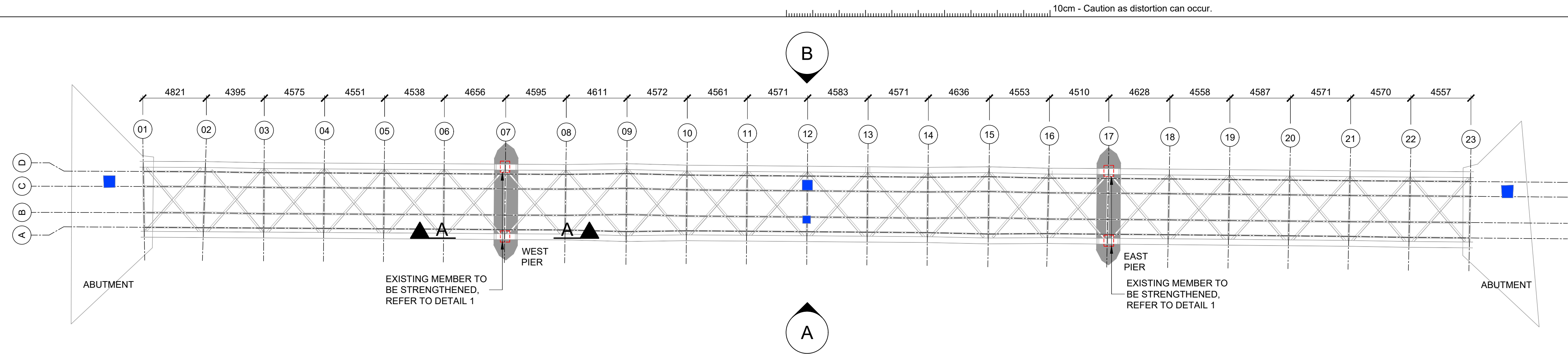
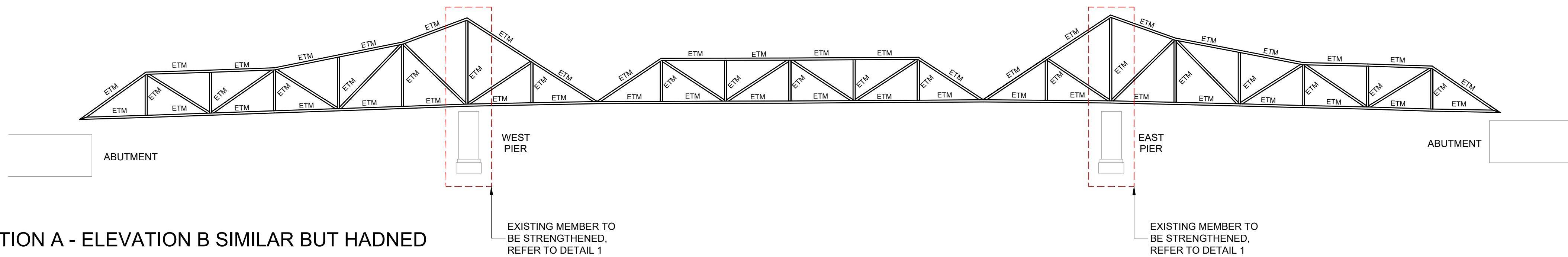


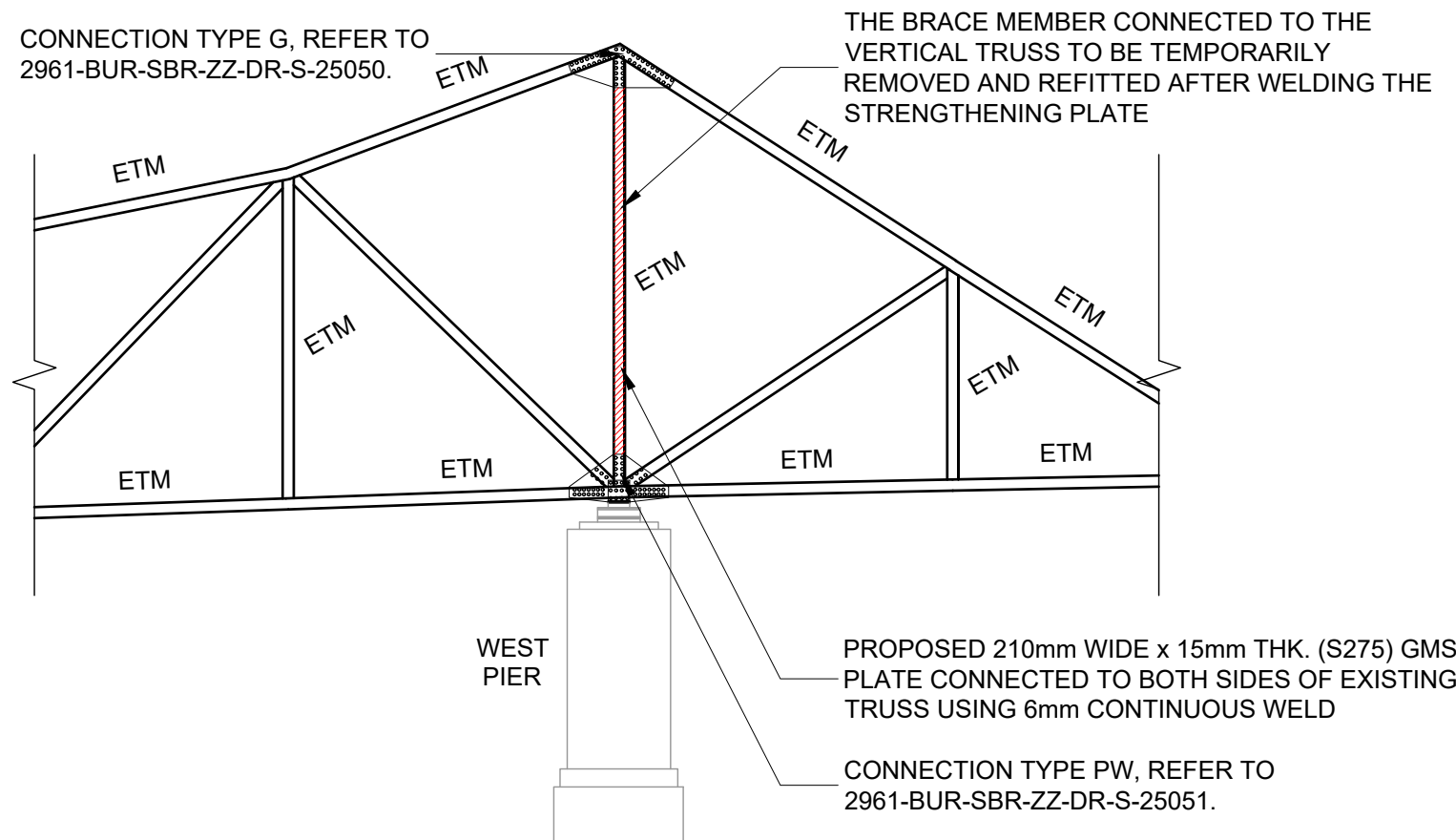
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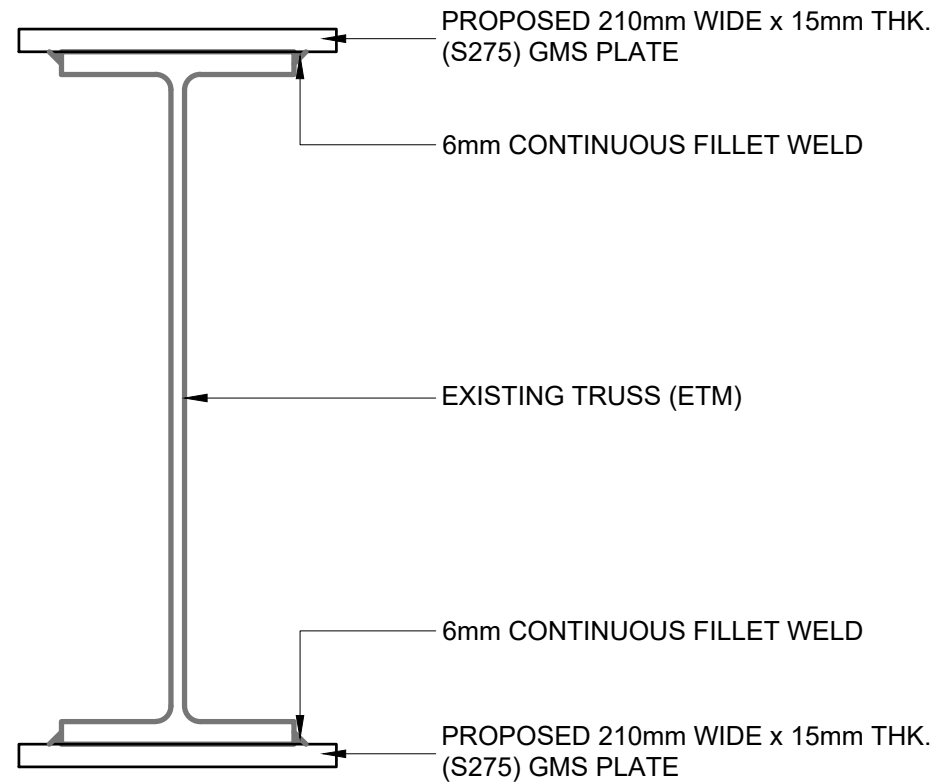
PROPOSED STRENGTHENING WORKS PLAN FOR EXISTING BRIDGE
SCALE 1:200



ELEVATION A - ELEVATION B SIMILAR BUT HADNED
SCALE 1:200



SECTION A - A
SCALE 1:100



DETAIL 1 - PROPOSED STRENGTHENING WORKS ON EXISTING TRUSS
SCALE 1:5

EXISTING STEEL MEMBER SCHEDULE		
REF.	APPROX. STEEL MEMBER SIZE	GRADE
ESB1	UB 356x127x33	S235
ESB2	PFC 305x89x42	S235
ESB3	UB 356x127x33	S235
EBR1 (HOR. BRACE)	150x75x15 UEA	S235
EXISTING PARAPET RAILING	CHS 48x5	S235
WIRE MESH	50x50x4	S235
EBR2 (DIA. BRACE)	2No. RSA 60x60x6	S235
ESB4 (TOP BRACE)	UC 152x152x23	S235
ETM (EXISTING TRUSS MEMBER)	UB 457x152x67	S235

DESIGNER CONSIDERATION

- LOADING CONSIDERED ON THE BRIDGE:
DEAD LOAD
 - ASSUMED SELF-WEIGHT OF 450mm DIA. PIPELINES = 0.6kN/m^2 .
 - ASSUMED SELF-WEIGHT OF 600mm DIA. PIPELINES = 0.85kN/m^2 .
 - NEW GRP DECK = 0.31kN/m^2 .IMPOSED LOAD
 - PEDESTRIAN / CYCLING UDL = 2.94kN/m^2 .
 - CONCENTRATED LOAD = 10kN .
 - SERVICE VEHICLES ARE CONSIDERED NOT TO BE CARRIED ON THE BRIDGE.WIND LOAD
 - PEAK VELOCITY PRESSURE $q_p(z) = 0.86\text{kN/m}^2$.
- ASSUMPTION DURING CONSTRUCTION:
 - CONSTRUCTION PERIOD = 2 YEARS.
 - THE BRIDGE WILL NOT BE IN USE DURING THE CONSTRUCTION.
 - THE EQUIPMENT / PLANT WILL BE OPERATED / TRANSPORTED IN BETWEEN THE 2 MAIN WATER PIPES.
 - ONLY ONE EQUIPMENT / PLANT WILL BE USED AT THE SAME TIME ON THE BRIDGE.
- CONSTRUCTION SEQUENCE CONSIDERED IN THE DESIGN:
 - ERECT THE SCAFFOLDING LOCALLY FOR THE STRENGTHENING WORK OF VERTICAL TRUSS MEMBERS. (SCENARIO 1)
 - ERECT THE LIGHT DUTY SCAFFOLD LOCALLY. (SCENARIO 1)
 - STRENGTHENING WORK FOR THE VERTICAL TRUSS MEMBERS. SPIDER CRANE/ FLEXI-MOVER IS USED IN THE CONTRACTOR PROPOSAL. (SCENARIO 1)
 - REMOVE THE LOCAL SCAFFOLD. (SCENARIO 2)
 - ERECT THE UNDERSIDE SCAFFOLD. (SCENARIO 2)
 - REPLACE THE EXISTING TIMBER DECK. NO EQUIPMENT/ PLANT IS USED IN THE CONTRACTOR PROPOSAL. (SCENARIO 2)
 - REMOVE THE UNDERSIDE SCAFFOLD. (SCENARIO 3)
 - INSTALL NEW OVER DECK. TMC 060 TRACKED PICK & CARRY CRANE/ FLEX-MOVER IS USED IN THE CONTRACTOR PROPOSAL. (SCENARIO 3)
 - INSTALL PARAPET (SCENARIO 3)

CONSTRUCTION SCENARIO 1 - INSTALLATION OF STRENGTHENING PLATES

DESIGNER CONSIDERATION:

- EXISTING TIMBER DECK WEIGHT = 0.44kN/m^2 .
- MAXIMUM SCAFFOLD WEIGHT = 0.7kN/m^2 (SCAFFOLD CAN ONLY BE INSTALLED EVENLY FROM GRID 01 TO GRID 08 / GRID 17 TO GRID 23)
- EQUIPMENT / PLANT USED IN SCENARIO 1 - UNIC URW-094 - MINI SPIDER CRANE, FLEXI-MOVER.
- MAX. POINT LOAD OF EQUIPMENT / PLANT (INCLUDING OPERATOR / WELDER) CONSIDERED AT THE SAME TIME ON THE BRIDGE = 7.5kN (EACH AXLE) $\times 2 = 15\text{kN}$. (NO OTHER IMPOSED LOAD IS ALLOWED)
- ONLY ONE EQUIPMENT / PLANT WILL BE USED AT THE SAME TIME ON THE BRIDGE.

CONSTRUCTION SCENARIO 2 - REMOVAL OF EXISTING DECK AND INSTALLATION OF NEW LOWER DECK

DESIGNER CONSIDERATION:

- NEW GRP DECK = 0.31kN/m^2 .
- MAX. POINT LOAD DUE TO UNDERSIDE SCAFFOLD ACTED ON EACH VERTICAL TRUSS MEMBER = 10.6kN . (SCAFFOLD IS ASSUMED TO BE INSTALLED EVENLY ON THE EXISTING TRUSS).
- DESIGN IMPOSED LOAD = 1.5kPa (EVENLY DISTRIBUTED).
- NO PLANT / EQUIPMENT IS USED IN THIS SCENARIO.

CONSTRUCTION SCENARIO 3 - INSTALLATION OF NEW UPPER DECK

DESIGNER CONSIDERATION:

- NEW GRP DECK = 0.31kN/m^2 .
- DESIGN IMPOSED LOAD = 1.5kPa (EVENLY DISTRIBUTED).
- MACHINERY USED IN SCENARIO 3 = TMC 060 TRACKED PICK & CARRY CRANE, FLEXI-MOVER.
- MAX. POINT LOAD OF EQUIPMENT/PLANT (INCLUDING OPERATOR, WELDER) CONSIDERED AT THE SAME TIME ON THE BRIDGE = 5.25kN (EACH AXLE) $\times 2 = 10.5\text{kN}$.
- ONLY ONE EQUIPMENT / PLANT WILL BE USED AT THE SAME TIME ON THE BRIDGE.

Burroughs

Project:

DOLGARROG PIPE BRIDGE CONWY

LEGEND:

- EXISTING ABOVE GROUND VALVE HOUSING

DRAWING NOTES:

- ALL LEVELS ARE IN METERS (m) AND DIMENSIONS ARE IN MILLIMETRES (mm), UNLESS OTHERWISE STATED.
- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL STRUCTURAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION.
- ALL PROPOSED STEELWORK SHALL BE GALVANISED AND GRADE S355.
- ALL WELDING SHALL BE 6mm FILLET WELDS ALL ROUND UNLESS OTHERWISE STATED.
- ALL STRUCTURAL STEEL TO BE CLEANED OF LOOSE SCALE AND ANTI RUST.
- ALIGN STRUCTURAL MEMBERS ACCURATELY TO THE SPECIFIED TOLERANCE IN ACCORDANCE WITH THE NATIONAL STRUCTURAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION.
- BOLTED CONNECTIONS UTILISE MINIMUM CLASS 8.8 TO BS EN 1993-1-8:2005.
- EXISTING STEELWORK CORROSION TO BE TREATED BY CLEANING AND PAINTED WITH CAROXIDE ANTI-CORROSIVE METAL PRIMER.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER BURROUGHS PROJECT DRAWINGS AND SPECIFICATIONS.

ALL CIVIL DIMENSIONS ARE IN METRES - ALL STRUCTURAL DIMENSIONS ARE IN MILLIMETRES - ALL LEVELS ARE IN METRES.

Approved By: T CHAN

Date: 21/01/2022

Checked By: T CHAN

Date: 20/01/2022

Drawn By: C WELLS

Date: 18/01/2022

Checked By: T CHAN

REV.	DESCRIPTION	DATE	DRW.	CHK.
S3-P2.0	ISSUED FOR REVIEW & COMMENT	18/01/2022	C.W.	T.C.
S2-P1.0	ORIGINAL ISSUE	21/01/2022	C.W.	T.C.

SERIES 2500 - SPECIAL STRUCTURES PROPOSED STRENGTHENING WORKS FOR EXISTING BRIDGE

Burroughs Project No.: 4296100 Scale: AS SHOWN Original Paper Size: A1

Drawing Number: 2961-BUR-SBR-ZZ-DR-S-25010

Status: S3 - FOR REVIEW & COMMENT

Revision: P2.0 - ISSUED FOR REVIEW & COMMENT

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