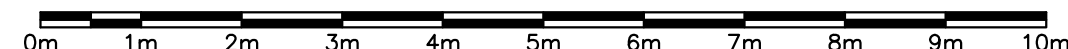


### GIRDER LAYOUT PLAN

SCALE : 1:75



NOTE:  
PLAN DIMENSIONS ARE ALONG GIRDER AXIS POINT  
UNLESS NOTED OTHERWISE. SEE DIMENSIONAL  
CRITERIA DWG. S8 FOR MORE INFORMATION.

### PLAN LEGEND:

- D1 ----- TYPICAL ABUTMENT DIAPHRAGM  
SECTION A/S9
- VB1 ----- TYPICAL INTERIOR DIAPHRAGM  
SECTION B/S8
- B1 ----- HSS 127 x 127 x 9.5 BRACING
- B1-F ----- HSS 127 x 127 x 9.5 BRACING  
c/w BOLTED FIELD CONNECTIONS  
EACH END

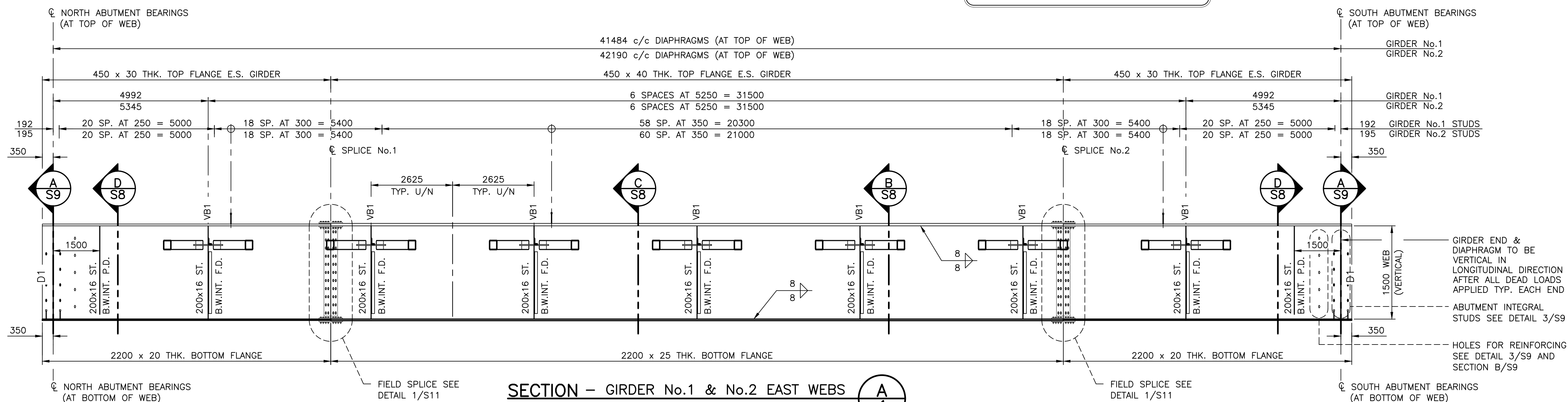
\*NOTE:  
ALL VB1 DIAPHRAGMS ORIENTATED  
PERPENDICULAR TO GIRDER LONGITUDINAL  
AXIS. D1 DIAPHRAGMS PARALLEL TO RADIAL  
ABUTMENTS/SKEWED TO GIRDER LONGITUDINAL  
AXIS AS SHOWN.

### STEEL NOTES:

- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING C.S.A. STANDARDS  
AND A.S.T.M. STANDARDS:
  - BOX GIRDERS: WEBS, FLANGE PLATES, STIFFENERS, SPLICE PLATES,  
ABUTMENT DIAPHRAGMS TO G40.21M - 350WT CAT 2.
  - ANGLES, WIDE FLANGE BARRIER POSTS, AND MISC. PLATES TO  
G40.21M - 350W OR EQUIVALENT.
  - HSS RAILS & BRACES: ASTM A500 GRADE C.
  - HIGH STRENGTH BOLTS ASTM A325 TYPE 1, THREADS TO BE  
EXCLUDED FROM ALL SHEAR PLANES (U.N.O.), ALL BOLT HOLES TO  
BE DRILLED.
  - BEARING PLATE THREADED ANCHOR RODS ASTM A307.
- ALL WELDING SHALL BE IN ACCORDANCE WITH C.S.A. STANDARD W59,  
LATEST EDITION.
- SHEAR STUD CONNECTORS SHALL BE MANUFACTURED FROM COLD DRAWN  
STEEL CONFORMING TO ASTM A29, GRADES 1010 TO 1020.
- FABRICATE, DELIVER TO SITE AND ERECT STEELWORK IN ACCORDANCE WITH  
CAN/CSA-S6-14.
- COAT ALL STEEL IN ACCORDANCE WITH PROJECT SPECIFICATIONS.  
PRIMER COAT ONLY ON ALL INSIDE SURFACES OF BOX. NO PAINT ON TOP  
SURFACES OF TOP FLANGES EXCEPT AS SHOWN IN DETAIL 6/S8. DRILLED  
HOLES IN GIRDER WEBS AND BOTTOM FLANGE PLATES FOR INTEGRAL  
ABUTMENT REINFORCING SHALL BE FULLY COATED TO ENSURE ISOLATION  
BETWEEN GIRDER AND GALVANIZED ABUTMENT REINFORCING STEEL TO AVOID  
POTENTIAL OF GALVANIC REACTION. BOX GIRDER DRAIN HOLES SHALL ALSO  
BE FULLY COATED. CONFIRM TOP COAT COLOR WITH DEPARTMENTAL  
REPRESENTATIVE PRIOR TO FABRICATION.
- GRIND ALL BEARING STIFFENERS AT ABUTMENTS TO BEAR AT BOTTOM, THEN  
WELD.
- ALL FAYING SURFACES AT BOLTED CONNECTIONS SHALL BE CLASS B, OR  
BETTER. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN OF  
NUT METHOD.
- CONTRACTOR RESPONSIBLE FOR LIFTING & STABILITY OF GIRDERS DURING  
ALL PHASES OF CONSTRUCTION.
- D1 DIAPHRAGMS TO BE VERTICAL IN THE LONGITUDINAL DIRECTION AFTER  
ALL DEAD LOAD DEFLECTIONS OCCUR. ALL OTHER STIFFENERS (INCLUDING  
VB1 LOCATIONS) TO BE PERPENDICULAR TO FLANGES.
- STUD HEIGHTS VARY ALONG SPAN AND ARE DEPENDENT ON AS-BUILT  
GIRDER ELEVATIONS AND CAMBERS. THEORETICAL STUD HEIGHTS CAN BE  
DETERMINED USING DETAIL 4/S8 (MAX. AND MIN. PROJECTION INTO DECK),  
ALONG WITH THEORETICAL HAUNCH DEPTHS ALONG SPAN. THEORETICAL  
HAUNCH DEPTHS CAN BE DETERMINED AT EACH SORED-STATION USING  
FINAL GIRDER ELEVATIONS AT EACH ABUTMENT, THE THEORETICAL CAMBER  
PROFILE AND THE TOP OF DECK FINAL ELEVATIONS INDICATED ON S14.  
HAUNCH THICKNESS NEAR ABUTMENTS MAY EXCEED READILY AVAILABLE  
STUD LENGTHS. IT IS PERMISSIBLE TO USE 2 SHEAR CONNECTORS  
(WELDED ABOVE ONE ANOTHER) TO OBTAIN ADEQUATE STUD LENGTHS.  
AS-BUILT STUD HEIGHTS ARE BASED ON AS-BUILT CAMBERS, AND  
AS-BUILT BEARING ELEVATIONS, AND AS-BUILT GIRDER HEIGHT THEREFORE  
REQUIRED AS-BUILT STUD HEIGHTS REMAIN THE RESPONSIBILITY OF THE  
CONTRACTOR.
- BOTTOM BEARING POINT OF SLAB OVERHANG BRACKET SHALL  
BE ORIENTATED NO HIGHER THAN 25mm ABOVE EXTERIOR  
GIRDER BOTTOM FLANGE/WEB INTERFACE DURING DECK CASTING.  
CONTRACTOR SHALL ENSURE STABILITY OF GIRDERS DURING ALL  
PHASES OF CONSTRUCTION.
- BOX GIRDERS ARE FRACTURE CRITICAL MEMBERS AS PER  
SECTION 12 OF CSA W59-13 AND SECTION 10 OF CSA S6-14.  
SPECIFICALLY, THE BOTTOM FLANGE AND THE LOWER 1300mm  
PORTION OF GIRDER WEB ALONG THE ENTIRE SPAN, ALONG  
WITH THE BOTTOM FLANGE AND WEB SPLICE PLATES, SHALL ALL  
BE CONSIDERED FRACTURE CRITICAL COMPONENTS OF THE  
STRUCTURE.
- ABUTMENT D1 BRACING BETWEEN BOXES TO BE MATCH DRILLED  
WITH BOXES IN SELF WEIGHT ONLY CONDITION.
- IT IS ACCEPTABLE TO REMOVE ONE OR BOTH FIELD SPLICES IN  
FAVOR OF APPROVED WELDED SHOP SPLICES. IT IS NOT  
ACCEPTABLE TO CHANGE THE LOCATIONS OF THE FIELD  
SPLICES.

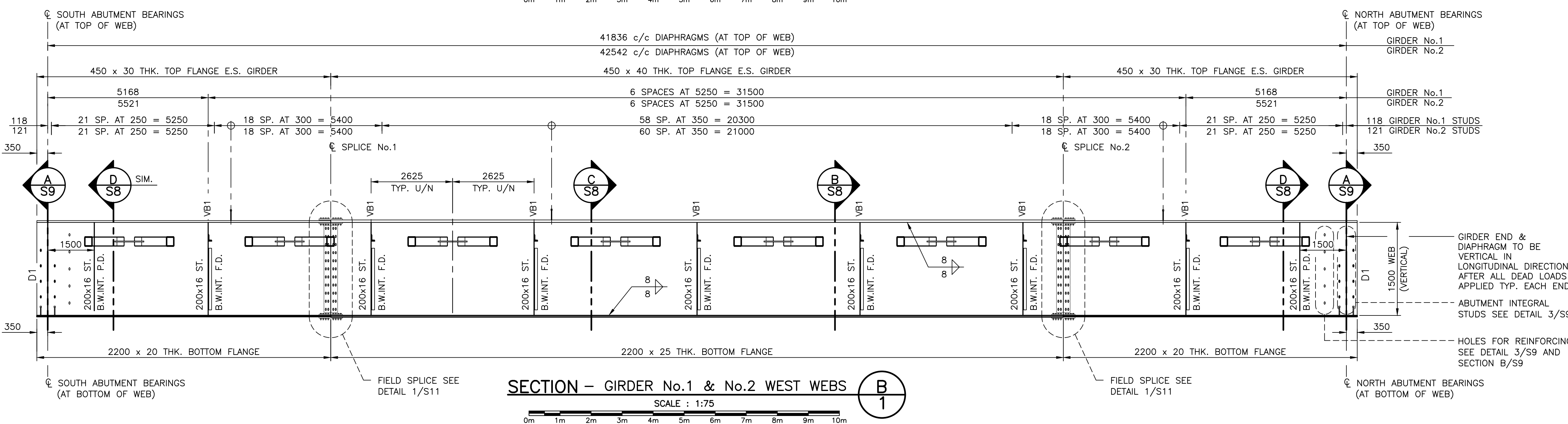
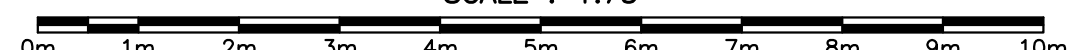
### SECTION LEGEND:

- ST. = VERTICAL STIFFENER
- B.W.INT. F.D. = STIFFENER BOTH WEBS INTERIOR -  
FULL DEPTH SEE DETAIL 1&2/S8
- B.W.INT. P.D. = STIFFENER BOTH WEBS INTERIOR -  
PARTIAL DEPTH SEE DETAIL 1&3/S8



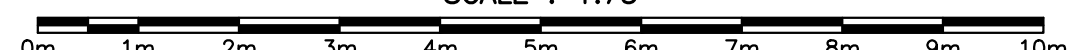
### SECTION - GIRDER No.1 & No.2 EAST WEBS

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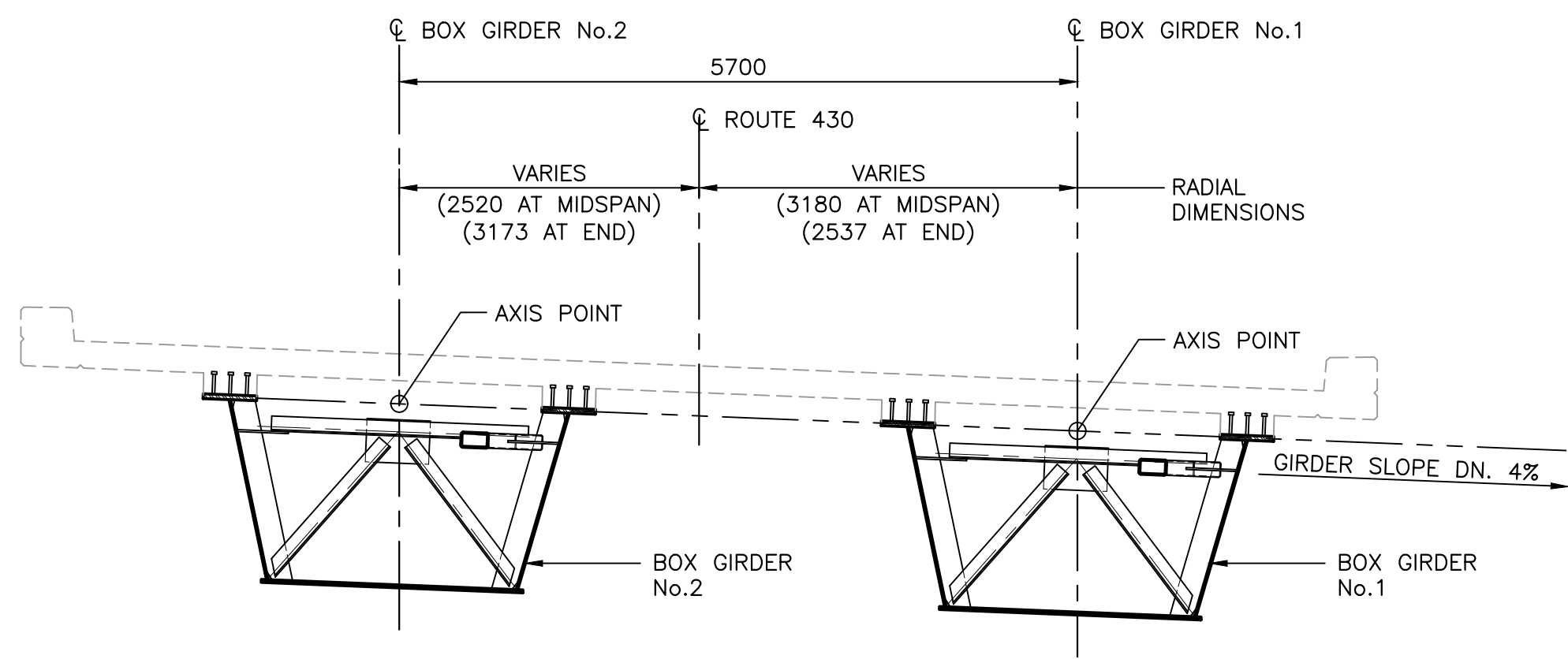


### SECTION - GIRDER No.1 & No.2 WEST WEBS

SCALE : 1:75



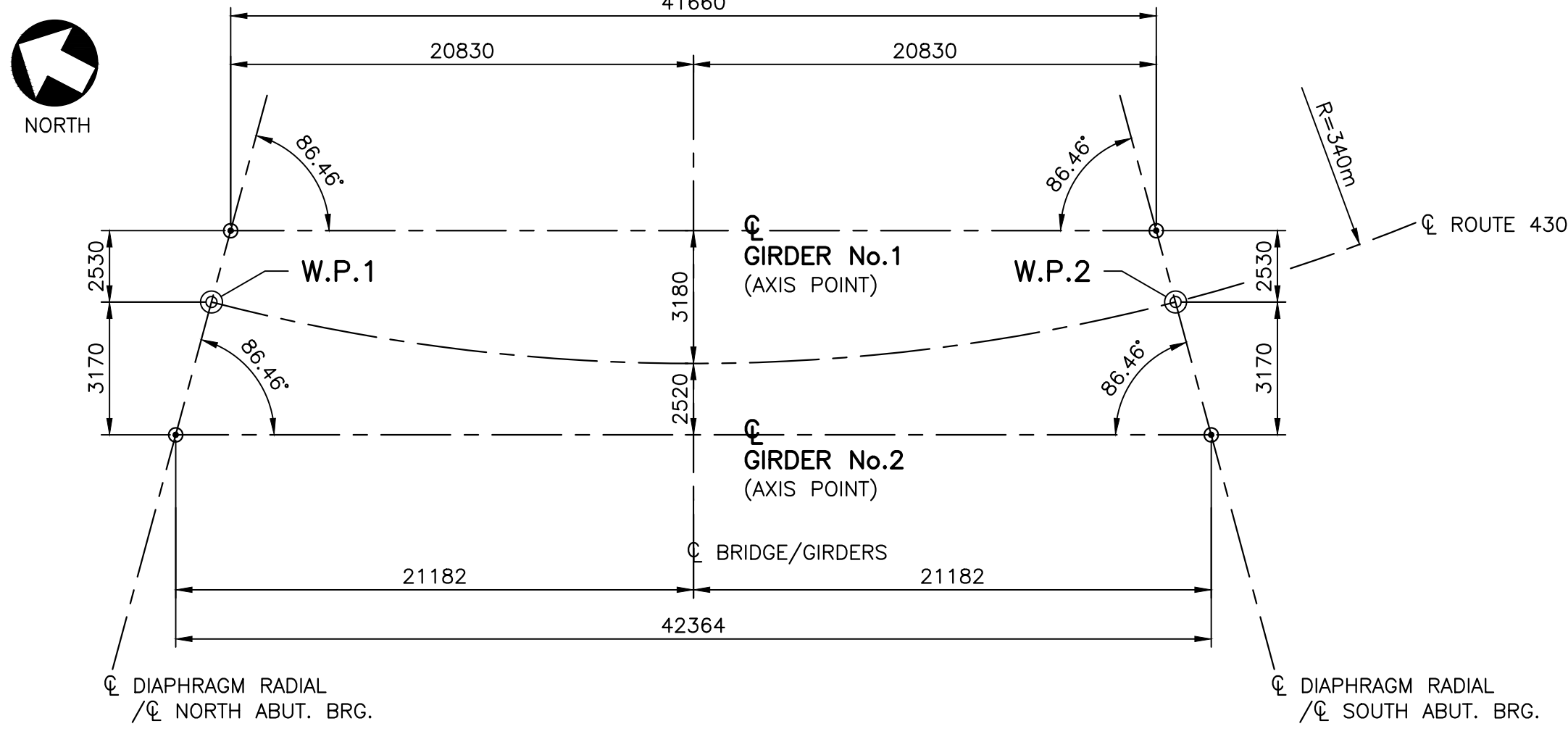




GENERAL SECTION

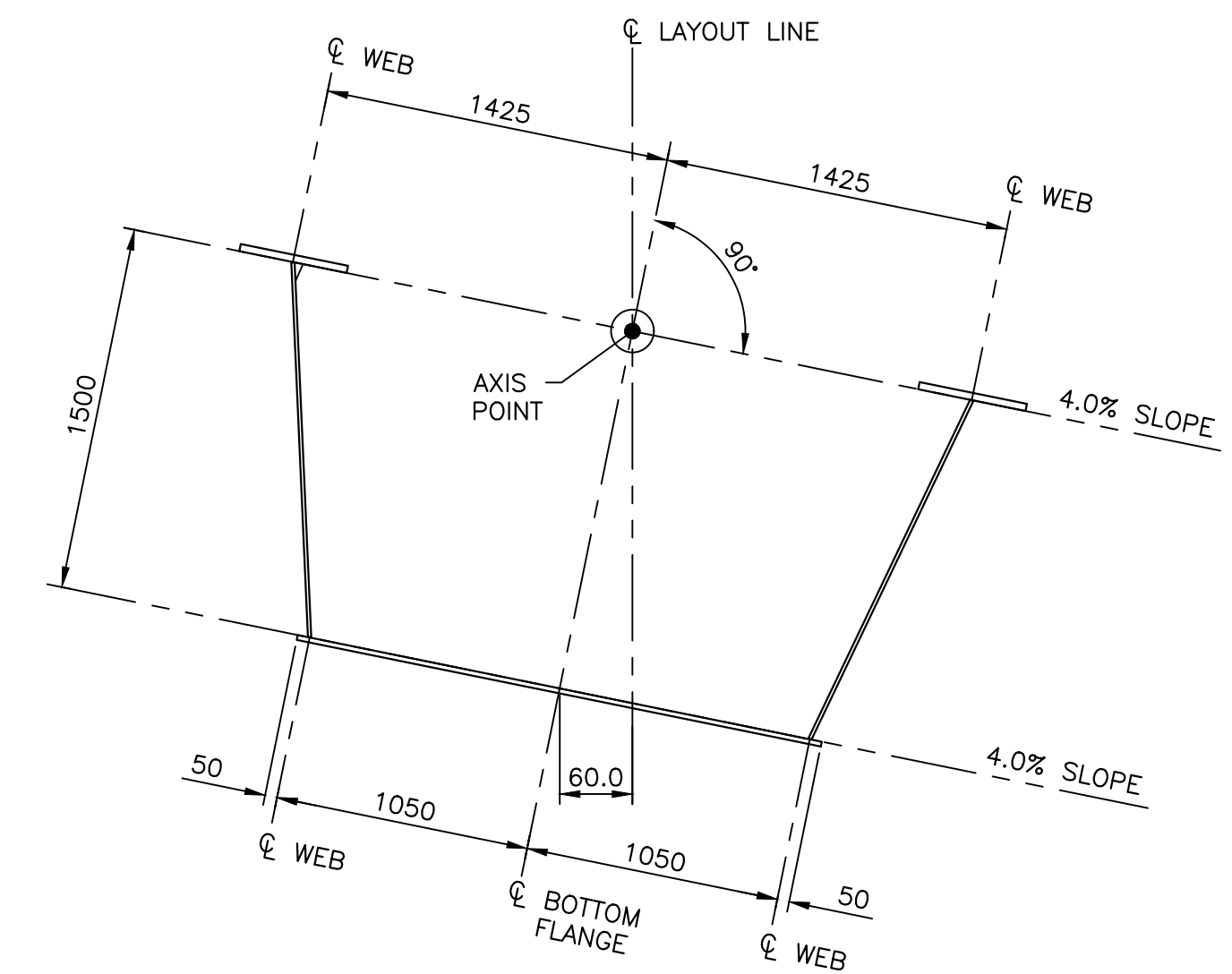
SCALE : 1:50

A  
S7



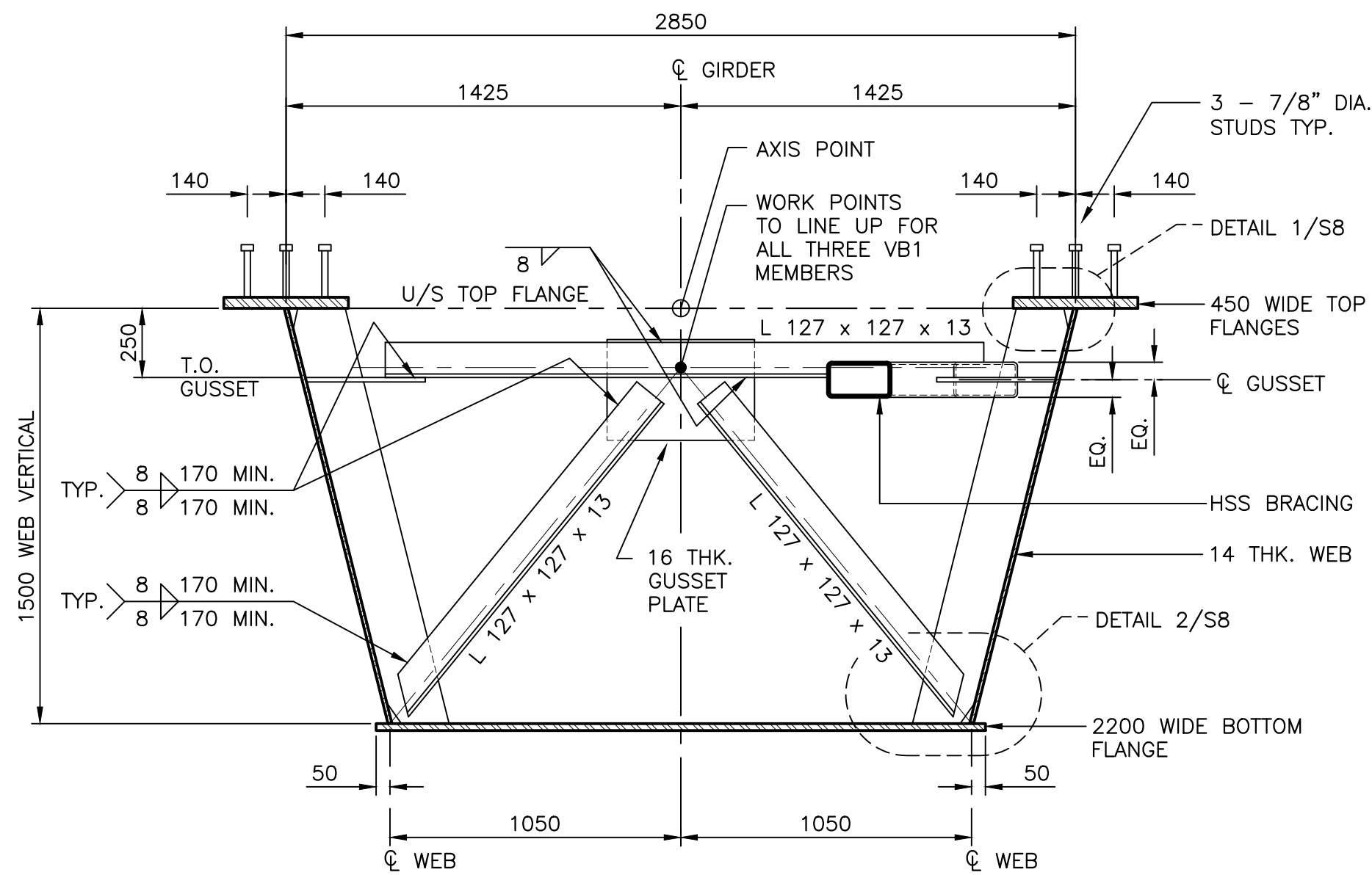
BOX GIRDER HORIZONTAL DIMENSION CRITERIA

SCALE : NOT TO SCALE



BOX GIRDER VERTICAL DIMENSION CRITERIA

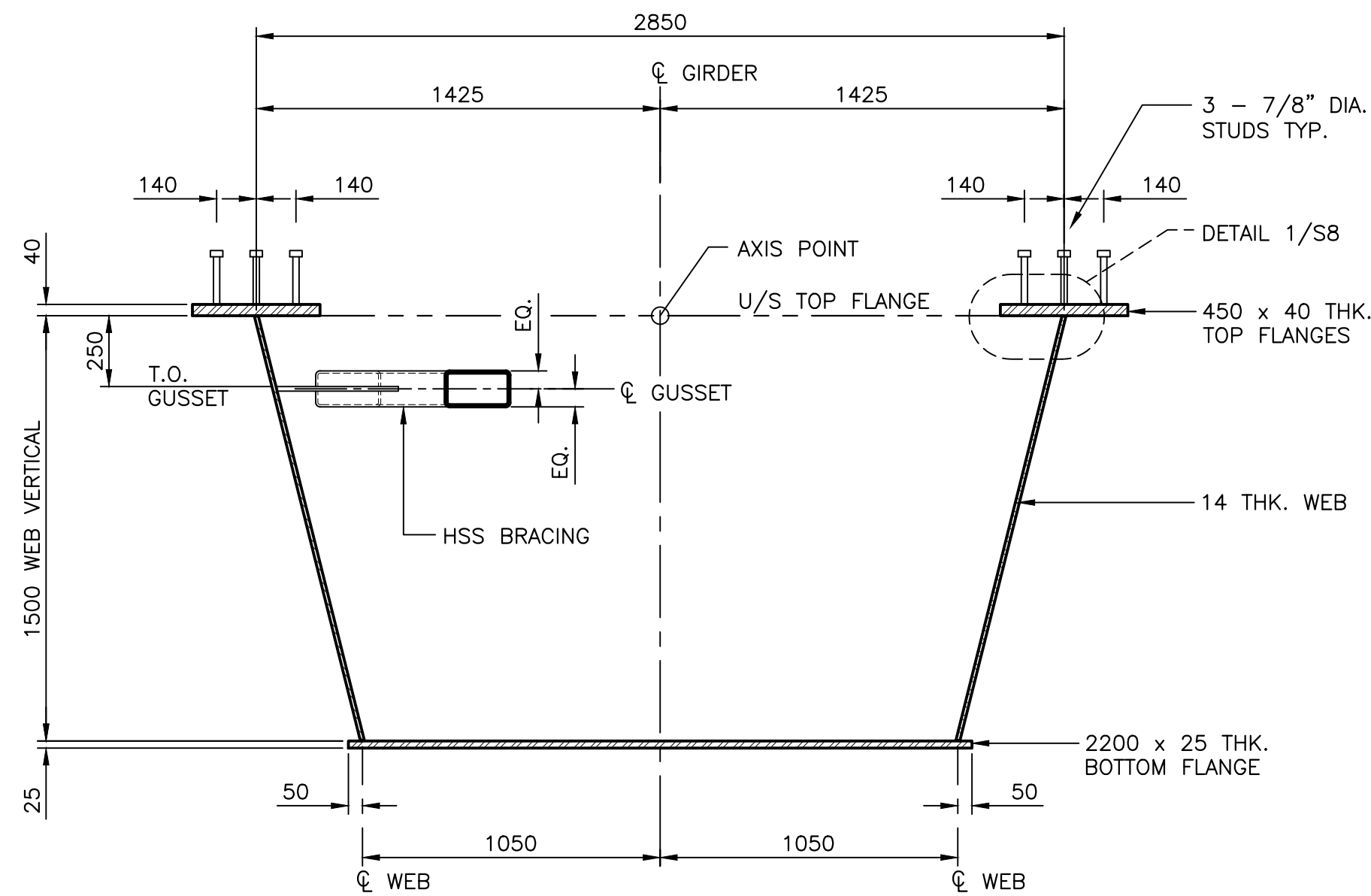
SCALE : NOT TO SCALE/SLOPES EXAGGERATED



GIRDER SECTION - TYPICAL VB1 INTERIOR DIAPHRAGM

SCALE : 1:20

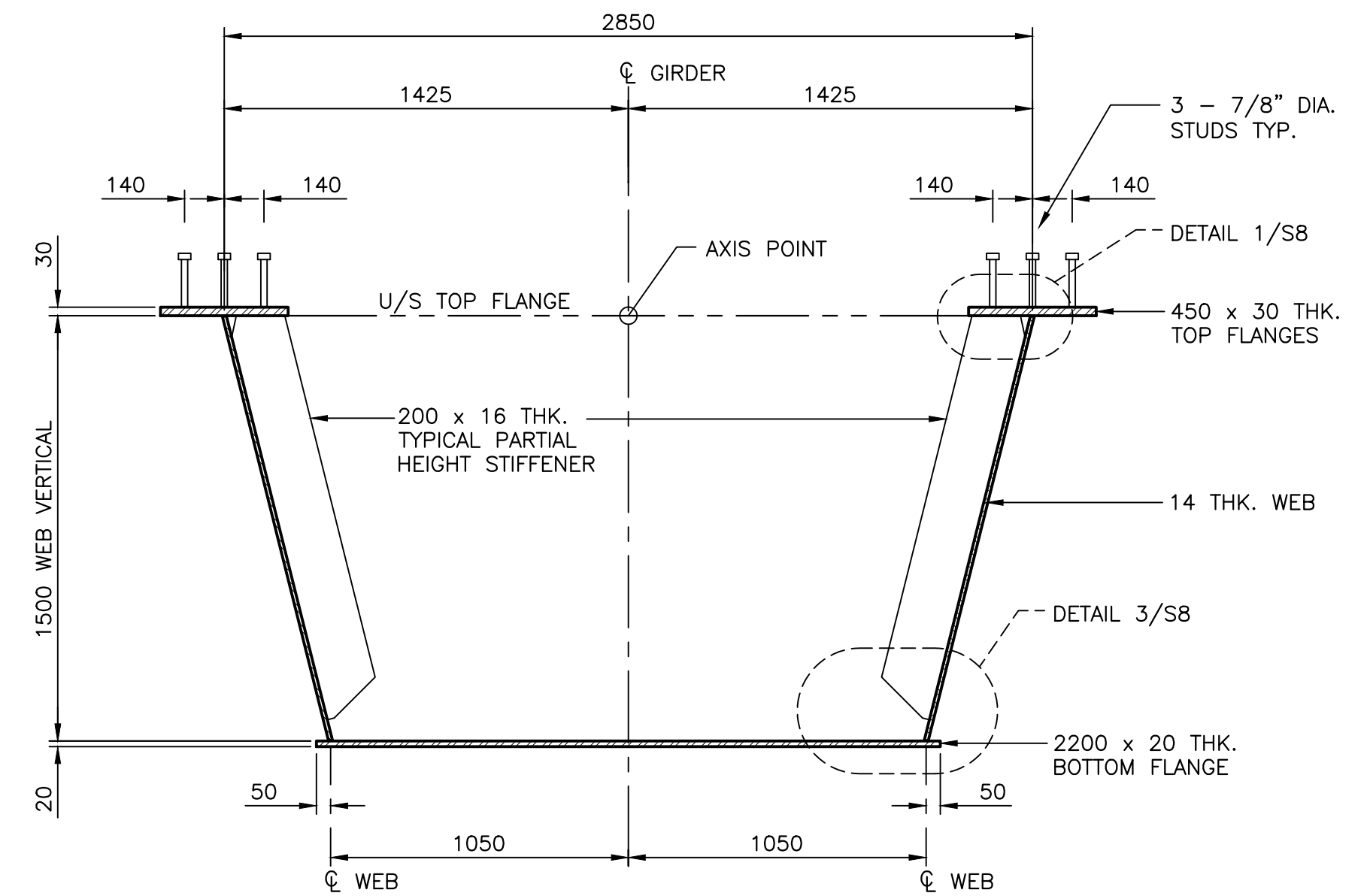
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S7



GIRDER SECTION 2

SCALE : 1:20

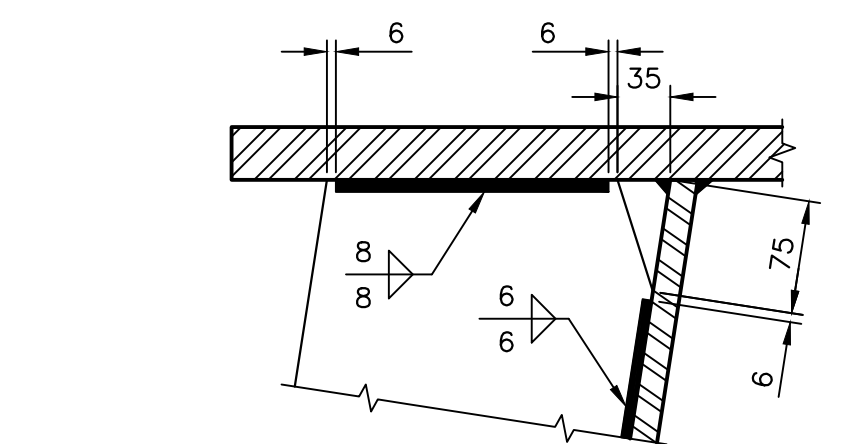
C  
S7



GIRDER SECTION 1

SCALE : 1:20

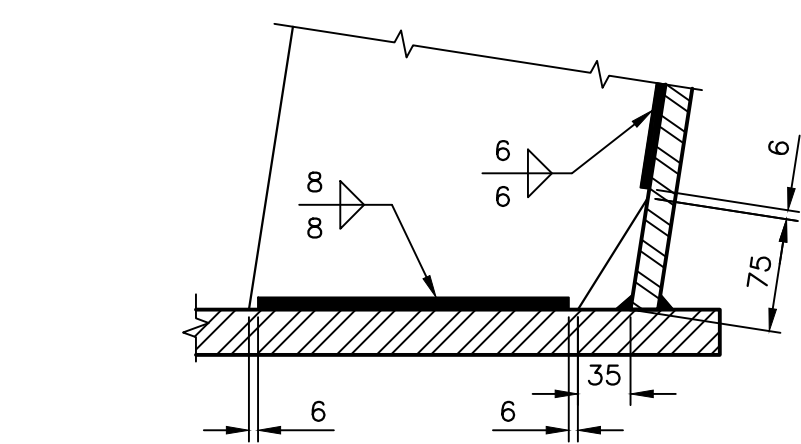
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DETAIL

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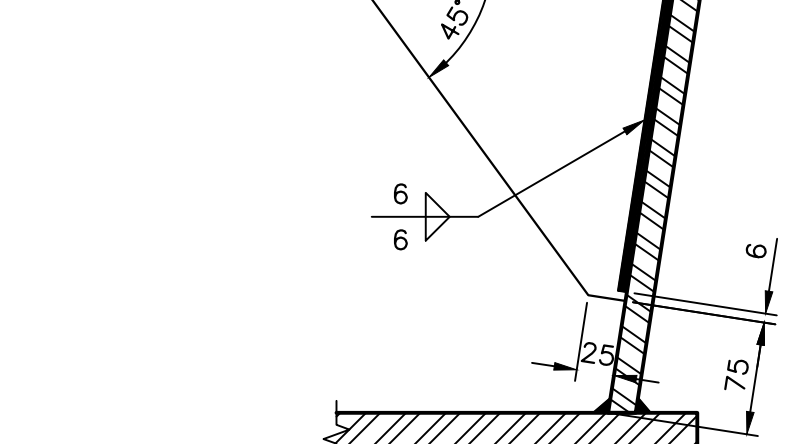
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S7



DETAIL

SCALE : 1:5

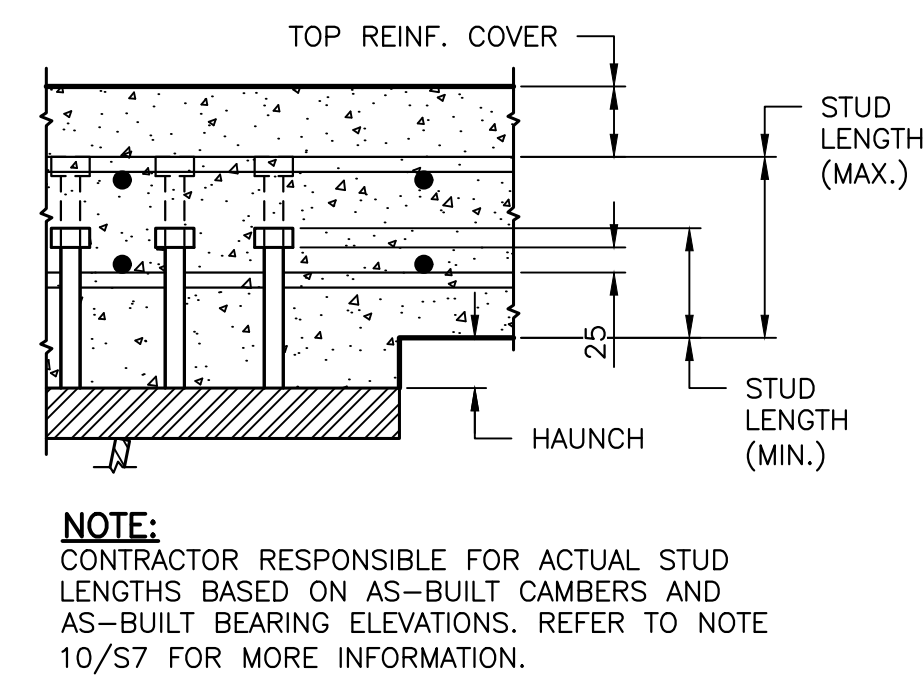
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DETAIL

SCALE : 1:5

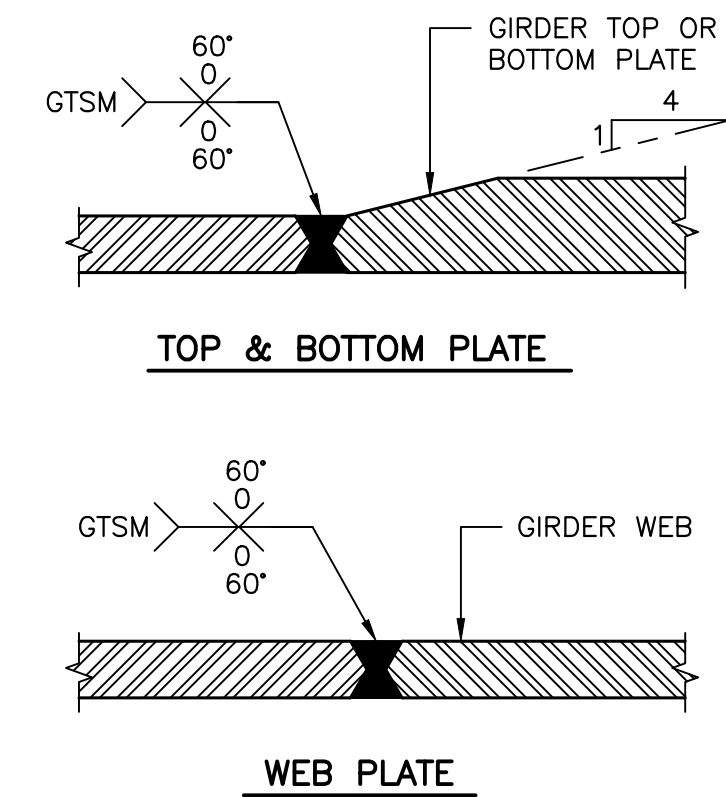
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DETAIL - TYPICAL STUD LENGTHS

SCALE : N.T.S.

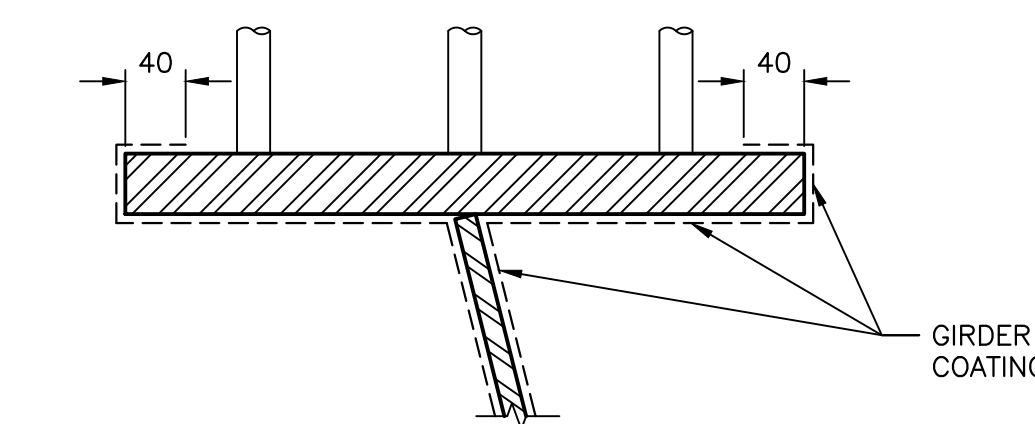
4  
S7



DETAIL - OPTIONAL SHOP SPLICE

SCALE : 1:10

5  
S8



DETAIL - TOP FLANGE COATING

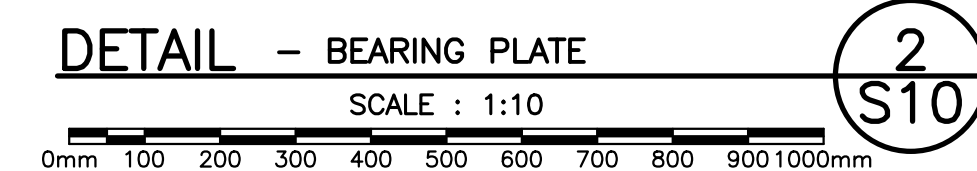
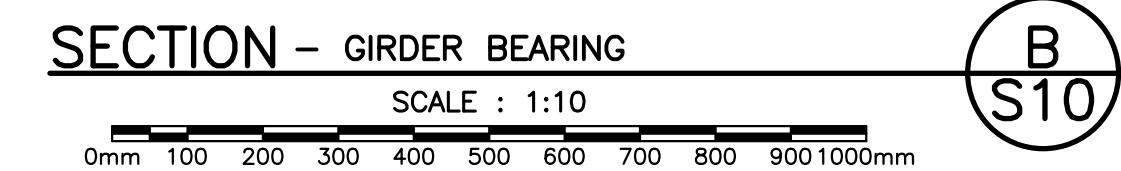
SCALE : 1:5

6  
S7



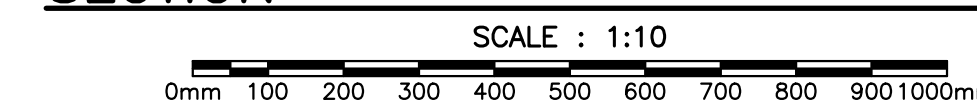
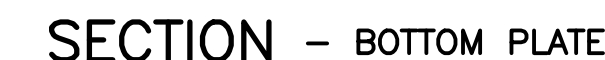
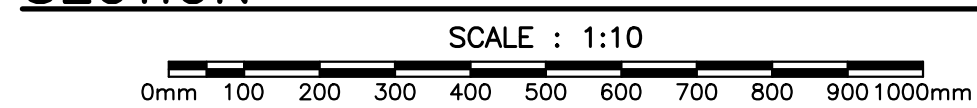
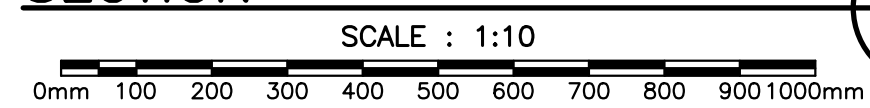
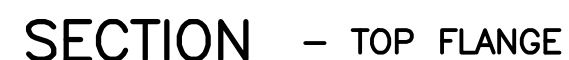




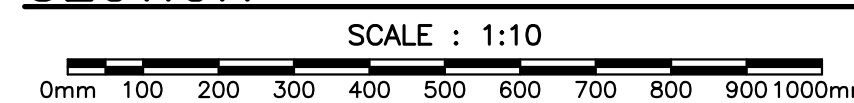
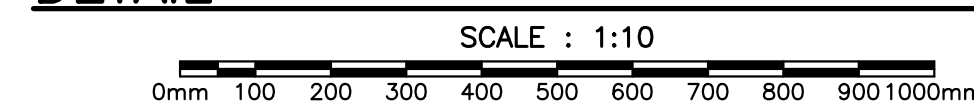
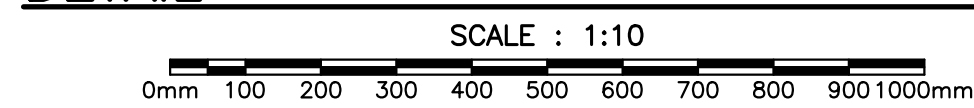
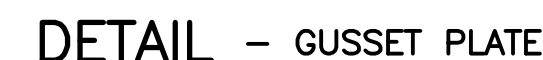
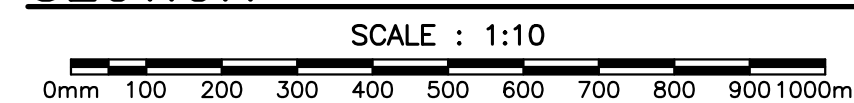
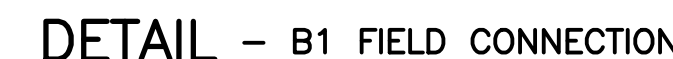
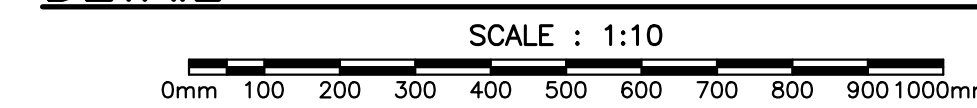
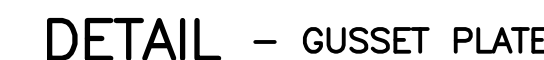
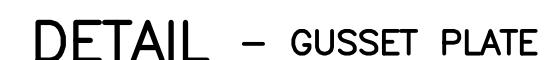
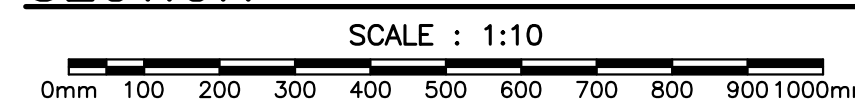
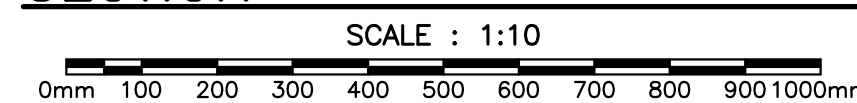


- NOTE:  
BEARING PLATE, INCLUDING BOLT HOLES SHALL BE COATED TO  
ENSURE GALVANIC ISOLATION BETWEEN ANCHOR BOLTS AND PLATE.



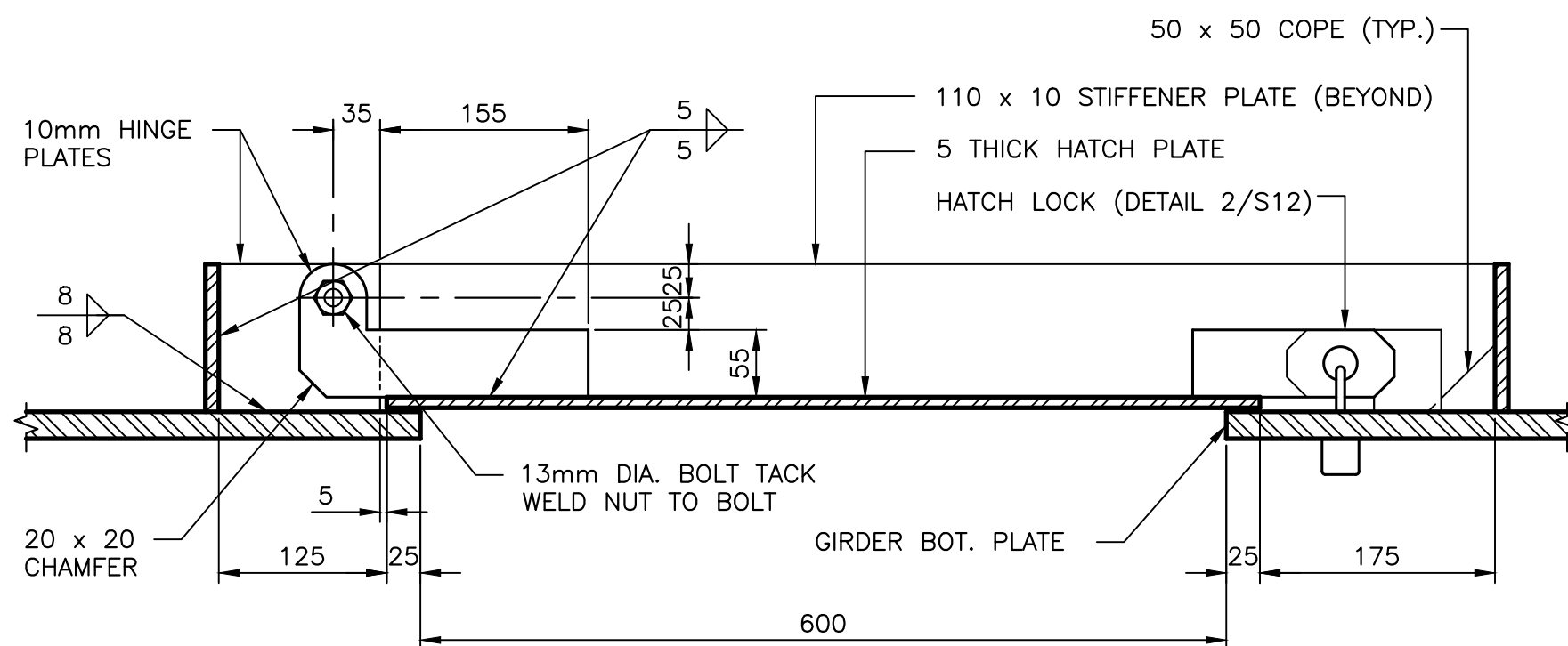
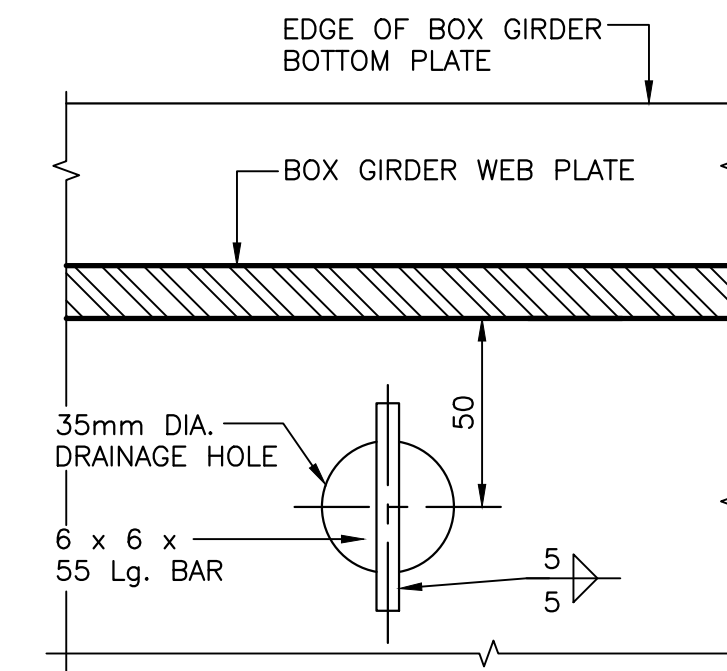
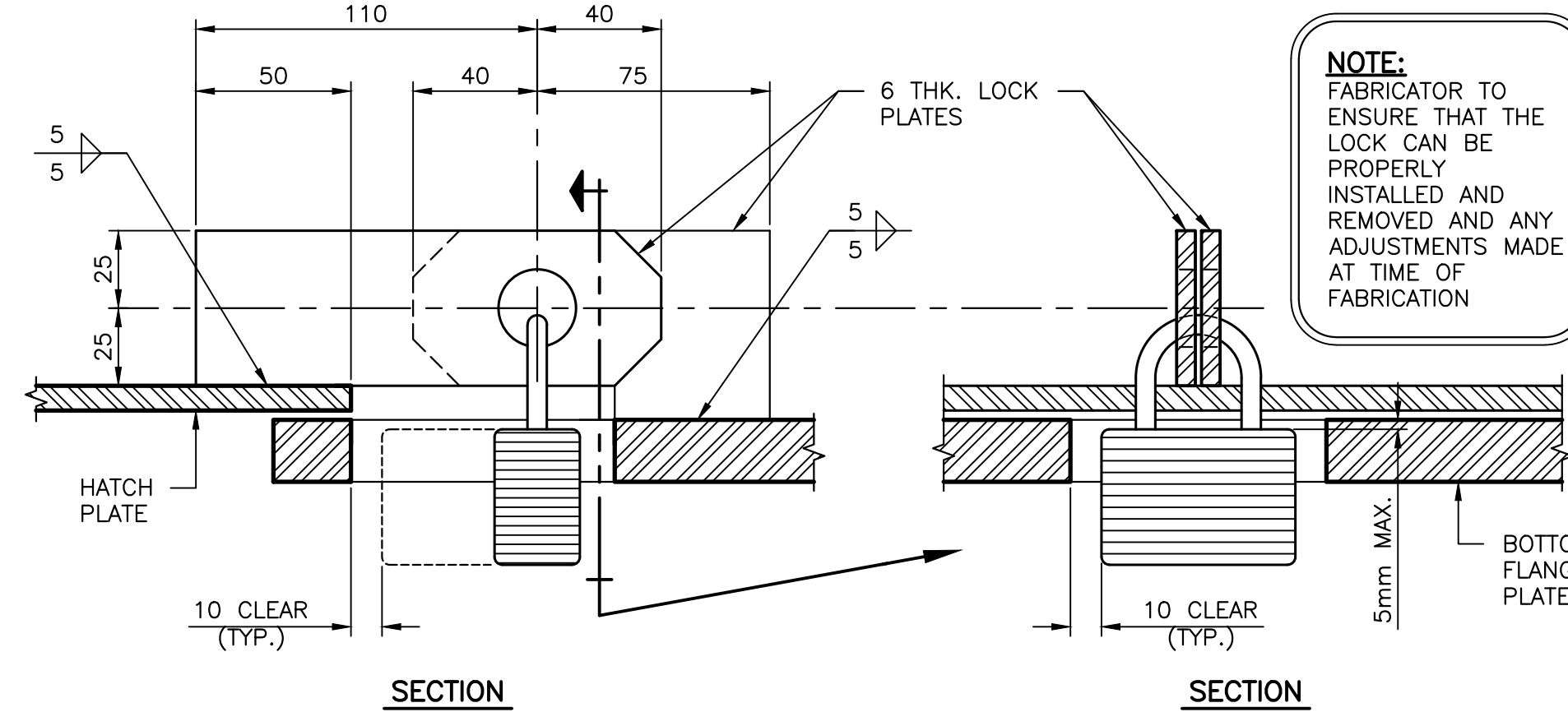
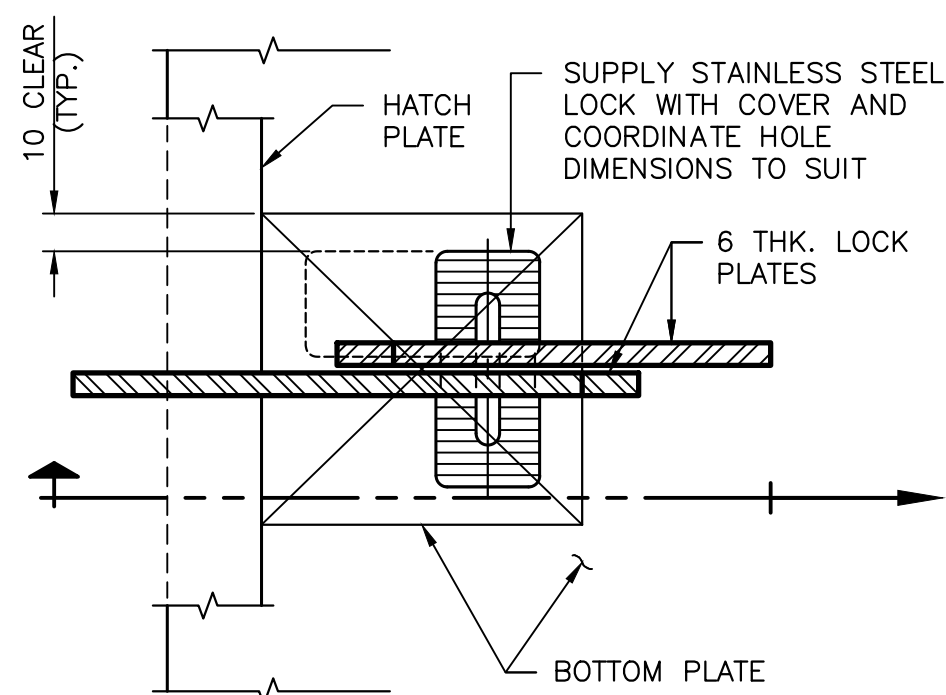
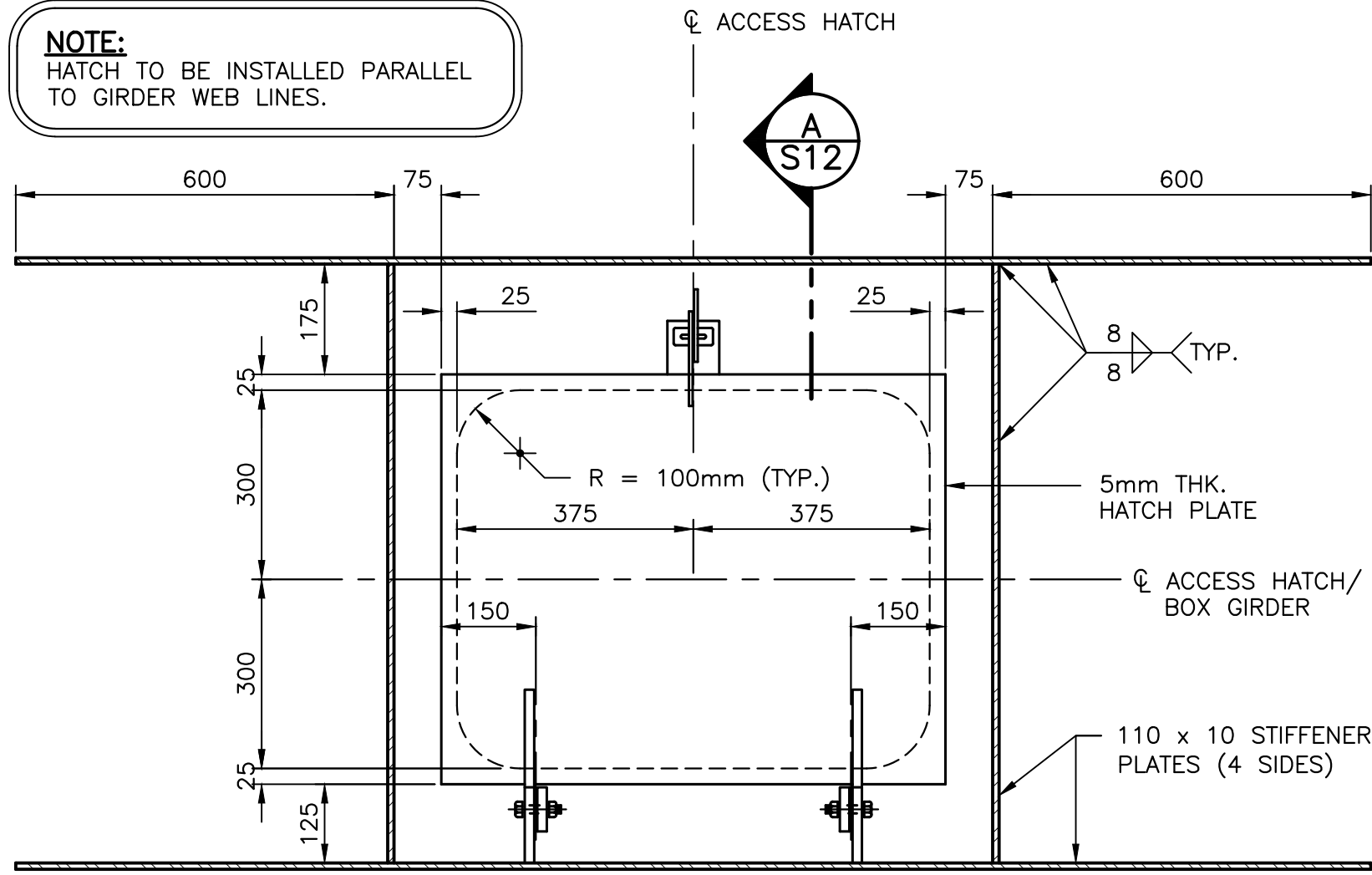


1. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN-OF-NUT METHOD.
2. ALL THREADS EXCLUDED FROM SHEAR PLANES
3. ALL FAYING SURFACES TO BE CLASS B SLIP SURFACE OR BETTER.
4. ALL BOLT HOLES TO BE DRILLED RATHER THAN PUNCHED.
5. ALL BOLTS SHALL BE ASTM A325 TYPE 1.
6. SPLICES DESIGNED FOR IN-SERVICE CONDITION AND FOR GIRDER ERECTION AS DETAILED ON EP DRAWINGS. CONTRACTOR MUST VERIFY CAPACITY OF ALL FIELD SPLICES DURING DECK CASTING AND OTHER STAGES OF CONSTRUCTION.
7. TOP FLANGE STUDS INTERSECTED BY TOP FLANGE SPLICE PLATES TO BE REPLACED WITH AN EQUIVALENT NUMBER OF STUDS WELDED DIRECTLY TO TOP OF SPLICE PLATE.

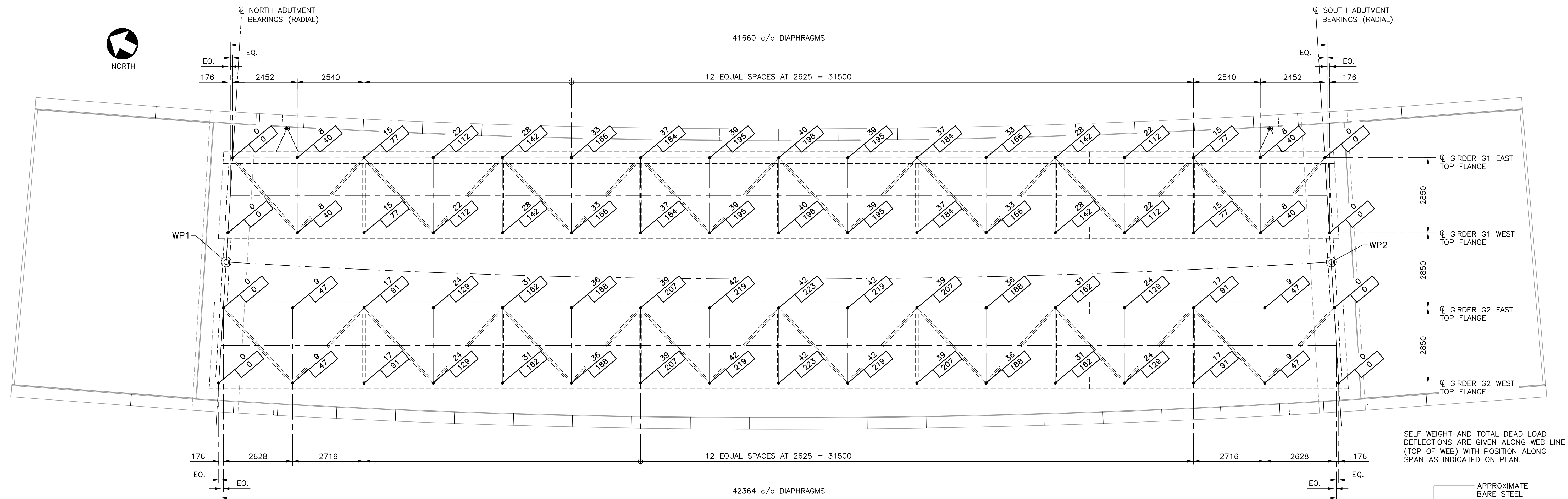




NOTE:  
HATCH TO BE INSTALLED PARALLEL  
TO GIRDER WEB LINES.



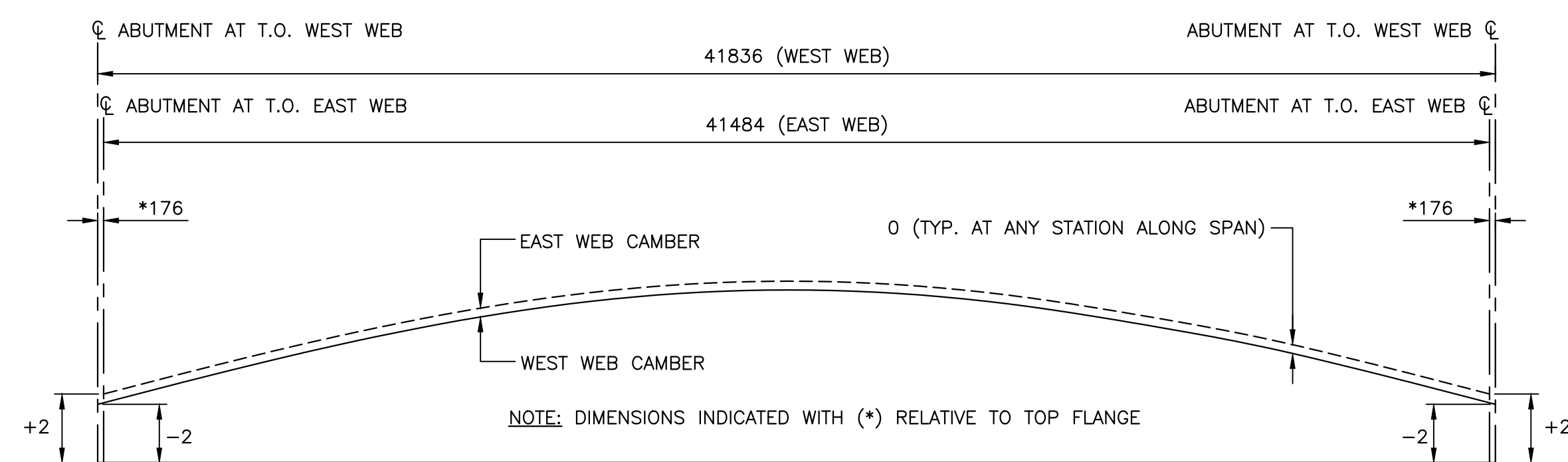
0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	projet
	GROS MORNE NATIONAL PARK	
drawing	GIRDER MISCELLANEOUS DETAILS	dessin
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWGSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S12	no. du dessin



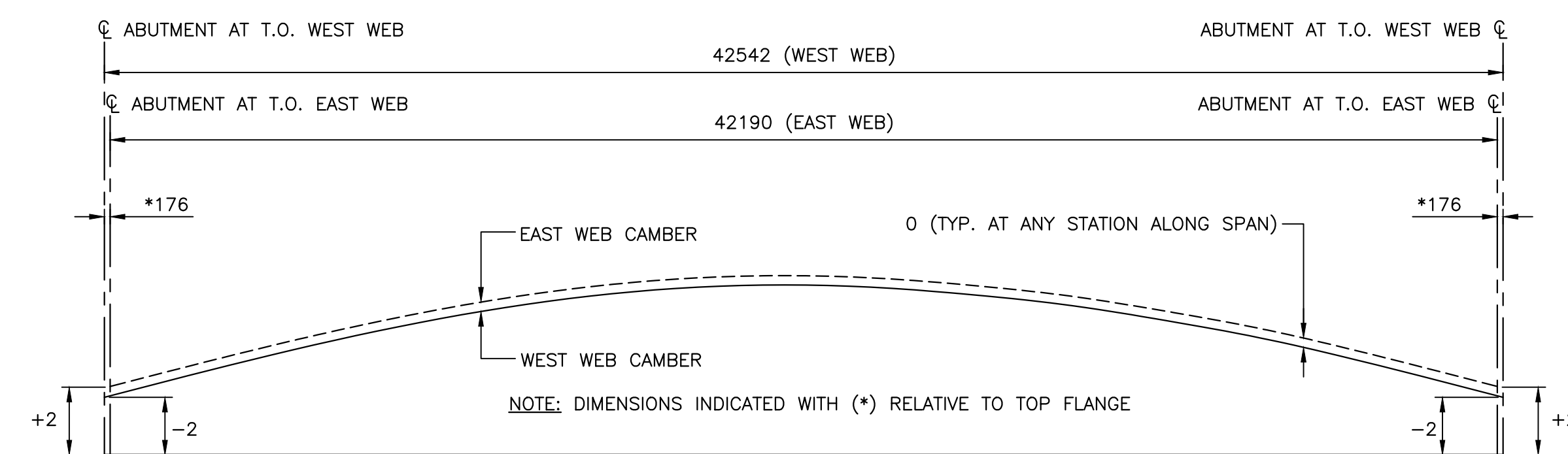
### DEAD LOAD DEFLECTION DIAGRAM

SCALE : 1:75

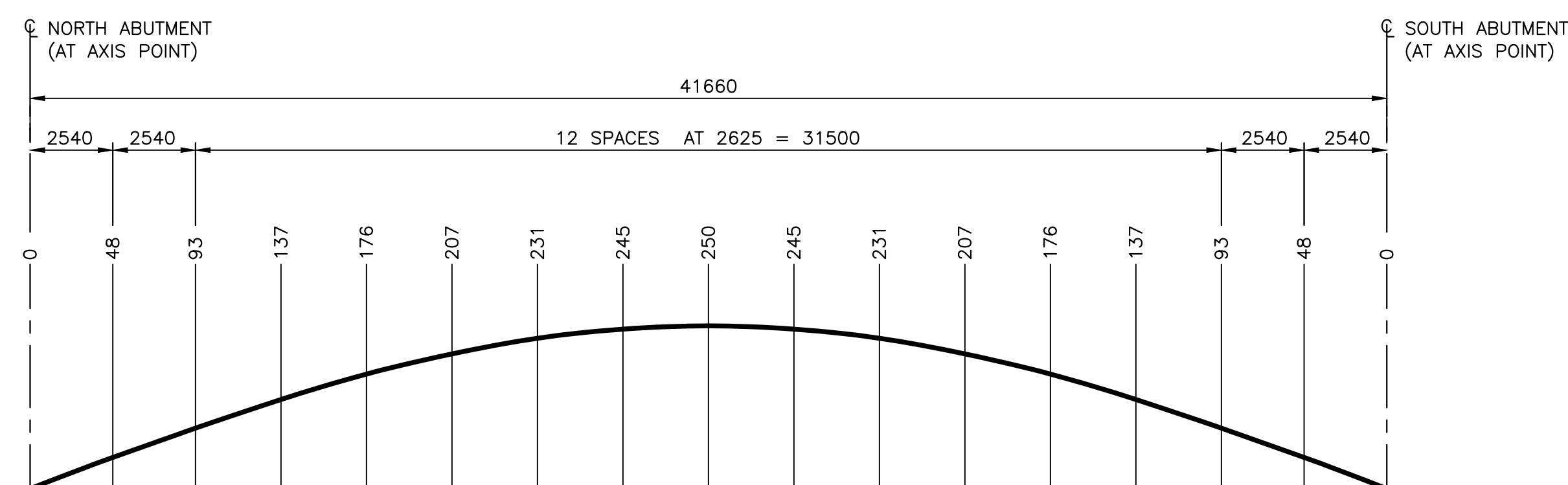
NOTE: PLAN DIMENSIONS ARE ALONG GIRDER AXIS POINT UNLESS NOTED OTHERWISE. SEE DIMENSIONAL CRITERIA DWG. S8 FOR MORE INFORMATION.



### WEB CUT COMPARISON DIAGRAM (G1 - EAST GIRDER)

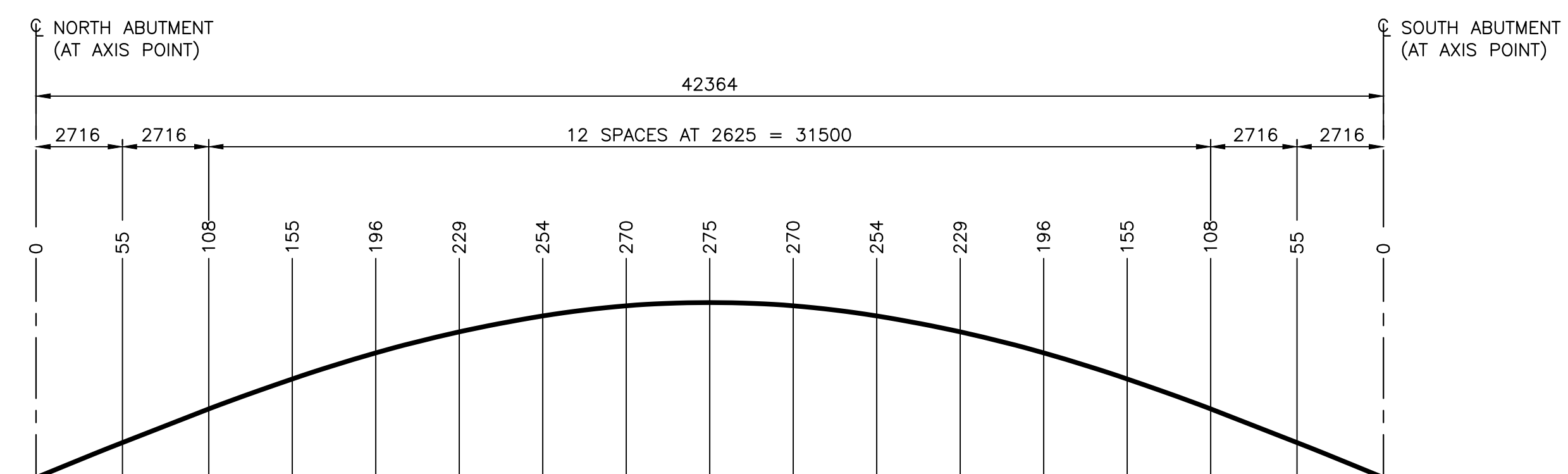


### WEB CUT COMPARISON DIAGRAM (G2 - WEST GIRDER)



### BOX GIRDER WEB CUTS (G1 - EAST GIRDER)

NOTE: WEB CUT DIAGRAMS ARE RELATIVE TO CENTERLINE BOX WITH WEBS CAMBERED BY SAME AMOUNT AT EACH LOCATION (STATION) ALONG SPAN TO ENSURE FIT-UP OF BOTTOM PLATE TO U/S WEBS (REFER TO WEB CUT COMPARISON DIAGRAM).



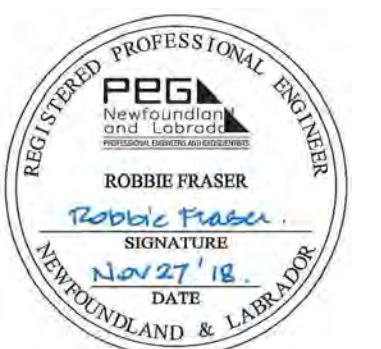
### BOX GIRDER WEB CUTS (G2 - WEST GIRDER)

NOTE: WEB CUT DIAGRAMS ARE RELATIVE TO CENTERLINE BOX WITH WEBS CAMBERED BY SAME AMOUNT AT EACH LOCATION (STATION) ALONG SPAN TO ENSURE FIT-UP OF BOTTOM PLATE TO U/S WEBS (REFER TO WEB CUT COMPARISON DIAGRAM).

### CAMBER/WEB CUT DIAGRAMS

SCALE : 1:150

SCALE : 1:7.5



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
**PERMIT HOLDER**  
 This Permit Allows  
 HARBOURSIDE ENGINEERING CONSULTANTS  
 To practice Professional Engineering in Newfoundland and Labrador.  
 Permit No. as issued by PEO N0324 which is valid for the year 2018.

0	ISSUED FOR TENDER	11/27/2018
revisions		date

project  
**ROCKY BARACHOIS BRIDGE ROUTE 430**  
**GROS MORNE NATIONAL PARK**

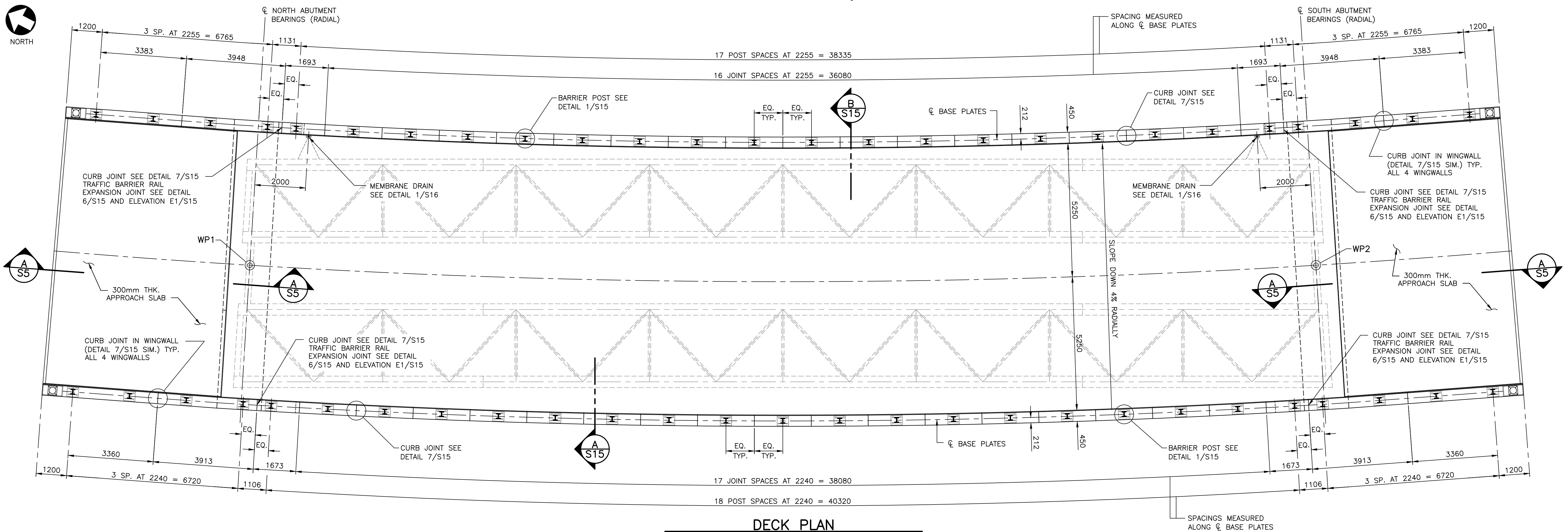
### GIRDER CAMBER/WEB CUT DIAGRAMS

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S13	no. du dessin

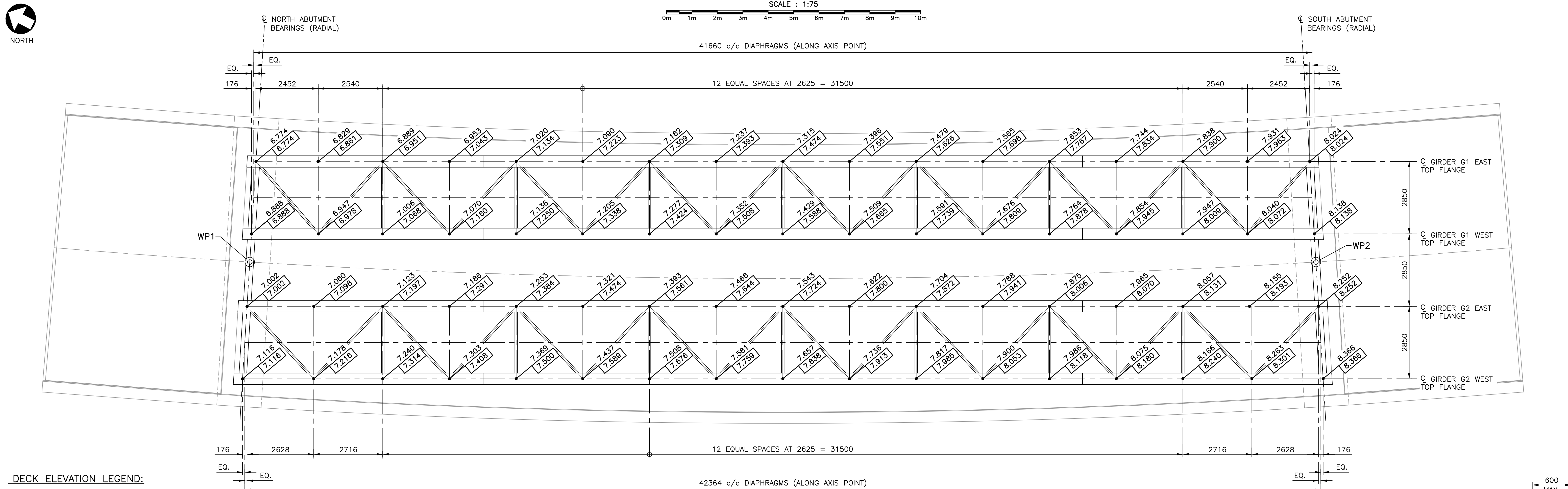




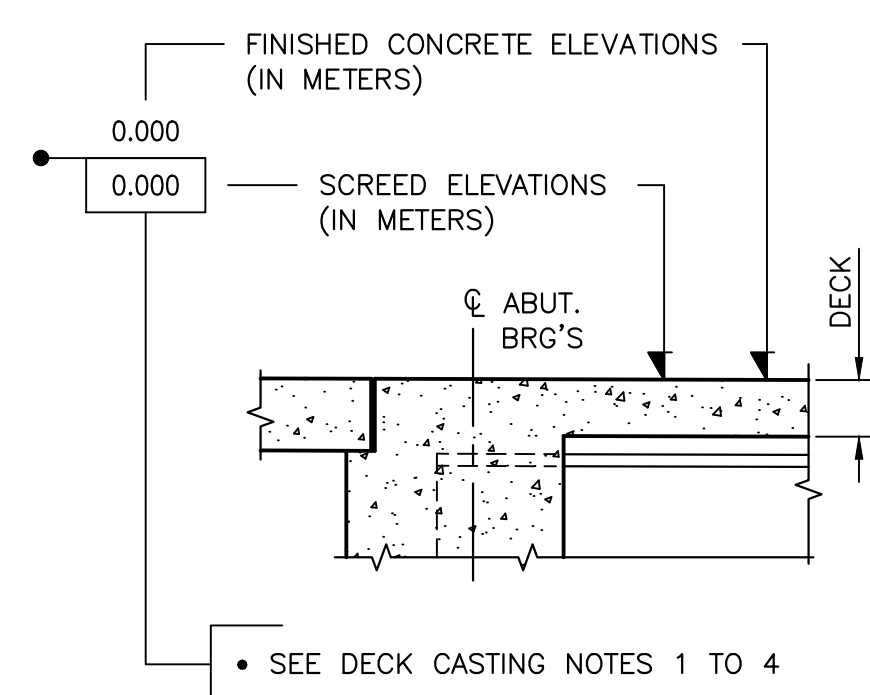
NORTH



NORTH



#### DECK ELEVATION LEGEND:

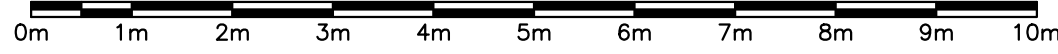


#### DECK CONCRETE CASTING NOTES:

1. SCREED ELEVATIONS ARE BASED ON THE DECK PROFILE ELEVATIONS PRIOR TO PLACING CONCRETE DECK, CURBS, BARRIERS, HAUNCHES AND ASPHALT SURFACE.
2. IT IS ASSUMED THAT THE ENTIRE DECK IS CAST MONOLITHICALLY. IF DECK IS POURED IN SEGMENTS, THE GIVEN SCREED ELEVATIONS ARE NOT VALID AND THE CONTRACTOR MUST REVISE THE SCREED ELEVATIONS ACCORDINGLY.
3. IT IS ALSO ASSUMED THAT ENTIRE DECK IS CAST AND REACHES 35 MPa PRIOR TO CASTING CURBS, INSTALLING BARRIERS AND WATERPROOFING AND PAVING DECK.
4. CASTING SEQUENCE DURING MONOLITHIC DECK CASTING OPERATION: PLACE CONCRETE IN ALL AREAS OF DECK PRIOR TO CASTING INTEGRAL ABUTMENTS. TO ACHIEVE THIS, LEAVE 3m OF DECK AT EACH END OF BRIDGE/ADJACENT TO ABUTMENTS UNTIL CONCRETE IS PLACED IN REMAINDER OF DECK.
5. DECK SHALL NOT BE CAST SHOULD WINDS EXCEEDING 100 km/h (3 SEC. GUST) BE FORECAST OR ANTICIPATED DURING DECK CASTING OPERATIONS OR WITHIN 24 HOURS OF COMPLETION OF DECK CASTING.

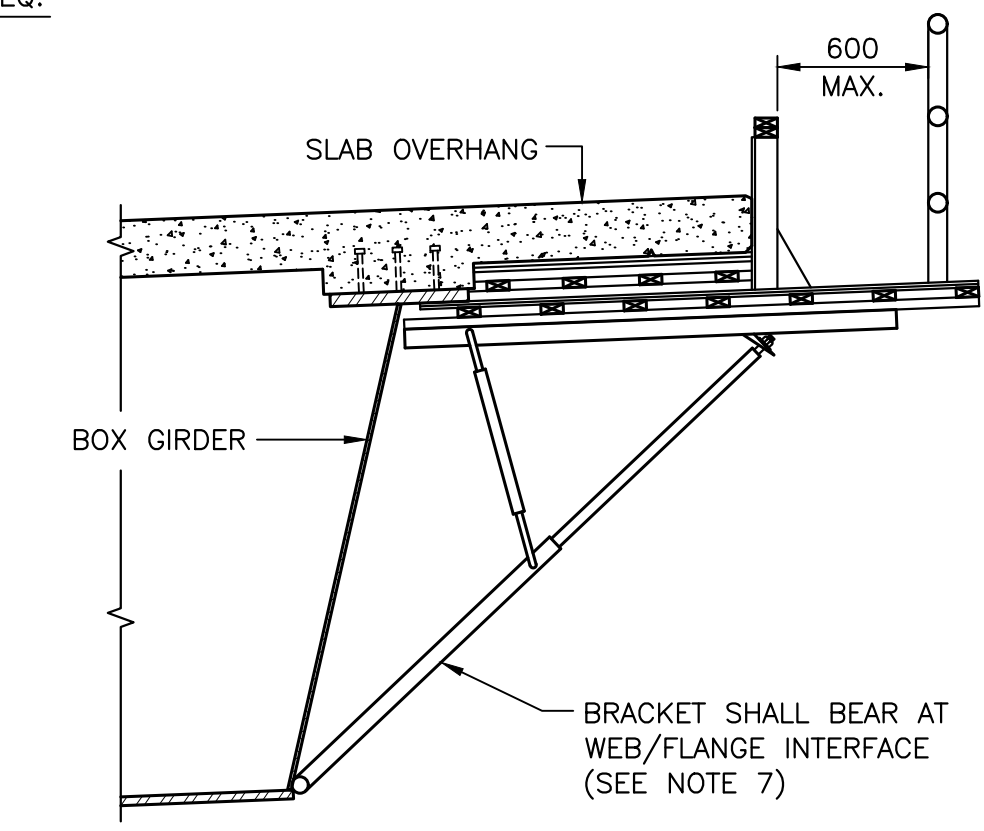
#### DECK ELEVATIONS

SCALE : 1:75



#### OVERHANG NOTES:

1. ALL DECK FORMWORK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN NEWFOUNDLAND AND LABRADOR.
2. THE OVERHANG BRACKETS SHALL BE ORIENTED AS INDICATED UNLESS AN ALTERNATE DETAIL IS ACCEPTED IN WRITING BY THE DEPARTMENTAL REPRESENTATIVE.
3. OVERHANG BRACKET SPACING SHALL BE LESS THAN OR EQUAL TO 1200mm o.c.
4. MAXIMUM FACTORED SCREED LOAD PER SIDE OF BRIDGE ASSUMED TO BE 30kN.
5. DECK CASTING SHALL PROGRESS IN A BALANCED FASHION BY ESSENTIALLY BALANCING THE WET CONCRETE WEIGHT ON EACH SIDE OF THE GIRDERS. TO ACCOMPLISH THIS, CASTING SHALL PROGRESS ACROSS THE FULL WIDTH OF THE BRIDGE DECK WITH CASTING ADVANCING A MAXIMUM OF 3.0m± ON ONE SIDE OF A GIRDER VERSUS THE OTHER SIDE OF THE SAME GIRDER. THIS BALANCED PROCEDURE IS ESSENTIAL TO PREVENT EXCESSIVE UNBALANCED LOADS/TORSIONS IN GIRDERS.
6. CONTRACTOR TO ENSURE GIRDER STABILITY DURING ALL PHASES OF CONSTRUCTION.
7. AS INDICATED IN DETAIL 1/S14 THE BOTTOM BEARING POINT OF THE SLAB OVERHANG BRACKET SHALL BE ORIENTATED NO HIGHER THAN 25mm ABOVE THE EXTERIOR GIRDER BOTTOM FLANGE/WEB INTERFACE DURING DECK CASTING.

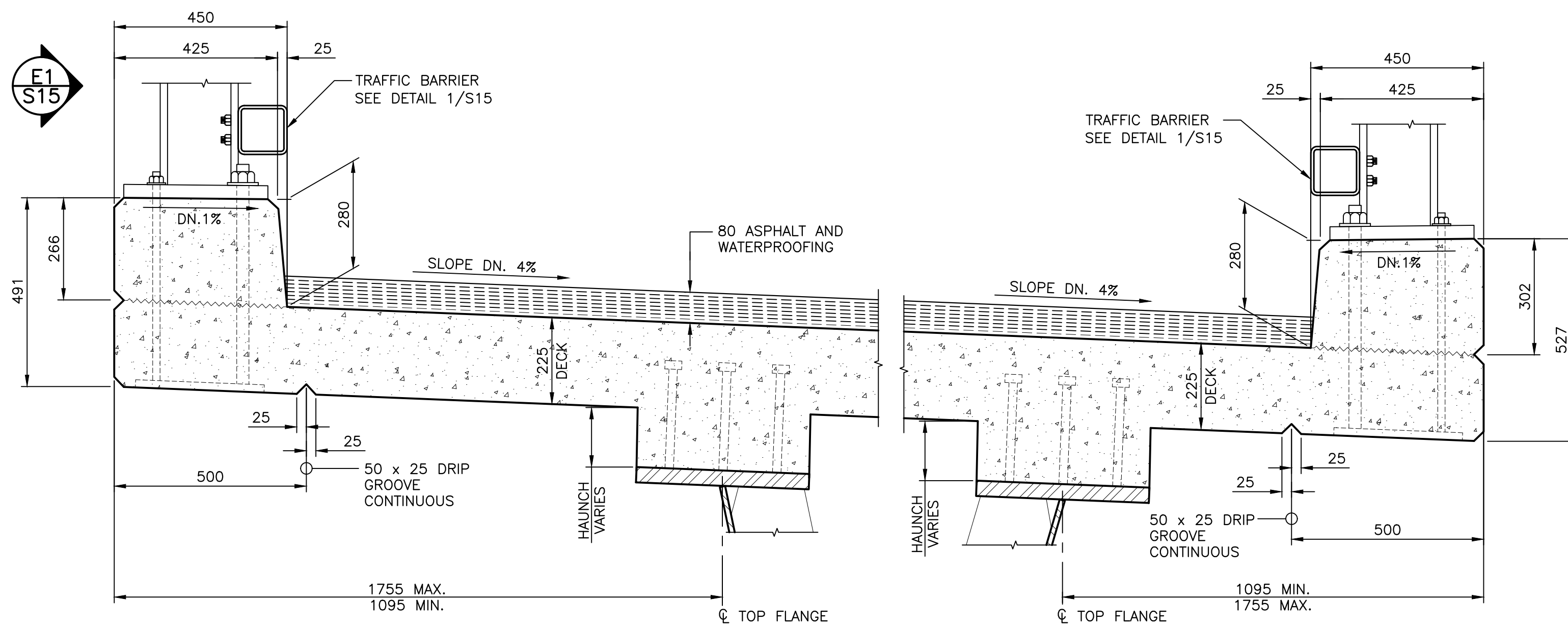


#### DETAIL - TYPICAL OVERHANG SUPPORT

SCALE : N.T.S.

1/S14





SECTION - WEST CURB

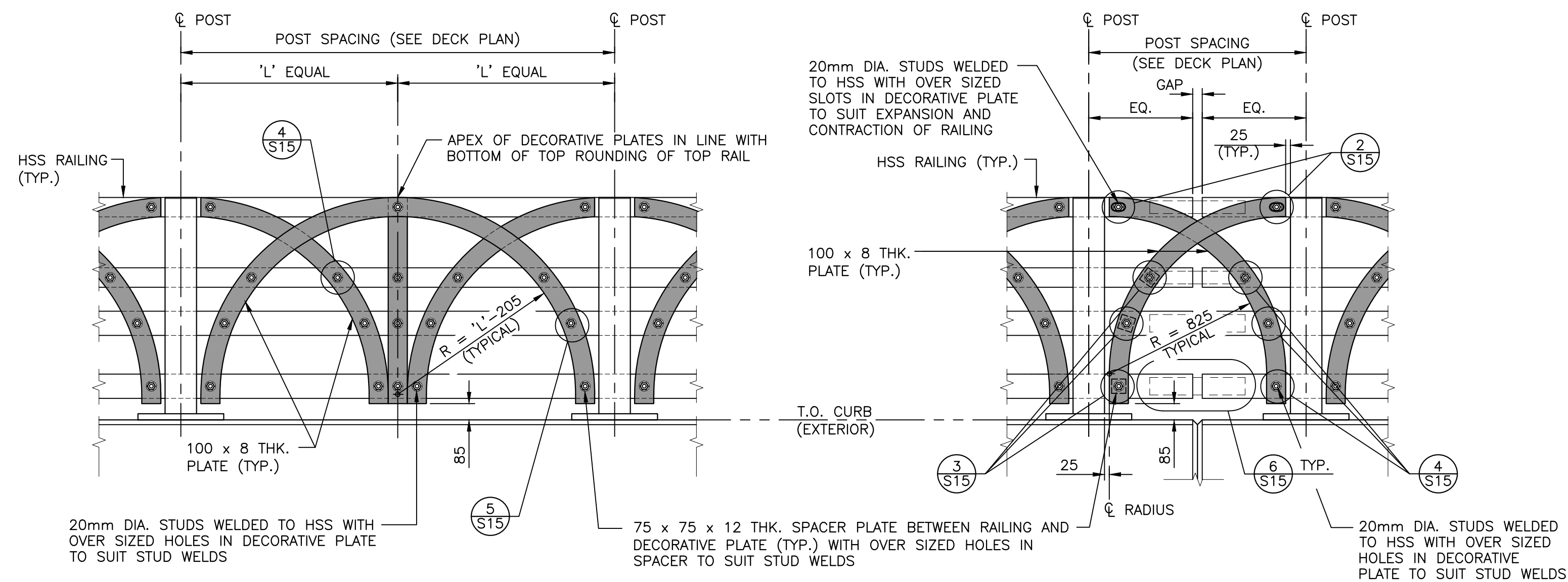
SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm

SECTION - EAST CURB

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm



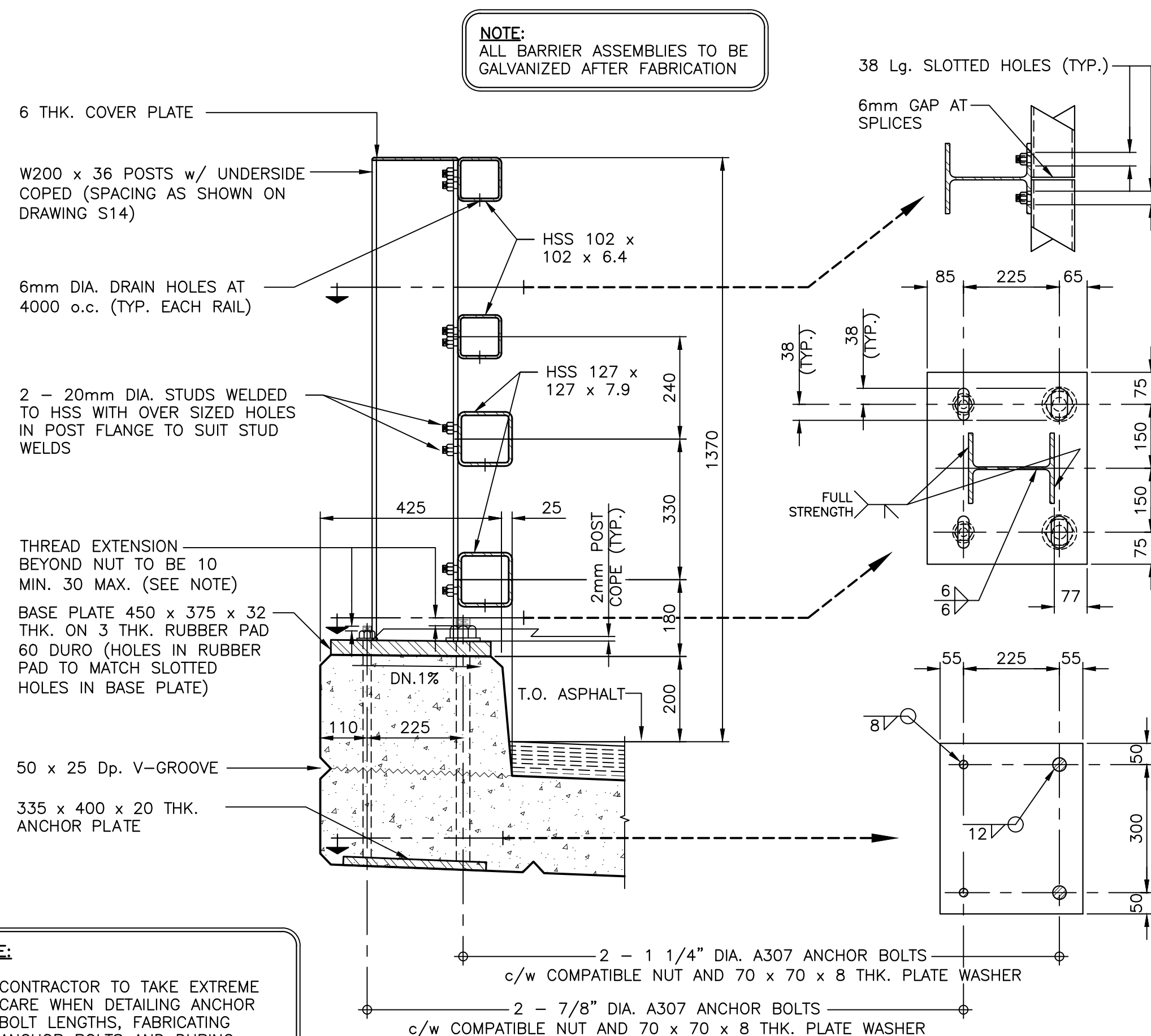
TYPICAL BARRIER DECORATIVE RAILING

DECORATIVE RAILING AT BARRIER EXPANSION JOINTS

ELEVATION - BARRIER DECORATIVE RAILINGS

SCALE : 1:20

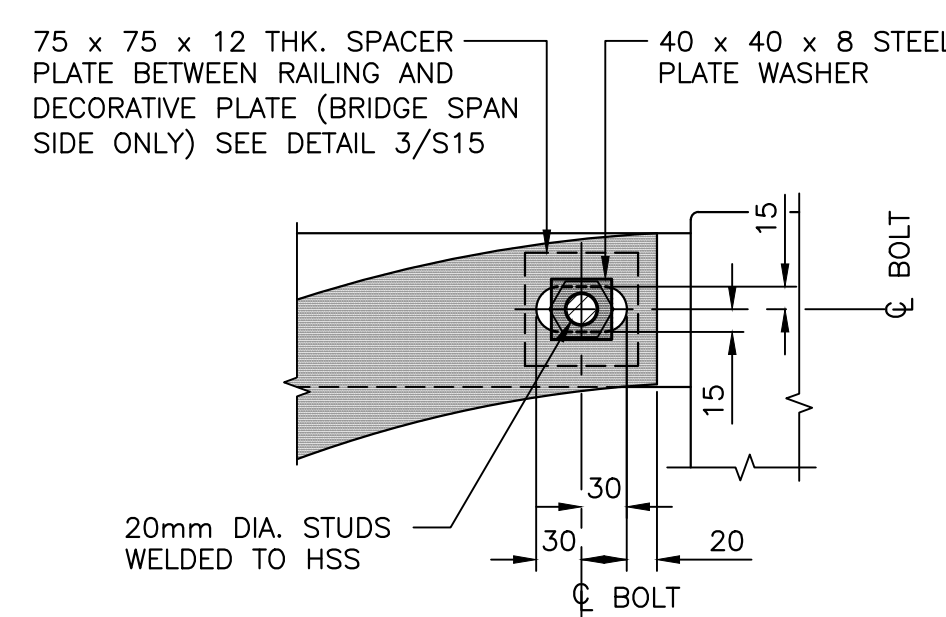
0mm 500mm 1000mm 1500mm 2000mm 2500mm



DETAIL - TYPICAL TRAFFIC BARRIER

SCALE : 1:10

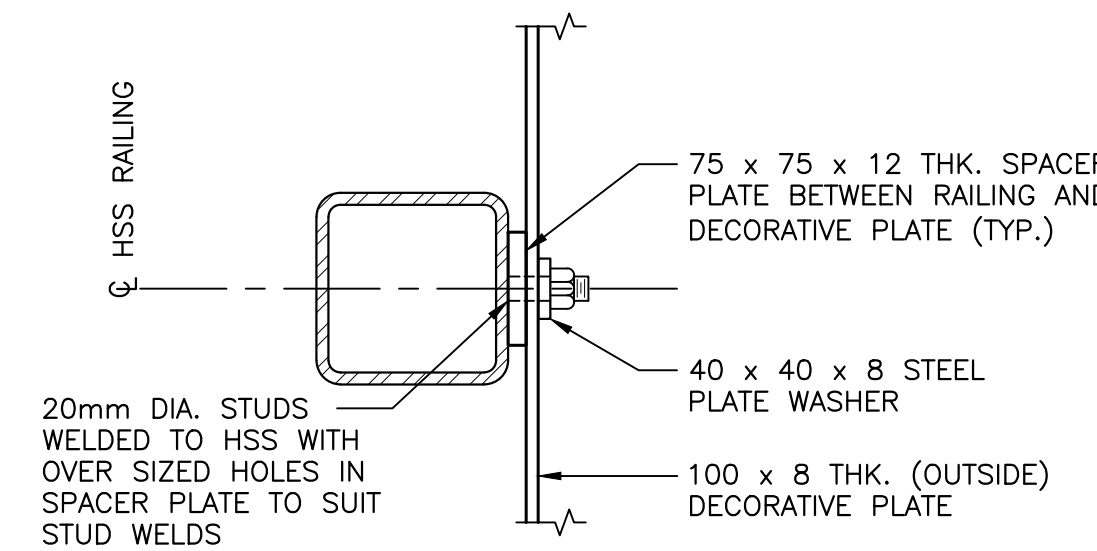
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DETAIL - DECORATIVE RAILING EXPANSION CONNECTION

SCALE : 1:5

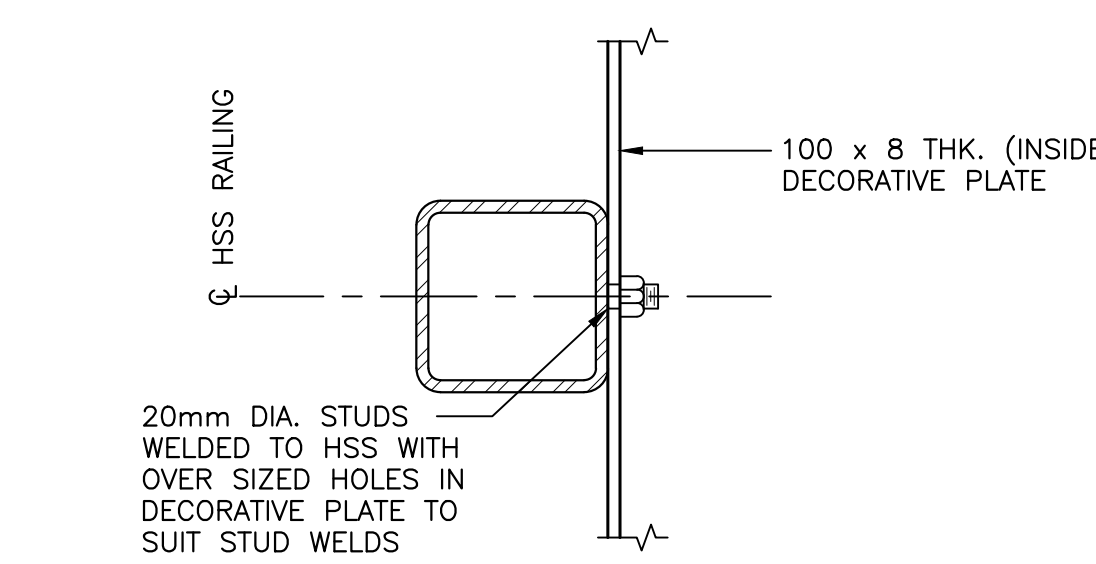
0mm 100mm 200mm 300mm 400mm 500mm



DETAIL - OUTSIDE PLATE CONNECTION AT EXPANSION JOINT

SCALE : 1:5

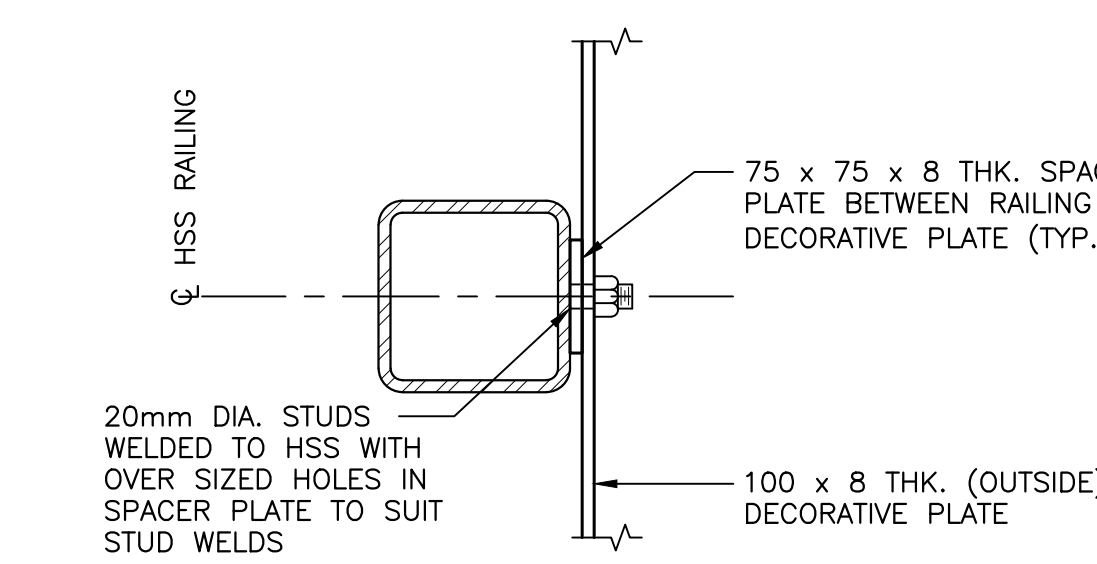
0mm 100mm 200mm 300mm 400mm 500mm



DETAIL - FLUSH PLATE CONNECTION

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm

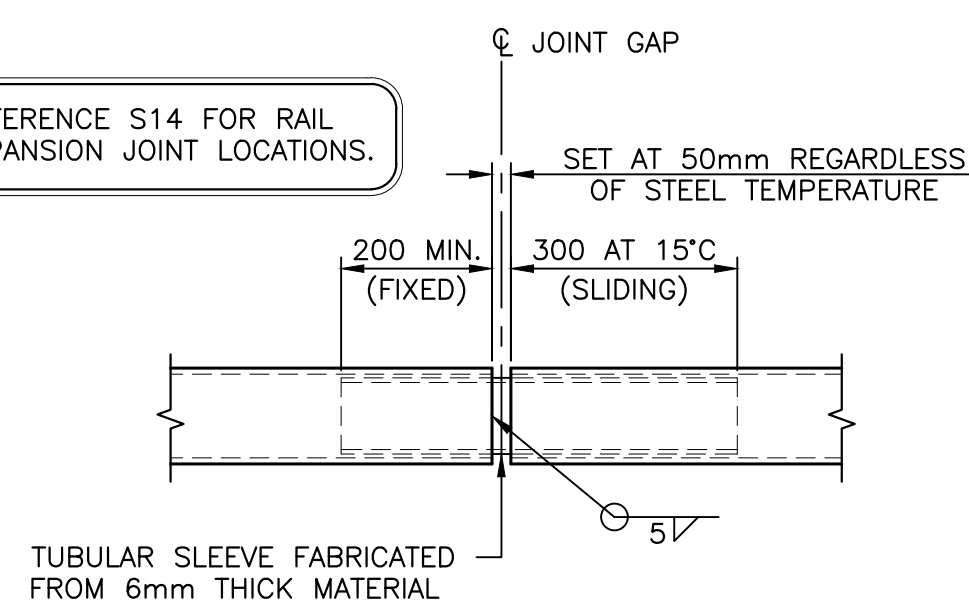


DETAIL - OUTSIDE PLATE CONNECTION

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm

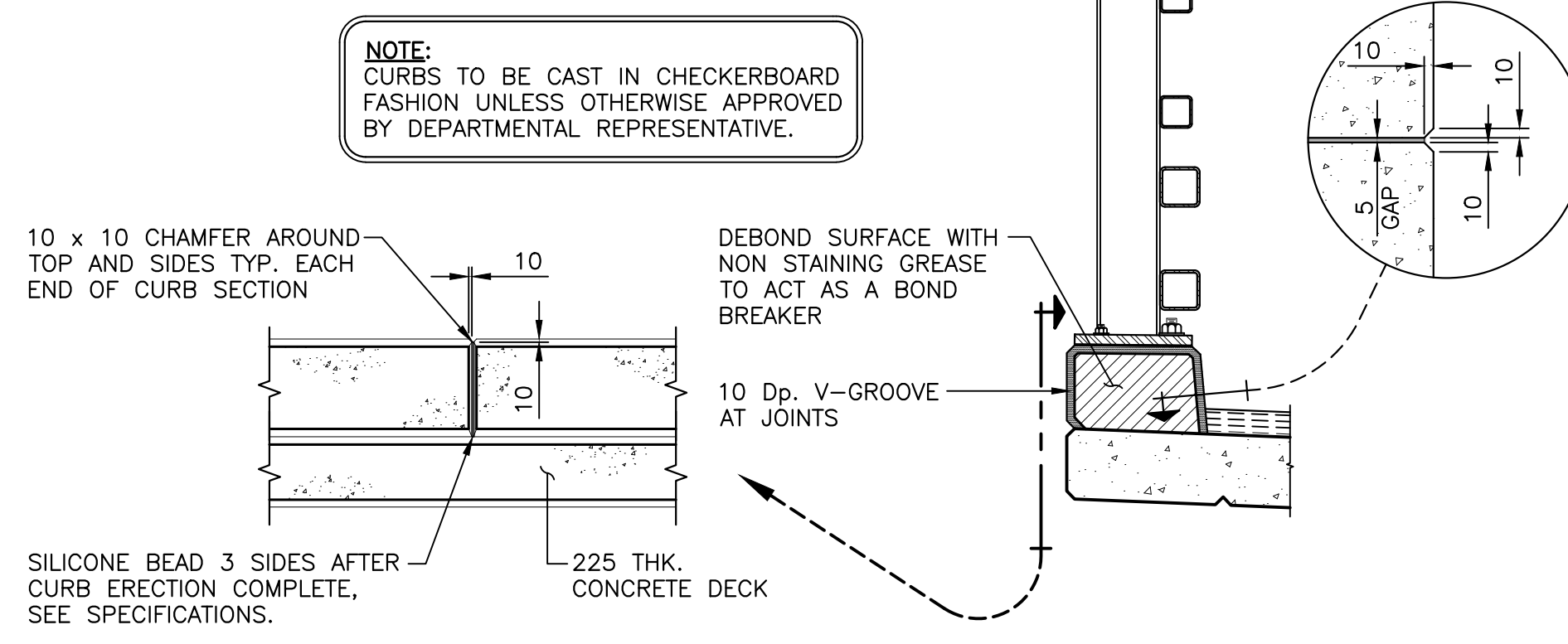
- NOTE:**
- CONTRACTOR TO TAKE EXTREME CARE WHEN DETAILING ANCHOR BOLT LENGTHS, FABRICATING ANCHOR BOLTS AND DURING INSTALLATION/CONCRETE CASTING OF ANCHOR BOLTS IN WINGWALLS TO ENSURE PROPER ALIGNMENT COVER, EMBEDMENT AND THREAD EXTENSIONS ARE PROVIDED.
  - BARRIER POSTS TO BE PLUMB IN TRANSVERSE BRIDGE DIRECTION, PARALLEL TO DECK/CURB IN LONGITUDINAL DIRECTION.



DETAIL - TYPICAL RAIL EXPANSION JOINT

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm



DETAIL - TYPICAL CURB CONTROL JOINT

SCALE : 1:20

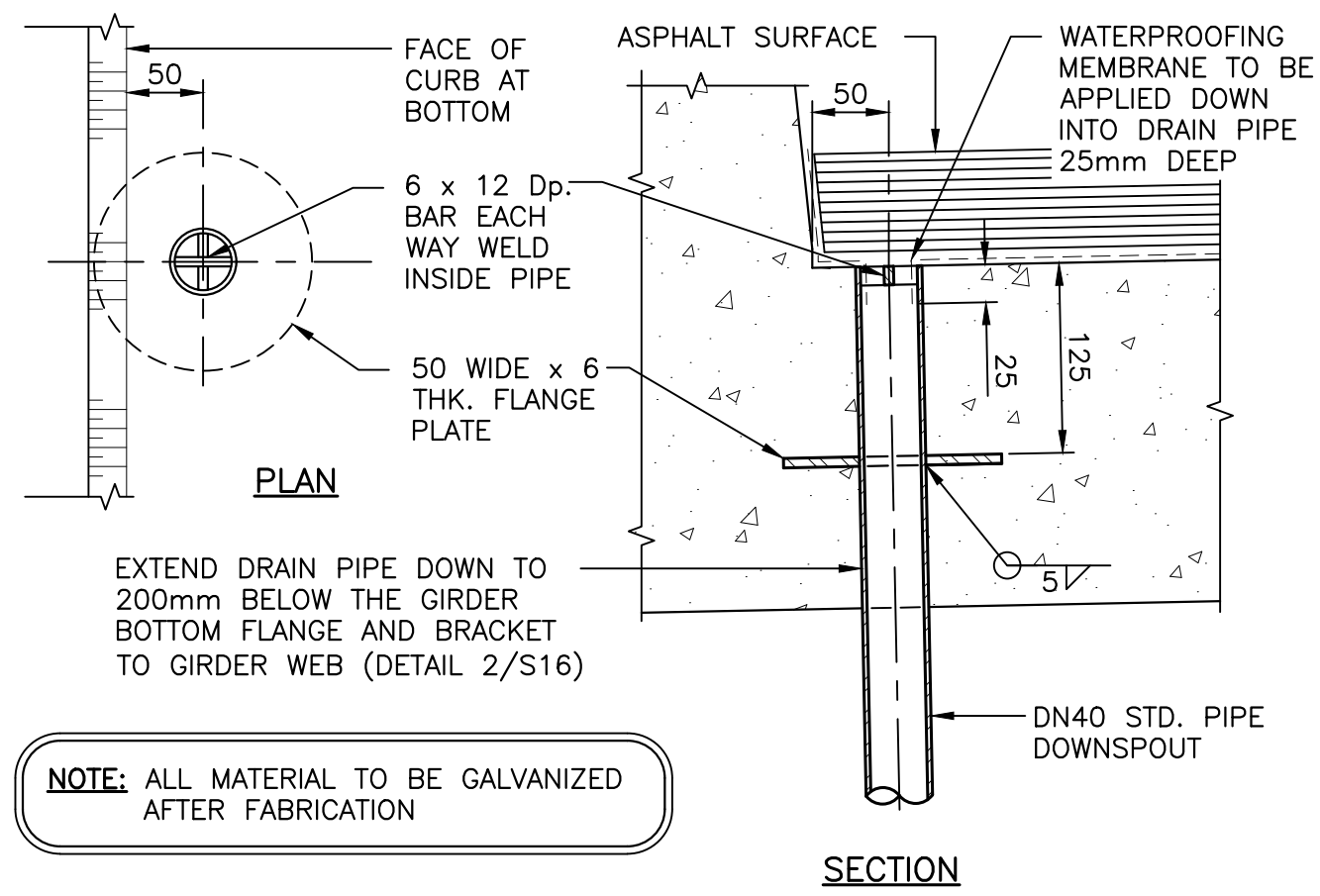
0mm 500mm 1000mm 1500mm 2000mm 2500mm

**MISCELLANEOUS METALS:**

- MISC. PLATE AND ANGLES TO CAN/CSA G40.21-350W.
- DRAIN PIPE TO ASTM A53 OR APPROVED ALTERNATE.
- ALL WELDING SHALL BE IN ACCORDANCE WITH CSA STANDARD W59 (LATEST EDITION WITH REVISIONS).
- COAT STEEL AS NOTED AND AS PER DETAILS AND PROJECT SPECIFICATIONS.

0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
	GROS MORNE NATIONAL PARK	
drawing		design
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S15	no. du dessin



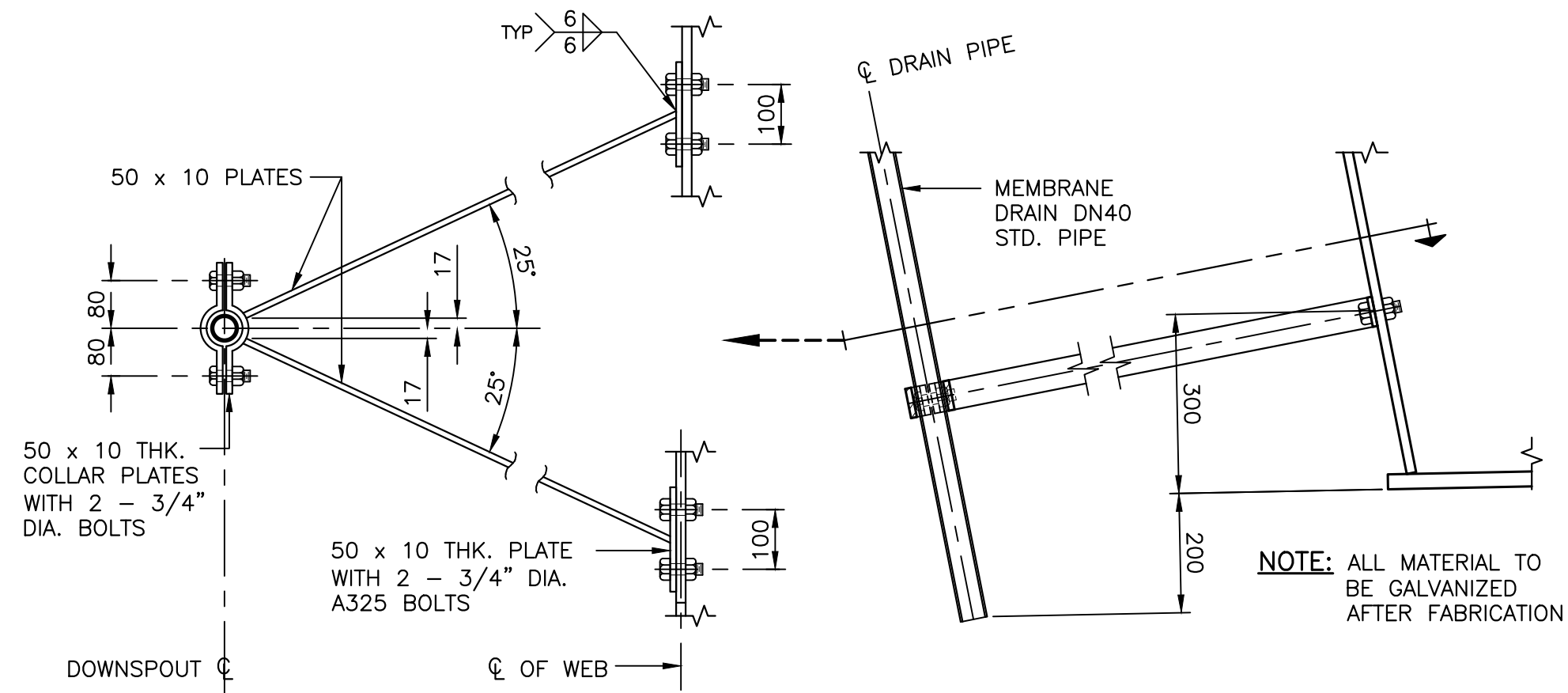


DETAIL — MEMBRANE DRAIN

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm

1  
S14



DETAIL — MEMBRANE DRAIN TO GIRDER CONNECTION

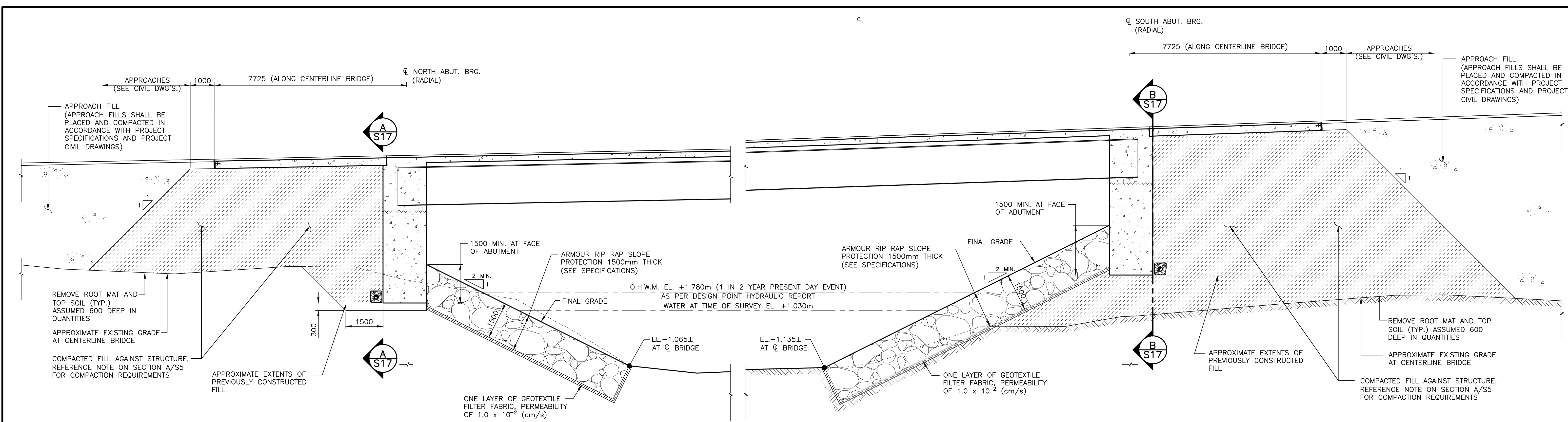
SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm

2  
S14

0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	projet
	GROS MORNE NATIONAL PARK	
drawing		dessin
	MISCELLANEOUS DECK DETAILS	
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWGC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S16	no. du dessin





**DETAIL - FILL AGAINST STRUCTURE/ RIP RAP DIAGRAMS**

SCALE : 1:75

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

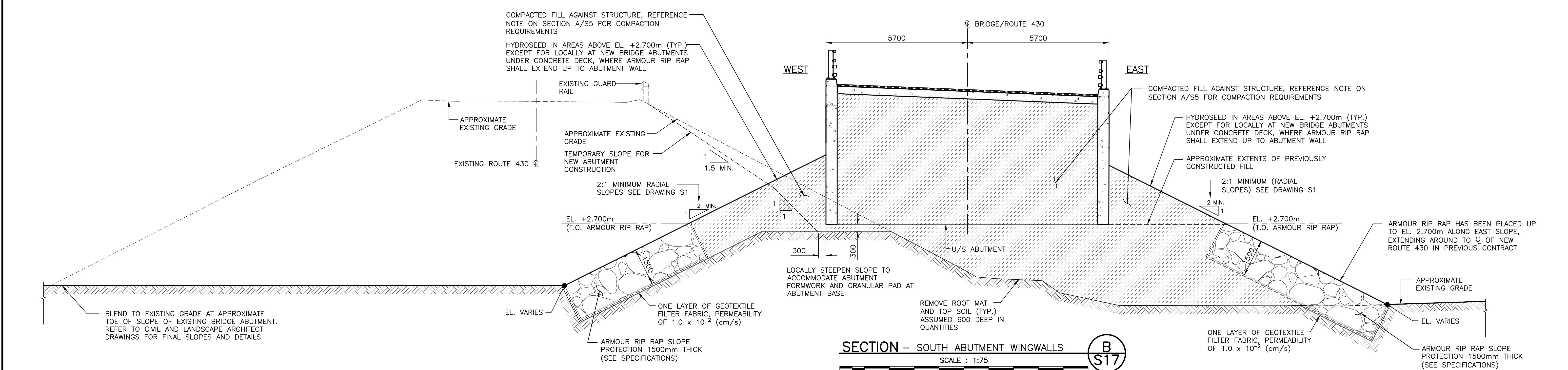
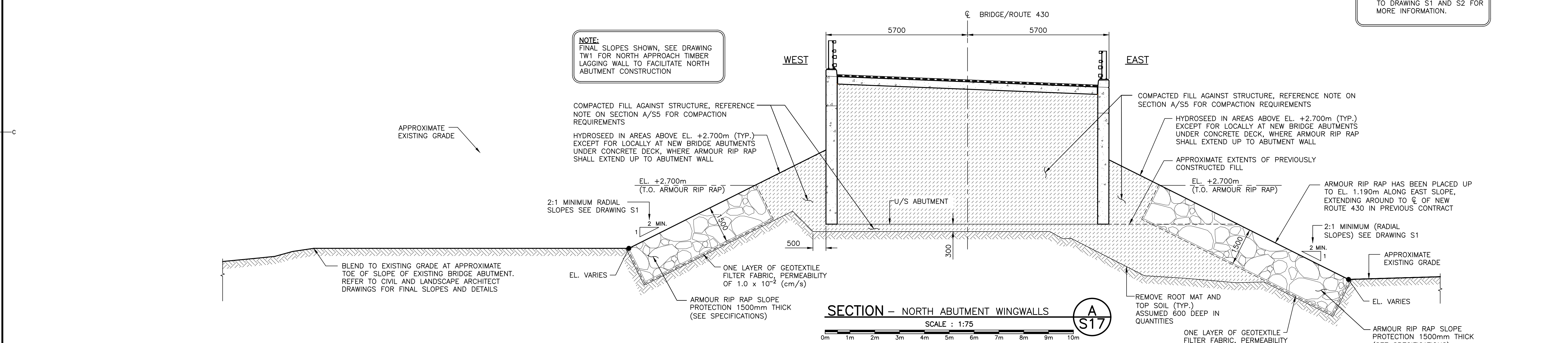
**1**  
**S1**

**NOTE:**

1. THIS DRAWING IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY. SLOPES VARY, REFER TO DRAWING S1 AND S2 FOR MORE INFORMATION.

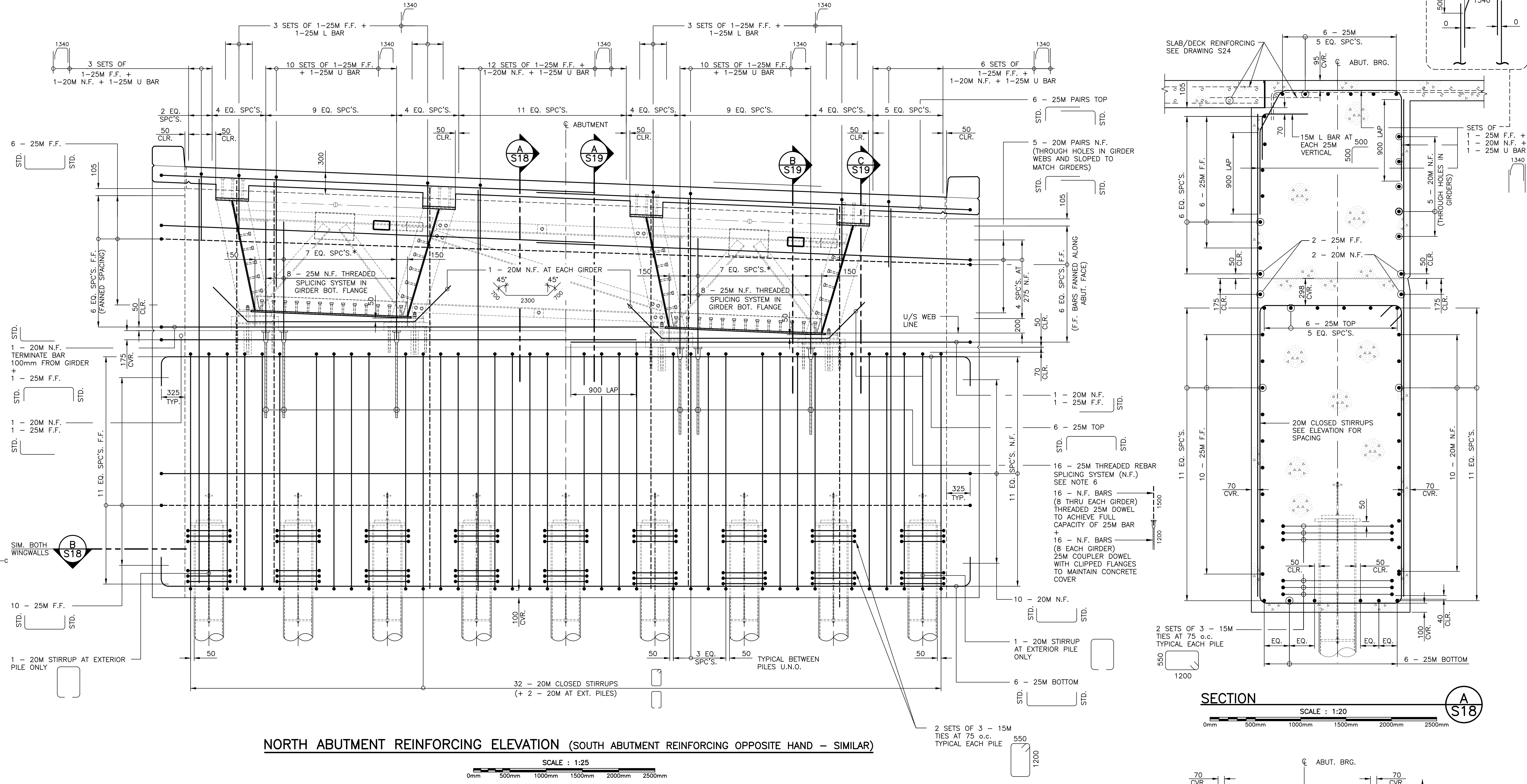
**NOTE:**

FINAL SLOPES SHOWN, SEE DRAWING TW1 FOR NORTH APPROACH TIMBER LAGGING WALL TO FACILITATE NORTH ABUTMENT CONSTRUCTION



0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
	GROS MORNE NATIONAL PARK	
drawing		design
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWSSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S17	no. du dessin



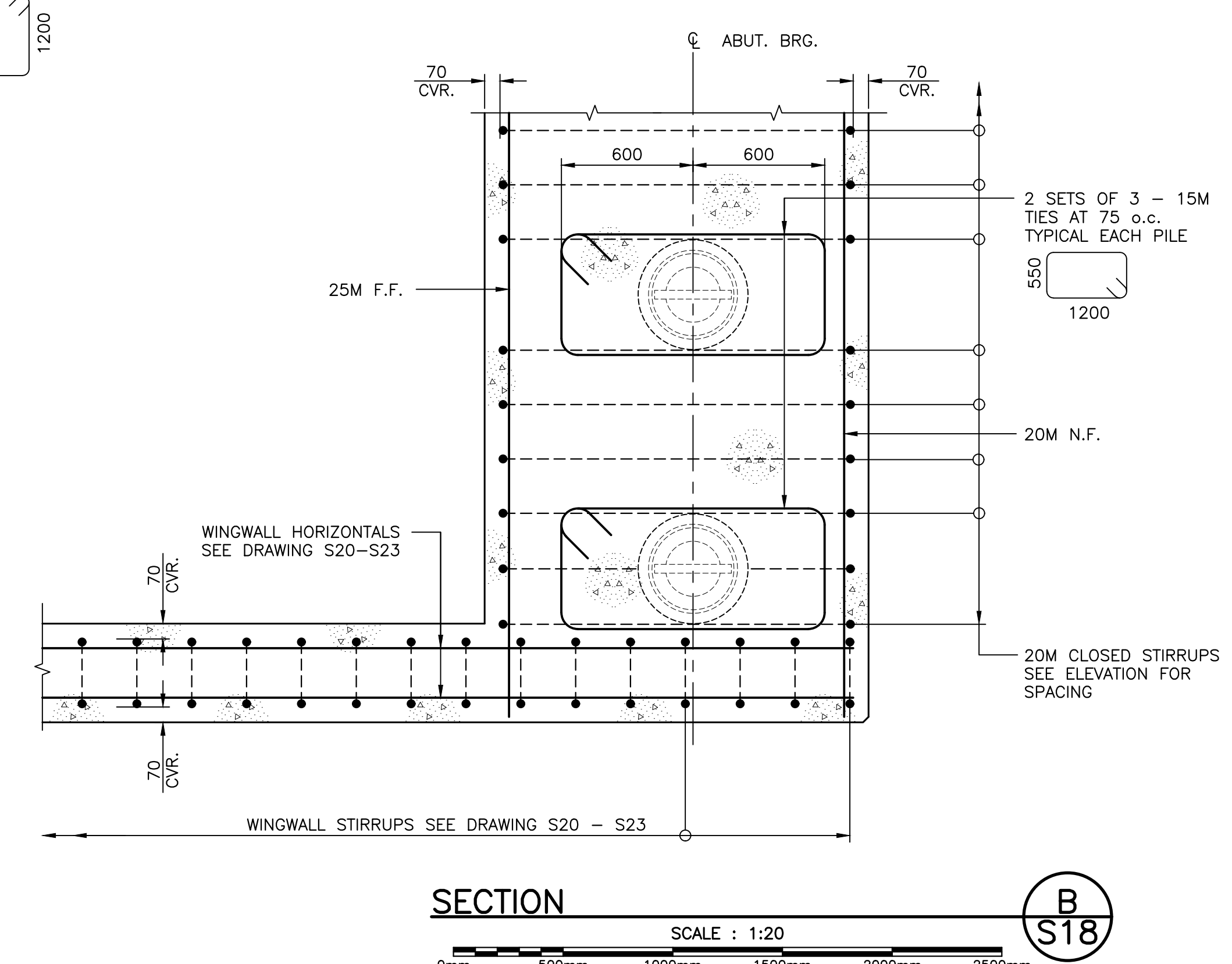
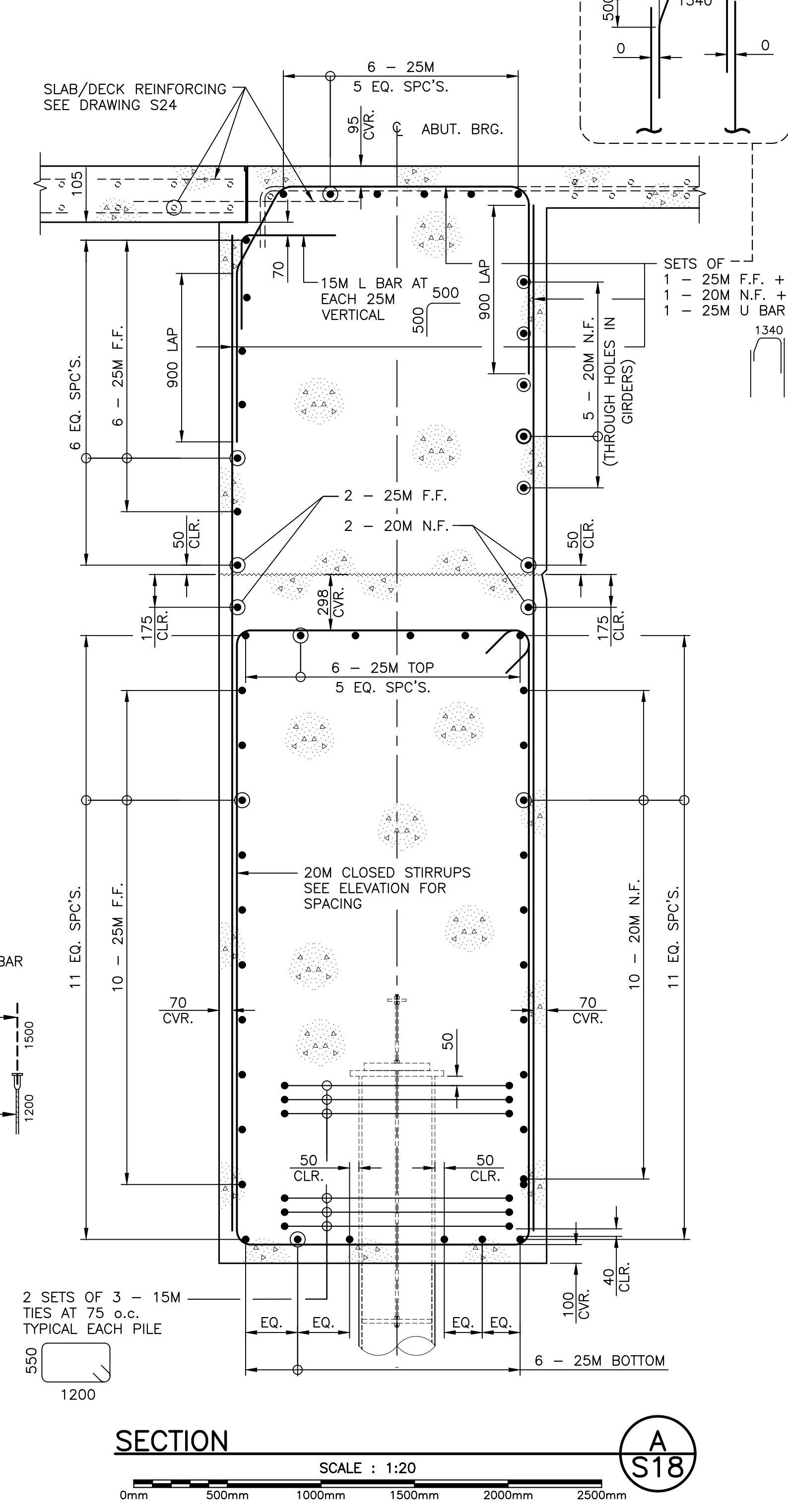


- NOTES:**
- ALL HORIZONTAL BARS TO HAVE STANDARD HOOKS AT END IN EACH WINGWALL. TURN ALL HOOKED HORIZONTAL BARS INTO WINGWALLS IN SUCH A MANNER AS TO MAINTAIN ALL COVERS AND AVOID CLASH WITH WINGWALL REINFORCING. REFERENCE PROJECT SPECIFICATIONS FOR REQUIRED BAR HOOK BEND DIAMETERS.
  - MINIMUM HORIZONTAL BAR LAPS: (U.N.O.)  
15M BARS - 600mm  
20M BARS - 800mm  
25M BARS - 1200mm
  - MINIMUM VERTICAL BAR LAPS: (U.N.O.)  
15M BARS - 600mm  
20M BARS - 600mm  
25M BARS - 900mm
  - VERTICAL BAR LAPS TO BE DETAILED TO INCLUDE ADDITIONAL 100mm OF LAP OVER THAT INDICATED IN NOTE 3 TO ACCOUNT FOR POTENTIAL ADJUSTMENTS/ALTERATIONS IN DECK DUE TO AS-BUILT CONDITIONS (e.g. 20M VERTICAL BARS SHALL BE DETAILED FOR 700mm LAP RATHER THAN 600mm).
  - ALL HORIZONTAL BARS TO EXTEND 325mm PAST I.F. OF WINGWALL.
  - BAR COUPLERS TO ACHIEVE FULL CAPACITY OF INDICATED BAR.
  - ALL REINFORCING TO BE GALVANIZED AFTER FABRICATION. CARE SHALL BE TAKEN WHEN HANDLING GALVANIZED BARS NOT TO DAMAGE COATINGS.
  - A CLEAR SPACING OF 30mm MINIMUM SHALL BE PROVIDED BETWEEN ALL GALVANIZED AND BLACK STEEL COMPONENTS, OTHERWISE THE GALVANIZED BAR SHALL BE WRAPPED IN DENSO TAPE LOCALLY AT CONTACT POINT TO AVOID CONTACT BETWEEN DISSIMILAR METALS.

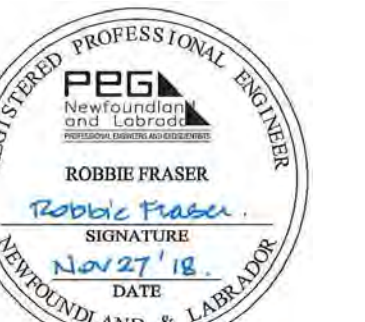
**REINFORCING LEGEND:**

N.F. — NEAR FACE	B.L.L. — BOTTOM LOWER LAYER
F.F. — FAR FACE	W.A. — WEST ABUTMENT
N.F.F. — NEAR FAR FACE	E.A. — EAST ABUTMENT
F.F.F. — FAR FAR FACE	N.E. — NORTH EAST WINGWALL
E.F. — EACH FACE	N.W. — NORTH WEST WINGWALL
E.W. — EACH WAY	S.E. — SOUTH EAST WINGWALL
I.F. — INSIDE FACE	S.W. — SOUTH WEST WINGWALL
O.F. — OUTSIDE FACE	N.C. — NORTH CURB
I.C. — IN CENTER	S.C. — SOUTH CURB
T.U.L. — TOP UPPER LAYER	CVR. — COVER
T.L.L. — TOP LOWER LAYER	CLR. — CLEAR
B.U.L. — BOTTOM UPPER LAYER	

**\*NOTE:**  
COORDINATE WITH GIRDER FABRICATOR TO ENSURE BAR COUPLERS CAST INTO BEAM SEAT ARE IN LINE WITH HOLES IN GIRDER BOTTOM FLANGES (LONGITUDINALLY AND TRANSVERSELY)







PROVINCE OF NEWFOUNDLAND AND LABRADOR  
**EG** PERMIT HOLDER  
Newfoundland and Labrador  
This Permit Allows  
HARBOURSIDE ENGINEERING CONSULTANTS  
To practice Professional Engineering in Newfoundland and Labrador.  
Permit No. as issued by PEG 700324 which is valid for the year 2018.

0	ISSUED FOR TENDER	11/27/2018
revisions		date

project	project
ROCKY BARACHOIS BRIDGE	ROCKY BARACHOIS BRIDGE
ROUTE 430	ROUTE 430

GROS MORNE NATIONAL PARK

ABUTMENT  
REINFORCING  
SECTIONS

designed SARAH HARDY	conçu
----------------------	-------

date MAY 2017	dessiné
---------------	---------

drawn WAYNE MORROW	date MAY 2017
--------------------	---------------

approved ROBBIE FRASER	approuvé
------------------------	----------

date	Submission
------	------------

Tender	no. du projet
--------	---------------

PWSC Project Manager	Administrateur de projets TPSC
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project number	1845
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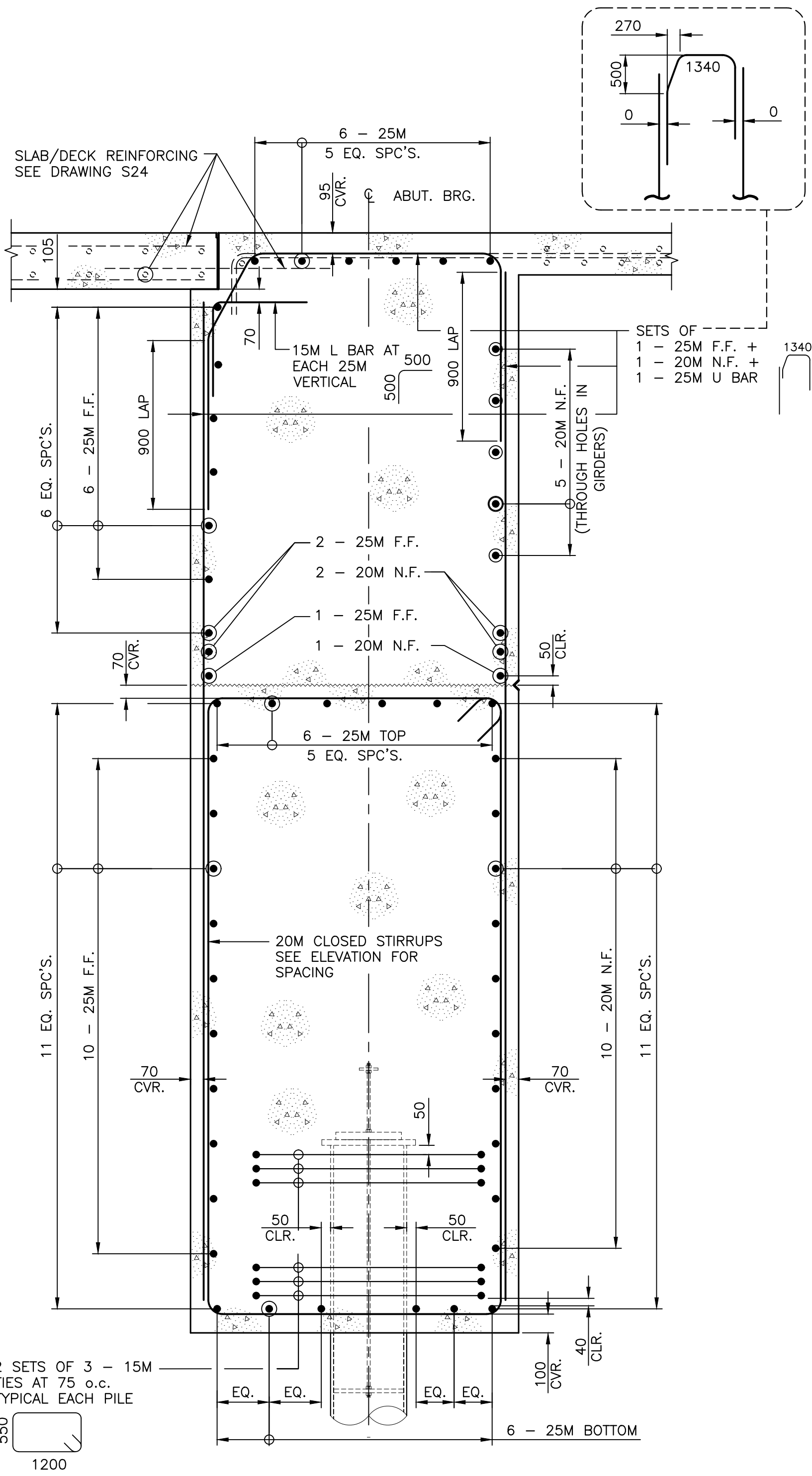
drawing no.	no. du dessin
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S19	
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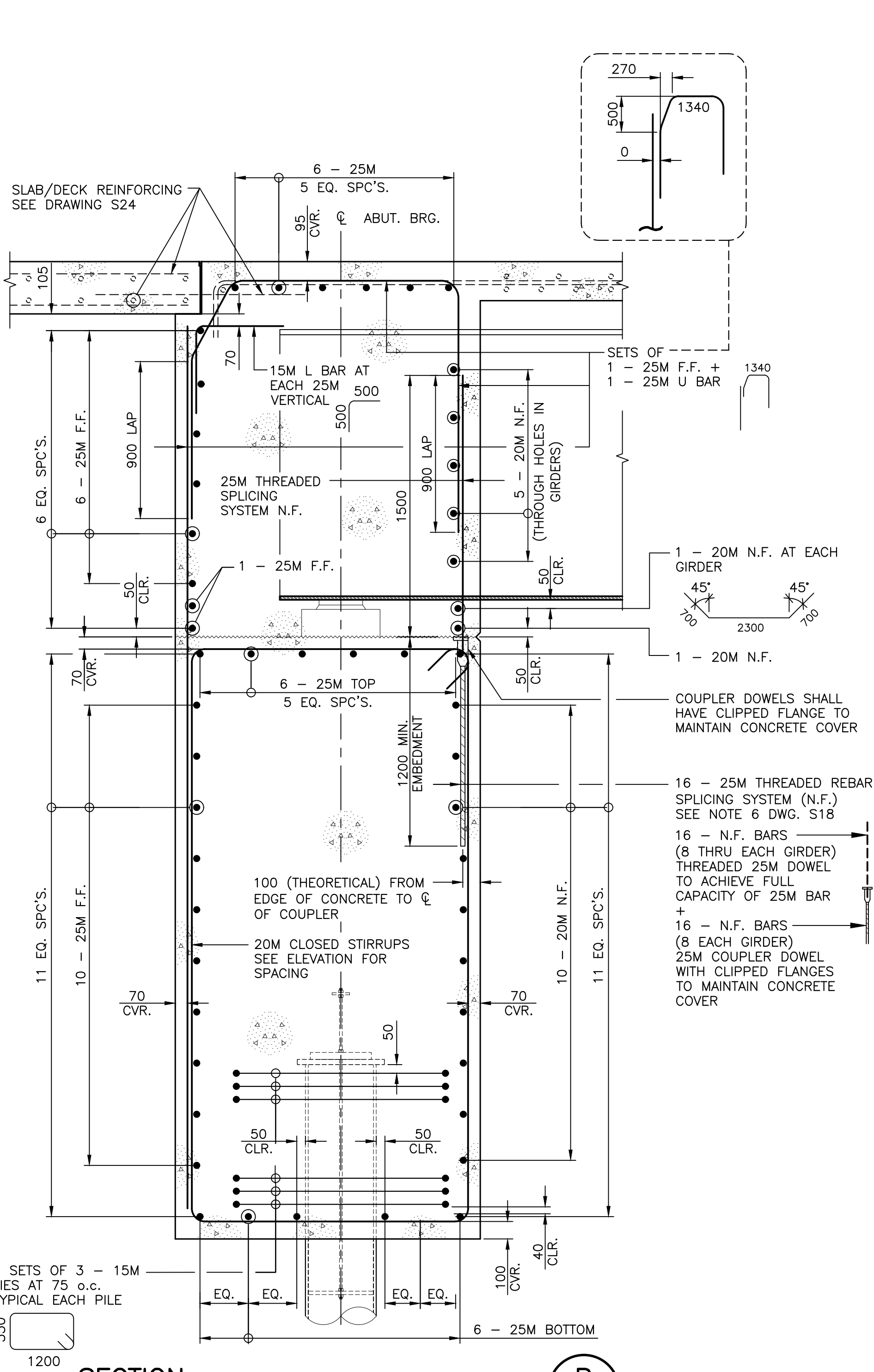
NOTES:  
1. REFER TO DRAWING S18 FOR NOTES.

REINFORCING LEGEND:

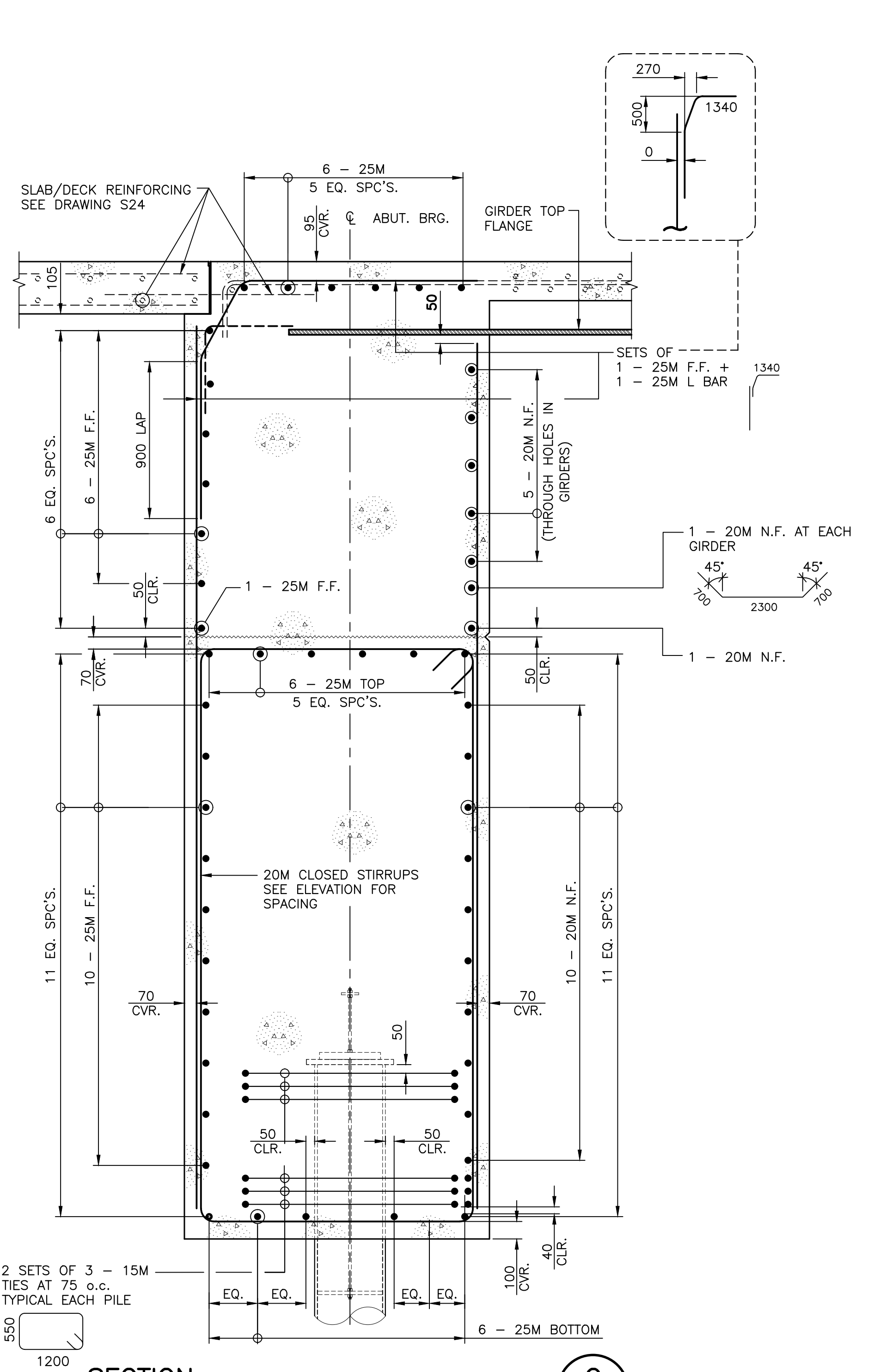
N.F. — NEAR FACE  
F.F. — FAR FACE  
N.F.F. — NEAR FAR FACE  
F.F.F. — FAR FAR FACE  
E.F. — EACH FACE  
E.W. — EACH WAY  
I.F. — INSIDE FACE  
O.F. — OUTSIDE FACE  
I.C. — IN CENTER  
T.U.L. — TOP UPPER LAYER  
T.L.L. — TOP LOWER LAYER  
B.U.L. — BOTTOM UPPER LAYER  
B.L.L. — BOTTOM LOWER LAYER  
CVR. — COVER  
CLR. — CLEAR



SECTION A  
SCALE : 1:20  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



SECTION B  
SCALE : 1:20  
0mm 500mm 1000mm 1500mm 2000mm 2500mm

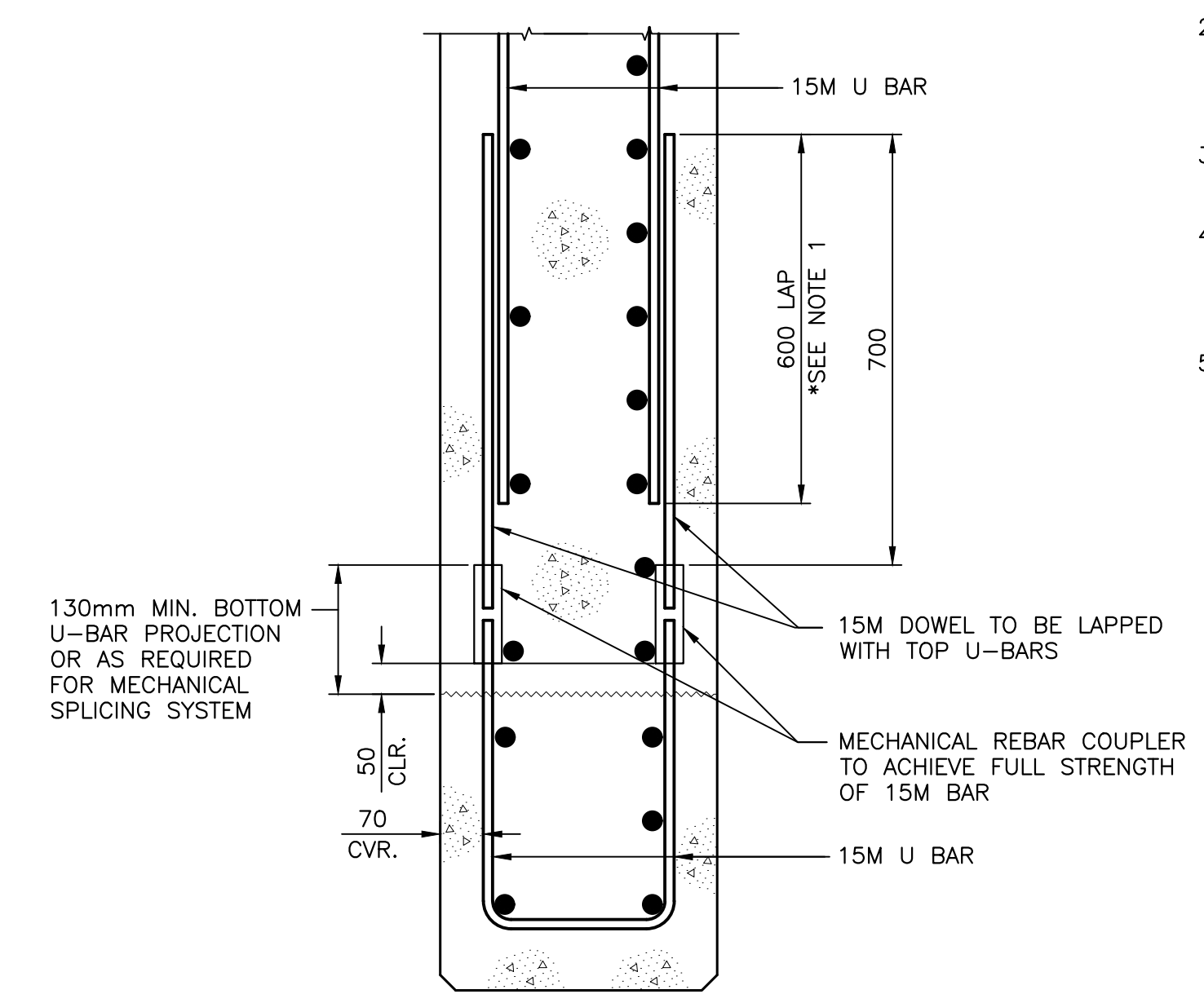
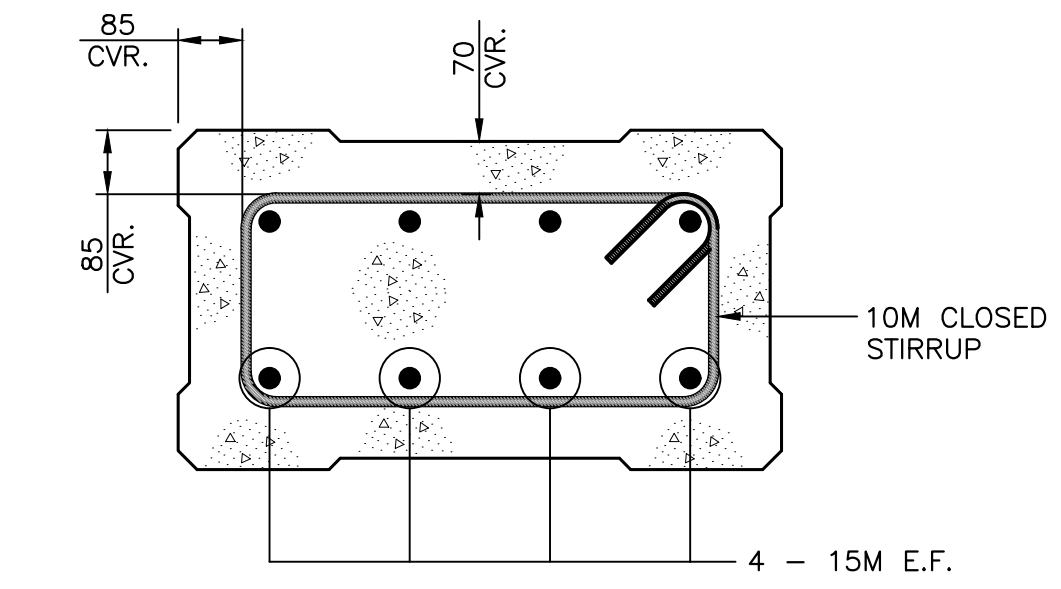
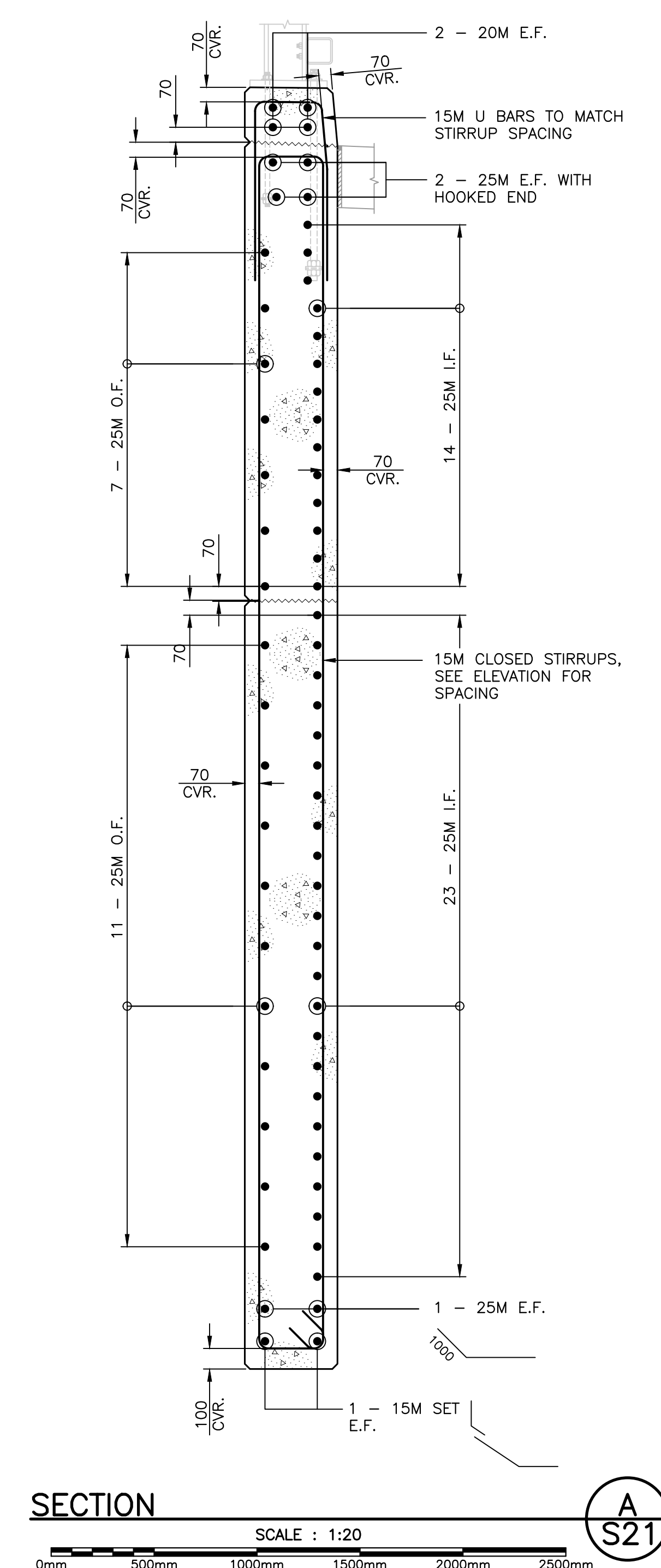


SECTION C  
SCALE : 1:20  
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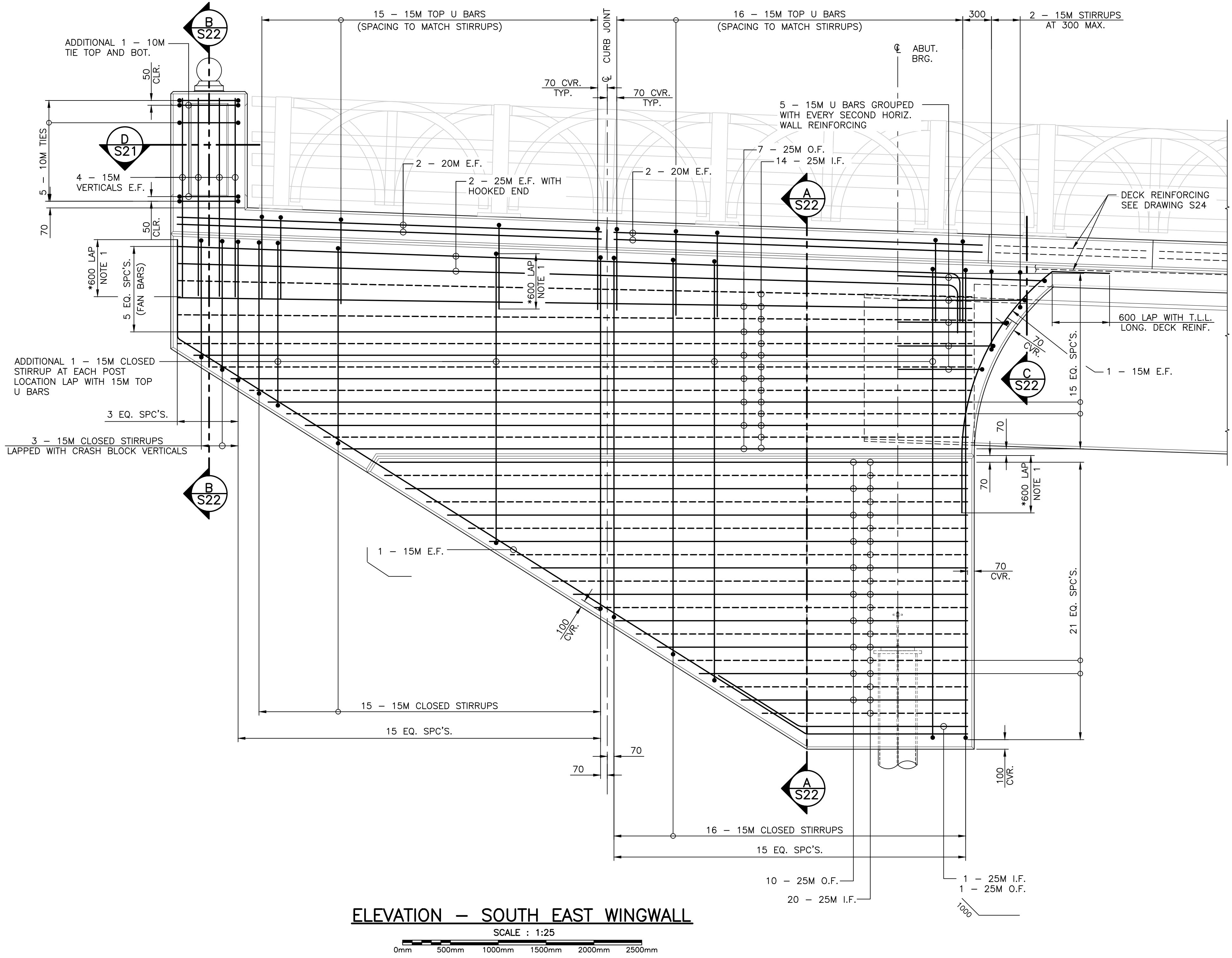


1. VERTICAL BAR LAPS TO BE DETAILED TO INCLUDE ADDITIONAL 100mm OF LAP OVER THE GREATER OF THAT INDICATED IN NOTE 3/S18 OR NOTED ON DRAWING TO ACCOUNT FOR POTENTIAL ADJUSTMENTS/ALTERATIONS IN DECK DUE TO AS-BUILT CONDITIONS (e.g. 20M VERTICAL BARS SHOWN TO BE DETAILED FOR 700mm LAP RATHER THAN 600mm).
2. IT IS ACCEPTABLE TO SUBSTITUTE 15M CLOSED STIRRUPS WITH 2 - LAPPED U-BARS PROVIDED LAPS ARE DETAILED AND CONSTRUCTED AS INDICATED IN NOTE 1.
3. REFER TO NOTE 2, DRAWING S18 FOR HORIZONTAL AND VERTICAL BAR LAPS (UNO).
4. ALL REINFORCING TO BE GALVANIZED AFTER FABRICATION, CARE SHALL BE TAKEN WHEN HANDLING GALVANIZED BARS TO AVOID DAMAGE TO THE COATINGS.
5. STIRRUPS WITHIN THIS REGION SHALL BE AS INDICATED IN DETAIL 1/S21 TO ALLOW CRANE PLACEMENT FOR GIRDER ERECTION.



0	ISSUED FOR TENDER	11/27 2018
revisions		date
project	project	
<p>ROCKY BARACHOIS BRIDGE ROUTE 430</p> <p>GROS MORNE NATIONAL PARK</p>		
drawing	dessin	
<p>SOUTH WEST WINGWALL REINFORCING</p>		
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender	Sourmission	
PWSCS Project Manager	Administrateur de projets TPSGC	
project number	no. du projet	
<p>1845</p>		
drawing no.	no. du dessin	
<p>S21</p>		



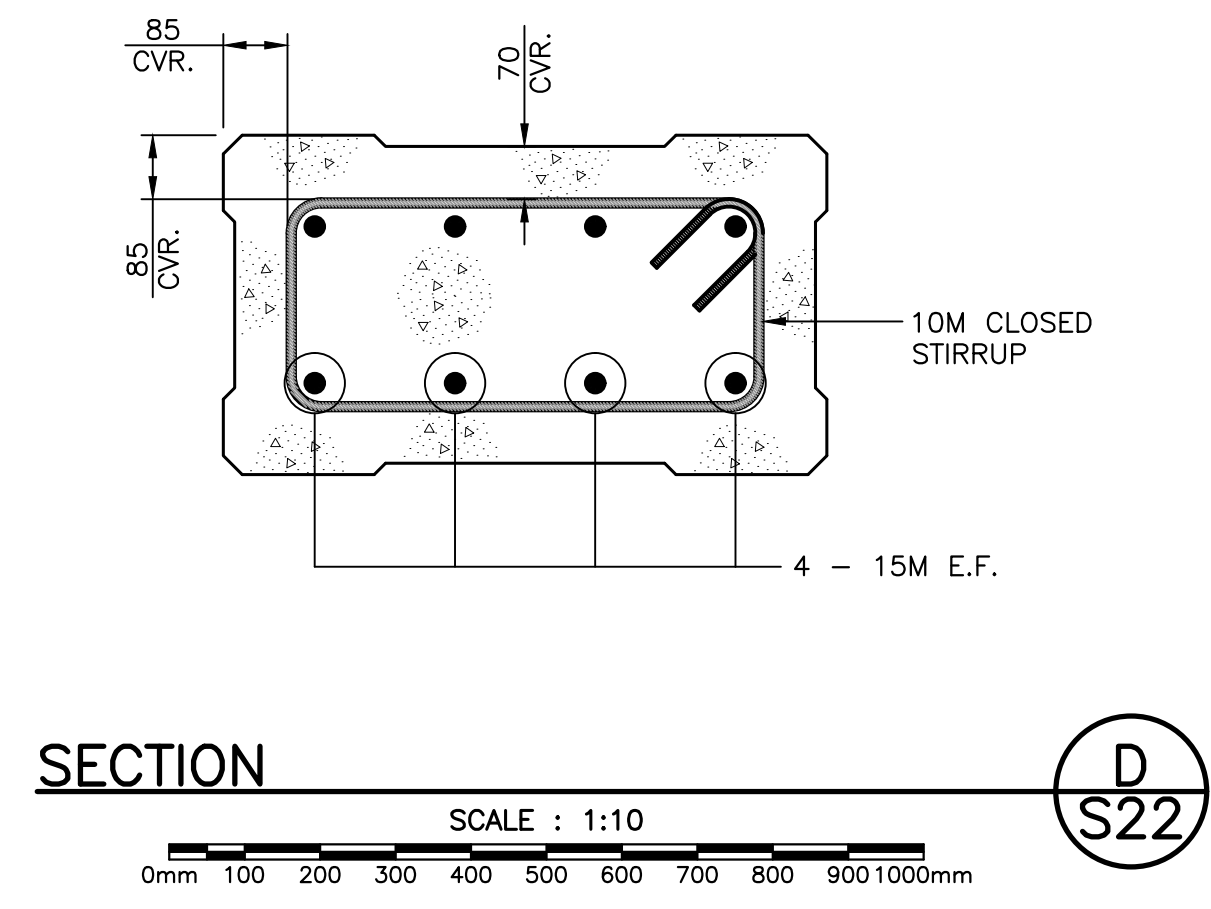
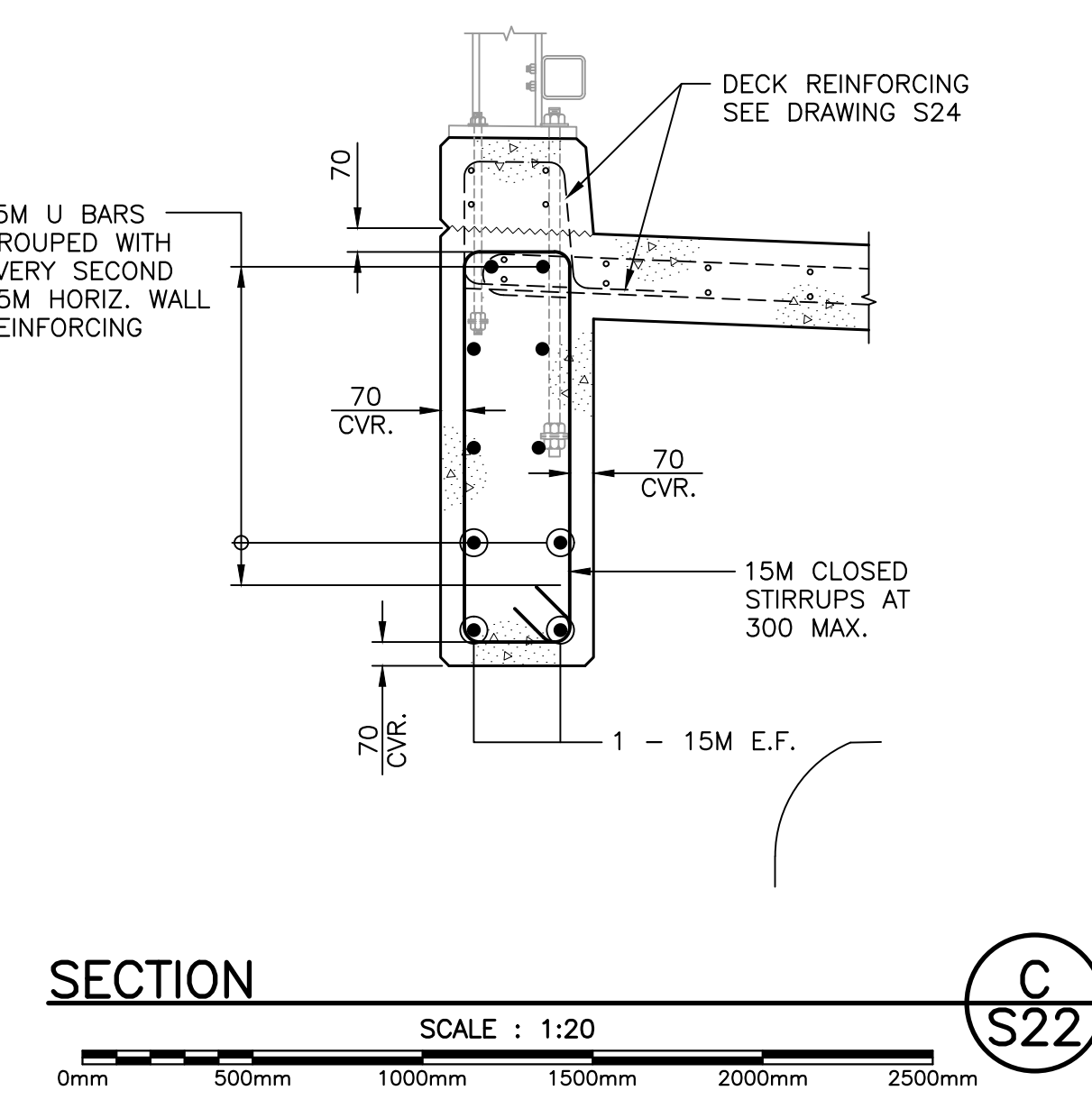
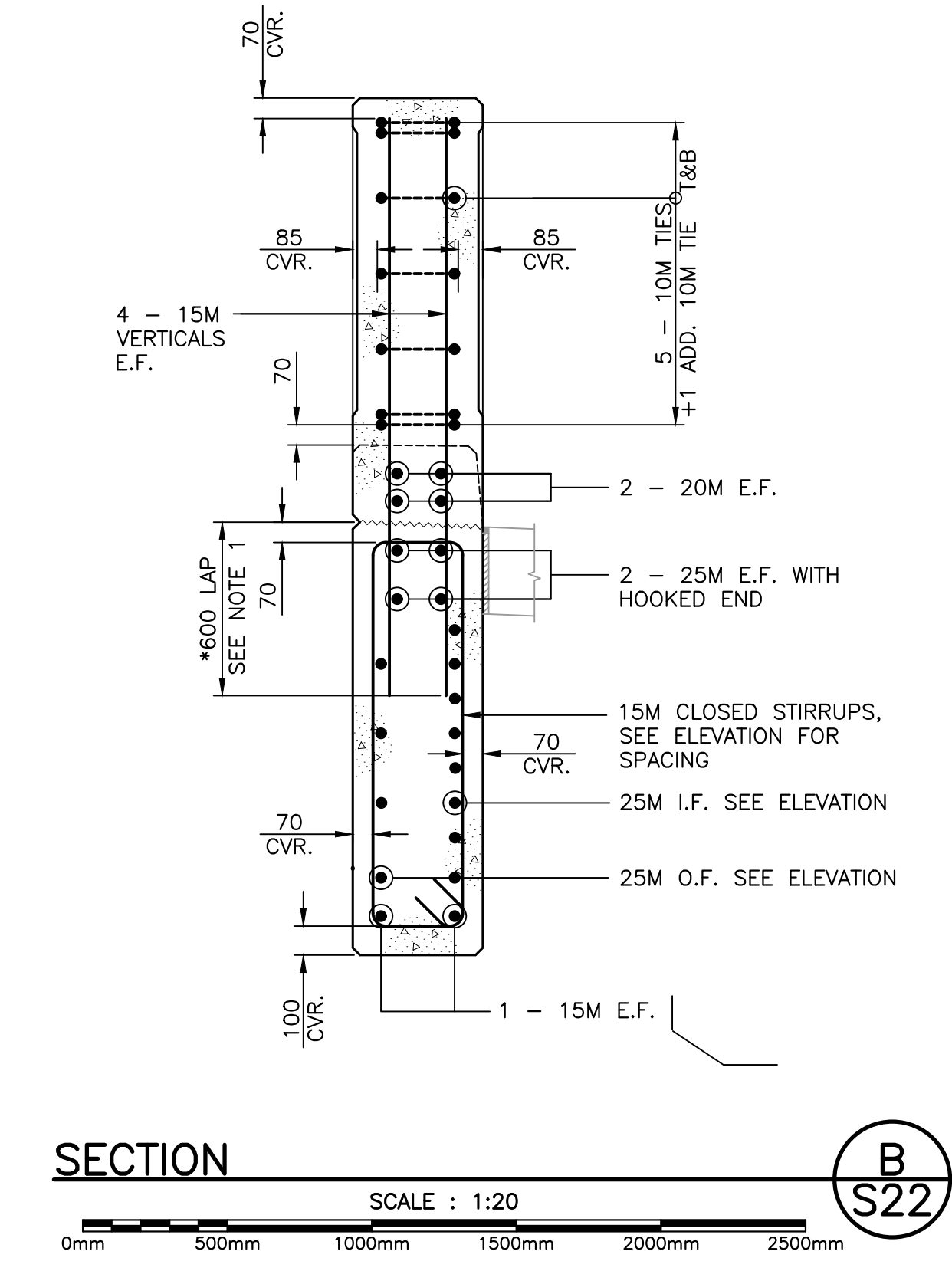


REINFORCING LEGEND:

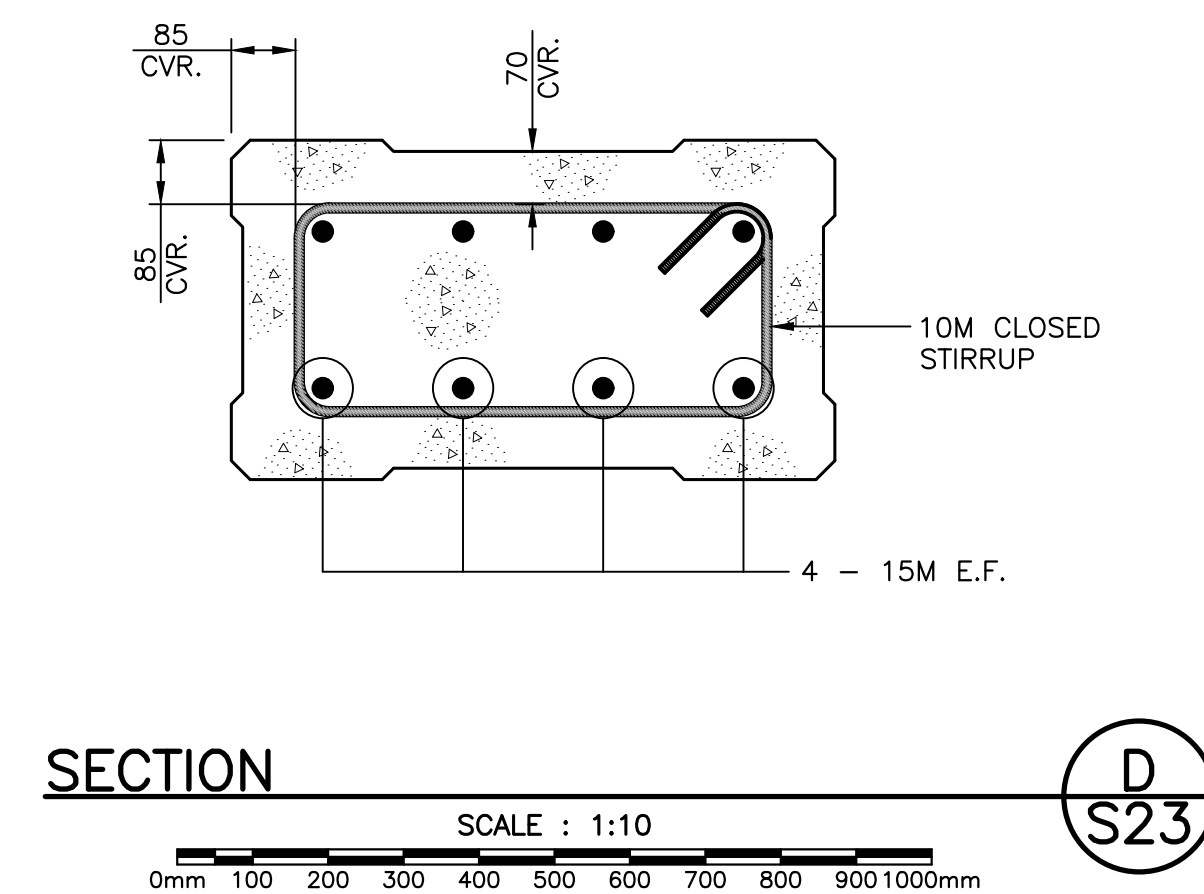
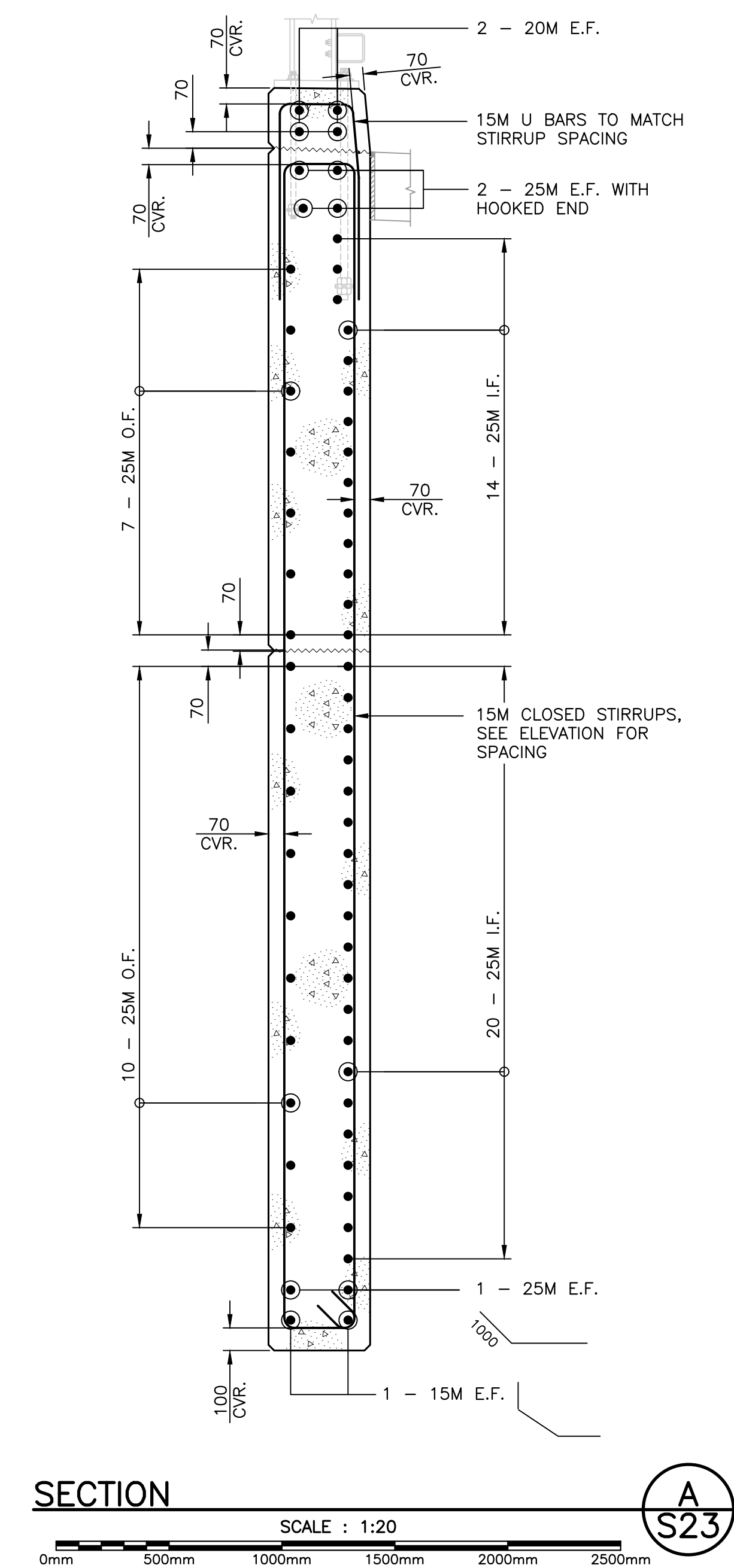
N.F. — NEAR FACE	I.C. — IN CENTER
F.F. — FAR FACE	T.U.L. — TOP UPPER LAYER
N.F.F. — NEAR FAR FACE	T.L.L. — TOP LOWER LAYER
F.F.F. — FAR FAR FACE	B.U.L. — BOTTOM UPPER LAYER
E.F. — EACH FACE	B.L.L. — BOTTOM LOWER LAYER
E.W. — EACH WAY	CVR. — COVER
I.F. — INSIDE FACE	CLR. — CLEAR
O.F. — OUTSIDE FACE	

NOTES:

1. VERTICAL BAR LAPS TO BE DETAILED TO INCLUDE ADDITIONAL 100mm OF LAP OVER THE GREATER OF THAT INDICATED IN NOTE 3/S18 OR NOTED ON DRAWING TO ACCOUNT FOR POTENTIAL ADJUSTMENTS/ALTERATIONS IN DECK DUE TO AS-BUILT CONDITIONS (e.g. 20M VERTICAL BARS SHALL BE DETAILED FOR 700mm LAP RATHER THAN 600mm).
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4. ALL REINFORCING TO BE GALVANIZED AFTER FABRICATION. CARE SHALL BE TAKEN WHEN HANDLING GALVANIZED BARS TO AVOID DAMAGE TO THE COATINGS.

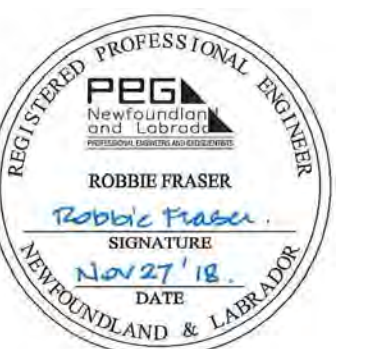




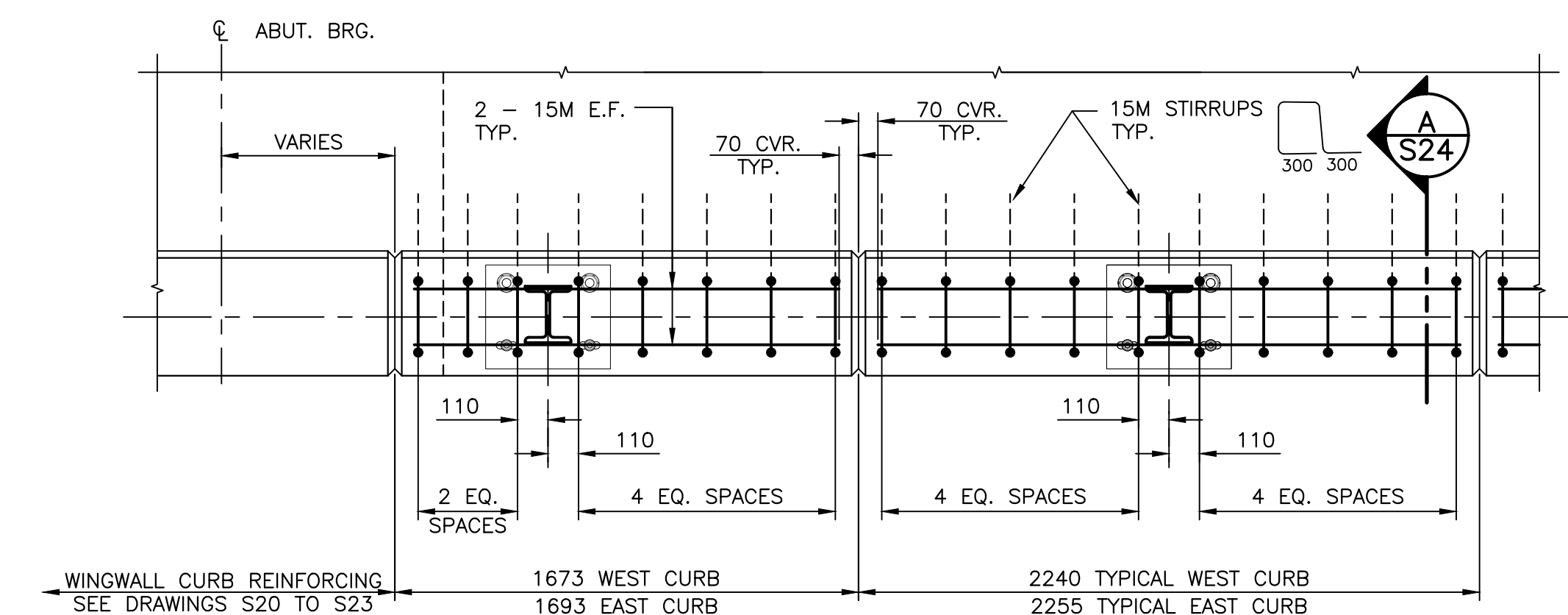
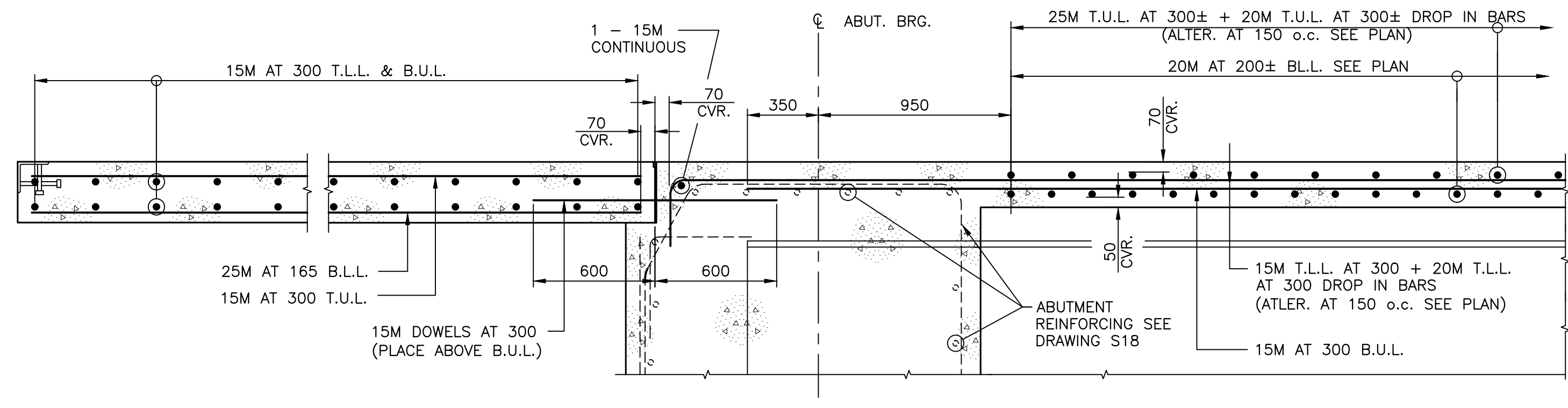
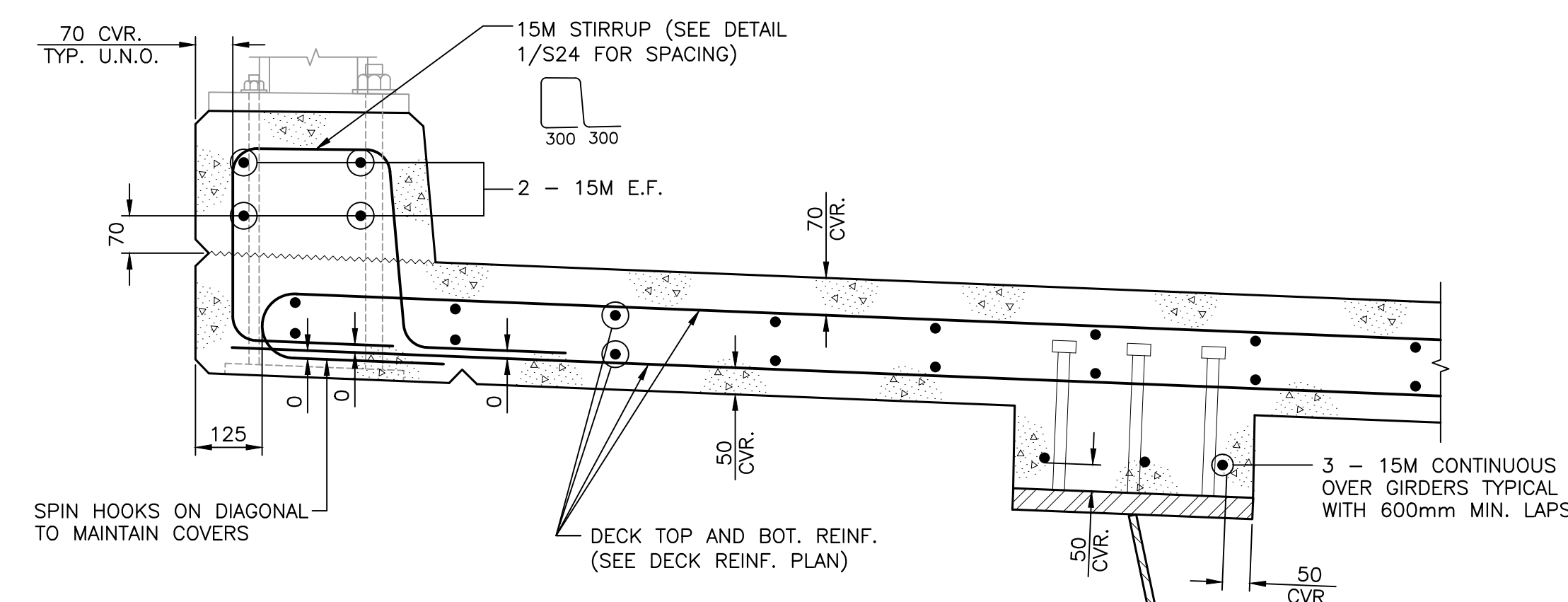
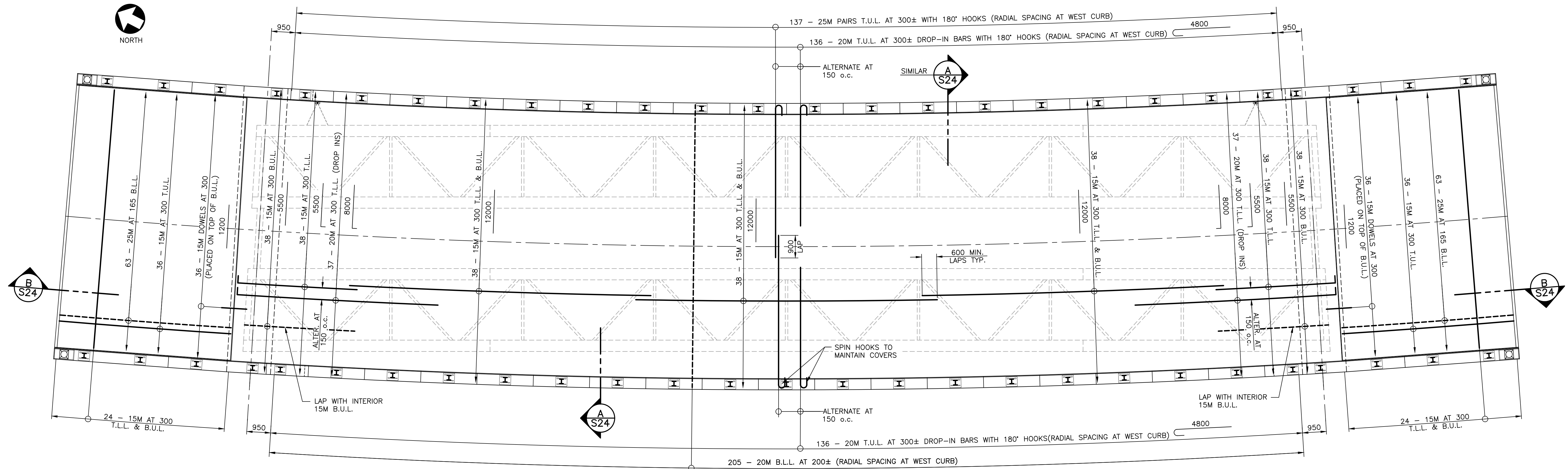


N.F. _____	NEAR FACE	I.C. _____	IN CENTER
F.F. _____	FAR FACE	T.U.L. _____	TOP UPPER LAYER
N.F.F. _____	NEAR FAR FACE	T.L.L. _____	TOP LOWER LAYER
F.F.F. _____	FAR FAR FACE	B.U.L. _____	BOTTOM UPPER LAYER
E.F. _____	EACH FACE	B.L.L. _____	BOTTOM LOWER LAYER
E.W. _____	EACH WAY	CVR. _____	COVER
I.F. _____	INSIDE FACE	CLR. _____	CLEAR
O.F. _____	OUTSIDE FACE		

1. VERTICAL BAR LAPS TO BE DETAILED TO INCLUDE ADDITIONAL 100mm OF LAP OVER THE GREATER OF THAT INDICATED IN NOTE 3/S18 OR NOTED ON DRAWING TO ACCOUNT FOR POTENTIAL ADJUSTMENTS/ALTERATIONS IN DECK DUE TO AS-BUILT CONDITIONS (e.g. 20M VERTICAL BARS SHALL BE DETAILED FOR 700mm LAP RATHER THAN 600mm).
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3. REFER TO NOTE 2, DRAWING S18 FOR HORIZONTAL AND VERTICAL BAR LAPS (UNO).
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PWGSC B1 (2004)

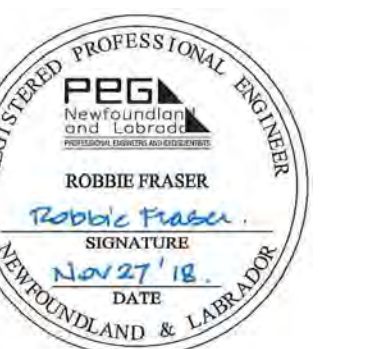




NOTE: A CLEAR SPACING OF 30mm MIN. SHALL BE PROVIDED BETWEEN ALL GALVANIZED AND BLACK STEEL COMPONENTS, OTHERWISE THE GALVANIZED BAR SHALL BE WRAPPED IN DENSOL TAPE LOCALLY AT CONTACT POINT TO AVOID CONSTACT BETWEEN DISSIMILAR METALS. LAPS AS INDICATED ON THIS DRAWING.

REINFORCING LEGEND:

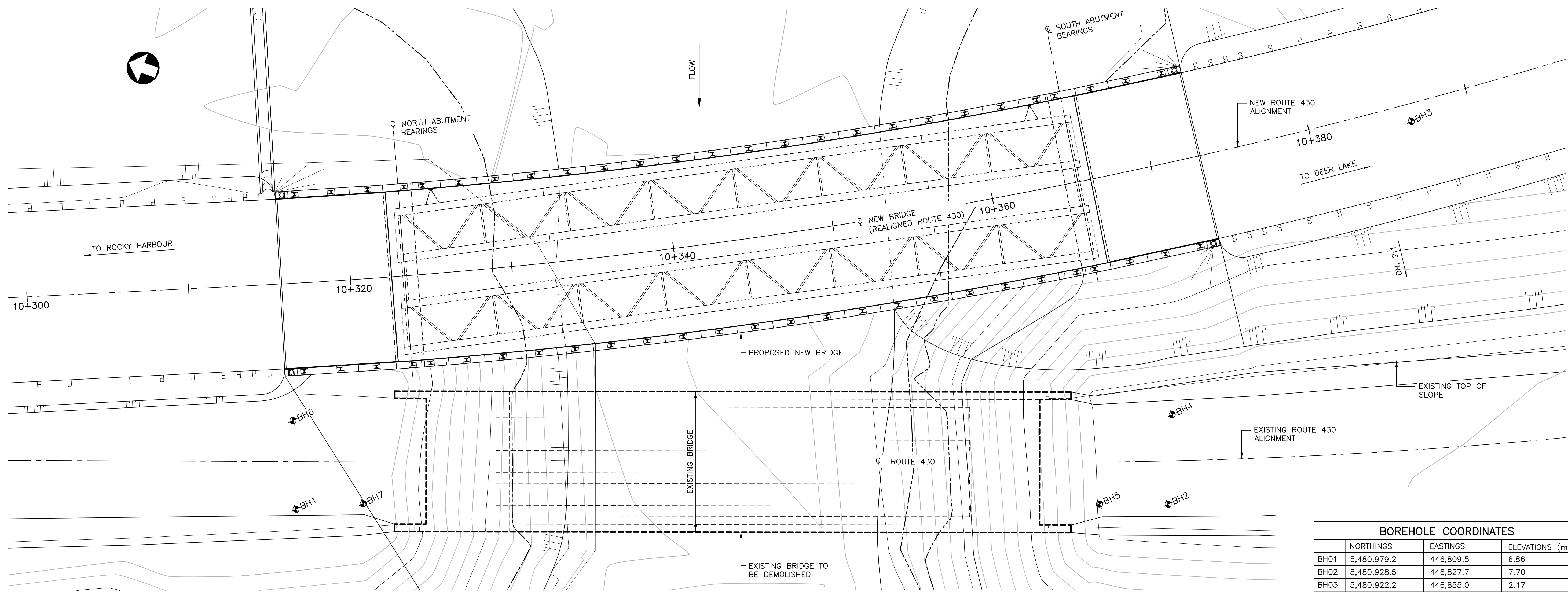
- N.F. — NEAR FACE
- F.F. — FAR FACE
- N.F.F. — NEAR FAR FACE
- F.F.F. — FAR FAR FACE
- E.F. — EACH FACE
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- O.F. — OUTSIDE FACE
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- T.U.L. — TOP UPPER LAYER
- T.L.L. — TOP LOWER LAYER
- B.U.L. — BOTTOM UPPER LAYER
- B.L.L. — BOTTOM LOWER LAYER
- CVR. — COVER
- CLR. — CLEAR



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
PERMIT HOLDER  
This Permit Allows  
HARBOURSIDE ENGINEERING CONSULTANTS  
To practice Professional Engineering in Newfoundland and Labrador.  
Permit No. as issued by PEO N0324 which is valid for the year 2018.

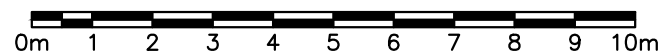
0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
drawing	GROS MORNE NATIONAL PARK	dessin
designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWSC Project Manager	Administrateur de projets TPSGC	
project number	1845	no. du projet
drawing no.	S24	no. du dessin





BOREHOLE PLAN

SCALE : 1:125




BOREHOLE COORDINATES		
	NORTHINGS	EASTINGS
		ELEVATIONS (m)
BH01	5,480,979.2	446,809.5
BH02	5,480,928.5	446,827.7
BH03	5,480,922.2	446,855.0
BH04	5,480,930.1	446,833.0
BH05	5,480,932.5	446,826.3
BH06	5,480,981.2	446,814.6
BH07	5,480,975.4	446,811.2

PAGE 1 OF 3

BOREHOLE RECORD		BH 01	
CLIENT: HARBORSIDE ENGINEERING CONSULTANTS		PROJECT No.: 163545	
LOCATION: ROCKY BARACHOIS BRIDGE, GROS MORNE NATIONAL PARK, NL		DATUM: CGVD28	
DATES: BORING 17/09/2016 TO 20/09/2016		WATER LEVEL: 22/09/2016	
		BH SIZE: HW	
DEPTH (m)	SOIL/BEDROCK DESCRIPTION	WATER LEVEL	OTHER TESTS
0.00	ASPHALT		
0.50	FILL: grey gravel with silt and sand to sand with silt and gravel		
1.00	FILL: brown to grey sand with silt and gravel - with occasional cobbles and boulders		
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6.50			
7.00	Compact to very dense brown to grey SAND with silt and gravel to GRAVEL with silt and sand (Alluvium) - with occasional cobbles and boulders		
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**HARBORSIDE**  
ENGINEERING CONSULTANTS

# BOREHOLE RECORD

BH 01

CLIENT: HARBORSIDE ENGINEERING CONSULTANTS

PROJECT No.: 163545

LOCATION: ROCKY BARACHOIS BRIDGE, GROS MORNE NATIONAL PARK, NL

DATUM: CGVD28

DATES: BORING 17/09/2016 TO 20/09/2016

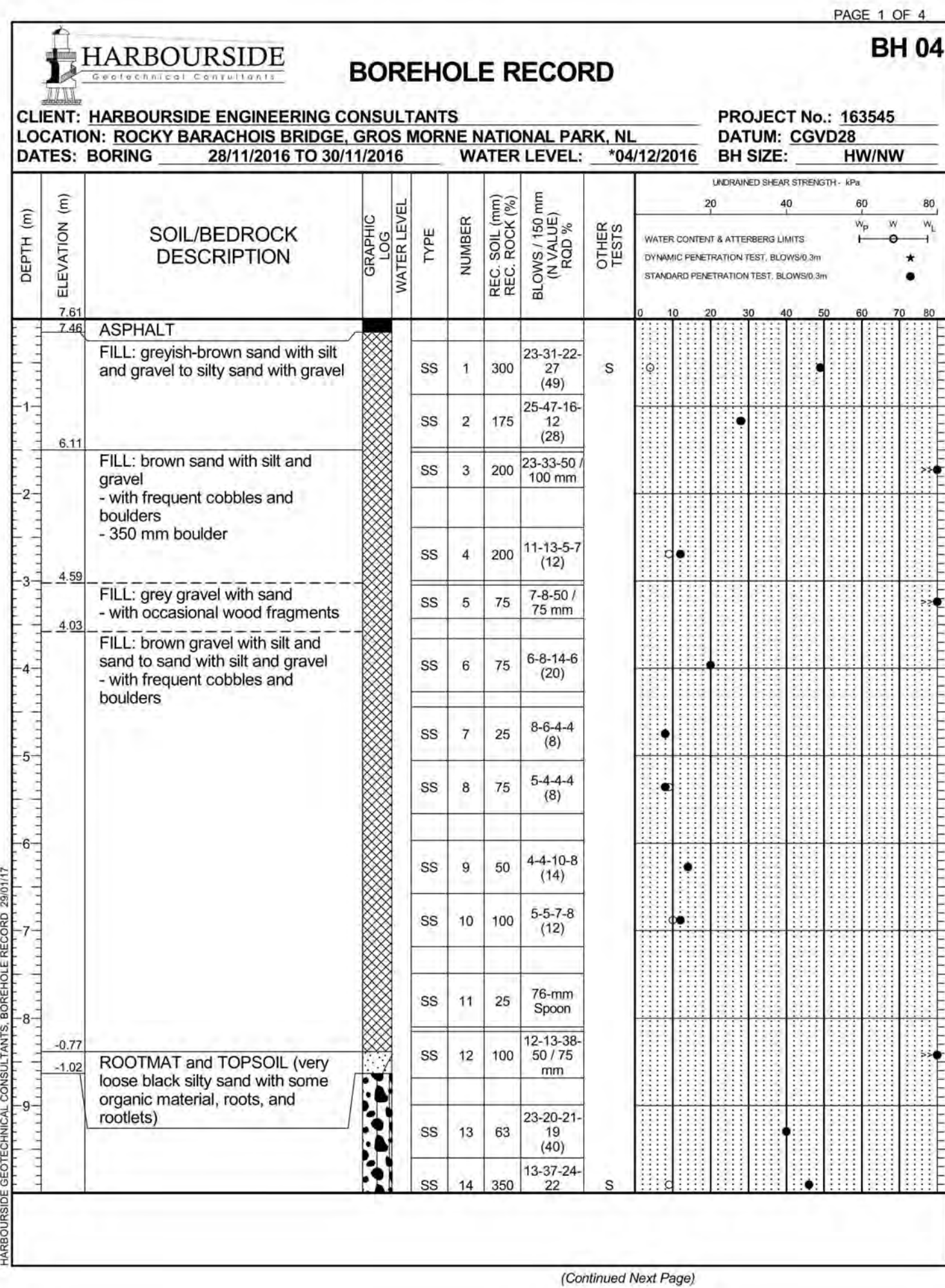
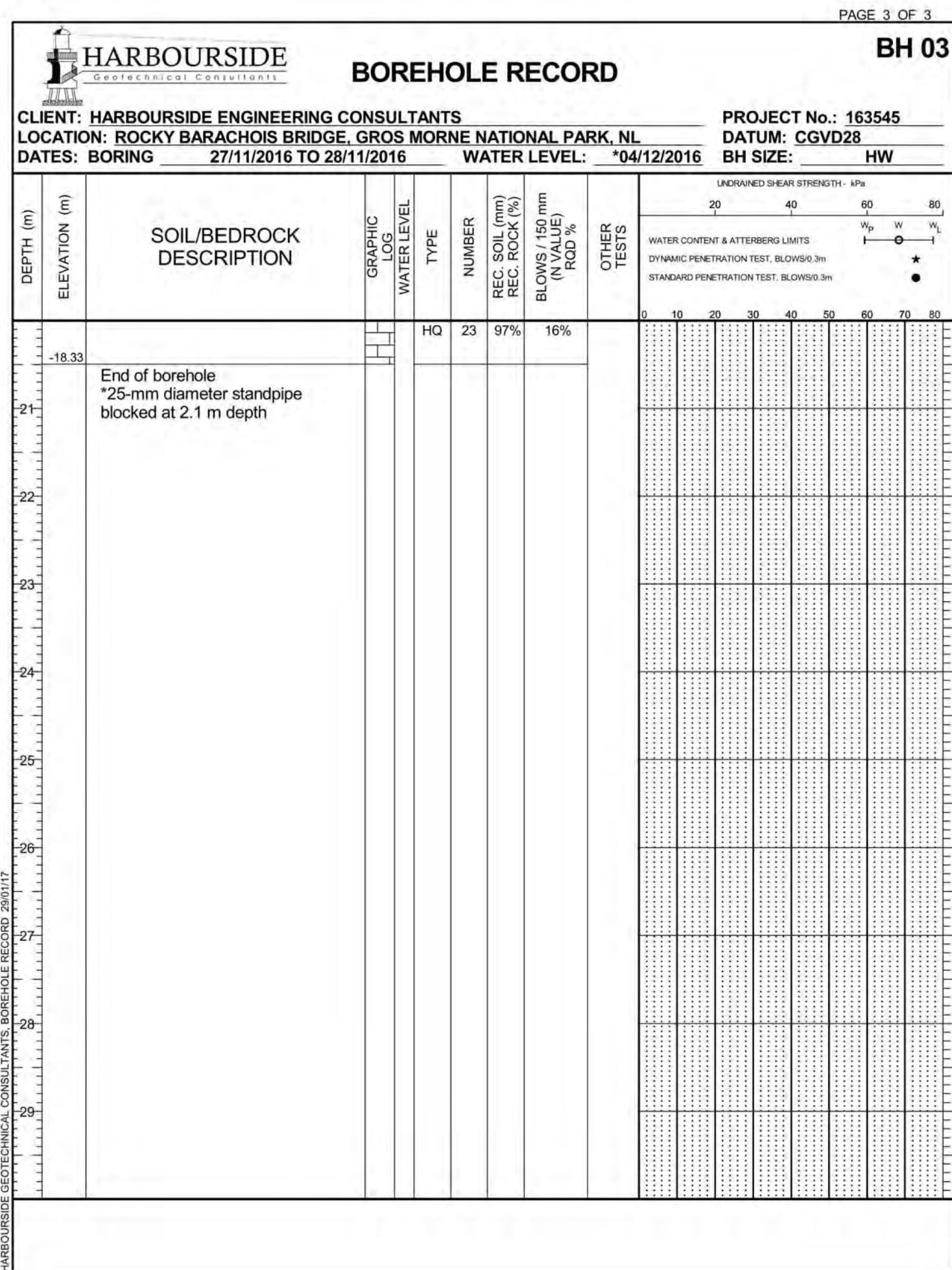
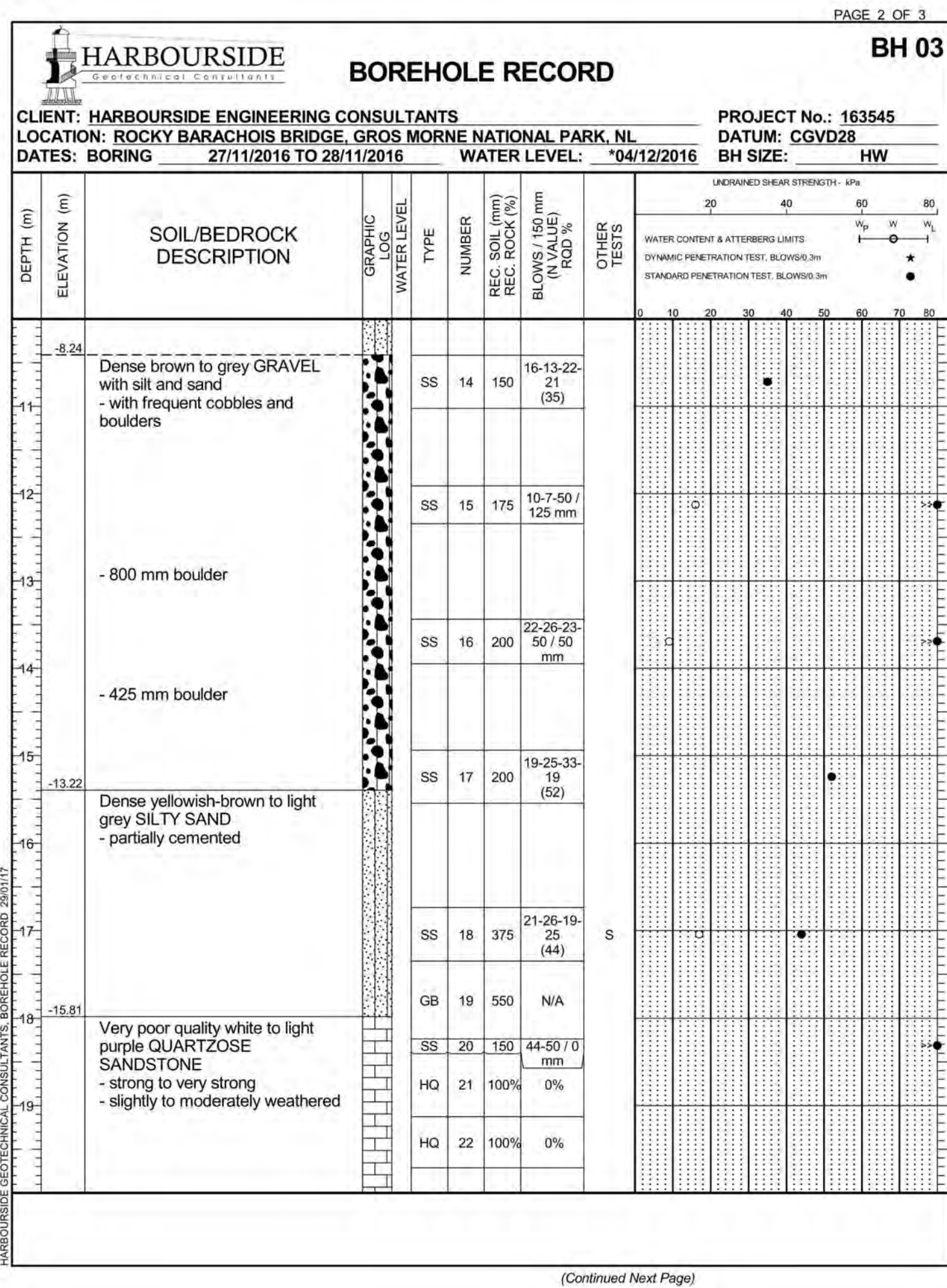
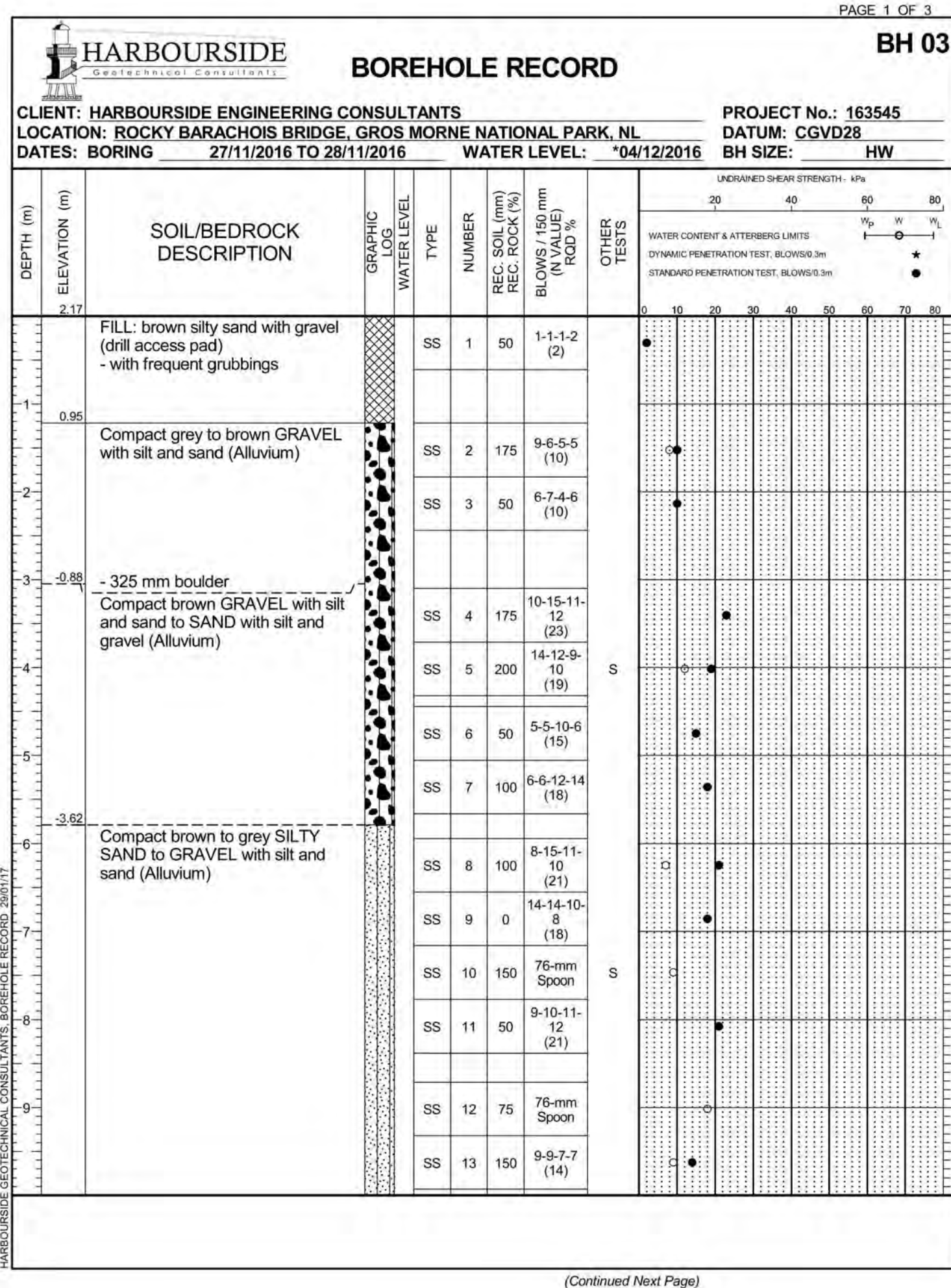
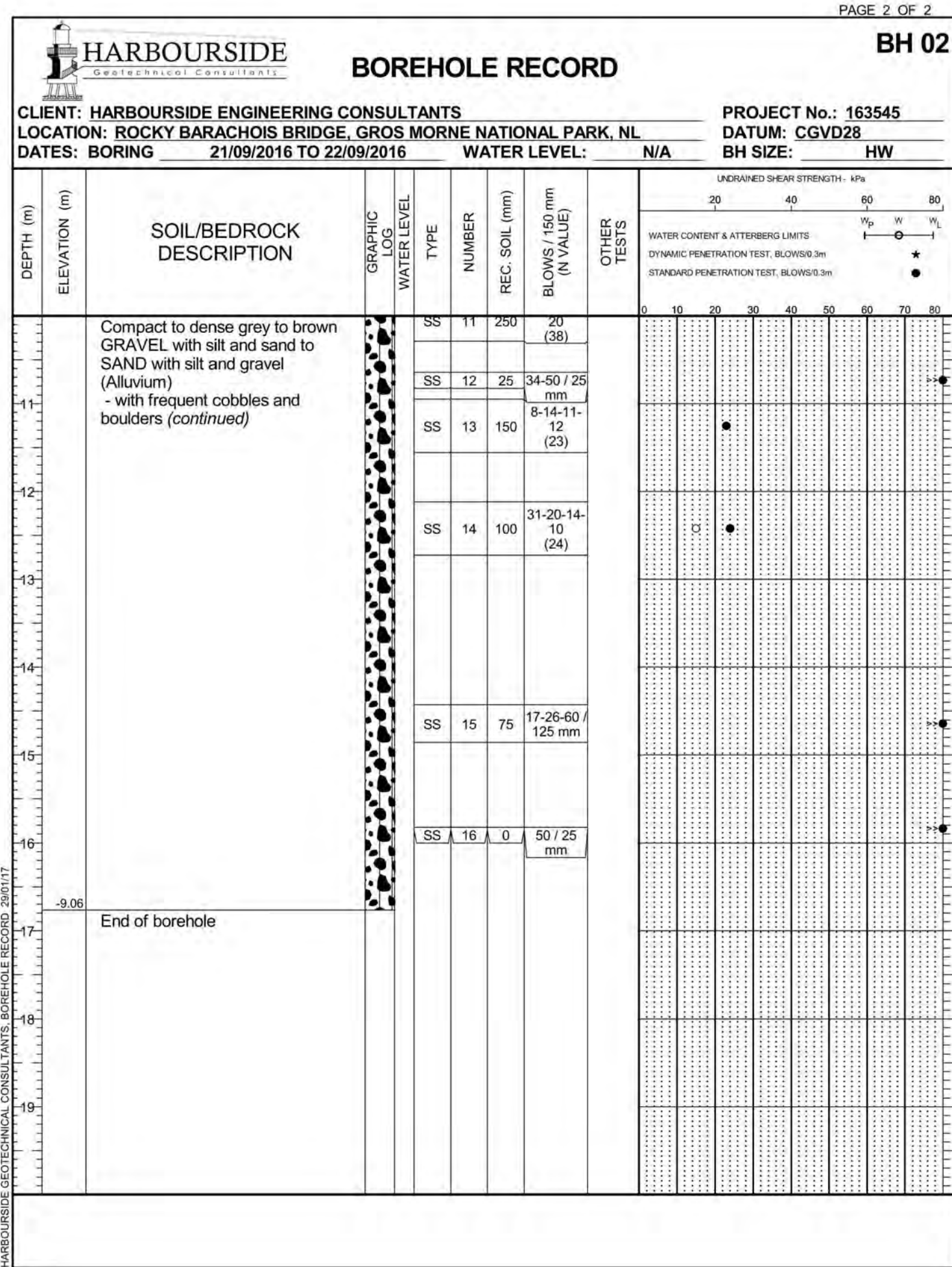
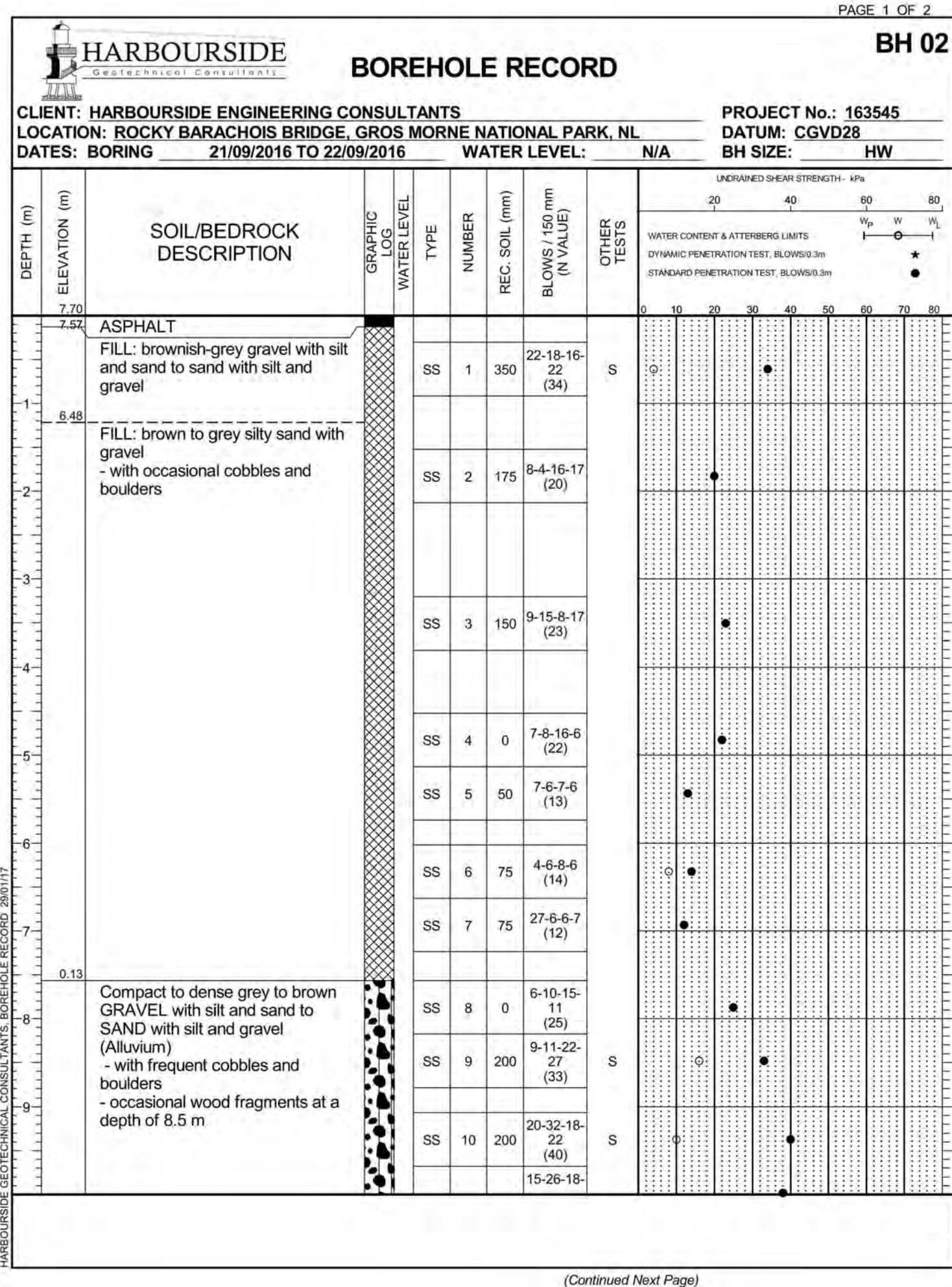
WATER LEVEL: 22/09/2016

BH SIZE: HW

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GEOTECHNICAL LOG WATER LEVEL	TYPE	NUMBER	REC. SQA. (mm)	BLOWS / 150 mm (N VALUE)	OTHER TESTS	UNDRAINED SHEAR STRENGTH, kPa	WATER CONTENT & ATTERBURGH LIMITS	STANDARD PENETRATION TEST - BLOWS/30m	STANDARD PENETRATION TEST - BLOWS/3m
									0 10 20 30 40 50 60 70 80	% P <sub>u</sub> →	0 10 20 30 40 50 60 70 80	0 10 20 30 40 50 60 70 80
		Compact to very dense brown to grey SAND with silt and gravel to GRAVEL with silt and sand (Alluvium) - with occasional cobbles and boulders (continued)		SS	16	200	20-14-14 12 (26)	S				
				SS	17	150	11-17-19 23 (36)					
				SS	18	100	37-55-50 / 75 mm					
		- 450 mm boulder		SS	19	75	20-43-50 / 50 mm					
				SS	20	100	21-15-17- (25)					
				SS	21	250	20-19-20- (39)					
				SS	22	150	12-15-34- (50)					
				SS	23	50	20-28-26- 28 (64)					
		Compact brown silty SAND		SS	24	300	12-13-13- 12 (25)	S				
				SS	25	0	12-15-14- 15 (25)					
		Compact to dense brown to grey well graded SAND with silt and gravel to GRAVEL with silt and sand - with occasional cobbles and boulders		SS	26	150	15-19-22- 29 (41)					
				SS	27	0	40-17-16- 17 (35)					
				SS	28	300	17-21-15- 13 (26)	S				
							22-20-19-					

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0	ISSUED FOR TENDER	11/27/2016
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
	GROS MORNE NATIONAL PARK	
drawing		design
	BORELOGS SHEET 2 of 5	
designed	SARAH HARDY	conçu
date	JULY 2017	
drawn	WAYNE MORROW	dessiné
date	JULY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Soumission
PWSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S26	no. du dessin



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0	ISSUED FOR TENDER	11/27/2018
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project  
**ROCKY BARACHOIS BRIDGE  
ROUTE 430**  
project  
**GROS MORNE NATIONAL  
PARK**

drawing  
**BORELOGS  
SHEET 4 of 5**

designed SARAH HARDY  
date JULY 2017  
drawn WAYNE MORROW  
date JULY 2017  
approved ROBBIE FRASER

conçu  
dessiné  
approuvé  
PWSC Project Manager Administrateur de projets TPSGC  
project number  
**1845**  
drawing no.  
**S28**

