

- 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

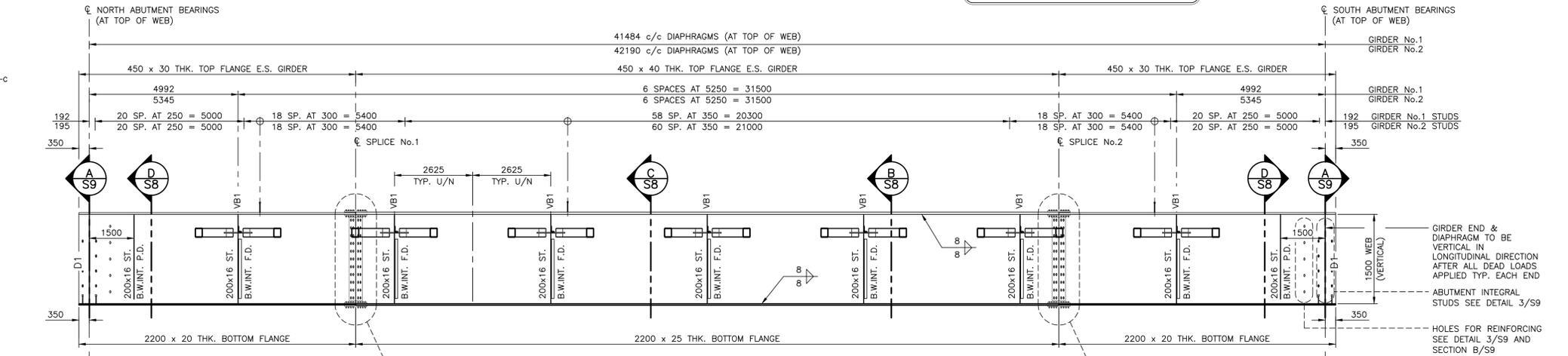
***NOTE:**
ALL VB1 DIAPHRAGMS ORIENTATED PERPENDICULAR TO GIRDER LONGITUDINAL AXIS. D1 DIAPHRAGMS PARALLEL TO RADIAL ABUTMENTS/SKEWED TO GIRDER LONGITUDINAL AXIS AS SHOWN.

- STEEL NOTES:**
1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING C.S.A. STANDARDS AND A.S.T.M. STANDARDS:
 - A) BOX GIRDERS: WEBS, FLANGE PLATES, STIFFENERS, SPLICE PLATES, ABUTMENT DIAPHRAGMS TO G40.21M - 350WT CAT 2.
 - B) ANGLES, WIDE FLANGE BARRIER POSTS, AND MISC. PLATES TO G40.21M - 350W OR EQUIVALENT.
 - C) HSS RAILS & BRACES: ASTM A500 GRADE C.
 - D) HIGH STRENGTH BOLTS ASTM A325 TYPE 1, THREADS TO BE EXCLUDED FROM ALL SHEAR PLANES (U.N.O.), ALL BOLT HOLES TO BE DRILLED.
 - E) BEARING PLATE THREADED ANCHOR RODS ASTM A307.
 2. ALL WELDING SHALL BE IN ACCORDANCE WITH C.S.A. STANDARD W59, LATEST EDITION.
 3. SHEAR STUD CONNECTORS SHALL BE MANUFACTURED FROM COLD DRAWN STEEL CONFORMING TO ASTM A29, GRADES 1010 TO 1020.
 4. FABRICATE, DELIVER TO SITE AND ERECT STEELWORK IN ACCORDANCE WITH CAN/CSA-S6-14.
 5. 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.
 6. GRIND ALL BEARING STIFFENERS AT ABUTMENTS TO BEAR AT BOTTOM, THEN WELD.
 7. ALL FAYING SURFACES AT BOLTED CONNECTIONS SHALL BE CLASS B, OR BETTER. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN OF NUT METHOD.
 8. CONTRACTOR RESPONSIBLE FOR LIFTING & STABILITY OF GIRDERS DURING ALL PHASES OF CONSTRUCTION.
 9. D1 DIAPHRAGMS TO BE VERTICAL IN THE LONGITUDINAL DIRECTION AFTER ALL DEAD DEFLECTIONS OCCUR. ALL OTHER STIFFENERS (INCLUDING VB1 LOCATIONS) TO BE PERPENDICULAR TO FLANGES.
 10. 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 SCREENED 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.
 11. 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.
 12. 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.
 13. ABUTMENT D1 BRACING BETWEEN BOXES TO BE MATCH DRILLED WITH BOXES IN SELF WEIGHT ONLY CONDITION.
 14. 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.

GIRDER LAYOUT PLAN

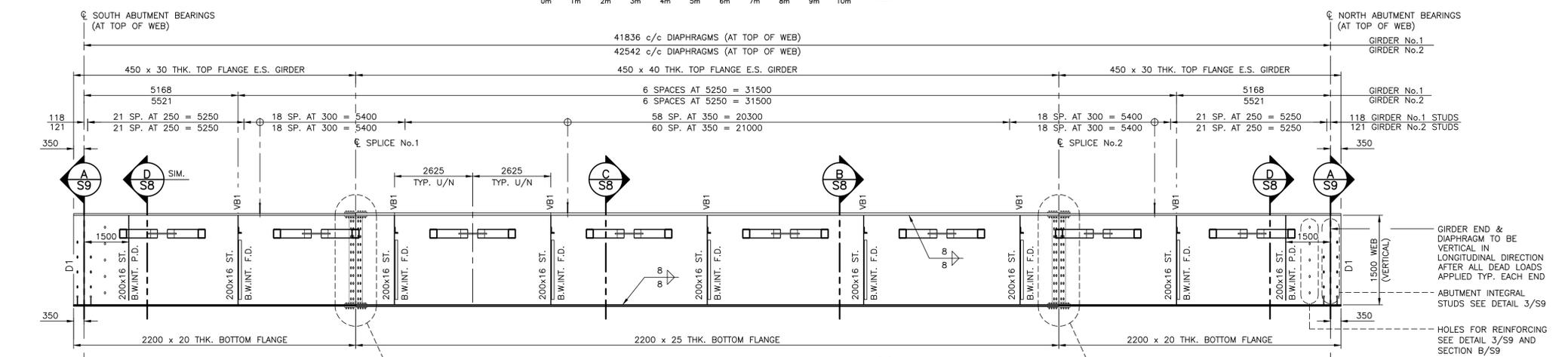
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NOTE:
PLAN DIMENSIONS ARE ALONG GIRDER AXIS POINT UNLESS NOTED OTHERWISE. SEE DIMENSIONAL CRITERIA DWG. S8 FOR MORE INFORMATION.



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

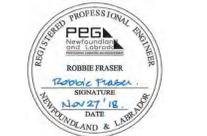
SCALE : 1:75



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

SCALE : 1:75

- 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



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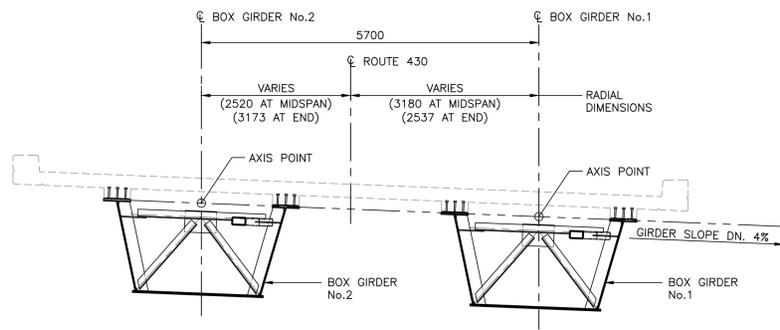
0	ISSUED FOR TENDER	11/27 2018
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project **ROCKY BARACHOIS BRIDGE ROUTE 430**

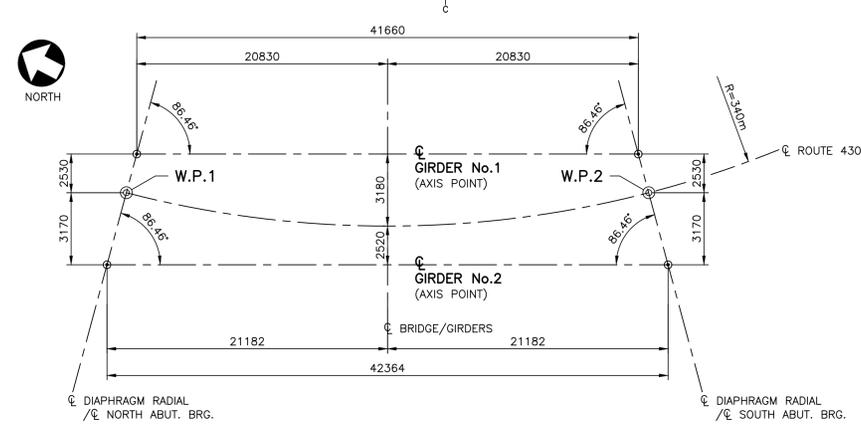
project **GROS MORNE NATIONAL PARK**

BOX GIRDER LAYOUT PLAN AND SECTIONS

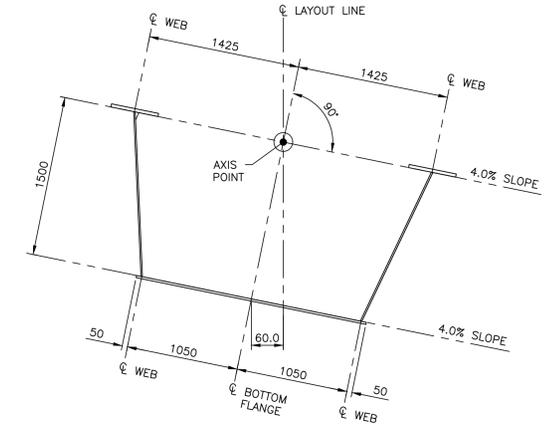
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date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGSC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S7	no. du dessin



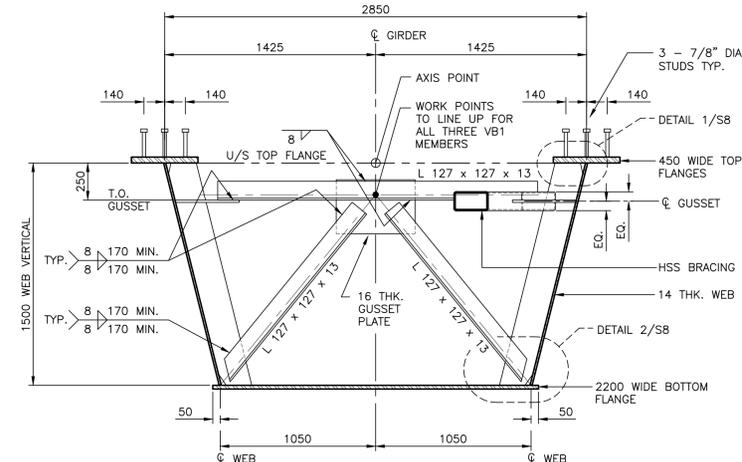
GENERAL SECTION
SCALE : 1:50
A S7



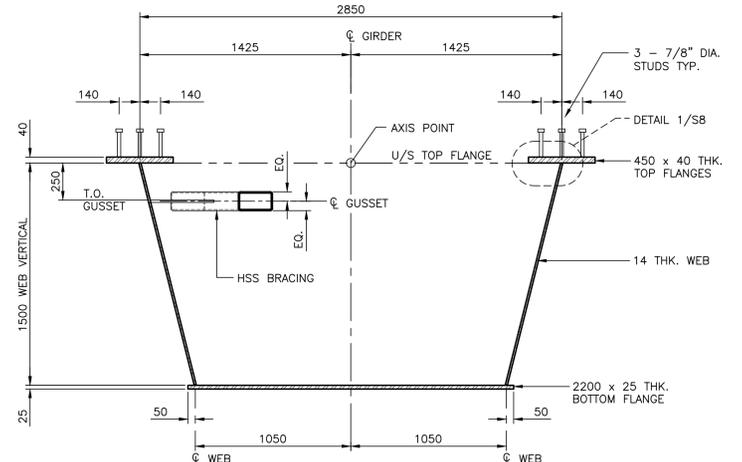
BOX GIRDER HORIZONTAL DIMENSION CRITERIA
SCALE : NOT TO SCALE



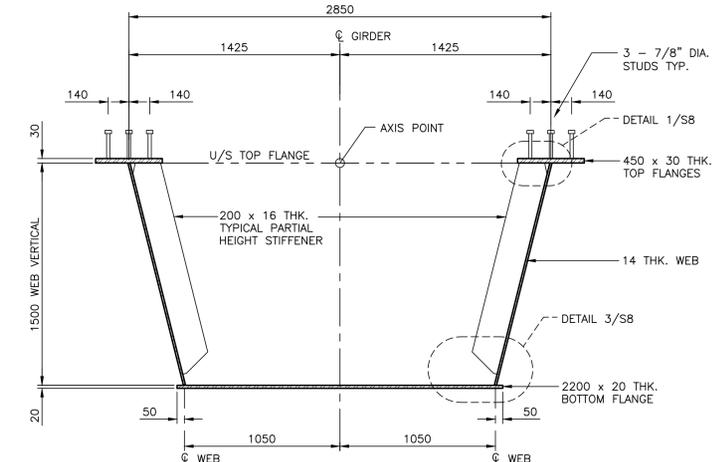
BOX GIRDER VERTICAL DIMENSION CRITERIA
SCALE : NOT TO SCALE/SLOPES EXAGGERATED



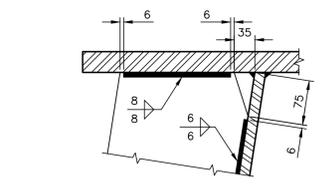
GIRDER SECTION - TYPICAL VB1 INTERIOR DIAPHRAGM
SCALE : 1:20
B S7



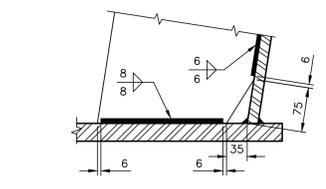
GIRDER SECTION 2
SCALE : 1:20
C S7



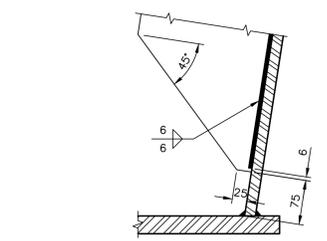
GIRDER SECTION 1
SCALE : 1:20
D S7



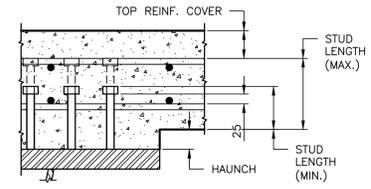
DETAIL 1
SCALE : 1:5
S7



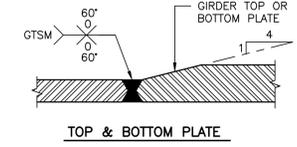
DETAIL 2
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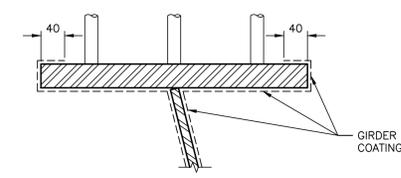
DETAIL 3
SCALE : 1:5
S7



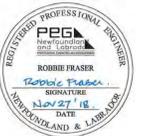
DETAIL - TYPICAL STUD LENGTHS
SCALE : N.T.S.
4 S7



DETAIL - OPTIONAL SHOP SPLICE
SCALE : 1:10
5 S8



DETAIL - TOP FLANGE COATING
SCALE : 1:5
6 S7

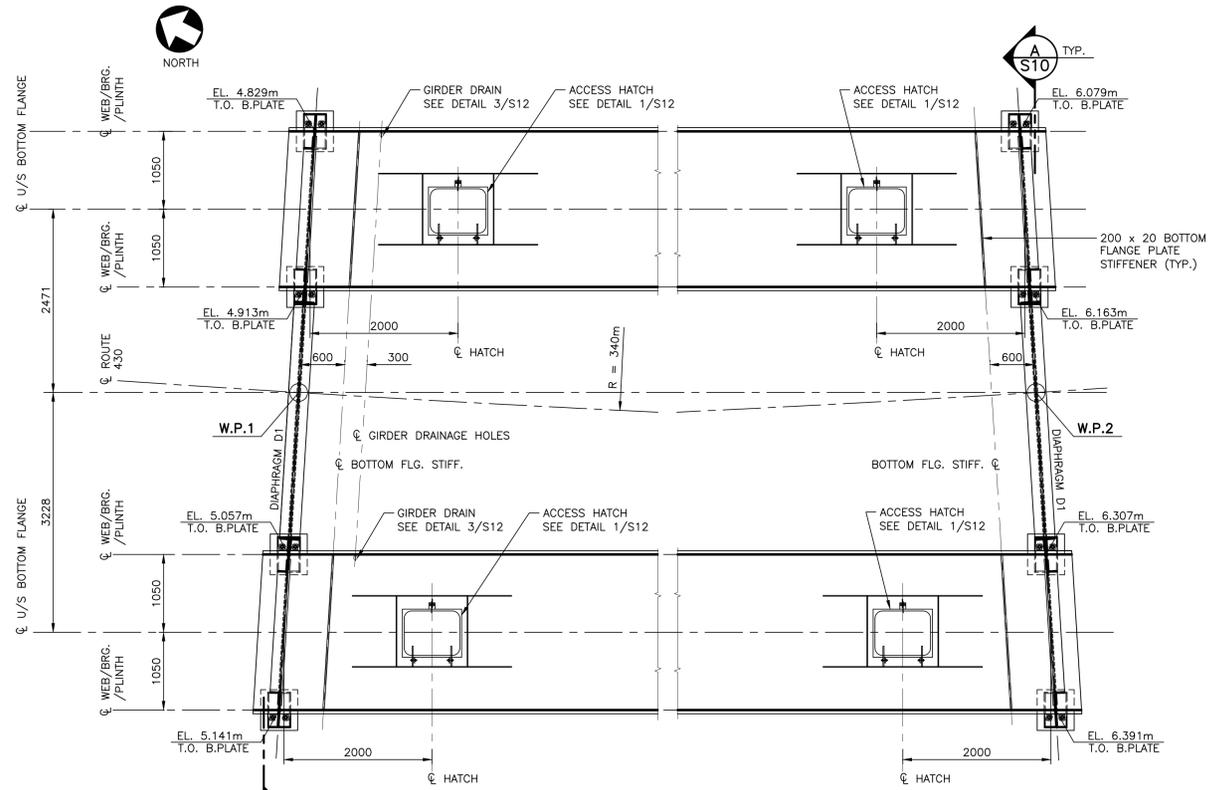


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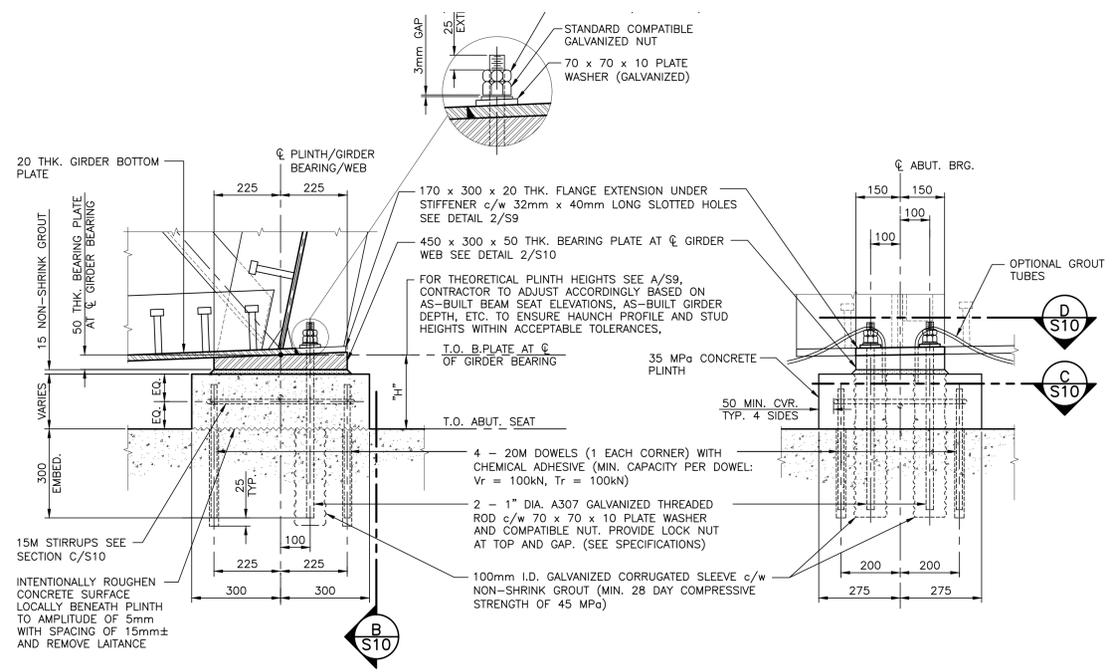
0	ISSUED FOR TENDER	11/27/2018
revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
	GROS MORNE NATIONAL PARK	
drawing		design

BOX GIRDER SECTIONS AND DETAILS

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
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Tender		Submission
PWGS&C Project Manager	Administrateur de projets TPS&C	
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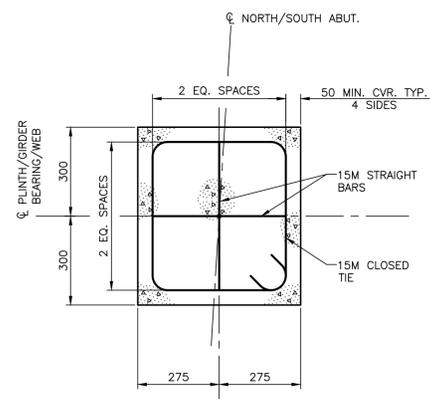


DETAIL - BEARING LAYOUT PLAN AND ELEVATIONS
 - HATCH AND DRAIN LOCATION PLAN
 SCALE: 1:40
1
S10

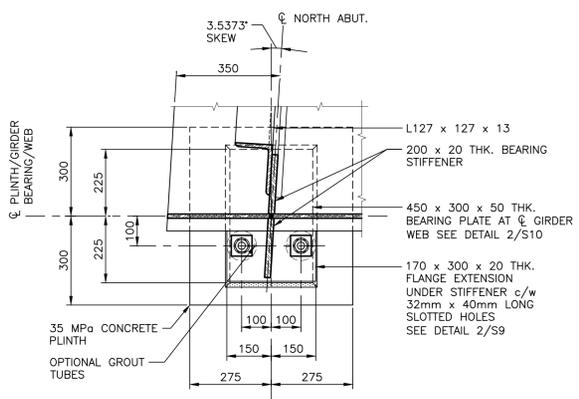


SECTION - GIRDER BEARING
 SCALE: 1:10
A
S10

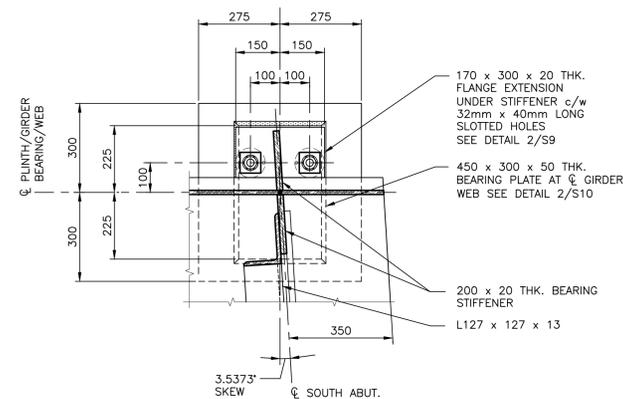
SECTION - GIRDER BEARING
 SCALE: 1:10
B
S10



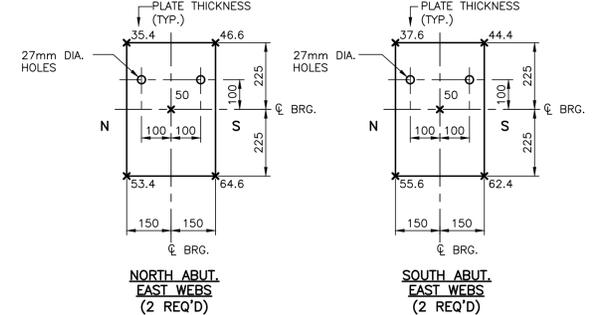
SECTION - TYPICAL PLINTH REINFORCING
 SCALE: 1:10
C
S10



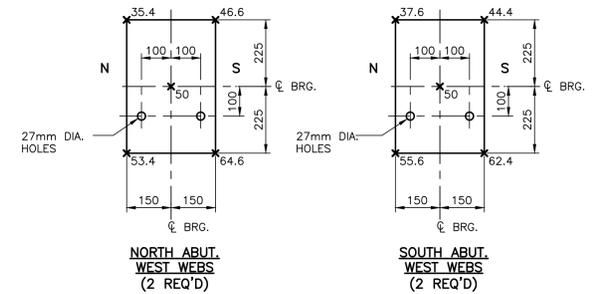
PLINTH GEOMETRY AT NORTH ABUTMENT



PLINTH GEOMETRY AT SOUTH ABUTMENT



NORTH ABUT. EAST WEBS (2 REQ'D)
SOUTH ABUT. EAST WEBS (2 REQ'D)



NORTH ABUT. WEST WEBS (2 REQ'D)
SOUTH ABUT. WEST WEBS (2 REQ'D)

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

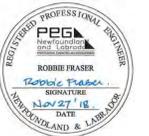
DETAIL - BEARING PLATE
 SCALE: 1:10
2
S10

BEARING NOTES:

- CORRUGATED SLEEVES PROVIDE A FIT-UP TOLERANCE OF ± 35 mm BETWEEN THE BOX GIRDER BOTTOM FLANGE AND THE ANCHOR BOLTS.
- CAREFUL COORDINATION IS REQUIRED BETWEEN GENERAL CONTRACTOR AND STEEL FABRICATOR TO ENSURE CORRECT FIT-UP OF AS-BUILT BOX GIRDER WITH AS-BUILT ABUTMENT GEOMETRY (IN ELEVATION AND PLAN).
- ALL STEEL IN BEARING ASSEMBLES SHALL BE HOT DIPPED GALVANIZED (I.E. THREADED RODS, DOWELS, ALL NUTS AND WASHER PLATES).

RECOMMENDED GIRDER INSTALLATION PROCEDURE:

- CORRUGATED STEEL SLEEVE TO BE CUT OFF AT TOP OF CONCRETE PLINTH (PROVIDED FOR ANCHOR INSTALLATION TOLERANCE).
- BEARING PLATE TO BE SHIMMED AND HELD IN PLACE UNTIL GROUTING IS COMPLETE.
- DROP THREADED BARS INTO CORRUGATED STEEL SLEEVE THEN INSTALL GIRDER OVER PROTRUDING THREADED BARS. PLACE GIRDER IN PROPER/FINAL POSITION.
- FILL SLEEVES WITH GROUT TO TOP OF BEARING PLATE ENSURING THAT ALL VOLUME BETWEEN BEARING PLATE AND CONCRETE PLINTH IS FILLED WITH GROUT. IMMEDIATELY FOLLOW BY INSTALLING PLATE WASHERS AND TWO TOP NUTS. THREAD FIRST NUT UNTIL NUT IS 3mm CLEAR/ABOVE PLATE WASHER SITTING ON GIRDER BOTTOM PLATE THEN TIGHTEN SECOND LOCK NUT TO BOTTOM NUT TO MAINTAIN 3mm CLEARANCE.



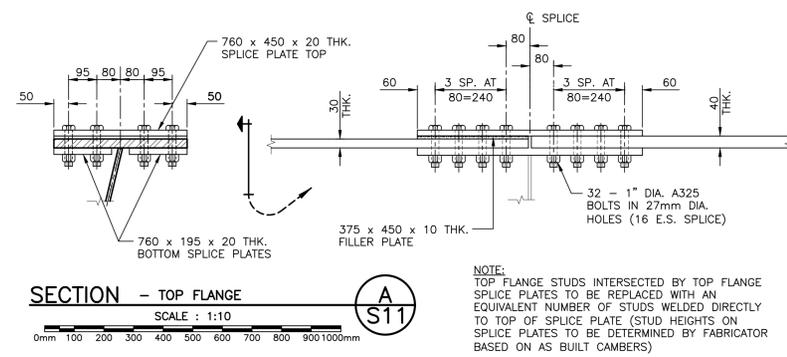
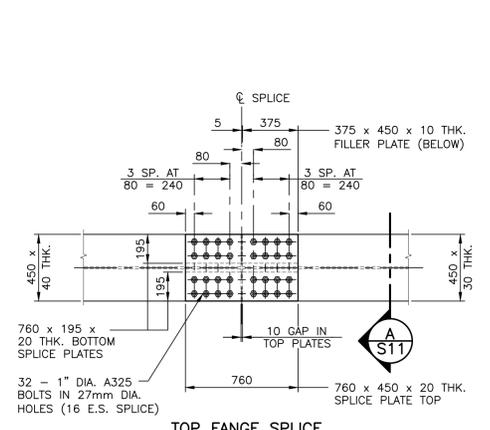
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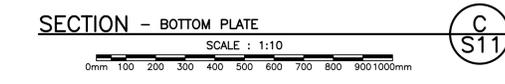
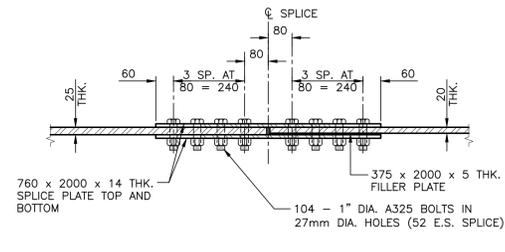
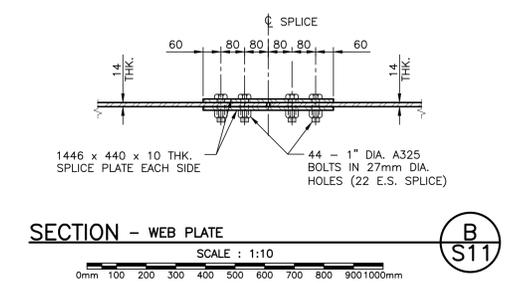
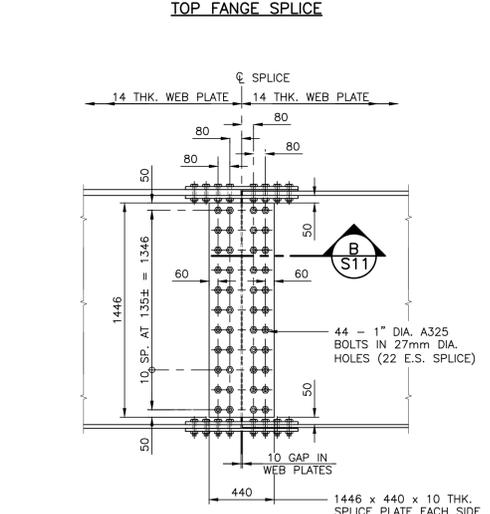
revisions
 project
ROCKY BARACHOIS BRIDGE
ROUTE 430
GROS MORNE NATIONAL PARK

drawing
 design
BEARING AND PLINTH DETAILS

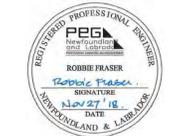
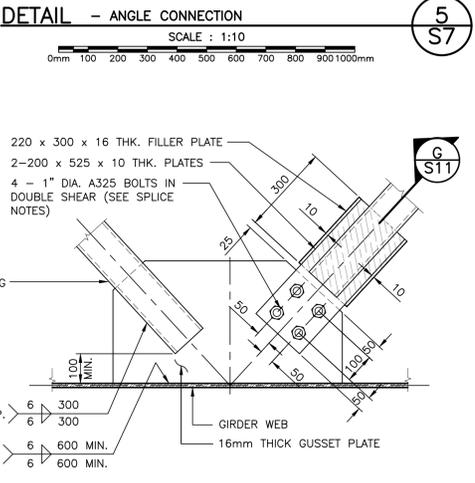
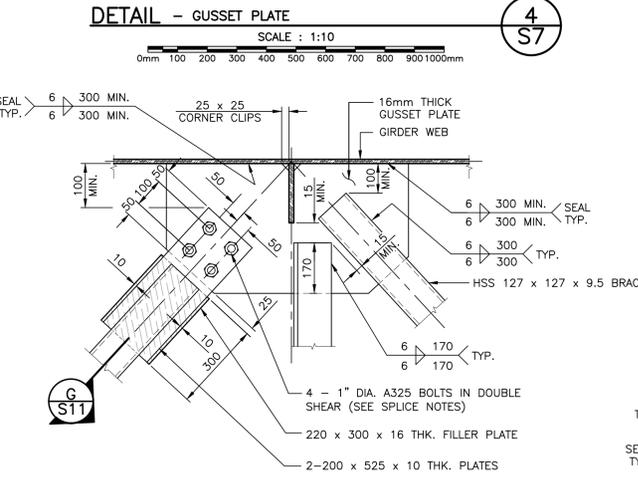
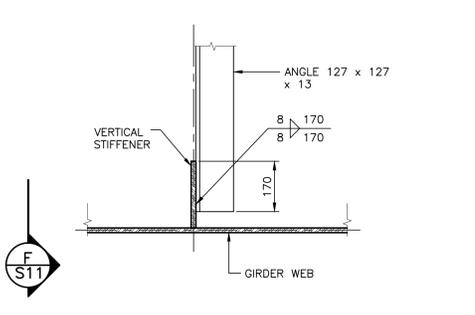
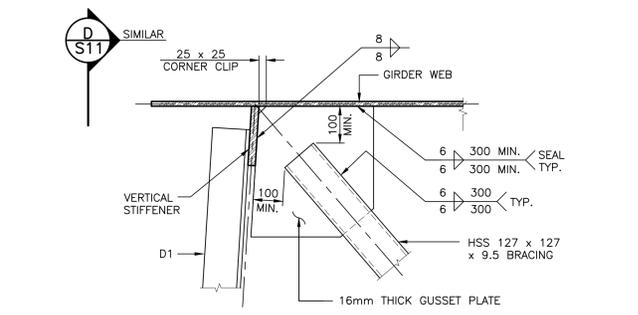
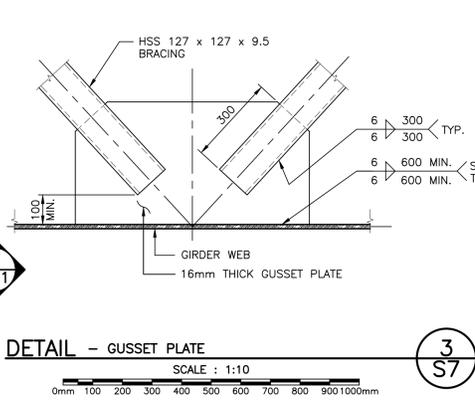
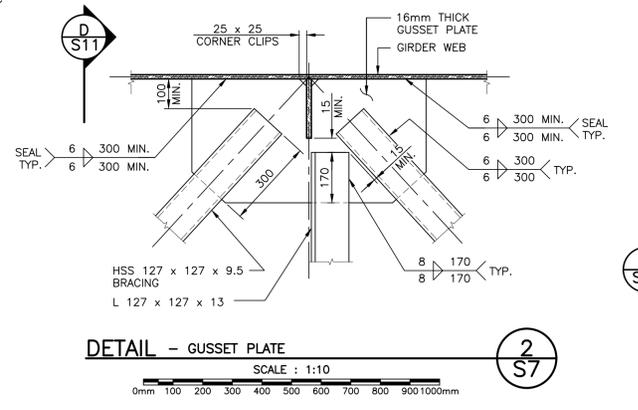
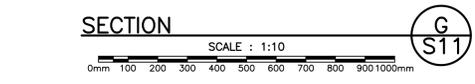
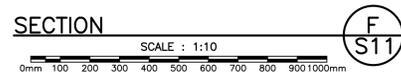
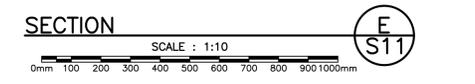
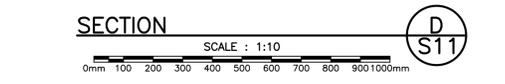
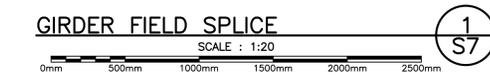
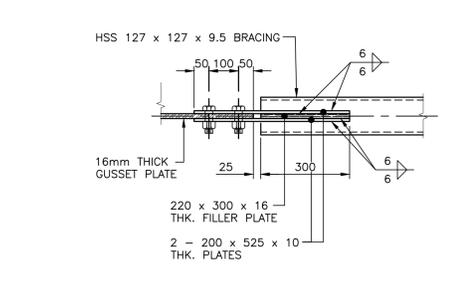
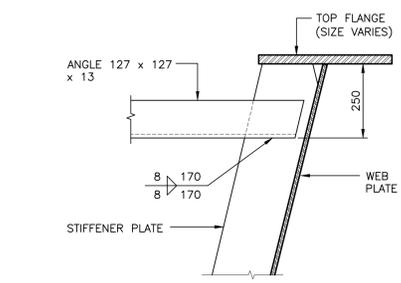
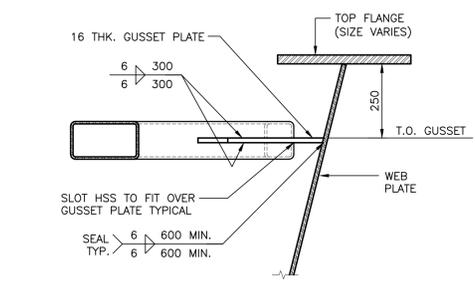
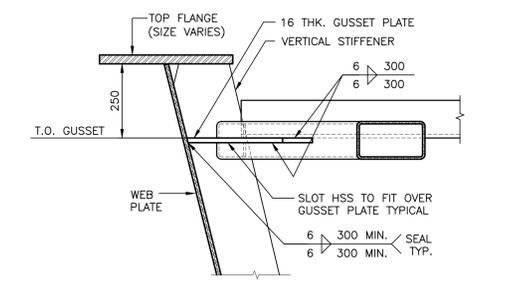
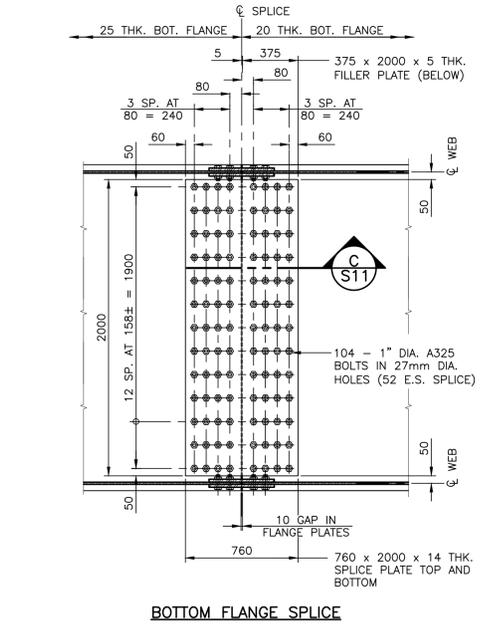
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date	MAY 2017	
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PWSSC Project Manager	Administrateur de projets TPSSC	
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NOTE: TOP FLANGE STUDS INTERSECTED BY TOP FLANGE SPLICE PLATES TO BE REPLACED WITH AN EQUIVALENT NUMBER OF STUDS WELDED DIRECTLY TO TOP OF SPLICE PLATE (STUD HEIGHTS ON SPLICE PLATES TO BE DETERMINED BY FABRICATOR BASED ON AS BUILT CAMBERS)

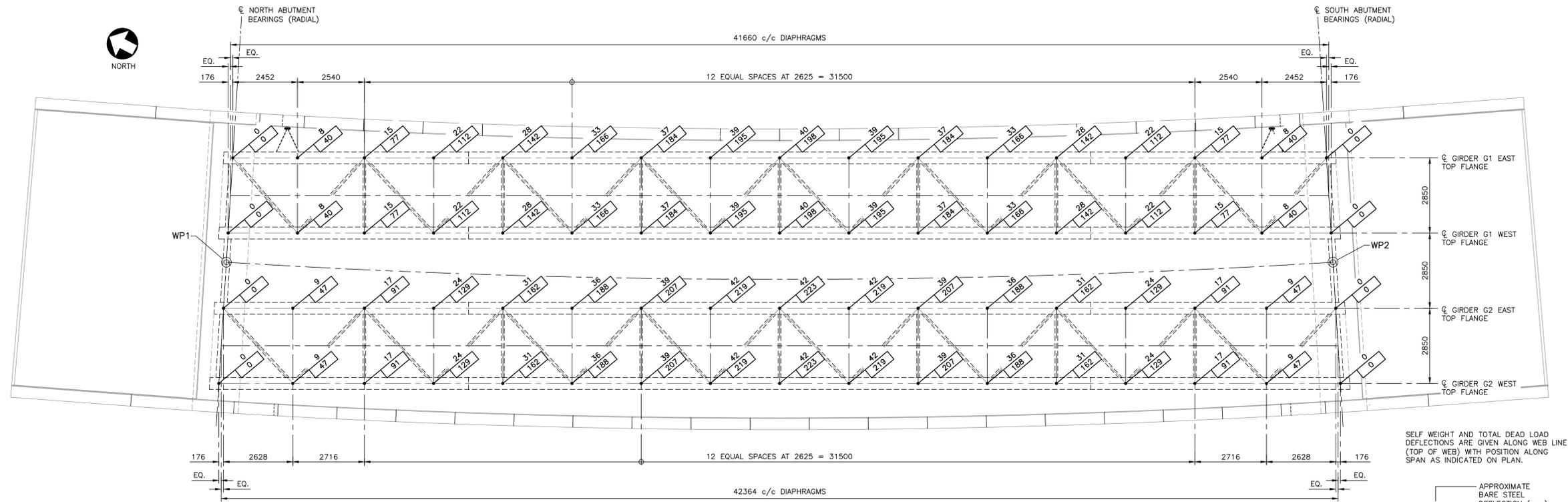


- FIELD SPLICE INSTALLATION NOTES:**
1. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN-OF-NUT METHOD.
 2. ALL THREADS EXCLUDED FROM SHEAR PLANES
 3. ALL FAYING SURFACES TO BE CLASS B SLIP SURFACE OR BETTER.
 4. ALL BOLT HOLES TO BE DRILLED RATHER THAN PUNCHED.
 5. ALL BOLTS SHALL BE ASTM A325 TYPE 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.



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designed	SARAH HARDY	concp
date	MAY 2017	dessiné
drawn	WAYNE MORROW	dessiné
date	MAY 2017	approuvé
approved	ROBBIE FRASER	approuvé
date		Submission
Tender		no. du projet
PWSC Project Manager	Administrateur de projets TPSC	1845
project number		no. du dessin
drawing no.	S11	



SELF WEIGHT AND TOTAL DEAD LOAD DEFLECTIONS ARE GIVEN ALONG WEB LINE (TOP OF WEB) WITH POSITION ALONG SPAN AS INDICATED ON PLAN.

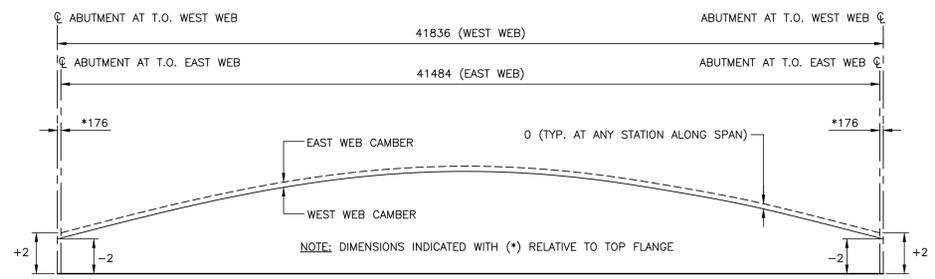
APPROXIMATE BARE STEEL DEFLECTION (mm)
 APPROXIMATE TOTAL DEAD LOAD DEFLECTION (mm)

DEAD LOAD DEFLECTION DIAGRAM

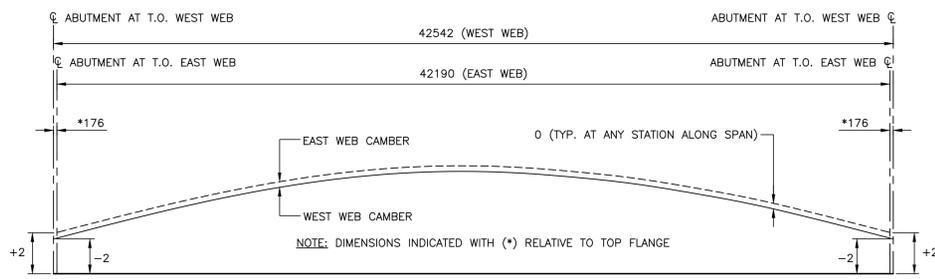
SCALE : 1:75



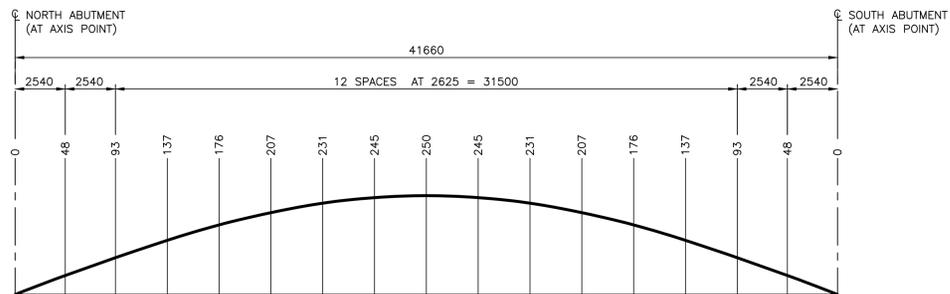
NOTE:
 PLAN DIMENSIONS ARE ALONG GIRDER AXIS POINT UNLESS NOTED OTHERWISE. SEE DIMENSIONAL CRITERIA DWG. S8 FOR MORE INFORMATION.



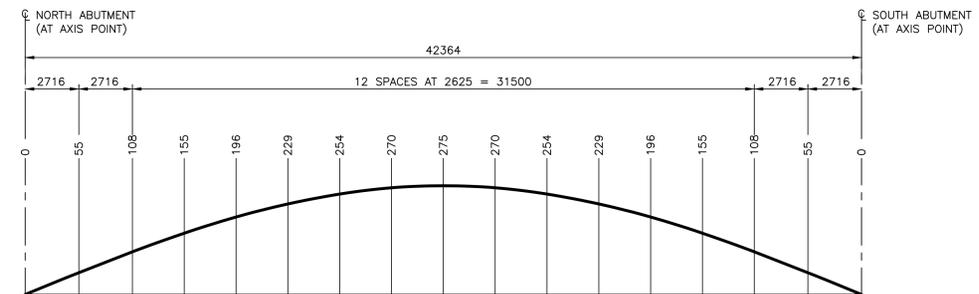
WEB CUT COMPARISON DIAGRAM (G1 - EAST GIRDER)



WEB CUT COMPARISON DIAGRAM (G2 - WEST GIRDER)



BOX GIRDER WEB CUTS (G1 - EAST GIRDER)

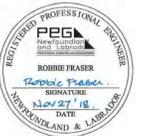


BOX GIRDER WEB CUTS (G2 - WEST GIRDER)

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).

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



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revisions		date

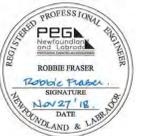
project
ROCKY BARACHOIS BRIDGE
ROUTE 430
GROS MORNE NATIONAL PARK

drawing
GIRDER CAMBER/WEB CUT DIAGRAMS

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

project number
1845

drawing no.
S13

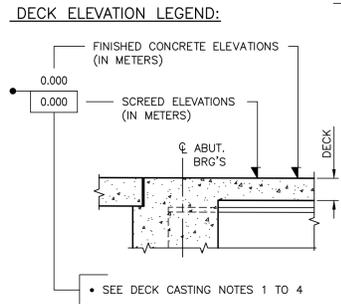
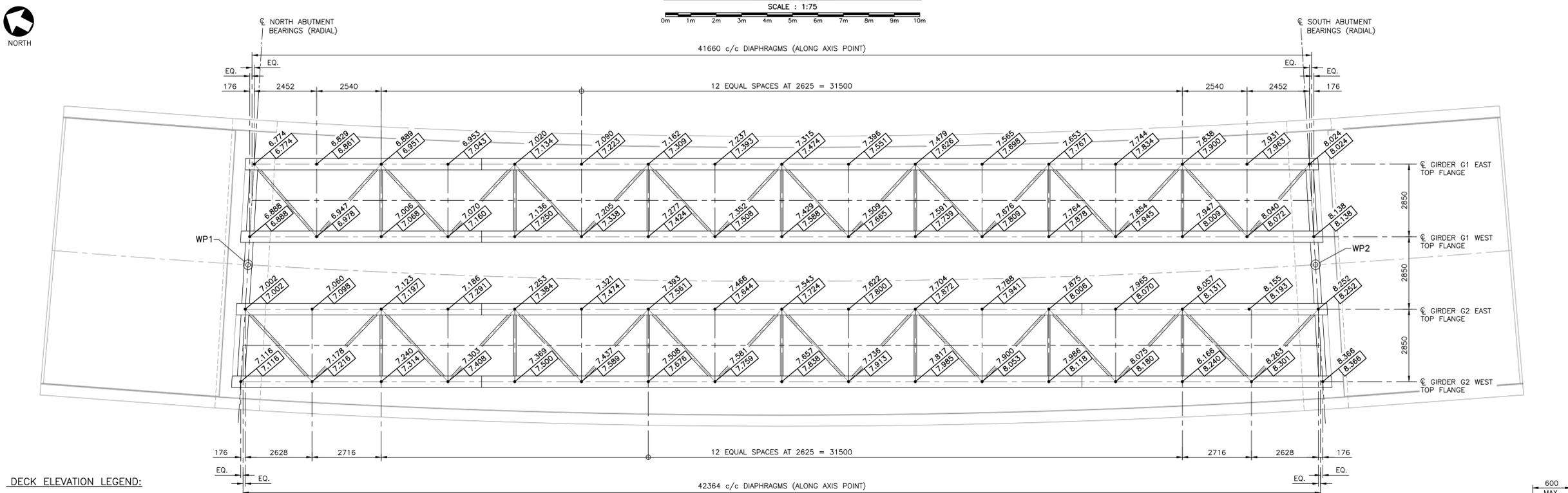
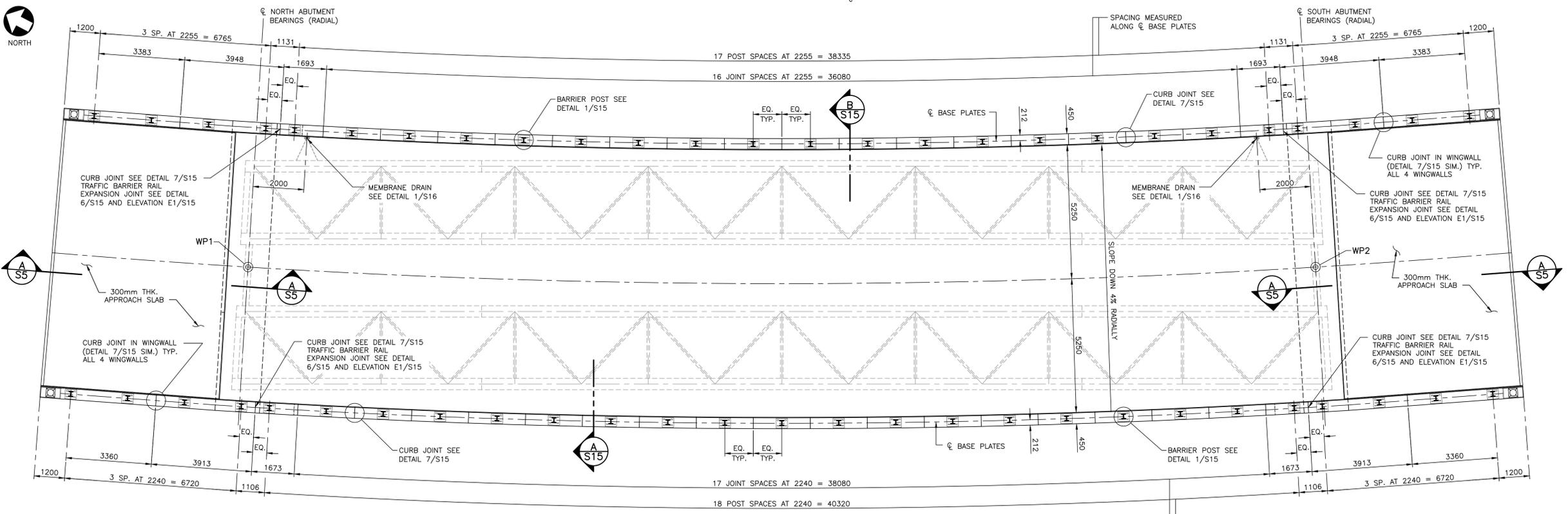


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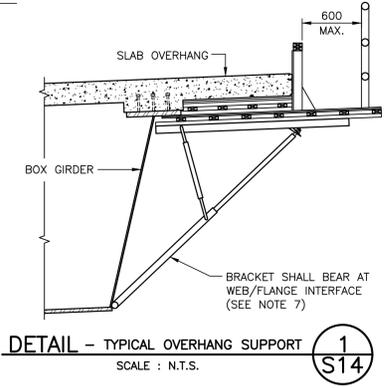
project **ROCKY BARACHOIS BRIDGE ROUTE 430**
GROS MORNE NATIONAL PARK

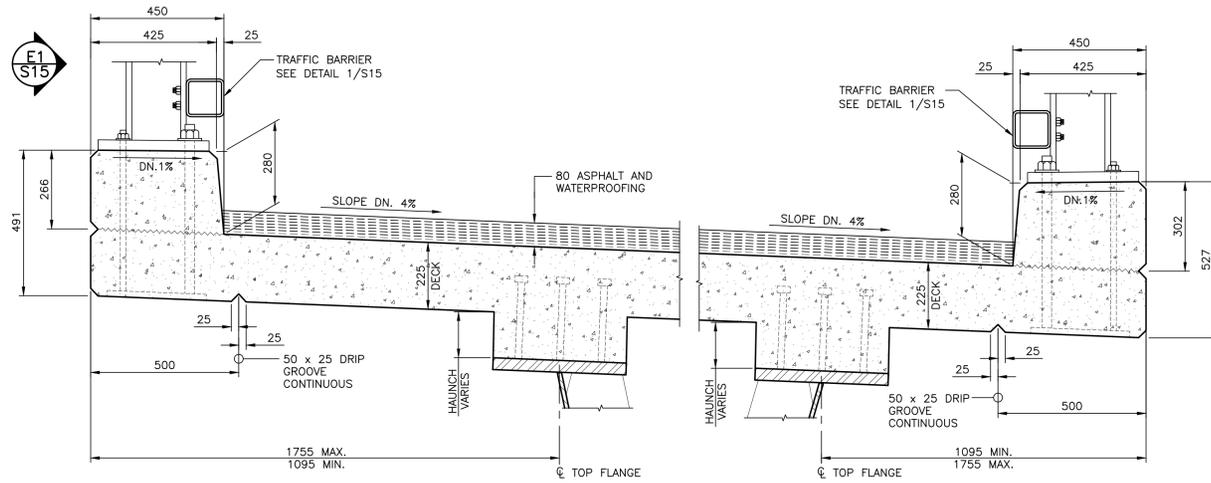
designer	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWSSC Project Manager	Administrateur de projets TPSSC	
project number	1845	no. du projet
drawing no.	S14	no. du dessin



- DECK CONCRETE CASTING NOTES:**
- SCREED ELEVATIONS ARE BASED ON THE DECK PROFILE ELEVATIONS PRIOR TO PLACING CONCRETE DECK, CURBS, BARRIERS, HAUNCHES AND ASPHALT SURFACE.
 - 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.
 - IT IS ALSO ASSUMED THAT ENTIRE DECK IS CAST AND REACHES 35 MPa PRIOR TO CASTING CURBS, INSTALLING BARRIERS AND WATERPROOFING AND PAVING DECK.
 - 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.
 - 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.

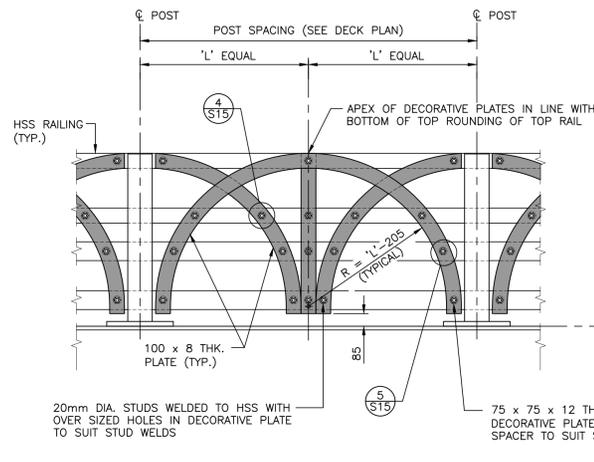
- OVERHANG NOTES:**
- ALL DECK FORMWORK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN NEWFOUNDLAND AND LABRADOR.
 - THE OVERHANG BRACKETS SHALL BE ORIENTED AS INDICATED UNLESS AN ALTERNATE DETAIL IS ACCEPTED IN WRITING BY THE DEPARTMENTAL REPRESENTATIVE.
 - OVERHANG BRACKET SPACING SHALL BE LESS THAN OR EQUAL TO 1200mm o.c.
 - MAXIMUM FACTORED SCREED LOAD PER SIDE OF BRIDGE ASSUMED TO BE 30kN.
 - 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.
 - CONTRACTOR TO ENSURE GIRDER STABILITY DURING ALL PHASES OF CONSTRUCTION.
 - 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.



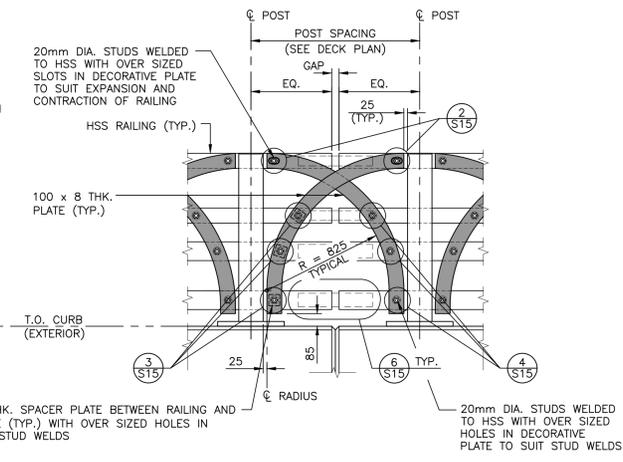


SECTION - WEST CURB

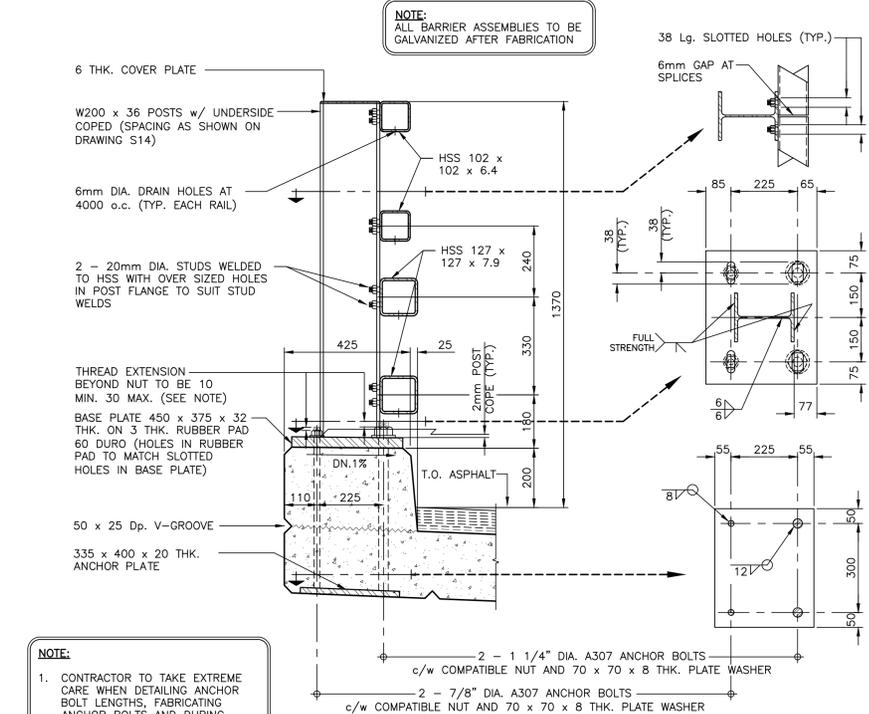
SECTION - EAST CURB



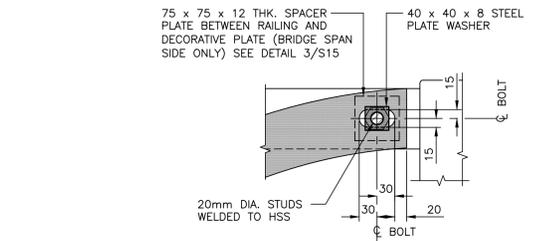
ELEVATION - BARRIER DECORATIVE RAILINGS



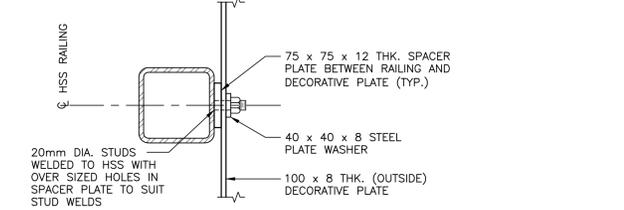
DECORATIVE RAILING AT BARRIER EXPANSION JOINTS



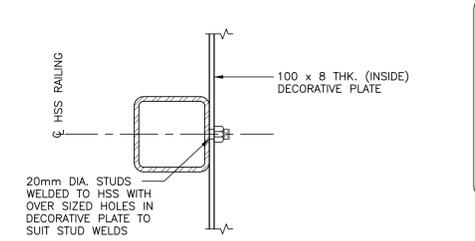
DETAIL - TYPICAL TRAFFIC BARRIER



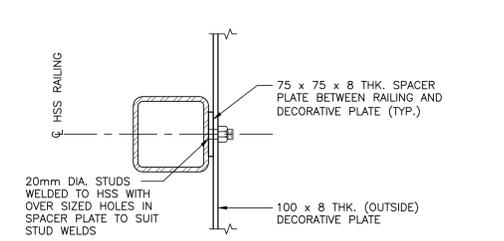
DETAIL - DECORATIVE RAILING EXPANSION CONNECTION



DETAIL - OUTSIDE PLATE CONNECTION AT EXPANSION JOINT



DETAIL - FLUSH PLATE CONNECTION

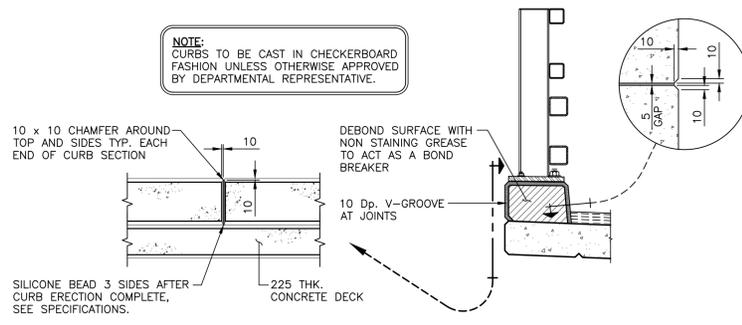


DETAIL - OUTSIDE PLATE CONNECTION

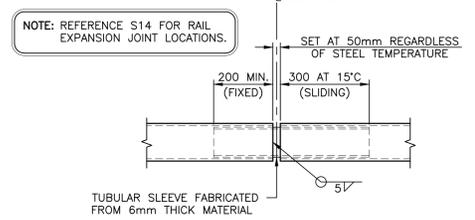
NOTE:
1. CONTRACTOR TO TAKE EXTREME CARE WHEN DETAILING ANCHOR BOLT LENGTHS, FABRICATING ANCHOR BOLTS AND DURING INSTALLATION/CONCRETE CASTING OF ANCHOR BOLTS IN WINDWALLS TO ENSURE PROPER ALIGNMENT COVER, EMBEDMENT AND THREAD EXTENSIONS ARE PROVIDED.
2. BARRIER POSTS TO BE PLUMB IN TRANSVERSE BRIDGE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

NOTE:
IN LIEU OF CUTTING AND OVERLAPPING SEPARATE DECORATIVE RAILING PLATES, IT IS ALSO ACCEPTABLE TO CUT DECORATIVE PLATES OUT OF A SINGLE PIECE OF PLATE PROVIDED THE COST OF ADDITIONAL MATERIAL IS BORNE BY THE CONTRACTOR. THIS ALTERNATE DETAIL IS ACCEPTABLE AT EACH TYPICAL RAILING BAY (ELEVATION E1/S15), BUT DOES NOT APPLY TO RAIL EXPANSION JOINT LOCATIONS (REFER TO E1/S15).

NOTE:
CURBS TO BE CAST IN CHECKERBOARD FASHION UNLESS OTHERWISE APPROVED BY DEPARTMENTAL REPRESENTATIVE.



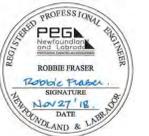
DETAIL - TYPICAL CURB CONTROL JOINT



DETAIL - TYPICAL RAIL EXPANSION JOINT

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.



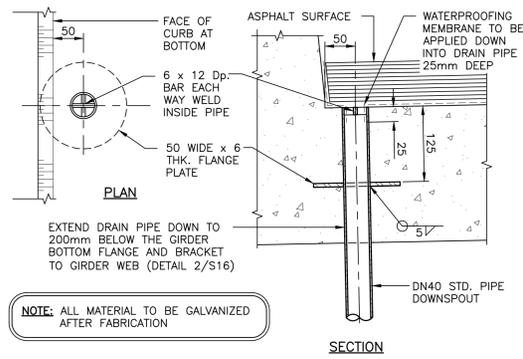
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0	ISSUED FOR TENDER	11/27/2018
revisions		date

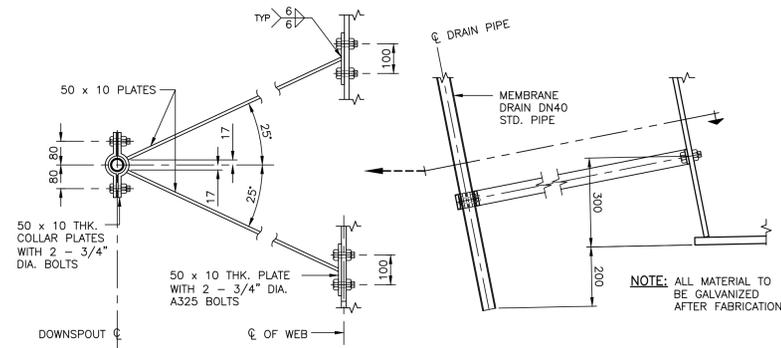
project
ROCKY BARACHOIS BRIDGE ROUTE 430
GROS MORNE NATIONAL PARK

DECK, CURB AND RAILING SECTIONS AND DETAILS

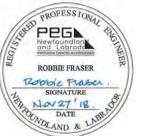
designed	SARAH HARDY	concp
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWSSC Project Manager	Administrateur de projets TPSSC	
project number	1845	no. du projet
drawing no.	S15	no. du dessin



DETAIL - MEMBRANE DRAIN
SCALE : 1:5
1
S14



DETAIL - MEMBRANE DRAIN TO GIRDER CONNECTION
SCALE : 1:10
2
S14



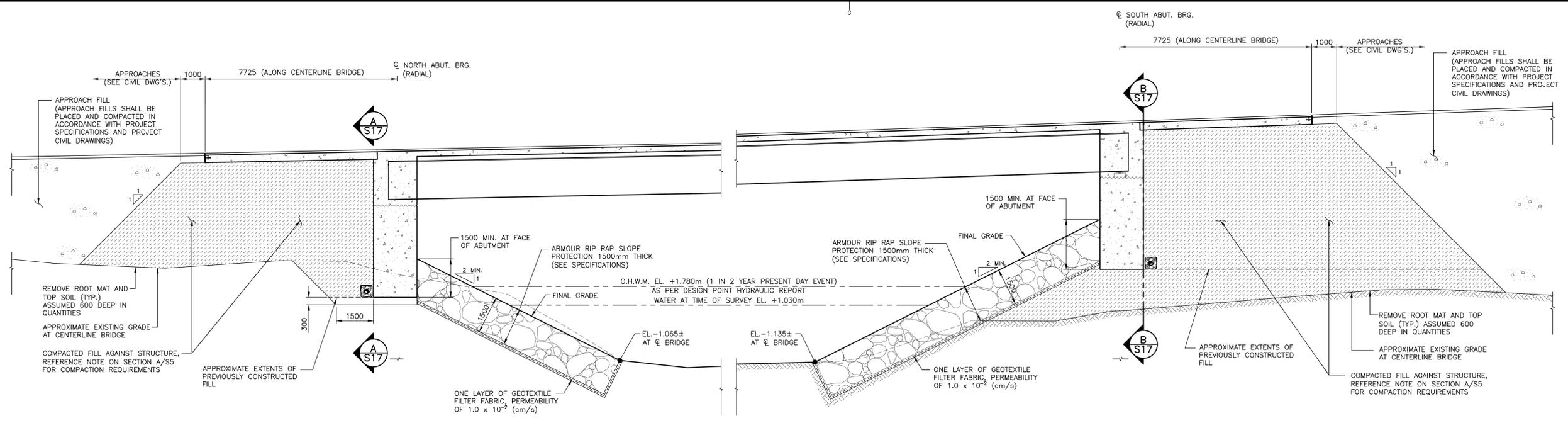
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revisions
project
**ROCKY BARACHOIS BRIDGE
ROUTE 430**
**GROS MORNE NATIONAL
PARK**

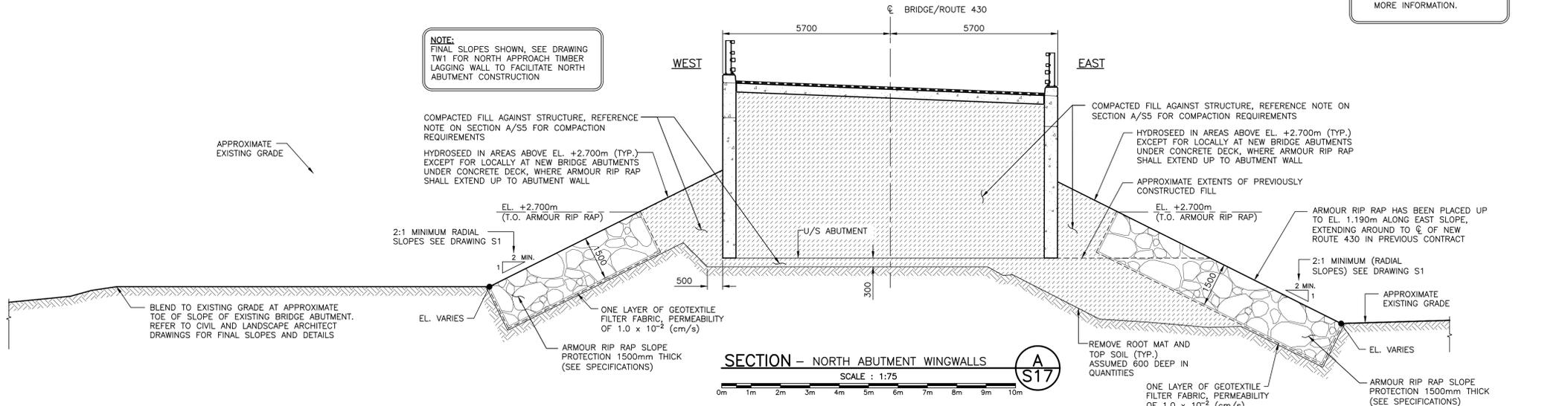
drawing
**MISCELLANEOUS
DECK DETAILS**

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGSC Project Manager	Administrateur de projets TPSGC	
project number	1845	no. du projet
drawing no.	S16	no. du dessin

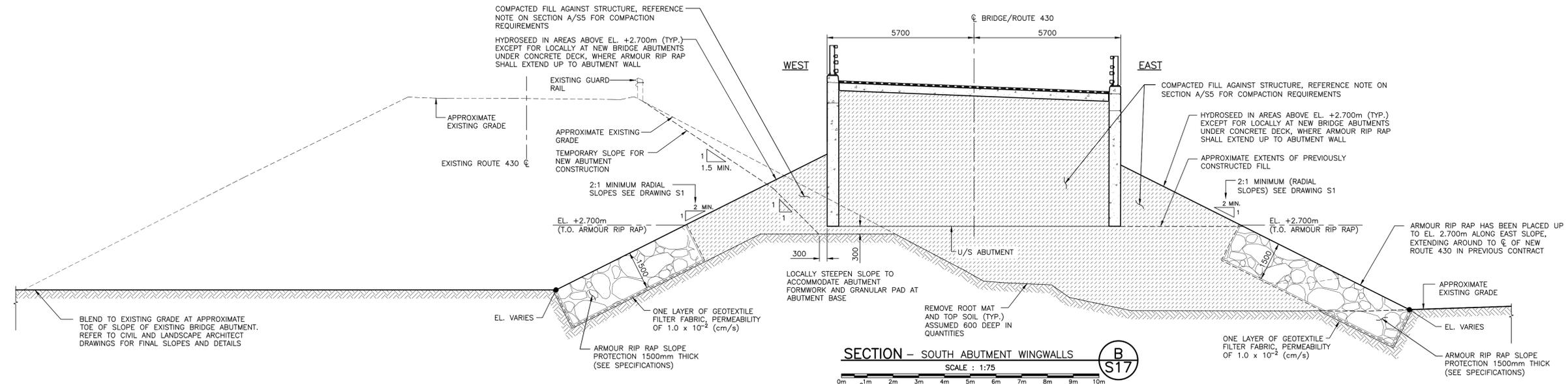


DETAIL - FILL AGAINST STRUCTURE/ RIP RAP DIAGRAMS 1 S1
SCALE : 1:75

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

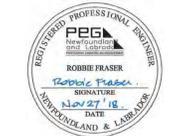


SECTION - NORTH ABUTMENT WINGWALLS A S17
SCALE : 1:75



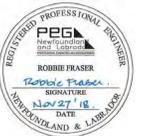
SECTION - SOUTH ABUTMENT WINGWALLS B S17
SCALE : 1:75

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



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revisions		date
project	ROCKY BARACHOIS BRIDGE ROUTE 430	project
	GROS MORNE NATIONAL PARK	
drawing		design
designed	SARAH HARDY	concp
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.	S17	no. du dessin



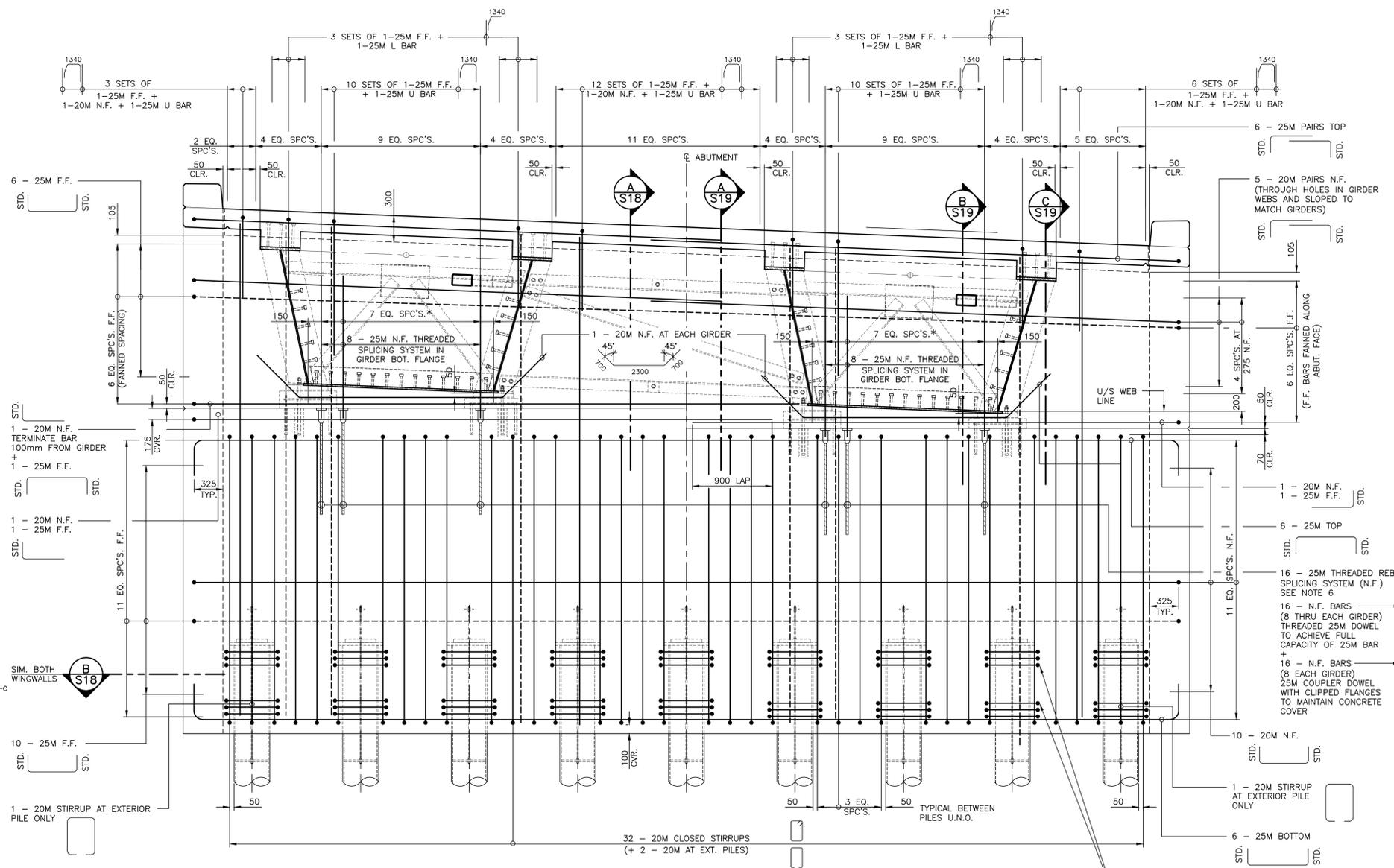
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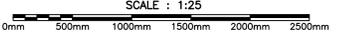
project **ROCKY BARACHOIS BRIDGE ROUTE 430**
 GROS MORNE NATIONAL PARK

ABUTMENT REINFORCING ELEVATION AND SECTIONS

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGS&C Project Manager	Administrateur de projets TPSGC	
project number	1845	no. du projet
drawing no.	S18	no. du dessin



NORTH ABUTMENT REINFORCING ELEVATION (SOUTH ABUTMENT REINFORCING OPPOSITE HAND - SIMILAR)

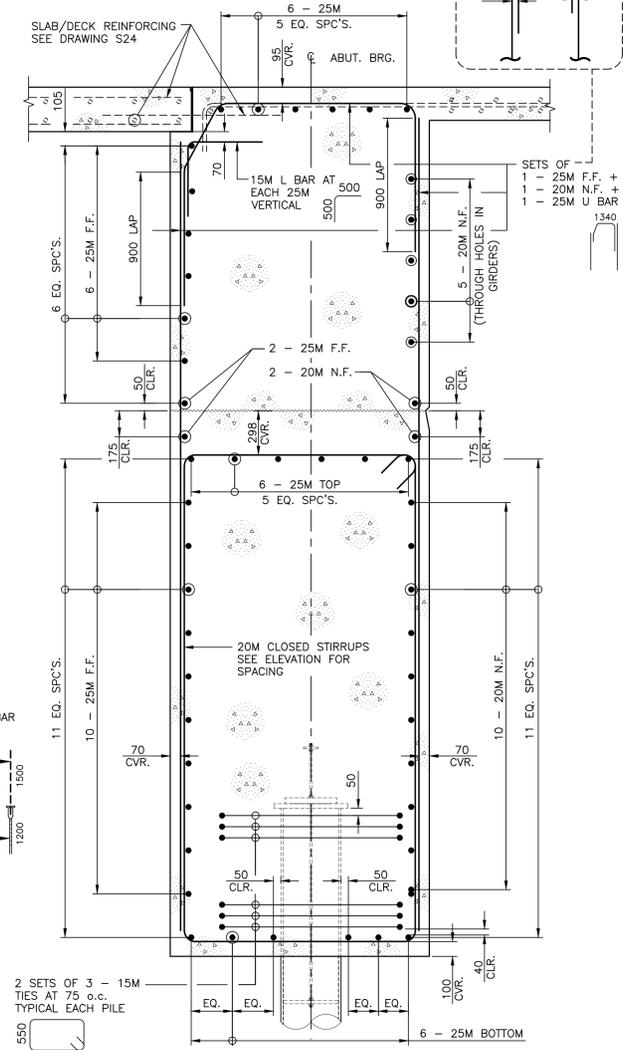


- NOTES:**
- ALL HORIZONTAL BARS TO HAVE STANDARD HOOKS AT END IN EACH WINGWALL. TURN ALL HOOKED HORIZONTAL BARS INTO WINGWALLS IN SUCH A MANNER AS TO MAINTAIN ALL COVERS AND AVOID CLASH WITH WINGWALL REINFORCING. REFERENCE PROJECT SPECIFICATIONS FOR REQUIRED BAR HOOK BEND DIAMETERS.
 - MINIMUM HORIZONTAL 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.

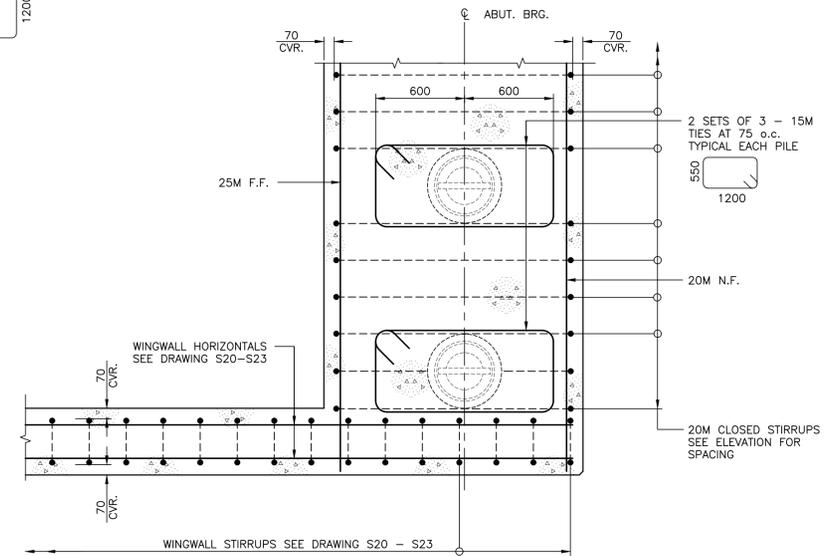
REINFORCING LEGEND:

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	

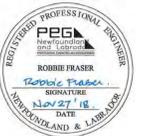
***NOTE:**
 COORDINATE WITH GIRDER FABRICATOR TO ENSURE BAR COUPLERS CAST INTO BEAM SEAT ARE IN LINE WITH HOLES IN GIRDER BOTTOM FLANGES (LONGITUDINALLY AND TRANSVERSELY)



SECTION A-S18
 SCALE: 1:20
 0mm, 500mm, 1000mm, 1500mm, 2000mm, 2500mm



SECTION B-S18
 SCALE: 1:20
 0mm, 500mm, 1000mm, 1500mm, 2000mm, 2500mm



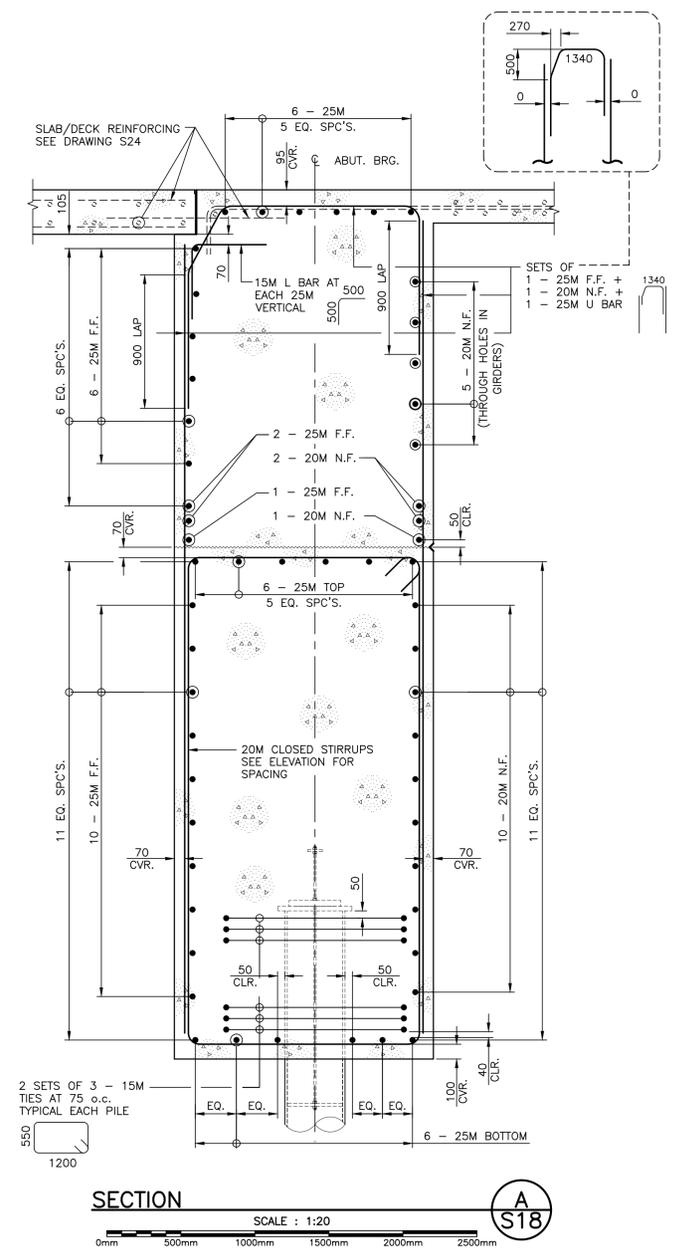
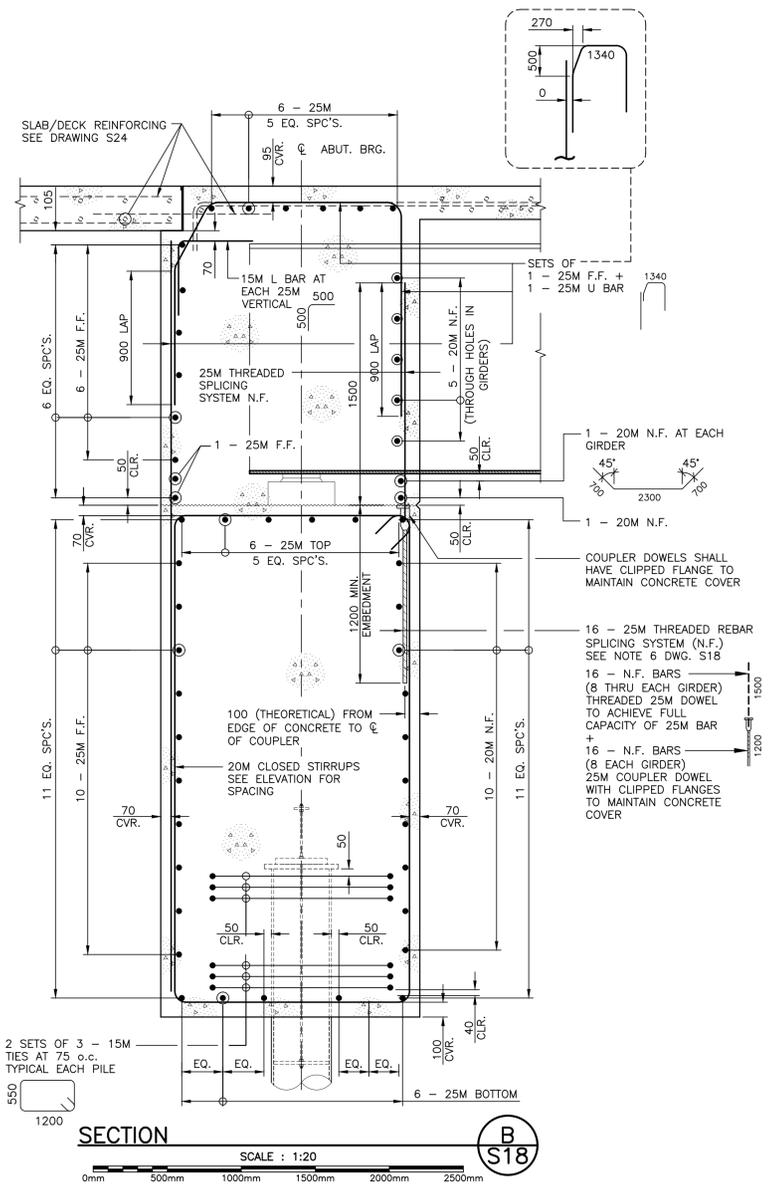
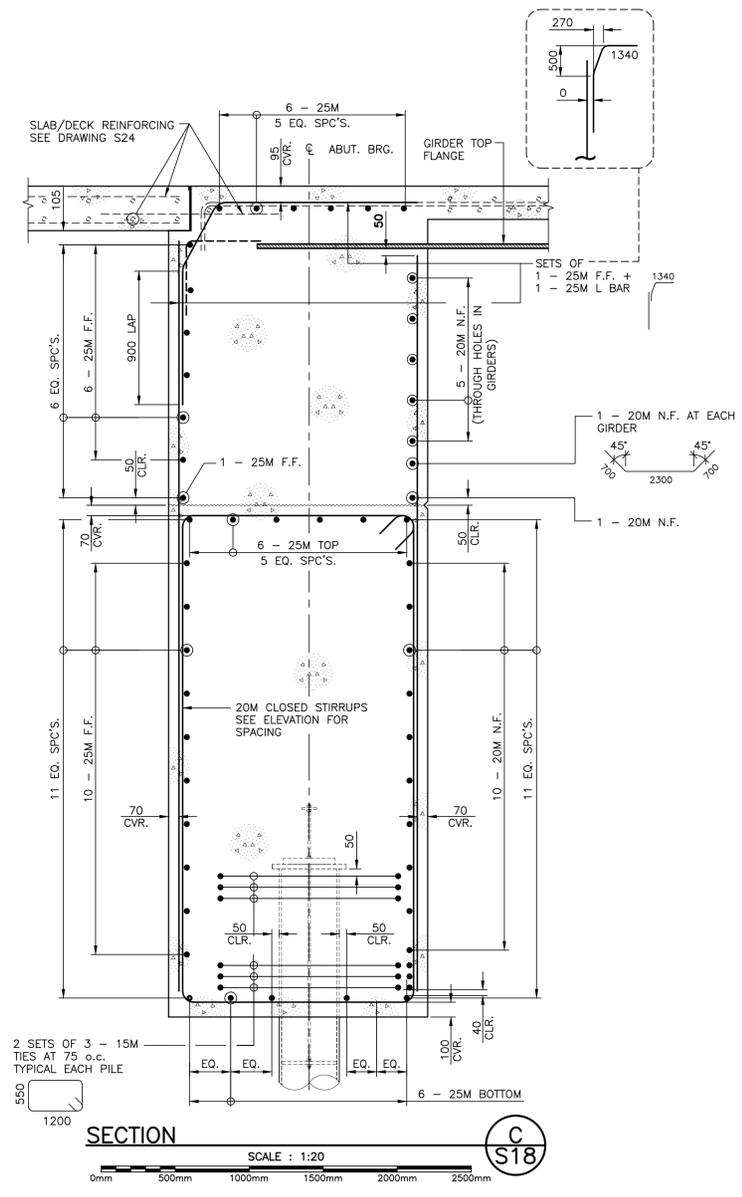
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project **ROCKY BARACHOIS BRIDGE
ROUTE 430**
**GROS MORNE NATIONAL
PARK**

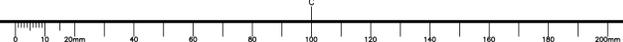
drawing **ABUTMENT
REINFORCING
SECTIONS** design

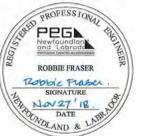
designed SARAH HARDY	conçu
date MAY 2017	date
drawn WAYNE MORROW	dessiné
date MAY 2017	date
approved ROBBIE FRASER	approuvé
date	date
Tender	Submission
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1845	
drawing no.	no. du dessin
S19	



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





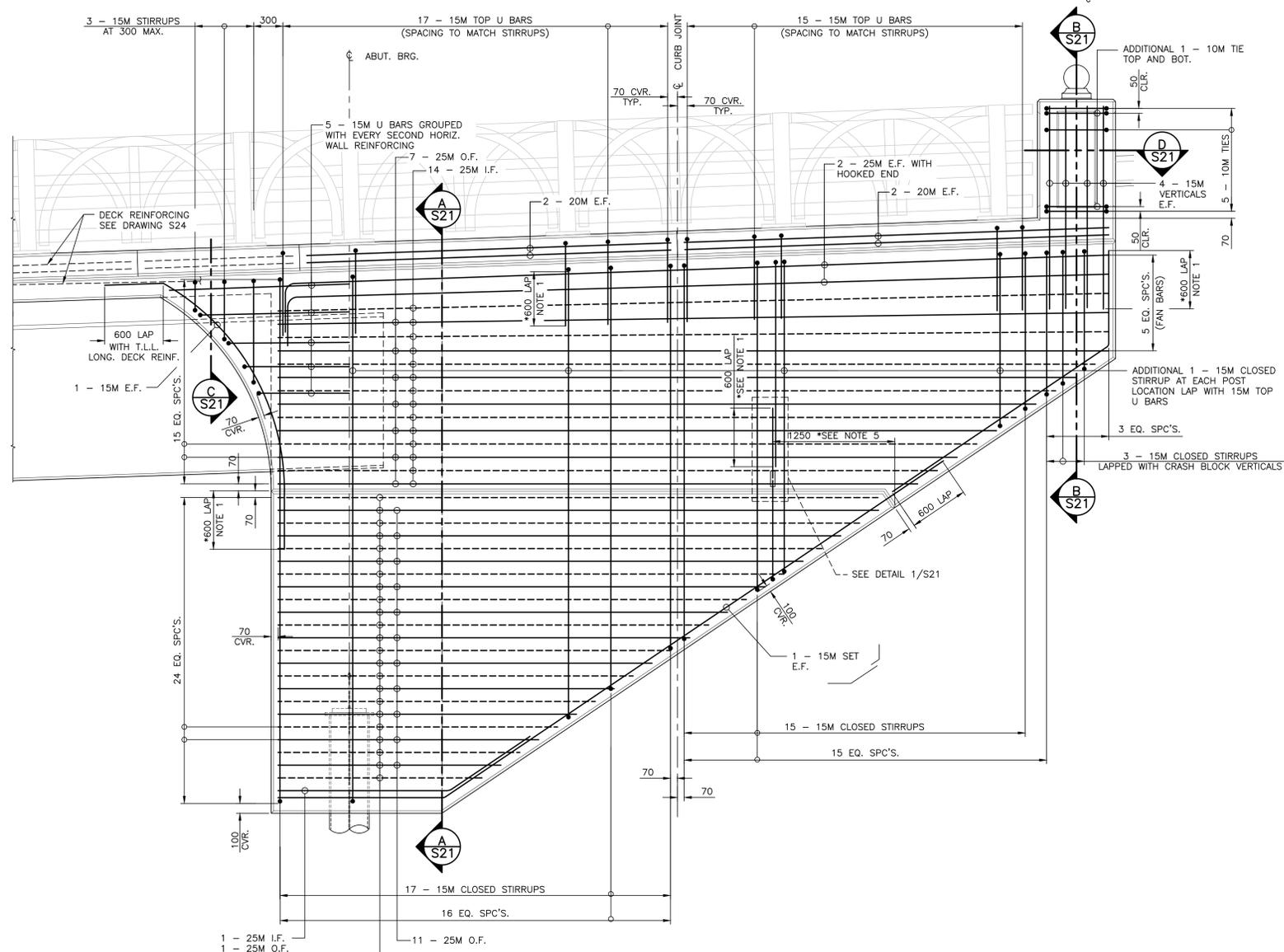
PROVINCE OF NEWFOUNDLAND AND LABRADOR
EG PERMIT HOLDER
 New Brunswick and Labrador
 NETWORK MADE IN CANADA
 HARBORSIDE ENGINEERING CONSULTANTS
 To practice Professional Engineering in Newfoundland and Labrador
 Permit No. as issued by PEG 30324
 which is valid for the year 2018.

0	ISSUED FOR TENDER	11/27 2018
revisions		date

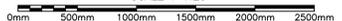
project **ROCKY BARACHOIS BRIDGE ROUTE 430**
GROS MORNE NATIONAL PARK

drawing **SOUTH WEST WINGWALL REINFORCING**

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGSC Project Manager	Administrateur de projets TPSGC	
project number		no. du projet
	1845	
drawing no.		no. du dessin
	S21	

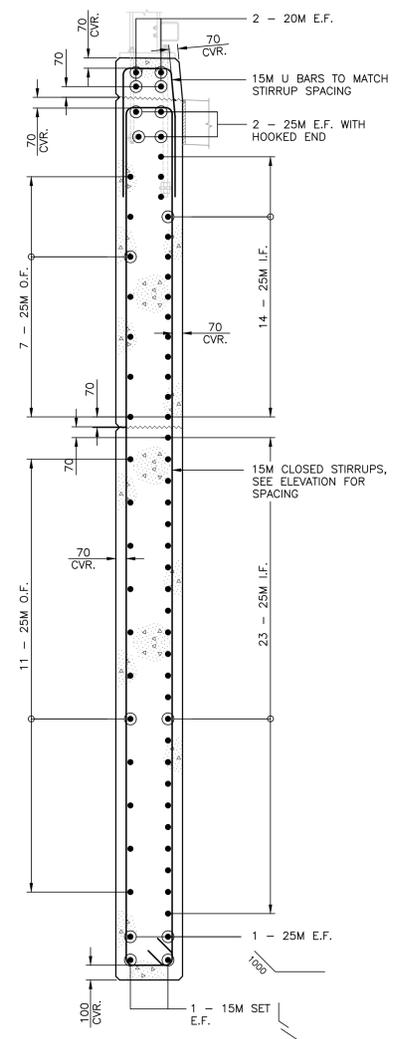


ELEVATION - SOUTH WEST WINGWALL
 SCALE : 1:25

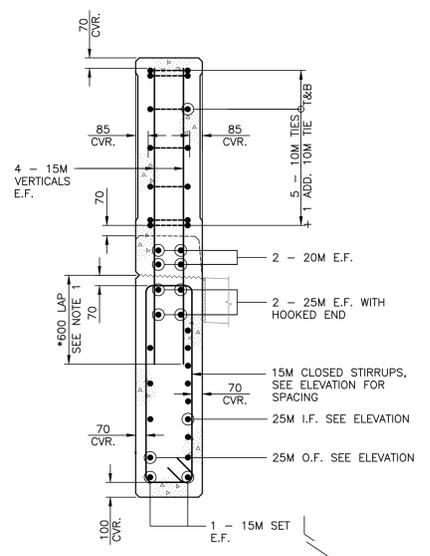


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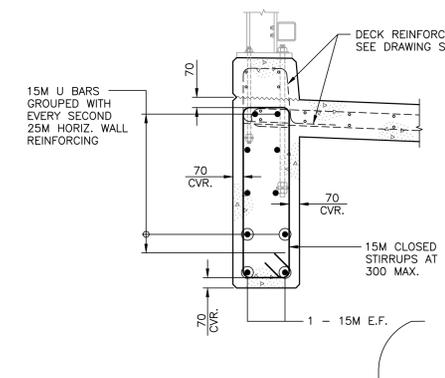
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F.F. — FAR FACE	T.U.L. — TOP UPPER LAYER
N.F.F. — NEAR FAR FACE	T.L.L. — TOP LOWER LAYER
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E.F. — EACH FACE	B.L.L. — BOTTOM LOWER LAYER
E.W. — EACH WAY	CVR. — COVER
I.F. — INSIDE FACE	CLR. — CLEAR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



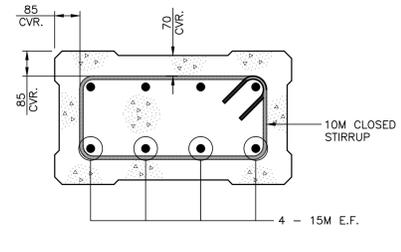
SECTION A-S21
 SCALE : 1:20



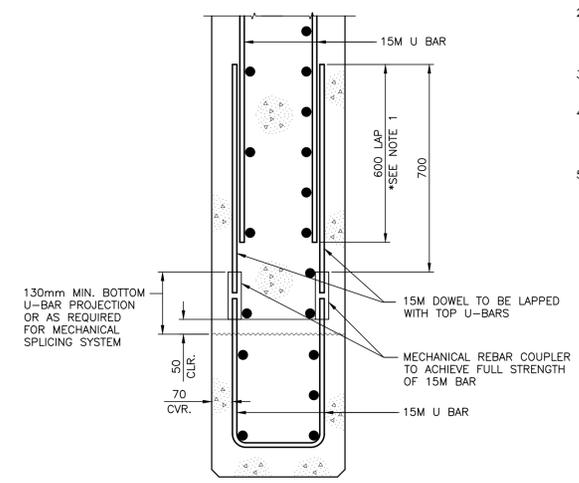
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SECTION C-S21
 SCALE : 1:20



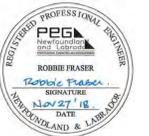
SECTION D-S21
 SCALE : 1:10



DETAIL 1-S21
 SCALE : 1:10



- NOTES:**
- 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).
 - IT IS ACCEPTABLE TO SUBSTITUTE 15M CLOSED STIRRUPS WITH 2 - LAPPED U-BARS PROVIDED LAPS ARE DETAILED AND CONSTRUCTED AS INDICATED IN NOTE 1.
 - REFER TO NOTE 2, DRAWING S18 FOR HORIZONTAL AND VERTICAL BAR LAPS (UNO).
 - ALL REINFORCING TO BE GALVANIZED AFTER FABRICATION. CARE SHALL BE TAKEN WHEN HANDLING GALVANIZED BARS TO AVOID DAMAGE TO THE COATINGS.
 - STIRRUPS WITHIN THIS REGION SHALL BE AS INDICATED IN DETAIL 1/S21 TO ALLOW CRANE PLACEMENT FOR GIRDER ERECTION.



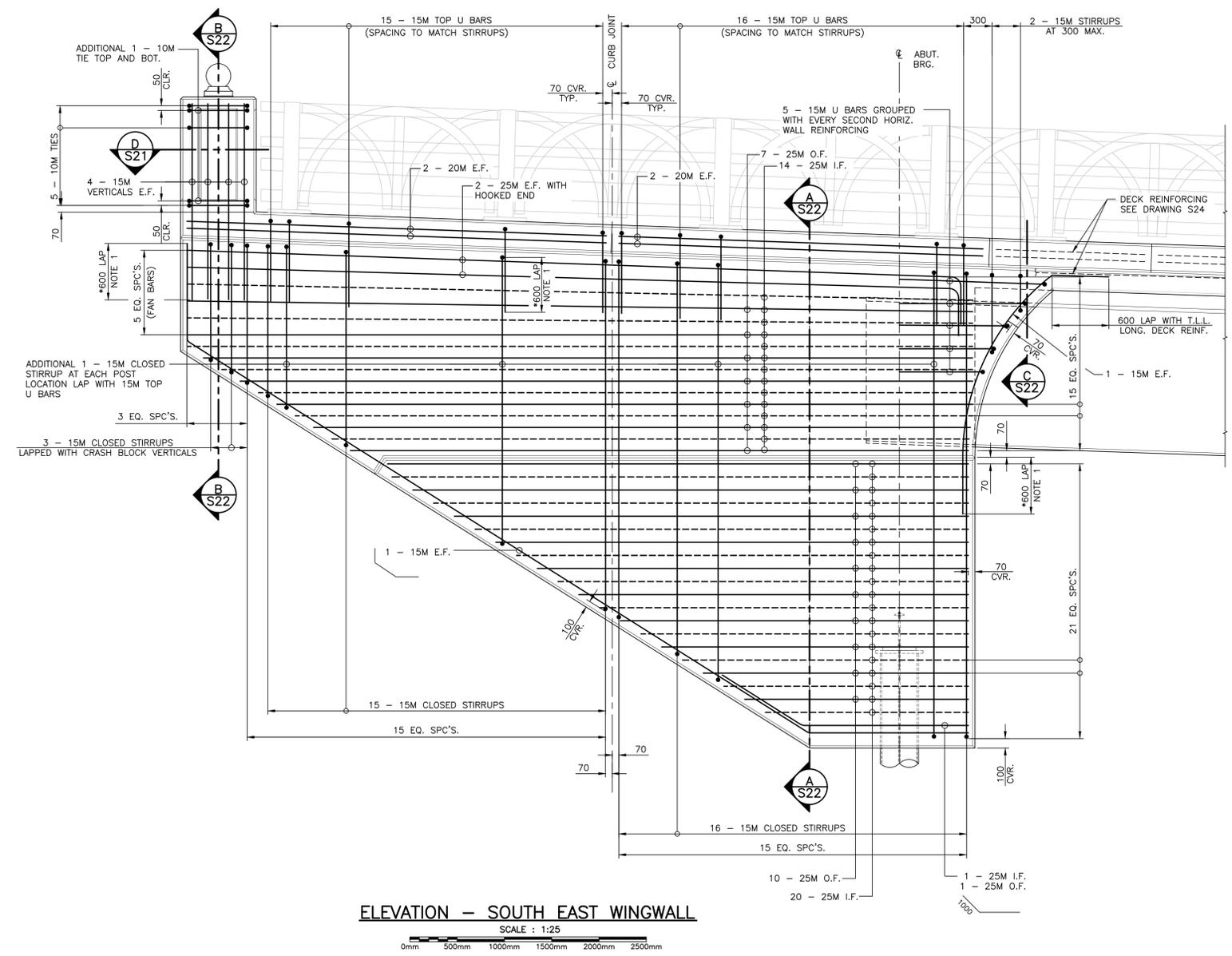
PROVINCE OF NEWFOUNDLAND AND LABRADOR
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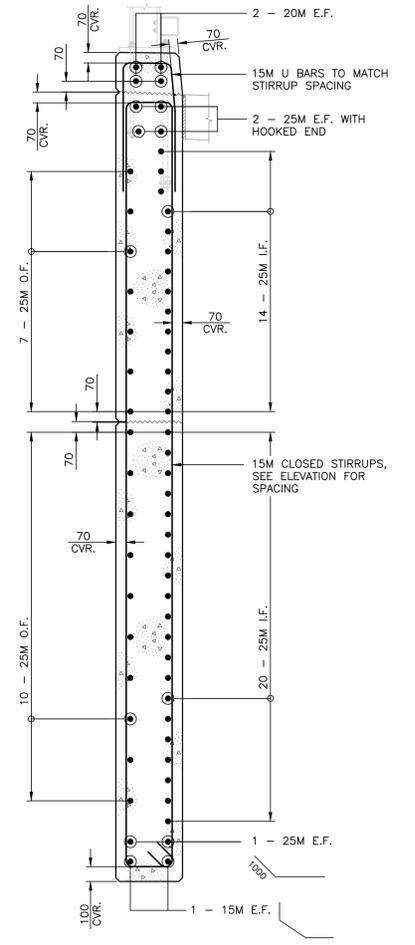
project **ROCKY BARACHOIS BRIDGE ROUTE 430**
GROS MORNE NATIONAL PARK

drawing **SOUTH EAST WINGWALL REINFORCING**

designed	SARAH HARDY	conçu
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGC Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S22	no. du dessin



ELEVATION - SOUTH EAST WINGWALL
 SCALE : 1:25



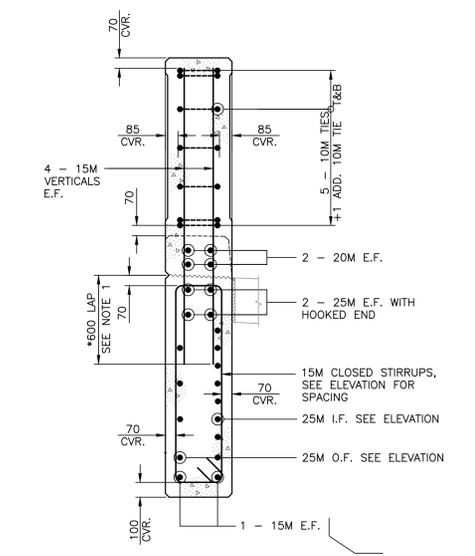
SECTION A-S22
 SCALE : 1:20

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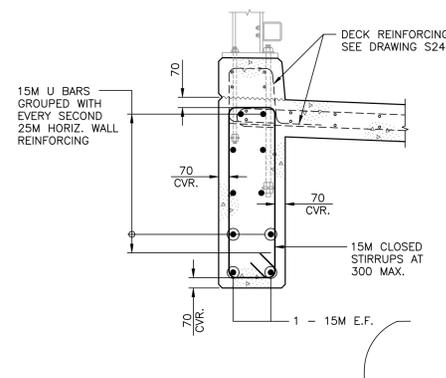
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- F.F. — FAR FACE
- N.F.F. — NEAR FAR FACE
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- E.F. — EACH FACE
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- CVR. — COVER
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NOTES:

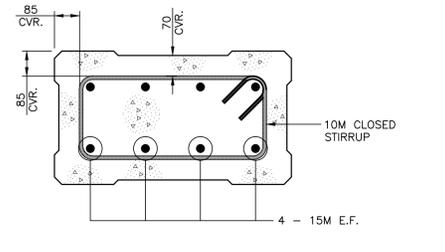
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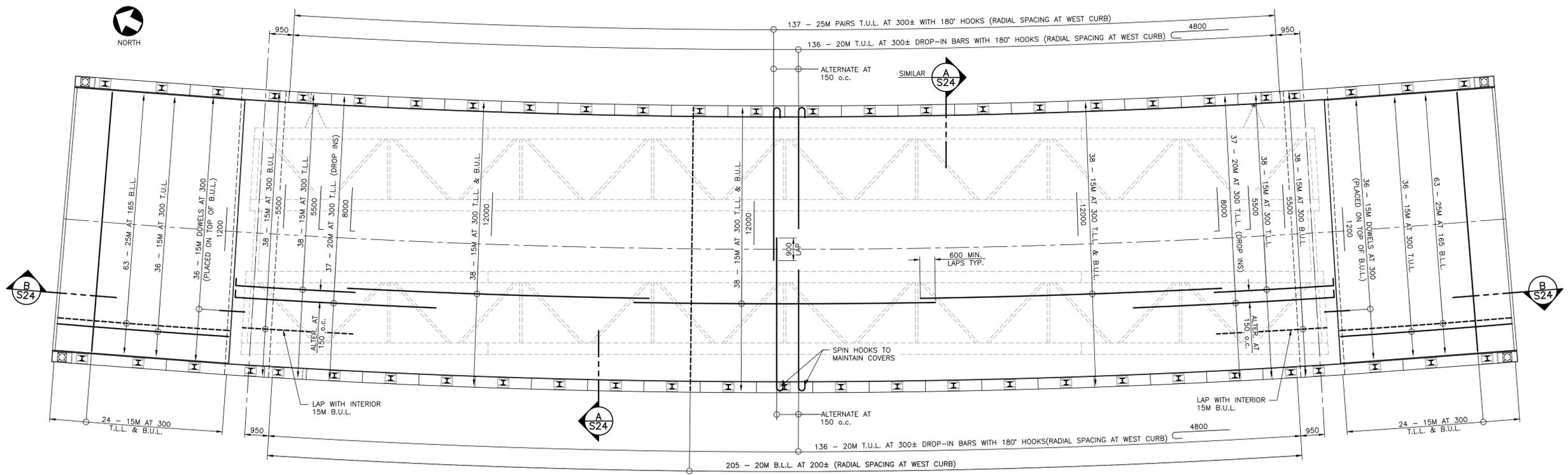
SECTION B-S21
 SCALE : 1:20



SECTION C-S22
 SCALE : 1:20

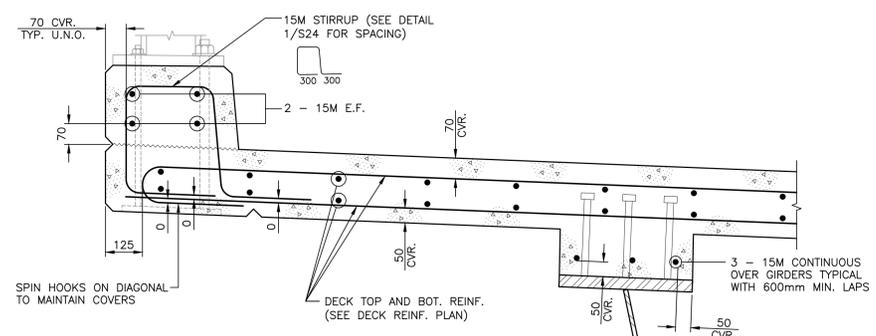


SECTION D-S21
 SCALE : 1:10



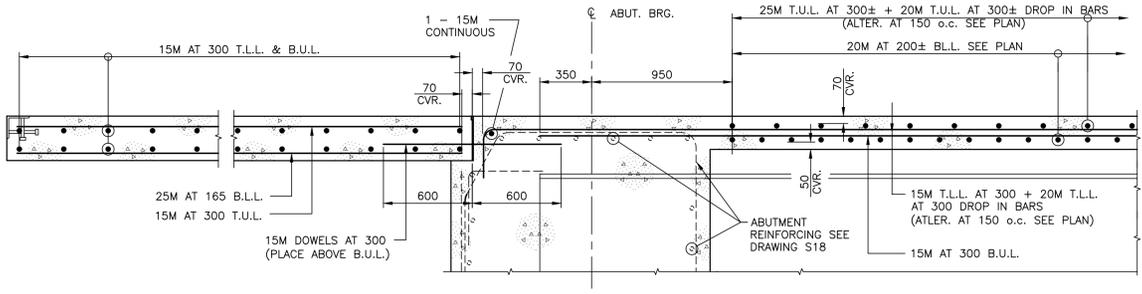
DECK REINFORCING PLAN

SCALE : 1:75



TYPICAL CURB SECTION

SCALE : 1:10



SECTION

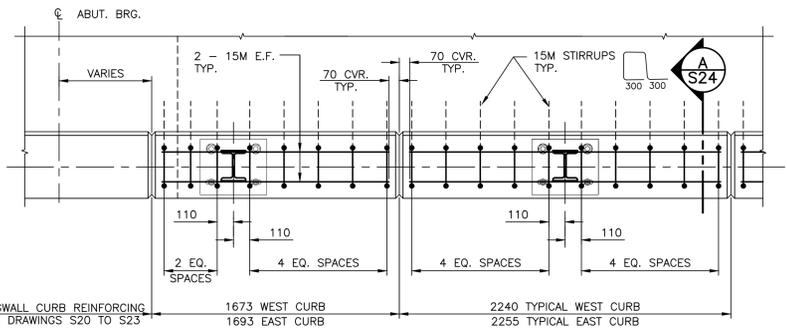
SCALE : 1:20



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 DENSO TAPE LOCALLY AT CONTACT POINT TO AVOID CONSTACT BETWEEN DISSIMILAR METALS. LAPS AS INDICATED ON THIS DRAWING.

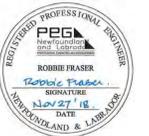
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- B.L.L. — BOTTOM LOWER LAYER
- CVR. — COVER
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DETAIL - CURB REINFORCING

SCALE : 1:20



PROVINCE OF NEWFOUNDLAND AND LABRADOR
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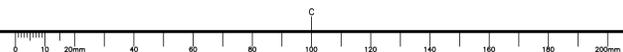
0	ISSUED FOR TENDER	11/27 2018
revisions		date

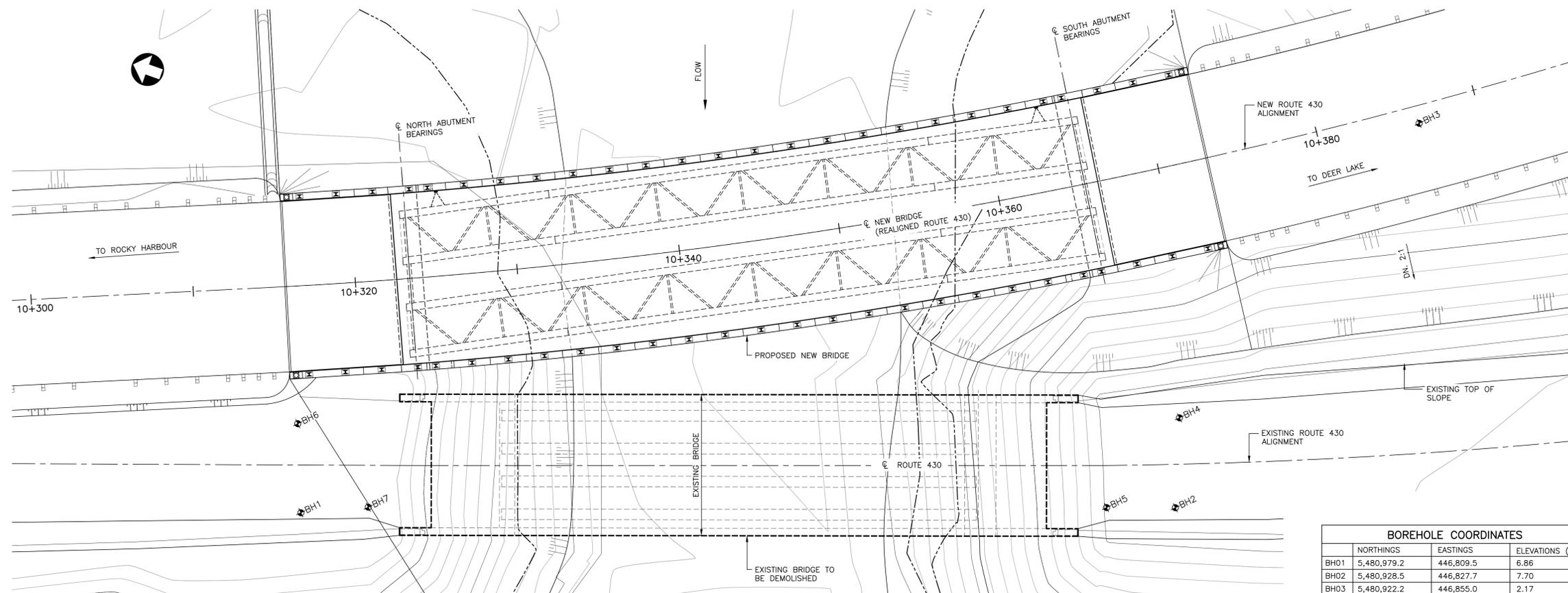
project
**ROCKY BARACHOIS BRIDGE
ROUTE 430**

**GROS MORNE NATIONAL
PARK**

drawing
DECK REINFORCING

designed	SARAH HARDY	concr
date	MAY 2017	
drawn	WAYNE MORROW	dessiné
date	MAY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission
PWGSC Project Manager	Administrateur de projets TPSGC	
project number		no. du projet
	1845	
drawing no.		no. du dessin
	S24	





BOREHOLE PLAN

SCALE : 1:125



BOREHOLE COORDINATES			
	NORTHINGS	EASTINGS	ELEVATIONS (m)
BH01	5,480,979.2	446,809.5	6.86
BH02	5,480,928.5	446,827.7	7.70
BH03	5,480,922.2	446,855.0	2.17
BH04	5,480,930.1	446,833.0	7.61
BH05	5,480,932.5	446,826.3	7.53
BH06	5,480,981.2	446,814.6	6.85
BH07	5,480,975.4	446,811.2	6.88

PAGE 1 OF 3

HARBORSIDE 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	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm)	BLOWS / 150 mm (N VALUE)	OTHER TESTS	UNDRAINED SHEAR STRENGTH: kPa	
									CU	CU
0.00	8.80	ASPHALT								
0.00	8.80	FILL: grey gravel with silt and sand to sand with silt and gravel		SS	1	450	17-20-17-13 (30)			
0.00	8.80	FILL: brown to grey sand with silt and gravel - with occasional cobbles and boulders		SS	2	300	12-10-9-10 (19)			
0.00	8.80			SS	3	150	5-8-7-7 (14)			
0.00	8.80			SS	4	150	17-17-50-150 mm			
0.00	8.80			SS	5	0	13-9-4-6 (10)			
0.00	8.80			SS	6	75	7-12-12-9 (21)			
0.00	8.80			SS	7	200	75-mm Spoon			
0.00	8.80			SS	8	75	10-8-7-8 (15)			
0.00	8.80			SS	9	75	7-5-5-9 (10)			
0.00	8.80	Compact to very dense brown to grey SAND with silt and gravel to GRAVEL with silt and sand (Alluvium) - with occasional cobbles and boulders		SS	10	175	75-mm Spoon			
0.00	8.80			SS	11	200	12-15-13-15 (28)			
0.00	8.80			SS	12	200	75-mm Spoon			
0.00	8.80			SS	13	175	17-37-25-44 (62)			
0.00	8.80			SS	14	0	20-26-15-12 (27)			
0.00	8.80			SS	15	125	12-11-8-8 (14)			

(Continued Next Page)

PAGE 2 OF 3

HARBORSIDE 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	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm)	BLOWS / 150 mm (N VALUE)	OTHER TESTS	UNDRAINED SHEAR STRENGTH: kPa	
									CU	CU
0.00	8.80	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)			
0.00	8.80			SS	17	150	11-17-19-23 (30)			
0.00	8.80			SS	18	100	37-55-50-75 mm			
0.00	8.80	- 450 mm boulder		SS	19	75	20-43-50-50 mm			
0.00	8.80			SS	20	100	21-15-17-15 (25)			
0.00	8.80			SS	21	250	20-19-20-23 (39)			
0.00	8.80			SS	22	150	12-16-34-50 (50)			
0.00	8.80			SS	23	50	20-26-26-28 (54)			
0.00	8.80	Compact brown silty SAND		SS	24	300	12-13-13-12 (25)			
0.00	8.80			SS	25	0	12-15-14-15 (29)			
0.00	8.80	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)			
0.00	8.80			SS	27	0	40-17-18-21 (35)			
0.00	8.80			SS	28	300	17-21-15-13 (28)			
0.00	8.80						22-20-19			

(Continued Next Page)

PAGE 3 OF 3

HARBORSIDE 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	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm)	BLOWS / 150 mm (N VALUE)	OTHER TESTS	UNDRAINED SHEAR STRENGTH: kPa	
									CU	CU
0.00	8.80	Compact to dense brown to grey well graded SAND with silt and sand - with occasional cobbles and boulders (continued)		SS	29	300	18 (37)			
0.00	8.80			SS	30	50	19-43-18-33 (61)			
0.00	8.80	End of borehole - 25-mm diameter standpipe installed								

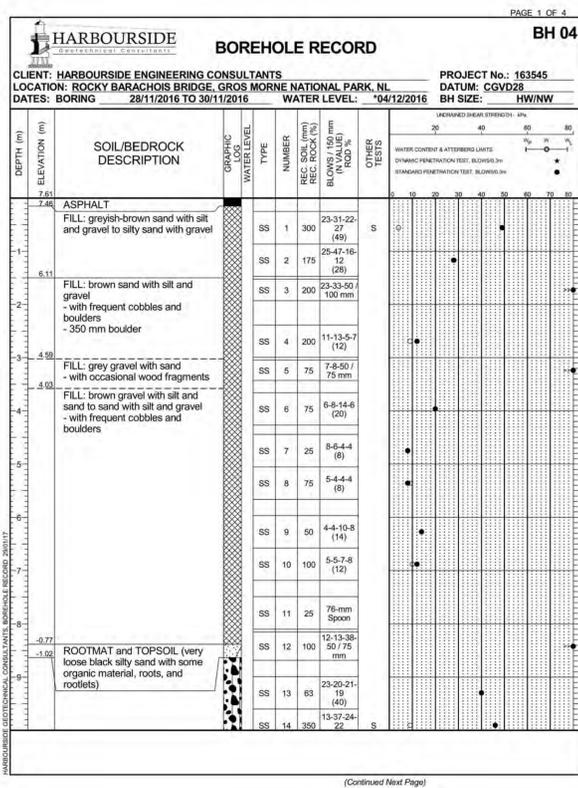
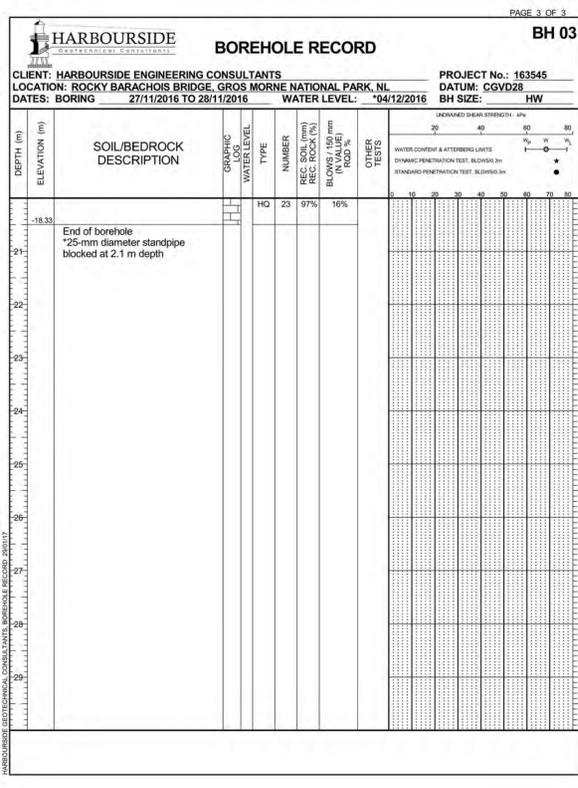
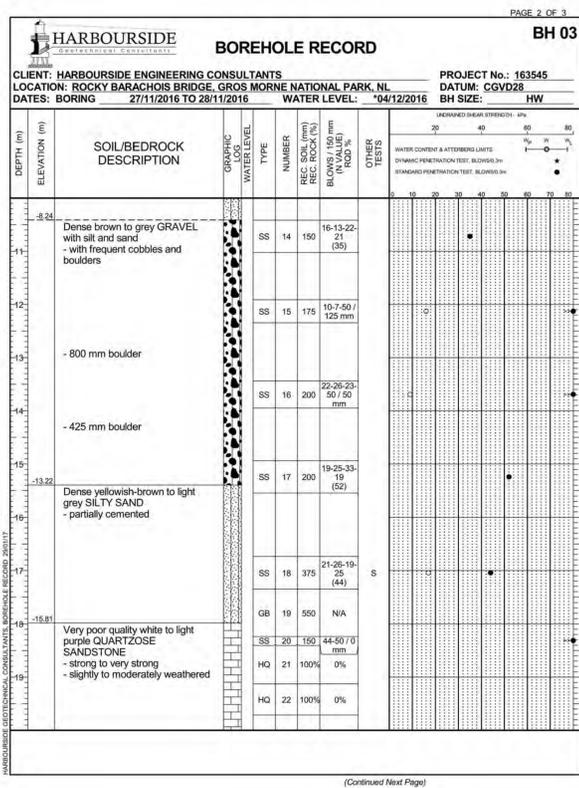
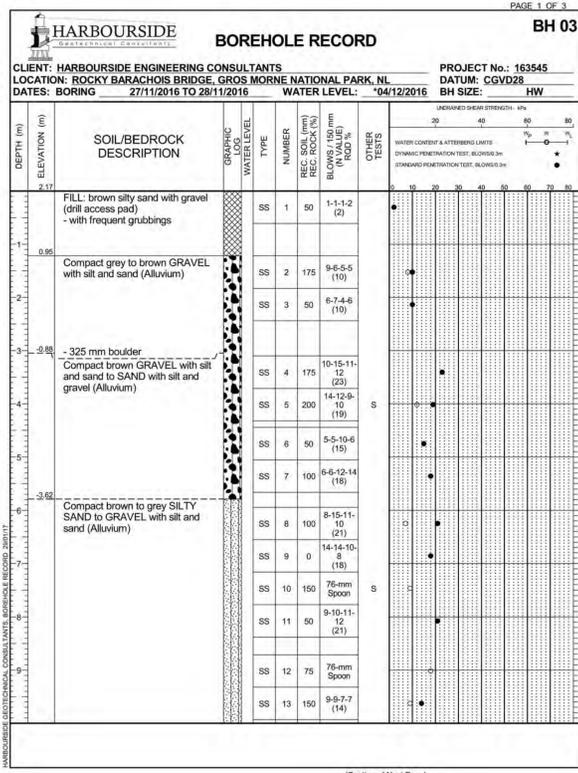
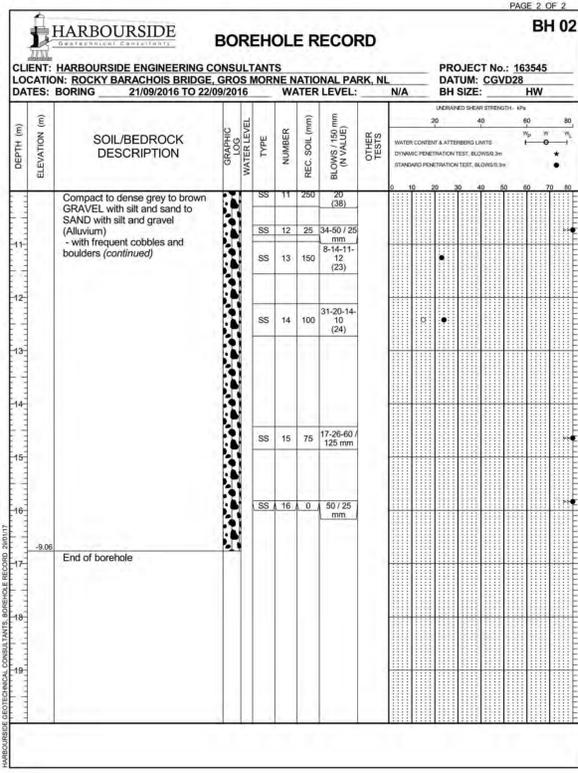
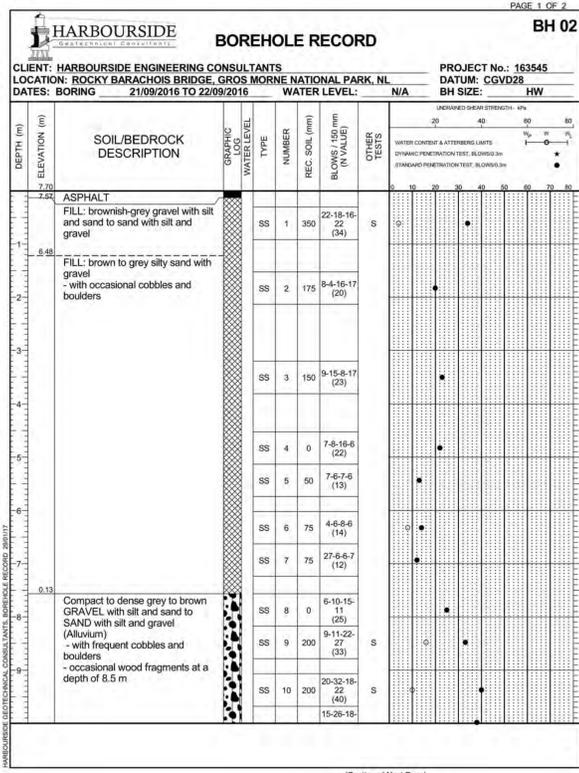
0 ISSUED FOR TENDER 11/27 2016

project ROCKY BARACHOIS BRIDGE ROUTE 430
 GROS MORNE NATIONAL PARK

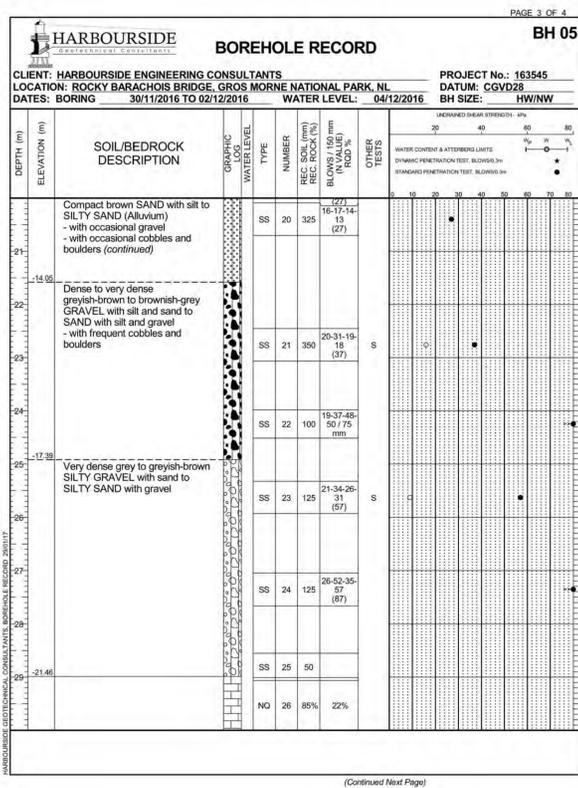
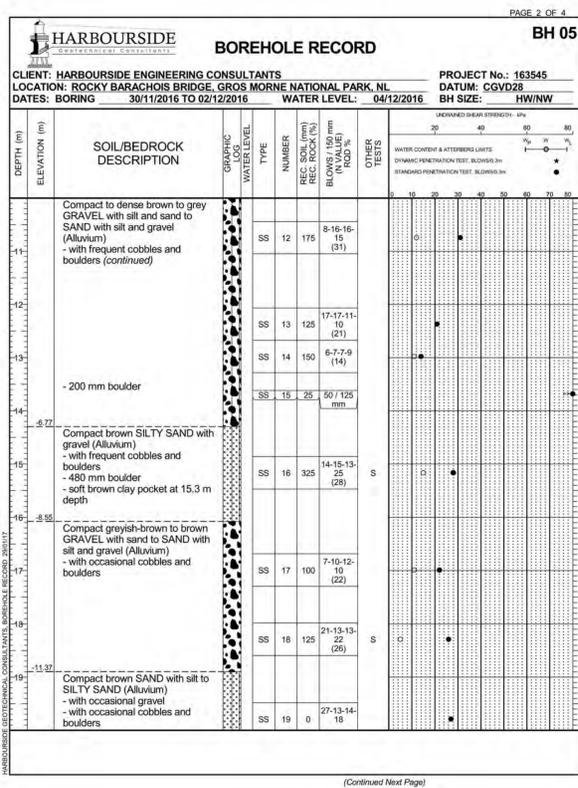
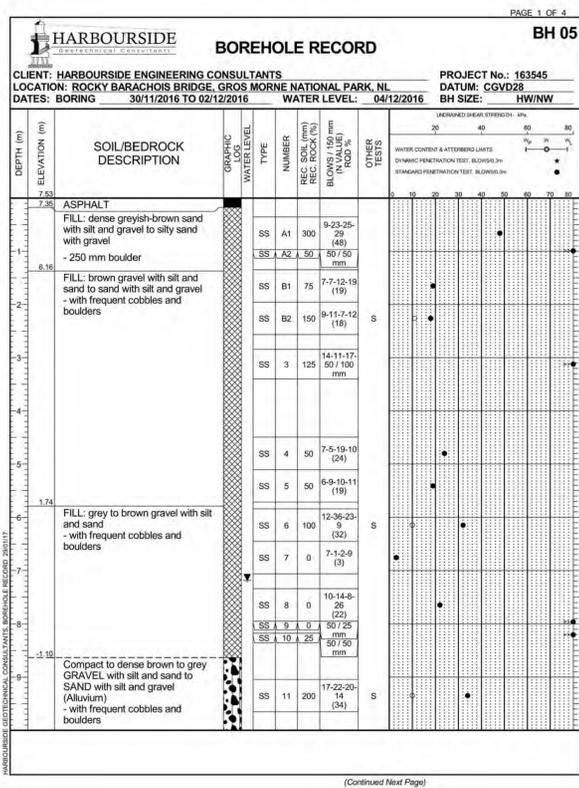
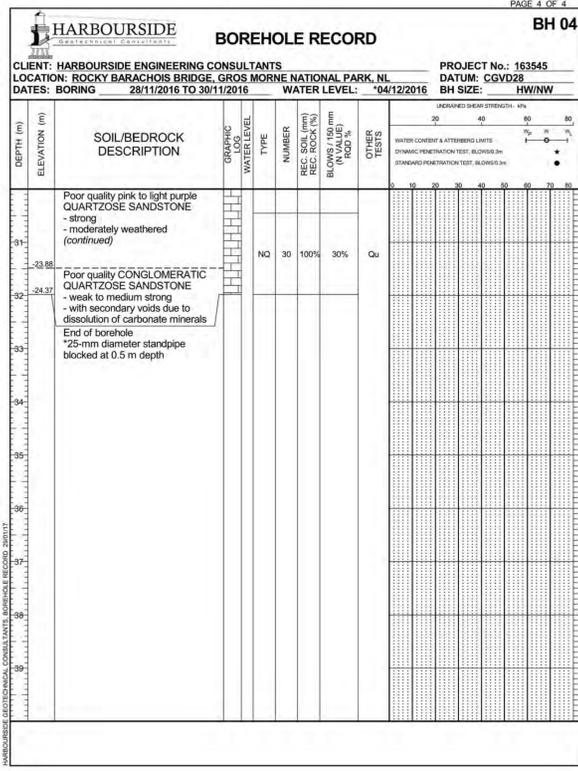
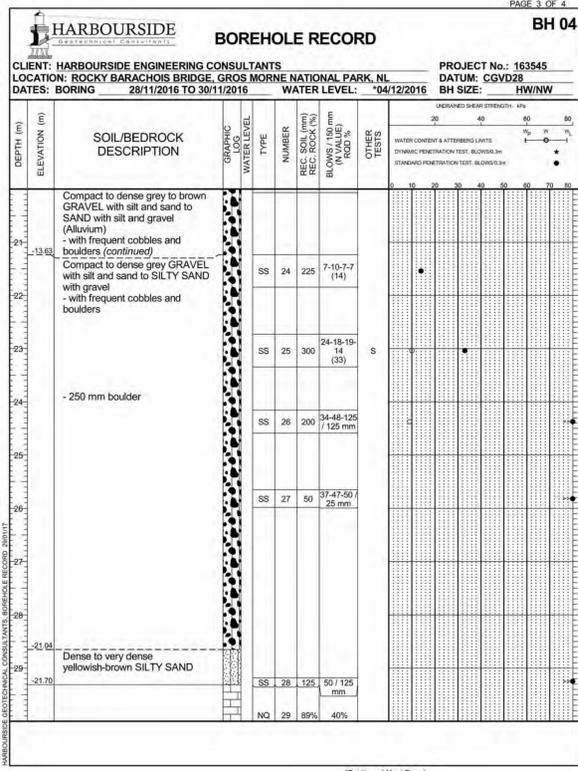
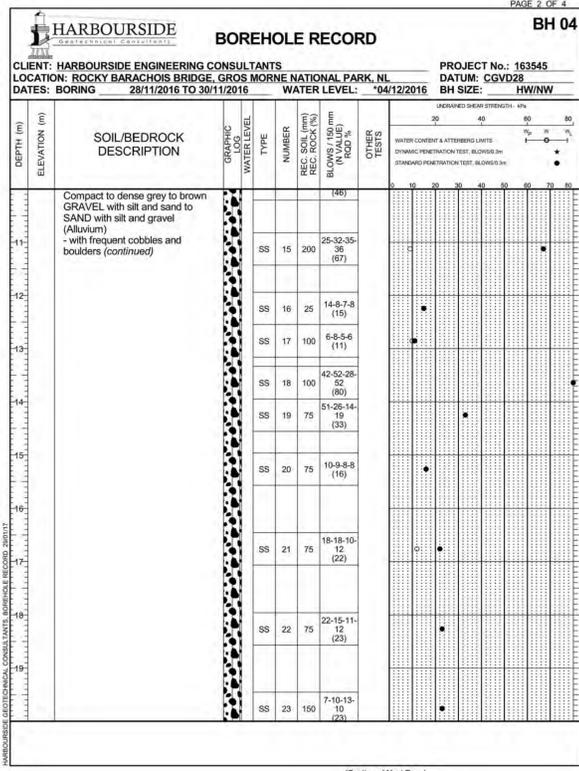
drawing BORELOGS SHEET 1 of 5

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

PWSSC Project Manager Administrateur de projets TPSGC
 project number 1845
 drawing no. S25



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		Submission
PWSCS Project Manager	Administrateur de projets TPSC	
project number	1845	no. du projet
drawing no.	S26	no. du dessin



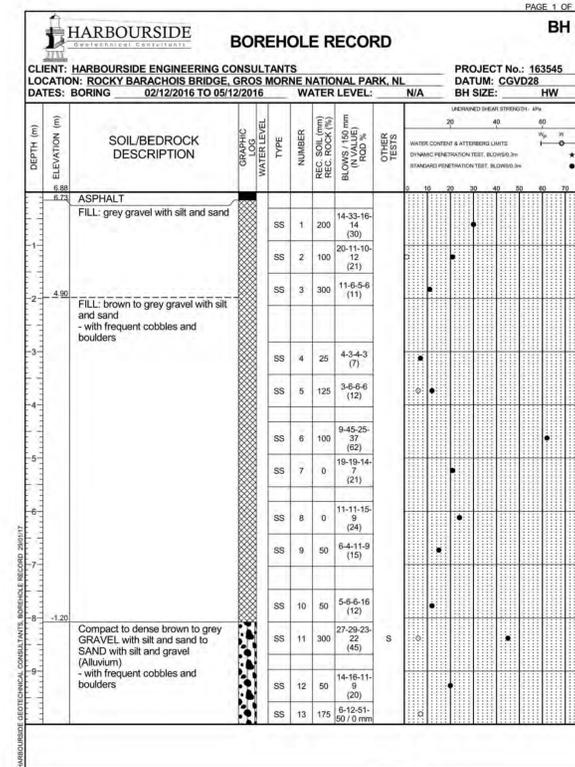
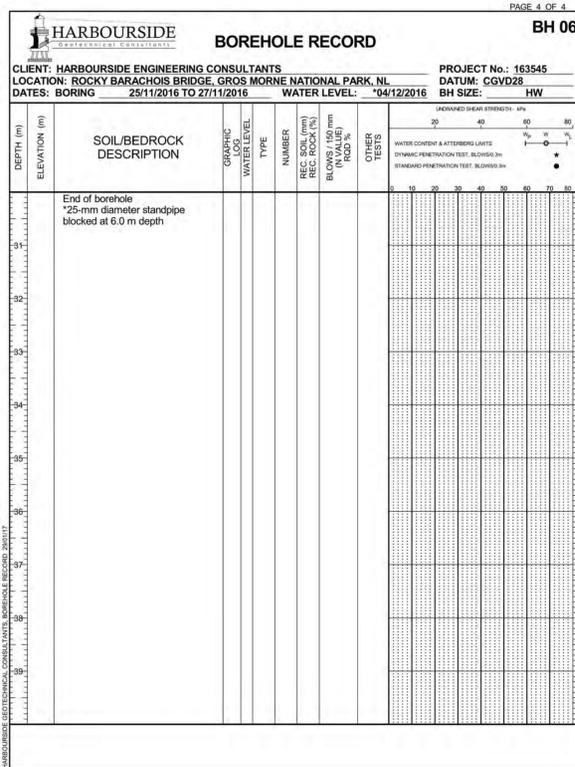
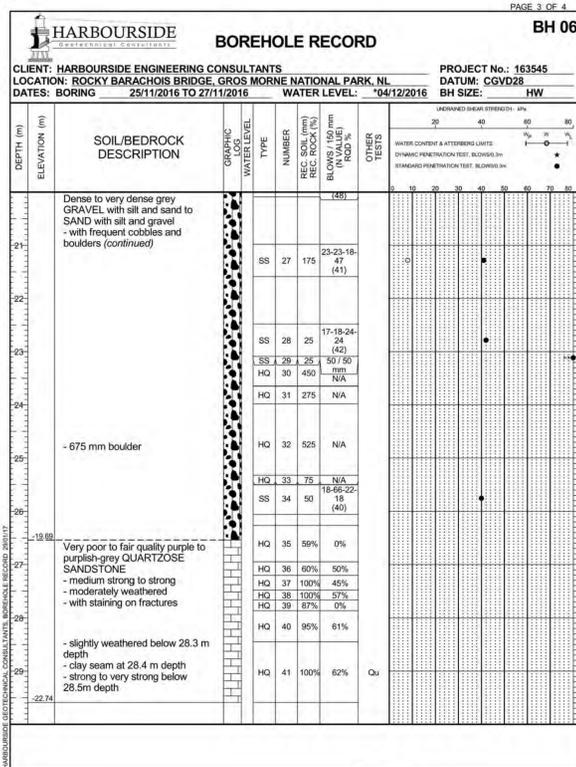
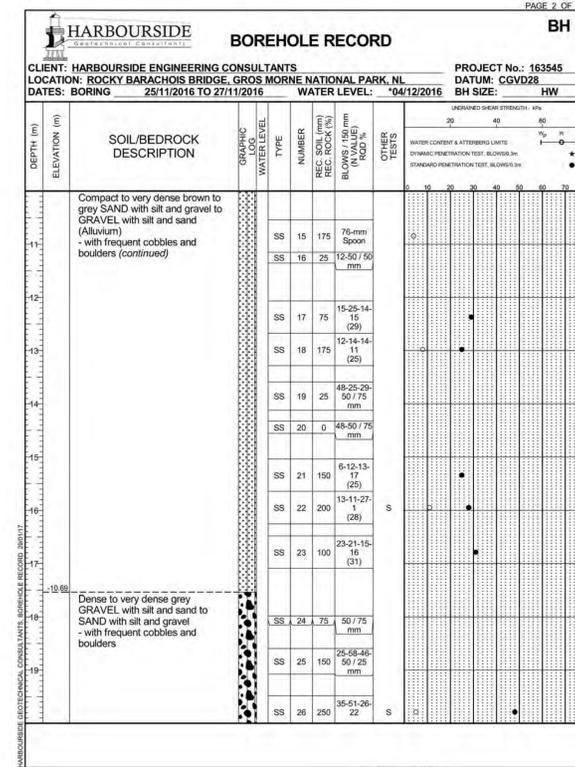
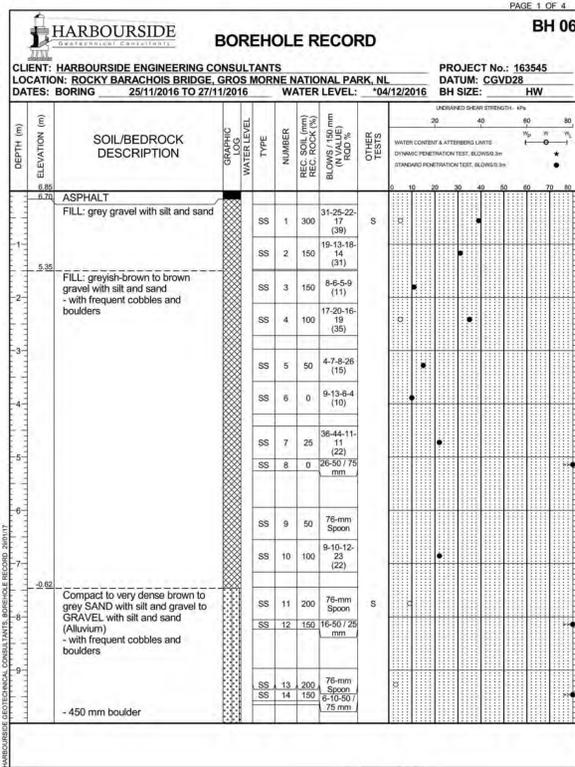
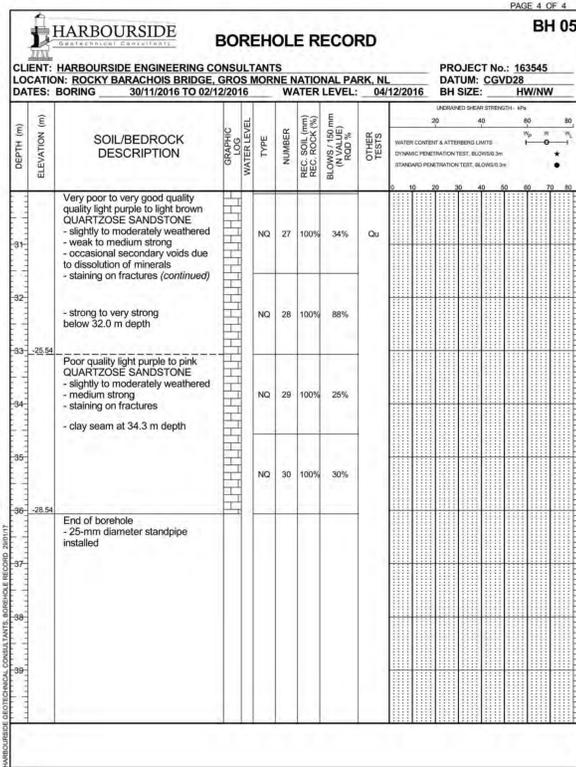
0	ISSUED FOR TENDER	11/27/2016
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project
ROCKY BARACHOIS BRIDGE ROUTE 430
GROS MORNE NATIONAL PARK

drawing
BORELOGS SHEET 3 of 5

designed	SARAH HARDY	conçu
date	JULY 2017	
drawn	WAYNE MORROW	dessiné
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Tender	Submission
PWSC Project Manager	Administrateur de projets TPSC
project number	no. du projet
1845	
drawing no.	no. du dessin
S27	



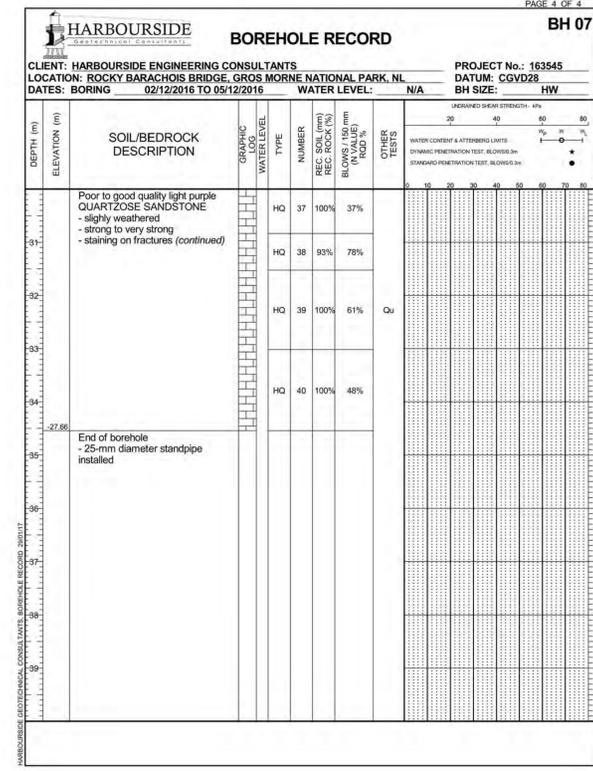
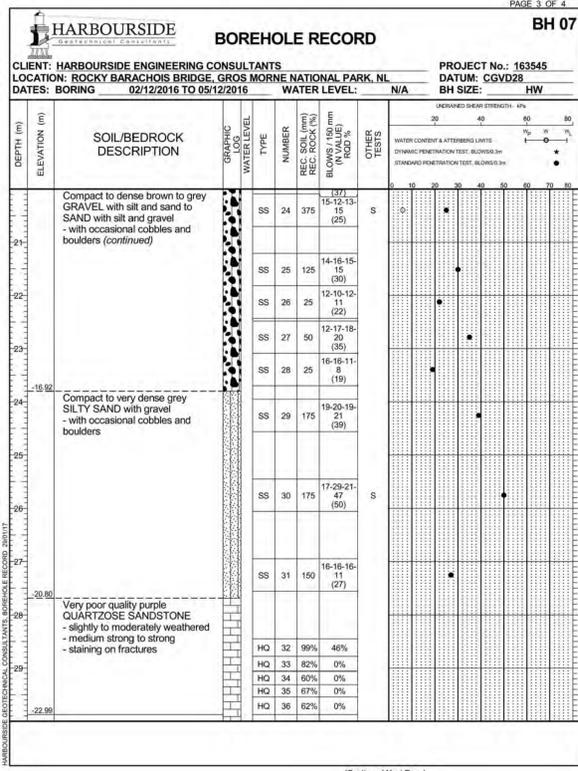
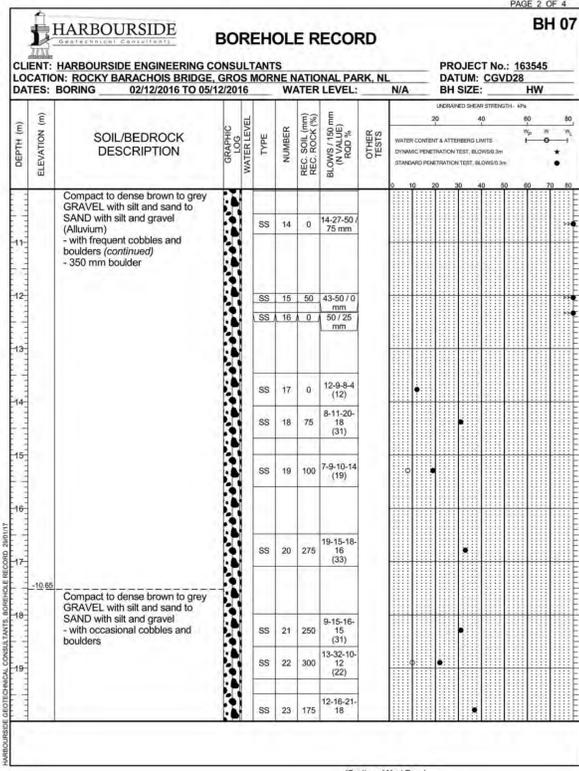
0	ISSUED FOR TENDER	11/27/2016
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project **ROCKY BARACHOIS BRIDGE ROUTE 430**
 project **GROS MORNE NATIONAL PARK**

BORELOGS SHEET 4 of 5

designed	SARAH HARDY	conçu
date	JULY 2017	
drawn	WAYNE MORROW	dessiné
date	JULY 2017	
approved	ROBBIE FRASER	approuvé
date		
Tender		Submission

PWSSC Project Manager	Administrateur de projets TPSSC
project number	no. du projet
1845	
drawing no.	no. du dessin
S28	



0	ISSUED FOR TENDER	11/27 2016
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revisions date

project projet

ROCKY BARACHOIS BRIDGE
ROUTE 430

GROS MORNE NATIONAL
PARK

drawing dessin

BORELOGS
SHEET 5 of 5

designed SARAH HARDY conçu

date JULY 2017

drawn WAYNE MORROW dessiné

date JULY 2017

approved ROBBIE FRASER approuvé

date

Tender Soumission

PWSSC Project Manager Administrateur de projets TPSSC

project number no. du projet

1845

drawing no. no. du dessin

S29