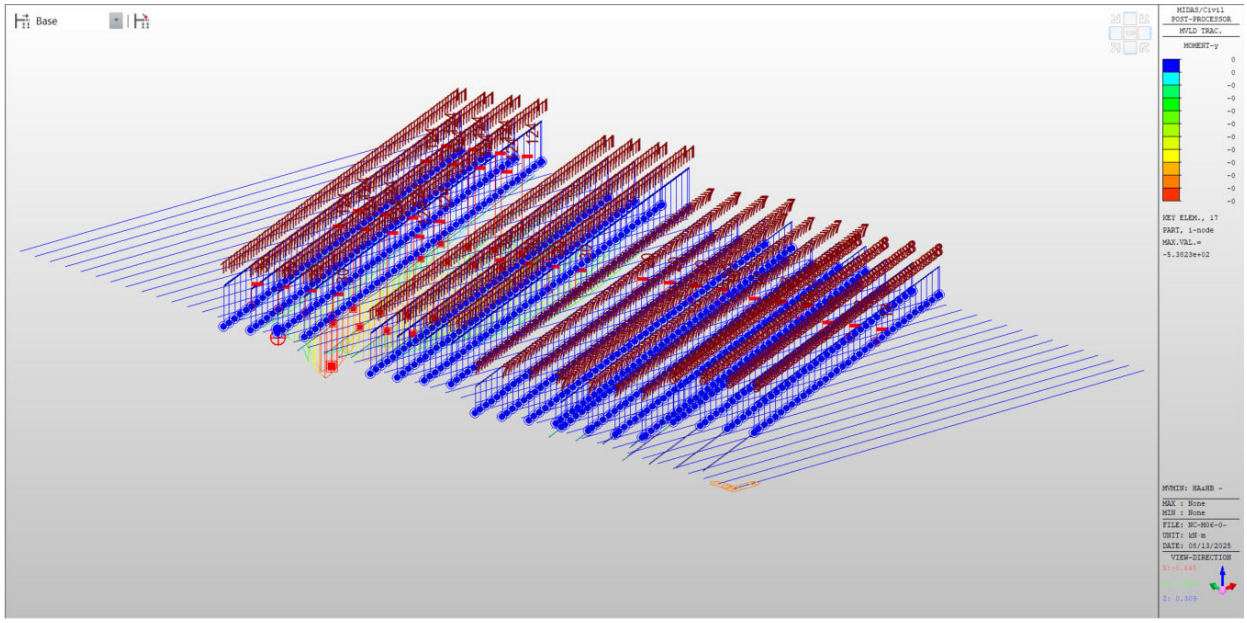


Load case: HA & HB (SLS)

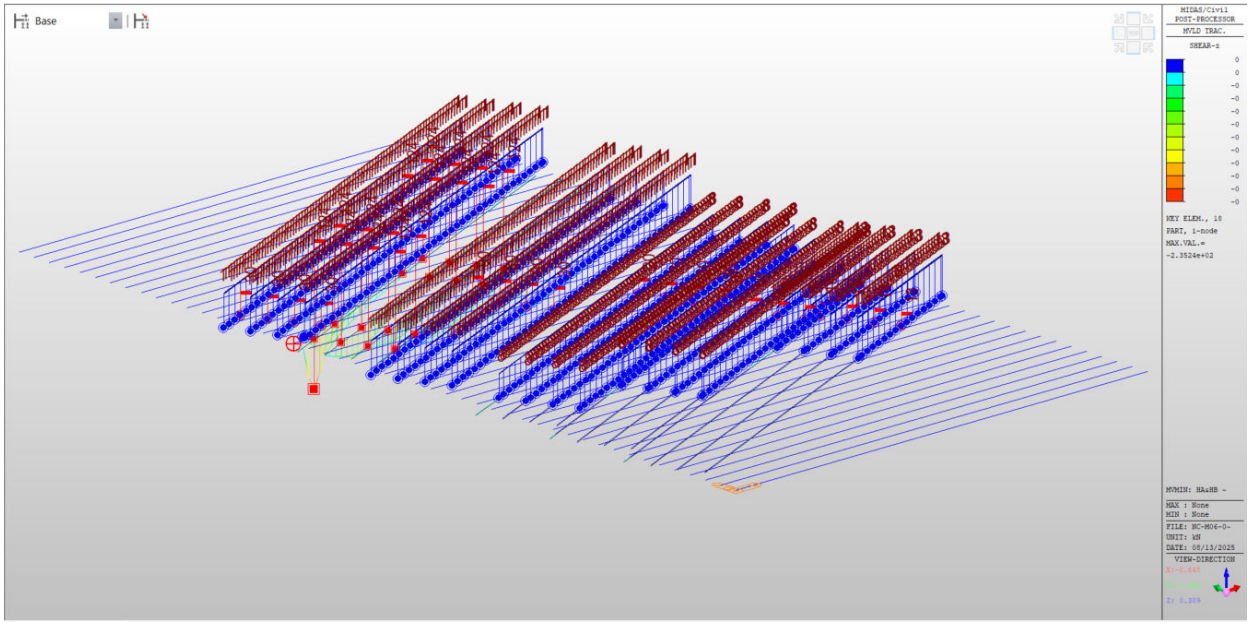
Maximum sagging moment



Maximum hogging moment



Maximum shear force



Appendix E. Assumptions and Results of GB-N06-008.00

AtkinsRéalis	Project	100114485-Cashla Peaker Plant Abnormal Load Transfer			Job ref	
	Structure No. GB-N06-008.00	Assessment using TII AM-STR-06002 MEXE Method			Calc sheet no.	rev 0
	Drawing Ref -	Calc By NO	Date Aug 2025		Check by ES	Date Aug 2025

Ref	Calculations			Output
TII AM-STR-06002	**Modified MEXE Method - Span 1**			
	Span	L in m		5.450
	Rise at Crown	r_c in m		2.125
	Rise at Quarter point	r_q in m		1.650
	Ring Thickness	d in m		0.182
	Depth of fill	h in m		1.100
	Barrel Factor	F_b	(Concrete)	1.200
	Fill Factor	F_f	(Well Compacted Material)	0.700
	Joint Width Factor	F_w	(Conservative)	0.800
	Joint Mortar Factor	F_{mo}		1.000
	Horizontal Curve Radius	r in m		>600
	$v^2 = \frac{1000\ r}{r + 150}$	Centrifugal Effect Factor	$F_A = 1 + \frac{0.20\ v^2}{r}$	1.000
	Joint Depth Factor	F_d		
	Average depth of missing mortar	in m		0.000
Annex G	=>	F_d		1.000
	Condition Factor	F_{cM}		1.000
		h + d in m		1.282
		L / r_c		2.565
	From Fig. 3.2 Nonogram Provisional Axle Loading	P.A.L. or $740 \times \frac{(d + h)^2}{L^{1.3}}$ = P.A.L.		70.00
From Fig. 3.3	Span/Rise Factor	F_{sr}		1.000
From Fig. 3.4	Profile Factor	F_p	$= 2.3 \times [(r_c - r_q)/r_c]^{0.6}$	0.936
	Material Factor	F_m	$= \frac{(F_b \times d) + (F_f \times h)}{h + d}$	0.771
	Joint Factor	F_j	$= F_w \times F_{mo} \times F_d$	0.800
	MODIFIED AXLE LOAD FOR 2-AXLE BOGIE (M.A.L)	M.A.L	$= F_{sr} \times F_p \times F_m \times F_j \times F_{cM} \times$ P.A.L	40.417
	AXLE FACTOR (A_f - see Fig 3.5a & 3.5b	Axle lift-off (Y/N)	N	
	Single axle -	1.21	Allowable A.L	48.8
	2-Axle bogie	1.00	Allowable A.L	40.4
	3-Axle bogie	1.00	Allowable A.L	40.4
	LOAD CAPACITY	**Max G.V.W in tonnes =**		**40**

AtkinsRéalis	Project	100114485-Cashla Peaker Plant Abnormal Load Transfer		Job ref 0	
	Part of Structure GB-N06-008.00	Archie M analysis		Calc sheet no. rev 0	
	Drawing Ref -	Calc By NO	Date Aug 2025	Check by ES	Date Aug 2025

Ref	Calculations	Output
	Arch Assessment using ArchieM	*Remarks*
TII AM-STR-06026	***General Archie Input***	

Table 3.1	Road Surfacing Depth	=	0.001	m	Tar Depth Only
Table 4.1	Road Surfacing Unit Weight	=	23	kN/m3	Asphalt
Fig 4.3	Concrete Comp. Strength	=	30	N/mm2	Assumed
Table 4.1	Concrete Unit Weight	=	24	kN/m^3	
	Fill Material Unit Weight	=	18	kN/m3	Earth fill
	Angle of Friction, phi	=	30		

Arch Dimensions

Refer to MEXE Analysis for dimensions

AM-STR- **Lane & Load details**

TII AM-STR-06048 *Load assessment for Abnormal Vehicles (HB , SV & EAL Loading)*

assumed to have 3.0m track with 0.5m minimum spacing between the track width of adjacent vehicles

3.5m used in analysis as conservative measure

		SV196	HB45	EAL	
Structure loaded with		198	180	Varies	t vehicle
Load per axle	=	16.5	45	Varies	t
Lane width	=	3.5	3.5	3.5	m
Distributed width of wheel load	=	1.5 + h	1.5 + h	1.5 + h	m

AtkinsRéalis	Project	100114485-Cashla Peaker Plant Abnormal Load Transfer		Job ref 0	
	Part of Structure GB-N06-008.00	Archie M analysis		Calc sheet no. rev 0	
	Drawing Ref -	Calc By NO	Date Aug 2025	Check by ES	Date Aug 2025

Ref	Calculations	Output

TII AM-STR-06026

Details for Archie analysis

Condition factors, in present condition

Ref					
Cl.6.20		γ_{F3}	=	1	
Cl.6.20		γ_m	=	1	no other recorded defects which might reduce strength of masonry
	Joint width factor	Fw	=	0.8	
	Mortar factor	Fmo	=	1	
	Average mortar loss		=	0	mm (conservative as concrete repairs not considered)
		Fd	=	1.00	taken as 1.0 as mortar loss is modelled directly in Archie
		Fj = (Fw*Fmo*Fd)	=	0.80	

The load factor is taken as 1.0 for SV and EAL, and 1.1 for HB loading at SLS. An additional DAF of 1.12 is applied to the axle loads of SV196 in the load definition.

			HB	SV & EAL
		γ_{FL} =	1.1	1
	Centrifugal effect	F_A =	1.00	1.00
	Condition factor	F_{cm} =	1	1

	HB	SV & EAL
Effective $\gamma_{FL} = \frac{\gamma_{FL}}{Fj*Fcm} xFa$ =	**1.38**	**1.25**

Bridge Name: Ballybrit Cycle-lane Underpass Bridge Location:
Bridge Number: GB-N06-008.00
Number of spans: 1

SAFETY FACTORS

Factor for deadload:	1.00	Factor for superimposed deadload:	1.00	Factor for surfacing:	1.00		
Factor for live load:	1.25	Factor for load effect:	1.00	Factor for material strength:	1.00		

Applied distribution mode: Archie-M, BD21/97
Applied live load pressure: Active pressure

STRUCTURE PROPERTIES

Road shape:	Flat line (1-point method)					
Road points:	(0, 3407)					
Depth of surfacing:	1	[mm]	Depth of overlay:	0	[mm]	
Surface unit weight:	15.00	[kN/m3]	Overlay unit weight:	15.00	[kN/m3]	
Available width:	31250	[mm]				
Min. effective width:	5334	[mm]				

Fill unit weight: 18.00 [kN/m3] Fill phi: 30 degree

Left abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]
Right abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]

SPAN 1

Shape:	Circular										
Span:	5450	[mm]	Rise:	2125	[mm]	Q-rise:	1650	[mm]			
Ring thickness at crown:			182	[mm]	Ring thickness at springing:			182	[mm]	Mortar loss:	0 [mm]
Masonry unit weight:	24.00	[kN/m3]	Masonry strength:			30.00	[MPa]				

Backing:

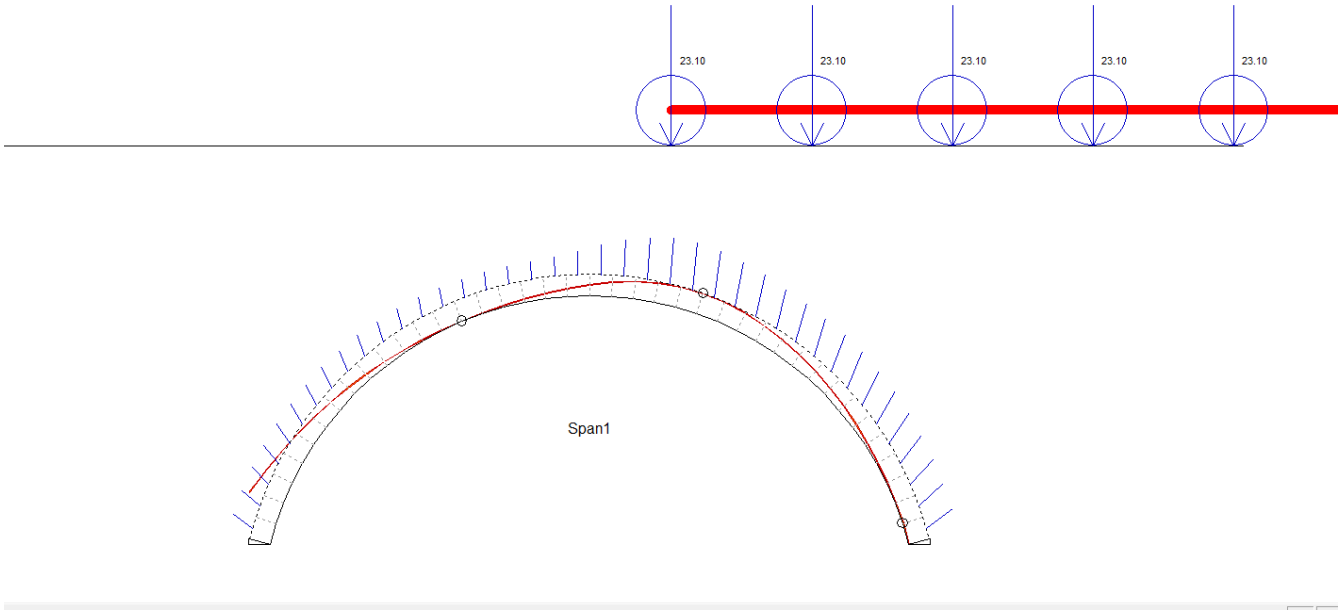
Span	Position	Type	Height [mm]		Width [mm]	Unit weight [kN/m3]	Strength [MPa]
1	left	NONE	0	0	0.00	0.00	
1	right	NONE	0	0	0.00	0.00	

Segment	Intrados.x	Intrados.z	Extrados.x	Extrados.z	Road.z	Fx dead	Fz dead	My dead	Fx live	Fz live	My live	Fx passive	Fx total	Fz total	My total	Thrust in	Thrust out	Extr
0	0	0	-177	44	3407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-69.84	-123.91	-53.29	386	391	-209
1	51	179	-122	235	3407	5.60	-4.05	0.24	0.00	-0.00	0.00	0.00	-75.44	-119.86	-46.19	334	339	-157
2	114	354	-55	421	3407	5.17	-4.56	0.20	0.00	-0.00	0.00	0.00	-80.60	-115.30	-39.55	287	291	-109
3	189	524	24	603	3407	4.73	-4.97	0.17	0.00	-0.00	0.00	0.00	-85.33	-110.33	-33.38	243	247	-65
4	274	690	116	779	3407	4.30	-5.29	0.15	0.00	-0.00	0.00	0.00	-89.63	-105.03	-27.71	202	207	-25
5	371	849	218	948	3407	3.88	-5.53	0.14	0.00	-0.00	0.00	0.00	-93.51	-99.50	-22.55	165	170	12
6	477	1001	332	1110	3407	3.47	-5.70	0.14	0.00	-0.00	0.00	0.00	-96.99	-93.80	-17.90	132	137	45
7	594	1146	456	1265	3407	3.08	-5.79	0.14	0.00	-0.00	0.00	0.00	-100.07	-88.01	-13.78	102	107	75
8	720	1283	590	1411	3407	2.72	-5.83	0.16	0.00	-0.00	0.00	0.00	-102.79	-82.18	-10.20	76	80	102
9	854	1412	733	1548	3407	2.37	-5.81	0.17	0.00	-0.00	0.00	0.00	-105.16	-76.37	-7.15	53	57	125
10	997	1531	885	1674	3407	2.05	-5.76	0.19	0.00	-0.00	0.00	0.00	-107.21	-70.61	-4.65	34	38	144
11	1148	1640	1045	1791	3407	1.76	-5.67	0.21	0.00	-0.00	0.00	0.00	-108.97	-64.95	-2.70	19	23	159
12	1305	1740	1213	1897	3407	1.49	-5.55	0.24	0.00	-0.00	0.00	0.00	-110.45	-59.39	-1.31	8	13	169
13	1469	1828	1387	1991	3407	1.24	-5.42	0.26	0.00	-0.00	0.00	0.00	-111.70	-53.97	-0.49	2	6	176
14	1638	1906	1567	2074	3407	1.02	-5.29	0.28	0.00	-0.00	0.00	0.00	-112.72	-48.68	-0.25	-0	4	178
15	1811	1972	1752	2144	3407	0.82	-5.16	0.30	0.00	-0.00	0.00	0.00	-113.54	-43.51	-0.59	3	7	175
16	1989	2027	1942	2203	3407	0.65	-5.04	0.33	0.00	-0.00	0.00	0.00	-114.19	-38.47	-1.53	11	15	167
17	2170	2070	2134	2248	3407	0.48	-4.94	0.35	0.00	-0.00	0.00	0.00	-114.67	-33.53	-3.05	24	28	154
18	2354	2100	2330	2281	3407	0.34	-4.86	0.38	0.00	-0.06	0.01	0.00	-115.01	-28.61	-5.16	42	46	136
19	2539	2119	2527	2300	3407	0.20	-4.80	0.40	0.02	-0.68	0.07	0.00	-115.23	-23.13	-7.79	65	69	113
20	2725	2125	2725	2307	3407	0.07	-4.77	0.43	0.02	-1.95	0.20	0.00	-115.32	-16.41	-10.75	91	95	87
21	2911	2119	2923	2300	3407	-0.07	-4.77	0.46	-0.04	-3.58	0.37	0.00	-115.22	-8.06	-13.80	119	122	60
22	3096	2100	3120	2281	3407	-0.20	-4.80	0.49	-0.17	-5.24	0.58	0.00	-114.84	1.98	-16.62	144	148	34

23	3280	2070	3316	2248	3407	-0.34	-4.86	0.53	-0.37	-6.70	0.78	0.00	-114.13	13.53	-18.93	163	167	15
24	3461	2027	3508	2203	3407	-0.48	-4.94	0.56	-0.60	-7.66	0.93	0.00	-113.05	26.13	-20.53	175	179	3
25	3639	1972	3698	2144	3407	-0.65	-5.04	0.60	-0.82	-7.97	1.02	0.00	-111.59	39.13	-21.29	178	182	-0
26	3812	1906	3883	2074	3407	-0.82	-5.16	0.65	-0.98	-7.68	1.03	0.00	-109.79	51.97	-21.20	173	177	5
27	3981	1828	4063	1991	3407	-1.02	-5.29	0.69	-1.07	-6.97	0.97	0.00	-107.70	64.24	-20.37	161	165	17
28	4145	1740	4237	1897	3407	-1.24	-5.42	0.74	-1.11	-6.12	0.89	0.00	-105.35	75.79	-18.95	145	149	33
29	4302	1640	4405	1791	3407	-1.49	-5.55	0.79	-1.13	-5.35	0.82	0.00	-102.73	86.69	-17.11	126	130	52
30	4453	1531	4565	1674	3407	-1.76	-5.67	0.83	-1.17	-4.81	0.77	0.00	-99.81	97.17	-15.02	106	111	71
31	4596	1412	4717	1548	3407	-2.05	-5.76	0.88	-1.26	-4.53	0.75	0.00	-96.50	107.45	-12.80	87	92	90
32	4730	1283	4860	1411	3407	-2.37	-5.81	0.92	-1.38	-4.35	0.75	0.00	-92.75	117.61	-10.54	68	73	109
33	4856	1146	4994	1265	3407	-2.72	-5.83	0.95	-1.48	-4.07	0.72	0.00	-88.55	127.51	-8.29	51	56	126
34	4973	1001	5118	1110	3407	-3.08	-5.79	0.98	-1.54	-3.71	0.68	0.00	-83.93	137.01	-6.16	36	41	141
35	5079	849	5232	948	3407	-3.47	-5.70	1.00	-1.57	-3.30	0.62	0.00	-78.88	146.01	-4.24	23	28	154
36	5176	690	5334	779	3407	-3.88	-5.53	1.01	-1.58	-2.88	0.56	0.00	-73.42	154.42	-2.62	13	18	164
37	5261	524	5426	603	3407	-4.30	-5.29	1.02	-1.59	-2.46	0.50	0.00	-67.53	162.18	-1.42	5	11	171
38	5336	354	5505	421	3407	-4.73	-4.97	1.01	-1.58	-2.07	0.44	0.00	-61.22	169.22	-0.71	1	7	175
39	5399	179	5572	235	3407	-5.17	-4.56	0.99	-1.57	-1.70	0.38	0.00	-54.49	175.47	-0.56	-0	6	176
40	5450	0	5627	44	3407	-5.60	-4.05	0.97	-1.56	-1.34	0.33	0.00	-47.32	180.87	-1.04	2	9	173

APPLIED LOAD CASES

1.	SV196-2 With DAF 1.12	Total weight:		2175.47	[kN]	Position:	26823	[mm]										
	221.76	12	1.00	18.48	4.40	18.48	6.00	18.48	10.00	18.48	11.20	18.48	12.40	18.48	13.60	18.48	18.60	18.4
	Effective width:		5334	[mm]	Distribution length:		1484	[mm]										



Bridge Name: Ballybrit Cycle-lane Underpass Bridge Location:
Bridge Number: GB-N06-008.00
Number of spans: 1

SAFETY FACTORS

Factor for deadload:	1.00	Factor for superimposed deadload:	1.00	Factor for surfacing:	1.00
Factor for live load:	1.38	Factor for load effect:	1.00	Factor for material strength:	1.00

Applied distribution mode: Archie-M, BD21/97
Applied live load pressure: Active pressure

STRUCTURE PROPERTIES

Road shape:	Flat line (1-point method)				
Road points:	(0, 3407)				
Depth of surfacing:	1	[mm]	Depth of overlay:	0	[mm]
Surface unit weight:	15.00	[kN/m3]	Overlay unit weight:	15.00	[kN/m3]
Available width:	31250	[mm]			
Min. effective width:	5950	[mm]			

Fill unit weight:	18.00	[kN/m3]	Fill phi:	30	degree			
Left abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]
Right abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]

SPAN 1

Shape:	Circular										
Span:	5450	[mm]	Rise:	2125	[mm]	Q-rise:	1650	[mm]			
Ring thickness at crown:			182	[mm]	Ring thickness at springing:			182	[mm]	Mortar loss:	0 [mm]
Masonry unit weight:	24.00	[kN/m3]	Masonry strength:			30.00	[MPa]				

Backing:

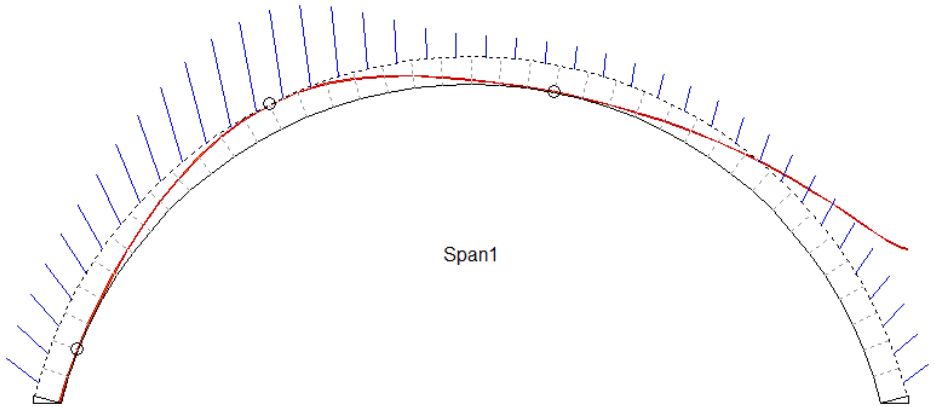
Span	Position	Type	Height [mm]		Width [mm]	Unit weight [kN/m3]	Strength [MPa]
1	left	NONE	0	0	0.00	0.00	
1	right	NONE	0	0	0.00	0.00	

Segment	Intrados.x	Intrados.z	Extrados.x	Extrados.z	Road.z	Fx dead	Fz dead	My dead	Fx live	Fz live	My live	Fx passive	Fx total	Fz total	My total	Thrust in	Thrust out	Extr
0	0	0	-177	44	3407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-67.60	-223.61	-3.47	11	19	163
1	51	179	-122	235	3407	5.60	-4.05	0.24	1.55	-1.34	0.02	0.00	-74.76	-218.22	-1.56	3	11	171
2	114	354	-55	421	3407	5.17	-4.56	0.20	1.52	-1.64	-0.00	0.00	-81.44	-212.02	-0.85	-0	8	174
3	189	524	24	603	3407	4.73	-4.97	0.17	1.53	-2.00	-0.02	0.00	-87.70	-205.05	-1.32	2	10	172
4	274	690	116	779	3407	4.30	-5.29	0.15	1.58	-2.46	-0.03	0.00	-93.59	-197.29	-2.87	10	17	165
5	371	849	218	948	3407	3.88	-5.53	0.14	1.71	-3.10	-0.03	0.00	-99.17	-188.66	-5.36	22	29	153
6	477	1001	332	1110	3407	3.47	-5.70	0.14	1.89	-3.97	-0.03	0.00	-104.54	-178.99	-8.62	38	45	137
7	594	1146	456	1265	3407	3.08	-5.79	0.14	2.13	-5.13	-0.02	0.00	-109.75	-168.07	-12.41	59	66	116
8	720	1283	590	1411	3407	2.72	-5.83	0.16	2.39	-6.59	0.01	0.00	-114.86	-155.64	-16.42	83	89	93
9	854	1412	733	1548	3407	2.37	-5.81	0.17	2.64	-8.29	0.05	0.00	-119.87	-141.54	-20.31	108	114	68
10	997	1531	885	1674	3407	2.05	-5.76	0.19	2.81	-10.10	0.12	0.00	-124.73	-125.69	-23.72	132	138	44
11	1148	1640	1045	1791	3407	1.76	-5.67	0.21	2.86	-11.79	0.22	0.00	-129.35	-108.23	-26.26	154	159	23
12	1305	1740	1213	1897	3407	1.49	-5.55	0.24	2.76	-13.10	0.33	0.00	-133.59	-89.58	-27.66	170	175	7
13	1469	1828	1387	1991	3407	1.24	-5.42	0.26	2.48	-13.74	0.44	0.00	-137.31	-70.41	-27.69	177	182	-0
14	1638	1906	1567	2074	3407	1.02	-5.29	0.28	2.06	-13.49	0.52	0.00	-140.40	-51.63	-26.32	174	179	3
15	1811	1972	1752	2144	3407	0.82	-5.16	0.30	1.56	-12.25	0.55	0.00	-142.78	-34.21	-23.66	159	164	18
16	1989	2027	1942	2203	3407	0.65	-5.04	0.33	1.04	-10.12	0.52	0.00	-144.47	-19.05	-20.01	136	141	41
17	2170	2070	2134	2248	3407	0.48	-4.94	0.35	0.58	-7.39	0.43	0.00	-145.53	-6.72	-15.78	107	112	70
18	2354	2100	2330	2281	3407	0.34	-4.86	0.38	0.25	-4.53	0.28	0.00	-146.12	2.67	-11.47	77	82	100
19	2539	2119	2527	2300	3407	0.20	-4.80	0.40	0.07	-2.07	0.13	0.00	-146.39	9.54	-7.54	49	54	128
20	2725	2125	2725	2307	3407	0.07	-4.77	0.43	0.01	-0.49	0.03	0.00	-146.46	14.80	-4.34	27	32	150
21	2911	2119	2923	2300	3407	-0.07	-4.77	0.46	-0.00	-0.01	0.00	0.00	-146.39	19.58	-2.06	12	16	166
22	3096	2100	3120	2281	3407	-0.20	-4.80	0.49	0.00	0.00	0.00	0.00	-146.19	24.38	-0.73	2	7	175

23	3280	2070	3316	2248	3407	-0.34	-4.86	0.53	0.00	0.00	0.00	0.00	-145.86	29.23	-0.37	-0	5	177
24	3461	2027	3508	2203	3407	-0.48	-4.94	0.56	0.00	0.00	0.00	0.00	-145.37	34.17	-0.96	4	9	173
25	3639	1972	3698	2144	3407	-0.65	-5.04	0.60	0.00	0.00	0.00	0.00	-144.73	39.21	-2.49	14	19	163
26	3812	1906	3883	2074	3407	-0.82	-5.16	0.65	0.00	0.00	0.00	0.00	-143.90	44.38	-4.97	31	36	146
27	3981	1828	4063	1991	3407	-1.02	-5.29	0.69	0.00	0.00	0.00	0.00	-142.88	49.67	-8.35	53	58	124
28	4145	1740	4237	1897	3407	-1.24	-5.42	0.74	0.00	0.00	0.00	0.00	-141.64	55.09	-12.64	82	87	95
29	4302	1640	4405	1791	3407	-1.49	-5.55	0.79	0.00	0.00	0.00	0.00	-140.15	60.64	-17.80	116	121	61
30	4453	1531	4565	1674	3407	-1.76	-5.67	0.83	0.00	0.00	0.00	0.00	-138.39	66.31	-23.81	156	161	21
31	4596	1412	4717	1548	3407	-2.05	-5.76	0.88	0.00	0.00	0.00	0.00	-136.34	72.06	-30.65	202	207	-25
32	4730	1283	4860	1411	3407	-2.37	-5.81	0.92	0.00	0.00	0.00	0.00	-133.97	77.88	-38.28	254	259	-77
33	4856	1146	4994	1265	3407	-2.72	-5.83	0.95	0.00	0.00	0.00	0.00	-131.25	83.71	-46.68	311	316	-134
34	4973	1001	5118	1110	3407	-3.08	-5.79	0.98	0.00	0.00	0.00	0.00	-128.17	89.50	-55.82	373	378	-196
35	5079	849	5232	948	3407	-3.47	-5.70	1.00	0.00	0.00	0.00	0.00	-124.70	95.20	-65.68	442	447	-265
36	5176	690	5334	779	3407	-3.88	-5.53	1.01	0.00	0.00	0.00	0.00	-120.82	100.73	-76.22	516	521	-339
37	5261	524	5426	603	3407	-4.30	-5.29	1.02	0.00	0.00	0.00	0.00	-116.52	106.03	-87.41	597	602	-420
38	5336	354	5505	421	3407	-4.73	-4.97	1.01	0.00	0.00	0.00	0.00	-111.79	111.00	-99.22	684	689	-507
39	5399	179	5572	235	3407	-5.17	-4.56	0.99	0.00	0.00	0.00	0.00	-106.62	115.55	-111.59	779	784	-602
40	5450	0	5627	44	3407	-5.60	-4.05	0.97	0.00	0.00	0.00	0.00	-101.02	119.60	-124.49	883	888	-706

APPLIED LOAD CASES

1.	45 Units	Total weight:		882.90	[kN]	Position:	1323	[mm]
	90.00	2	1.00	45.00	1.80	45.00	1.00	3.00	3.50
	Effective width:		5950	[mm]	Distribution length:		3663	[mm]



Bridge Name: Ballybrit Cycle-lane Underpass Bridge Location:
Bridge Number: GB-N06-008.00
Number of spans: 1

SAFETY FACTORS

Factor for deadload:	1.00	Factor for superimposed deadload:	1.00	Factor for surfacing:	1.00
Factor for live load:	1.25	Factor for load effect:	1.00	Factor for material strength:	1.00

Applied distribution mode: Archie-M, BD21/97
Applied live load pressure: Active pressure

STRUCTURE PROPERTIES

Road shape:	Flat line (1-point method)				
Road points:	(0, 3407)				
Depth of surfacing:	1	[mm]	Depth of overlay:	0	[mm]
Surface unit weight:	15.00	[kN/m3]	Overlay unit weight:	15.00	[kN/m3]
Available width:	31250	[mm]			
Min. effective width:	5362	[mm]			

Fill unit weight:	18.00	[kN/m3]	Fill phi:	30	degree			
Left abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]
Right abutment	Base level:	0	[mm]	Height:	0	[mm]	Width:	182	[mm]

SPAN 1

Shape:	Circular										
Span:	5450	[mm]	Rise:	2125	[mm]	Q-rise:	1650	[mm]			
Ring thickness at crown:			182	[mm]	Ring thickness at springing:			182	[mm]	Mortar loss:	0 [mm]
Masonry unit weight:	24.00	[kN/m3]	Masonry strength:			30.00	[MPa]				

Backing:

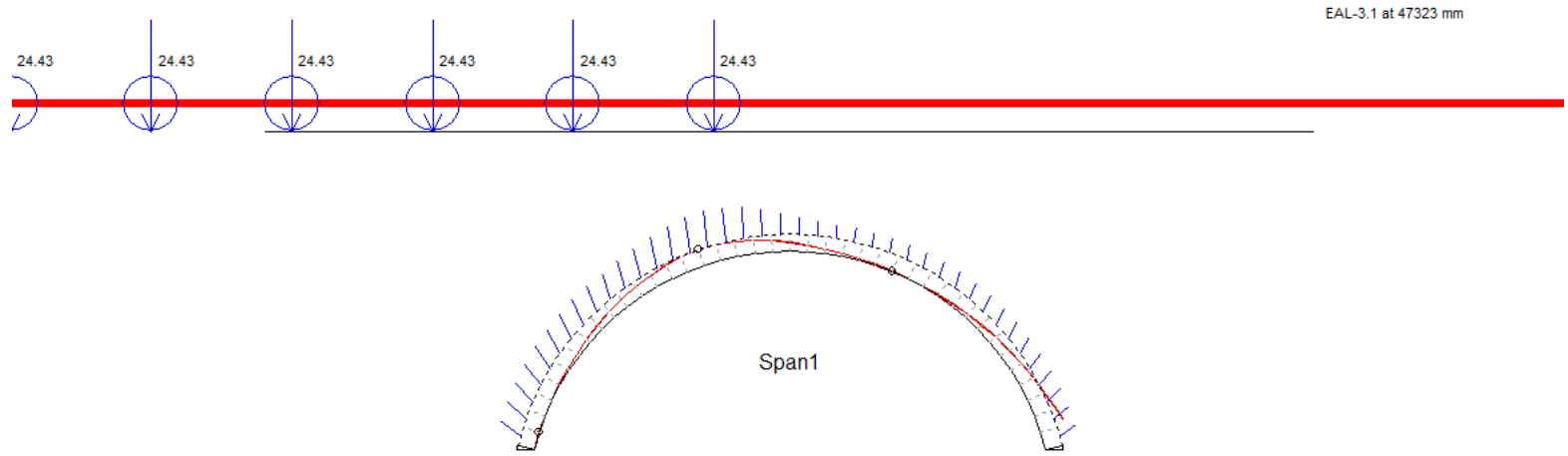
Span	Position	Type	Height [mm]		Width [mm]	Unit weight [kN/m3]	Strength [MPa]
1	left	NONE	0	0	0.00	0.00	
1	right	NONE	0	0	0.00	0.00	

Segment	Intrados.x	Intrados.z	Extrados.x	Extrados.z	Road.z	Fx dead	Fz dead	My dead	Fx live	Fz live	My live	Fx passive	Fx total	Fz total	My total	Thrust in	Thrust out	Extr
0	0	0	-177	44	3407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-42.85	-169.02	-0.77	2	7	175
1	51	179	-122	235	3407	5.60	-4.05	0.24	1.54	-1.32	0.02	0.00	-49.99	-163.64	-0.49	-0	6	176
2	114	354	-55	421	3407	5.17	-4.56	0.20	1.51	-1.64	-0.00	0.00	-56.67	-157.45	-0.69	1	7	175
3	189	524	24	603	3407	4.73	-4.97	0.17	1.48	-1.94	-0.02	0.00	-62.88	-150.54	-1.32	5	11	171
4	274	690	116	779	3407	4.30	-5.29	0.15	1.44	-2.23	-0.03	0.00	-68.62	-143.01	-2.35	12	17	165
5	371	849	218	948	3407	3.88	-5.53	0.14	1.38	-2.50	-0.03	0.00	-73.87	-134.98	-3.70	22	27	155
6	477	1001	332	1110	3407	3.47	-5.70	0.14	1.30	-2.74	-0.03	0.00	-78.65	-126.54	-5.31	33	38	144
7	594	1146	456	1265	3407	3.08	-5.79	0.14	1.21	-2.92	-0.02	0.00	-82.95	-117.83	-7.13	47	52	130
8	720	1283	590	1411	3407	2.72	-5.83	0.16	1.11	-3.05	-0.01	0.00	-86.77	-108.95	-9.10	63	68	114
9	854	1412	733	1548	3407	2.37	-5.81	0.17	0.98	-3.10	0.01	0.00	-90.13	-100.04	-11.18	81	86	96
10	997	1531	885	1674	3407	2.05	-5.76	0.19	0.90	-3.25	0.04	0.00	-93.09	-91.03	-13.32	101	105	77
11	1148	1640	1045	1791	3407	1.76	-5.67	0.21	0.90	-3.69	0.07	0.00	-95.74	-81.67	-15.40	121	125	57
12	1305	1740	1213	1897	3407	1.49	-5.55	0.24	0.93	-4.43	0.12	0.00	-98.16	-71.69	-17.29	141	145	37
13	1469	1828	1387	1991	3407	1.24	-5.42	0.26	0.97	-5.38	0.19	0.00	-100.37	-60.89	-18.80	159	163	19
14	1638	1906	1567	2074	3407	1.02	-5.29	0.28	0.97	-6.35	0.26	0.00	-102.37	-49.25	-19.72	172	176	6
15	1811	1972	1752	2144	3407	0.82	-5.16	0.30	0.90	-7.10	0.35	0.00	-104.09	-36.99	-19.90	178	182	-0
16	1989	2027	1942	2203	3407	0.65	-5.04	0.33	0.76	-7.37	0.41	0.00	-105.49	-24.57	-19.25	176	180	2
17	2170	2070	2134	2248	3407	0.48	-4.94	0.35	0.55	-7.02	0.44	0.00	-106.53	-12.61	-17.77	164	168	14
18	2354	2100	2330	2281	3407	0.34	-4.86	0.38	0.33	-6.01	0.41	0.00	-107.20	-1.75	-15.59	145	148	34
19	2539	2119	2527	2300	3407	0.20	-4.80	0.40	0.15	-4.51	0.34	0.00	-107.55	7.56	-12.94	119	123	59
20	2725	2125	2725	2307	3407	0.07	-4.77	0.43	0.03	-2.85	0.23	0.00	-107.64	15.18	-10.11	92	96	86
21	2911	2119	2923	2300	3407	-0.07	-4.77	0.46	-0.01	-1.33	0.11	0.00	-107.56	21.28	-7.38	66	70	112
22	3096	2100	3120	2281	3407	-0.20	-4.80	0.49	-0.01	-0.32	0.02	0.00	-107.36	26.40	-4.99	44	47	135

23	3280	2070	3316	2248	3407	-0.34	-4.86	0.53	-0.00	-0.01	0.00	0.00	-107.02	31.26	-3.06	26	29	153
24	3461	2027	3508	2203	3407	-0.48	-4.94	0.56	0.00	0.00	0.00	0.00	-106.54	36.20	-1.62	13	16	166
25	3639	1972	3698	2144	3407	-0.65	-5.04	0.60	0.00	0.00	0.00	0.00	-105.89	41.24	-0.68	4	8	174
26	3812	1906	3883	2074	3407	-0.82	-5.16	0.65	0.00	0.00	0.00	0.00	-105.07	46.41	-0.22	-0	4	178
27	3981	1828	4063	1991	3407	-1.02	-5.29	0.69	0.00	0.00	0.00	0.00	-104.04	51.70	-0.25	0	4	178
28	4145	1740	4237	1897	3407	-1.24	-5.42	0.74	0.00	0.00	0.00	0.00	-102.80	57.12	-0.76	5	8	174
29	4302	1640	4405	1791	3407	-1.49	-5.55	0.79	0.00	0.00	0.00	0.00	-101.31	62.68	-1.74	13	17	165
30	4453	1531	4565	1674	3407	-1.76	-5.67	0.83	0.00	0.00	0.00	0.00	-99.56	68.34	-3.20	25	29	153
31	4596	1412	4717	1548	3407	-2.05	-5.76	0.88	0.00	0.00	0.00	0.00	-97.51	74.10	-5.11	40	44	138
32	4730	1283	4860	1411	3407	-2.37	-5.81	0.92	0.00	0.00	0.00	0.00	-95.13	79.91	-7.48	58	63	119
33	4856	1146	4994	1265	3407	-2.72	-5.83	0.95	0.00	0.00	0.00	0.00	-92.42	85.74	-10.31	80	84	98
34	4973	1001	5118	1110	3407	-3.08	-5.79	0.98	0.00	0.00	0.00	0.00	-89.33	91.53	-13.58	105	109	73
35	5079	849	5232	948	3407	-3.47	-5.70	1.00	0.00	0.00	0.00	0.00	-85.86	97.23	-17.30	133	137	45
36	5176	690	5334	779	3407	-3.88	-5.53	1.01	0.00	0.00	0.00	0.00	-81.98	102.76	-21.46	163	168	14
37	5261	524	5426	603	3407	-4.30	-5.29	1.02	0.00	0.00	0.00	0.00	-77.68	108.06	-26.06	197	201	-19
38	5336	354	5505	421	3407	-4.73	-4.97	1.01	0.00	0.00	0.00	0.00	-72.95	113.03	-31.09	233	238	-56
39	5399	179	5572	235	3407	-5.17	-4.56	0.99	0.00	0.00	0.00	0.00	-67.78	117.59	-36.54	273	278	-96
40	5450	0	5627	44	3407	-5.60	-4.05	0.97	0.00	0.00	0.00	0.00	-62.18	121.64	-42.39	316	321	-139

APPLIED LOAD CASES

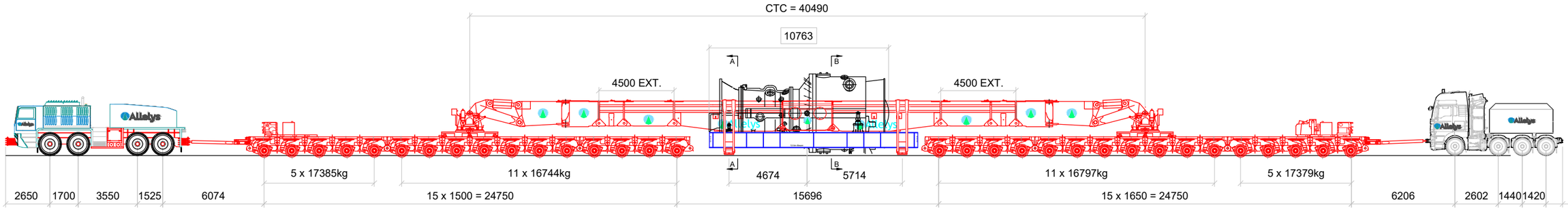
1.	EAL-3.1	Total weight:		6176.18	[kN]	Position:	47323	[mm]										
	629.58	36	1.00	7.85	2.60	9.81	4.04	11.77	5.46	11.77	10.92	19.54	12.42	19.54	13.92	19.54	15.42	19.5
	Effective width:		5362	[mm]	Distribution length:		3663	[mm]										



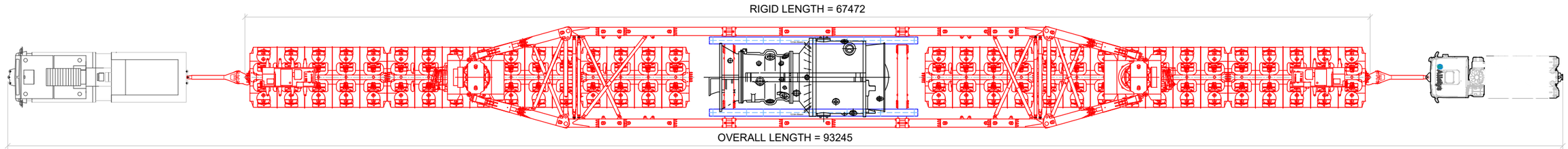
Appendix F. Transport Arrangement Drawings

This drawing has been produced by Allelys Limited in accordance with the instructions of the client for their sole and specific use. Allelys shall not be liable for the use of any information contained on this drawing for any purpose other than that for which it was specifically prepared and provided. **Copyright © Allelys Ltd.**

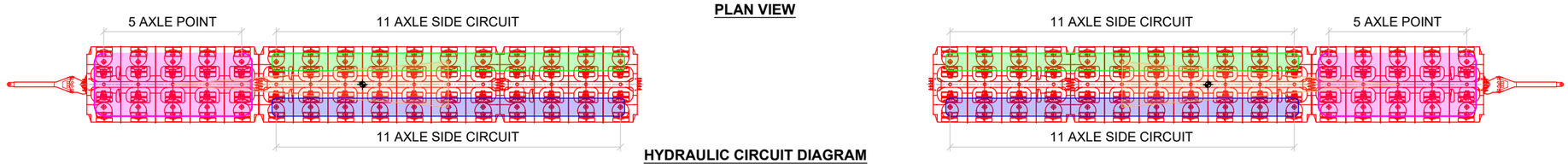
DO NOT SCALE | **IF IN DOUBT ASK**



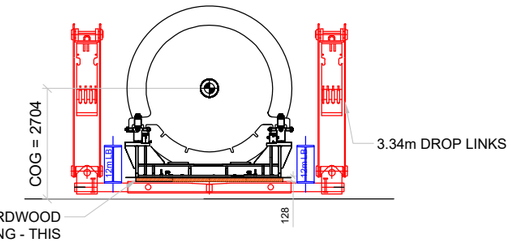
SIDE ELEVATION



PLAN VIEW

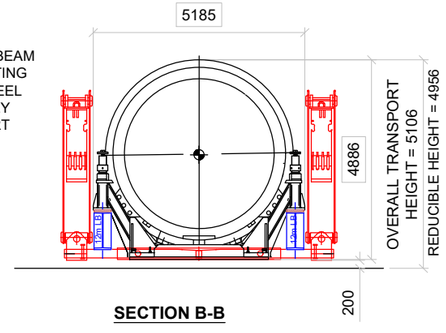


ARTEXE HANGER BEAM
+128mm packing



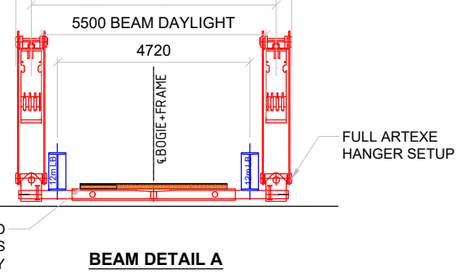
SECTION A-A

ARTEXE HANGER BEAM
INSERTS SUPPORTING
10m BEAM AND STEEL
PACKERS DIRECTLY
UNDER TRANSPORT
SHELVES

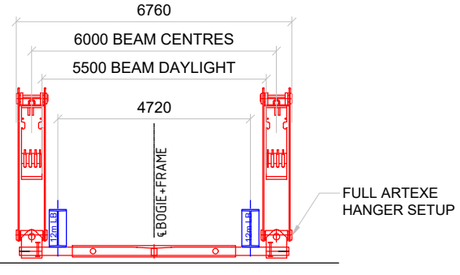


SECTION B-B

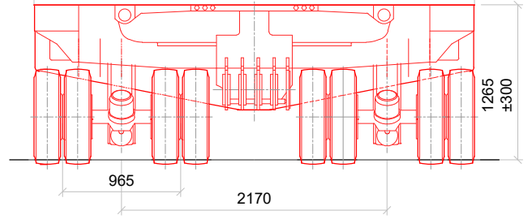
HYDRAULIC CIRCUIT DIAGRAM



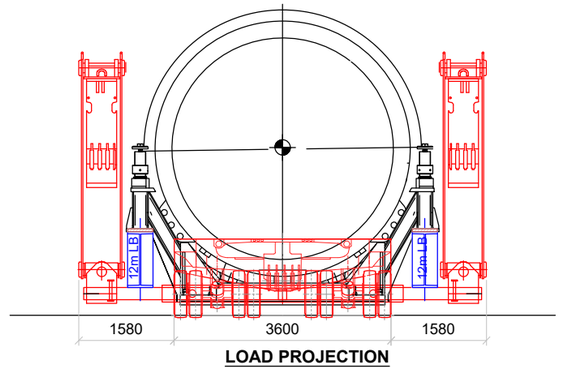
BEAM DETAIL A



BEAM DETAIL B



TRAILER DETAIL



LOAD PROJECTION

DRAWING NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN kg (KILO GRAMS) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.
5. SUITABLE TRANSPORT LASHINGS TO BE APPLIED (NOT SHOWN).
6. BRACING SET 1 REQUIRED.

FRONT TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	9000
3	15000
4	15000

REAR TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	8000
3	12500
4	12500

LOAD TABLE		
Applied Load Weight	(kg)	317000
Trailer Tare Weight	(kg)	218216
Aux Steel Work Weight	(kg)	10560
Transport Gross Weight	(kg)	545776
Tractor(s) Weight	(kg)	90000
Gross Train Weight	(kg)	635776

GIRDER FRAME BREAKDOWN (F5.5)		
Neck & Support Frames	(kg)	62052
Transport Beams	(kg)	20100
Ancillaries *	(kg)	19700
Axles	(kg)	116364
TOTAL	(kg)	218216

*ANCILLARIES INCLUDE 2 NO. CONTROL UNITS @ 1500kg EA. & 2 NO. NECK CARRIERS @ 2100kg EA & 2NO. HANGERS 6250kg EA.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	19/11/25	First Issue	CL	TB	
A					
B					

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE NO.
0	10/07/18	AD00013109

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client: Atkins Realis

Project: Cashla Peaker Plant

Title: 317Te Turbine Transport Arrangement
32Ax THP-H-L F5.5 16m Beam with 4.5m Ext

Scale (A3): NTS | Sheet No.: 1 | Total No.: 1

Dwg. No: ALL-A254213-TA-01

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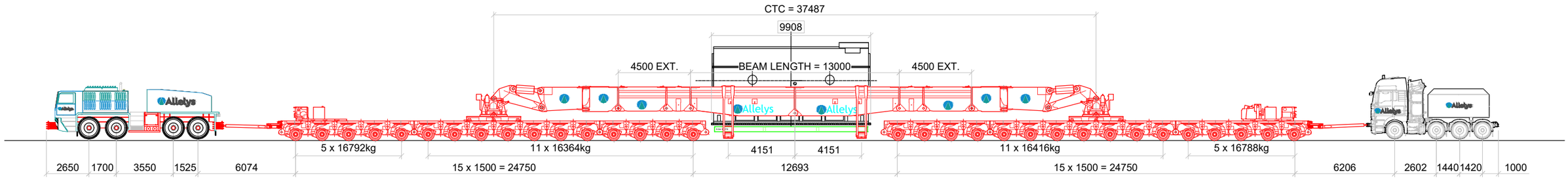
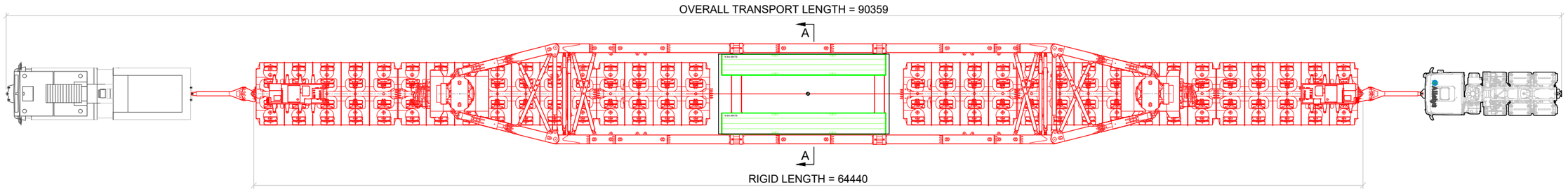
DO NOT SCALE | **IF IN DOUBT ASK**

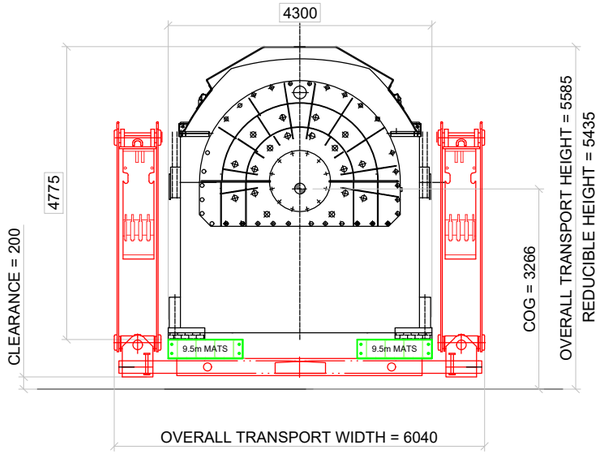


SIDE ELEVATION

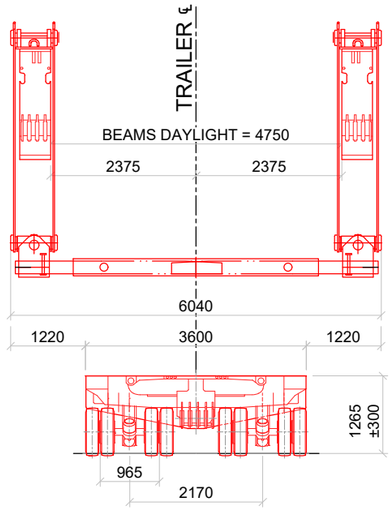


PLAN VIEW

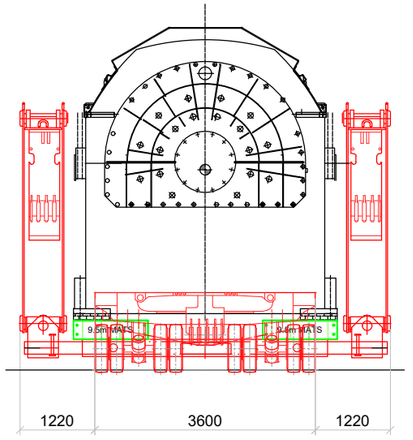
HYDRAULIC CIRCUIT DIAGRAM



SECTION A-A



TRAILER / BEAM DETAIL



LOAD PROJECTION

DRAWING/TECHNICAL NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN kg (KILO GRAMS) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.
5. SUITABLE TRANSPORT LASHINGS TO BE APPLIED (NOT SHOWN).

FRONT TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	9000
3	15000
4	15000

REAR TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	8000
3	12500
4	12500

LOAD TABLE		
Applied Load Weight	(kg)	307500
Trailer Tare Weight	(kg)	213414
Aux Steel Work Weight	(kg)	7560
Transport Gross Weight	(kg)	528474
Tractor(s) Weight	(kg)	90000
Gross Train Weight	(kg)	618474

GIRDER FRAME BREAKDOWN		
Neck & Support Frame (Front)	(kg)	62052
Transport Beams	(kg)	15400
Ancillaries *	(kg)	18400
Axles	(kg)	117562
TOTAL	(kg)	213414

*ANCILLARIES INCLUDE 2 NO. CONTROL UNITS @ 1500kg EA, 2 NO. NECK CARRIERS @ 1450kg EA AND 2 HANGERS @ 6250kg EA.

REVISION HISTORY					
REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	19/11/25	First Issue	CL	TB	
A					
B					

CLIENT REFERENCE DOCUMENTS		
REV	DATE	DOCUMENT REFERENCE NO.
B	28/11/22	292K485

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Atkins Realis
Project	Cashla Peaker Plant
Title	307.5Te Generator Transport Arrangement 32Ax THP-MT F5.5 13m Beam with 4.5m Ext
Scale (A3)	NTS
Sheet No.	1
Total No.	1
Dwg. No	ALL-A254213-TA-02

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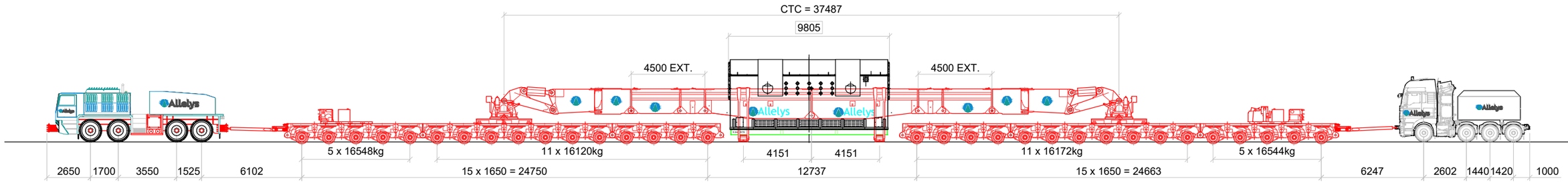
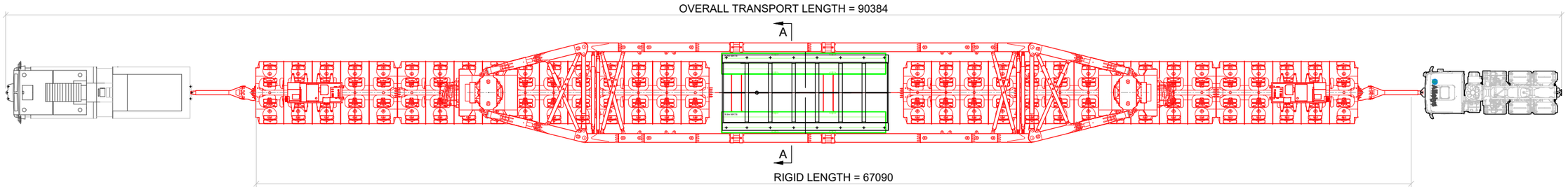
DO NOT SCALE | **IF IN DOUBT ASK**

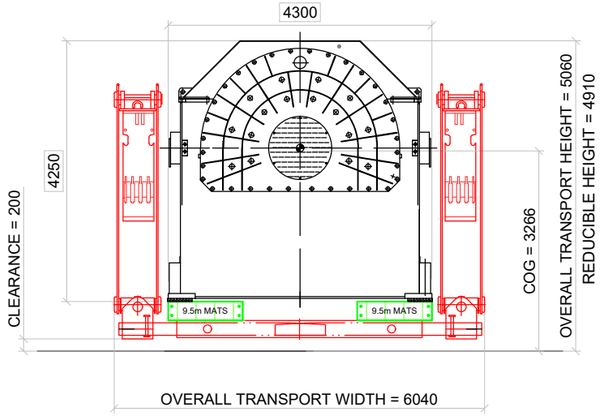


SIDE ELEVATION

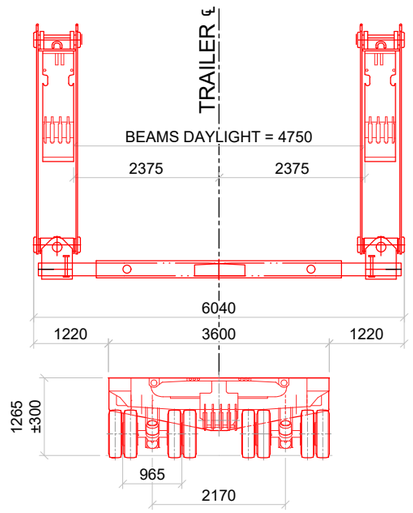


PLAN VIEW

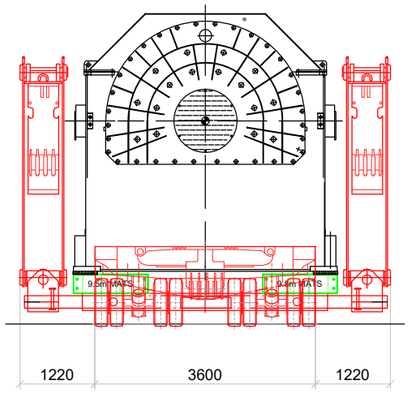
HYDRAULIC CIRCUIT DIAGRAM



SECTION A-A



TRAILER / BEAM DETAIL



LOAD PROJECTION

DRAWING/TECHNICAL NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN kg (KILO GRAMS) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.
5. SUITABLE TRANSPORT LASHINGS TO BE APPLIED (NOT SHOWN).

FRONT TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	9000
3	15000
4	15000

REAR TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	8000
3	12500
4	12500

LOAD TABLE		
Applied Load Weight	(kg)	295000
Trailer Tare Weight	(kg)	218114
Aux Steel Work Weight	(kg)	7560
Transport Gross Weight	(kg)	520674
Tractor(s) Weight	(kg)	90000
Gross Train Weight	(kg)	610674

GIRDER FRAME BREAKDOWN		
Neck & Support Frame (Front)	(kg)	62052
Transport Beams	(kg)	20100
Ancillaries *	(kg)	18400
Axles	(kg)	117562
TOTAL	(kg)	218114

*ANCILLARIES INCLUDE 2 NO. CONTROL UNITS @ 1500kg EA, 2 NO. NECK CARRIERS @ 1450kg EA AND 2 HANGERS @ 6250kg EA.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	19/11/25	First Issue	CL	TB	
A					
B					

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE NO.
1	21/10/25	D281295

Allelys
The Slough, Studley, Warwickshire, B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client: Atkins Realis

Project: Cashla Peaker Plant

Title: 295Te Generator Transport Arrangement
32Ax THP-H-L F5.5 13m Beam with 4.5m Ext

Scale (A3): NTS | Sheet No.: 1 | Total No.: 1

Dwg. No: ALL-A254213-TA-03

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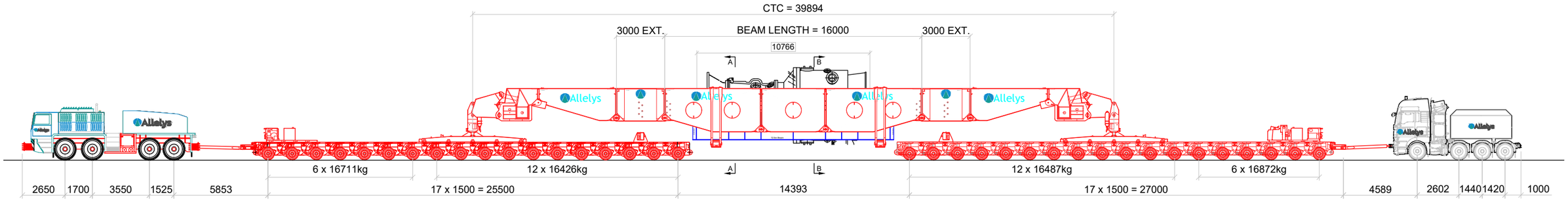
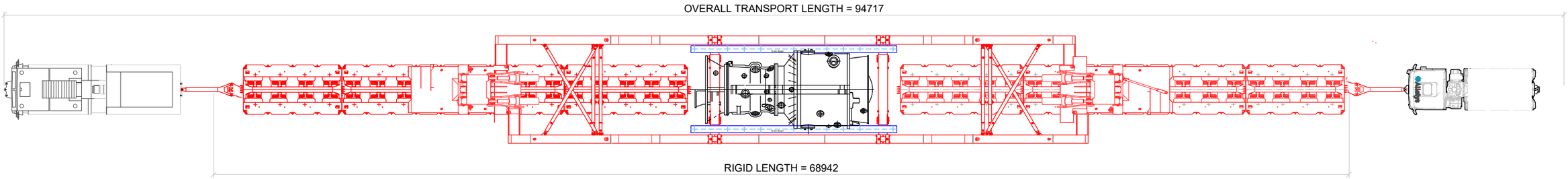
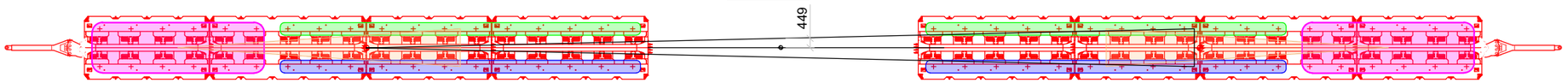


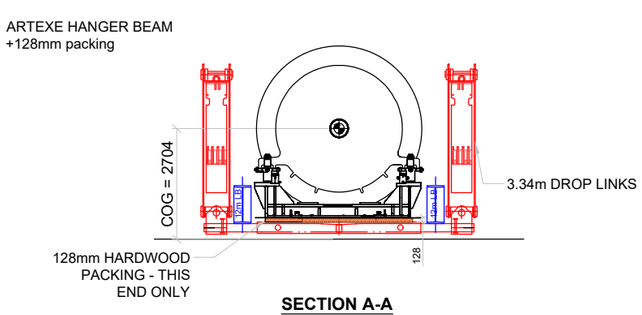
SIDE ELEVATION



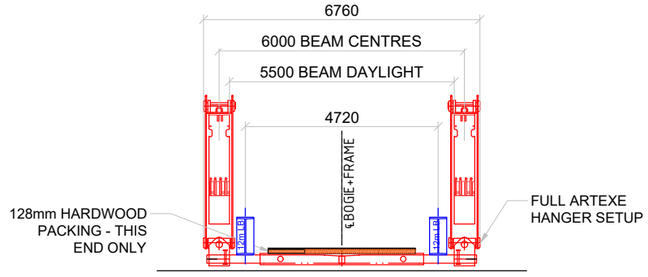
PLAN VIEW



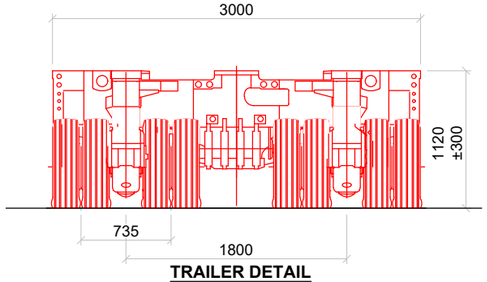
HYDRAULIC CIRCUIT DIAGRAM



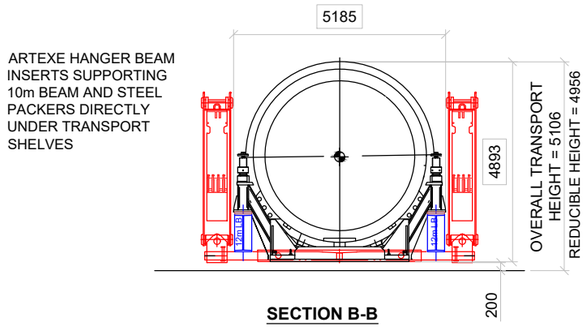
SECTION A-A



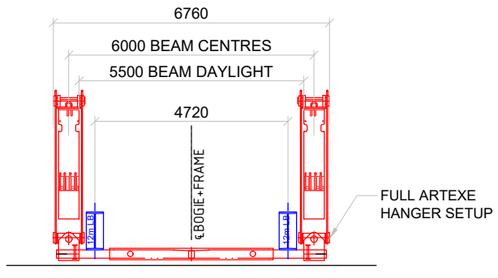
BEAM DETAIL A



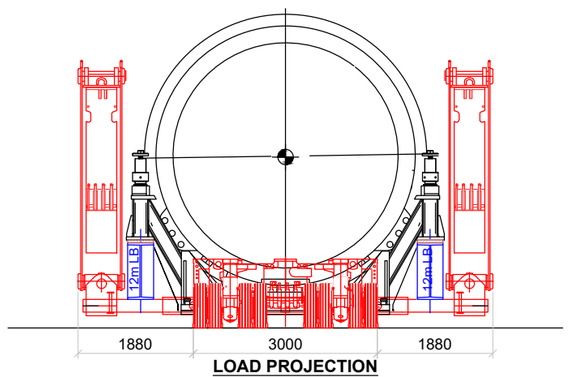
TRAILER DETAIL



SECTION B-B



BEAM DETAIL B



LOAD PROJECTION

DRAWING/TECHNICAL NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN kg (KILO GRAMS) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.
5. SUITABLE TRANSPORT LASHINGS TO BE APPLIED (NOT SHOWN).

FRONT TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	9000
3	15000
4	15000

REAR TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	8000
3	12500
4	12500

LOAD TABLE		
Applied Load Weight	(kg)	332000
Trailer Tare Weight	(kg)	256845
Aux Steel Work Weight	(kg)	7600
Transport Gross Weight	(kg)	596445
Tractor(s) Weight	(kg)	90000
Gross Train Weight	(kg)	686445

GIRDER FRAME BREAKDOWN		
Neck & Support Frame (Front)	(kg)	89301
Transport Beams	(kg)	24110
Ancillaries *	(kg)	17500
Axles	(kg)	125934
TOTAL	(kg)	256845

*ANCILLARIES INCLUDE 2 NO. CONTROL UNITS @ 1400kg & 2600kg, 2 NO. NECK CARRIERS @ 1450kg EA AND 2 HANGERS @ 5300kg EA.

REVISION HISTORY					
REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	19/11/25	First Issue	CL		
A					
B					

CLIENT REFERENCE DOCUMENTS	
REV	DATE	DOCUMENT REFERENCE NO.
16	07/2022	SGT5-4000F

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The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Atkins Realis
Project	Cashla Peaker Plant
Title	332Te TurbineTransport Arrangement 36Ax F5 16m Beam with 3m Ext
Scale (A3)	NTS
Sheet No.	1
Total No.	1
Dwg. No	ALL-A254213-TA-04

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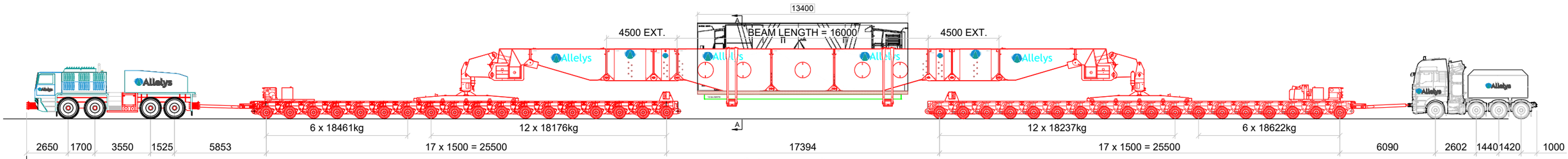
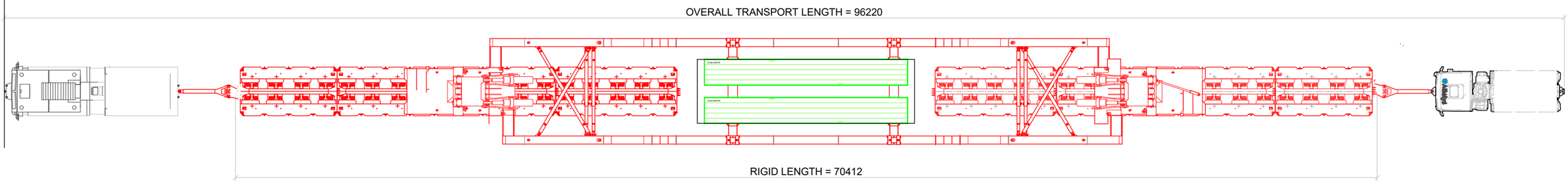
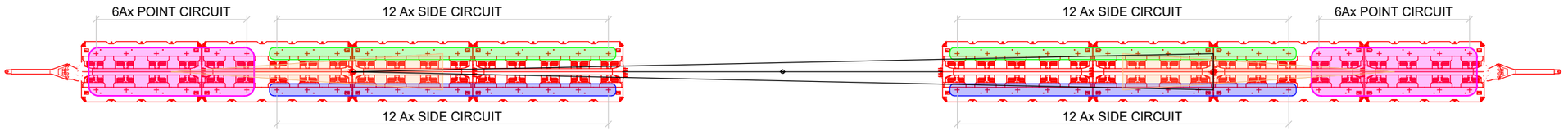
DO NOT SCALE | **IF IN DOUBT ASK**



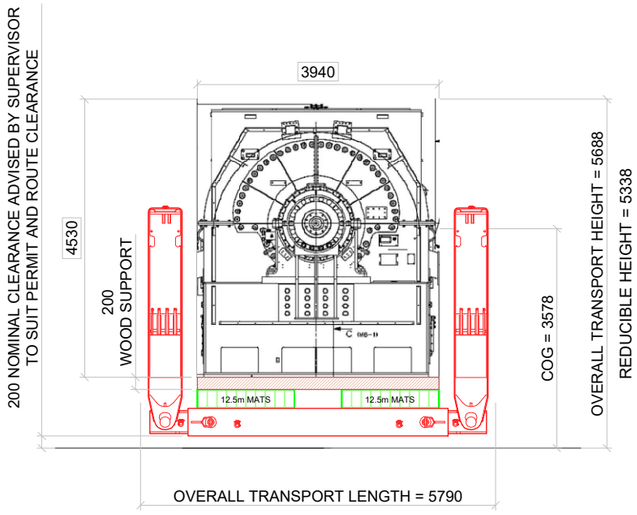
SIDE ELEVATION



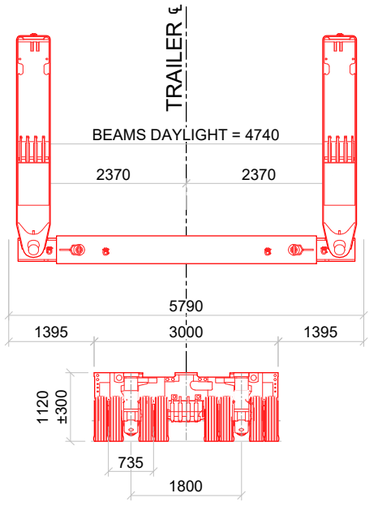
PLAN VIEW



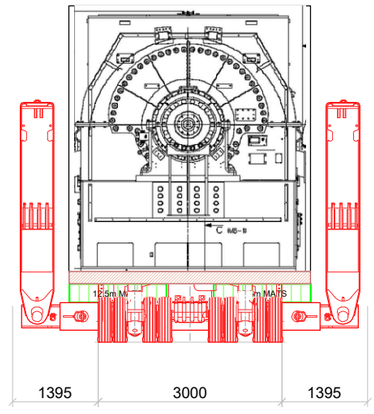
HYDRAULIC CIRCUIT DIAGRAM



SECTION A-A



TRAILER / BEAM DETAIL



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FRONT TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	9000
3	15000
4	15000

REAR TRACTOR AXLE LOADS	
AXLE NO.	AXLE LOAD (kg)
1	9000
2	8000
3	12500
4	12500

LOAD TABLE		
Applied Load Weight	(kg)	376000
Trailer Tare Weight	(kg)	263445
Aux Steel Work Weight	(kg)	20000
Transport Gross Weight	(kg)	659445
Tractor(s) Weight	(kg)	90000
Gross Train Weight	(kg)	749445

GIRDER FRAME BREAKDOWN		
Neck & Support Frame (Front)	(kg)	95901
Transport Beams	(kg)	24110
Ancillaries *	(kg)	17500
Axles	(kg)	125934
TOTAL	(kg)	263445

*ANCILLARIES INCLUDE 2 NO. CONTROL UNITS @ 1400kg & 2600kg, 2 NO. NECK CARRIERS @ 1450kg EA AND 2 HANGERS @ 5300kg EA.

REVISION HISTORY					
REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	04/11/25	First Issue	CL	TB	SKO
A					
B					

CLIENT REFERENCE DOCUMENTS		
REV	DATE	DOCUMENT REFERENCE NO.
16	07/2022	SGT5-4000F

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Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Atkins Realis
Project	Cashla Peaker Plant
Title	376Te Generator Transport Arrangement 36Ax F5 16m Beam with 4.5m Ext
Scale (A3)	NTS
Sheet No.	1
Total No.	1
Dwg. No	ALL-A254213-TA-05

AtkinsRéalis

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