STATED OTHERWISE.

- 1. ALL DIMENSIONS IN MILLIMETRES UNLESS STATED OTHERWISE
- 2. THE CONTRACTOR TO CHECK ALL DIMENSIONS ON SITE AND REPORT ANY DIFFERENCE TO THE DESIGNER.
- 3. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS
- 4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH:
- 3255-MHB-DRG-301 EXISTING GENERAL ARRANGEMENT
- 3255-MHB-DRG-310 GENERAL ARRANGEMENT OF PROPOSED WORKS WITH PRECAST UNITS
- 3255-MHB-DRG-311 PROPOSED SECTIONS 10F 2
- 3255-MHB-DRG-312 PROPOSED SECTIONS 2 OF 2 • 3255-MHB-DRG-315 PROPOSED PIER ELEVATIONS 1 OF 2
- 3255-MHB-DRG-316 PROPOSED PIER ELEVATIONS 2 OF 2
- 3255-MHB-DRG-321 PROPOSED DETAILS 1 OF 3 • 3255-MHB-DRG-322 PROPOSED DETAILS 2 OF 3
- 3255-MHB-DRG-323 PROPOSED DETAILS 3 OF 3
- 5. DRAWINGS BASED ON TOPOGRAPHICAL SURVEY CARRIED OUT IN APR 2021 BY ASPECT LAND + HYDROGRAPHIC SURVEYS AND SITE INFORMATION PROVIDED BY THE ACC.
- 6. TYPICAL HAZARDS THAT SHOULD BE IDENTIFIED BY A COMPETENT CONTRACTOR ARE NOT INCLUDED. THE CONTRACTOR SHALL CARRY OUT THE WORKS USING AN APPROPRIATE SYSTEM OF WORK. FURTHER INFORMATION ON HAZARDS CAN BE FOUND IN THE DESIGNERS RISK ASSESSMENT 3255-MHB-DRA-002.
- 7. WHERE SHOWN ON THE DRAWING, BED MATERIAL SHALL BE REINSTATED ON TOP OF THE PROSERVE MATTRESS SECTIONS ONCE SUITABLY CURED. ANY ROCKS REMOVED AS PART OF THE EXCAVATION WORKS MAY BE REUSED IN THE MATTRESS TOE PROTECTION ON APPROVAL FROM THE DESIGNER, DEPENDANT ON SIZE, SHAPE AND CONDITION.

8. ALL AREAS OF WORKS TO BE SCANNED WITH APPROVED CAT SCANNER PRIOR TO COMMENCEMENT. IF ANY SERVICES ARE FOUND, DESIGNER TO BE CONTACTED.

## CONCRETE MATTRESS

- 9. CONCRETE SCOUR MATTRESS WITH OUTER EDGES AT THE UPSTREAM AND DOWNSTREAM ENDS AND UNDER SPAN 5 TO BE TOED INTO TRENCHES WHICH ARE BACKFILLED WITH ROCK ARMOUR STONES TO PROVIDE FALLING APRONS.
- 10. CONCRETE MATTRESS PANELS TO BE FILLED WITH A MICRO AGGREGATE SAND CEMENT AND ADMIXTURE SELECTED TO PROVIDE A MIN CHARACTERISTIC 28 DAY COMPRESSIVE CUBE STRENGTH OF 40N/mm<sup>2</sup>.
  - **DESIGN LIFE: 100 YEARS**
- MAX. WATER:CEMENT RATIO: 0.45 CONCRETE TYPE: PLAIN, UNREINFORCED, <10mm AGGREGATE
- MINIMUM CEMENT OR COMBINATION CONTENT: 350 kg/m<sup>3</sup> CONSISTENCE TO BE S4 CLASS - TBC WITH SUPPLIER

## **EXPOSURE CONDITIONS:**

- \*FREEZE-THAW: N/A \*SULPHATES: SEAWATER EXPOSURE
- \*CHLORIDES: N/A
- \*WATER: SEAWATER. PERMANENTLY SUBMERGED
- MIX DESIGN SHALL BE PROVIDED TO THE DESIGNER BY THE CONTRACTOR FOR APPROVAL PRIOR TO DELIVERY.
- 11. THE FABRIC FORMWORK SHALL BE MANUFACTURED FROM A WOVEN POLYAMIDE / POLYPROPYLENE FABRIC AND SHALL BE DESIGNED TO AVOID ENTRAPPED WATER VOIDS.
- 12. MATTRESS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS, DRAWINGS AND DETAILS.
- 13. SPECIFICATION AND TESTING OF MATTRESS FILL GROUT SHALL BE IN ACCORDANCE WITH MCHW VO1. SPECIFICATION FOR HIGHWAYWORKS SERIES 1700 STRUCTURAL CONCRETE, BS 8500 AND BS-EN-206-2013.
- 14. 4No. OF SAMPLES TO BE TAKEN EVERY THREE LOADS AND TESTED AT 3, 7 AND 28 DAYS TO ENSURE 28 DAYS TO ENSURE 28 DAY OF 40N/mm2

# PRECAST UNITS

- 15. ALL LIFTING POINTS TO BE FILLED WITH GROUT AFTER PRECAST INSTALLATION.
- 16. GROUT FOR FILLING PRECAST HOLES TO BE FIVE STAR ALL PURPOSE GROUT OR SIMILAR APPROVED.
- 17. ADDITIONAL 10mm CHAMFER TO BE APPLIED TO ALL EXPOSED CONCRETE ARISINGS.
- 18. CONCRETE BACKFILL TO BE POURED IN MAX 450mm HIGH LIFTS. EACH LAYER TO BE PLACED AFTER THE PREVIOUS LAYER HAS
- 19. CONCRETE USED FOR BACKFILL TO BE GEN1 ST3 TO BS 8500-1

ONCRETE SPECIFICATION FOR PRECAST UNITS IN
CCORDANCE WITH BS8500-1:2023

COMPRESSIVE STRENGTH CLASS	C40/50
MINIMUM CHARACTERISTIC CUBE STRENGTH AT 28 DAYS	50N/mm <sup>2</sup>
MAXIMUM AGGREGATE SIZE	20mm
REINFORCEMENT COVER C <sub>NOM</sub>	EXPOSED FACE: 55mm+-5mm HIDDEN FACE: 45mm+-5mm
MAXIMUM FREE WATER CEMENT RATIO	0.45
MINIMUM CEMENT OR COMBINATION CONTENT	360kg/m <sup>3</sup>
CEMENT TYPE	A4, E4, F4
CONSISTENCE CLASS	S3
EXPOSURE CLASS	XC3/XC4, XD3, XS1
AGGREGATES	N/A

### CONCRETE SPECIFICATION FOR IN SITU CAST CONCRETE PADS IN ACCORDANCE WITH BS8500-1:2023

C32/40
40N/mm <sup>2</sup>
20mm
50mm+-10mm
0.60
280
A1, A2, A3, A4, B1, B2, C1, D1, D2, D3, F4, G1
S3
XC1
N/A

- 20. PRECAST L-UNIT CONCRETE TO BE REINFORCED WITH 2 LAYERS OF DIA 10mm AT 200mm C/C REBAR MESH
- 21. SINCE CONCRETE UNITS ARE TO BE PLACED AT 180 DEGREES TO STANDARD USE - SPECIAL ATTENTION IS TO BE PAID TO CONCRETE COVER ON DIFFERENT FACES.
- 22. L-UNIT WEIGHT (FOR 1750mm) HIGH UNIT IS 0.998T/m

## CONCRETE REINFORCEMENT

23. REINFORCEMENT HIGH YIELD BARS GRADE 500B TO BS 4449: 2005 + A3: 2016.

## STEELWORKS -TBC

- 24. ALL STEEL COMPONENTS TO BE HOT DIP GALVANISED ACCORDING TO BS EN ISO 1461 TO ATTAIN A DESIGN LIFE OF 50 YEARS: MIN.THICKNESS - 140µm
- 25. ALL BOLTS AND ANCHORS TO BE GALVANISED, GRADE 8.8.
- 26. HYBRID MORTAR FOR DOWELS TO BE VJT V420+® v3 OR SIMILAR APPROVED

- 27. CAREFUL EXCAVATION SHOULD BE UNDERTAKEN TO ENSURE NO UNDERMINING OF THE FOUNDATIONS OF THE ABUTMENTS AND
- 28. EXCAVATIONS TO BE LEFT OPEN FOR AS SHORT A TIME AS POSSIBLE AND NO EXCAVATION TO BE LEFT OPEN BETWEEN
- 29. ALL SOFT SPOTS, LOOSE MATERIAL AND TOPSOIL UNDER PRECAST UNITS TO BE REMOVED AND REPLACED WITH COMPACTED FILL.
- 30. FILL BELOW PROPOSED PRECAST UNITS TO BE 300mm MINIMUM THICKNESS OF CLASS 6A MATERIAL OR SIMILAR TO BE COMPACTED IN ACCORDANCE WITH MCHW SERIES 600 TABLE 6/4
- 31. ALL SOFT SPOTS, LOOSE MATERIAL AND TOPSOIL UNDER CONCRETE MATTRESS TO BE REMOVED.
- 32. FORMATION TO BE SOUND AND FREE OF VOIDS (SILTY CLAY OR BETTER) AND IT IS TO BE INSPECTED BY SUITABLY QUALIFIED ENGINEER PRIOR TO PLACING THE PRECAST UNITS AND CONCRETE MATTRESS BY A SUITABLY QUALIFIED ENGINEER.
- 33. FORMATION TO BE LEVELED AS ACCURATELY AS REASONABLY PRACTICABLE: ALL VOIDS TO BE FILLED WITH SITE-WON MATERIAL ALL BULGES TO BE LEVELED - THIS IS TO BE DONE PRIOR TO PLACING THE CONCRETE MATTRESS.
- 34. WHERE RIVER BED MATERIAL HAS BEEN EXCAVATED, MATERIAL TO BE RETAINED AND TO BE REUSED WHERE POSSIBLE.
- 35. NATURAL RIVER BED MATERIAL TO BE PLACED ON TOP OF THE CONCRETE MATTRESS TO REINSTATE NATURAL CONDITIONS.
- 36. ANY ADDITIONAL MATERIAL BROUGHT FROM AN EXTERNAL SOURCE TO REINSTATE EXISTING RIVER BED SHALL BE 6A CLASS, REQUIRED TO BE TESTED IN ACCORDANCE WITH MCHW VOL 1. SPECIFICATION FOR HIGHWAY WORKS SERIES 0600 EARTHWORKS TABLE 6
- 37. EXPECTED MAXIMUM PRESSURE ON FORMATION IS 23kPa
- 38. 2NO PLATE BEARING TESTS ARE TO BE CARRIED OUT AT FORMATION LEVEL OF PRECAST UNITS FOR EACH PIER AND ABUTMENT TO 1.5 WORKING LOAD (1.5 x 23 = 35kPa USING 600mm DIAMETER PLATE AND RESULTS TO BE PASSED TO DESIGNER FOR REVIEW

# **ROCK ARMOUR**

- 39. HEAVY ARMOURSTONE (AS PER EN13383-1 OR WITH A NUL> 300kg) SHALL BE INDIVIDUALLY PLACED TO ACHIEVE A DENSE, FULLY INTERLOCKED ARMOURED SLOPE SO THAT EACH ARMOUR STONE IS SECURELY HELD IN PLACE BY ITS NEIGHBOURS .PLACING SHALL COMMENCE AT THE TOE AND PROCEED UPWARDS TOWARDS THE CREST. STONES SHALL BE LOWERED INTO PLACE INDIVIDUALLY. STONES SHALL BE PLACED IN SUCH WAY THAT THEY OBTAIN THEIR STABILITY FROM INTERLOCKING AND FRICTIONAL RESISTANCE. AND NOT FROM FRICTION ON ONE PLATE ALONE.
- 40. LIGHT ARMOURSTONE (AS PER EN13383-1 OR WITH A NUL< 300kg) MAY BE PLACED WITH SEVERAL STONES AT A TIME.
- 41. TIPPING OF ARMOURSTONE FROM VEHICLES OR BULLDOZING OR

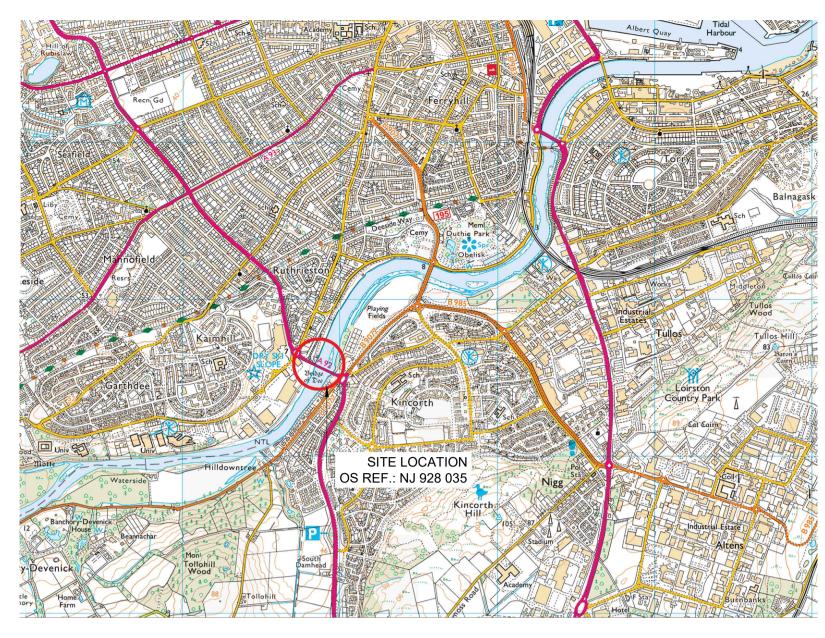
- DUMPING FROM HOPPERS OR BARGES INTO FINAL POSITION SHALL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- 42. ARMOURSTONE SHALL BE PLACED ACCORDING TO ONE OF FOUR RECOGNISED PLACEMENT METHODS DESCRIBED IN THE ROCK MANUAL TO ACHIEVE A MINIMUM "THREE-POINT SUPPORT" AND BE STABLE TO THE LINES AND LEVELS SHOWN ON THE DRAWINGS.
- 43. SPECIFICATION AND TESTING OF STONE FOR SCOUR PROTECTION SHALL BE IN ACCORDANCE WITH BS EN 13383-1, UNLESS IDENTIFIED OTHERWISE.
- 44. THE STONE TO BE USED SHALL BE A NATURAL STONE OF SUITABLE ANGULAR SHAPE, DIMENSION AND WEIGHT. IT SHALL BE HARD, DURABLE AND SOUND, FREE FROM LAMINATIONS, WEAK CLEAVAGE PLANES, AND UNDESIRABLE WEATHERING AND SHALL BE OF SUCH A CHARACTER THAT IT WILL NOT DISINTEGRATE OR ERODE FROM THE ACTION OF AIR, WATER, SALTS, WETTING AND DRYING, FREEZING AND THAWING, OR IMPACT DUE TO WAVE OR WATER FLOW ACTION. IT SHALL ALSO BE CAPABLE OF BEING HANDLED AND PLACED WITHOUT UNDUE FRACTURE OR DAMAGE.
- 45. THE CONTRACTOR TO ENSURE THAT MEASURES ARE TAKEN TO PREVENT POLLUTION OF THE RIVER WITH SUSPENDED SOLIDS, FUELS OR OTHER HARMFUL SUBSTANCES.
- 46. ROCK ARMOUR STONE LENGTH TO THICKNESS RATIO LT∆ SHALL NOT BE MORE THAN 3.
- 47. ROCK ARMOUR STONE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 60MPA (CS<sub>60</sub> IN ACCORDANCE WITH EN 13383-1:2013) AND SHALL BE FREE FROM SIGNIFICANT DISCONTINUITIES THAT COULD LEAD TO BREAKAGE DURING LOADING, UNLOADING OR PLACING.
- 48. STONE USED FOR MATTRESS PROTECTION SHALL BE IN ACCORDANCE WITH BS EN 13383-1:2013 AND BS EN 13383-2:2019. 48.1. GRADE LMB 60/300, FOR MATTRESS TOE TRENCH
- 48.2. GRADE HMA 300/1000 FOR RIVER BANK SCOUR PROTECTION
- 49. GRANULAR FILL USED AT THE MATTRESS TOE TO BE CLASS 6A TO MCHW VOL 1.
- 50. NON-WOVEN GEOTEXTILE IS TO BE PLACED ON SLOPES PRIOR TO PLACING ROCK ARMOUR AS PER DETAIL DRAWINGS.
- 51. NON-WOVEN GEOTEXTILE IS TO BE TERRAM RG4 OR SIMILAR APPROVED, WITH 300mm OVERLAPS BETWEEN CONSECUTIVE SHEETS. OVERLAPS TO BE ORIENTATED TO TAKE ACCOUNT DIRECTION OF FLOW
- 52. ALL FORMATION SURFACES IN CONTACT WITH THE GEOTEXTILE. SHALL NOT HAVE PROTRUSIONS WHICH ARE LIKELY TO DAMAGE THE GEOTEXTILE DURING INSTALLATION OR IN SERVICE. THE METHOD OF INSTALLATION SHALL NOT IMPOSE STRESSES OR STRAINS LIKELY TO CAUSE DAMAGE TO THE GEOTEXTILE AND SHALL ENSURE THAT THE GEOTEXTILE IS IN CONTINUOUS CONTACT WITH THE SURFACE ON WHICH IT IS PLACED WITHOUT STRETCHING OR BRIDGING OVER HUMPS OR HOLLOWS. CONSTRUCTION PLANT MUST NOT OPERATE DIRECTLY ON THE GEOTEXTILE.

# **TEMPORARY WORKS**

53. TEMPORARY WORKS TO BE INSTALLED TO CREATE DRY WORKING AREAS - TEMPORARY DAMS DESIGN TO BE CAPTURED IN A SEPARATE SUBMISSION.



PHOTO 1 - DOWNSTREAM VIEW TO THE BRIDGE SCALE 1:25



SITE LOCATION 1:25 OS MAPS EXTRACT

# SAFETY, HEALTH & ENVIRONMENTAL INFORMATION

THE FOLLOWING NOTES HIGHTLIGHT SIGNFICANT RESIDUAL HAZARDS IDENTIFIED BY THE DESIGNER, TYPICAL HAZARDS THAT SHOULD BE IDENTIFIED BY A COMPETENT CONTRACTOR ARE NOT INCLUDED. THE CONTRACTOR SHALL CARRY OUT THE WORKS USING AN APPROVED SAFE SYSTEM OF WORK.

#	RISK	STAGE	MITIGATING MEASURES
2	Damage to unidentified buried services within the watercourse during excavation	С	All areas of excavation to be scanned with approved equipment prior to breaking ground. Where services are found the designer is to be contacted and liaison to happen with the statutory undertakers.
4	Contamination of watercourse	С	Relevant approvals are in place and any significant deviations from licence requirements must be communicated. Appropriate environmental guidelines to be followed.
5	Flooding, high rising water due to adverse wather causing damage to the works	С	The installation of the main invert shall be unertaken within a bunded working area. Any contamination within the area shall be cleared as detailed within the contractor's method of working.
9	Plant damaging the mattress during works	C/D	Sufficient curing time to be provided for the mattress fill to cure
11	Damage to flood relief tunnel by overloading with site traffic crossing and material storage	С	Contractor to assess the flood relief tunnel for site traffic crossing and material storage
13	Pier apron being shallower, than expected or being made of granular material - risk of instabilityof the apron during the works, increased scope of works	C/D	Bridge and aprons to be visually surveyed and monitored during cutting back of the apron and digging trenches for the L-units.
14	Instability of L-units due to underestimated loads, or apron fill being different, than expected.	C/D	"Contractor to ensure no additional loads are applied to the rear of the sheet piles. Concrete to be poured evenly around the apron.  Contractor to confirm each pier's existing apron material makeup and condition prior to undertaking the works. If the makeup is found to be different from that assumed, contractor is to be contacted immediately. Existing pier aprons are to be visually monitored throughout the works with any significant movement to be passed onto designe for review."
15	Risk of L-unit wall instability and failure due to unknown existing formation material	D	Contractor to confirm proposed L-unit wall's formation is reflective of loose silty clay or better prior to undertaking the works. If the existing formation material is found to be worse than that assumed, designer is to be contacted immediately.
16	Risk of precast unit lifting point and reinforcement corrosion	C/D	Contractor to fill lifting points with grout as per design drawings

STAGE CODE: O = OPERATION C = CONSTRUCTION/ DECOMISSIONING D = DESIGN

P01 31/03/25 DRAFT BZ CS Rev Date Description of Revisions Drawn Chkd Appr DRAFT XTAZIKER

Infrastructure Access Engineering Industria

DO NOT SCALE. Contractor to check all dimensions and report any omissions or errors



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BRIDGE OF DEE **SCOUR PROTECTION** 

Drawing Title

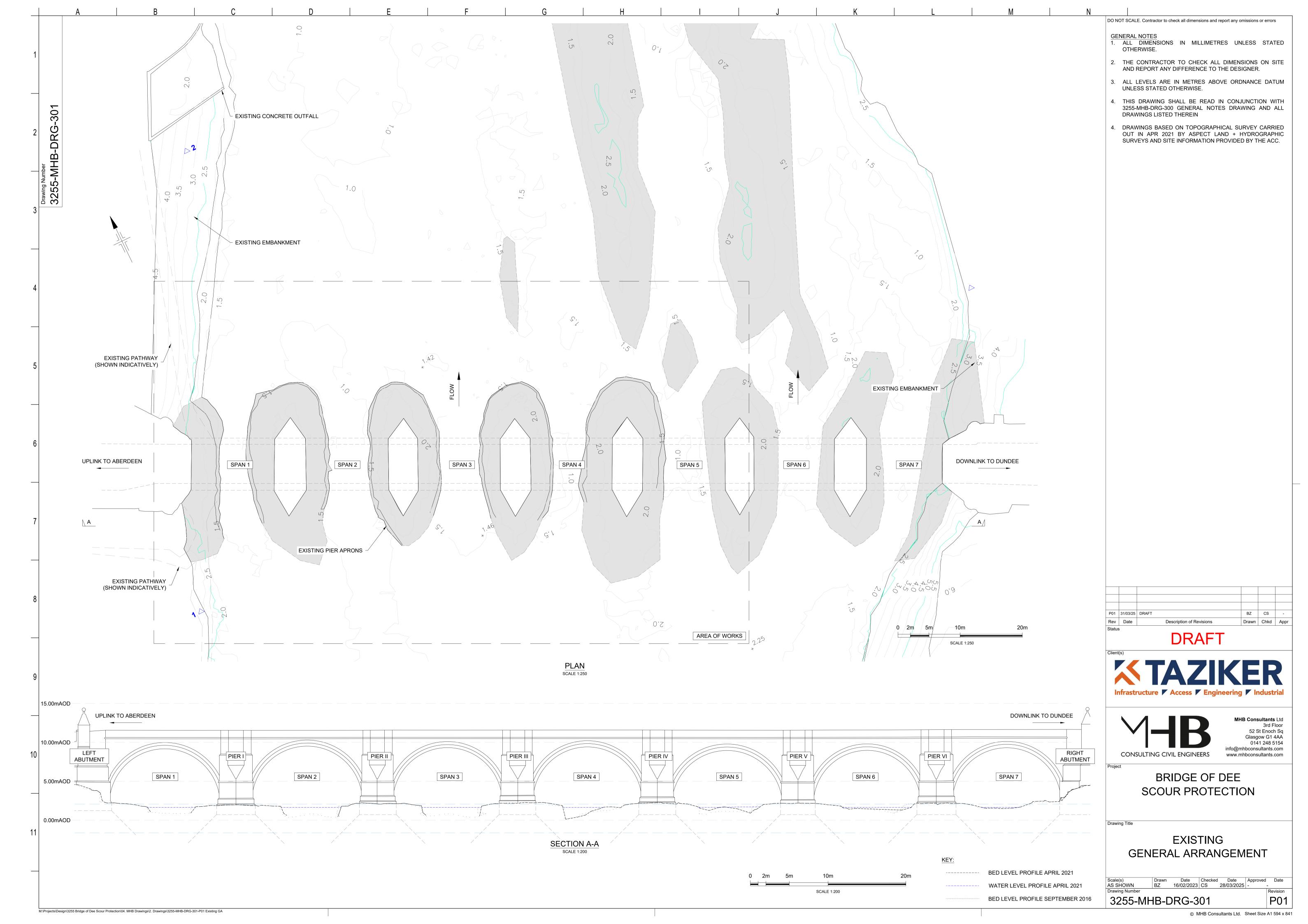
**GENERAL NOTES** 

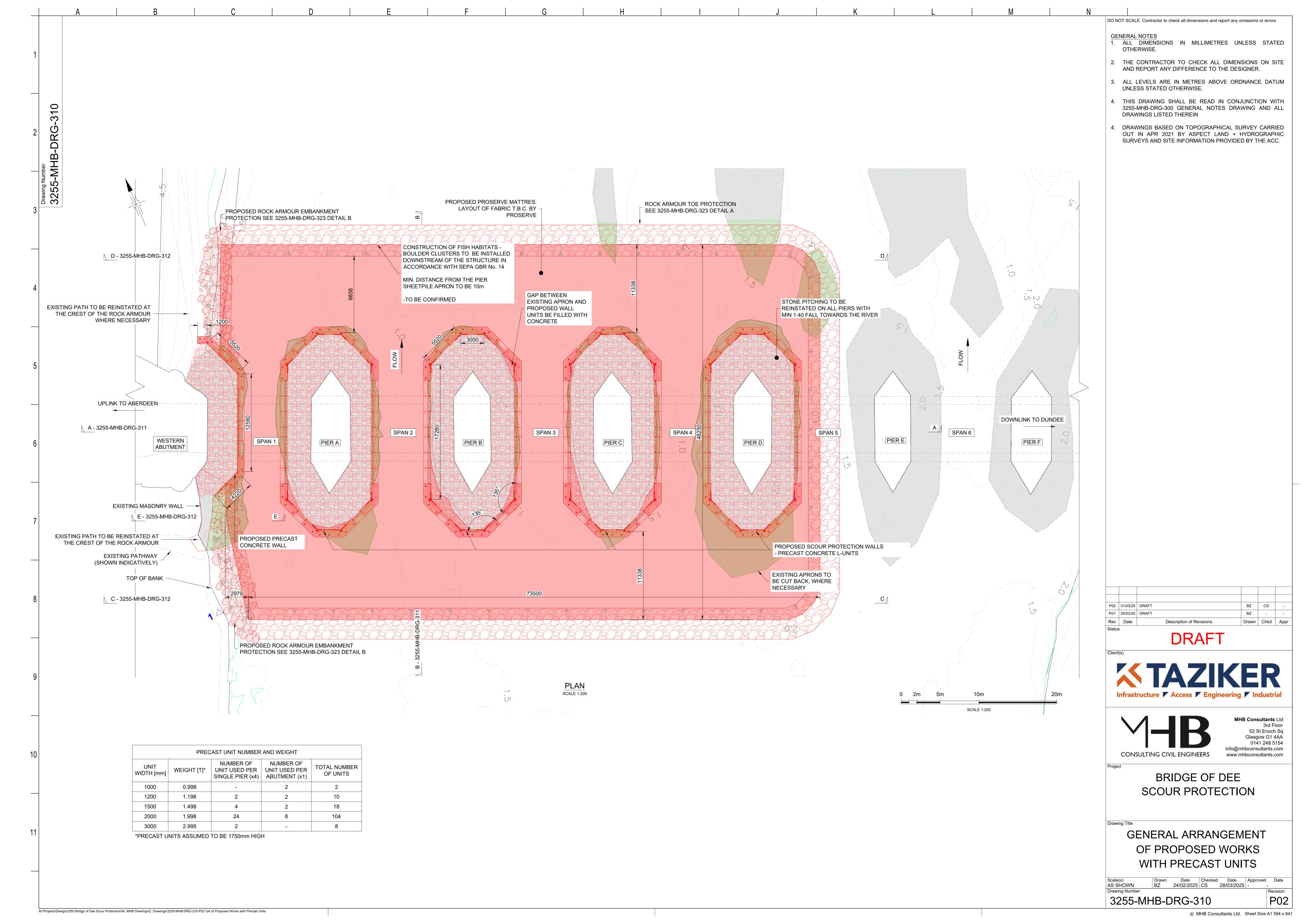
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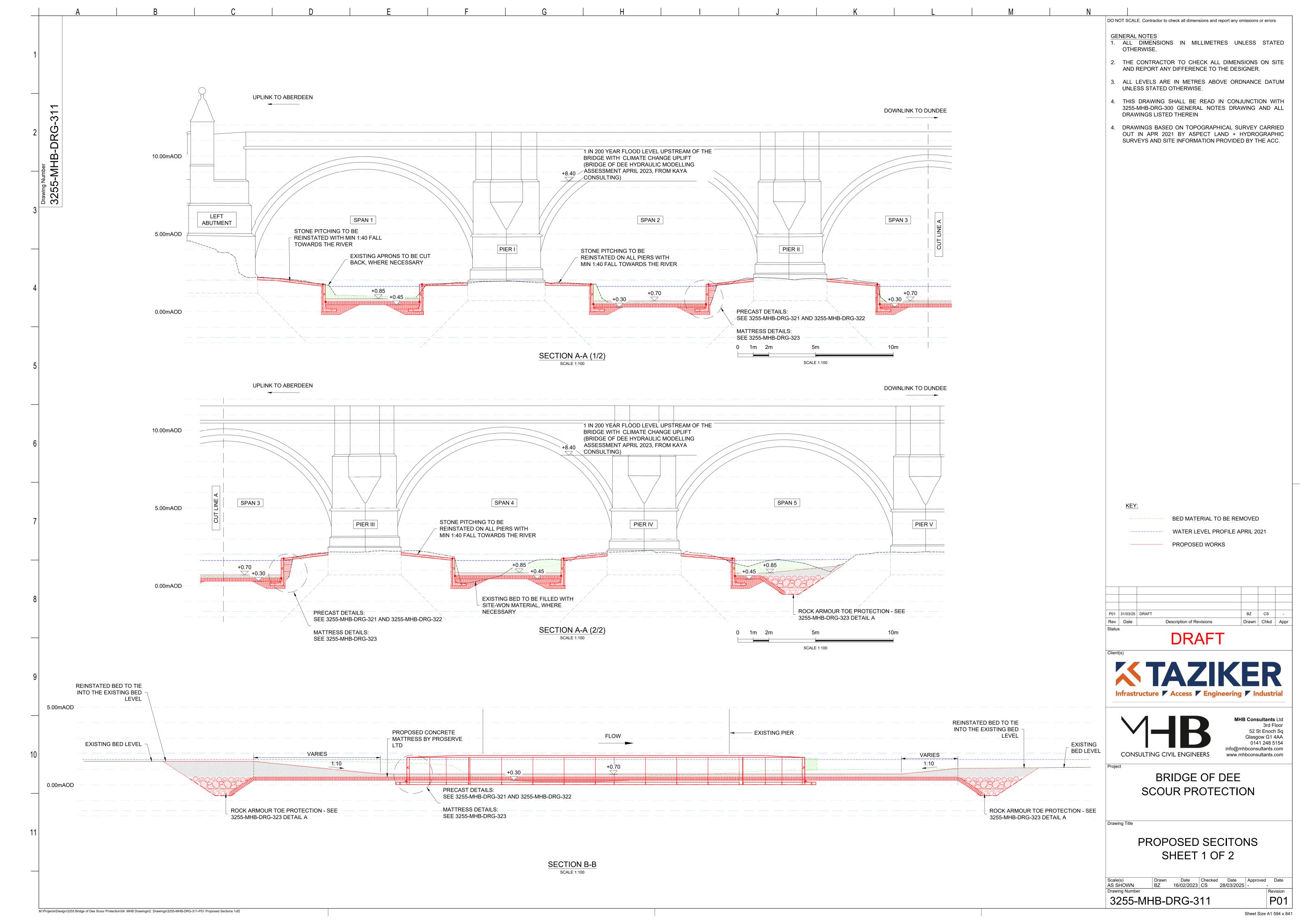
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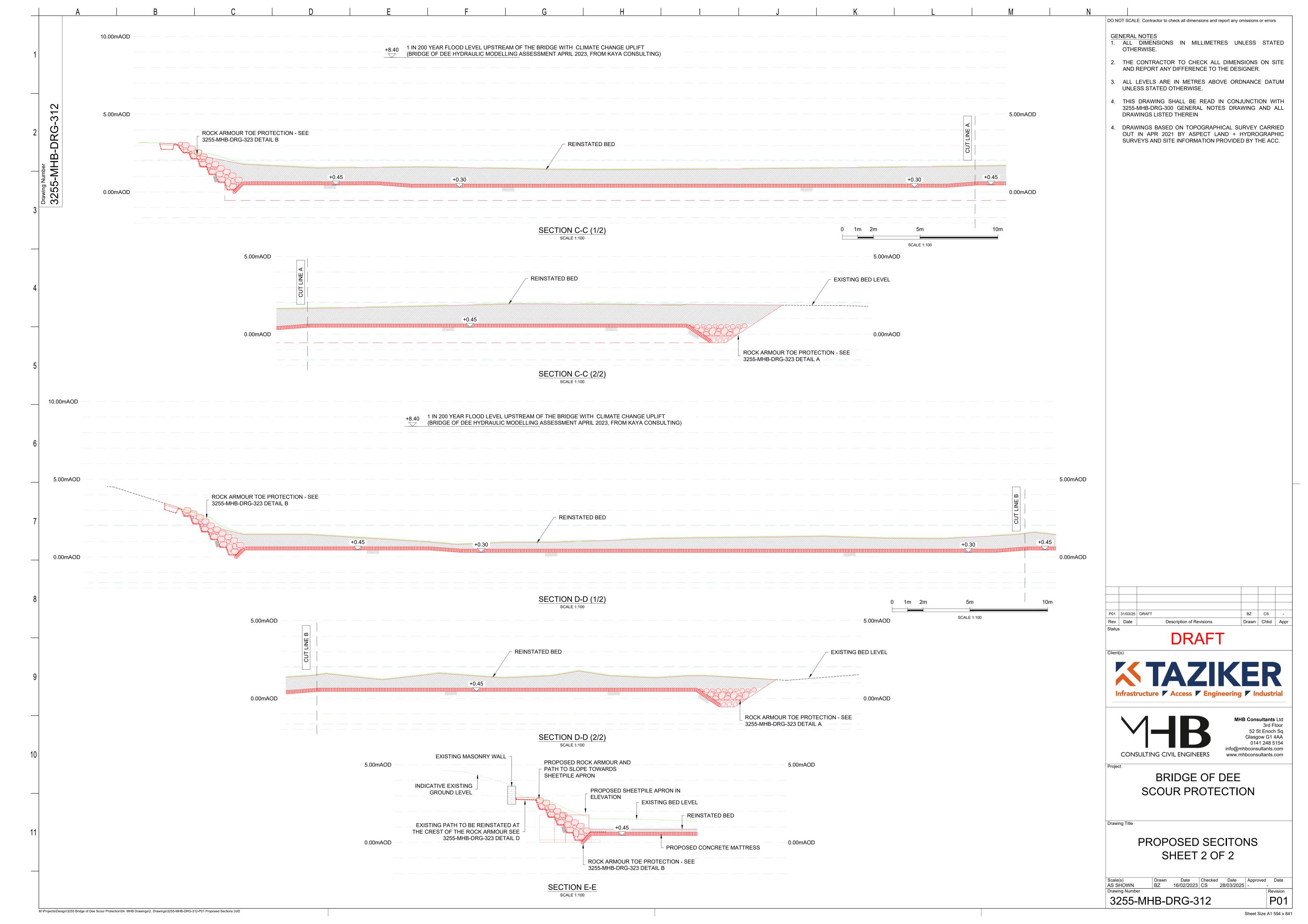
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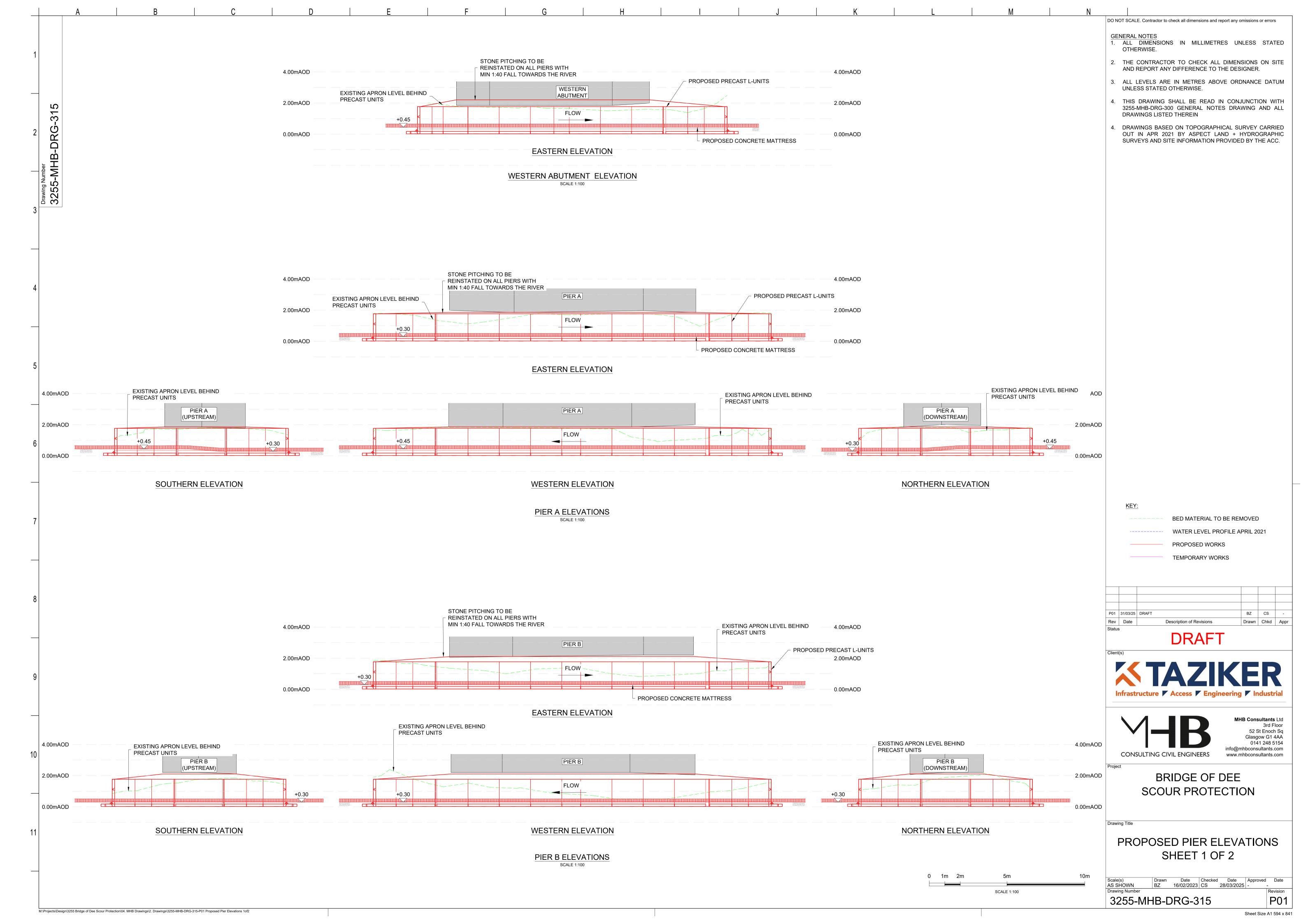
M:\Projects\Design\3255 Bridge of Dee Scour Protection\04. MHB Drawings\2. Drawings\3255-MHB-DRG-300-P01 General Notes

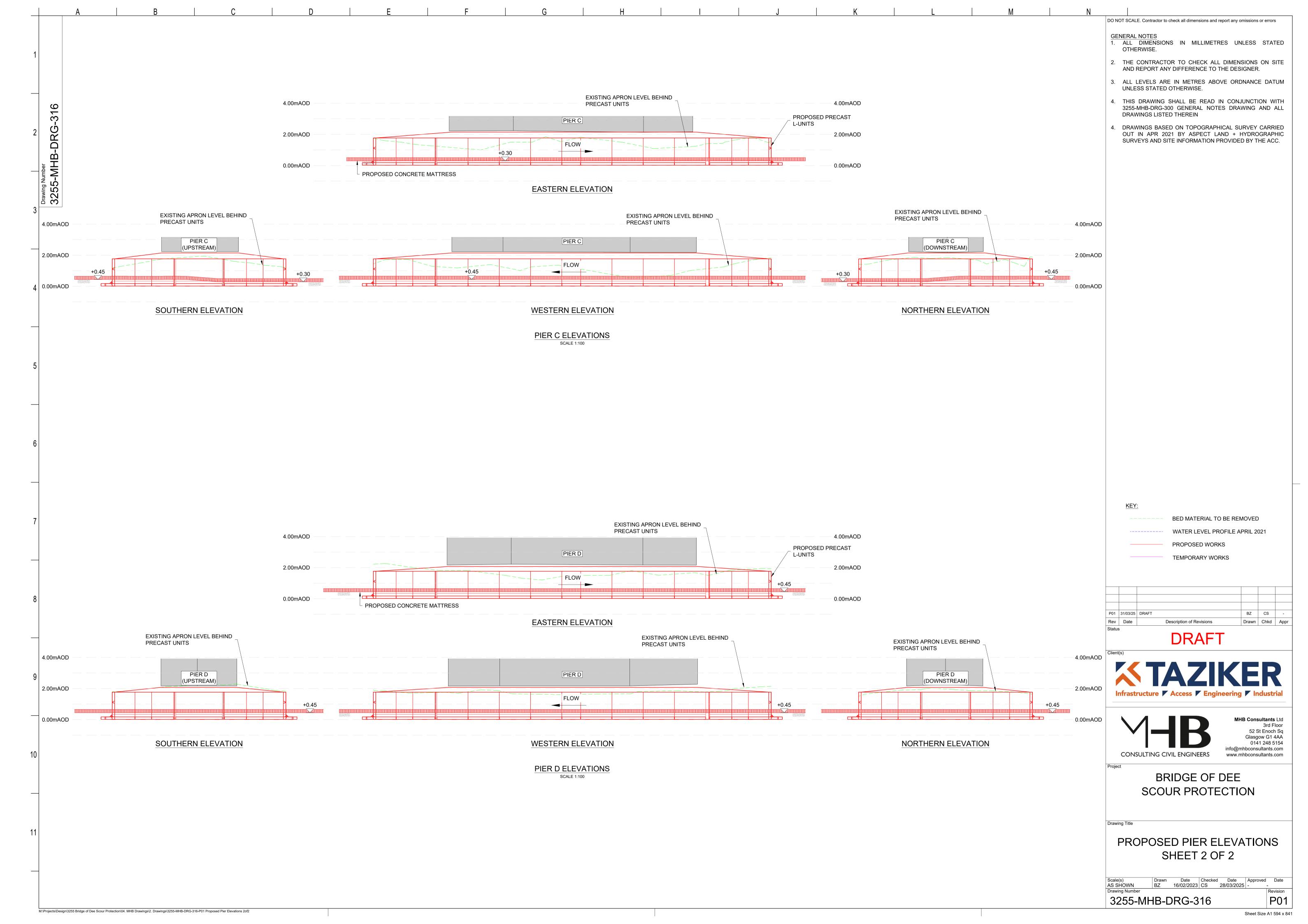


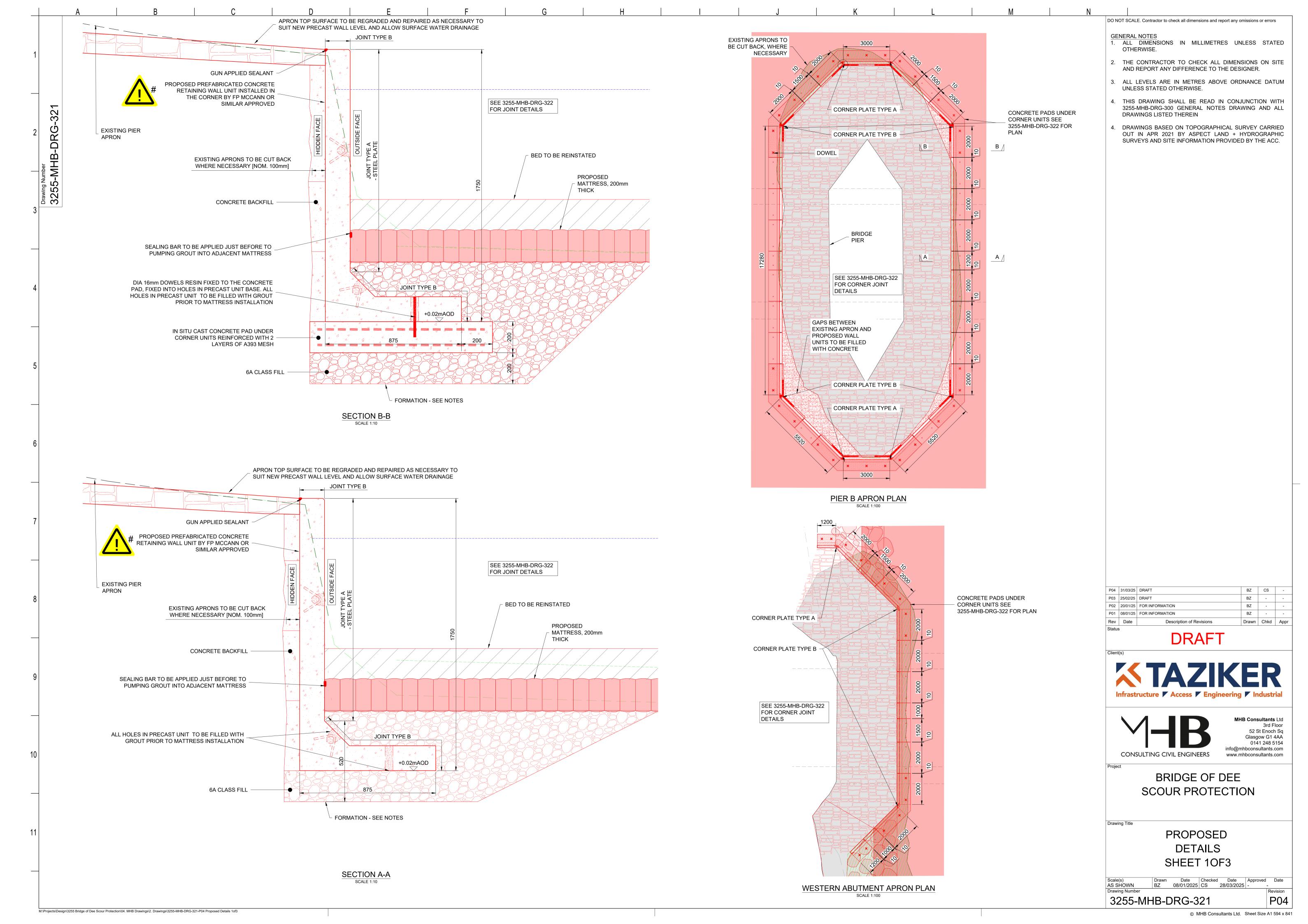












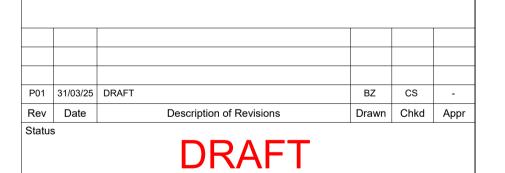
CONCRETE UNIT WALL JOINT TYPE A

DO NOT SCALE. Contractor to check all dimensions and report any omissions or errors

<u>GENERAL NOTES</u>

1. ALL DIMENSIONS IN MILLIMETRES UNLESS STATED

- OTHERWISE.
- 2. THE CONTRACTOR TO CHECK ALL DIMENSIONS ON SITE AND REPORT ANY DIFFERENCE TO THE DESIGNER.
- 3. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE.
- 4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH 3255-MHB-DRG-300 GENERAL NOTES DRAWING AND ALL DRAWINGS LISTED THEREIN
- 4. DRAWINGS BASED ON TOPOGRAPHICAL SURVEY CARRIED OUT IN APR 2021 BY ASPECT LAND + HYDROGRAPHIC SURVEYS AND SITE INFORMATION PROVIDED BY THE ACC.







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Project

BRIDGE OF DEE SCOUR PROTECTION

Drawing Title

CONCRETE UNIT WALL JOINT TYPE B

PROPOSED
DETAILS
SHEET 2 OF 3

Scale(s) Drawn Date Checked Date Approved Date
AS SHOWN BZ 08/01/2025 CS 28/03/2025 - Drawing Number Revision

Drawing Number 3255-MHB-DRG-322

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