



**PARSONS**



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0	ISSUED FOR TENDER	19/12/2018

Revision/Description	Description/Description	Date/Date
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Client/Client  
Parks Canada L'Agence Parcs  
Agency Canada

Project title/Titre du projet  
**TOFINO, BC  
PACIFIC RIM  
NATIONAL PARK RESERVE  
?apsciiik fasii  
(Ups-cheek ta-shee)  
"Going in the right  
direction on the trail"**

Consultant Signature Only

Designed by/Concept par  
DANIEL YANG / 2018-11

Drawn by/Designé par  
SHAWN LI / 2018-12

PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apsciiik fasii  
(Ups-cheek ta-shee)  
"Going in the right  
direction on the trail"  
BRIDGE & ELEVATED BOARDWALK  
GENERAL NOTES  
SHEET 2**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-1.2</b> OF	Revision no./ La Révision no. <b>0</b>
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- 9.3 LUMBER SPECIES, GRADE, MANUFACTURE AND TRIM REQUIREMENTS
- 9.3.1 ALL TIMBER MATERIAL USED IN ELEVATED BOARDWALK AND BRIDGE #3 ARE UNTREATED.
- 9.3.2 ELEVATED BOARDWALK TIMBER:
- a) TIMBER STRINGER: D FIR-L GRADE SELECT STRUCTURAL;
  - b) TIMBER TIE AT TIMBER POST: D FIR-L GRADE SELECT STRUCTURAL;
  - c) TIMBER DECK, CURB/RISER, POST, HANDRAIL: WESTERN RED CEDAR, GRADE SELECT STRUCTURAL
- 9.3.3 BRIDGE #3 TIMBER:
- a) TIMBER TIE BEAM: D FIR-L GRADE 1 OR BETTER
  - b) TIMBER DECK, CURB/RISER, POST, HANDRAIL: WESTERN RED CEDAR, GRADE SELECT STRUCTURAL
- 9.3.4 UNLESS OTHERWISE SPECIFIED BY THE DEPARTMENTAL REPRESENTATIVE, ALL ROUGH LUMBER MUST CONFORM WITH BRIDGE TIMBER AND LUMBER MATERIAL STANDARDS, MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCES OPERATIONS (FNLR) OF BRITISH COLUMBIA:
- a) FULL SAWN.
  - b) TRIMMED SUCH THAT PIECES ARE: TRIMMED FOR REMOVAL OF SNIPE, SPLINTERED OR UNEVEN LOG LENGTHS.
  - c) DET: THE TRIMMED LENGTH OF ANY LUMBER PIECE MUST BE DOUBLE END TRIMMED (DET) SUCH THAT BOTH ENDS OF THE PIECE ARE TRIMMED SQUARE TO AN OUT-OF-SQUARE MANUFACTURING TOLERANCE LIMITED TO 2 mm FOR EACH NOMINAL 25 mm OF THICKNESS OR WIDTH CONSISTENT WITH NLGA PARA. 748B - "DOUBLE END TRIMMED (DET)".

**CONSTRUCTION**

**10. FOUNDATION**

- 10.1 FOUNDATION DESIGN AND CONSTRUCTION REFER TO "GEOTECHNICAL SITE ASSESSMENT REPORT - PHASE 3 PACIFIC TRAVERSE TRAIL, PACIFIC RIM NATIONAL PARK RESERVE" BY WOOD, FILE # KA21151, DATED DEC. 17, 2018.
- 10.2 UPON EXCAVATION TO THE FOUNDATION, ABUTMENT SEAT / PILE CAP ELEVATION, ANY DISTURBED NATIVE SOILS SHALL BE REMOVED BEFORE CONSTRUCTING THE FOUNDATION.
- 10.3 THE DEPARTMENTAL REPRESENTATIVE SHALL BE NOTIFIED ONCE EXCAVATION HAS BEEN CARRIED OUT TO DESIGN ELEVATIONS.
- 10.4 CURRENT AVAILABLE BOREHOLE LOCATIONS AND DEPTHS FOR THE BRIDGE #3 & BRIDGE #20 SITES MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SOIL CONDITIONS AT THOSE SITES. CONTRACTOR SHALL DRILL AT LEAST ONE ADDITIONAL BOREHOLE CLOSE TO BOTH BRIDGE #3 & BRIDGE #20, INVESTIGATE THE SOIL PROPERTIES, AND PROVIDE SOIL PARAMETER DATA TO THE DEPARTMENT REPRESENTATIVE TO VERIFY PILE FOUNDATION CAPACITY AND FINAL PILE ELEVATIONS PRIOR TO COMMENCING FOUNDATION CONSTRUCTION.

**11. DECK CONSTRUCTION**

- 11.1 CAST-IN-PLACE DECK SHALL NOT BE COMMENCED UNTIL CONCRETE DIAPHRAGM (IF ANY) HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 20 MPa.
- 11.2 DEFLECTION AND DIFFERENCE IN CAMBER WILL BE ACCOMMODATED BY DECK SCREED ELEVATIONS. GIRDER HAUNCH HEIGHTS WILL VARY AS REQUIRED TO MAINTAIN A CONSTANT DECK SLAB THICKNESS BETWEEN GIRDERS.

**12. BRIDGE END FILL**

- 12.1 BRIDGE END FILL SHALL MEET REQUIREMENTS OF PROJECT SPECIFICATIONS.

**13. JOINT FILLERS**

- 13.1 COMPRESSIBLE MATERIAL OR EVAZOTE TO BE EVAZOTE EV50 (ETHYLENE VINYL ACETATE) WITH A NOMINAL, RECOVERABLE COMPRESSIVE STIFFNESS OF 42 kPa AT 25% STRAIN.
- 13.2 ASPHALT IMPREGNATED FIBER BOARD (AIFB) SHALL MEET THE REQUIREMENTS OF ASTM D 1751. THE BOARD SHALL HAVE A MINIMUM DENSITY OF 300 kg/m<sup>3</sup> WITH OF THE WEIGHT OF THE FINISHED BOARD TO ASPHALT. THE COMPRESSIVE STRENGTH OF THE BOARD SHALL BE BETWEEN 0.7 MPa AND 5.0 MPa AT 50% STRAIN.

**ENVIRONMENTAL CONSIDERATION**

**14. ENVIRONMENT**

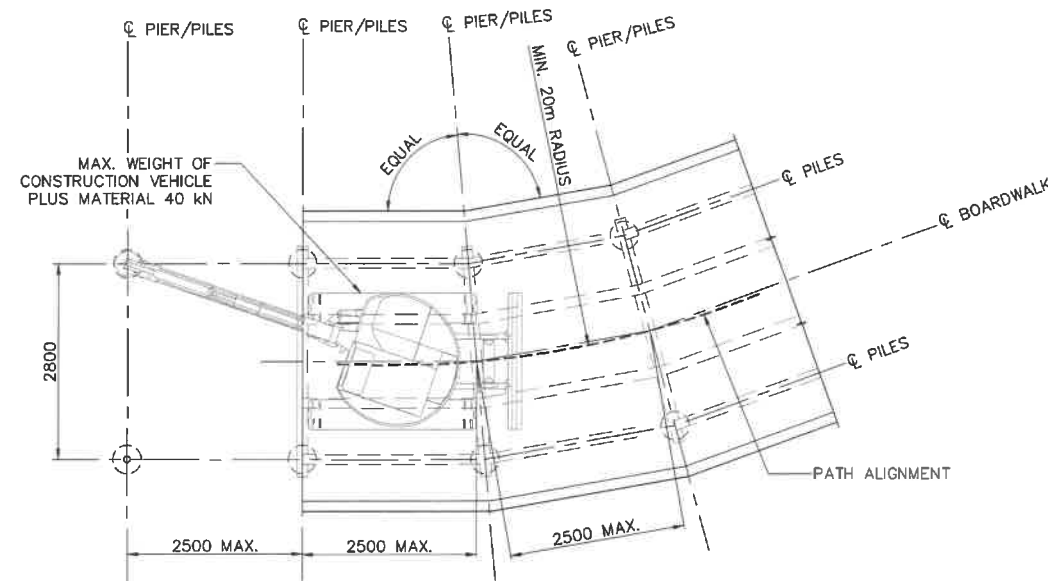
- 14.1 NO CONCRETE POURS TO COMMENCE WITHOUT WRITTEN APPROVAL OF THE OWNER'S ENVIRONMENTAL WORKS MONITOR (OEM).
- 14.2 UNCURED CEMENT-BASED PRODUCTS INCLUDING GROUTS AND CONCRETE CAN BE LETHAL TO FISH AND MANY OTHER AQUATIC ORGANISMS. RAW PRODUCT OR LEACHATE ENTERING A WATERCOURSE ALTERS WATER CHEMISTRY, MAKING IT MORE BASIC OR ALKALINE. AS LITTLE AS ONE LITRE OF CONCRETE WASH WATER OR LEACHATE IN 1000 L OF WATER CAN KILL FISH. AS SUCH, CONTRACTORS MUST TAKE EXTREME PRECAUTIONS WHEN COMPLETING THE CAST-IN-PLACE CONCRETE WORKS PRESCRIBED FOR THE BRIDGES.
- 14.3 ALL CAST-IN-PLACE CONCRETE WORKS COMPLETED WITHIN 30 m OF A WATERCOURSE MUST STRICTLY ADHERE TO THE MITIGATION MEASURES OUTLINED IN THE CONCRETE HANDLING MITIGATIONS SPECIFICATION AND THE ENVIRONMENTAL PROCEDURES SPECIFICATION INCLUDED IN THE TENDER PACKAGE.
- 14.4 THE PROJECT IS LOCATED IN ENVIRONMENT SENSITIVE AREA. ALL CONSTRUCTION AND SURVEY WORKS SHOULD BE DONE WITH GREAT CAUTION, THE CONTRACTOR SHOULD TAKE MITIGATION MEASURES NOT TO HARM FISH OR FISH HABITAT AND HIGH VALUE RESOURCES, SUCH AS ISOLATE THE LEACHATE FROM AQUATIC HABITAT FOR MIN. 48 HOURS, WHEN POURING CAST-IN-PLACE ABUTMENT SEAT CONCRETE, COMPLETING CONCRETE IN DRY WEATHER.
- 14.5 FOR BRIDGE CONSTRUCTION, NO INSTREAM WORKS ARE PERMITTED, CONTRACTOR SHALL CONFIRM WITH SPECIFICATIONS 01-35-43 FOR ENVIRONMENTAL PROCEDURE.
- 14.6 BRIDGE #19 AND #20 SPAN THE MAIN STREAM OF LOST SHOE CREEK AND SANDHILL CREEK RESPECTIVELY, WHICH IS CONSIDERED VERY HIGH VALUE FISH HABITAT, THERE IS CONFIRMED ADULT SALMON SPAWNING AND JUVENILE SALMONID REARING LOCATED IMMEDIATELY UNDER AND DOWNSTREAM OF BRIDGE #19 AND #20. AS SUCH, DURING CONSTRUCTION OF BRIDGE #19 AND #20, THE CONTRACTOR WILL NEED TO STRICTLY ADHERE TO THE MITIGATION MEASURES OUTLINED IN THE CONCRETE HANDLING MITIGATIONS SPECIFICATION AND THE ENVIRONMENTAL PROCEDURES SPECIFICATION INCLUDED IN THE TENDER PACKAGE. ALL THE HIGHEST RISK WORK INCLUDING EXCAVATION FOUNDATION, INSTALLATION OF FOUNDATION, AND EARTHWORK IMMEDIATELY ADJACENT TO CREEK MUST BE DONE DURING LEAST RISK WORK WINDOW FOR FISH, WHICH FOR NON-INSTREAM WORKS ONLY, IS JUNE 15TH TO SEPTEMBER 15TH.

**LIST OF ABBREVIATIONS**

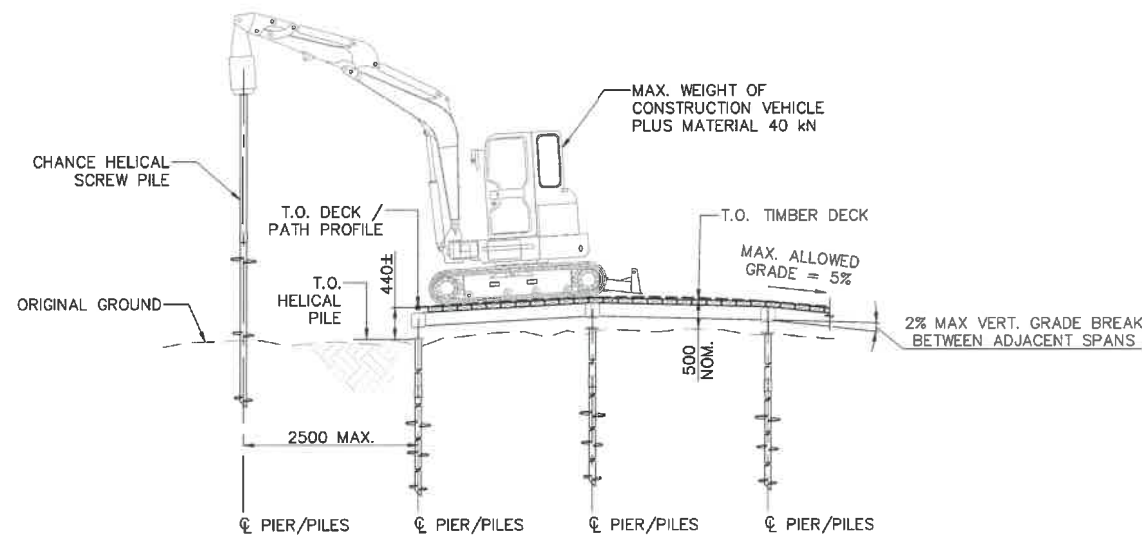
- ABUT. - ABUTMENT
- AGG. - AGGREGATE
- AIFB - ASPHALT IMPREGNATED FIBRE BOARD
- ALT. - ALTERNATE
- APPROX. - APPROXIMATE
- BOT. - BOTTOM
- B/S - BOTH SIDE
- C.I.P. - CAST IN PLACE
- C.J. - CONSTRUCTION JOINT
- c/c - CENTER TO CENTER
- c/w - COMPLETE WITH
- CL. - CENTERLINE
- CLR. - CLEAR
- CONC. - CONCRETE
- CONST. - CONSTRUCTION
- CONT. - CONTINUOUS
- DET - DOUBLE END TRIMMED
- D FIR-L - DOUGLAS-FIR/LARCH
- DIA. - DIAMETER
- DP. - DEEP
- DWG. - DRAWING
- E.E. - EACH END
- E.F. - EACH FACE
- EL. - ELEVATION
- E.O. - END OF
- EW - EACH WAY
- EXIST. - EXISTING
- FF - FAR FACE
- FIN. - FINISHED
- FTG. - FOOTING
- GALV. - GALVANIZED
- HOR. - HORIZONTAL
- HWL - HIGH WATER LEVEL
- LG. - LONG
- LONGIT. - LONGITUDINAL
- m - METRE
- MAX. - MAXIMUM
- MIN. - MINIMUM
- mm - MILLIMETRE
- NF - NEAR FACE
- NTS - NOT TO SCALE
- No. - NUMBER
- NOM. - NOMINAL
- OPP. - OPPOSITE
- PL. - PLATE
- PROJ. - PROJECTION
- REQ'D - REQUIRED
- REINF. - REINFORCEMENT
- SP. - SPACES
- SS - STAINLESS STEEL
- STA. - STATION
- STIFF. - STIFFENER
- SYM. - SYMMETRICAL
- T&B - TOP AND BOTTOM
- T.O. - TOP OF
- TEMP. - TEMPORARY
- THK. - THICK
- THS - TRAVERSE HUB SPIKE
- TYP. - TYPICAL
- UNO. - UNLESS NOTED OTHERWISE
- U/S - UNDERSIDE
- VERT. - VERTICAL
- W/ - WITH
- W/C - WATER/CEMENT
- WP - WORK POINT



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SCHEMATIC PLAN - TYPICAL BOARDWALK CONSTRUCTION  
1:50



SCHEMATIC ELEVATION - TYPICAL BOARDWALK CONSTRUCTION  
1:50  
BOARDWALK GEOMETRY SHOWN IS INDICATIVE ONLY. SEE NOTE 4.

NOTES:

- FOR HELICAL SCREW PILE DETAILS SEE S2.5.
- FOR BOARDWALK STRUCTURAL DETAILS, SEE S2.2, S2.3, AND S2.4.
- RAILINGS ARE NOT REQUIRED FOR ELEVATED TRAIL AS FINISHED LEVEL OF DECK IS TO BE NOMINALLY 500 mm ABOVE ADJACENT GROUND OR LOWER.
- THE FINAL ALIGNMENT OF THE ELEVATED TRAIL SHALL BE DETERMINED BY THE CONTRACTOR TO IT WITHIN THE CLEARED ALIGNMENT WHO SHALL CONDUCT A SURVEY. THE CONTRACTOR'S PROPOSED ALIGNMENT SHALL BE DOCUMENTED BY THE CONTRACTOR IN PLAN SHOWING PILE LOCATIONS, FOUNDATIONS, AND ELEVATED TRAIL SEGMENTS. THIS DOCUMENT SHALL BE SUBMITTED TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW AND APPROVAL TWO WEEKS BEFORE COMMENCING WORK IN THE FIELD. THE ALIGNMENT SHALL BE STAKED OUT OF IN THE FIELD FOR REVIEW OF HORIZONTAL AND VERTICAL ALIGNMENT BY OEM OR THE DEPARTMENT REPRESENTATIVE.
- WHERE LOCAL EXCAVATION IS REQUIRED TO ENSURE SMOOTH VERTICAL ALIGNMENT, THIS SHALL BE APPROVED BY THE OEM PRIOR TO COMMENCEMENT.
- THE VERTICAL PROFILE OF THE K SHALL BE SMOOTH AND AVOID THE "ROLLER-COASTER" EFFECT. CHANGE OF GRADE BETWEEN ADJACENT PANELS SHALL NOT EXCEED 2% AND VERTICAL ALIGNMENT SHALL BE AGREED ON SITE BY THE DEPARTMENTAL REPRESENTATIVES.
- HORIZONTAL ALIGNMENT SHALL AIM FOR MAXIMUM RADIUS CURVES WITHIN THE CLEARED ALIGNMENT AND SHALL BE AGREED ON SITE BY THE DEPARTMENTAL REPRESENTATIVES.
- BOARDWALK PATH HORIZONTAL CURVES HAVE A MINIMUM TURNING RADIUS OF 20 m. IF APPLIED, VERTICAL CURVES SHALL HAVE A MINIMUM K OF 2.5.
- BOARDWALK WAS DESIGNED TO TAKE INTO ACCOUNT OF MAXIMUM WEIGHT OF CONSTRUCTION VEHICLE PLUS MATERIAL 40 kN ; AND 20 kN GATOR CLASS VEHICLE AS MAINTENANCE LOAD.
- CONSTRUCTION VEHICLE OR GATOR VEHICLE SHALL BE POSITIONED ALONG CENTER LINE OF BOARDWALK WITH MAX ECCENTRICITY OF 100 mm.
- CONSTRUCTION VEHICLE AND GATOR VEHICLE SHALL BE OPERATED AT SPEEDS NOT GREATER THAN 5 km/h.
- CONTRACTOR SHALL MONITOR HELICAL SCREW PILE DEFORMATION CLOSELY DURING CONSTRUCTION, THE CONTRACTOR SHALL TEMPORARILY SHORE AND BRACE THE BOARDWALK TO PROVIDE STRUCTURE SYSTEM STABILITY AND PREVENT DAMAGE TO THE DECK AND PILES FROM TORSION/TORQUE FORCE DURING HELICAL PILE INSTALLATION. NO PERMANENT LATERAL DEFLECTION ON HELICAL PILE IS PERMITTED DURING / AFTER CONSTRUCTION.
- NEWLY COMPLETED TIMBER DECK SHALL BE COVERED OR PROTECTED FROM DAMAGE DURING CONSTRUCTION OPERATION.
- CONTRACTOR SHALL TAKE MEASURES TO AVOID DAMAGE TO SENSITIVE WETLANDS. CONSTRUCTION EQUIPMENT, MATERIALS, AND VEHICLES ARE NOT PERMITTED TO ACCESS THE WETLANDS AND SHALL REMAIN ON THE BOARDWALK AT ALL TIMES. THIS WILL REQUIRE SEQUENTIAL SPAN BY SPAN CONSTRUCTION METHODS.
- WORKING IS ONLY PERMITTED DURING DRY SEASONS AS APPROVED BY OEM IN WETLANDS.
- ALL WORKS TO BE IN ACCORDANCE WITH ENVIRONMENT SPECIFICATION 01-35-38 AND 01-35-44.



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Project title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsciiik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only

Designed by/Conçue par: DANIEL YANG / 2018-11

Drawn by/Dessiné par: STEVEN ZIVIN / 2018-12

PCA Project Manager/Technical Authority / Administrateur de Projets APC: JACKIE HICKS

Drawing title/Titre du dessin: ?apsciiik fasii (Ups-cheek ta-shee)

**"Going in the right direction on the trail"**  
**BOARDWALK CONSTRUCTION AND GEOMETRY**

Project No./No. du projet: PCA #1522

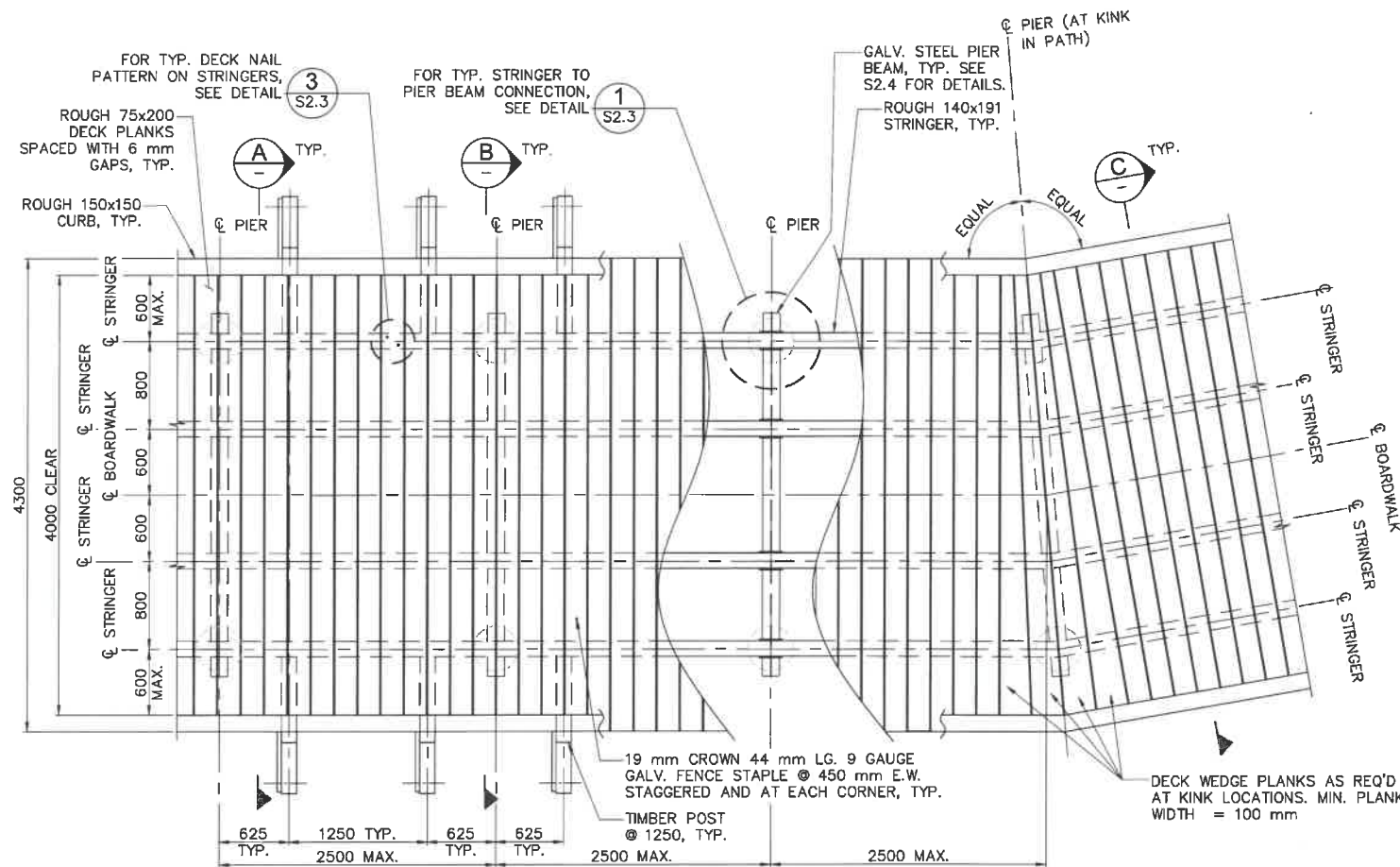
Sheet/Feuille: S-2.1

Revision no./La Révision no.: 0

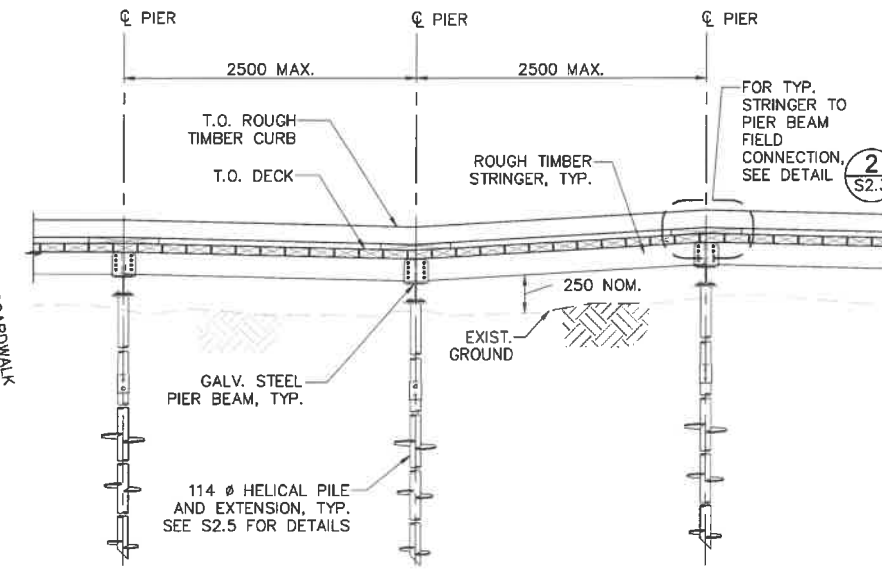
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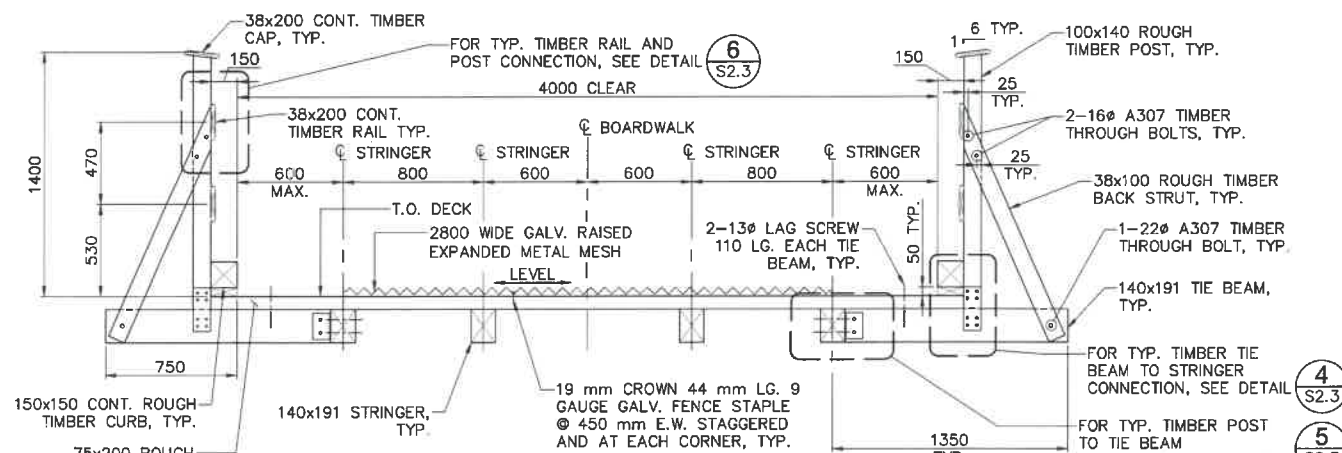
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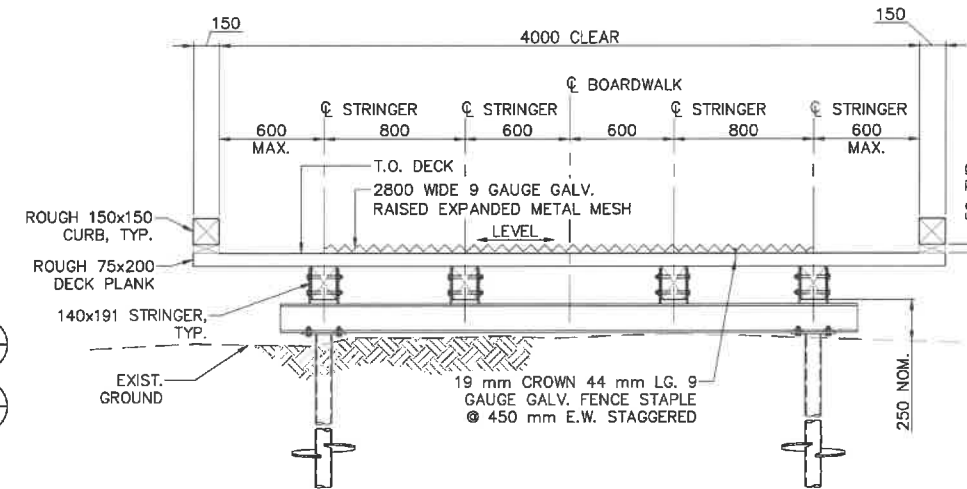
PLAN - TYPICAL BOARDWALK 1:30  
GALV. RAISED EXPANDED METAL MESH NOT SHOWN FOR CLARITY



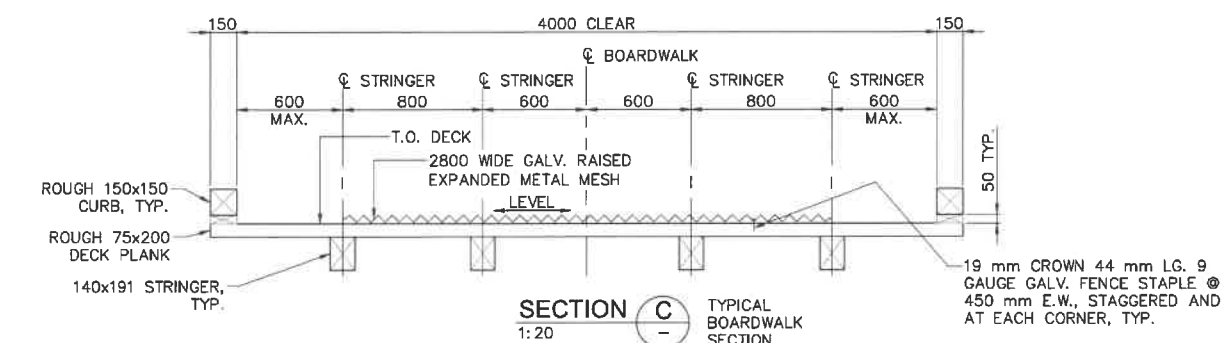
ELEVATION - TYPICAL BOARDWALK 1:30



SECTION A 1:20  
AT ELEVATED BOARDWALK MORE THAN 600 mm ABOVE EXISTING GROUND OR WHERE NEEDED TO PROTECT ENVIRONMENTAL FEATURES AS DIRECTED BY OEM / DEPARTMENT REPRESENTATIVE



SECTION B 1:20 AT PIER



SECTION C 1:20 TYPICAL BOARDWALK SECTION

NOTES:  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.

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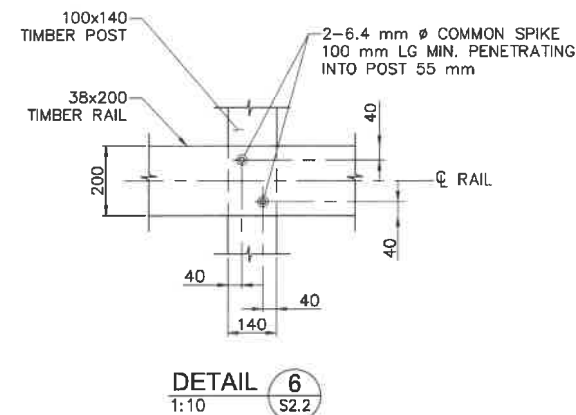
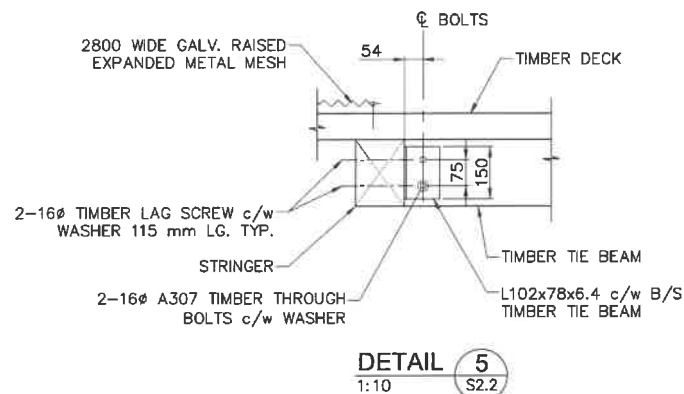
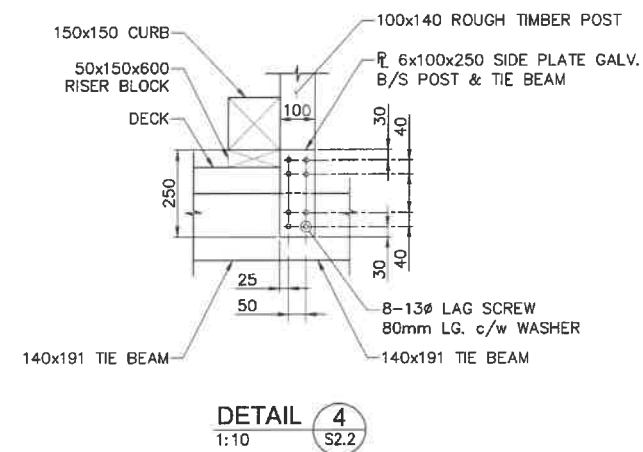
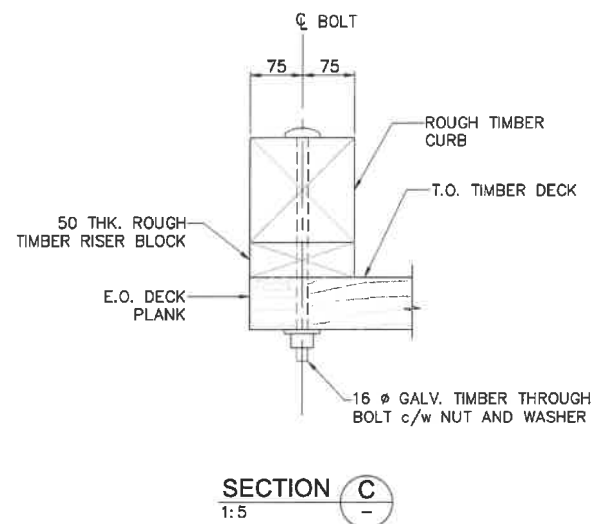
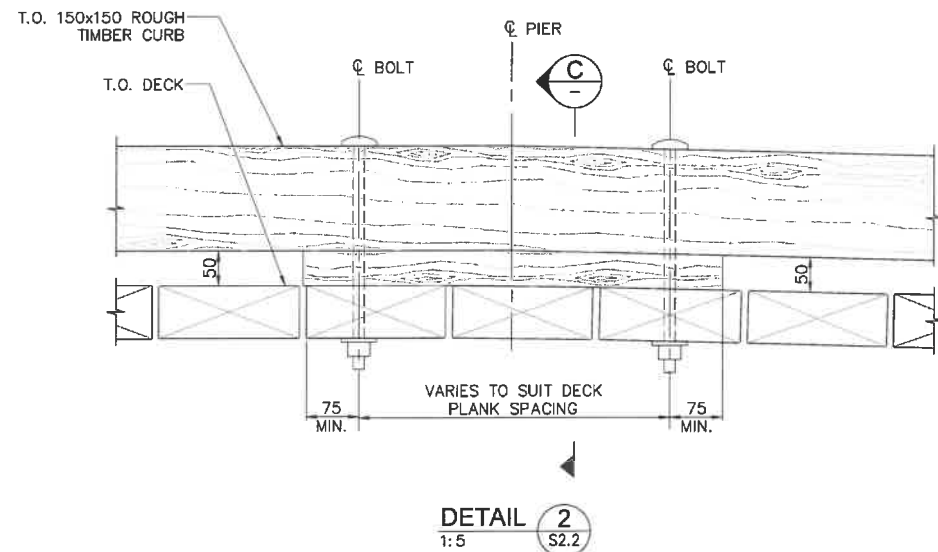
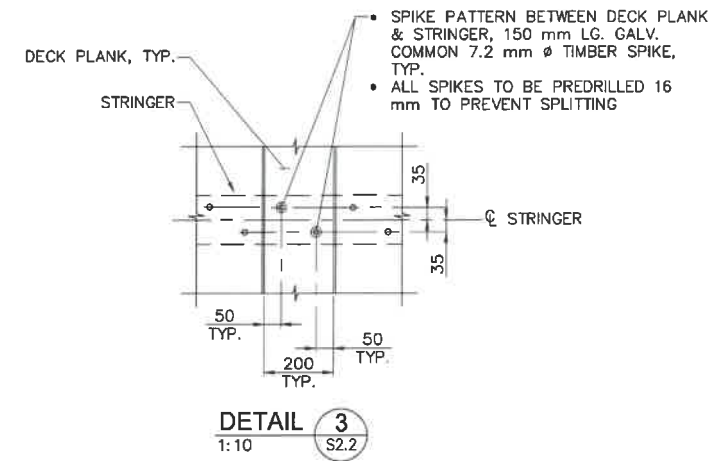
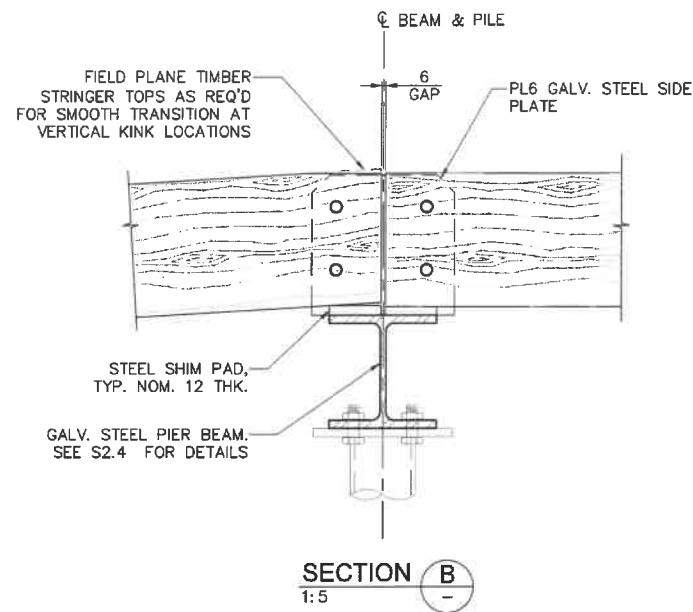
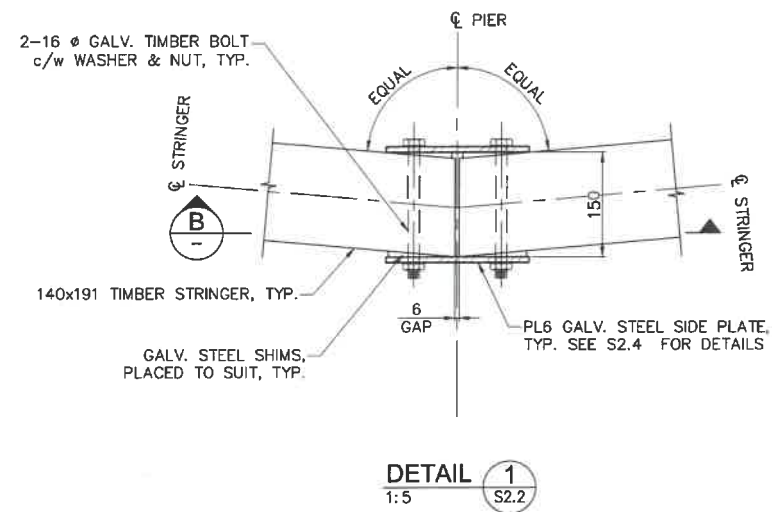
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**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsciiik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only  
Designed by/Concept par DANIEL YANG / 2018-11  
Drawn by/Designe par STEVEN ZIVNI / 2018-12  
PCA Project Manager/Technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
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**"Going in the right direction on the trail"**  
**BOARDWALK GENERAL ARRANGEMENT SHEET 1**

Project No./No. du projet PCA #1522	Sheet/Fauille S-2.2 OF	Revision no./La Révision no. 0
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Drawn by/Dessiné par  
STEVEN ZIVIN / 2018-12

PCA Project Manager/Technical Authority  
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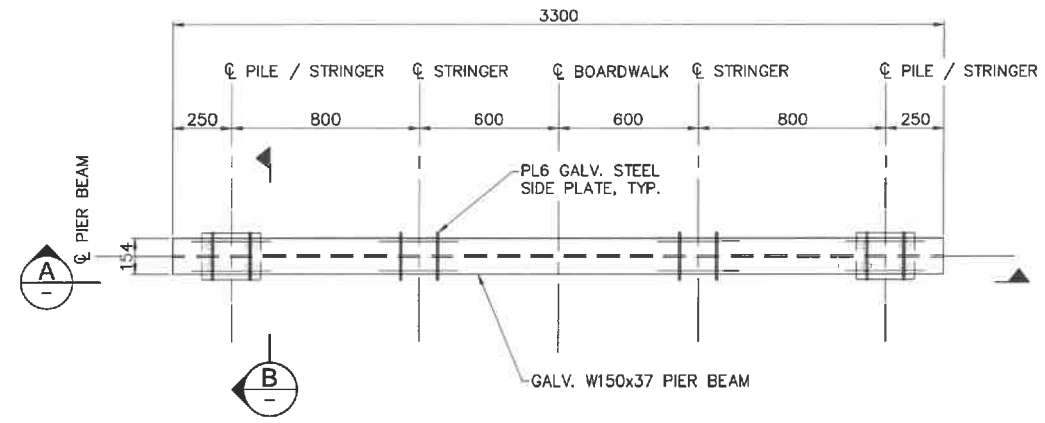
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**"Going in the right direction on the trail"**  
**BOARDWALK GENERAL ARRANGEMENT SHEET 2**

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PCA #1522	S-2.3 OF	0

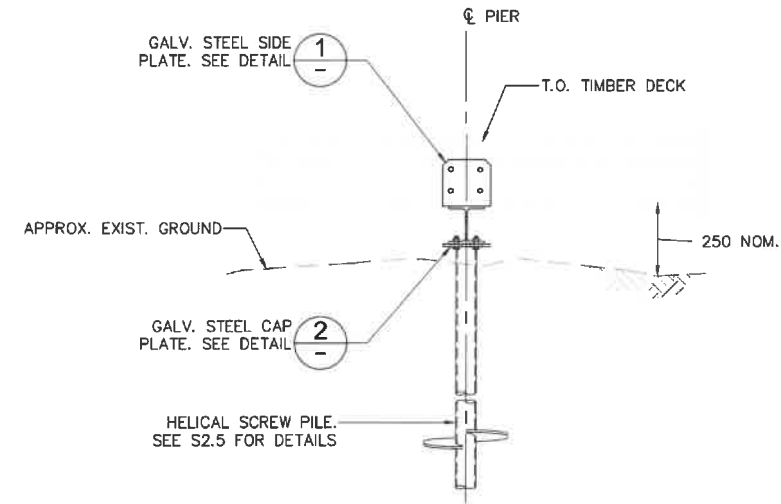
NOTES:  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.



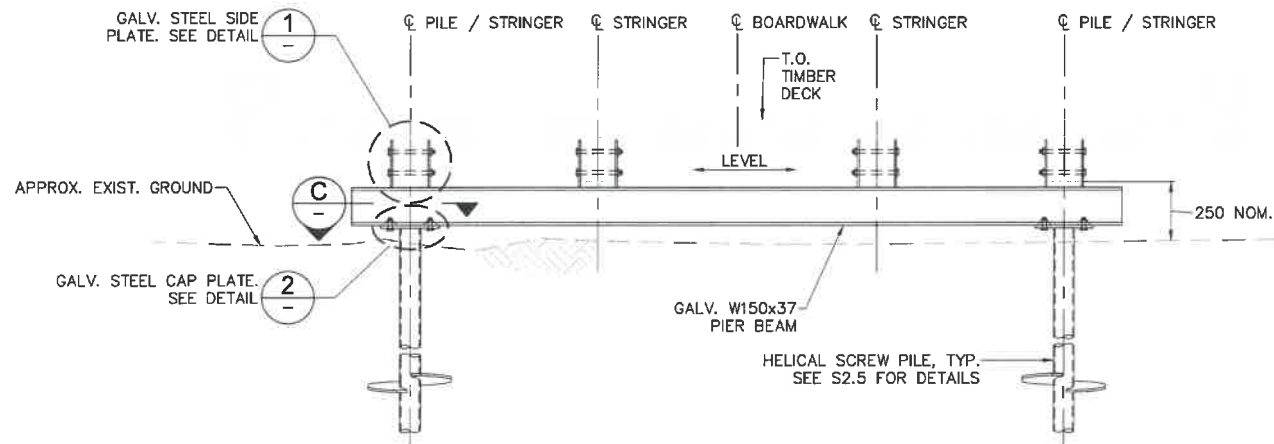
**PARSONS**



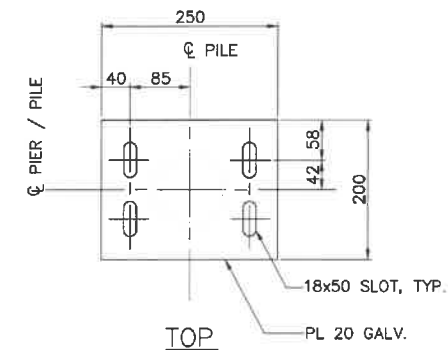
**PLAN - GALVANISED STEEL PIER BEAM**  
1:15



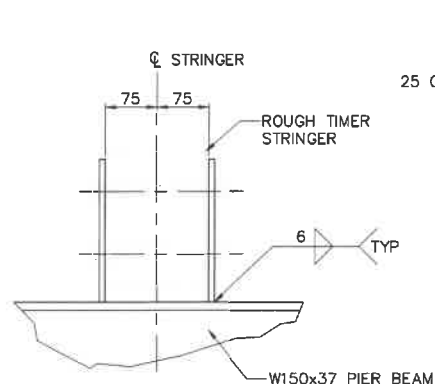
**SECTION B**  
1:15



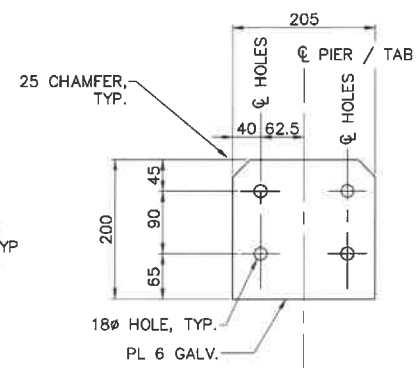
**ELEVATION A**  
1:15



**TOP**

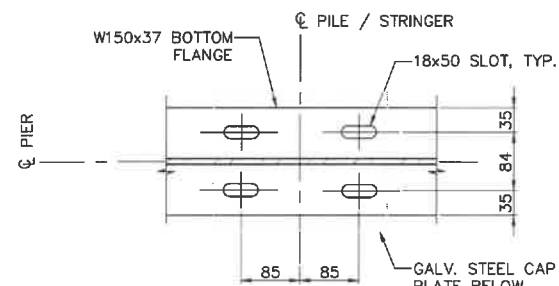


**FRONT**

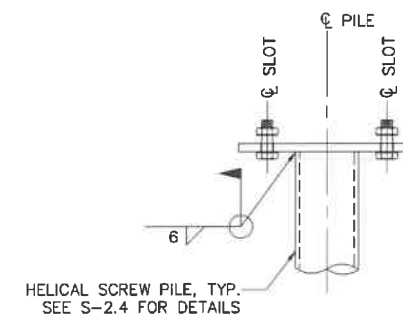


**SIDE**

**STEEL SIDE PLATE DETAIL 1**  
1:5



**SECTION C**  
1:5



**FRONT**

**PILE CAP PLATE DETAIL 2**  
1:5

**NOTES:**

1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.



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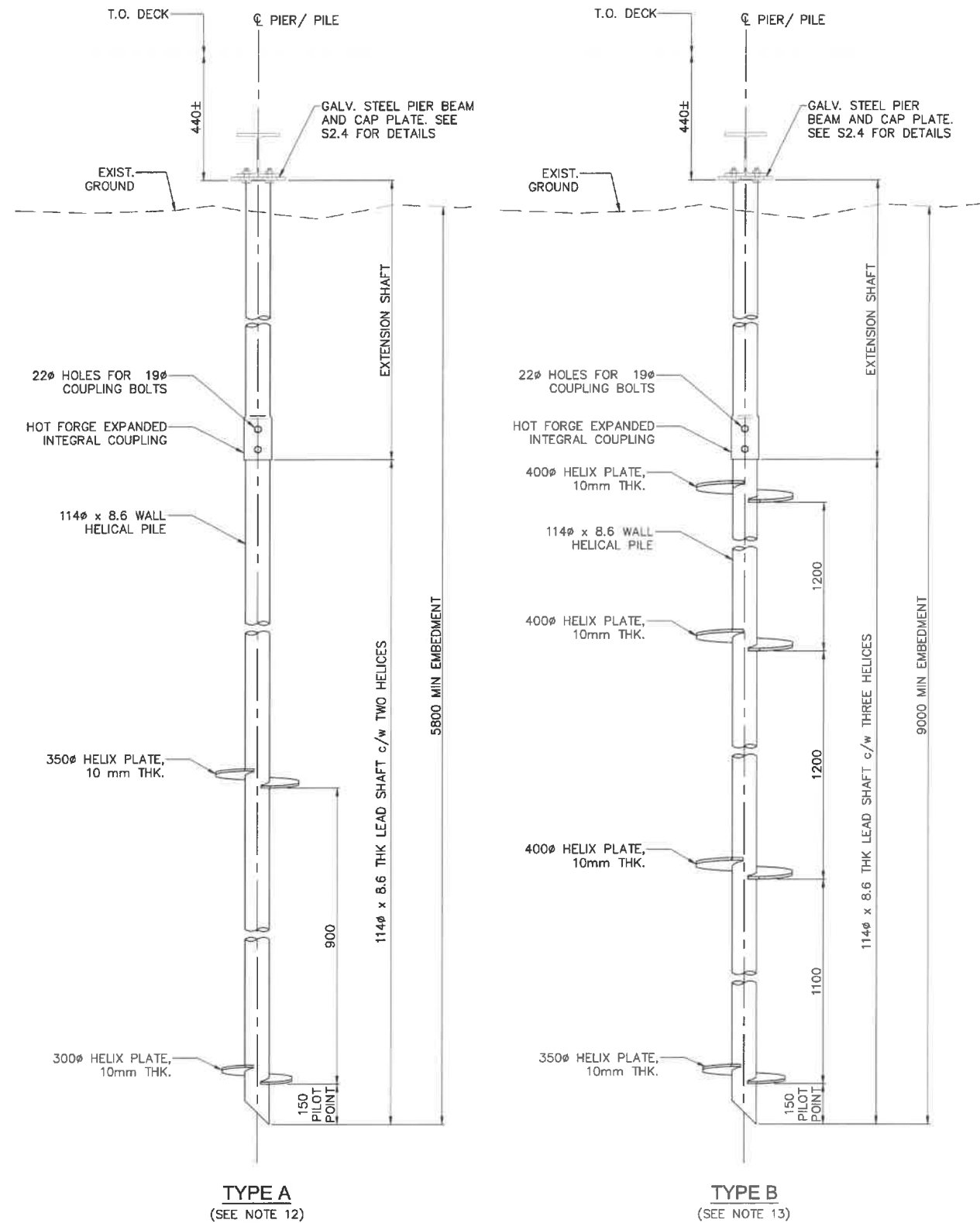
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**"Going in the right direction on the trail"**  
**BOARDWALK**  
**STEEL PIER BEAM**

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**PARSONS**



**ELEVATION - TYPICAL HELICAL PILE**  
1:10

**NOTES:**

- FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.
- HELICAL SCREW PILE SHOWN IN DRAWING IS CONCEPTUAL AND FOR COST ESTIMATES AND CONSTRUCTION PLANNING ONLY. UPON APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO SELECT DESIGN, SUPPLY AND INSTALL ALL HELICAL SCREW PILES TO MEET THE LOADS REQUIRED.
- CONTRACTOR TO REFER TO HELICAL PILE MANUFACTURER'S SPECIFICATIONS FOR PILE ASSEMBLY DETAIL AND INSTALLATION REQUIREMENTS. LEAD, EXTENSION SHAFT AND PILOT POINT LENGTHS SHOWN ON DRAWINGS ARE NOMINAL.
- MINIMUM SPACING BETWEEN HELIX PLATES IS THREE TIMES DIAMETER OF THE LARGER HELIX PLATE.
- ALL HELICES TO HAVE SHARPENED LEADING EDGES.
- EXTENSION SHAFTS MUST BE PROVIDED WITH A HOT FORGE EXPANDED INTEGRAL COUPLING CONNECTION ON ONE END.
- CORROSION ALLOWANCE OF 0.6 mm TO BE CONSIDERED (EXTERNAL SURFACES ONLY).
- THE CALCULATED PER PILE LOADS ARE AS FOLLOW:
  - AXIAL LOAD (COMPRESSION):
    - AT SLS:
      - EXTREME LOAD (SLS1) = 44 kN
      - PERMANENT LOAD = 17 kN
    - AT ULS:
      - EXTREME LOAD (ULS1) = 63 kN
      - PERMANENT LOAD = 21 kN
  - LATERAL LOAD:
    - LATERAL LOAD IN SERVICE = 3.3 kN
    - LATERAL LOAD AT CONSTRUCTION = 6 kN
  - UNFACTORED CONSTRUCTION VEHICLE:
    - MAX WEIGHT OF VEHICLE AND MATERIAL = 40 kN (VERTICAL)
    - UNFACTORED TORQUE (HORIZONTAL) FOR PILE INSTALLATION = 6 kNm
- LOAD TESTS SHALL BE CARRIED OUT TO VERIFY THE SUITABILITY AND CAPACITY OF THE PROPOSED HELICAL PILES AND THE PROPOSED INSTALLATION PROCEDURES. THE CONTRACTOR SHALL PERFORM AT LEAST ONE PRE-CONSTRUCTION LOAD TEST PRIOR TO INSTALLATION OF THE PERMANENT HELICAL PILES AS PER THE DESIGN DRAWING.
- THE CONTRACTOR SHALL PERFORM AXIAL LOAD TESTING ON AT LEAST 2% OF INSTALLED HELICAL PILES, BUT NOT LESS THAN TWO PILES IN EACH BOARDWALK SEGMENT.
- THE CONTRACTOR SHALL CONFORM TO MANUFACTURER'S PRODUCT SPECIFICATIONS FOR LOAD TESTING PROCEDURES & DETAILS.
- TYPE A HELICAL PILES TO BE USED ON BOARDWALK SEGMENT BETWEEN THE FOLLOWING STATIONS:
  - STA. 12+186 TO 12+226
  - STA. 13+057 TO 13+075
  - STA. 13+213 TO 13+345
  - STA. 20+020 TO 20+100
  - STA. 25+867 TO 25+934
 ESTIMATED AVERAGE PILE LENGTH 6.00 m
- TYPE B HELICAL PILES TO BE USED ON BOARDWALK SEGMENT BETWEEN THE FOLLOWING STATIONS:
  - STA. 11+800 TO 11+855
 ESTIMATED AVERAGE PILE LENGTH 9.20 m
- ESTIMATED CONSTRUCTION MATERIALS:
 

TIMBER STRINGER (140x191)	DOUGLAS FIR-L	GRADE SELECT STRUCTURAL	V=86.5 m <sup>3</sup>
ROUGH DECK PLANK (75x200)	WEST COAST RED CEDAR	GRADE SELECT STRUCTURAL	V=50 m <sup>3</sup>
ROUGH TIMBER CURB & RISER	WEST COAST RED CEDAR	GRADE SELECT STRUCTURAL	V=23 m <sup>3</sup>
ROUGH TIMBER POST (100x140x1600)	WEST COAST RED CEDAR	GRADE SELECT STRUCTURAL	V=18 m <sup>3</sup>
ROUGH TIMBER HANDRAIL & STRUT	WEST COAST RED CEDAR	GRADE SELECT STRUCTURAL	V=15 m <sup>3</sup>
W150x37 BEAM	(fy=350 MPa)		W=24.5 TONNE
MISC PLATE			W=16 TONNE
114φ 8.6 WALL HELICAL PILE			L=2435 m

 CONTRACTOR SHALL VERIFY MATERIAL QUANTITY PRIOR TO COMMENCING WORK.



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0	ISSUED FOR TENDER	18/12/2018
Revision/Description	Description/Description	Date/Date

Client/Client: Parks Canada Agency L'Agence Parcs Canada

Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
 ?apsçliik fasii (Ups-cheek ta-shee)  
 "Going in the right direction on the trail"

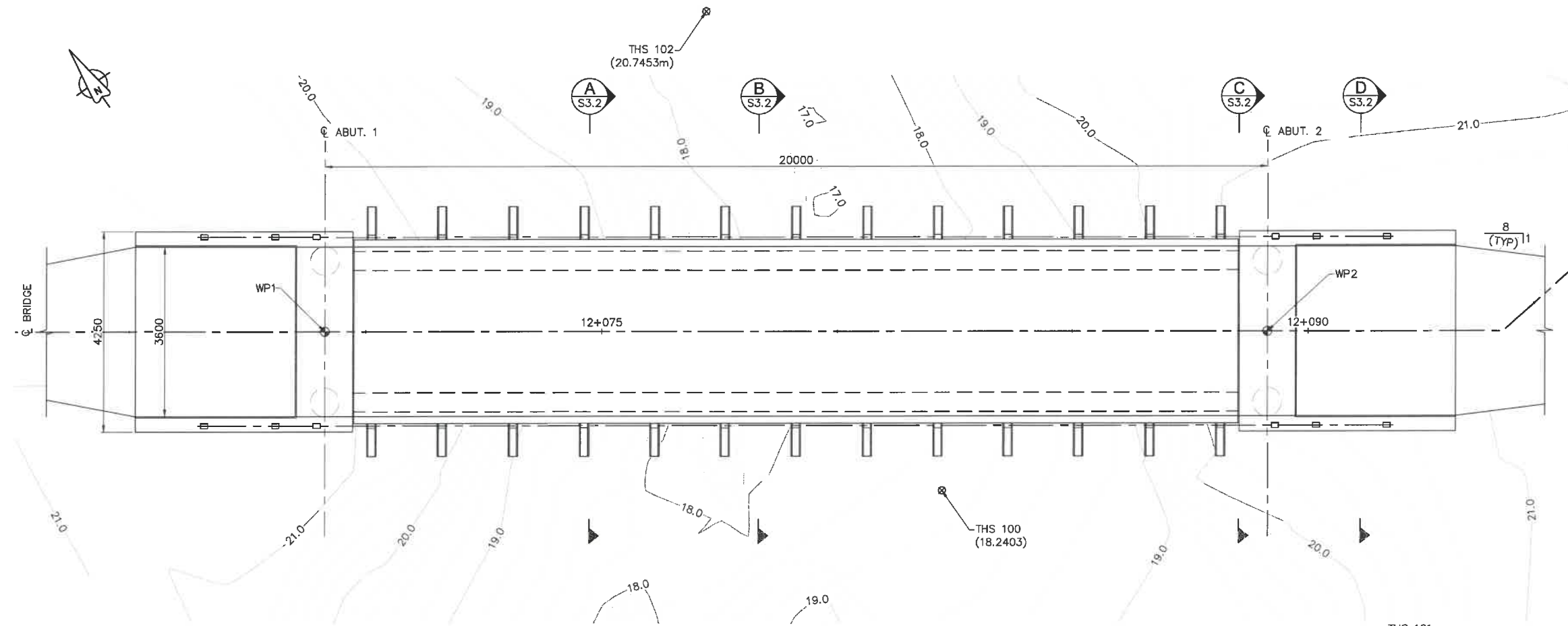
Consultant Signature Only: DANIEL YANG / 2018-11  
 Drawn by/Designé par: STEVEN ZIVN / 2018-12  
 PCA Project Manager/Technical Authority: JACKIE HICKS

Drawing Title/Titre du dessin: ?apsçliik fasii (Ups-cheek ta-shee)  
 "Going in the right direction on the trail"  
**BOARDWALK HELICAL PILES**

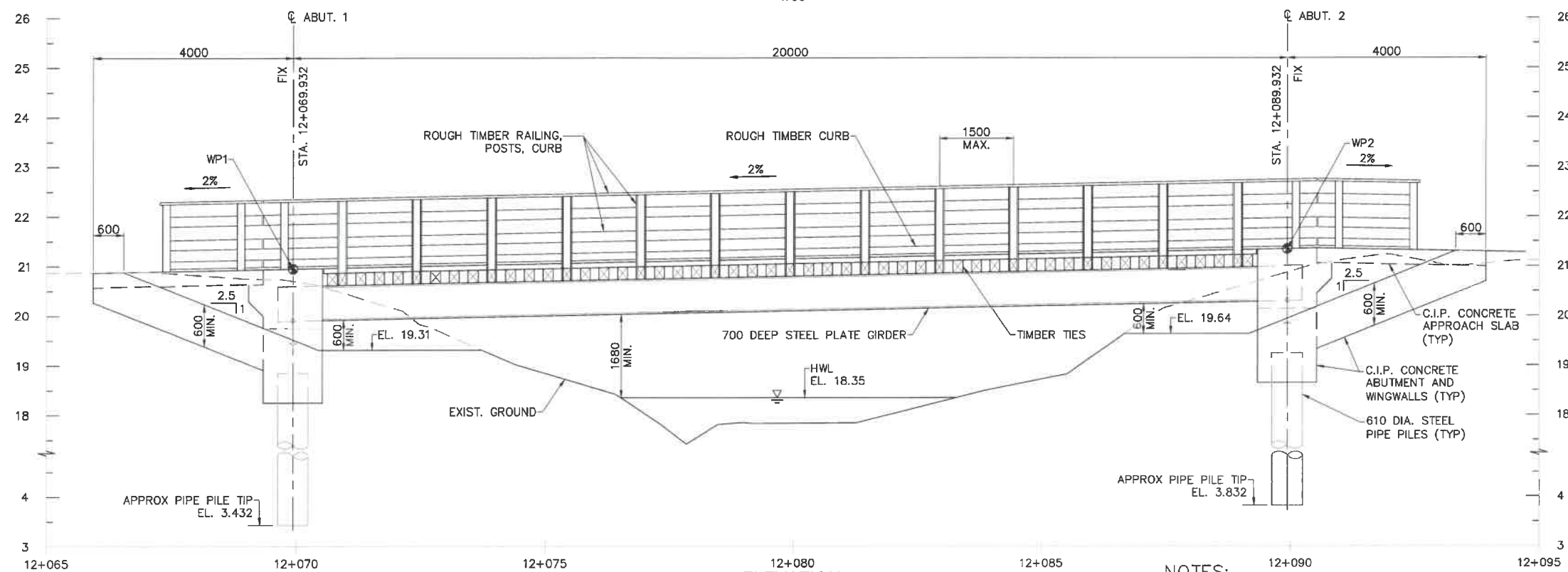
Project No./No. du projet: PCA #1522	Sheet/Feuille: S-2.5 OF	Revision no./La Révision no.: 0
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**PARSONS**



**PLAN**  
1:50



**ELEVATION**  
1:50

- NOTES:**
- HIGH WATER LEVEL (HWL) BASED ON 1:200 YEAR EVENT.
  - FOUNDATION DETAILS TO BE CONFIRMED FOLLOWING GROUND INVESTIGATION ON SITE.
  - FOR WORK POINTS TABLE AND BENCHMARKS TABLE, SEE DRAWING S-3.2.

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Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčlik ʔasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Conçeu par  
DANIEL YANG / 2016-11  
Drawn by/Desiné par  
STEVEN ZVIN / 2016-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapsčlik ʔasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**GENERAL ARRANGEMENT**  
**SHEET 1**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-3.1</b> OF	Revision no./La Révision no. <b>0</b>
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**PARSONS**



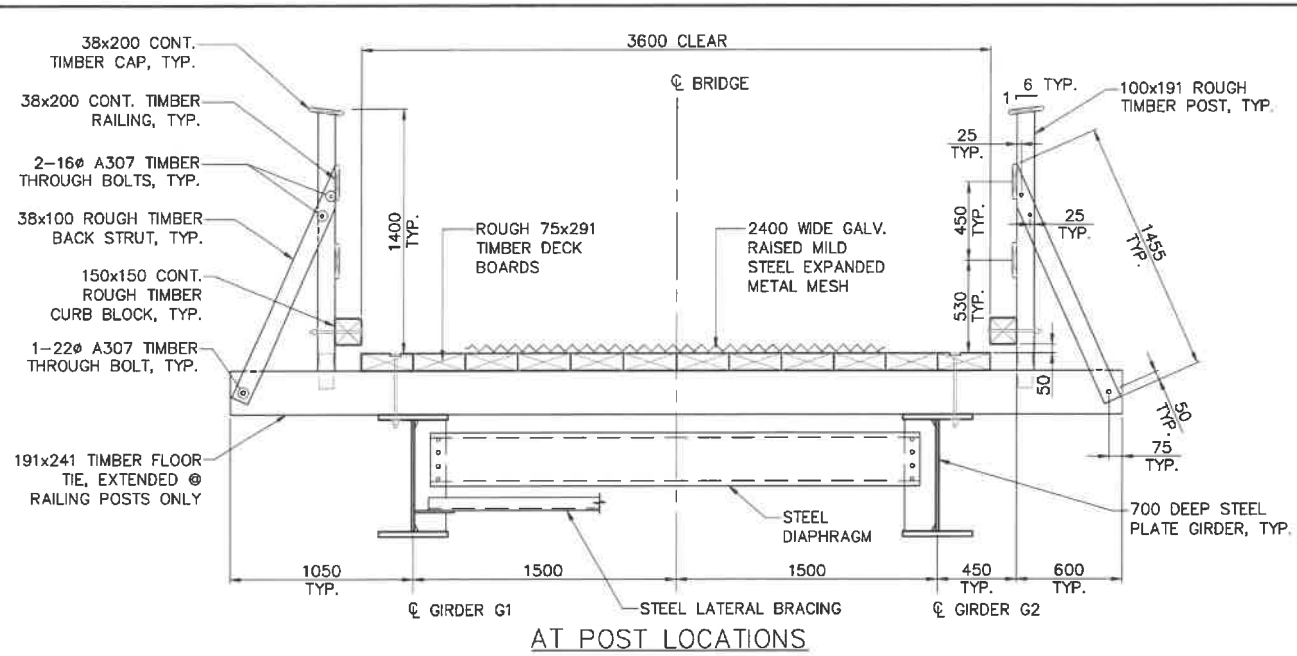
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Revision/Description	Description/Description	Date/Date
Client/Client		

Project title/Titre du projet  
TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčłk fasł**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

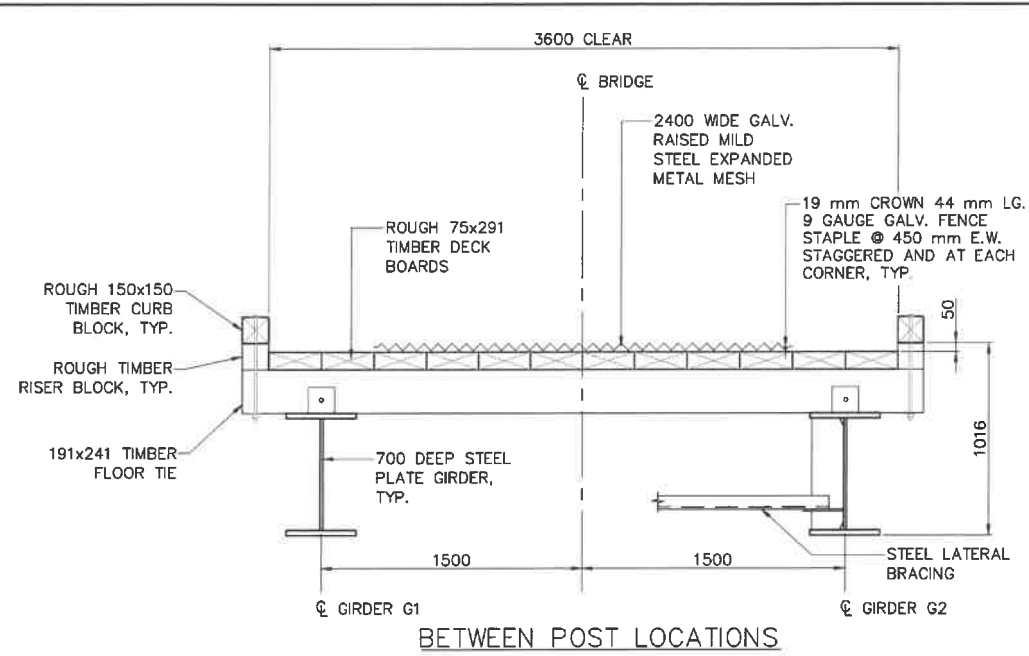
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Designed by/Concept par  
DANIEL YANG / 2016-11  
Drawn by/Dessiné par  
STEVEN ZIVIN / 2016-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapsčłk fasł**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**GENERAL ARRANGEMENT**  
**SHEET 2**

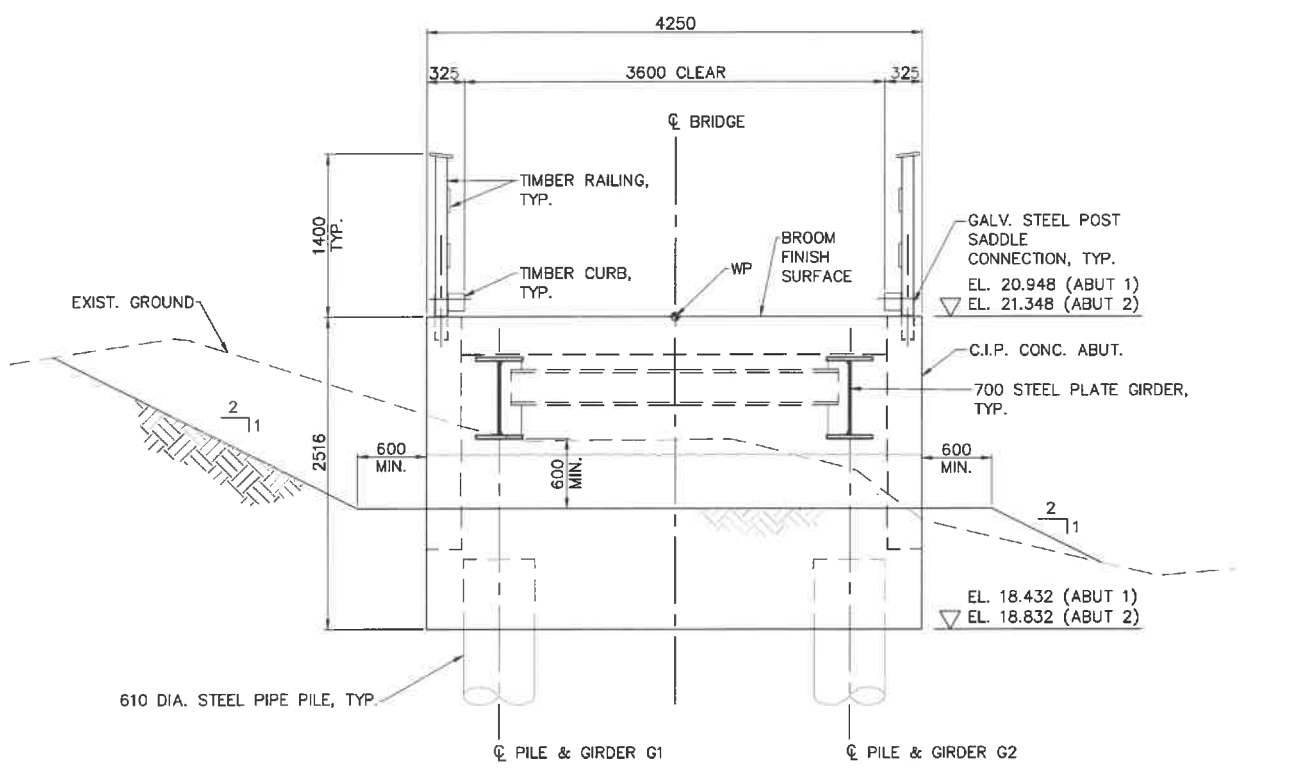
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
PCA #1522	S-3.2 OF	0



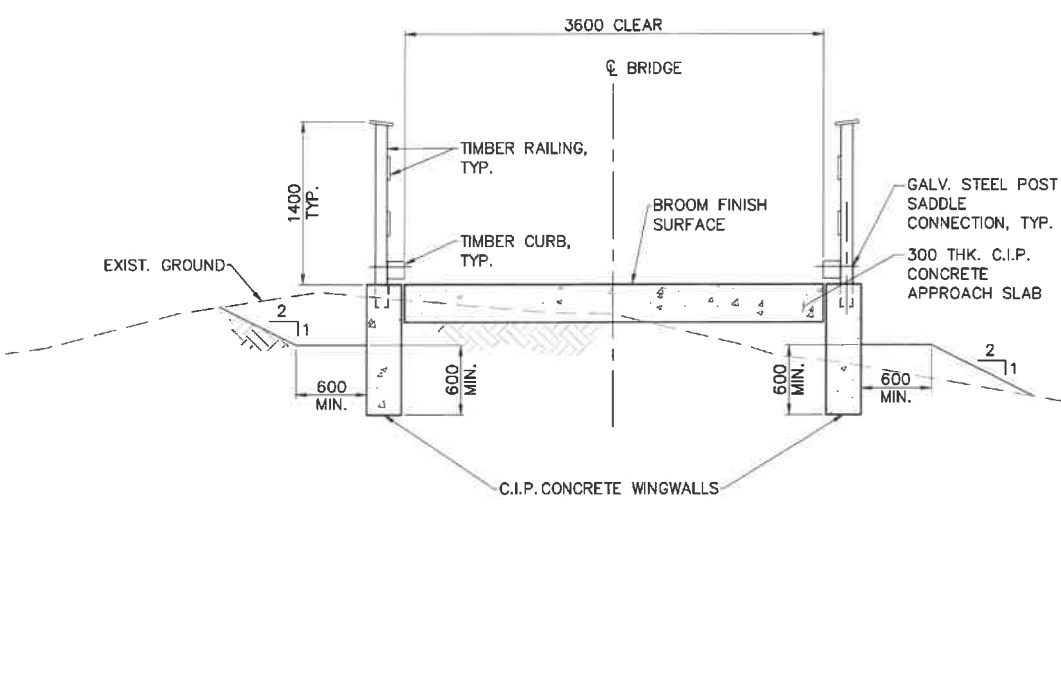
**SECTION A**  
1:20 S3.1



**SECTION B**  
1:20 S3.1



**SECTION C**  
1:30 S3.1



**SECTION D**  
1:30 S3.1

WORK POINT	NORTHING	EASTING	EL.
WP1	5441037.607	294367.656	20.948
WP2	5441028.265	294385.340	21.348

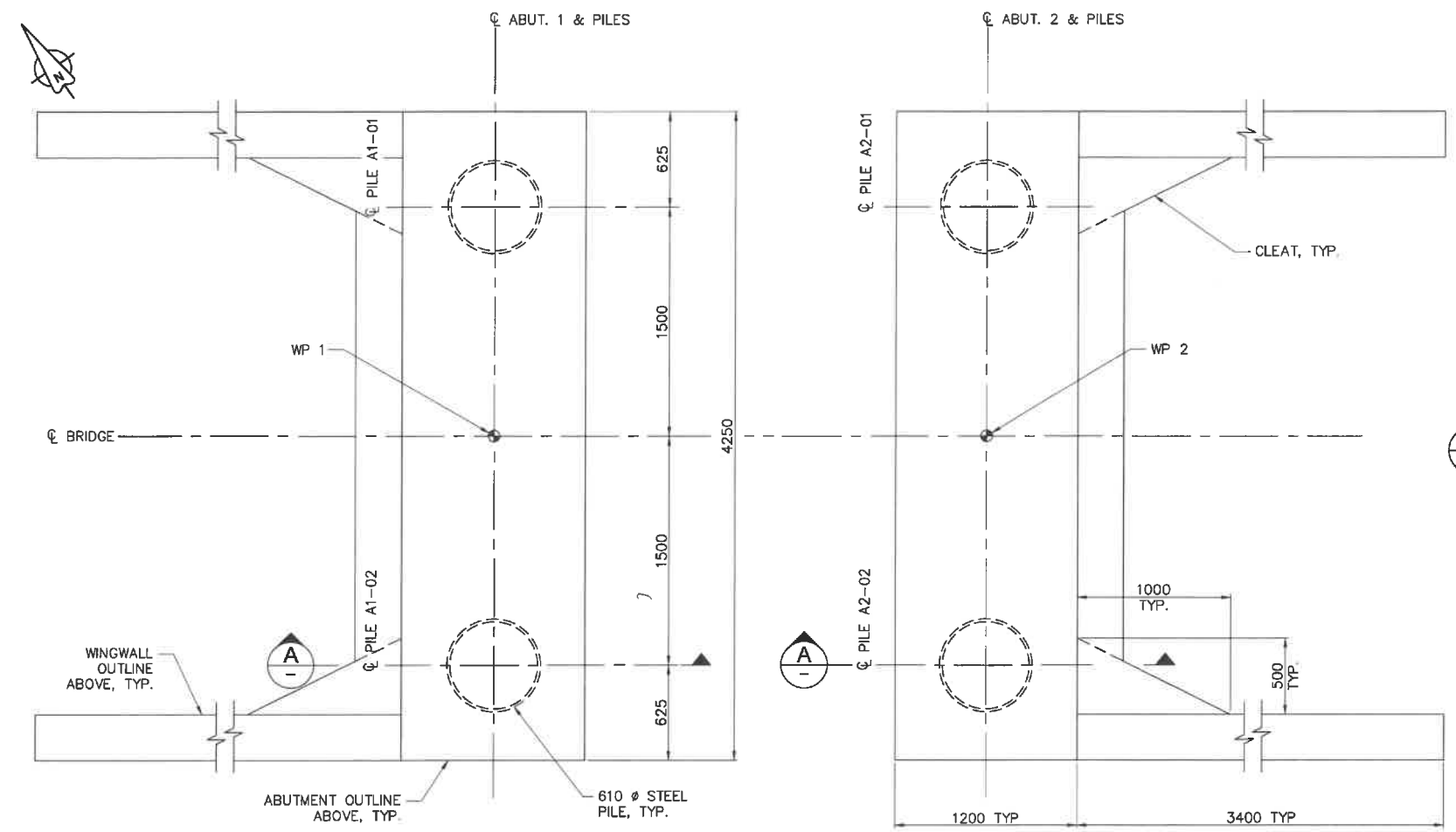
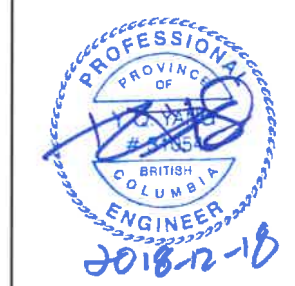
PK NAIL	NORTHING	EASTING	EL.
100	5441028.486	294377.666	18.240
101	5441012.507	294378.535	21.517
102	5441050.354	294383.521	20.745

**NOTES:**

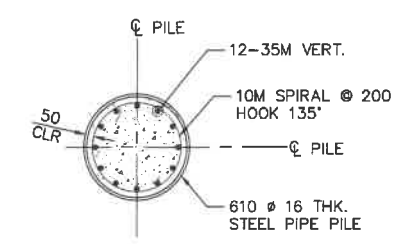
- FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.
- DURING CONSTRUCTION, THE CONTRACTOR WILL NEED TO STRICTLY ADHERE TO THE MITIGATION MEASURES OUTLINED IN THE CONCRETE HANDLING MITIGATIONS SPECIFICATION AND THE ENVIRONMENTAL PROCEDURES SPECIFICATION INCLUDED IN THE TENDER PACKAGE.
- ALL THE HIGHEST RISK WORK INCLUDING EXCAVATION FOUNDATION, INSTALLATION OF FOUNDATION, AND EARTHWORK IMMEDIATELY ADJACENT TO CREEKS MUST BE DONE DURING LEAST RISK WORK WINDOW FOR FISH, WHICH FOR NON-INSTREAM WORKS ONLY IS JUNE 15TH TO SEPTEMBER 15TH.
- THE CONTRACTOR SHALL CONFIRM WITH DEPARTMENT REPRESENTATIVE PRIOR TO COMMENCE THE HIGH RISK CONSTRUCTION WORK, INCLUDING EXCAVATION, FOOTINGS, INSTALLATION OF FOOTINGS AND EARTHWORKS IMMEDIATELY ADJACENT TO CREEK.
- NO CONCRETE WORK TO COMMENCE WITHOUT WRITTEN APPROVAL OF THE OWNER'S ENVIRONMENTAL MONITOR. NO INSTREAM WORKS PERMITTED FOR BRIDGE CONSTRUCTION.
- ALL CONCRETE POURS SHALL BE COMPLETELY ISOLATED FROM THE CREEK, WITH SECONDARY CONTAINMENT TO PREVENT GROUT ENTERING THE CREEK. THE CONTRACTOR SHALL SUBMIT A GROUT CONTAINMENT PLAN TO THE ENVIRONMENTAL MONITOR FOR APPROVAL AND REQUEST INSPECTION AND APPROVAL OF FORMWORK BY THE ENVIRONMENTAL MONITOR PRIOR TO ANY CONCRETE POURS.
- SURVEY DATA IS BASED UPON THE UTM NAD83 COORDINATE SYSTEM.
- BROOM CONCRETE RUNNING SURFACE BY CONCRETE BROOM APPLYING PERPENDICULAR TO THE ALIGNMENT.



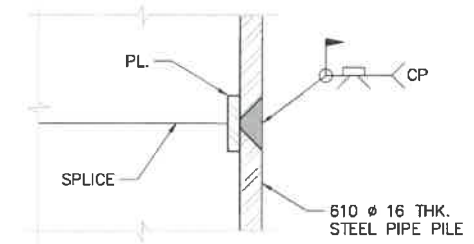
**PARSONS**



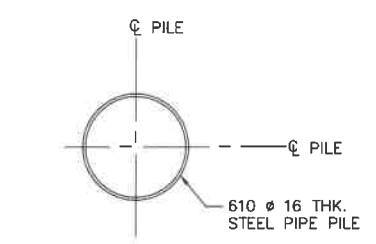
**PILING LAYOUT PLAN**  
1:20



**SECTION B**  
1:20



**TYPICAL PIPE PILE SPlice DETAIL**  
1:2

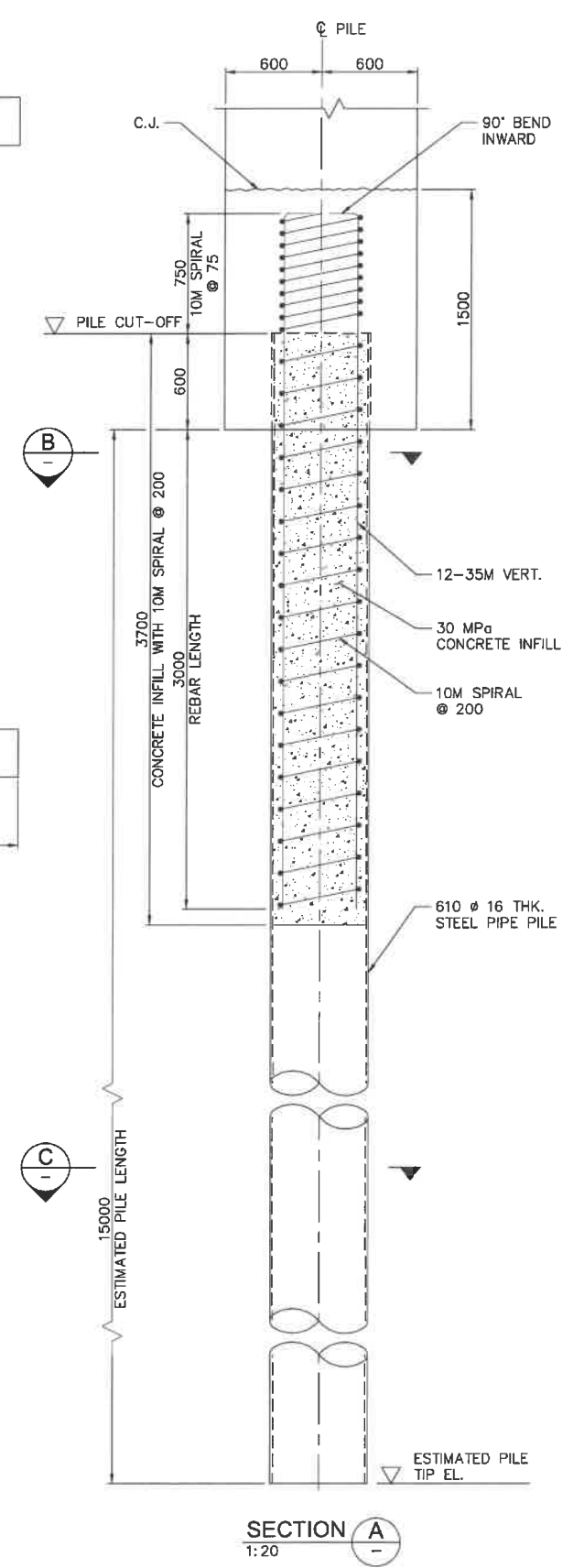


**SECTION C**  
1:20

PILE DATA TABLE			
LOCATION	PILE	PILE CUT-OFF EL. (m)	ESTIMATED PILE TIP EL. (m)
ABUT 1	A1-01	19.032	3.432
	A1-02	19.032	3.432
ABUT 2	A2-01	19.432	3.832
	A2-02	19.432	3.832

**NOTES:**

- FOR WORK POINTS SEE S3.1.
- PILE SPACING SHALL BE MEASURED AT THE UNDERSIDE OF THE ABUTMENT SEAT.
- PILES TO BE FITTED WITH A CUTTING SHOE AT THE TIP EQUIVALENT TO ASSOCIATED PILE AND FITTING MODEL APF 0-14000.
- THE FACTORED PER PILE LOADS (AXIAL COMPRESSION LOAD)
  - SLS1: PERMANENT: 300 kN
  - MAX: 370 kN
  - ULS1: PERMANENT: 400 kN
  - MAX: 535 kN
  - ULS5 (SEISMIC): 595 kN
- PROPOSED PILE CAPACITY AND PILE ELEVATION DESIGNED ARE BASED ON GEOTECHNICAL INFORMATION OBTAINED FROM BOREHOLE BH17-11, BH17-01, BH17-02, BH17-03, WHICH MAYBE NOT WELL REPRESENT GROUND SOIL CONDITION OF BRIDGE #3 LOCATIONS. CONTRACTOR SHALL DRILL AT LEAST ONE NEW BOREHOLE CLOSE TO EITHER OF ABUTMENT 1 OR 2 SIDE, CARRY OUT SOIL TEST, OBTAIN ACCURATE GEOTECHNICAL DATA/INFORMATION, NOTIFY THE DEPARTMENT REPRESENTATIVE TO VERIFY PILE CAPACITY AND FINAL PILE TIP ELEVATION PRIOR TO COMMENCE FOUNDATION CONSTRUCTION.



**SECTION A**  
1:20

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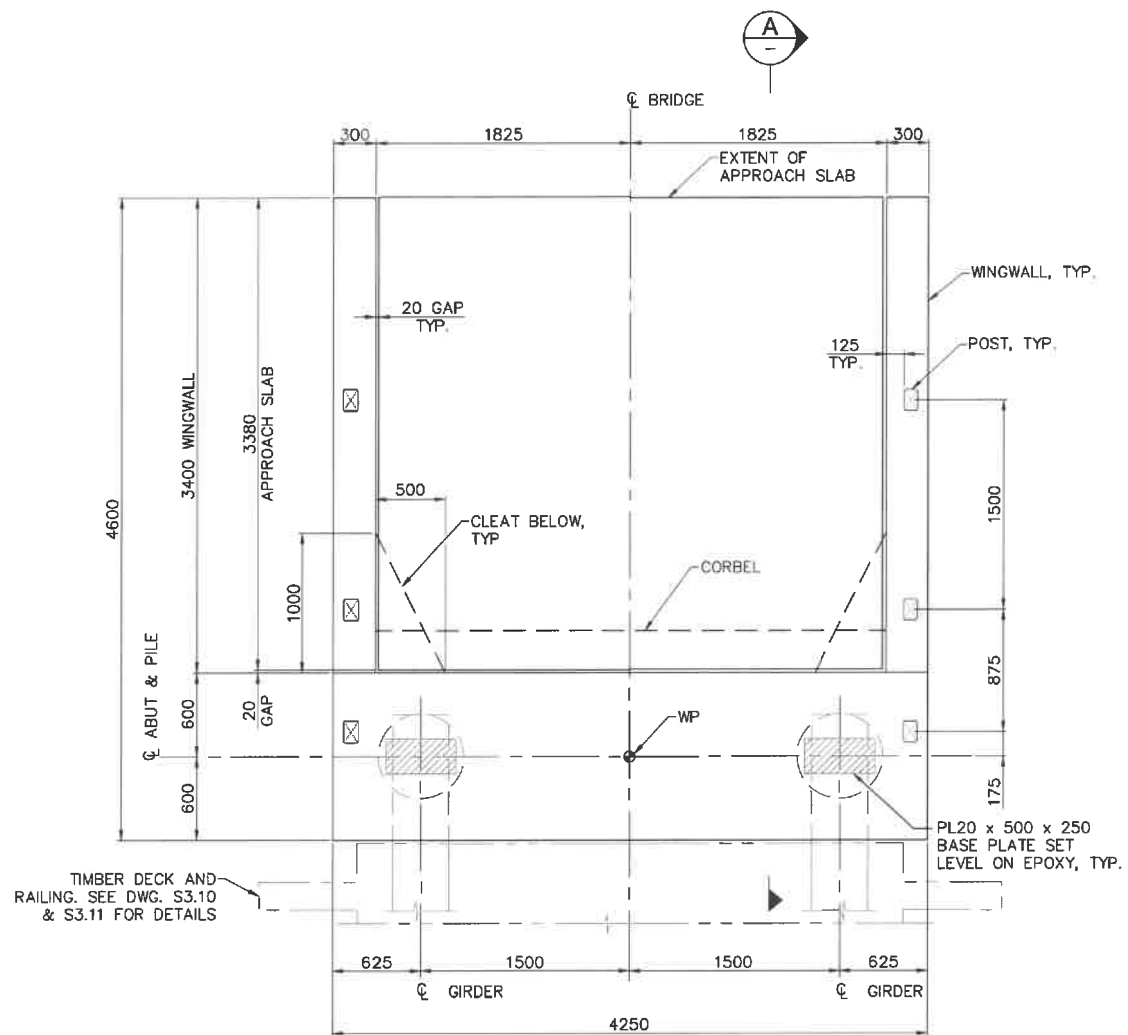
Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
 ?apscik fasii (Ups-cheek ta-shee)  
 "Going in the right direction on the trail"

Designed by/Concept par: DANIEL YANG / 2018-11  
 Drawn by/Desainé par: STEVEN ZVIN / 2018-12  
 PCA Project Manager/Technical Authority / Administrateur de Projets APC: JACKIE HICKS

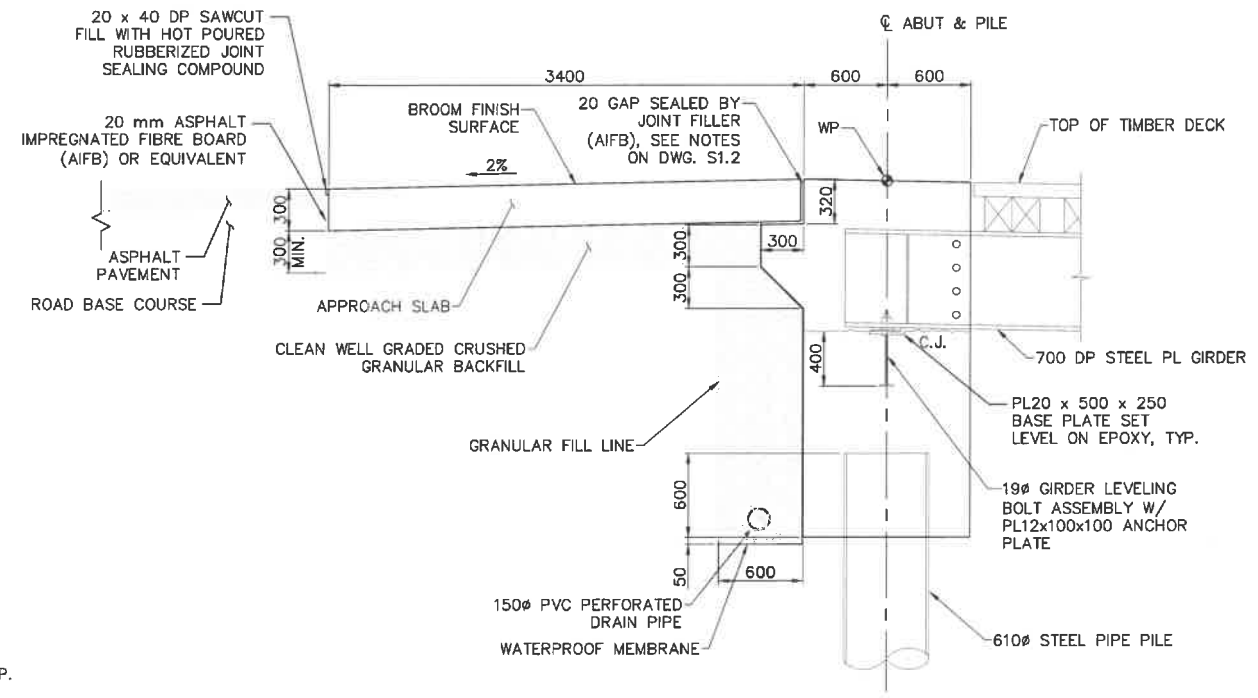
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 "Going in the right direction on the trail"  
**BRIDGE #3 PILING LAYOUT AND DETAILS**

Project No./No. du projet: PCA #1522	Sheet/Feuille: S-3.3 OF	Revision no./La Révision no.: 0
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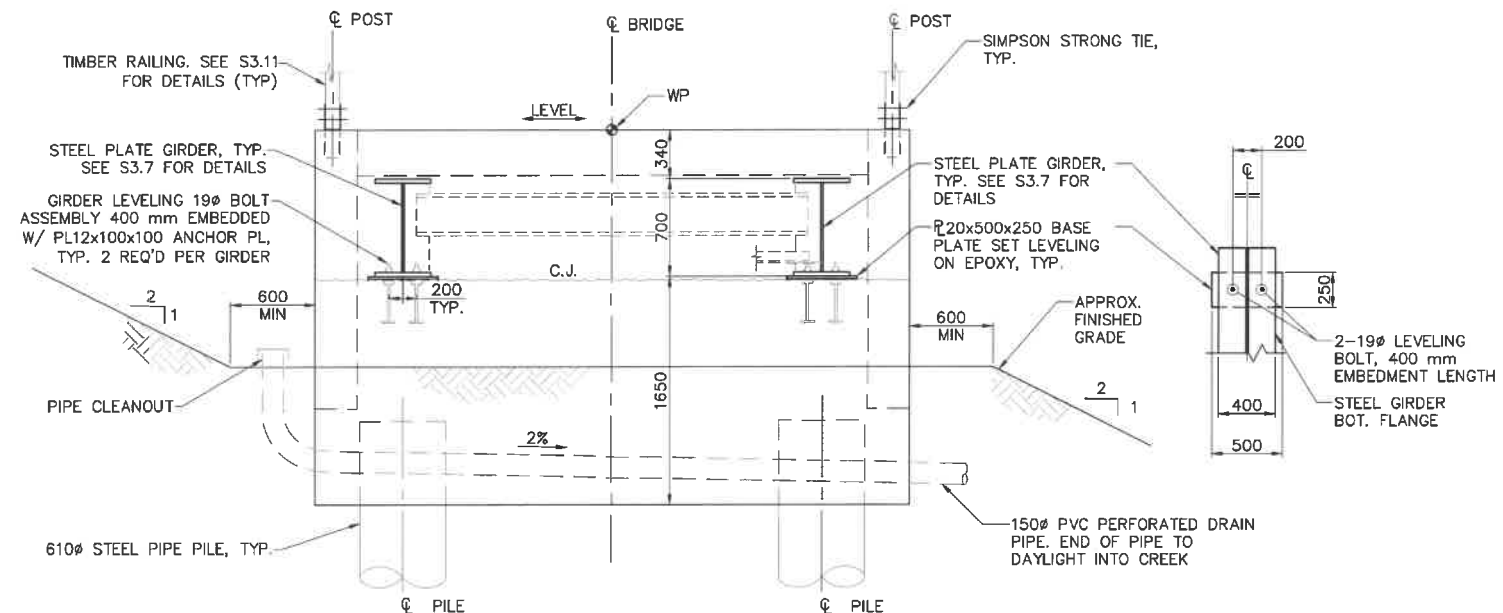
**PARSONS**



**ABUTMENT PLAN (ABUT 1 / ABUT 2)**  
1:25



**SECTION A**  
1:25



**ABUTMENT ELEVATION**  
1:25

**NOTES:**

- FOR STRUCTURAL NOTES SEE DWG. S1.1 AND S1.2.
- THE SURFACE OF CONCRETE AT CONSTRUCTION JOINTS SHALL INTENTIONALLY ROUGHENED AND CLEAN AND FREE OF LAITANCE AT TIME OF CASTING.
- GRANULAR BACKFILL AND LOW PLASTIC CLAY FILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR AND 100% STANDARD PROCTOR BEHIND ABUTMENTS AND WINGWALLS. COMPACTION WITHIN A HORIZONTAL DISTANCE EQUAL TO ONE HALF OF THE WALL HEIGHT SHALL USE HAND TAMPERS.



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Revision/	Description/Description	Date/Date
Client/client		

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapscik tašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

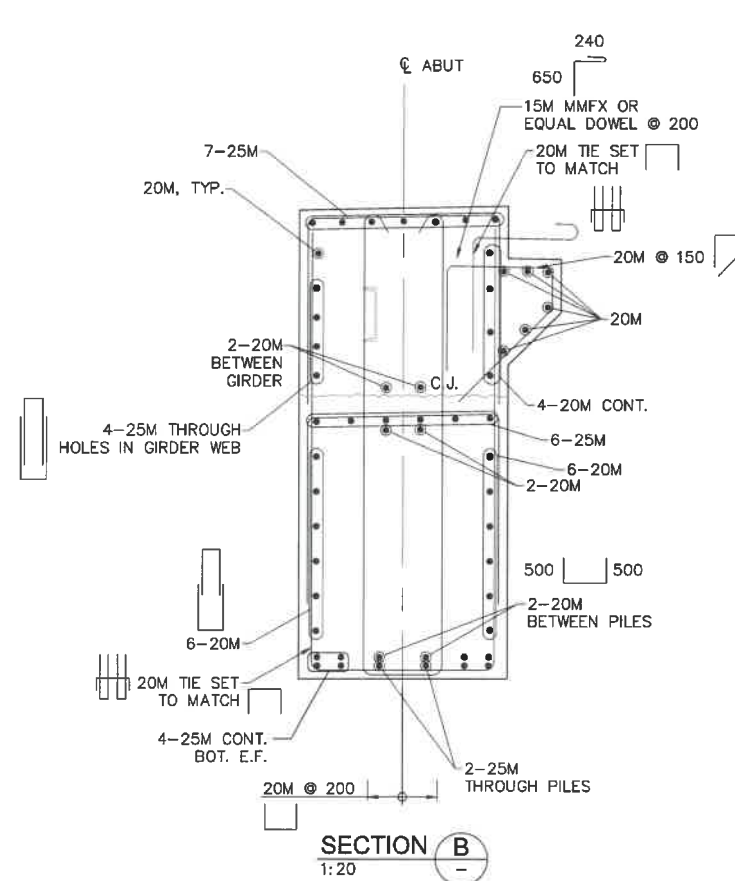
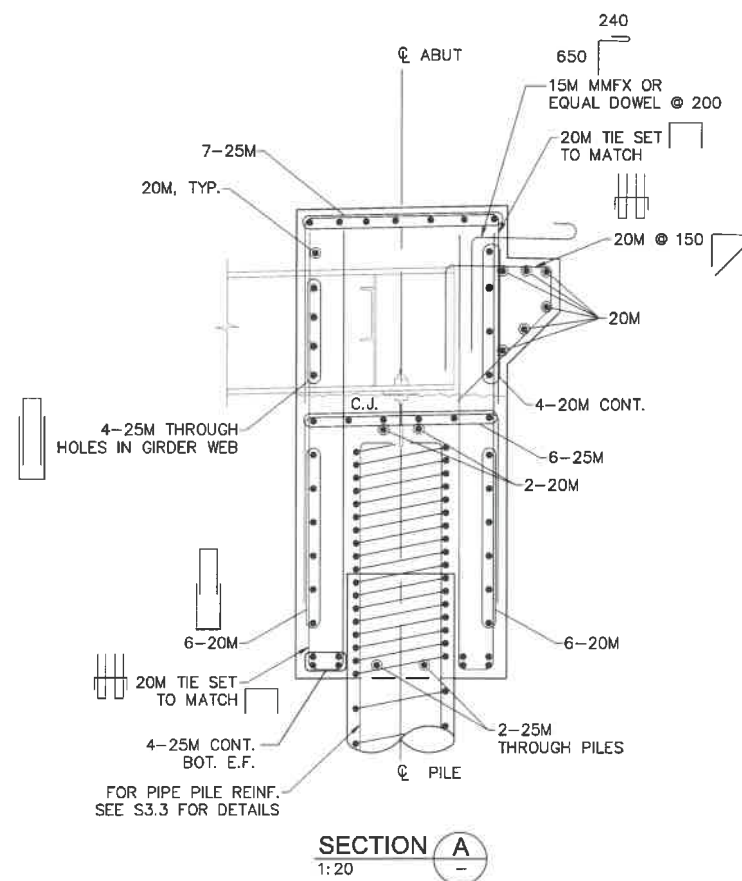
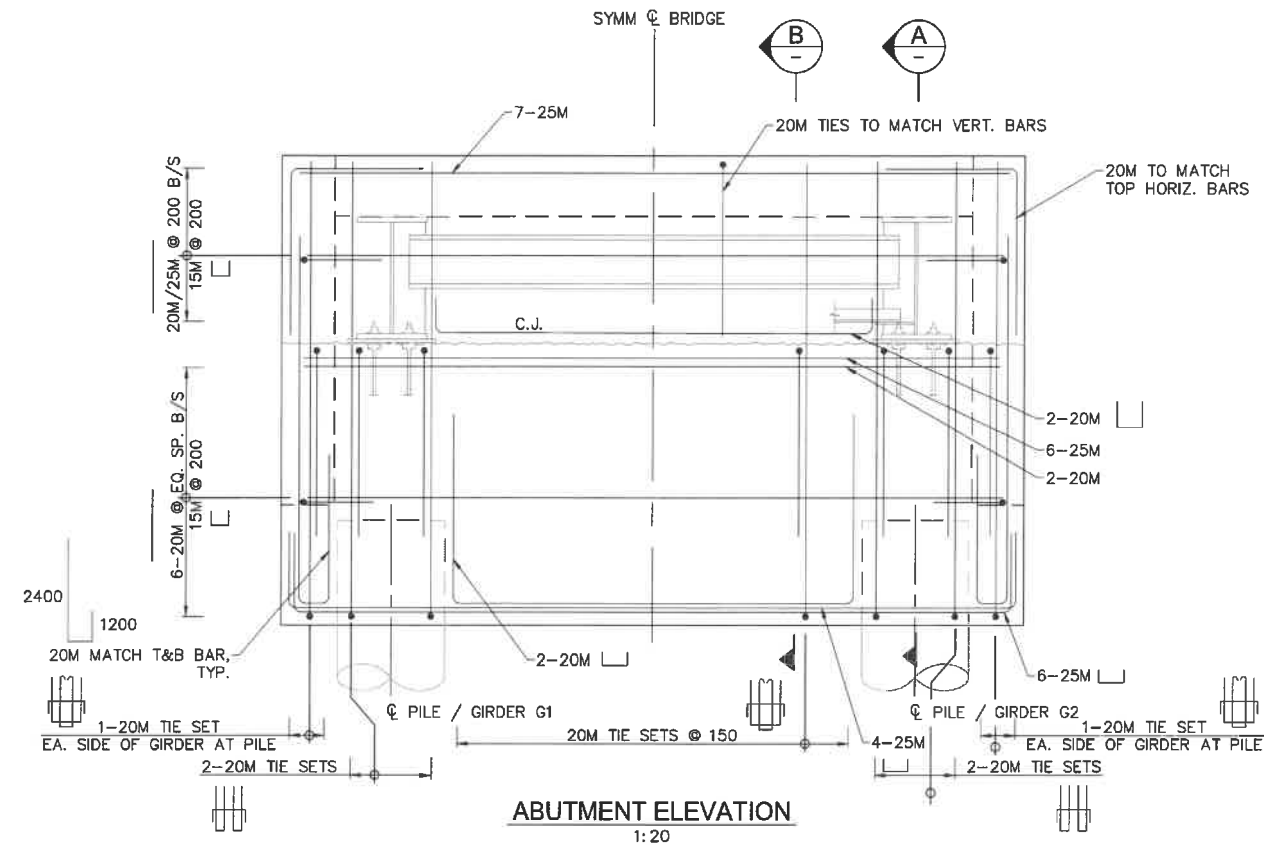
Designed by/Conçepé par  
DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
STEVEN ZHYN / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapscik tašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**ABUTMENT LAYOUT**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-3.4</b> OF	Revision no./La Révision no. <b>0</b>
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**PARSONS**



NOTES:  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.

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Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsciik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

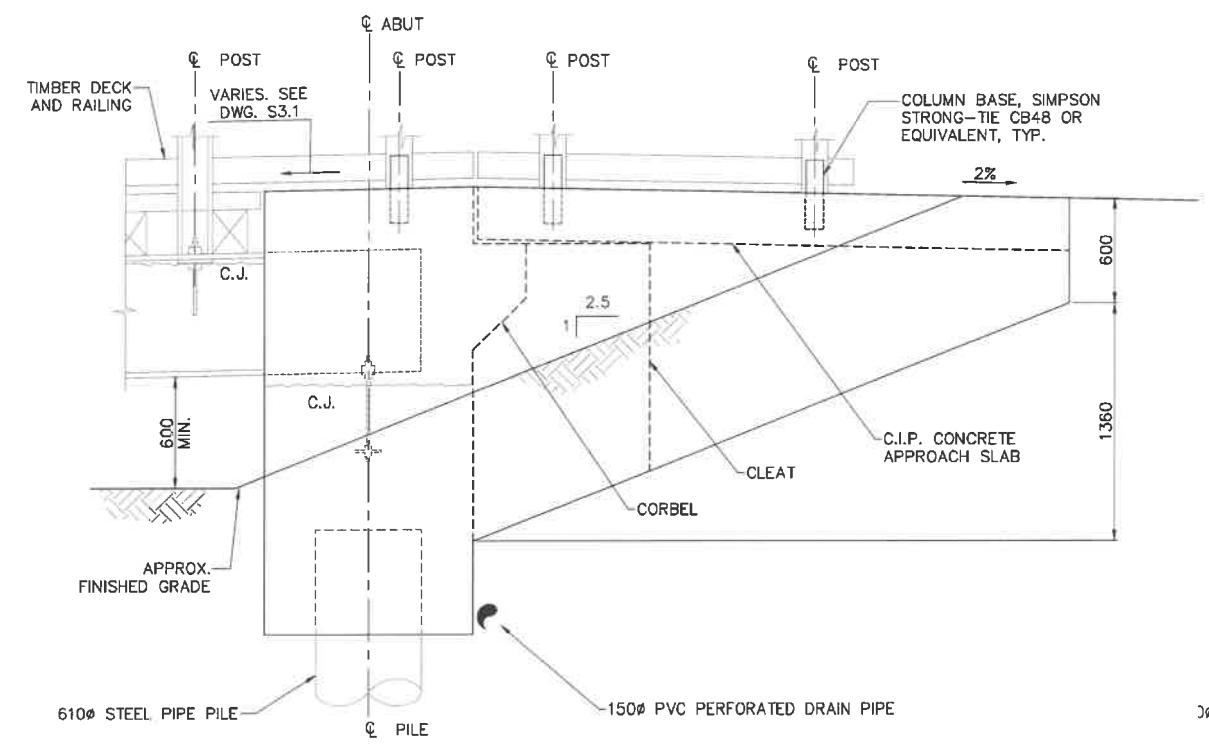
Consultant Signature Only  
Designed by/Concepé par DANIEL YANG / 2018-11  
Drawn by/Dessiné par STEVEN ZUW / 2018-12  
PCA Project Manager/Technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
**?apsciik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**ABUTMENT DETAILS**

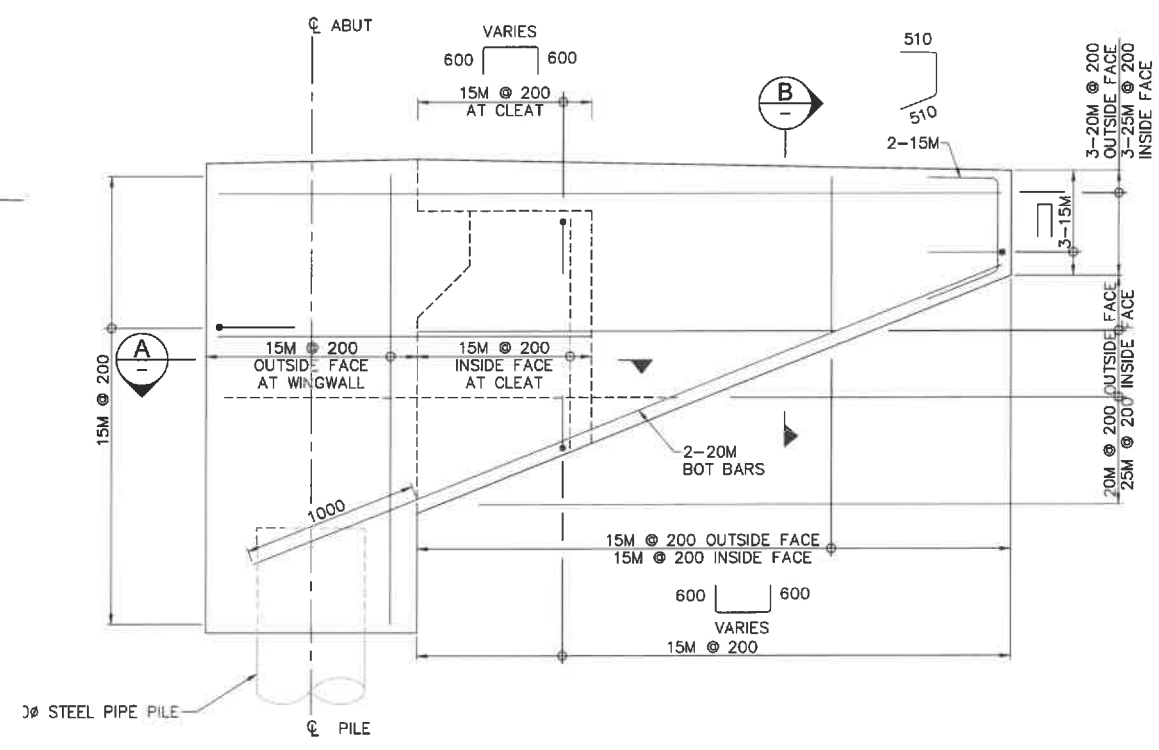
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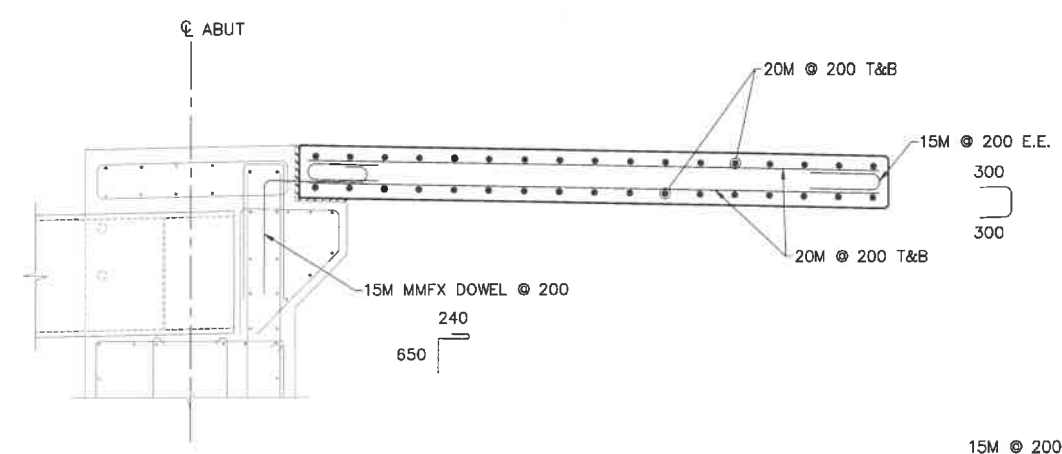
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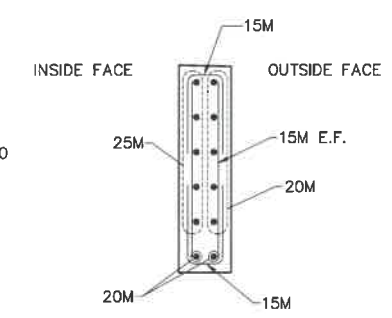
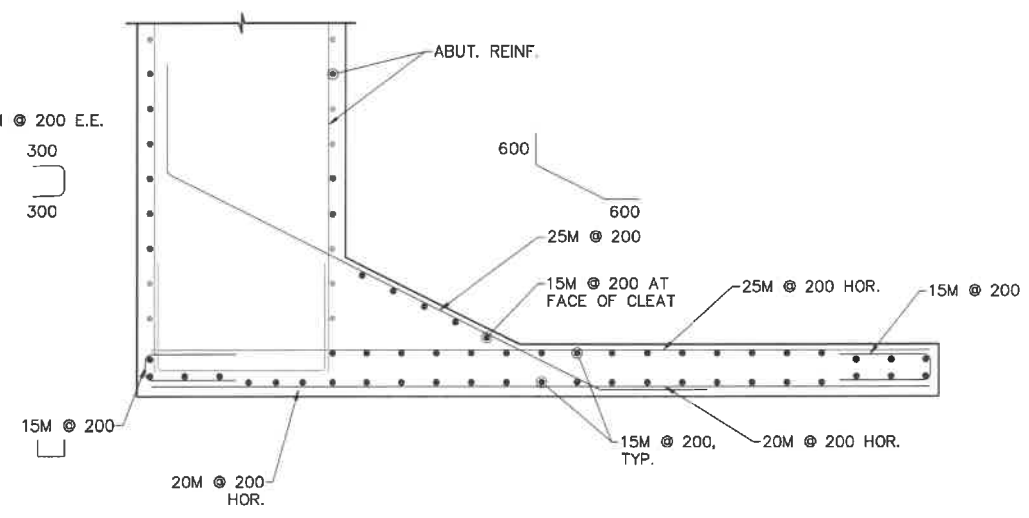
**WINGWALL ELEVATION**  
1:20  
ABUTMENT 2 SHOWN  
ABUTMENT 1 SIMILAR



**WINGWALL REINFORCEMENT ELEVATION**  
1:20



**APPROACH SLAB REINFORCEMENT ELEVATION**  
1:20



**SECTION B**  
1:20

NOTES:  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.

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Client/Client  
Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Concept par  
DANIEL YANG / 2018-11

Drawn by/Dessiné par  
SHAWN LI / 2019-12

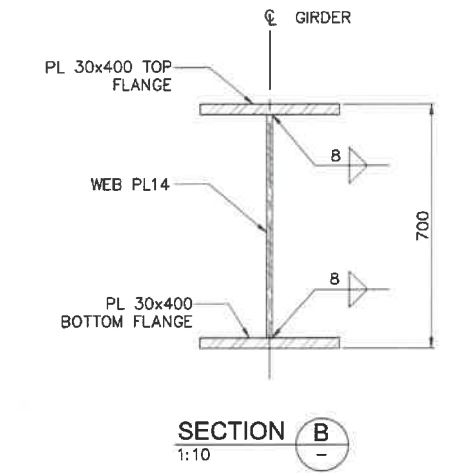
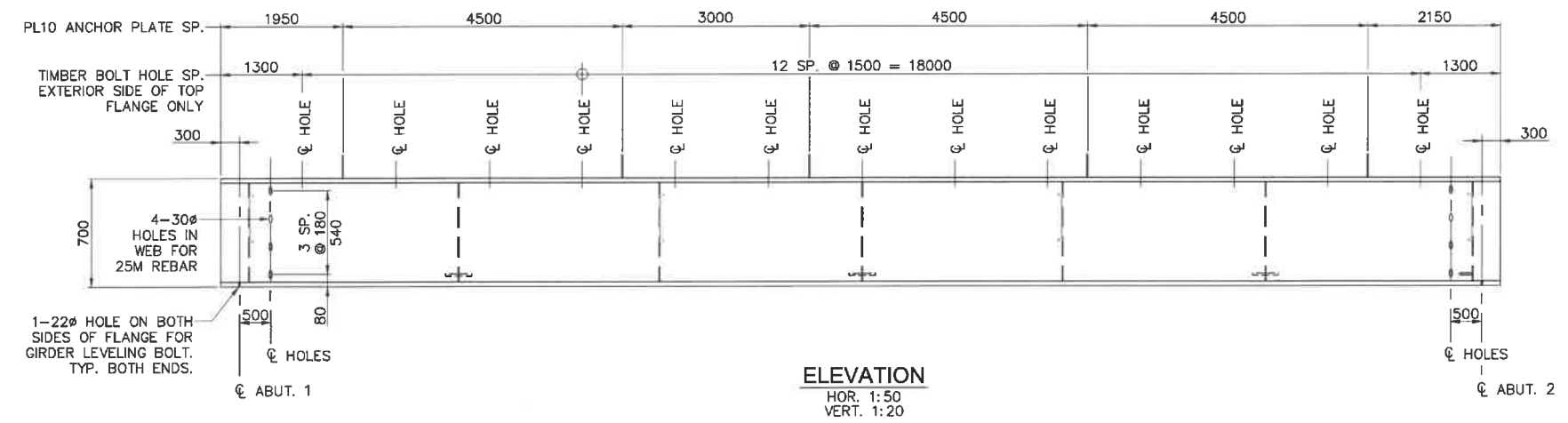
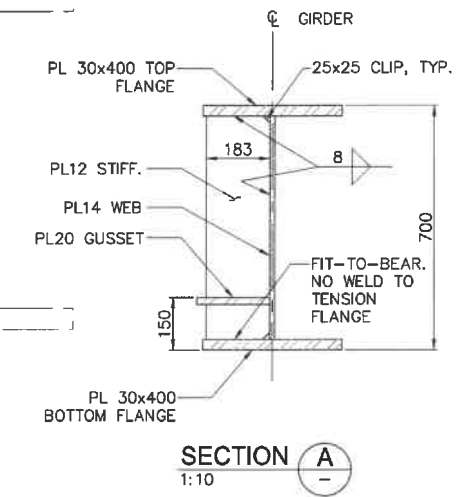
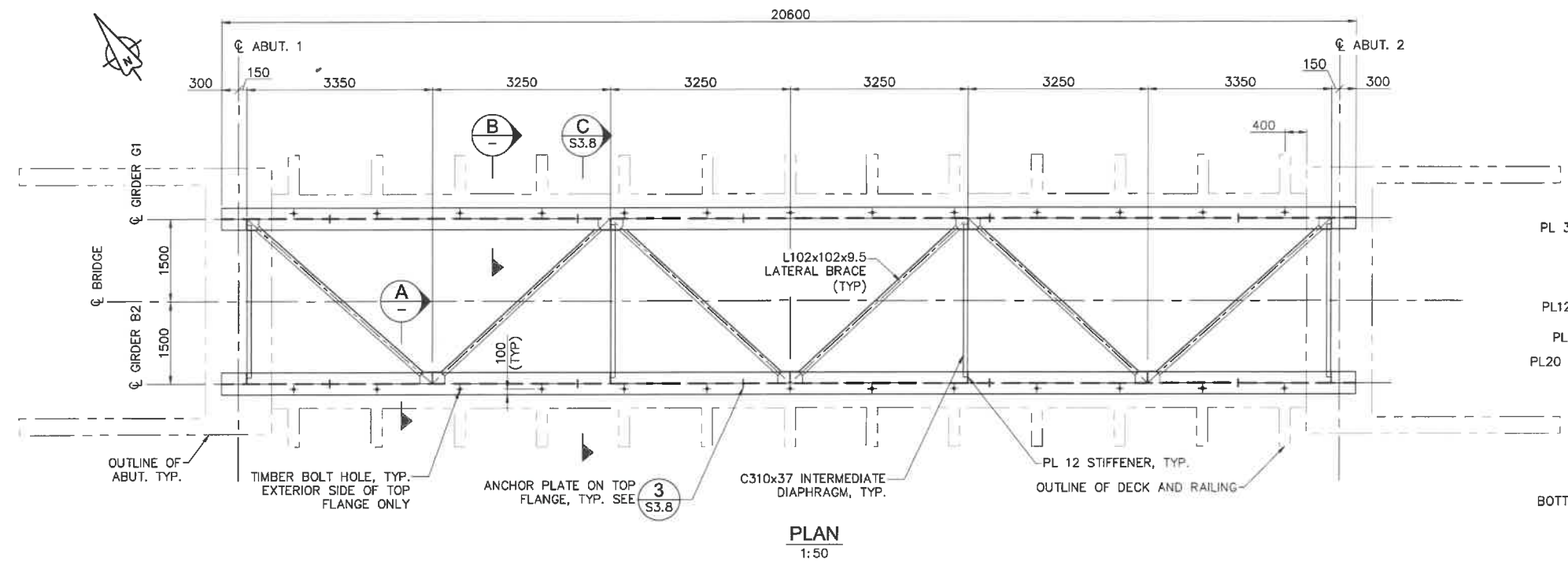
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**ABUTMENT WINGWALL AND APPROACH SLAB DETAILS**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-3.6</b> OF	Revision no./La Révision no. <b>0</b>
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**PARSONS**



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Revision/Description	Description/Description	Date/Date

Project title/Titre du projet  
TOFINO, BC

**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsclik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Concept par  
DANIEL YANG / 2018-11

Drawn by/Dessiné par  
STEVEN ZIVIN / 2018-12

PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

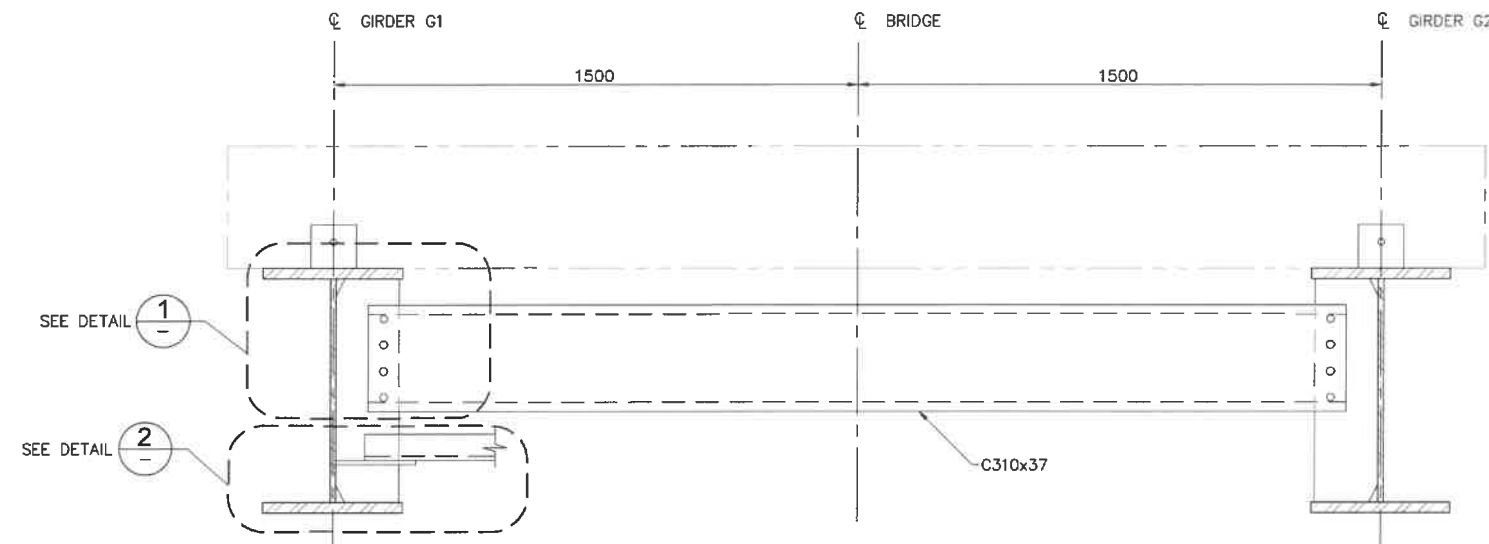
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**?apsclik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**GIRDER LAYOUT**

NOTES:  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.  
2. FOR CAMBER DIAGRAM SEE DWG. S3.9.

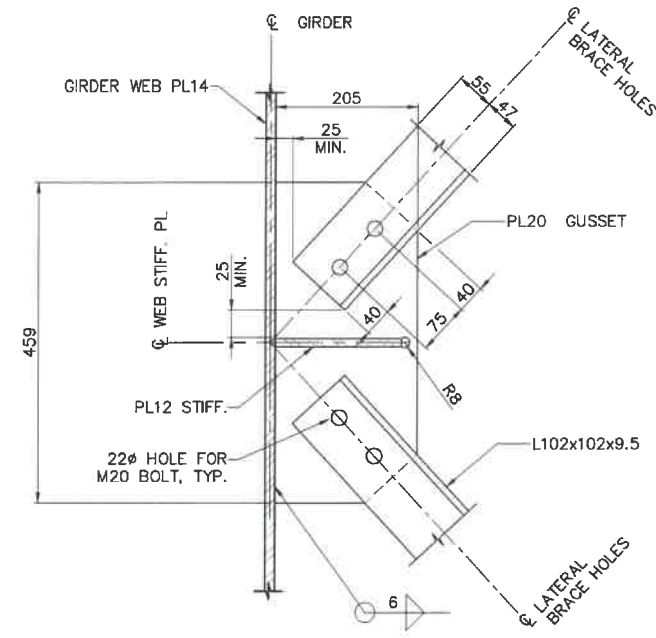
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PCA #1522	S-3.7 OF	0



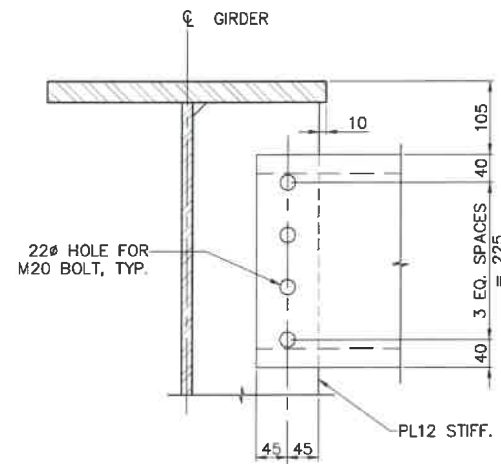
**PARSONS**



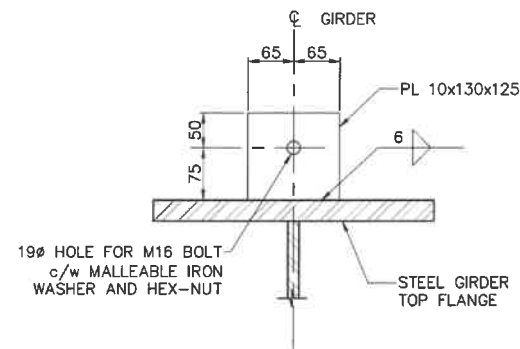
**SECTION C**  
1:10 S3.7



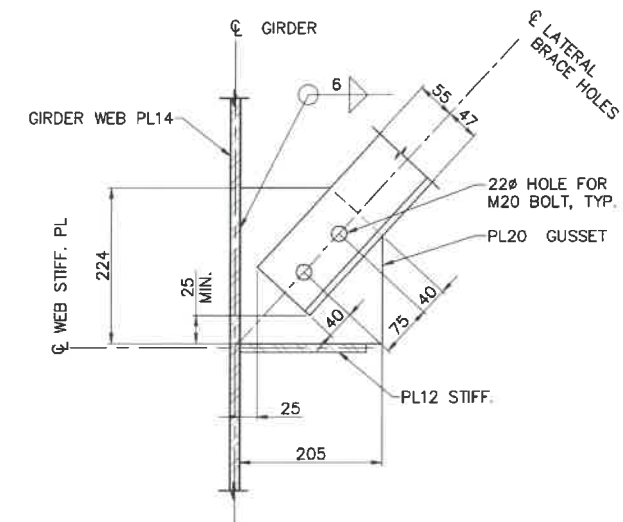
**SECTION A**  
1:5  
(GUSSET PL AT INTERMEDIATE LOCATION)



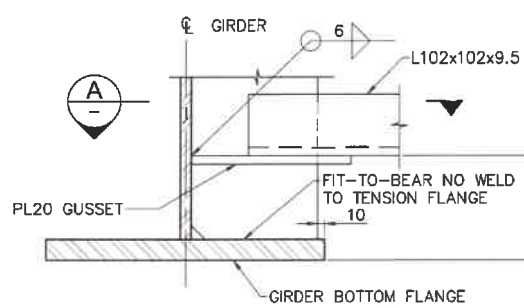
**DETAIL 1**  
1:5



**DETAIL 3**  
1:5 S3.7



**SECTION A**  
1:5  
(GUSSET PL AT ABUTMENTS)



**DETAIL 2**  
1:5

**NOTES:**

1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.

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0	ISSUED FOR TENDER	18/12/2018
Revision/Description	Description/Description	Date/Date

Client/Client: Parks Canada Agency L'Agence Parcs Canada

Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsc̓iik ʔas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

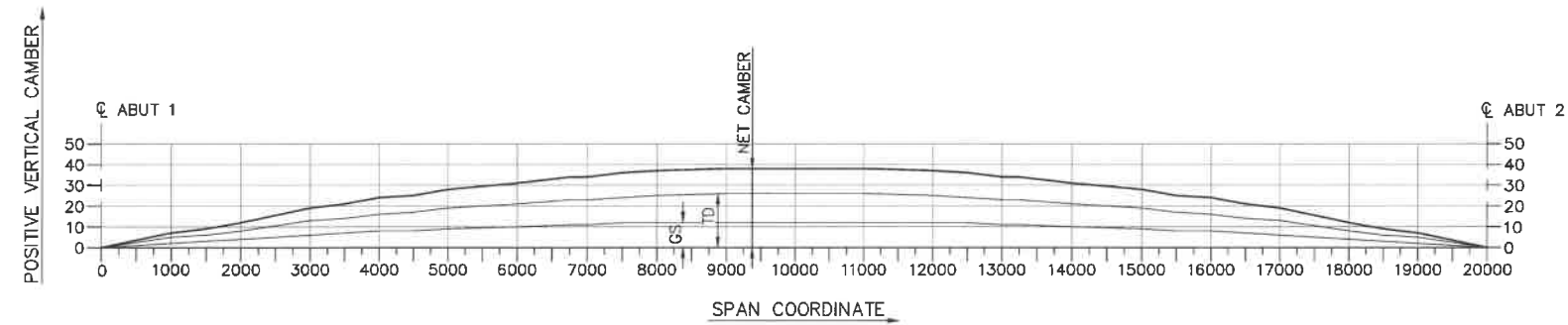
Consultant Signature Only  
 Designed by/Concept par: DANIEL YANG / 2018-11  
 Drawn by/Designé par: STEVEN ZIVIN / 2018-12  
 PCA Project Manager/Technical Authority: JACKIE HICKS

Drawing Title/Titre du dessin: ʔapsc̓iik ʔas̓ii (Ups-cheek ta-shee)  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**GIRDER SECTIONS AND DETAILS**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
PCA #1522	S-3.8 OF	0



**PARSONS**



**CAMBER DIAGRAM - STEEL GIRDERS**

HORIZONTAL SCALE: 1:50  
VERTICAL SCALE: 1:1.6667

SYM. C BRIDGE #3

COMPONENT	SPAN COORDINATE															
	0	1000	1500	2000	3000	3500	4000	4500	5000	6000	6750	7000	7500	8000	9000	10000
NET CAMBER (GS + TD)	0	6	8	10	16	18	21	22	24	27	29	29	31	32	33	33
GIRDER STEEL (GS)	0	2	3	4	6	7	8	8	9	10	11	11	12	12	12	12
TIMBER DECK + RAILING (TD)	0	4	5	6	10	11	13	14	15	17	18	18	19	20	21	21

**TABLE - GIRDER CAMBER VALUES**  
(CAMBER VALUES SYMMETRIC ABOUT BRIDGE CENTERLINE)

**NOTES:**

- FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.
- NET CAMBER = A + B.
- NET CAMBER FIGURES ARE FOR GIRDER SECTIONS IN ZERO LOAD CONDITIONS.
- FABRICATOR IS RESPONSIBLE FOR MAKING ALLOWANCES SUCH THAT CAMBER ON COMPLETED GIRDER SECTIONS WILL BE WITHIN ALLOWABLE TOLERANCES. ALL PROCEDURES FOR CAMBER ADJUSTMENT MUST BE APPROVED PRIOR TO USE.
- LONGITUDINAL GIRDER DIMENSIONS (SHOWN HORIZONTALLY) ARE MEASURED ALONG THE BOTTOM FLANGE AND ARE CORRECT AT +20°C.



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Project title/Titre du projet: TOFINO, BC  
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**?apsc'ik fas'ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

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 Drawn by/Dessiné par: SHAWN LI / 2018-12  
 PCA Project Manager/Technical Authority / Administrateur de Projets APC: JACKIE HICKS

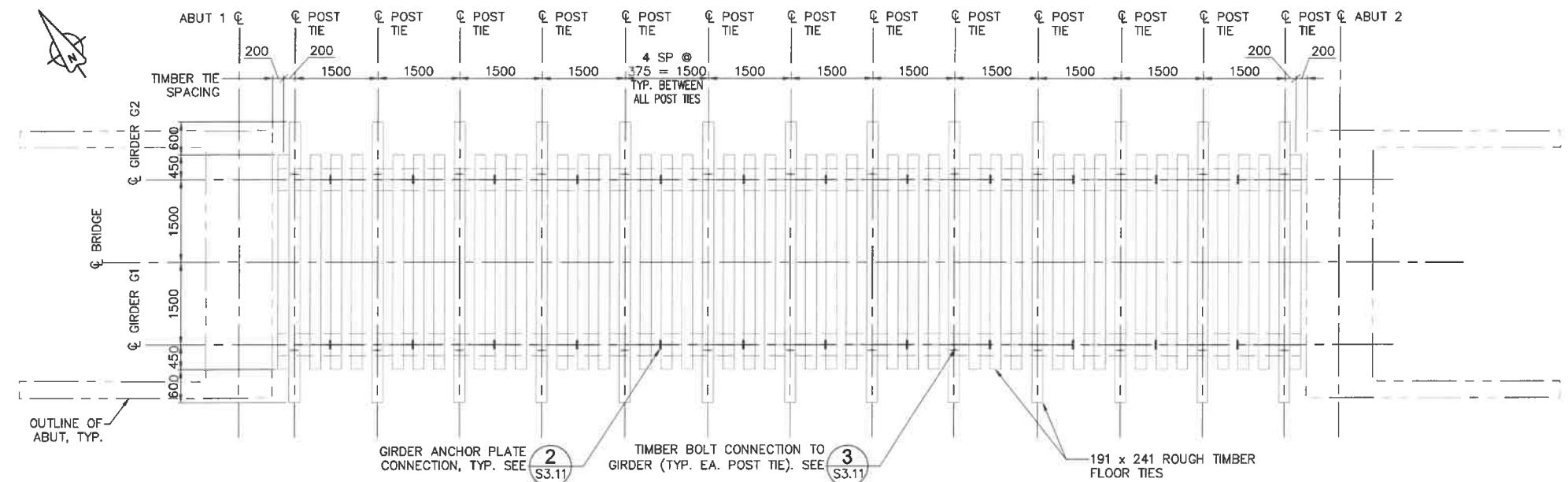
Drawing title/Titre du dessin: ?apsc'ik fas'ii (Ups-cheek ta-shee)  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**GIRDER CAMBER**

Project No./No. du projet: PCA #1522	Sheet/Feuille: S-3.9 OF	Revision no./La Révision no.: 0
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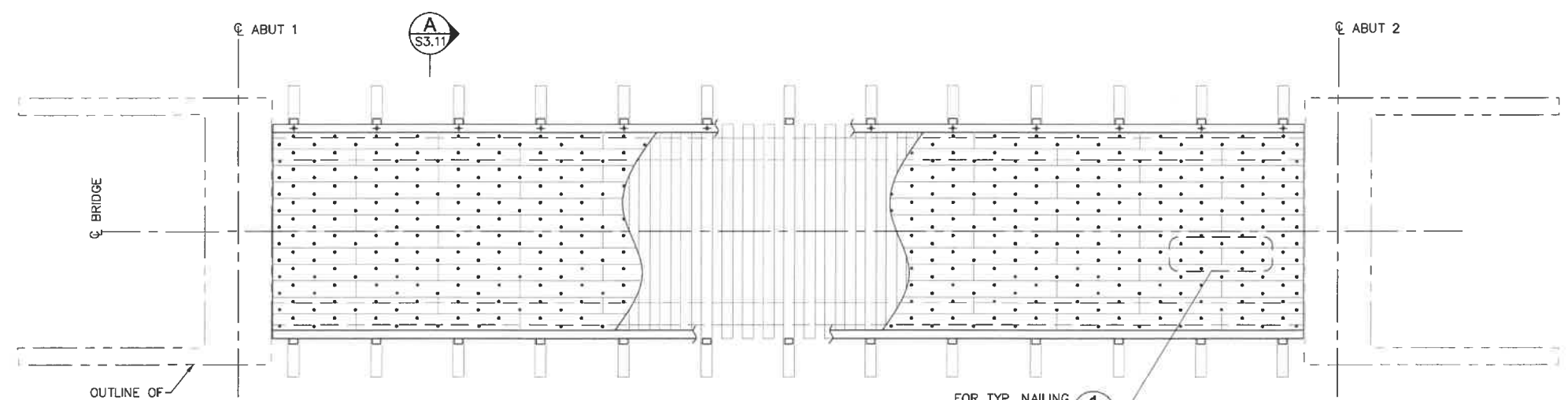




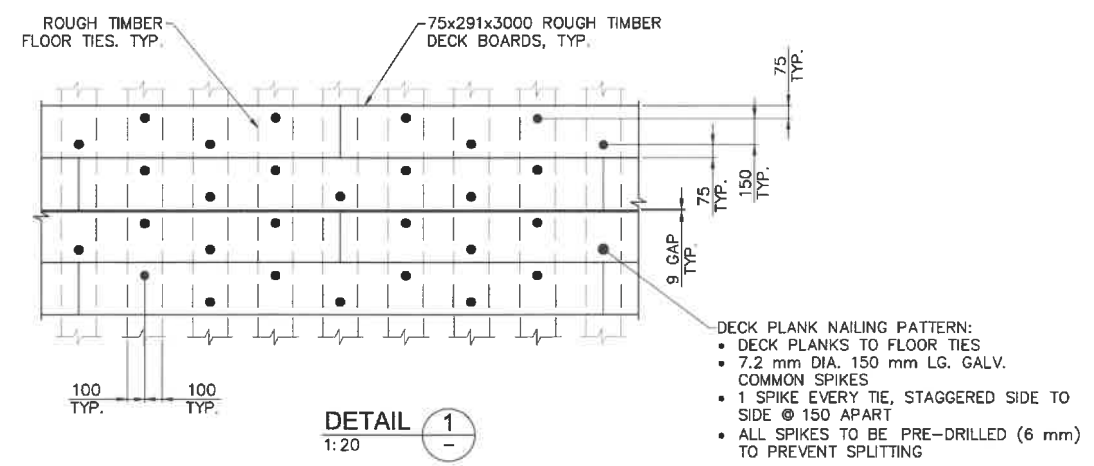
**PARSONS**



**DECK FRAMING PLAN**  
1:50



**DECK PLAN**  
1:50



**DETAIL 1**  
1:20

- DECK PLANK NAILING PATTERN:**
- DECK PLANKS TO FLOOR TIES
  - 7.2 mm DIA. 150 mm LG. GALV. COMMON SPIKES
  - 1 SPIKE EVERY TIE, STAGGERED SIDE TO SIDE @ 150 APART
  - ALL SPIKES TO BE PRE-DRILLED (6 mm) TO PREVENT SPLITTING

**NOTES:**  
1. FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.

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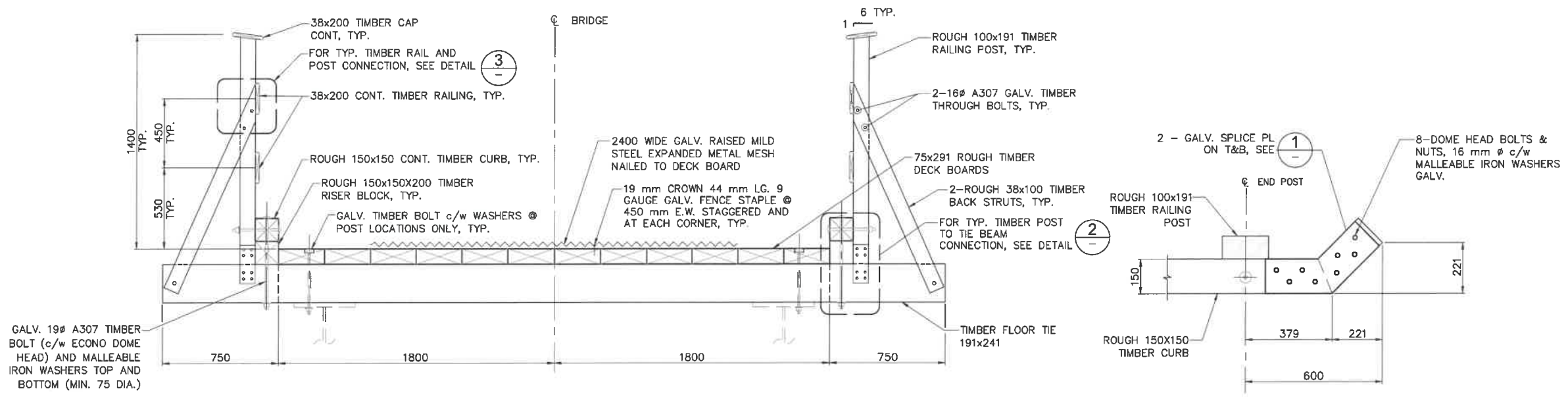
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**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
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Consultant Signature Only  
Designed by/Concept par DANIEL YANG / 2018-11  
Drawn by/Desain par STEVEN ZIVIN / 2018-12  
PCA Project Manager/Technical Authority / Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**DECK PLAN AND DETAILS**  
**SHEET 1**

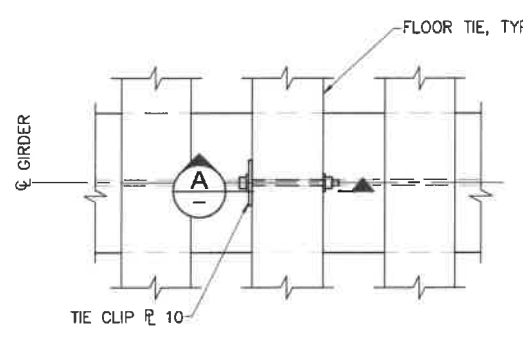
Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-3.10</b> OF	Revision no./La Révision no. <b>0</b>
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**PARSONS**

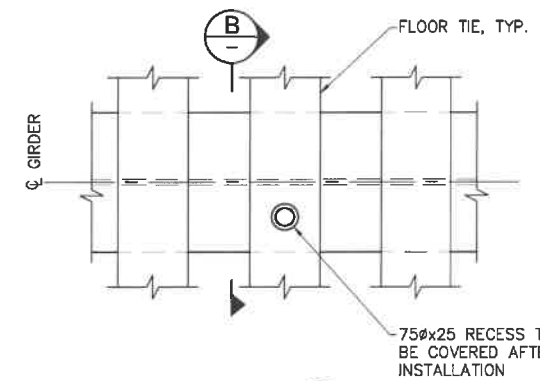


**SECTION A**  
1:15

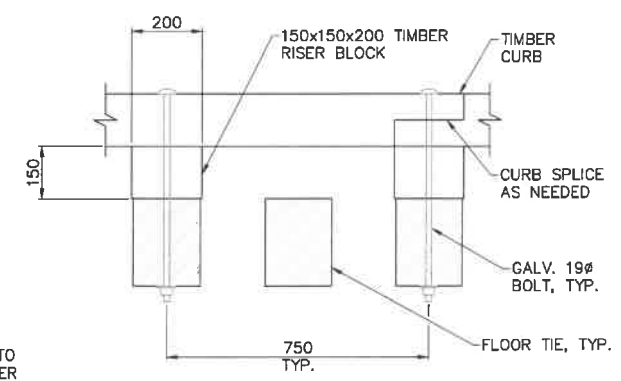
**TIMBER CURB END DETAIL**  
1:10



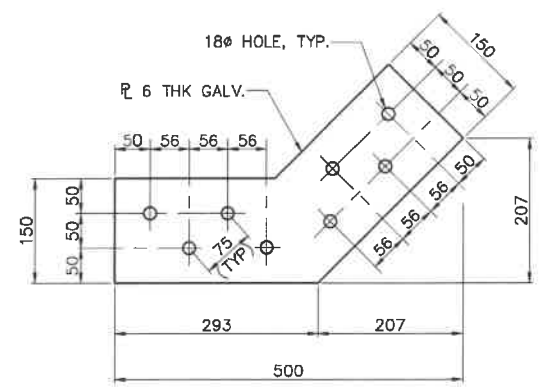
**DETAIL 2**  
1:10



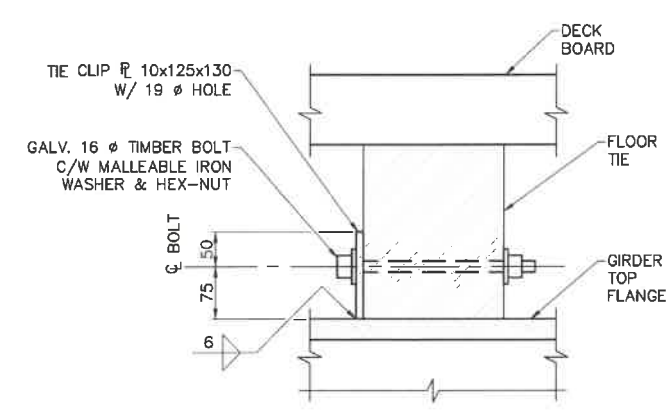
**DETAIL 3**  
1:10



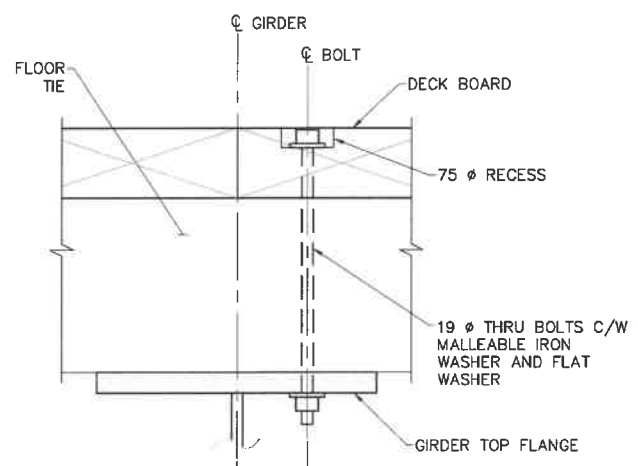
**TIMBER CURB AND RISER BLOCK DETAIL**  
1:10



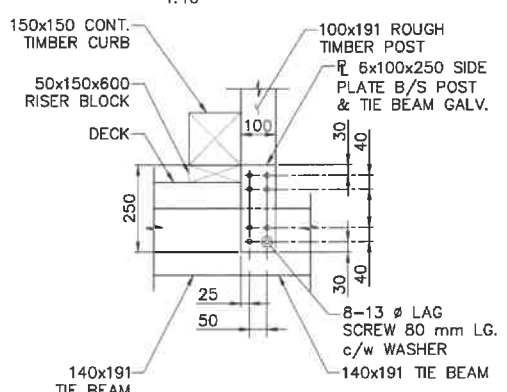
**DETAIL 1**  
1:5



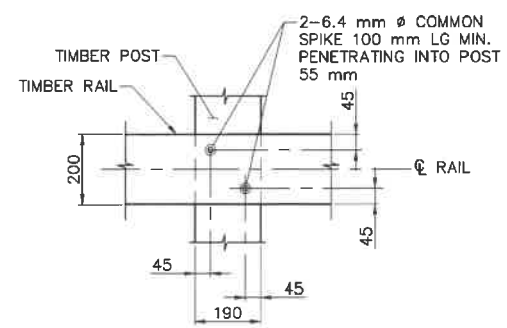
**SECTION A**  
1:5



**SECTION B**  
1:5



**DETAIL 2**  
1:10



**DETAIL 3**  
1:10

- NOTES:**
- FOR GENERAL NOTES SEE DWG. S1.1 AND S1.2.
  - ESTIMATED MATERIAL QUANTITY:
    - STEEL GIRDER 19,200 kg
    - TIMBER FLOOR TIE (191x241) D. FIR L GRADE 1 12.0 m<sup>3</sup>
    - ROUGH TIMBER WESTERN RED CEDAR 10.0 m<sup>3</sup>
    - STEEL PIPE PILES 610# x 16 62.5 m
    - SUBSTRUCTURE CONCRETE 57 m<sup>3</sup>
- CONTRACTOR SHALL VERIFY MATERIAL QUANTITY PRIOR TO COMMENCING WORK.

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Project title/Titre du projet  
TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

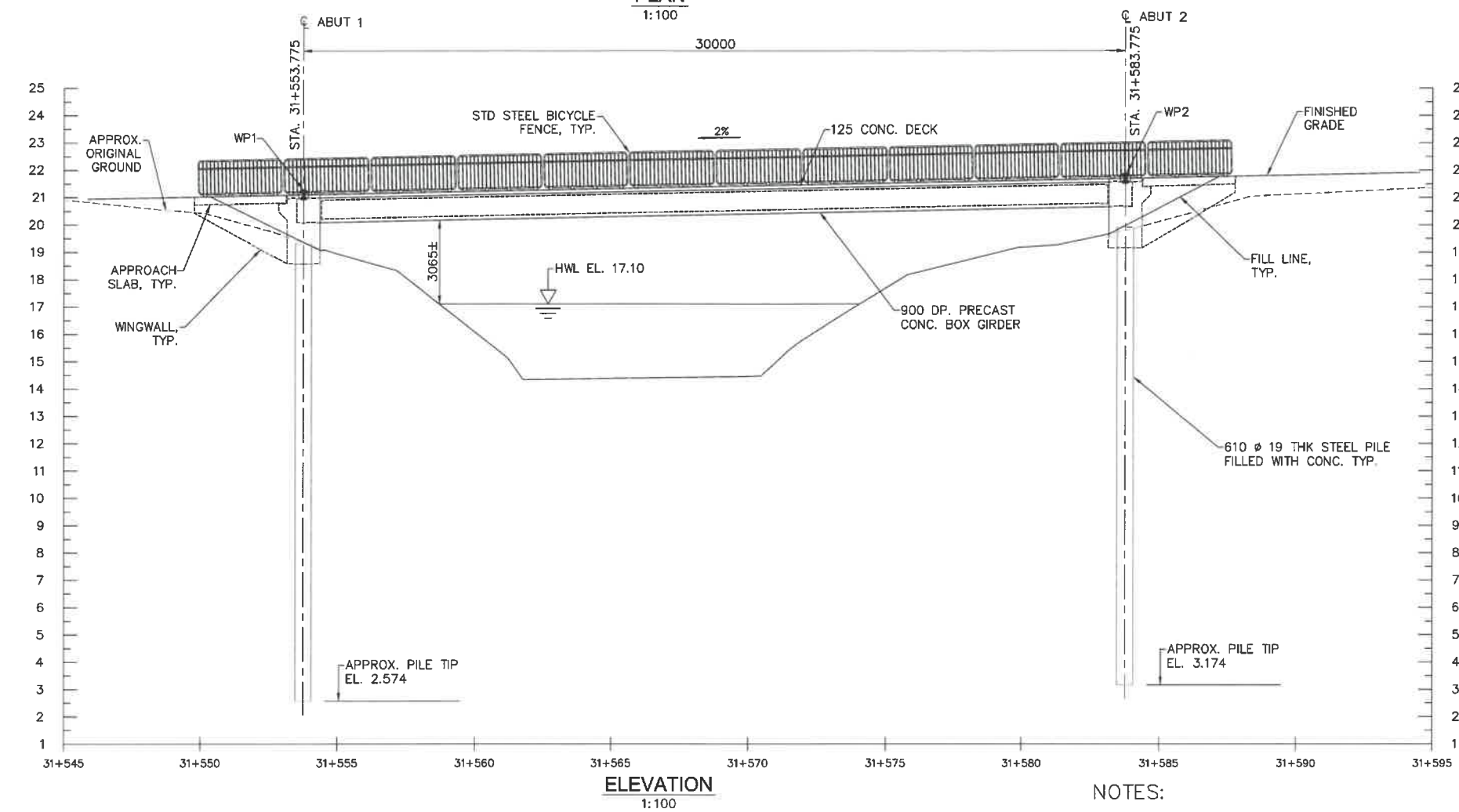
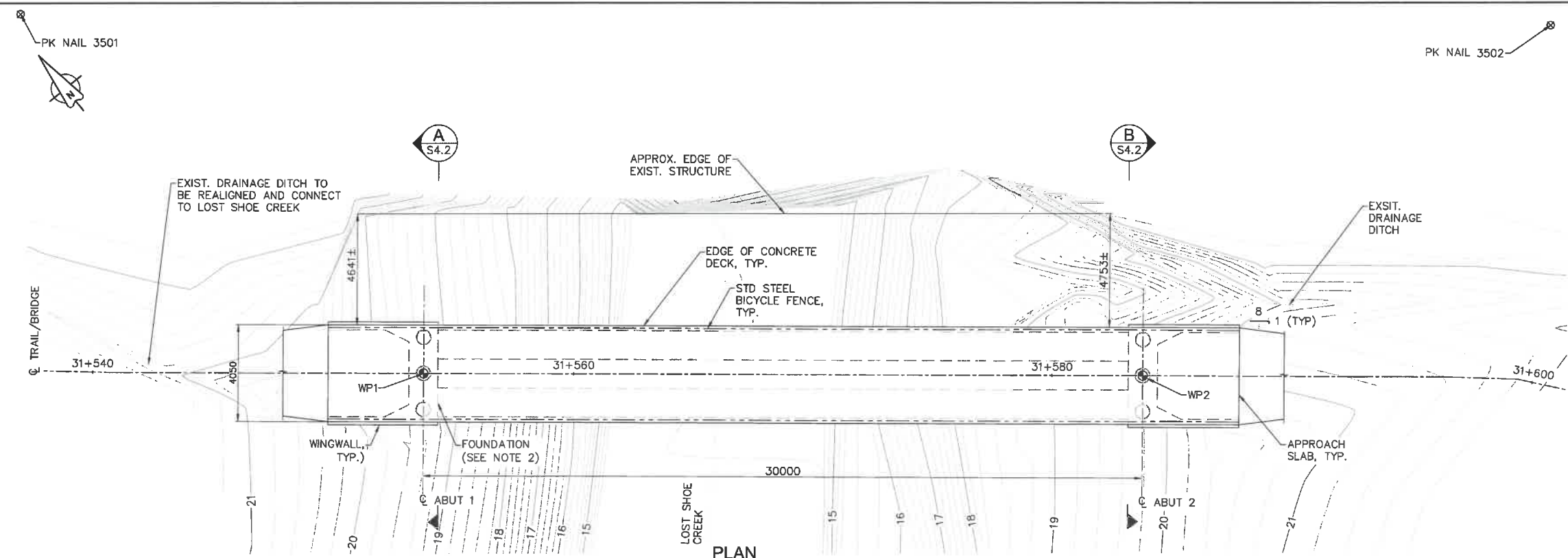
Designed by/Conçue par  
DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
STEVEN ZIVIN / 2018-12  
PCA Project Manager/Responsable Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #3**  
**DECK PLAN AND DETAILS**  
**SHEET 2**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-3.11</b>	Revision no./La Révision no. <b>0</b>
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**PARSONS**



- NOTES:**
1. HIGH WATER LEVEL (H.W.L.) BASED ON 1:200 YEAR EVENT.
  2. FOUNDATION DETAILS TO BE CONFIRMED FOLLOWING GROUND INVESTIGATION ON SITE.
  3. FOR WORK POINTS TABLE AND SURVEY BENCHMARKS TABLE, SEE DRAWING S-4.2.
  4. FOR RETAINING WALL, SEE DRAWINGS W-10.1 TO 10.5.

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Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
 ?apscik fasii  
 "Going in the right direction on the trail"

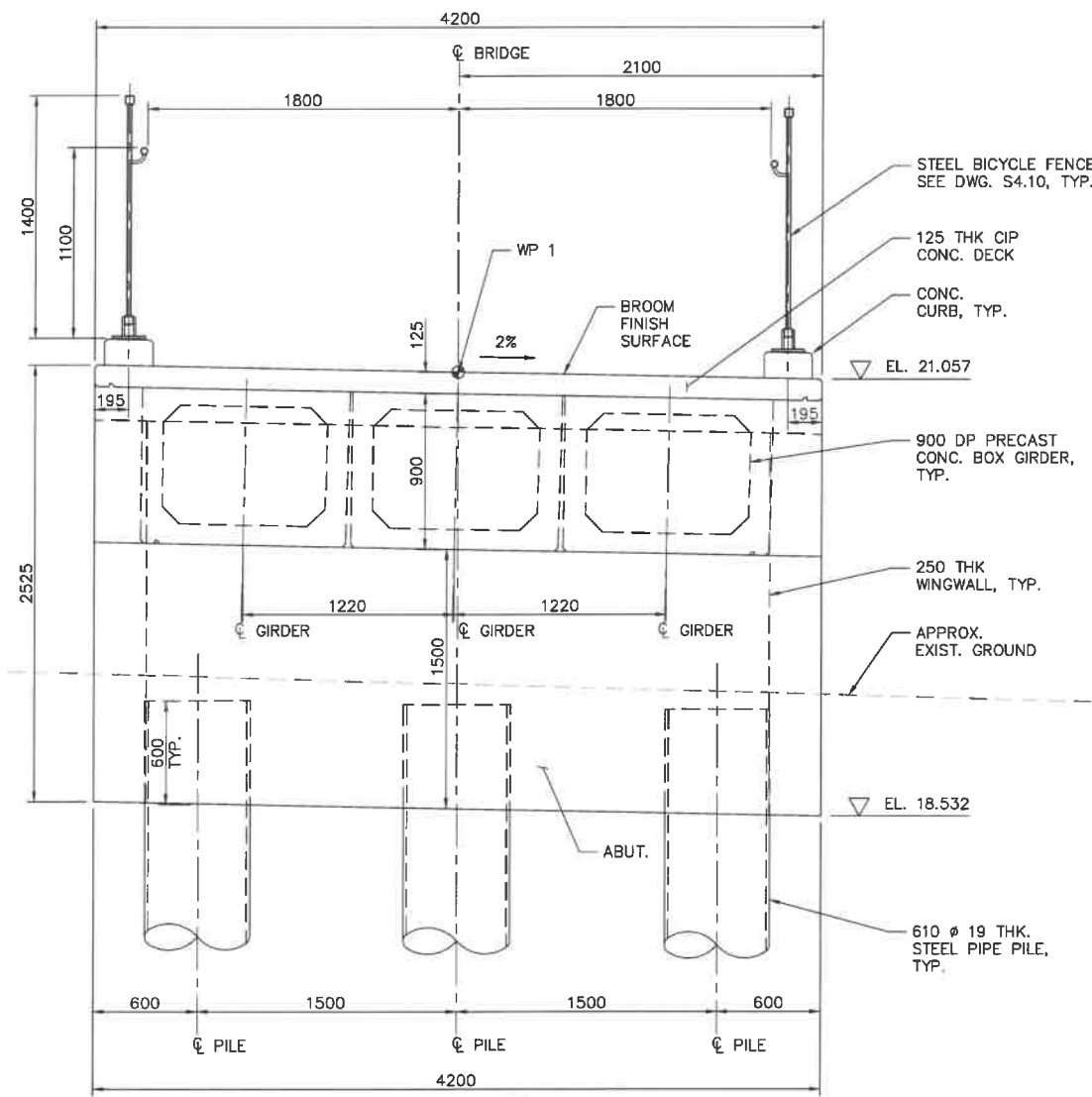
Designed by/Concept par: DANIEL YANG / 2018-11  
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 PCA Project Manager/Technical Authority: JACKIE HICKS

Drawing Title/Titre du dessin: ?apscik fasii (Ups-cheek ta-shee)  
 "Going in the right direction on the trail"  
**BRIDGE #19 GENERAL ARRANGEMENT SHEET 1**

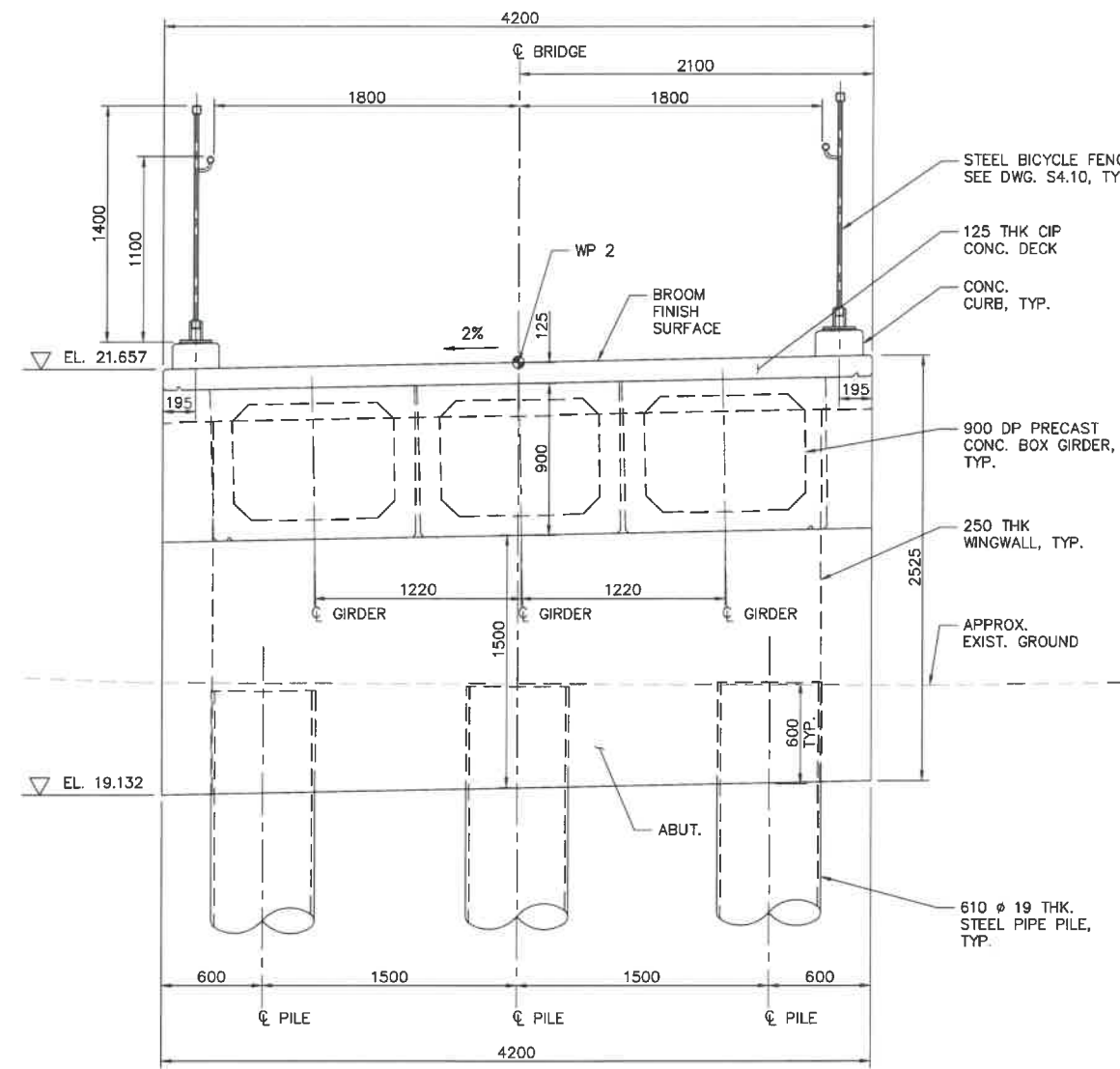
Project No./No. du projet: <b>PCA #1522</b>	Sheet/Feuille: <b>S-4.1</b>	Revision no./Le Révision no.: <b>0</b>
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**PARSONS**



SECTION A (LOOKING WEST) 1:20 S4.1



SECTION B (LOOKING EAST) 1:20 S4.1

**NOTES:**

- BRIDGE #19 SPANS THE MAIN STREAM OF LOST SHOE CREEK, WHICH IS CONSIDERED VERY HIGH VALUE FISH HABITAT, THERE IS CONFIRMED ADULT SALMON SPAWNING AND JUVENILE SALMONID REARING LOCATED IMMEDIATELY UNDER AND DOWNSTREAM OF BRIDGE #19. AS SUCH, DURING CONSTRUCTION OF BRIDGE #19, THE CONTRACTOR WILL NEED TO STRICTLY ADHERE TO THE MITIGATION MEASURES OUTLINED IN THE CONCRETE HANDLING MITIGATIONS SPECIFICATION AND THE ENVIRONMENTAL PROCEDURES SPECIFICATION INCLUDED IN THE TENDER PACKAGE.
- ALTHOUGH THERE ARE NO INSTREAM WORKS PROPOSED FOR BRIDGE #19, THE WORKS REQUIRED WITHIN THE RIPARIAN AREA AND ON THE BANKS OF LOST SHOE CREEK ARE CONSIDERED MODERATE TO HIGH RISK IN TERMS OF SEDIMENT AND EROSION CONTROL. AS SUCH, ALL THE HIGHEST RISK WORK INCLUDING EXCAVATION FOUNDATION, INSTALLATION OF FOUNDATION, AND EARTHWORK IMMEDIATELY ADJACENT TO CREEK MUST BE DONE DURING LEAST RISK WORK WINDOW FOR FISH, WHICH FOR NON-INSTREAM WORKS ONLY IS JUNE 15TH TO SEPTEMBER 15TH.
- THE CONTRACTOR SHALL CONFIRM WITH DEPARTMENT REPRESENTATIVE PRIOR TO COMMENCE THE HIGH RISK CONSTRUCTION WORK, INCLUDING EXCAVATION, FOOTINGS, INSTALLATION OF FOOTINGS AND EARTHWORKS IMMEDIATELY ADJACENT TO CREEK.
- NO CONCRETE WORK TO COMMENCE WITHOUT WRITTEN APPROVAL OF THE OWNER'S ENVIRONMENTAL MONITOR. NO INSTREAM WORKS PERMITTED FOR BRIDGE CONSTRUCTION.
- ALL CONCRETE POURS SHALL BE COMPLETELY ISOLATED FROM THE CREEK, WITH SECONDARY CONTAINMENT TO PREVENT GROUT ENTERING THE CREEK. THE CONTRACTOR SHALL SUBMIT A GROUT CONTAINMENT PLAN TO THE ENVIRONMENTAL MONITOR FOR APPROVAL AND REQUEST INSPECTION AND APPROVAL OF FORMWORK BY THE ENVIRONMENTAL MONITOR PRIOR TO ANY CONCRETE POURS.
- SURVEY DATA IS BASED UPON THE UTM NAD83 COORDINATE SYSTEM.
- BROOM CONCRETE RUNNING SURFACE BY CONCRETE BROOM APPLYING PERPENDICULAR TO THE ALIGNMENT, AND BROOM MARKS SHOULD BE RUN TOWARDS LOWER SIDE OF THE LATERAL SLOPE.
- ESTIMATED MATERIAL QUANTITY:
  - 900 mm DEEP PRECAST CONCRETE BOX GIRDER: 3 GIRDERS 30.5 m LONG 17 m<sup>3</sup>
  - CIP CONCRETE DECK: 55 m<sup>3</sup>
  - CIP CONCRETE - OTHERS: 4760 kg
  - MMFX OR EQUAL REINFORCING STEEL: 13200 kg
  - REINFORCING STEEL: 100 m LONG
  - 610x19 STEEL PIPE PILES: 82.4 m
  - BC MOT STANDARD BICYCLE RAIL: CONTRACTOR SHALL VERIFY MATERIAL QUANTITY PRIOR TO COMMENCING WORK.

WORK POINTS TABLE			
WORK POINT	NORTHING	EASTING	EL.
WP1	5431531.089	308829.407	21.099
WP2	5431510.297	308851.033	21.699

BENCHMARKS TABLE			
PK NAIL	NORTHING	EASTING	EL.
3501	5431574.736	308807.591	18.417
3502	5431510.434	308874.600	18.482



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TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Concept par DANIEL YANG / 2018-11  
Drawn by/Dessiné par SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**GENERAL ARRANGEMENT**  
**SHEET 2**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-4.2</b>	Revision no./La Révision no. <b>0</b>
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**PARSONS**



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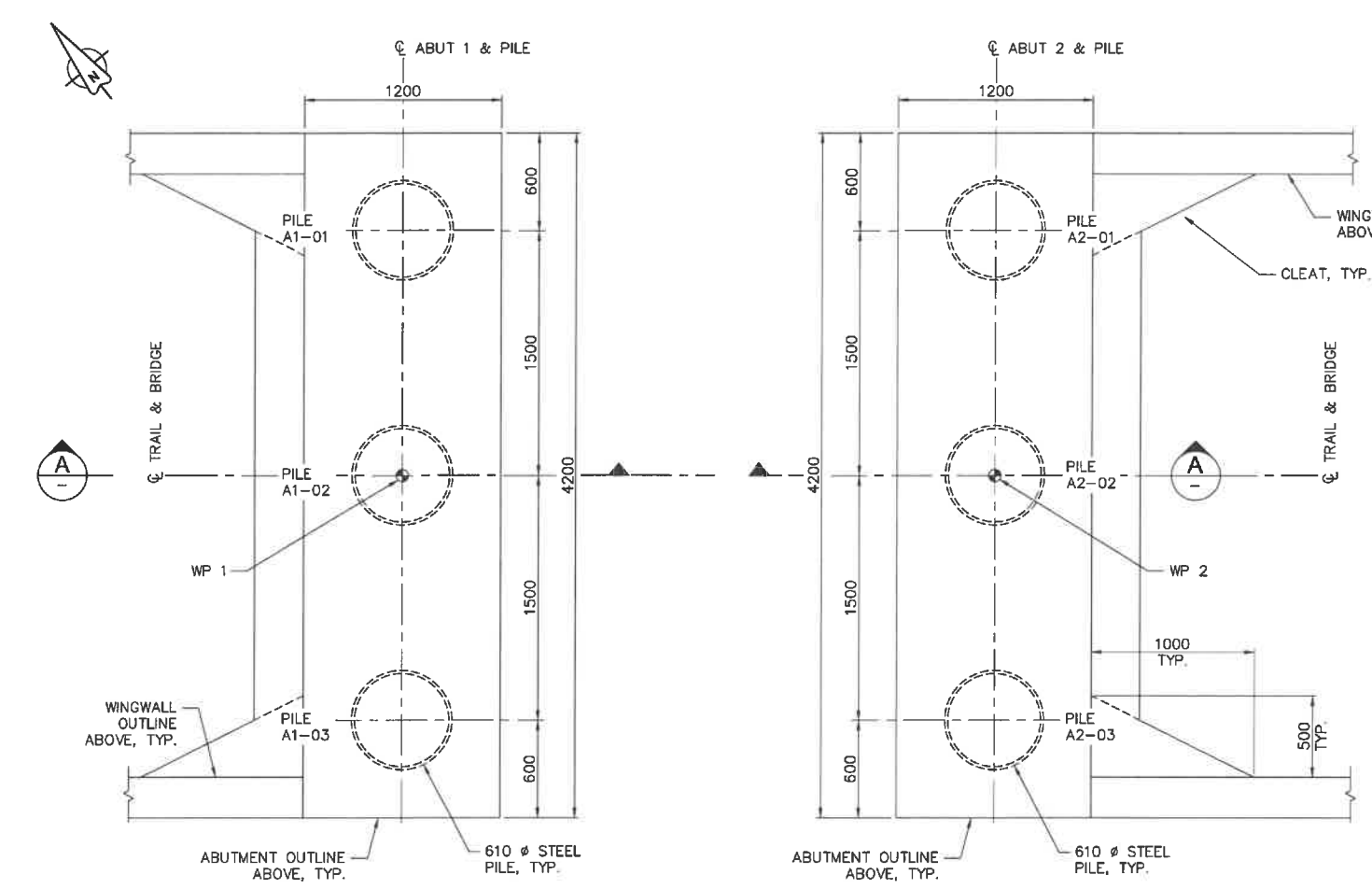
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Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
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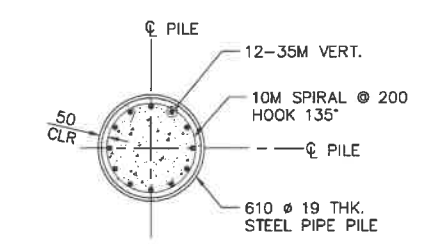
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 Drawn by/Dessiné par: SHAWN LI / 2018-12  
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Drawing Title/Titre du dessin: **ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**PILE LAYOUT AND DETAILS**

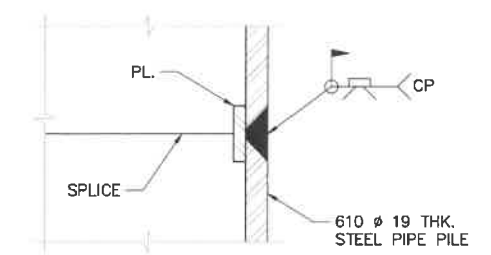
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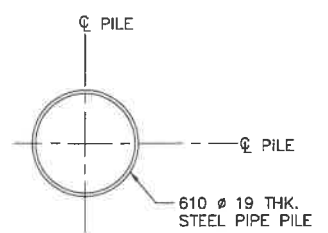
**PILING LAYOUT PLAN**  
1:20



**SECTION B**  
1:20



**TYPICAL PIPE PILE SPlice DETAIL**  
1:2

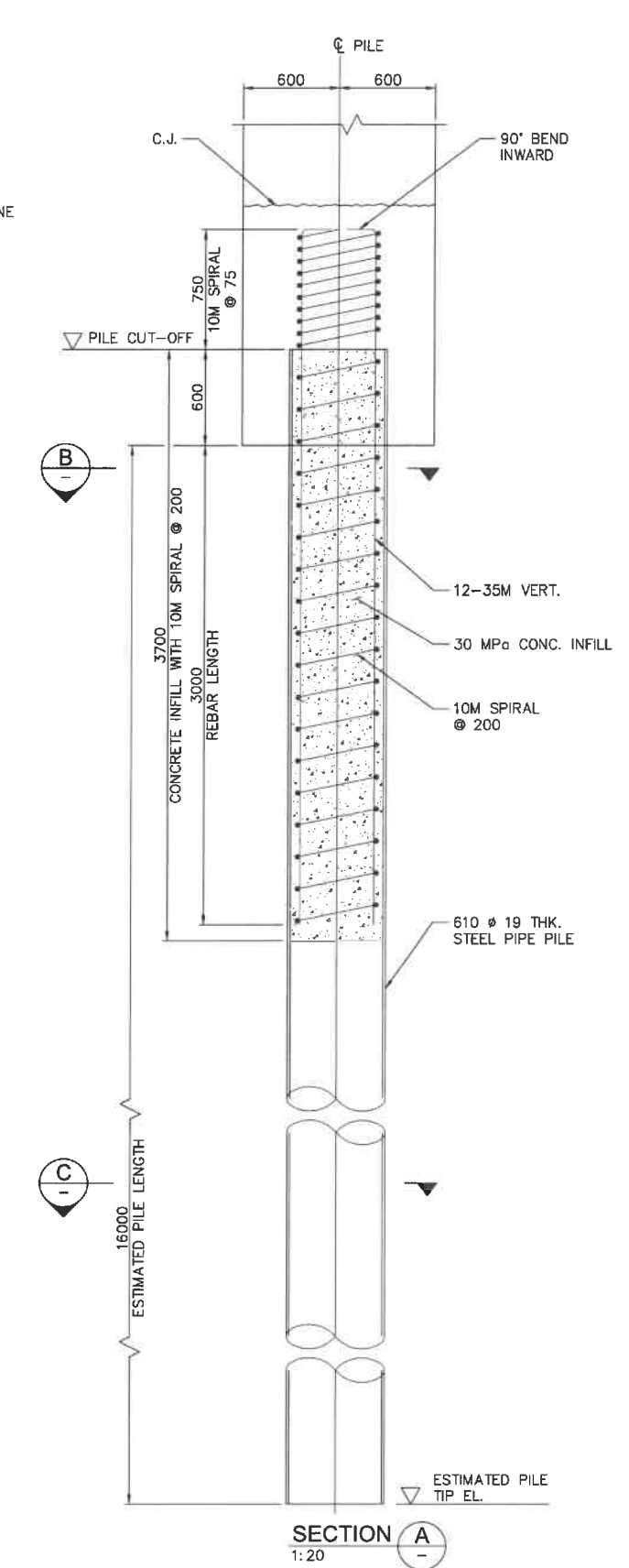


**SECTION C**  
1:20

PILE DATA TABLE			
LOCATION	PILE	PILE CUT-OFF EL. (m)	ESTIMATED PILE TIP EL. (m)
ABUT 1	A1-01	19.144	2.544
	A1-02	19.174	2.574
	A1-03	19.204	2.604
ABUT 2	A2-01	19.744	3.144
	A2-02	19.774	3.174
	A2-03	19.804	3.204

**NOTES:**

- FOR WORK POINTS SEE S4.1.
- PILE SPACING SHALL BE MEASURED AT THE UNDERSIDE OF THE ABUTMENT SEAT.
- PILES TO BE FITTED WITH A CUTTING SHOE AT THE TIP EQUIVALENT TO ASSOCIATED PILE AND FITTING MODEL APF 0-14000.



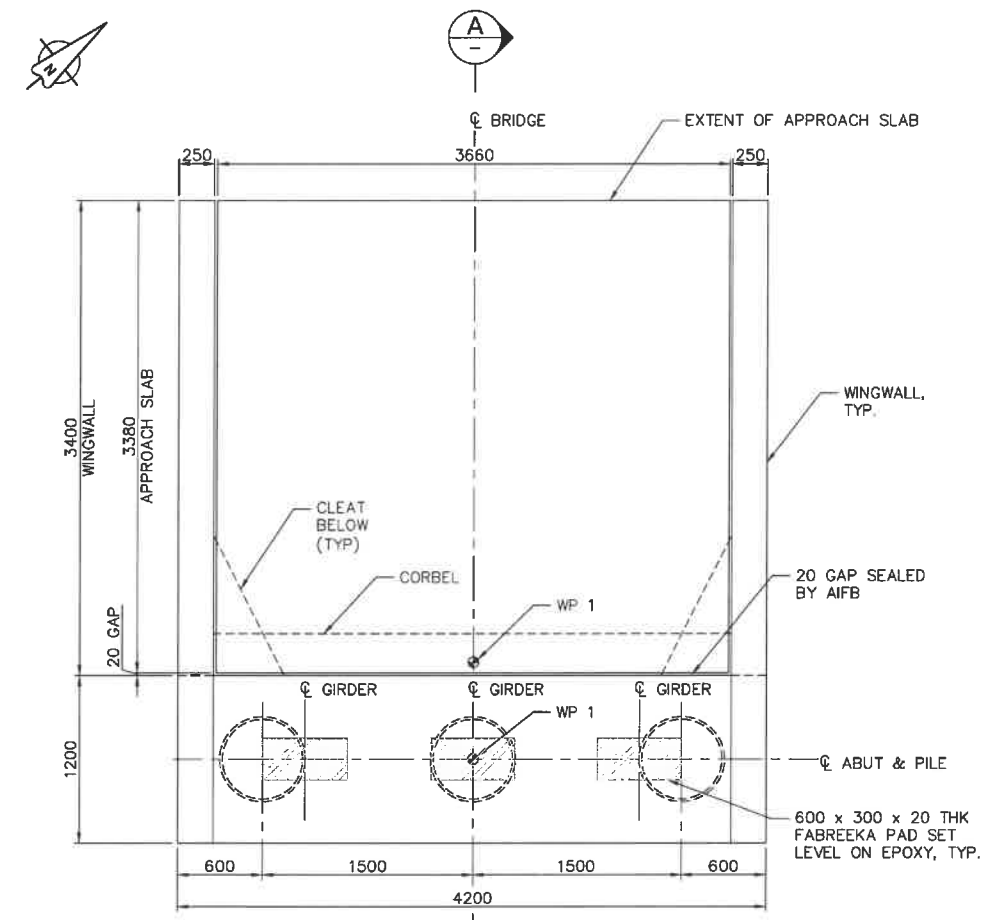
**SECTION A**  
1:20

**4. THE FACTORED PER PILE LOADS (AXIAL COMPRESSION LOAD)**

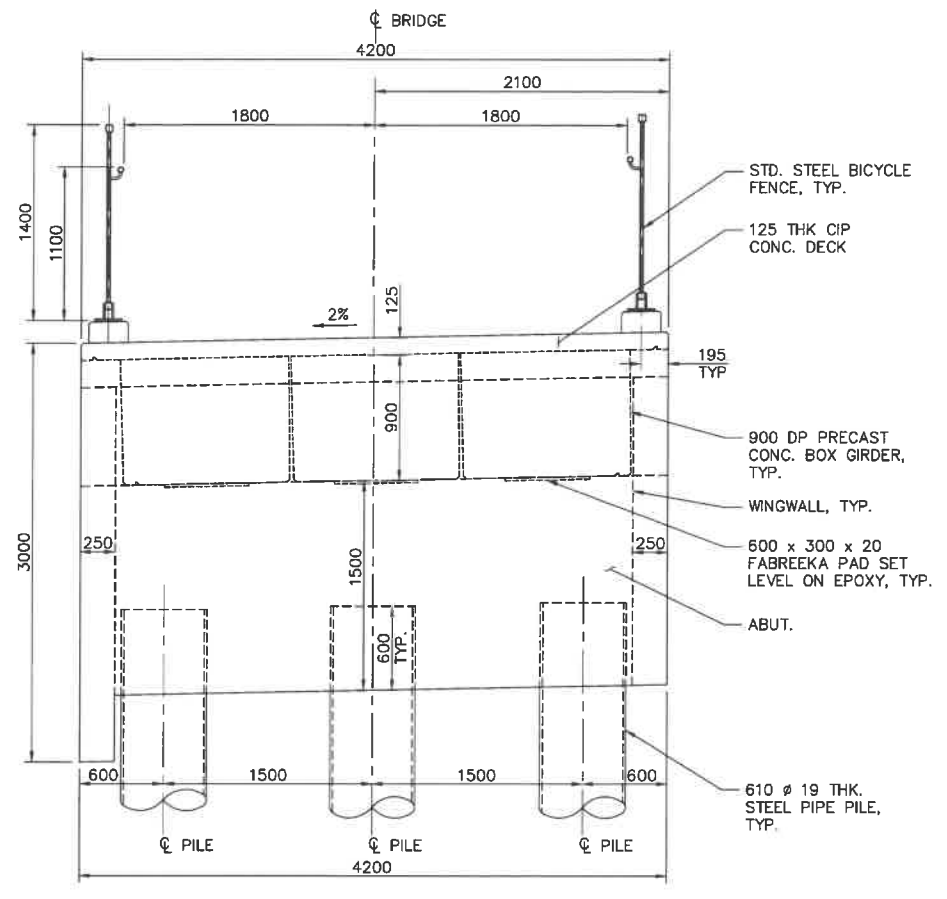
SLS1: PERMANENT:	391 kN
MAX:	456 kN
ULS1: PERMANENT:	470 kN
MAX:	595 kN
ULS5 (SEISMIC):	870 kN



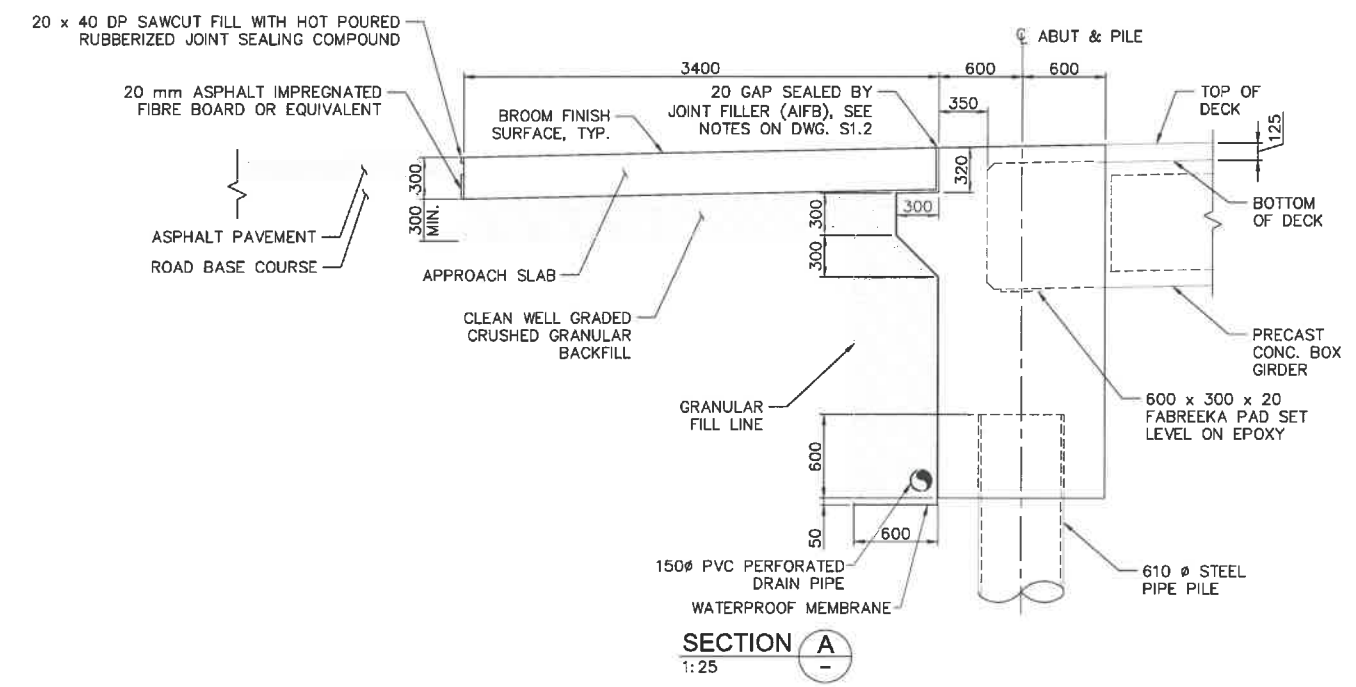
**PARSONS**



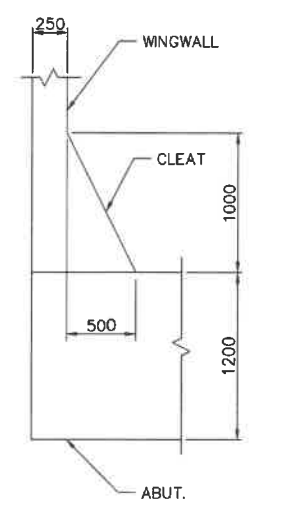
**ABUTMENT PLAN**  
1:25  
ABUTMENT 1 SHOWN,  
ABUTMENT 2 SIMILAR



**ABUTMENT ELEVATION**  
1:25



**SECTION A**  
1:25



**TYPICAL CLEAT PLAN**  
1:25

- NOTES:**
- FOR STRUCTURAL NOTES SEE DWG. S1.1 AND S1.2.
  - THE SURFACE OF CONCRETE AT CONSTRUCTION JOINTS SHALL INTENTIONALLY ROUGHENED AND CLEAN AND FREE OF LAITANCE AT TIME OF CASTING.
  - GRANULAR BACKFILL AND LOW PLASTIC CLAY FILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR AND 100% STANDARD PROCTOR BEHIND ABUTMENTS AND WINGWALLS. COMPACTION WITHIN A HORIZONTAL DISTANCE EQUAL TO ONE HALF OF THE WALL HEIGHT SHALL USE HAND TAMPERS.
  - BROOM CONCRETE RUNNING SURFACE BY CONCRETE BROOM APPLYING PERPENDICULAR TO THE ALIGNMENT, AND BROOM MARKS SHOULD BE RUN TOWARDS LOWER SIDE OF THE LATERAL SLOPE.

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Projet/Titre du projet  
TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ᑕᐱᓂᓕᓕᓕ ᓂᓕᓕᓕ**  
**"Going in the right direction on the trail"**

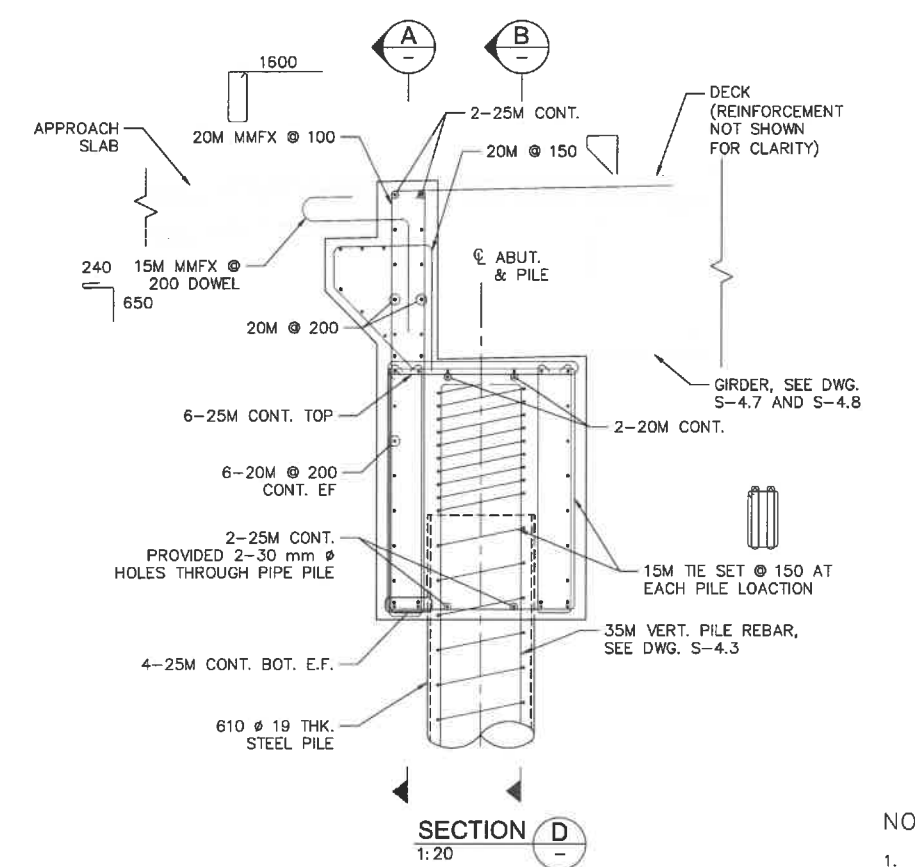
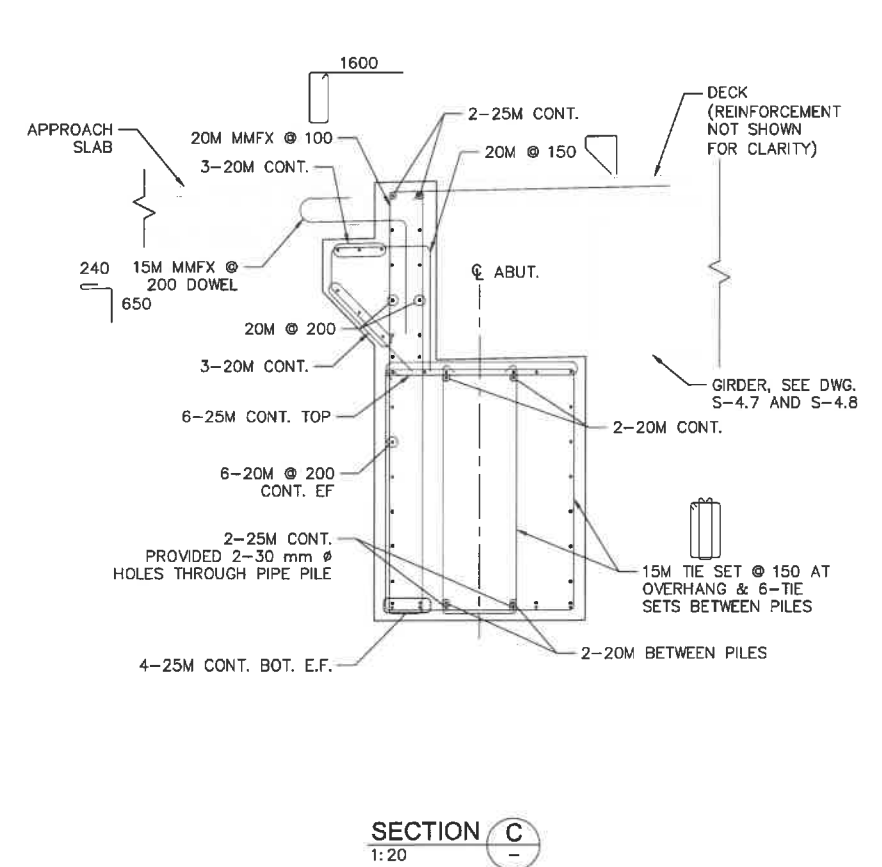
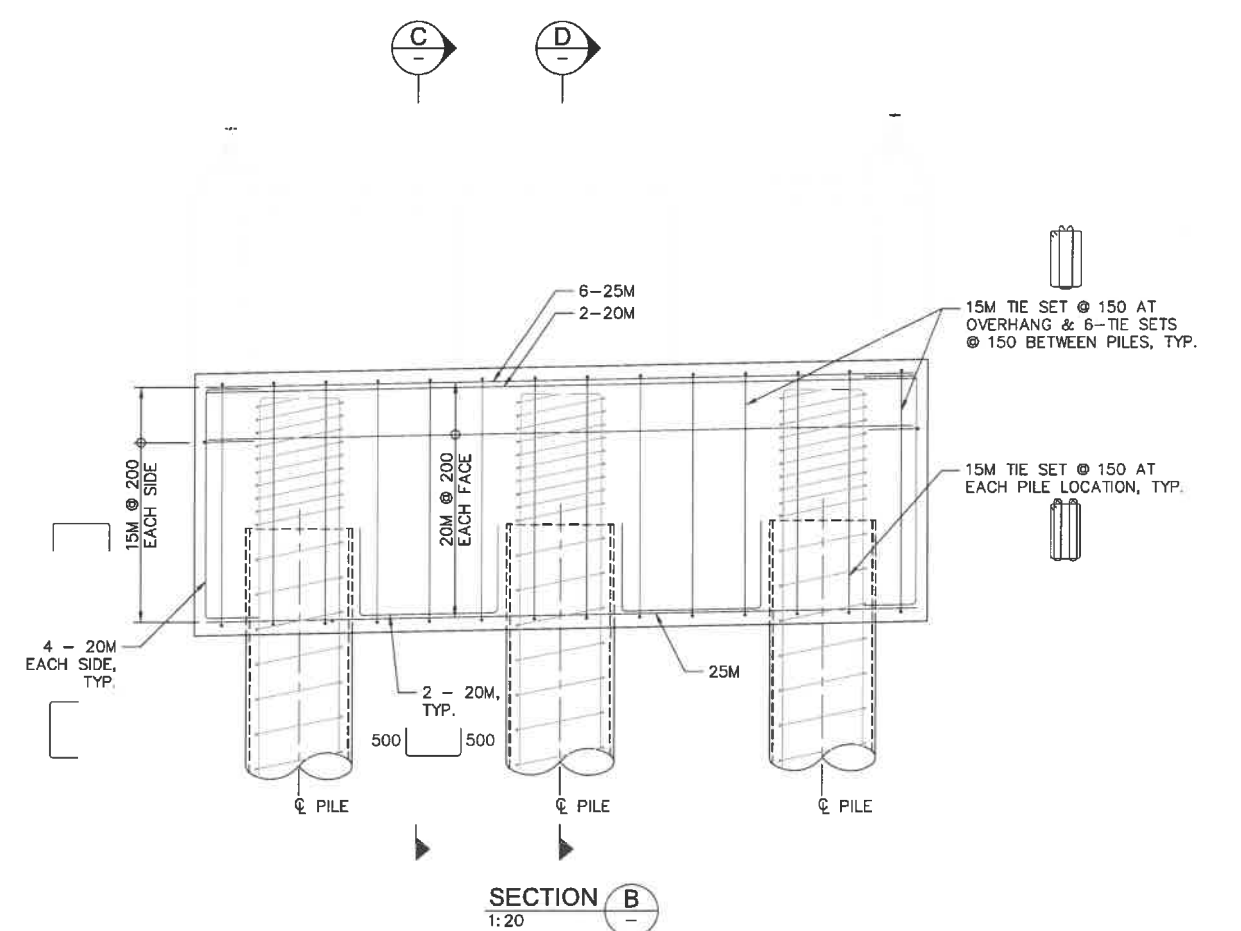
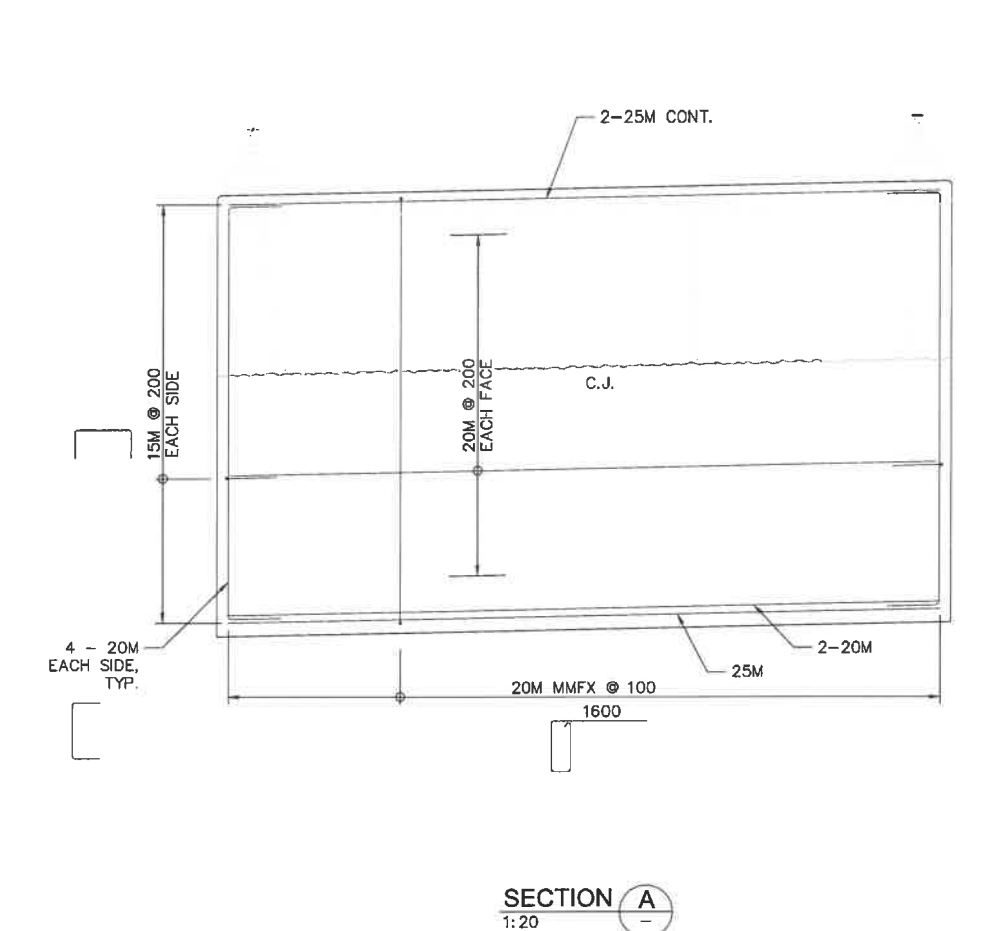
Designed by/Concept par  
DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing Title/Titre du dessin  
**ᑕᐱᓂᓕᓕ ᓂᓕᓕᓕ**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**ABUTMENT LAYOUT**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-4.4</b> OF	Revision no./ La Révision no. <b>0</b>
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**PARSONS**



NOTES:  
1. FOR GENERAL NOTES SEE S-1.1 AND S-1.2.

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0	ISSUED FOR TENDER	10/22/18

Revision/Description	Description/Description	Date/Date
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Client/Client  
Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

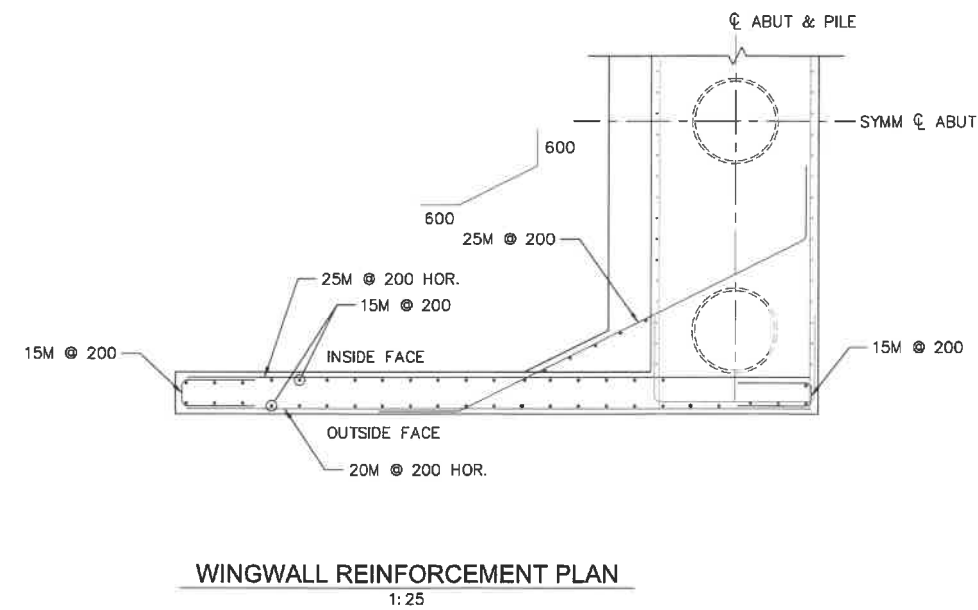
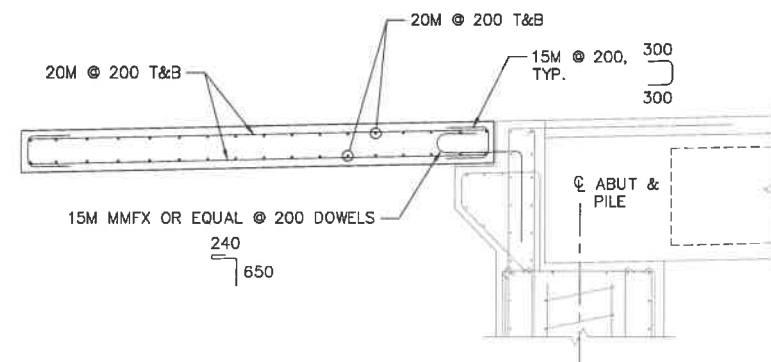
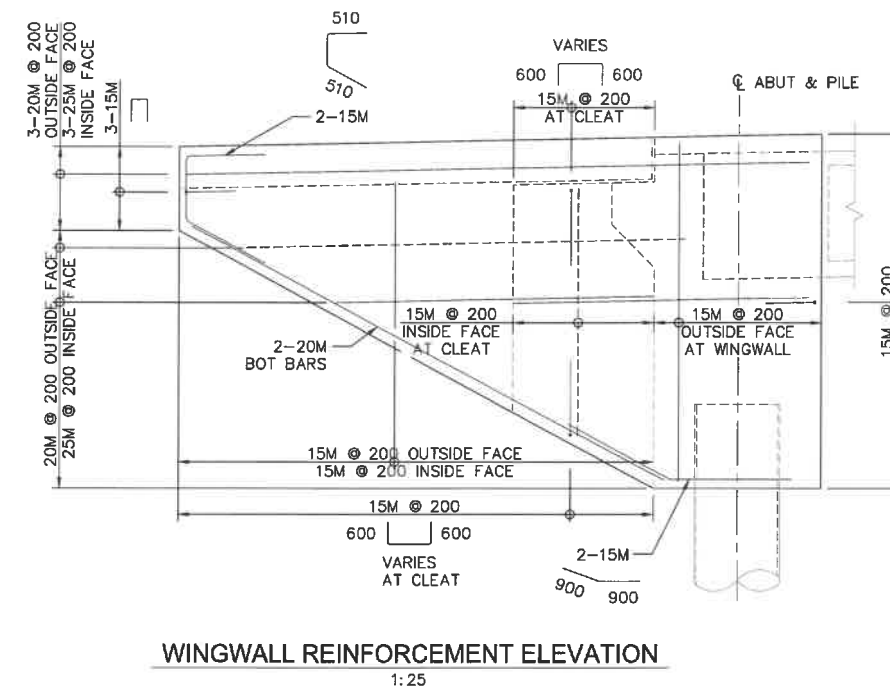
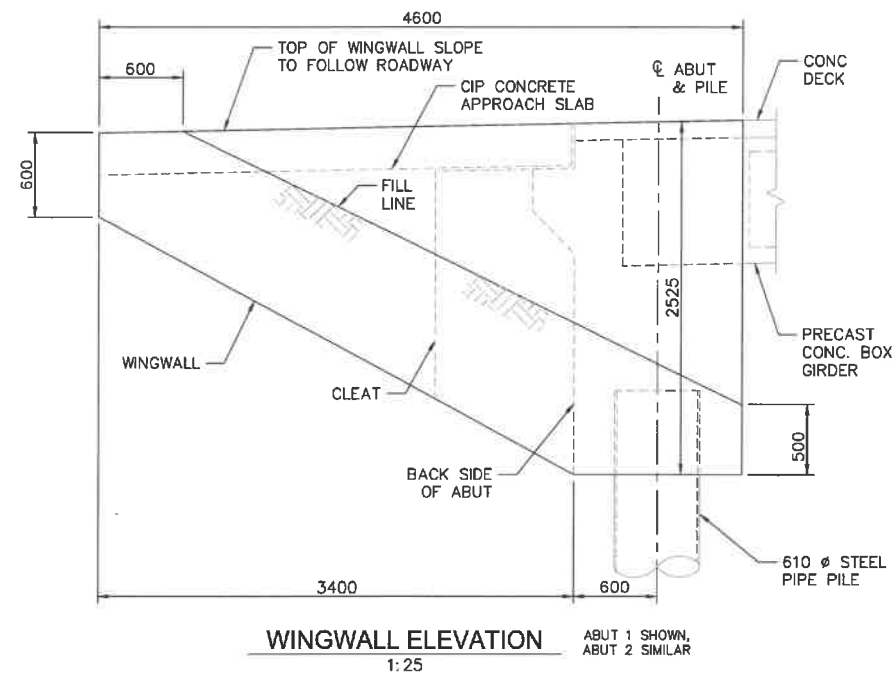
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DANIEL YANG / 2018-11  
Drawn by/Designé par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19 ABUTMENT REINFORCEMENT**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Fauille <b>S-4.5</b> OF	Revision no./La Révision no. <b>0</b>
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**PARSONS**



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Revision/Description	Description/Description	Date/Date
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Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscik fasli**  
**"Going in the right direction on the trail"**

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Drawn by/Dessiné par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apscik fasli**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**WINGWALL & APPROACH SLAB REINFORCEMENT**

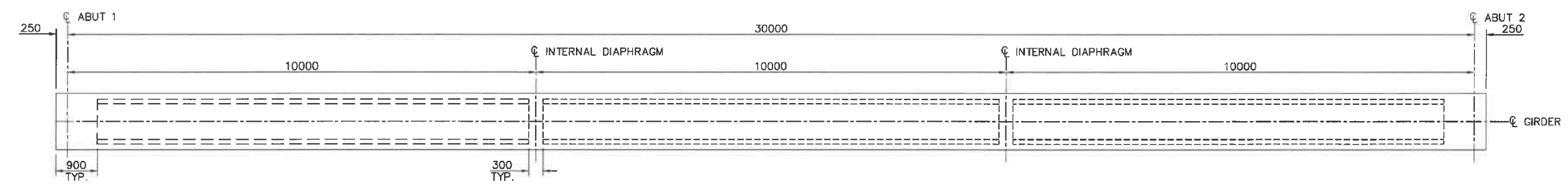
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PCA #1522	S-4.6	0
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NOTES:  
1. FOR GENERAL NOTES SEE S-1.1 AND S-1.2.

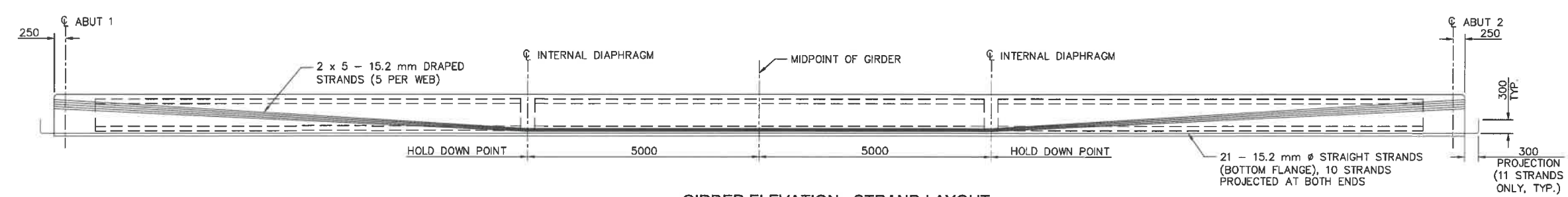




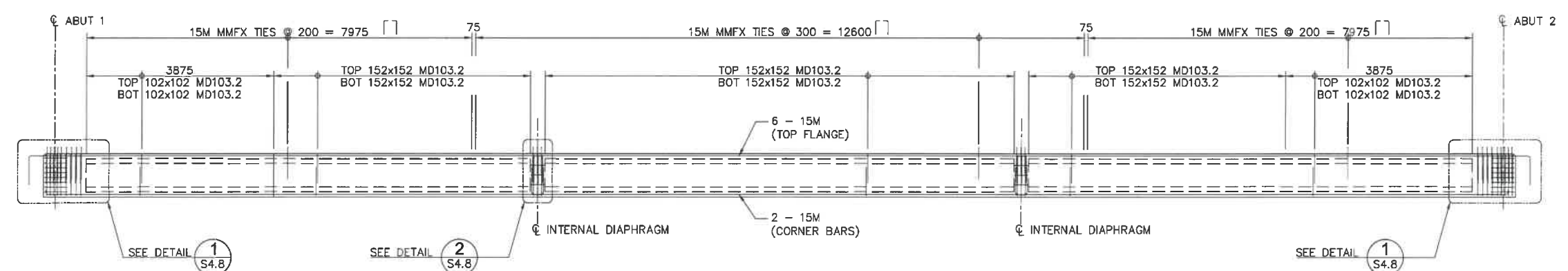
**PARSONS**



**GIRDER PLAN**  
1:50



**GIRDER ELEVATION - STRAND LAYOUT**  
1:50



**GIRDER ELEVATION - REBAR LAYOUT**  
1:50

NOTE:  
1. FOR GENERAL NOTES, SEE DRAWINGS S-1.1 AND S-1.2.



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Project title/Titre du projet  
TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
?apsciik fasii  
(Ups-cheek ta-shee)  
"Going in the right direction on the trail"

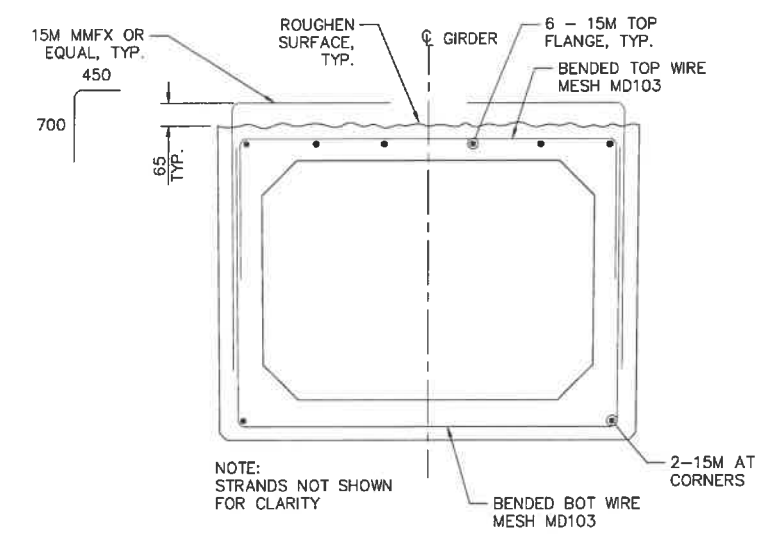
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Drawing title/Titre du dessin  
?apsciik fasii  
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"Going in the right direction on the trail"  
BRIDGE #19  
GIRDER  
SHEET 1

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
PCA #1522	S-4.7 OF	0

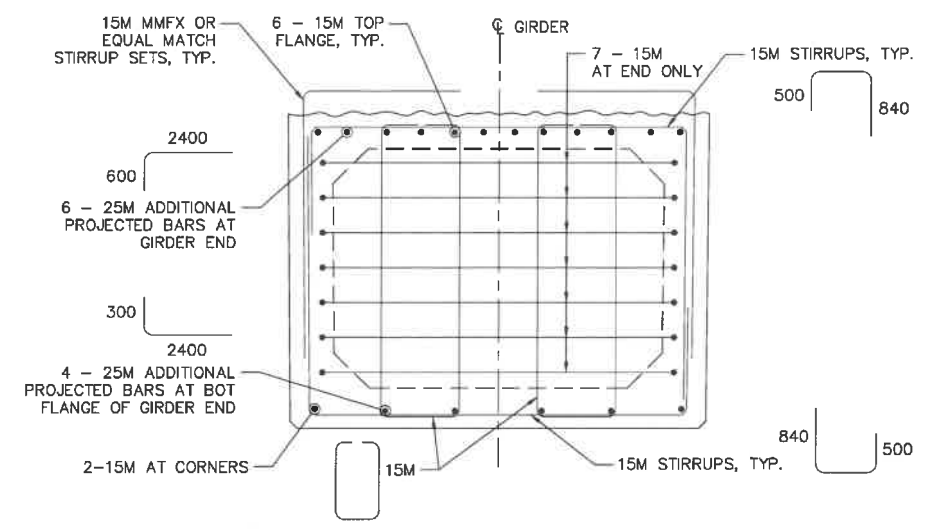


**PARSONS**

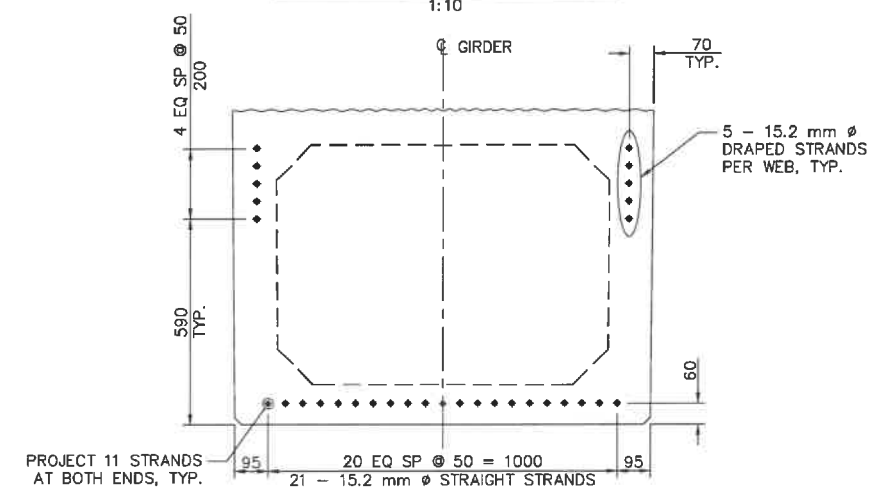


NOTE:  
STRANDS NOT SHOWN  
FOR CLARITY

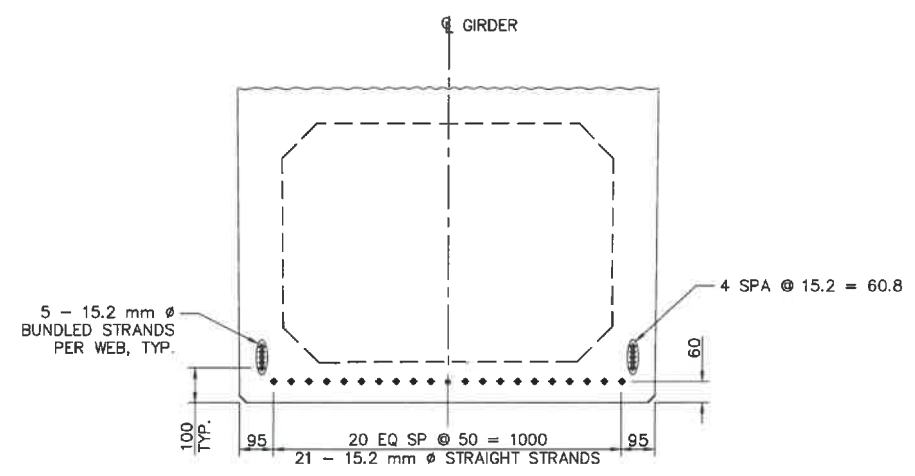
**TYPICAL REINFORCEMENT**  
1:10



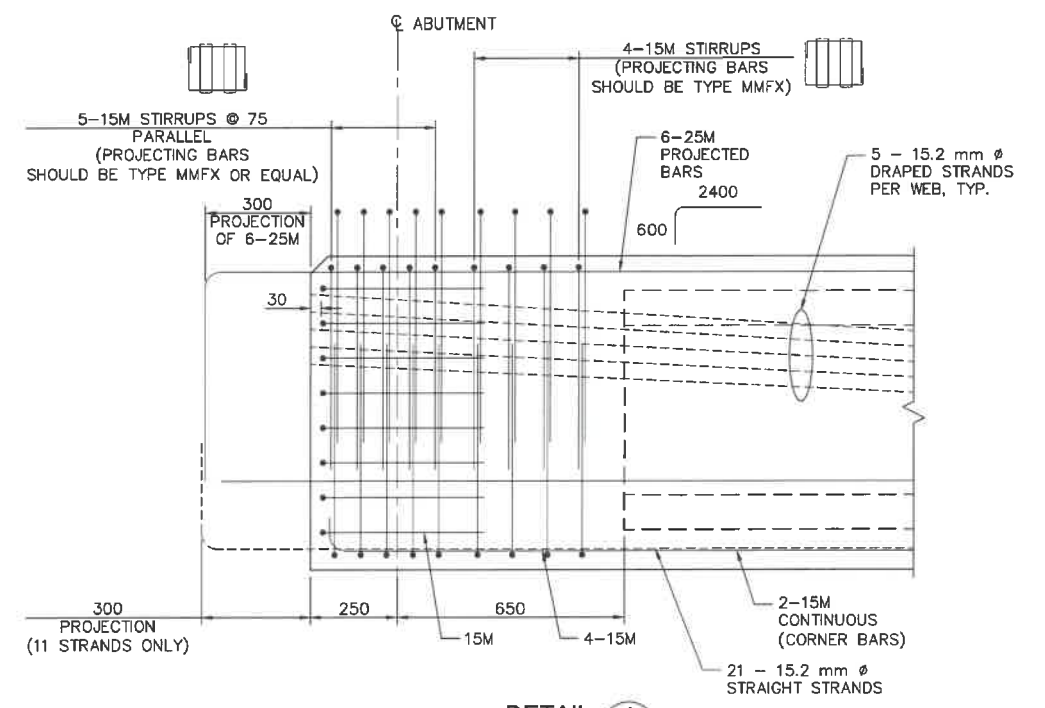
**TYPICAL REINFORCEMENT AT GIRDER END**  
1:10



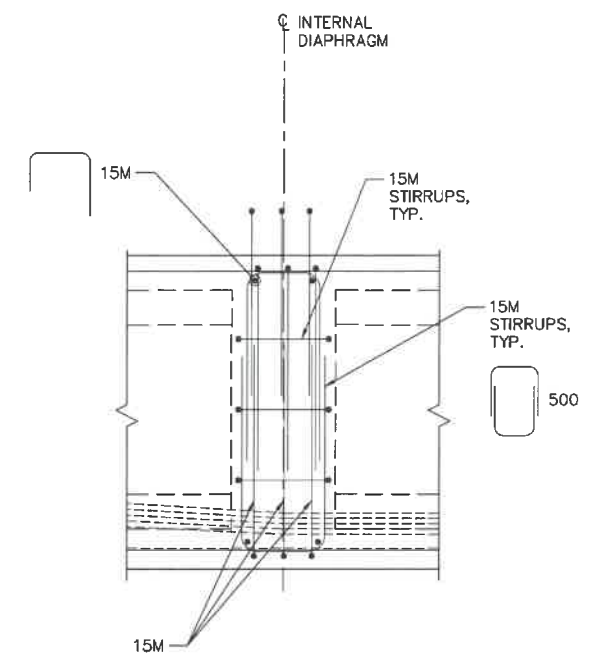
**STRAND LAYOUT AT GIRDER END**  
1:10



**STRAND LAYOUT AT MIDSPAN**  
1:10



**DETAIL 1**  
1:10 S4.7



**DETAIL 2**  
1:10 S4.7

NOTES:  
1. FOR GENERAL NOTES SEE S-1.1 AND S-1.2.

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Client/client  
Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ᑕᐱᓂᓕᓴᓴᓴ ᓂᐱᓴᓴ**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

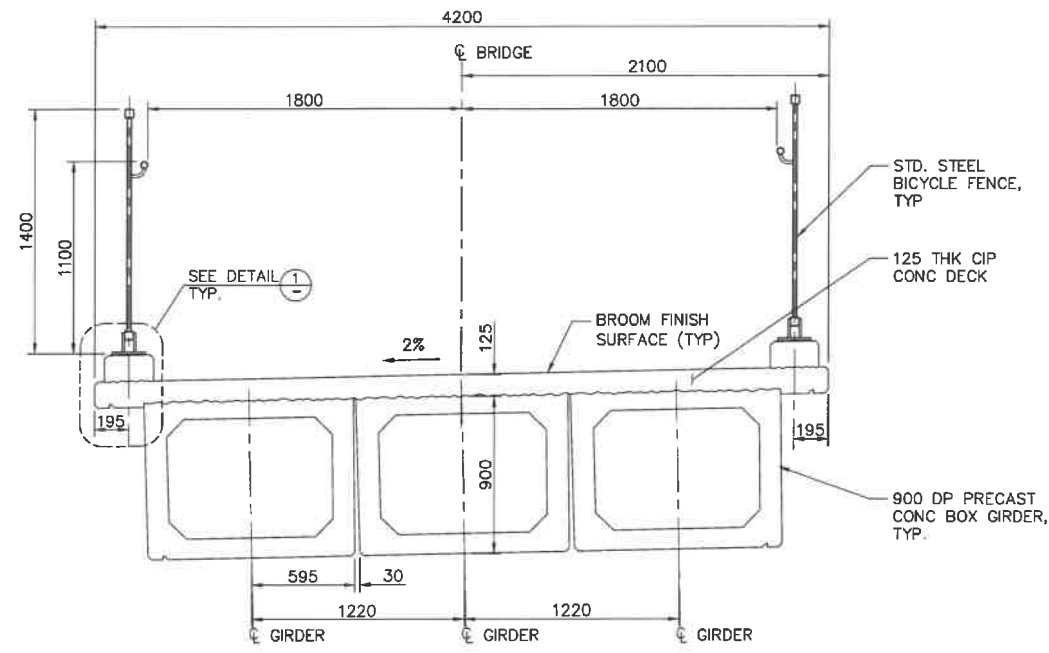
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Drawn by/Designé par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ᑕᐱᓂᓕᓴᓴ ᓂᐱᓴᓴ**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**GIRDER**  
**SHEET 2**

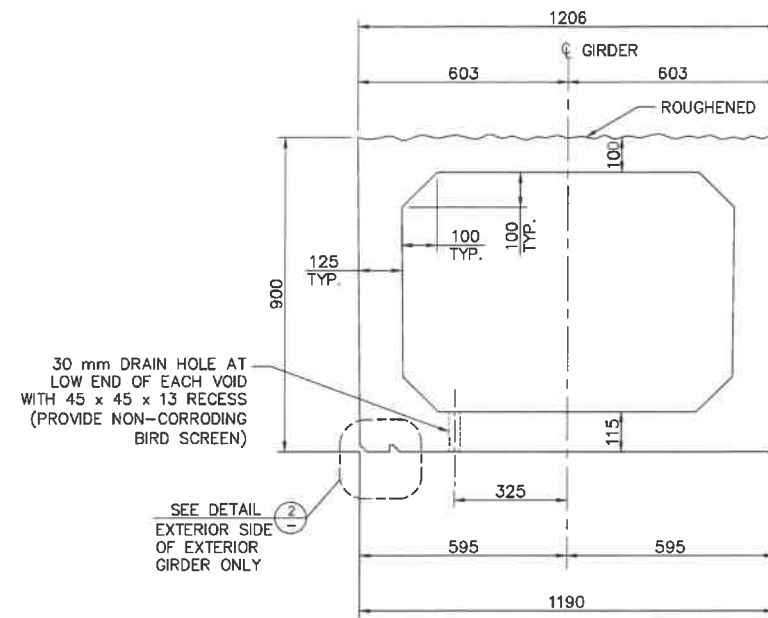
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PCA #1522	S-4.8 OF	0



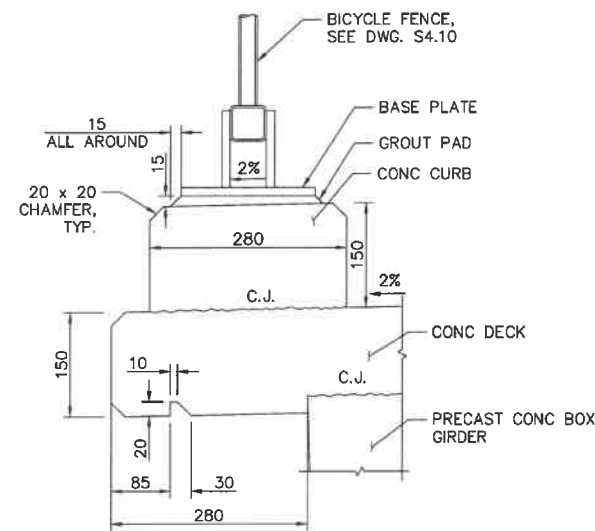
**PARSONS**



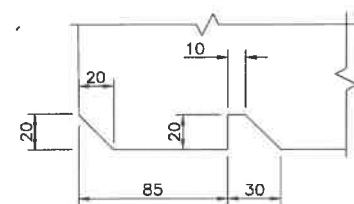
**TYPICAL DECK LAYOUT**  
1:20



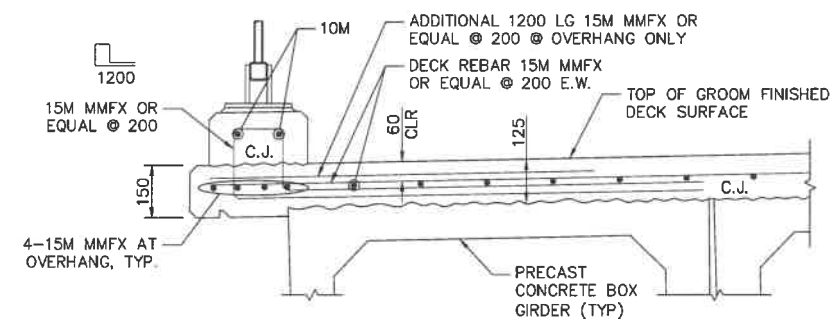
**TYPICAL BOX GIRDER SECTION**  
1:10



**DETAIL 1**  
1:5



**DETAIL 2**  
1:2



**DECK REINFORCEMENT**  
1:10

**NOTES:**

- HIGH WATER LEVEL (HWL) BASED ON 1:200 YEAR EVENT.
- FOUNDATION DETAILS TO BE CONFIRMED FOLLOWING GROUND INVESTIGATION ON SITE.
- ALL CONCRETE WORKS SHALL BE COMPLETELY ISOLATED FROM THE CREEK, WITH SECONDARY CONTAINMENT TO PREVENT GROUT ENTERING THE CREEK. THE CONTRACTOR SHALL SUBMIT A GROUT CONTAINMENT PLAN TO THE ENVIRONMENTAL MONITOR FOR APPROVAL AND REQUEST INSPECTION AND APPROVAL OF FORMWORK BY THE ENVIRONMENTAL MONITOR PRIOR TO ANY CONCRETE POURS.



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Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsciiik tasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Concept par  
**DANIEL YANG / 2018-11**  
Drawn by/Dessiné par  
**SHAWN LI / 2018-12**  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
**JACKIE HICKS**

Drawing title/Titre du dessin  
**?apsciiik tasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #19**  
**DECK LAYOUT AND DETAILS**

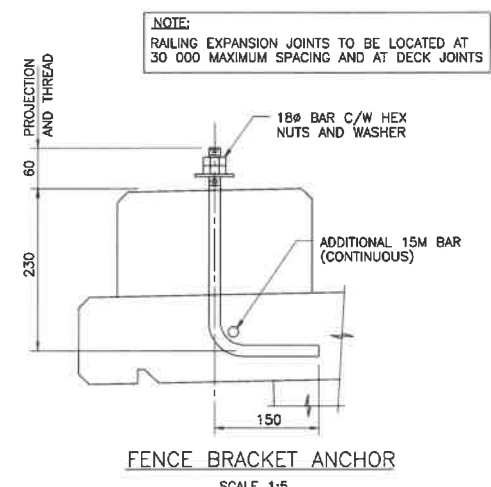
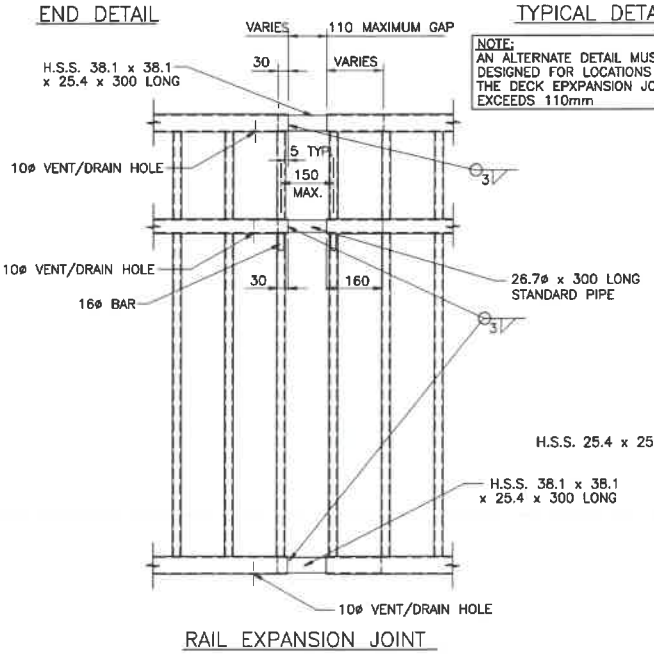
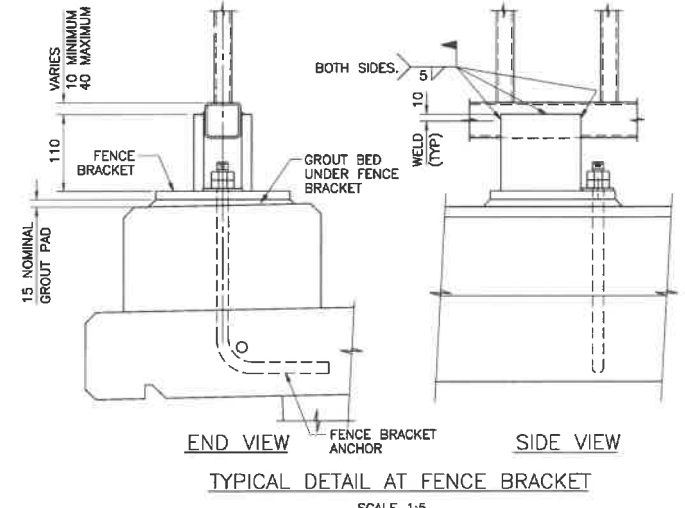
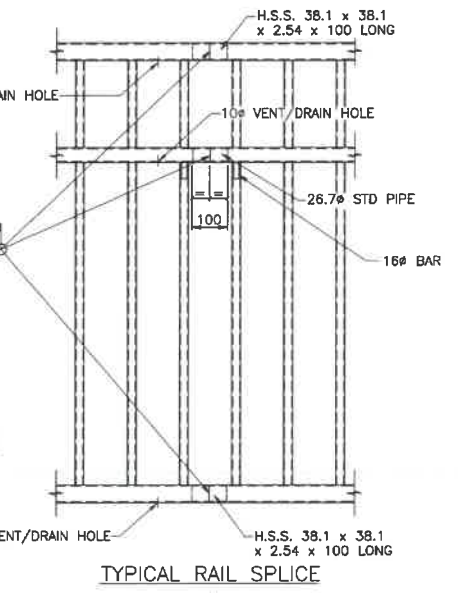
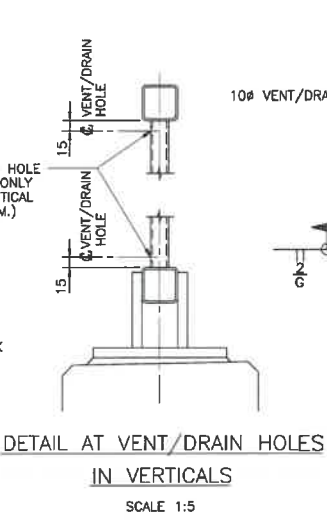
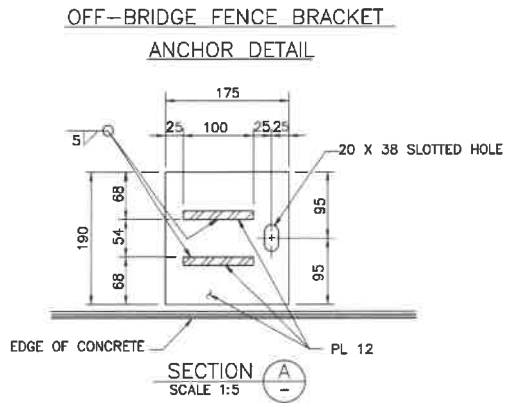
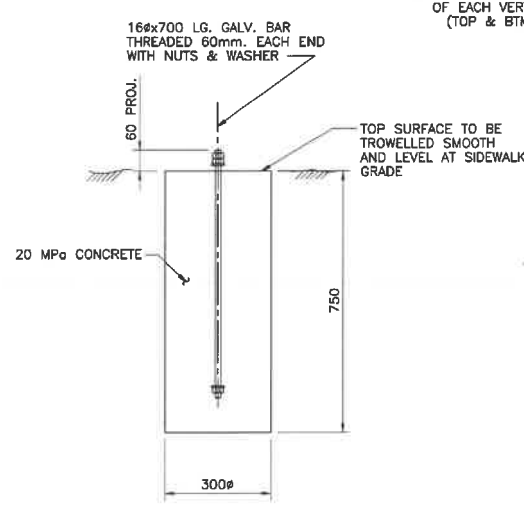
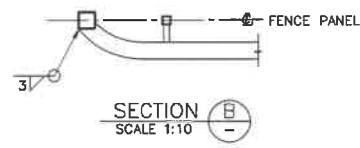
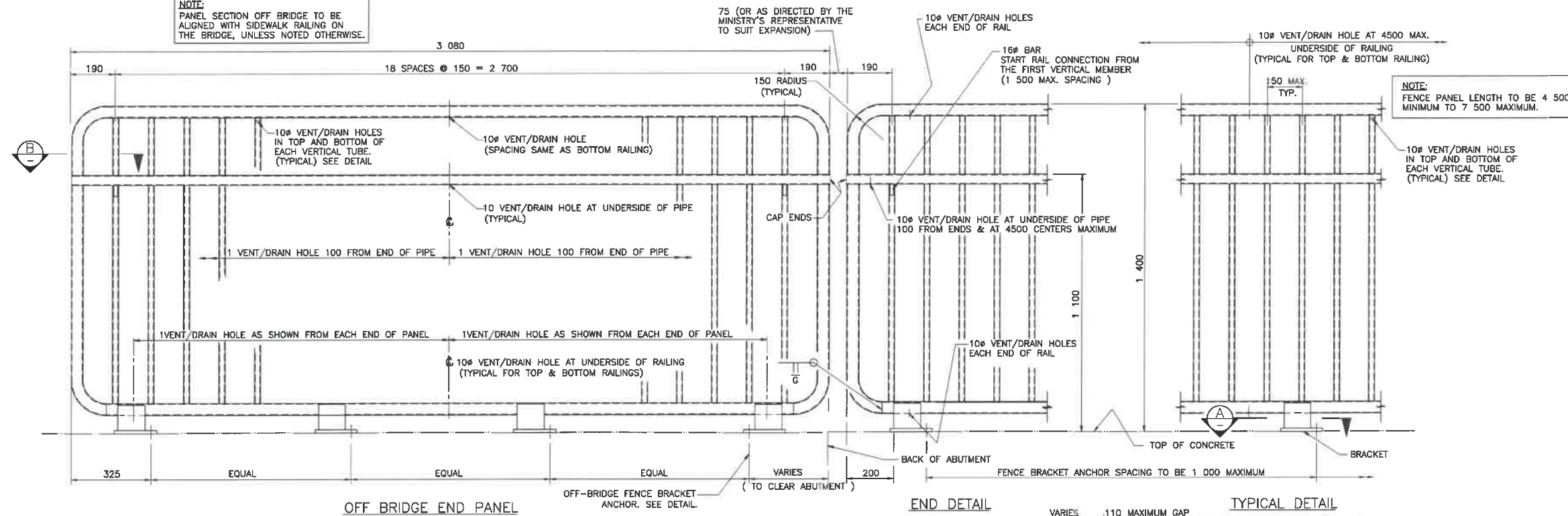
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<b>PCA #1522</b>	<b>S-4.9</b>	<b>0</b>



**PARSONS**



NOTE:  
PANEL SECTION OFF BRIDGE TO BE  
ALIGNED WITH SIDEWALK RAILING ON  
THE BRIDGE, UNLESS NOTED OTHERWISE.



- NOTES:**
1. ALL H.S.S. STEELWORK FOR FENCES TO BE C.S.A. SPECIFICATION G40.21M GRADE 350W CLASS C. ALL OTHER STEELWORK TO BE 260W. PIPE TO BE ASTM STD. A53, GRADE B.
  2. FENCE SECTIONS, BRACKETS AND ANCHORS TO BE GALVANIZED AFTER FABRICATION. GALVANIZING TO BE IN ACCORDANCE WITH C.S.A. SPECIFICATION G164, TABLE 1.
  3. FIELD CONNECTIONS TO BE WELDED EXCEPT AS NOTED.
  4. FIELD WELDS TO BE PAINTED WITH 2 COATS OF "GALVACON" OR EQUAL.
  5. RAIL ELEMENTS TO BE USED IN CURVES HAVING RADII 300m OR LESS SHALL BE SHOP FORMED TO THE REQUIRED CURVATURE.

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Revision/Description	Description/Description	Date/Date

Client/Client: Parks Canada L'Agence Parcs Agency Canada

Project Title/Titre du projet: TOFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
?apsciik fasii (Ups-cheek ta-shee)  
"Going in the right direction on the trail"

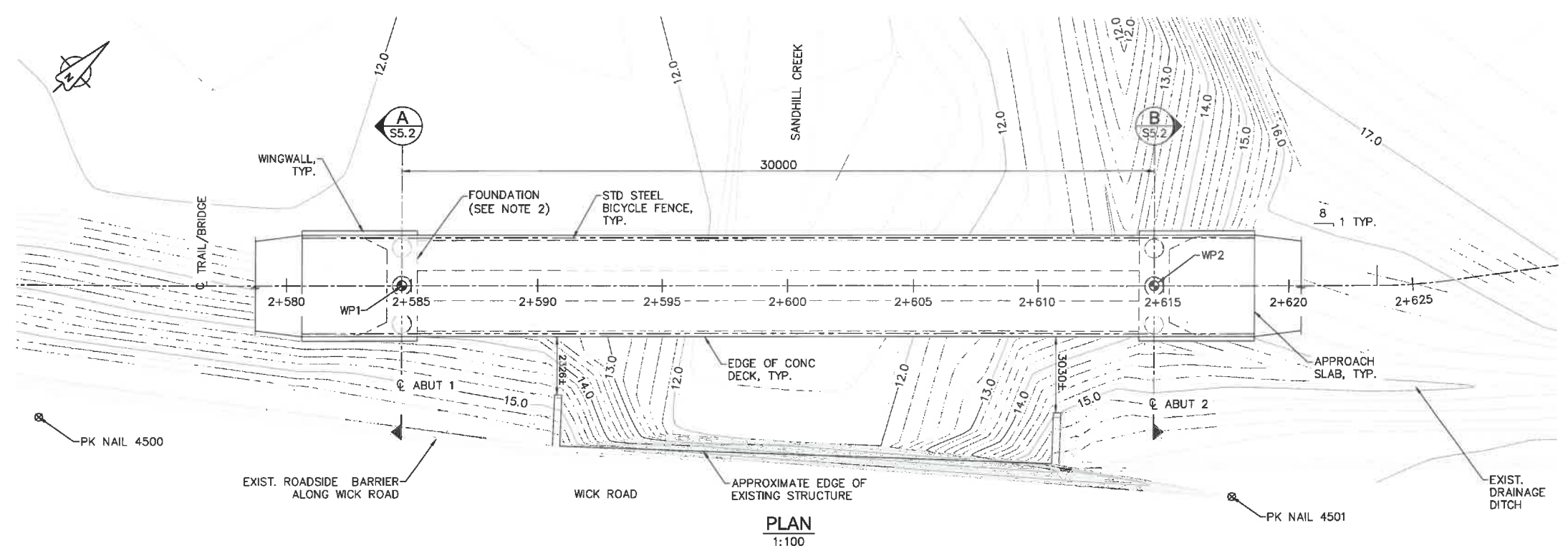
Designed by/Consept par: DANIEL YANG / 2018-11  
Drawn by/Designe par: SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority: Administreur de Projets APC: JACKIE HICKS

Drawing title/Titre du dessin: ?apsciik fasii (Ups-cheek ta-shee)  
"Going in the right direction on the trail"  
**BRIDGE #19 BICYCLE FENCE**

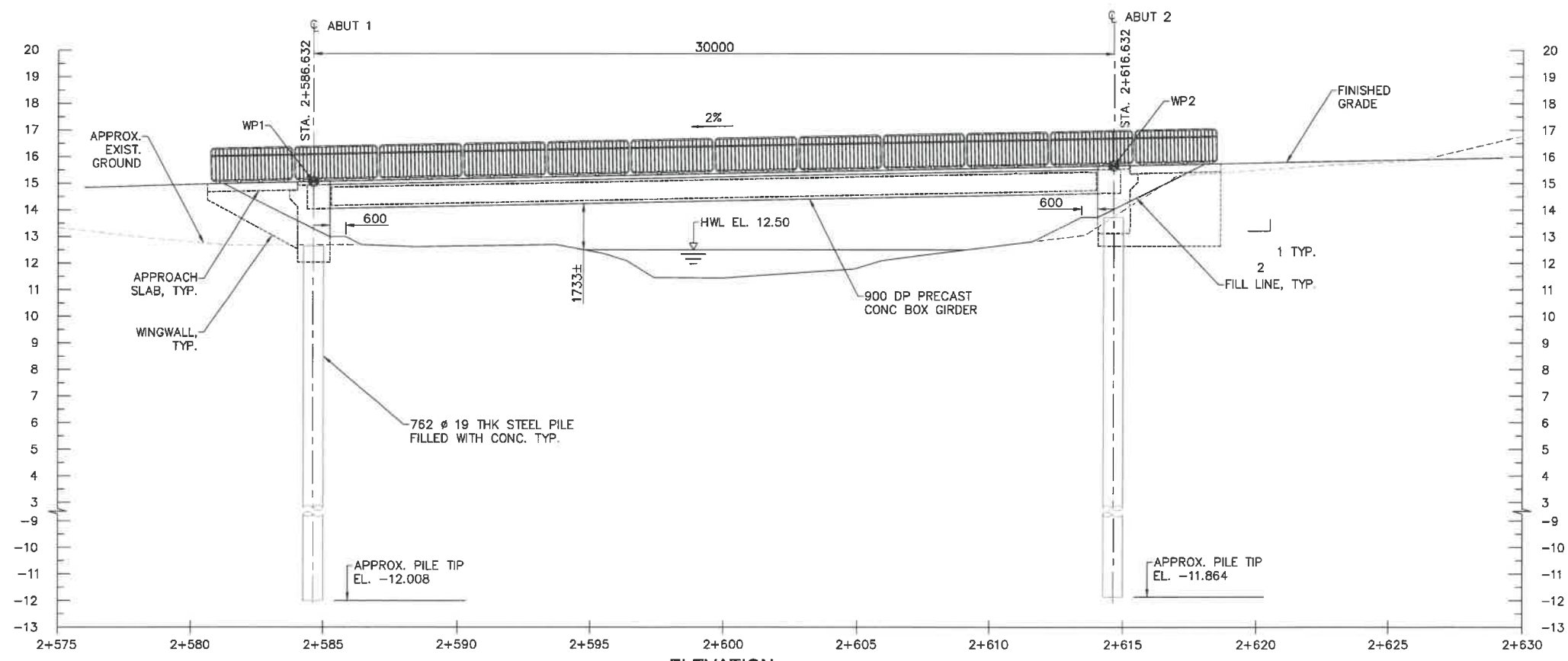
Project No./No. du projet	Sheet/Feuille	Revision no./La Revision no.
PCA #1522	S-4.10 OF	0



**PARSONS**



**PLAN**  
1:100



**ELEVATION**  
1:100  
(LOOKING NORTH)

**NOTES:**

1. HIGH WATER LEVEL (HWL) BASED ON 1:200 YEAR EVENT.
2. FOUNDATION DETAILS TO BE CONFIRMED FOLLOWING GROUND INVESTIGATION ON SITE.
3. FOR WORK POINTS TABLE AND SURVEY BENCHMARKS TABLE, SEE DRAWING S-5.2.
4. FOR RETAINING WALL, SEE DRAWINGS W-11.1 TO 11.5.



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 Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Designed by/Concept par  
 DANIEL YANG / 2018-11

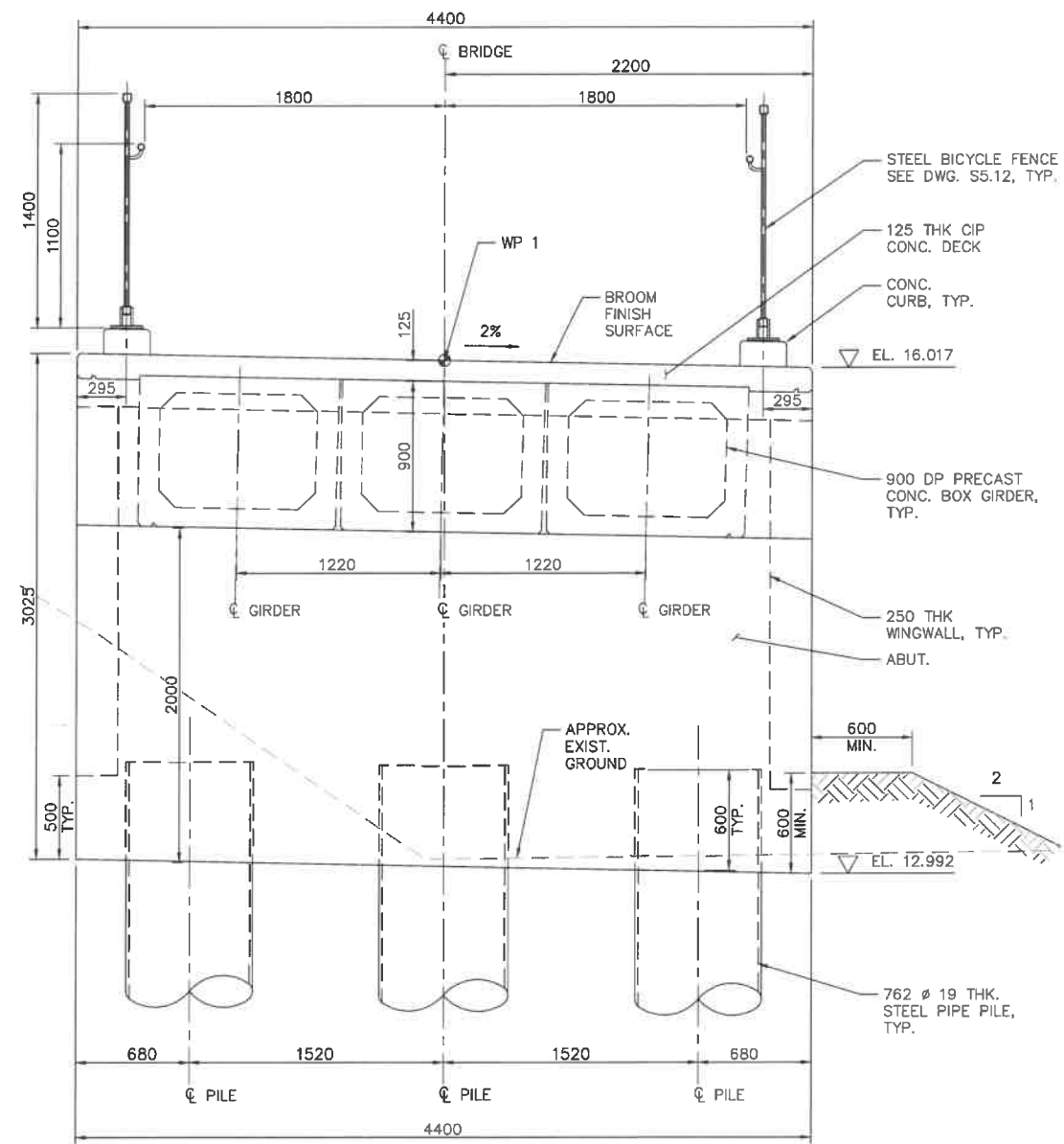
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 JACKIE HICKS

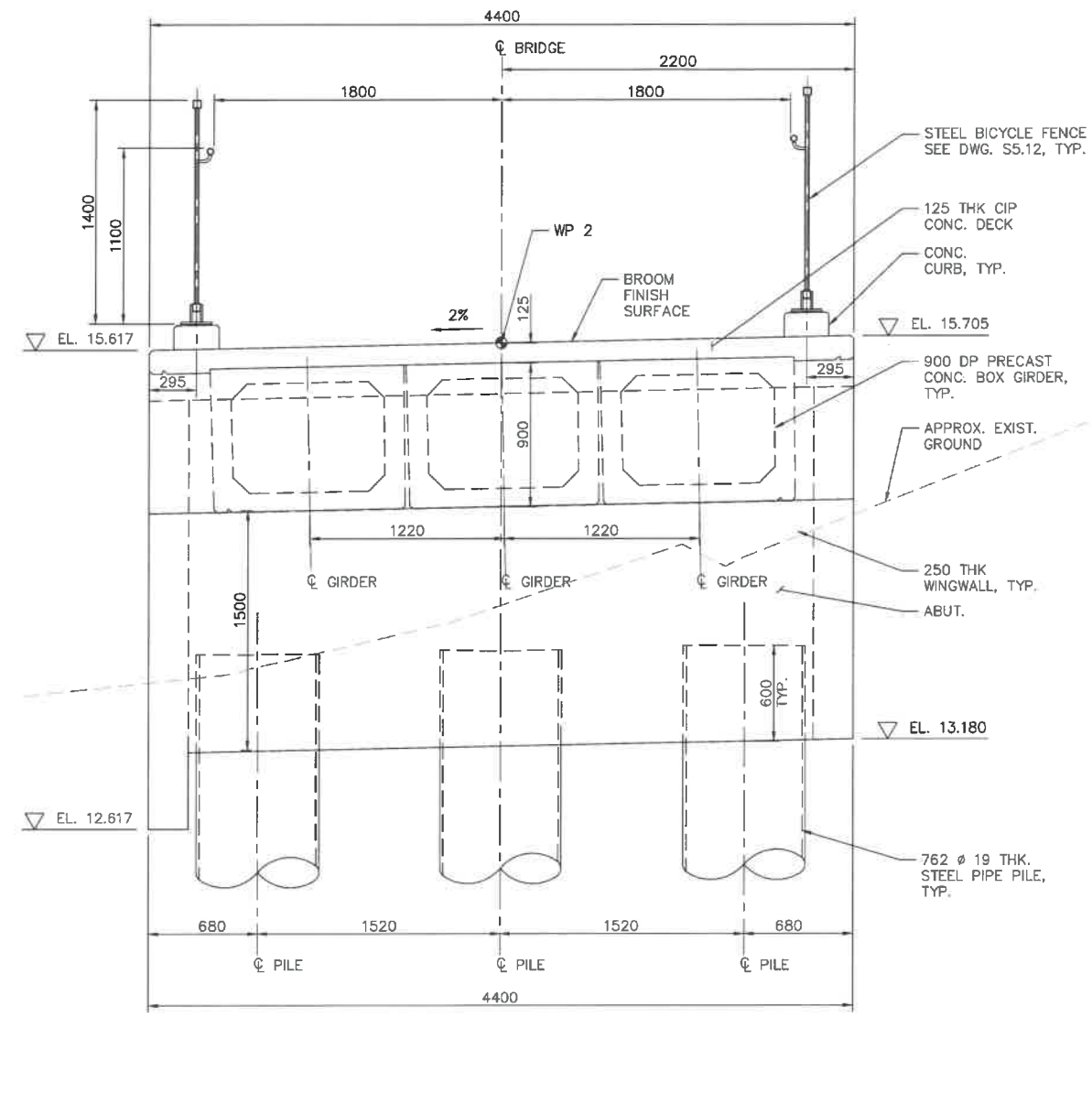
Drawing title/Titre du dessin  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**GENERAL ARRANGEMENT**  
**SHEET 1**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-5.1</b> OF	Revision no./La révision no. <b>0</b>
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**PARSONS**



**SECTION A**  
S5.1 (LOOKING WEST)  
1:20



**SECTION B**  
S5.1 (LOOKING EAST)  
1:20

WORK POINTS TABLE			
WORK POINT	NORTHING	EASTING	EL.
WP1	5432762.007	306866.296	15.061
WP2	5432783.949	306886.755	15.661

BENCHMARKS TABLE			
PK NAIL	NORTHING	EASTING	EL.
4500	5432747.835	306860.231	15.670
4501	5431780.475	306895.042	15.909

**NOTES:**

- BRIDGE #20 SPANS THE MAIN STREAM OF SANDHILL CREEK, WHICH IS CONSIDERED VERY HIGH VALUE FISH HABITAT, THERE IS CONFIRMED ADULT SALMON SPAWNING AND JUVENILE SALMONID REARING LOCATED IMMEDIATELY UNDER AND DOWNSTREAM OF BRIDGE #20. AS SUCH, DURING CONSTRUCTION OF BRIDGE #20, THE CONTRACTOR WILL NEED TO STRICTLY ADHERE TO THE MITIGATION MEASURES OUTLINED IN THE CONCRETE HANDLING MITIGATIONS SPECIFICATION AND THE ENVIRONMENTAL PROCEDURES SPECIFICATION INCLUDED IN THE TENDER PACKAGE.
- ALTHOUGH THERE ARE NO INSTREAM WORKS PROPOSED FOR BRIDGE #20, THE WORKS REQUIRED WITHIN THE RIPARIAN AREA AND ON THE BANKS OF SANDHILL CREEK ARE CONSIDERED MODERATE TO HIGH RISK IN TERMS OF SEDIMENT AND EROSION CONTROL. AS SUCH, ALL THE HIGHEST RISK WORK INCLUDING EXCAVATION FOUNDATION, INSTALLATION OF FOUNDATION, AND EARTHWORK IMMEDIATELY ADJACENT TO CREEK MUST BE DONE DURING LEAST RISK WORK WINDOW FOR FISH, WHICH FOR NON-INSTREAM WORKS ONLY IS JUNE 15TH TO SEPTEMBER 15TH.
- THE CONTRACTOR SHALL CONFIRM WITH DEPARTMENT REPRESENTATIVE PRIOR TO COMMENCE THE HIGH RISK CONSTRUCTION WORK, INCLUDING EXCAVATION, FOOTINGS, INSTALLATION OF FOOTINGS AND EARTHWORKS IMMEDIATELY ADJACENT TO CREEK.
- NO CONCRETE POURS TO COMMENCE WITHOUT WRITTEN APPROVAL OF THE ENVIRONMENTAL REPRESENTATIVES.
- ALL CONCRETE POURS SHALL BE COMPLETELY ISOLATED FROM THE CREEK, WITH SECONDARY CONTAINMENT TO PREVENT GROUT ENTERING THE CREEK. THE CONTRACTOR SHALL SUBMIT A GROUT CONTAINMENT PLAN TO THE ENVIRONMENTAL MONITOR FOR APPROVAL AND REQUEST INSPECTION AND APPROVAL OF FORMWORK BY THE ENVIRONMENTAL MONITOR PRIOR TO ANY CONCRETE POURS.
- SURVEY DATA IS BASED UPON THE UTM NAD83 COORDINATE SYSTEM.
- BROOM CONCRETE RUNNING SURFACE BY CONCRETE BROOM APPLYING PERPENDICULAR TO THE ALIGNMENT, AND BROOM MARKS SHOULD BE RUN TOWARDS LOWER SIDE OF THE LATERAL SLOPE.
- ESTIMATED MATERIAL QUANTITY:
  - 900 mm DEEP PRECAST CONCRETE BOX GIRDER: 3 GIRDERS 30.5 m LONG
  - CIP CONCRETE DECK: 17 m<sup>3</sup>
  - CIP CONCRETE - OTHERS: 56.5 m<sup>3</sup>
  - MMFX OR EQUAL REINFORCING STEEL: 4760 kg
  - REINFORCING STEEL: 13560 kg
  - 610x19 STEEL PIPE PILES: 148 m LONG
  - BC MOT STANDARD BICYCLE RAIL: 82.4 m
 CONTRACTOR SHALL VERIFY MATERIAL QUANTITY PRIOR TO COMMENCING WORK.



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Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only  
Designed by/Concept par DANIEL YANG / 2018-11  
Drawn by/Dessiné par SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority / Administrateur de Projets APC JACKIE HOCKS

Drawing title/Titre du dessin  
**ʔapsčik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20 GENERAL ARRANGEMENT SHEET 2**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-5.2</b> OF	Revision no./no. de révisión <b>0</b>
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**PARSONS**



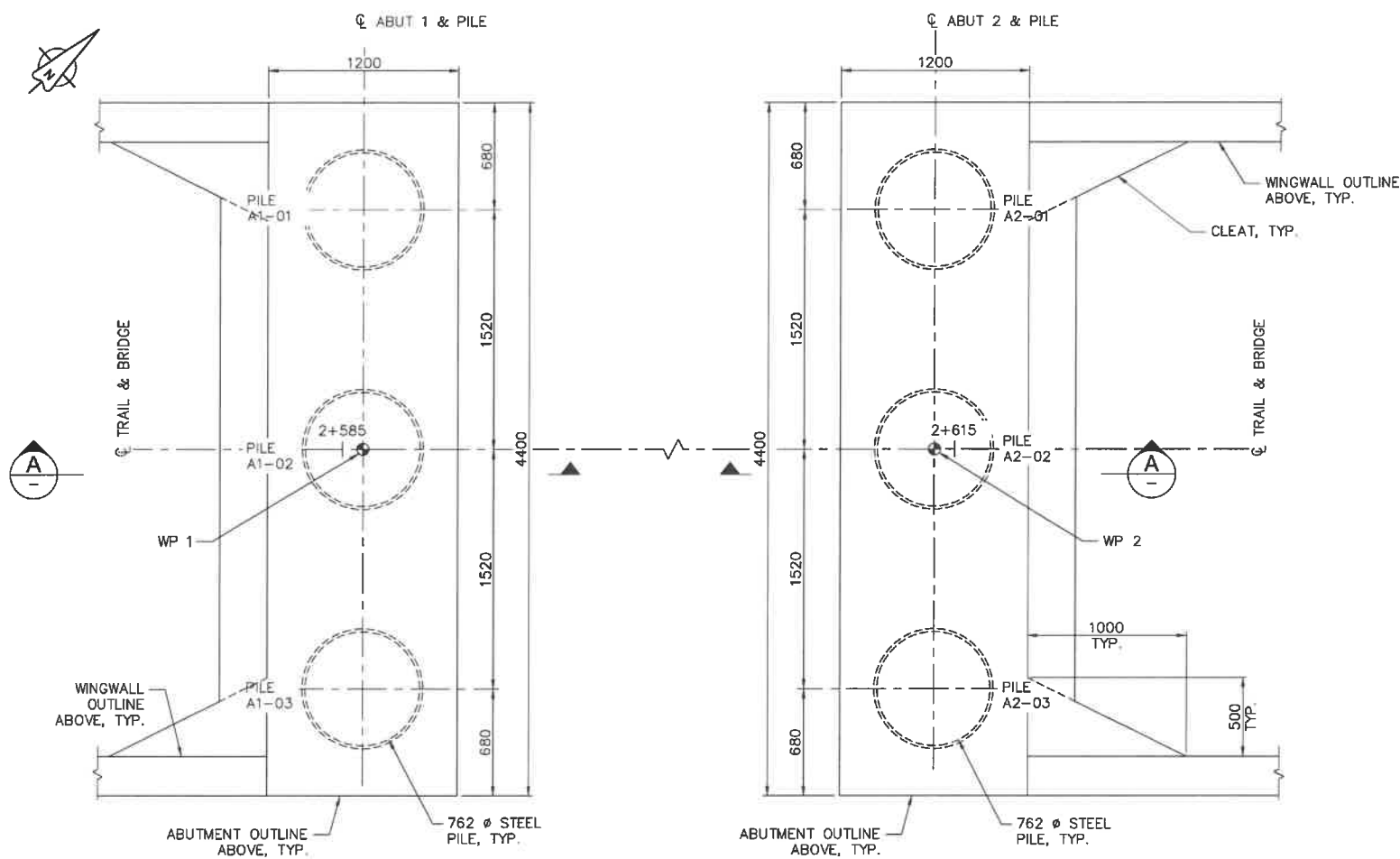
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Revision/Description	Description/Description	Date/Date

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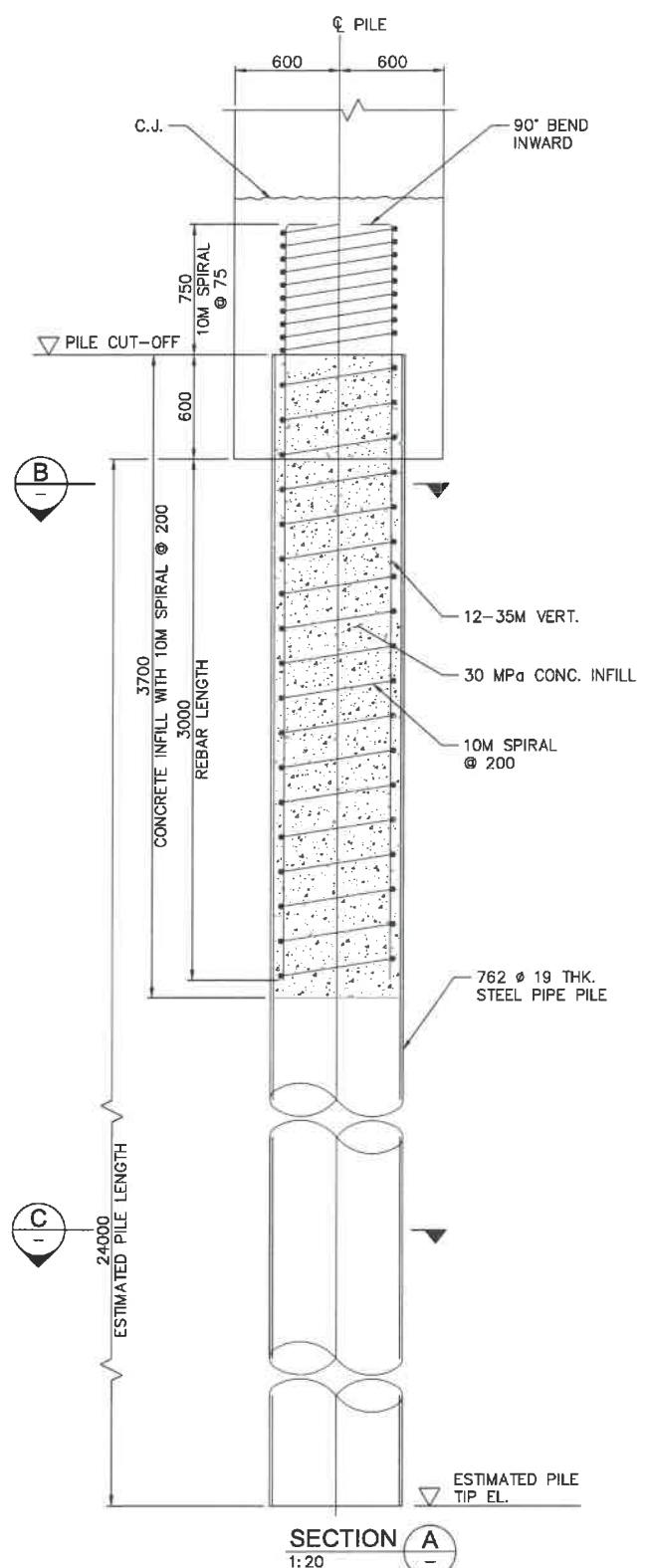
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 PCA Project Manager/Technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
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**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**PILE LAYOUT AND DETAILS**

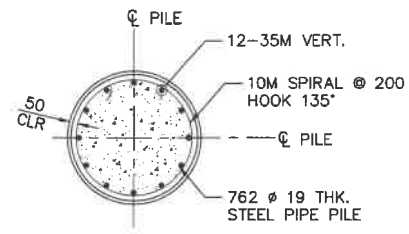
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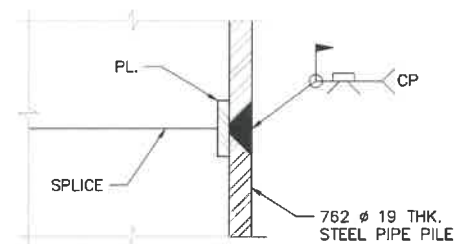
**PILING LAYOUT PLAN**  
1:20



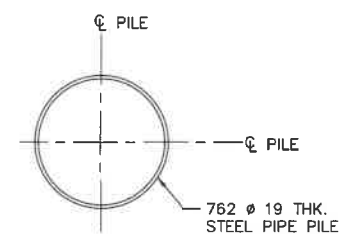
**SECTION A**  
1:20



**SECTION B**  
1:20



**TYPICAL PIPE PILE SPLICE DETAIL**  
1:2



**SECTION C**  
1:20

PILE DATA TABLE			
LOCATION	PILE	PILE CUT-OFF EL. (m)	ESTIMATED PILE TIP EL. (m)
ABUT 1	A1-01	12.606	-12.038
	A1-02	12.636	-12.008
	A1-03	12.666	-11.978
ABUT 2	A2-01	13.706	-11.894
	A2-02	13.736	-11.864
	A2-03	13.766	-11.834

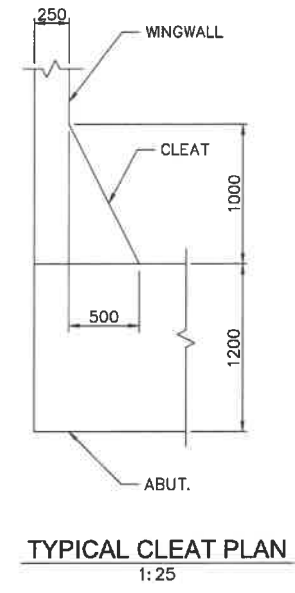
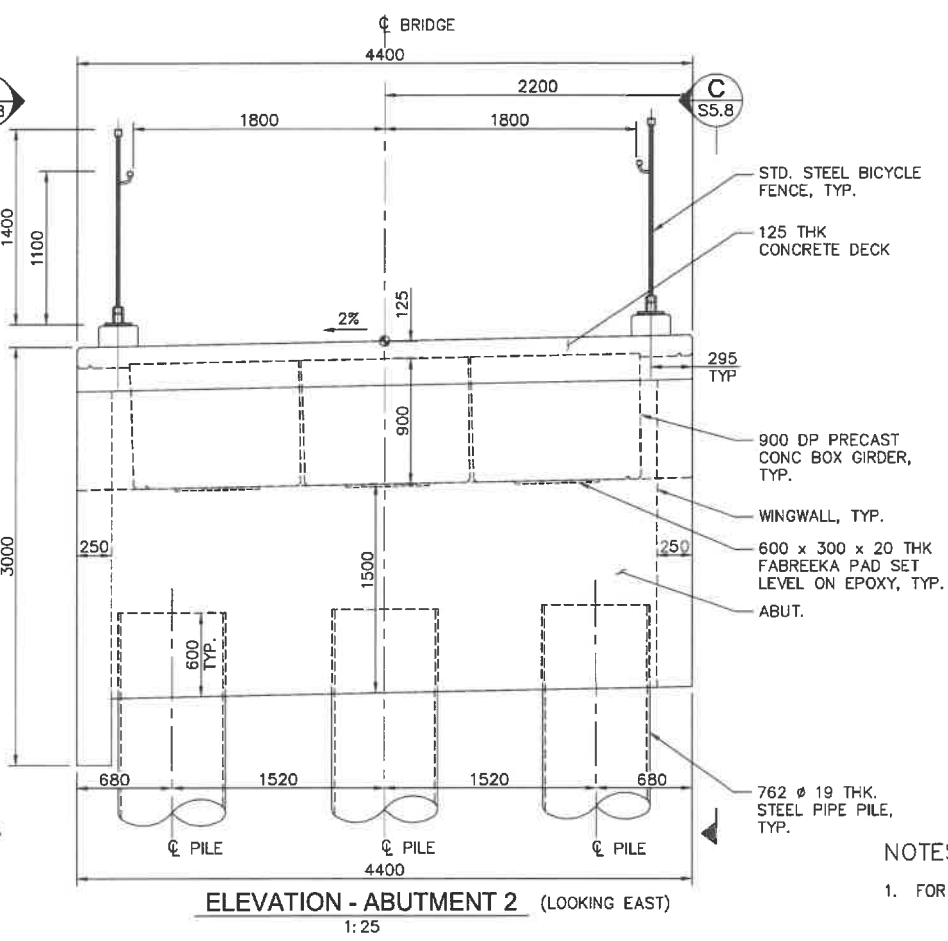
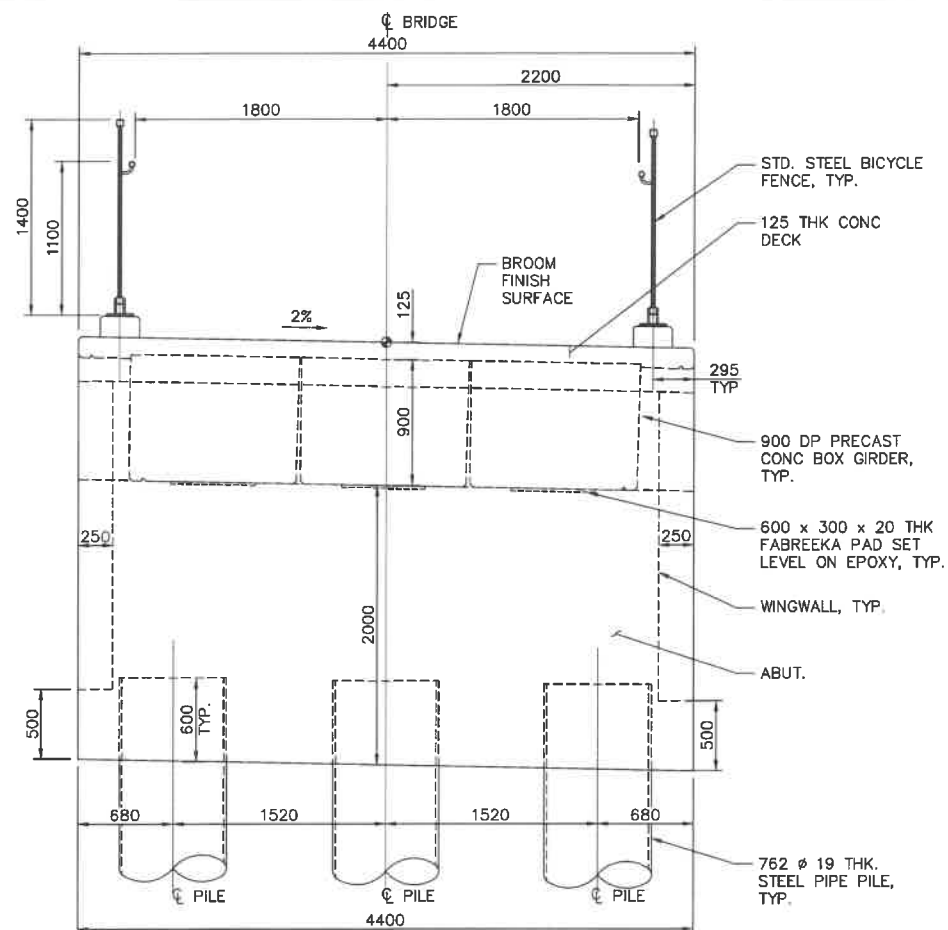
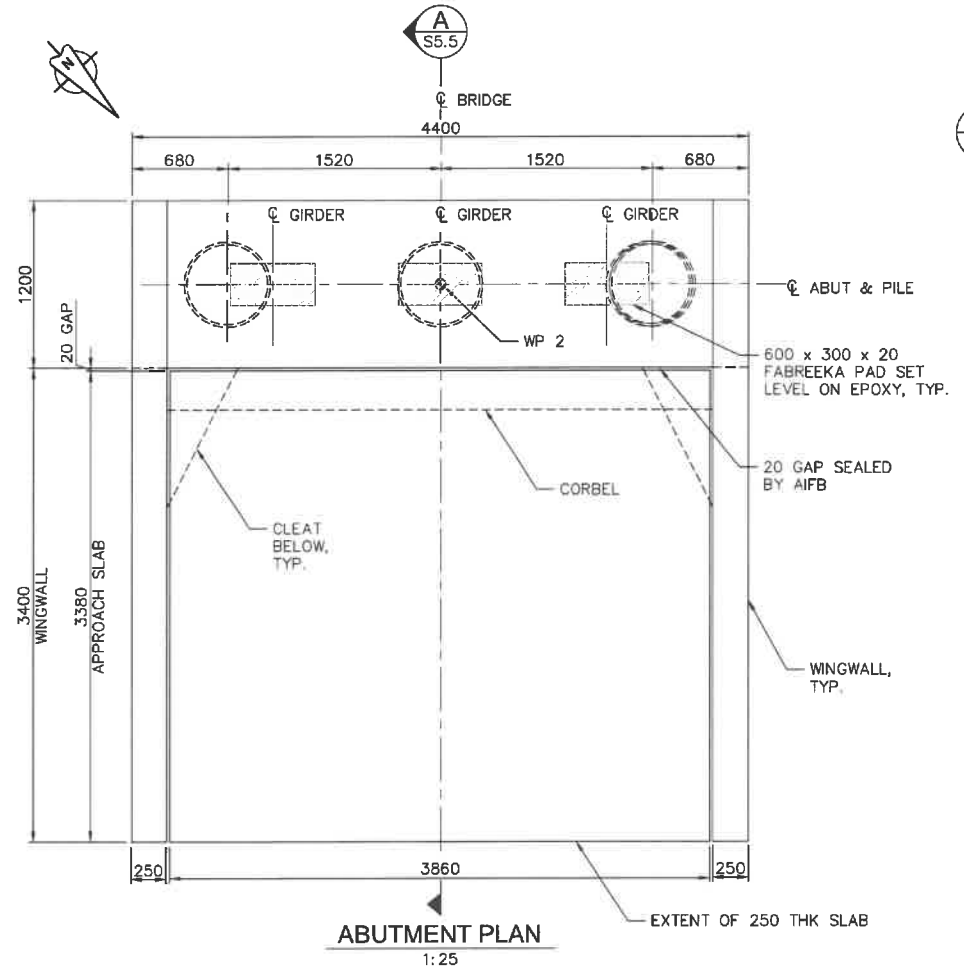
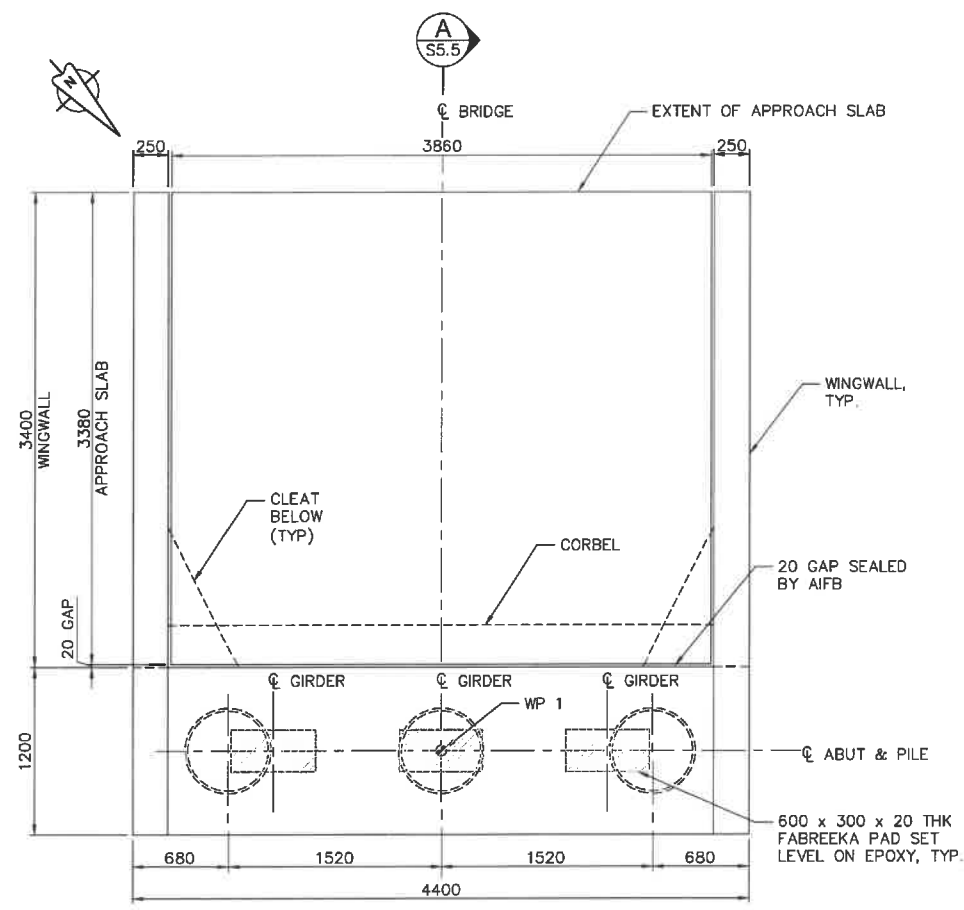
**NOTES:**

- FOR WORK POINTS SEE S5.1.
- PILE SPACING SHALL BE MEASURED AT THE UNDERSIDE OF THE ABUTMENT SEAT.
- PILES TO BE FITTED WITH A CUTTING SHOE AT THE TIP EQUIVALENT TO ASSOCIATED PILE AND FITTING MODEL APF 0-14000.
- THE FACTORED PER PILE LOADS (AXIAL COMPRESSION LOAD)
 

SLS1: PERMANENT:	391 kN
MAX:	456 kN
ULS1: PERMANENT:	470 kN
MAX:	595 kN
ULS5 (SEISMIC):	870 kN
- PROPOSED PILE CAPACITY AND PILE ELEVATION DESIGNED ARE BASED ON GEOTECHNICAL INFORMATION OBTAINED FROM BOREHOLE BH17-08, BH17-14, BH17-15, WHICH MAYBE NOT WELL REPRESENT DEEP SOIL LAYER GEOTECHNICAL CONDITION OF BRIDGE #20 LOCATIONS. CONTRACTOR SHALL INVESTIGATE DEEP LAYER SOIL BY INCREASING BOREHOLE DEPTH AT BH17-08, OR DRILL AN ADDITIONAL BOREHOLE CLOSE TO EITHER OF ABUTMENT 1 OR 2 SIDE, CARRY OUT SOIL TEST, OBTAIN ACCURATE GEOTECHNICAL DATA/INFORMATION, NOTIFY THE DEPARTMENT REPRESENTATIVE TO VERIFY PILE CAPACITY AND PILE TIP ELEVATION PRIOR TO COMMENCE FOUNDATION CONSTRUCTION.



**PARSONS**



NOTES:  
1. FOR NOTES, SEE DRAWINGS S-1.1, S1.2 AND S-5.5.

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0	ISSUED FOR TENDER	18/12/2018
Revision/	Description/Description	Date/Date

Parks Canada Agency / L'Agence Parcs Canada

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčlik fašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

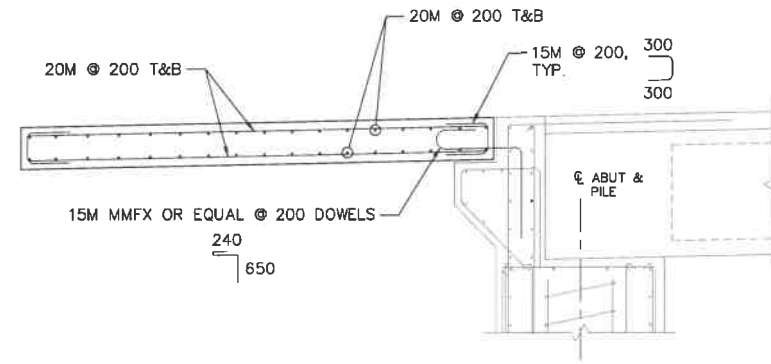
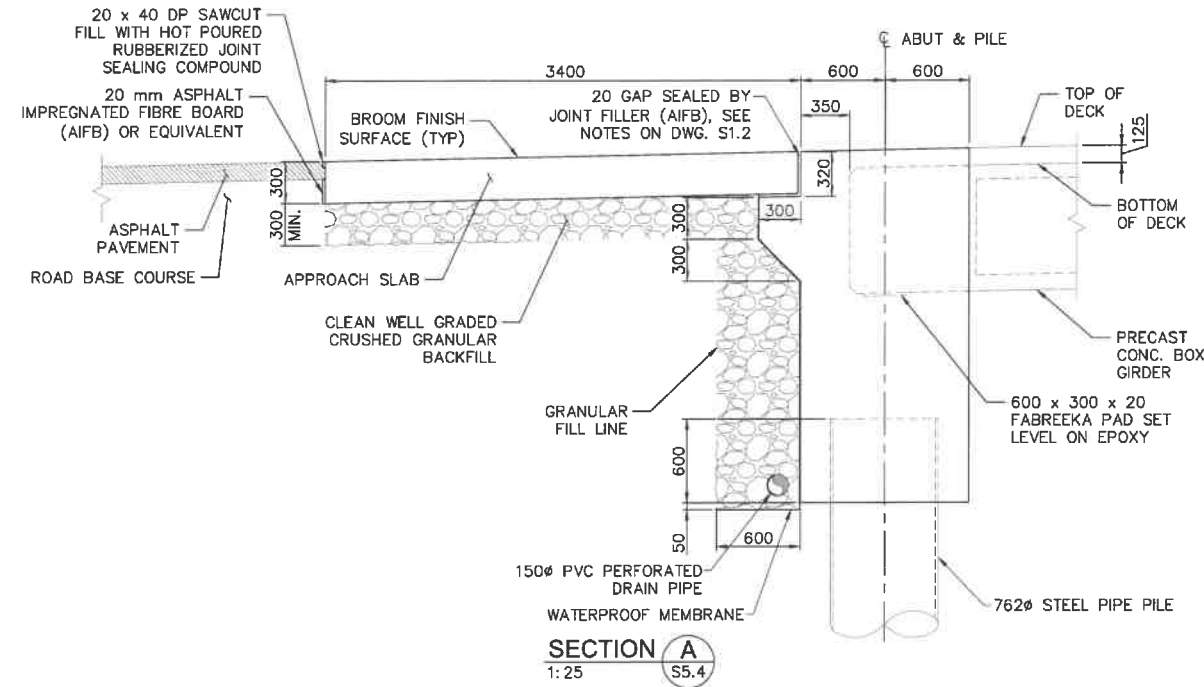
Designed by/Conçepé par  
DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
SHAWN LI / 2019-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapsčlik fašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**ABUTMENT LAYOUT**

Project No./No. du projet	Sheet/Feuille	Revision no./no. de révisión
PCA #1522	S-5.4 OF	0







APPROACH SLAB REINFORCEMENT ELEVATION  
1:25

NOTES:

- FOR STRUCTURAL NOTES SEE DWG. S1.1 AND S1.2.
- THE SURFACE OF CONCRETE AT CONSTRUCTION JOINTS SHALL INTENTIONALLY ROUGHENED AND CLEAN AND FREE OF LAITANCE AT TIME OF CASTING.
- GRANULAR BACKFILL AND LOW PLASTIC CLAY FILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR AND 100% STANDARD PROCTOR BEHIND ABUTMENTS AND WINGWALLS. COMPACTION WITHIN A HORIZONTAL DISTANCE EQUAL TO ONE HALF OF THE WALL HEIGHT SHALL USE HAND TAMPERS.
- BROOM CONCRETE RUNNING SURFACE BY CONCRETE BROOM APPLYING PERPENDICULAR TO THE ALIGNMENT, AND BROOM MARKS SHOULD BE RUN TOWARDS LOWER SIDE OF THE LATERAL SLOPE.

**PARSONS**



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0	ISSUED FOR TENDER	18/12/2018
Revision/Description	Description/Description	Date/Date

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Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apsciik fasii**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only

Designed by/Concepé par  
DANIEL YANG / 2018-11

Drawn by/Dessiné par  
SHAWN LI / 2018-12

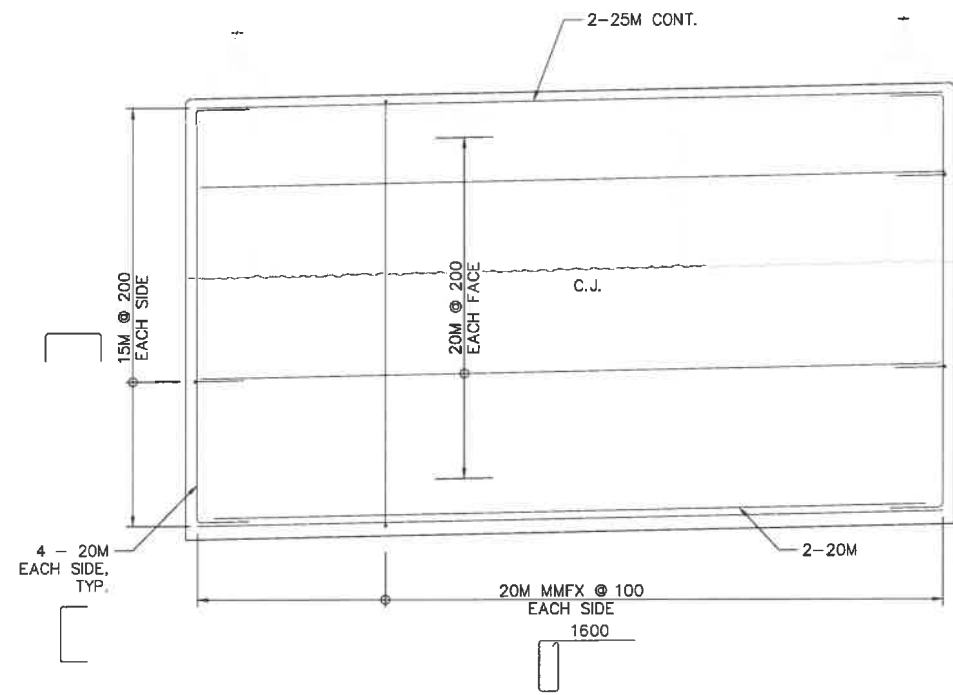
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**?apsciik fasii**  
**(Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**APPROACH SLAB DETAILS**

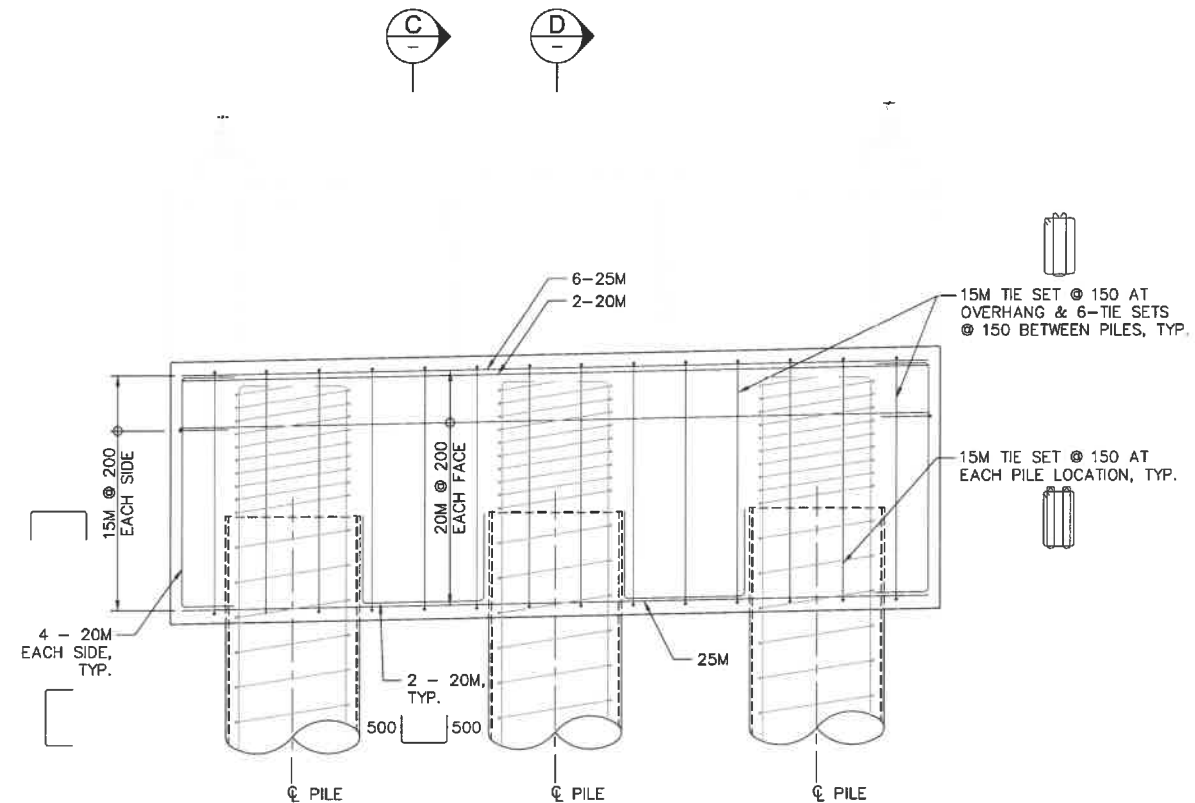
Project No./No. du projet	Sheet/Feuille	Revision no./Révision
PCA #1522	S-5.5 OF	0



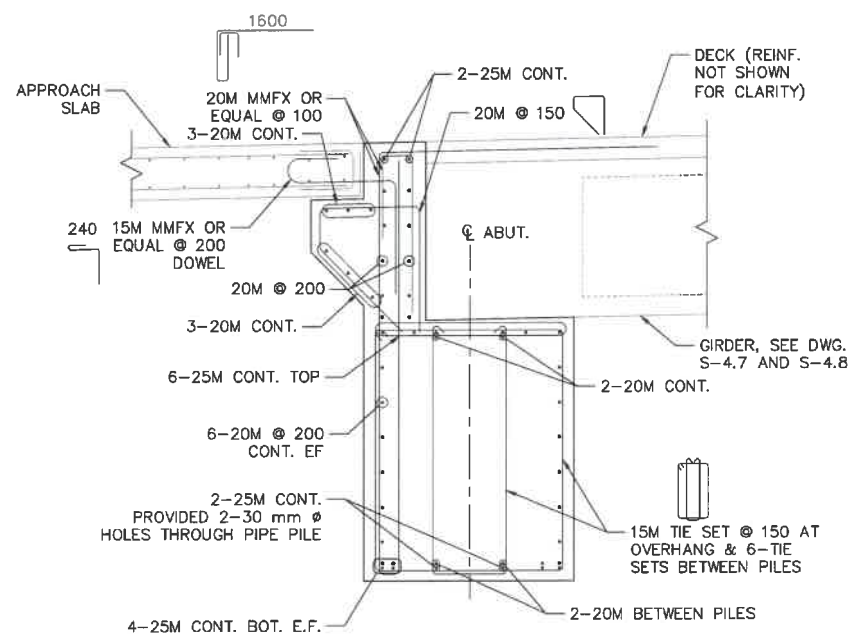
PARSONS



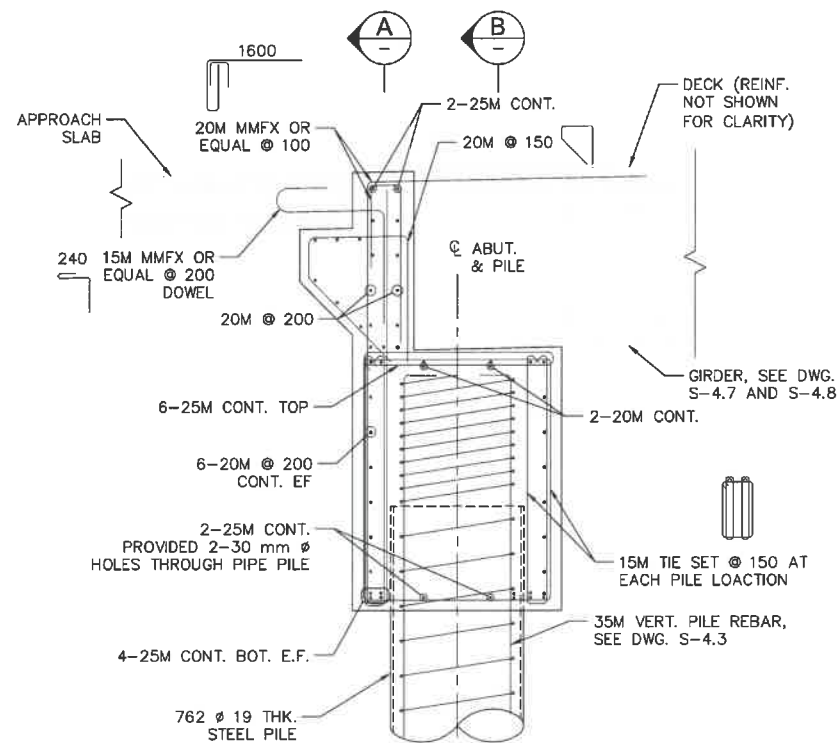
SECTION A  
1:20



SECTION B  
1:20



SECTION C  
1:20



SECTION D  
1:20

NOTES:

- FOR GENERAL NOTES SEE S-1.1 AND S-1.2.

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0	ISSUED FOR TENDER	19/22/15
Revision/Description	Description/Description	Date/Date

Client/Client: Parks Canada Agency L'Agence Parcs Canada

Project Title/Titre du projet: TOFINO, BC

**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only

Designed by/Concept par: DANIEL YANG / 2015-11

Drawn by/Designe par: SHAWN LI / 2015-12

PCA Project Manager/Technical Authority: Administrateur de Projets APC: JACKIE HICKS

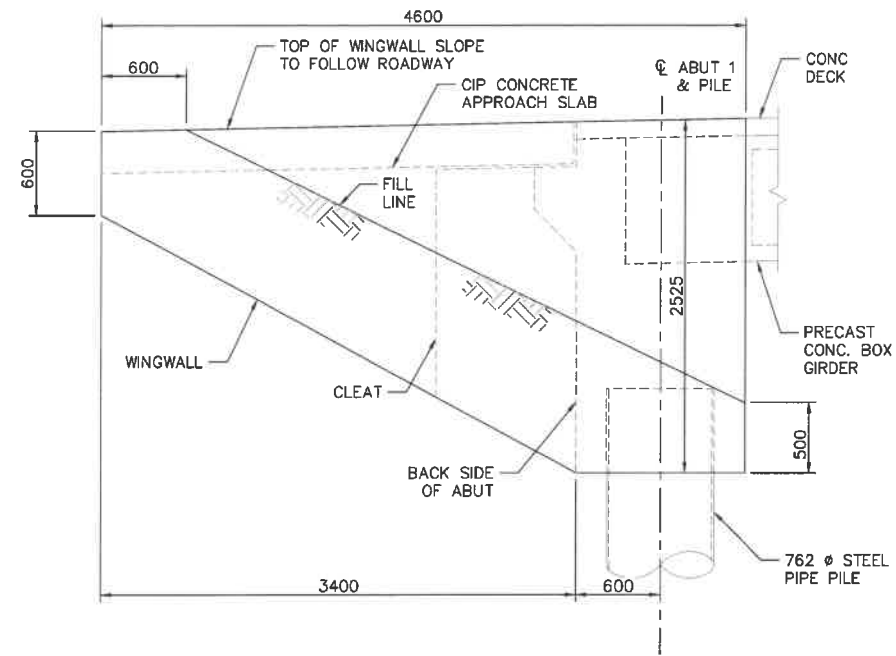
Drawing title/Titre du dessin:

**?apscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**ABUTMENT DETAILS**

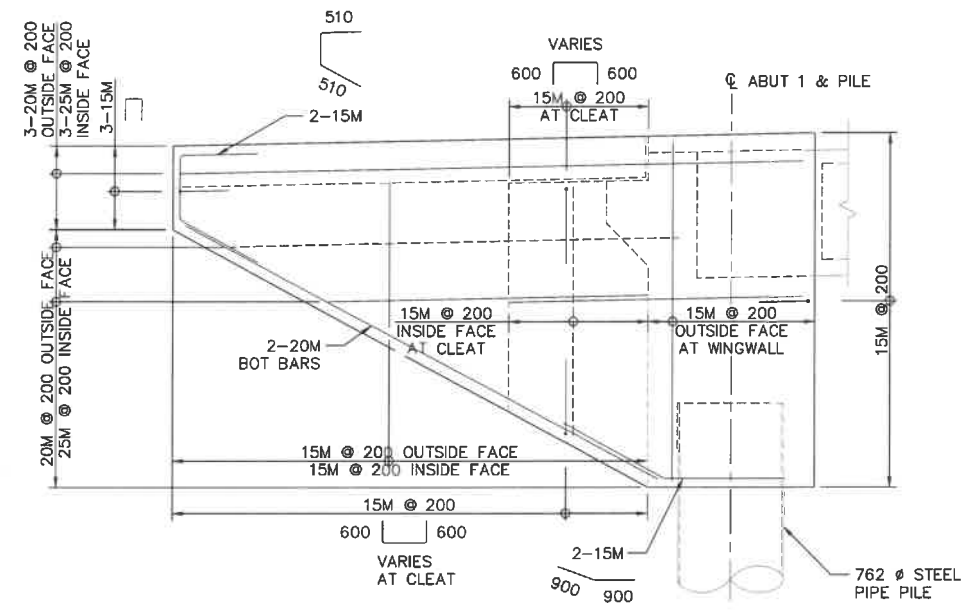
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PCA #1522	S-5.6 OF	0



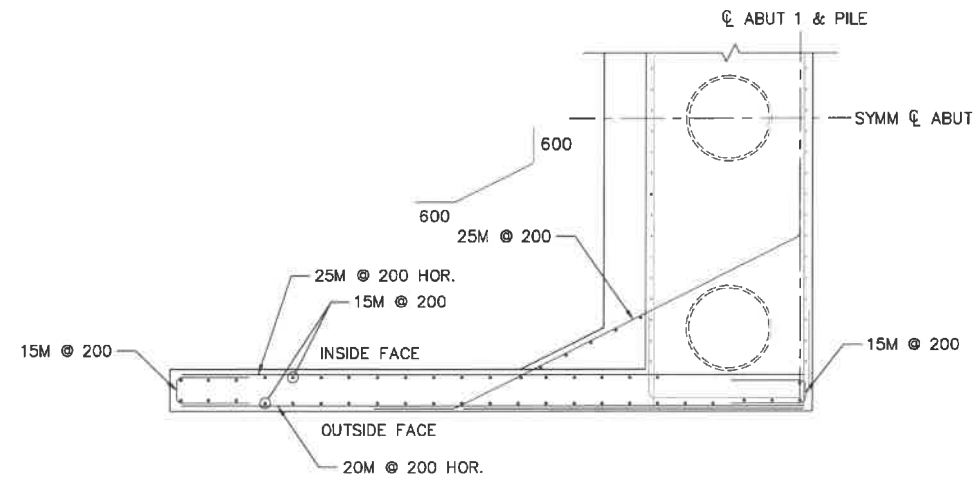
**PARSONS**



**WINGWALL ELEVATION**  
1:25



**WINGWALL REINFORCEMENT ELEVATION**  
1:25



**WINGWALL REINFORCEMENT PLAN**  
1:25  
(ABUT 1 SHOWN, ABUT 2 SIMILAR)

**NOTES:**

- FOR GENERAL NOTES SEE S-1.1 AND S-1.2.



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0	ISSUED FOR TENDER	18/12/2018

Revision/Revisions	Description/Description	Date/Date
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Client/Client: Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet:  
TDFINO, BC  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**?apscilik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

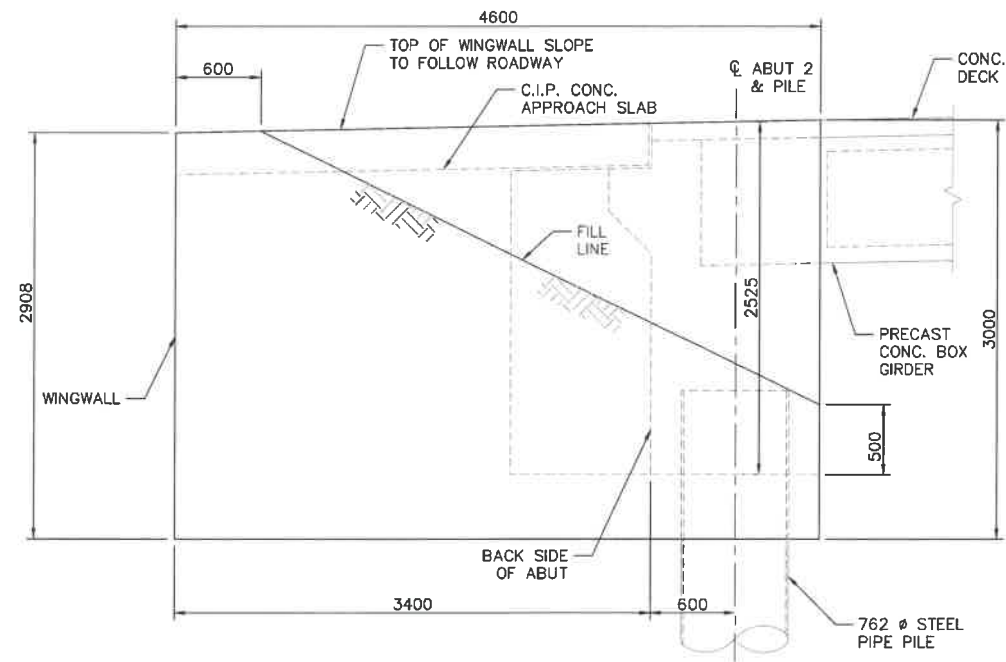
Designed by/Concept par: DANIEL YANG / 2018-11  
Drawn by/Desainé par: SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority: Administrateur de Projets APC: JACKIE HICKS

Drawing title/Titre du dessin:  
**?apscilik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**ABUTMENT 1 WINGWALL DETAILS**

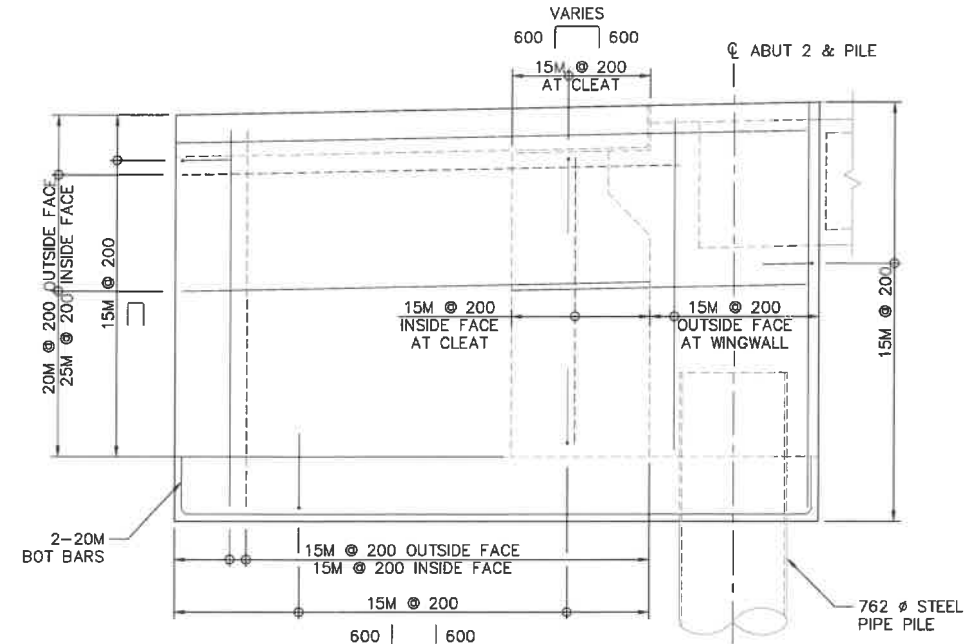
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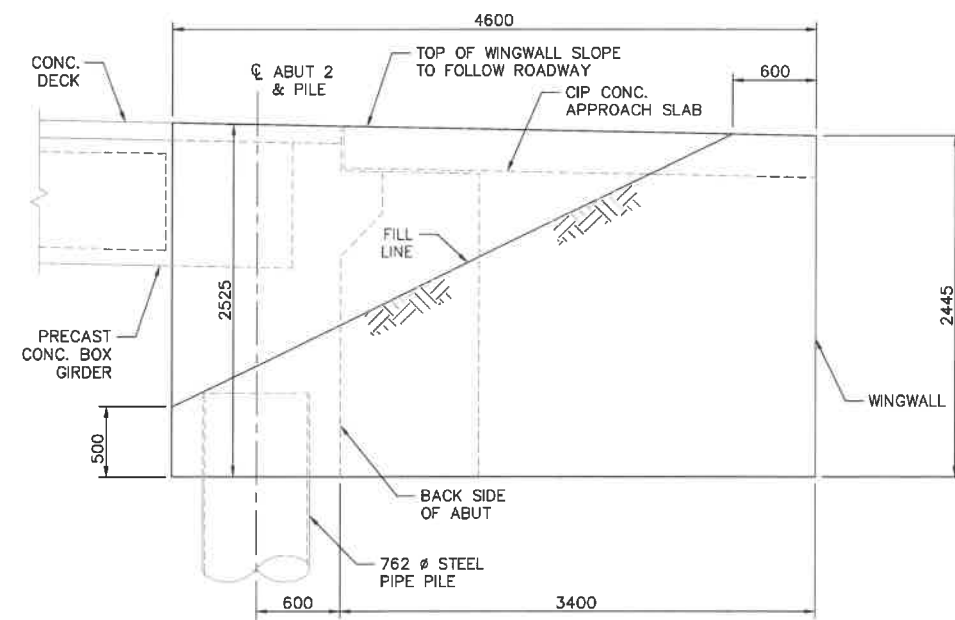
PARSONS



SECTION B  
1:25 S5.4



WINGWALL REINFORCEMENT ELEVATION  
1:25 (NORTH WINGWALL SHOWN, SOUTH WINGWALL SIMILAR)



SECTION C  
1:25 S5.4



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0	ISSUED FOR TENDER	18/12/2018

Revision/Description	Date/Date
Client/client	

Parks Canada Agency L'Agence Parcs Canada

Project title/Titre du projet  
TOFINO, BC  
PACIFIC RIM NATIONAL PARK RESERVE  
?apscilik fasii (Ups-cheek ta-shee)  
"Going in the right direction on the trail"

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Designed by/Concepé par DANIEL YANG / 2018-11  
Drawn by/Dessiné par SHAWN LI / 2018-12  
PCA Project Manager/technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing title/Titre du dessin  
?apscilik fasii (Ups-cheek ta-shee)  
"Going in the right direction on the trail"  
BRIDGE #20  
ABUTMENT 2 WINGWALL DETAILS

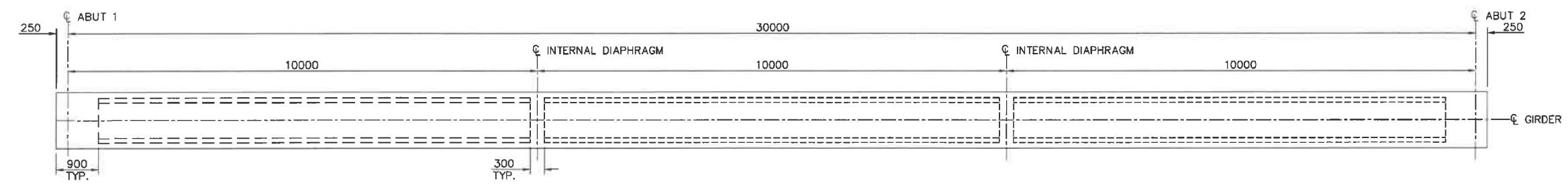
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NOTES:

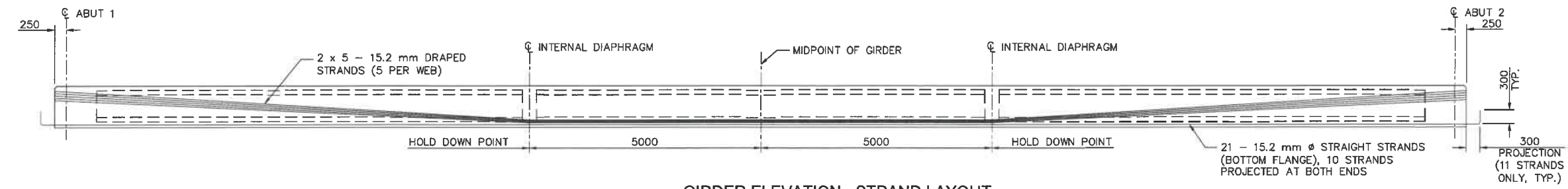
- FOR GENERAL NOTES SEE S-1.1 AND S-1.2.



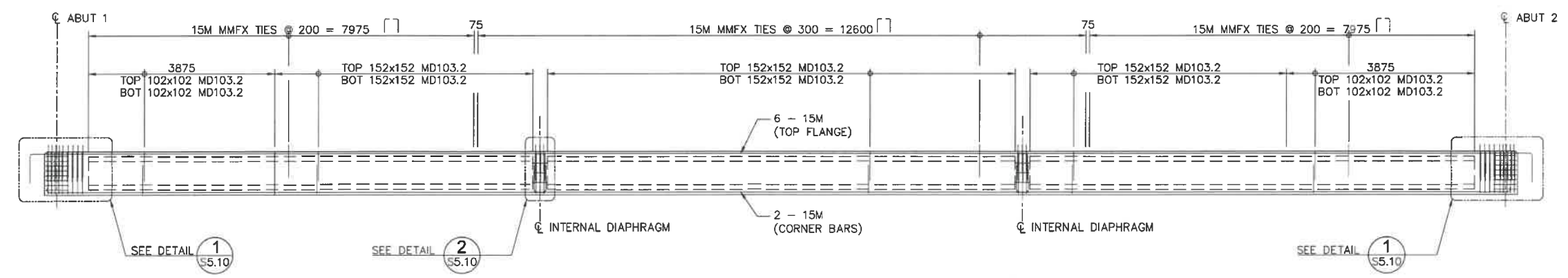
**PARSONS**



**GIRDER PLAN**  
1:50



**GIRDER ELEVATION - STRAND LAYOUT**  
1:50



**GIRDER ELEVATION - REBAR LAYOUT**  
1:50

NOTE:  
1. FOR GENERAL NOTES, SEE DRAWINGS S-1.1 AND S-1.2.

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0	ISSUED FOR TENDER	18/22018
Revision/Description	Description/Description	Date/Date
Client/Client		

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

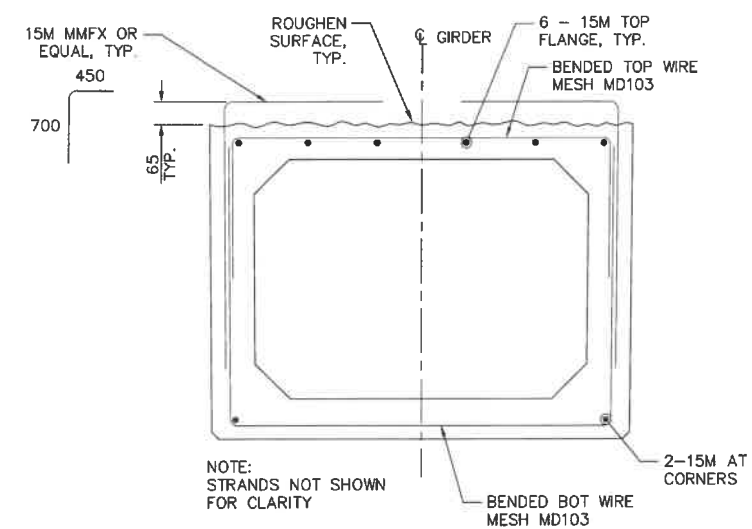
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DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapscik fasii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**GIRDER**  
**SHEET 1**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-5.9</b> OF	Revision no./La révision no. <b>0</b>
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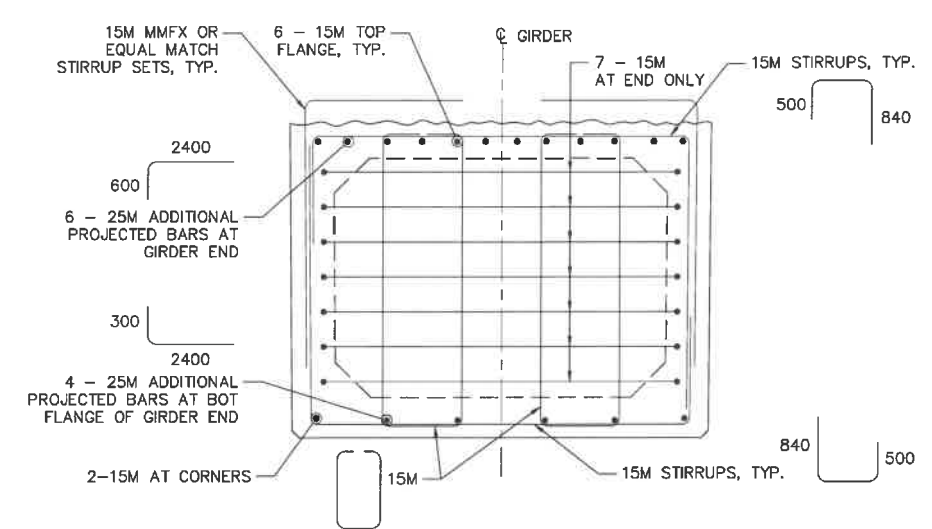


**PARSONS**



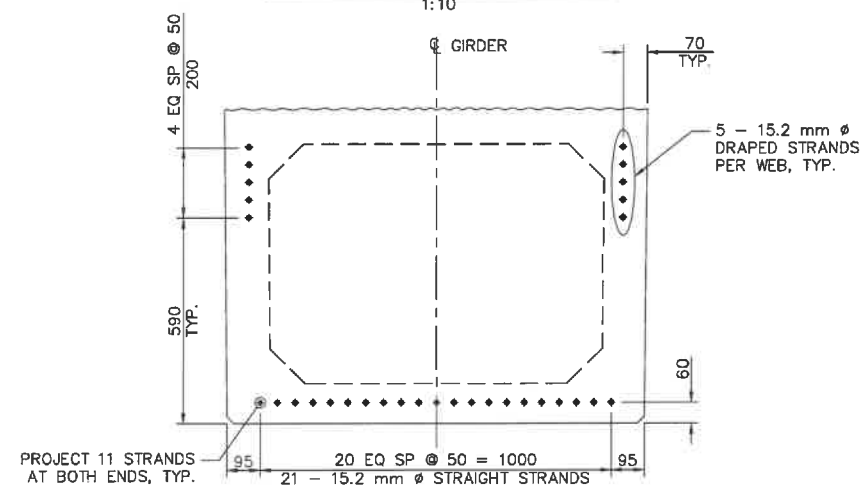
**TYPICAL REINFORCEMENT**

1:10



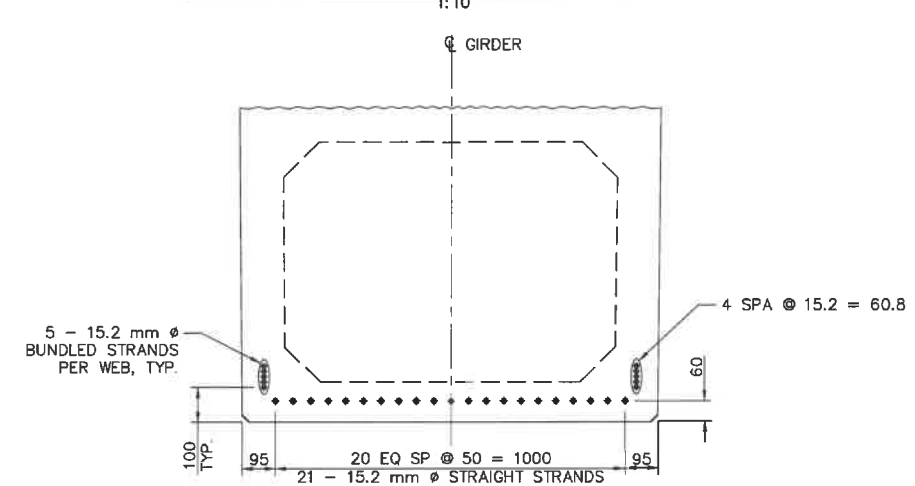
**TYPICAL REINFORCEMENT AT GIRDER END**

1:10



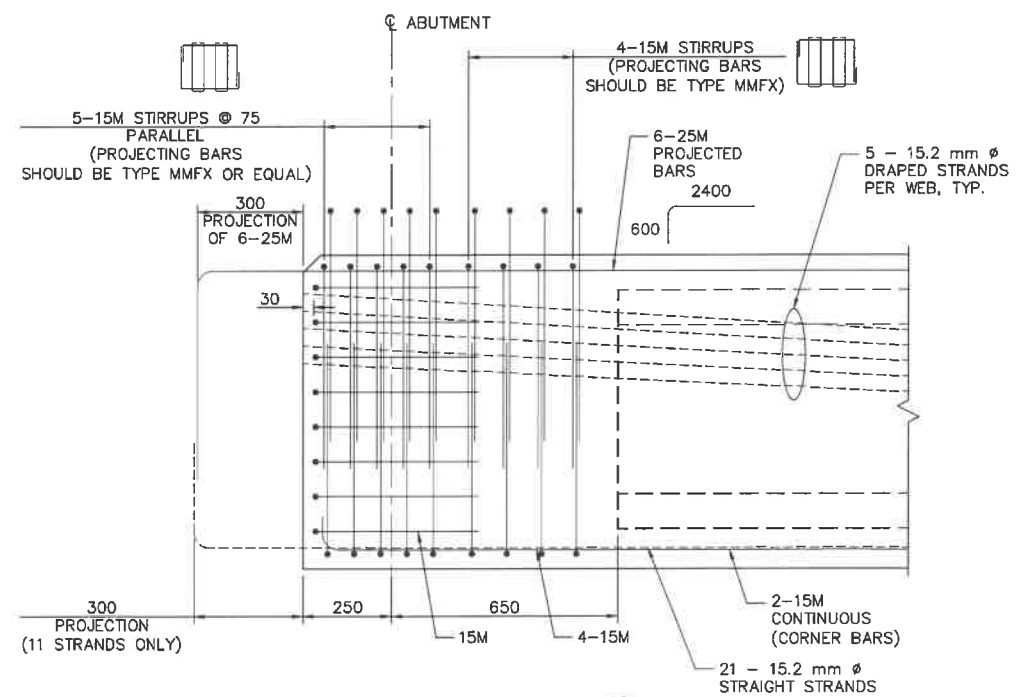
**STRAND LAYOUT AT GIRDER END**

1:10



**STRAND LAYOUT AT MIDSPAN**

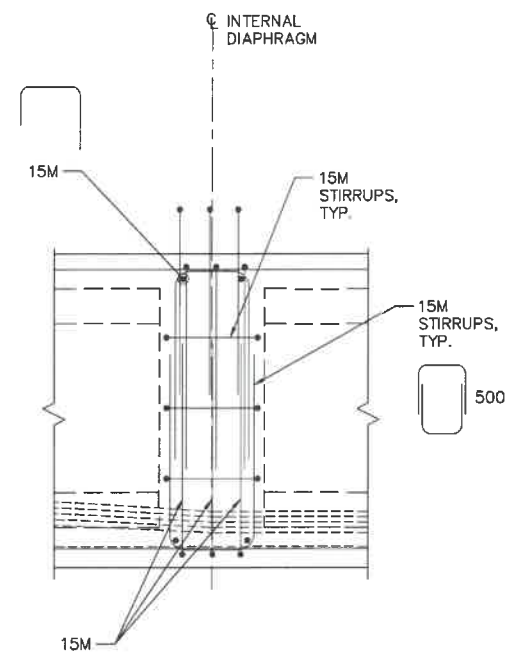
1:10



**DETAIL 1**

1:10

S5.9



**DETAIL 2**

1:10

S5.9

NOTES:  
1. FOR GENERAL NOTES SEE S-1.1 AND S-1.2.

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0	ISSUED FOR TENDER	18/12/2018
Revision/Revisions	Description/Description	Date/Date
Client/Client		

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

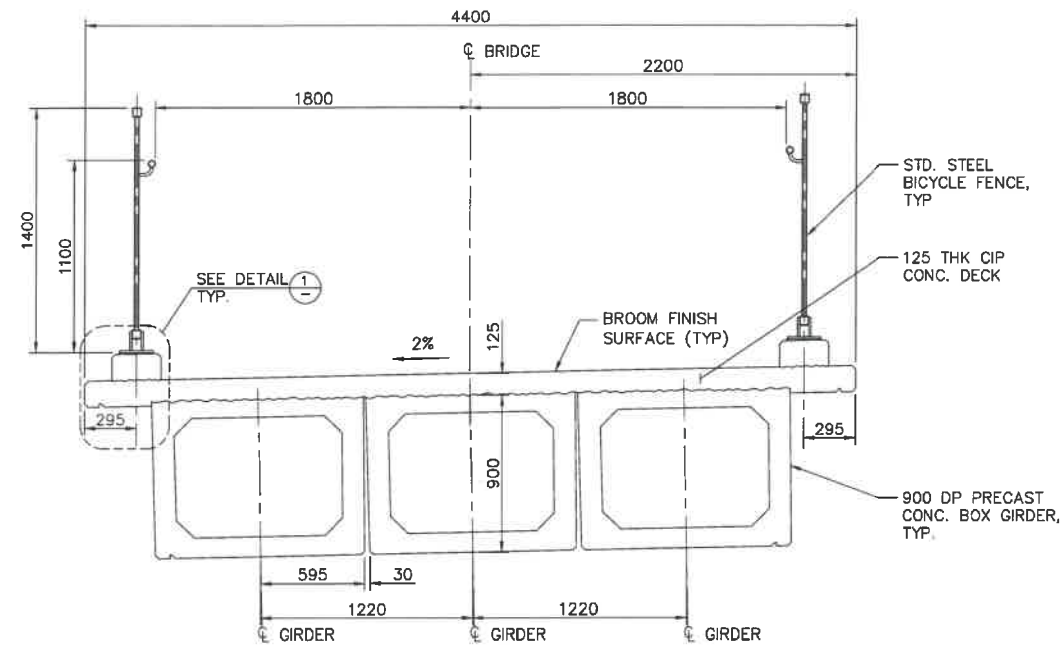
Designed by/Conçue par  
DANIEL YANG / 2018-11  
Drawn by/Dessiné par  
SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

Drawing title/Titre du dessin  
**ʔapsc̓iik fas̓ii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20 GIRDER**  
**SHEET 2**

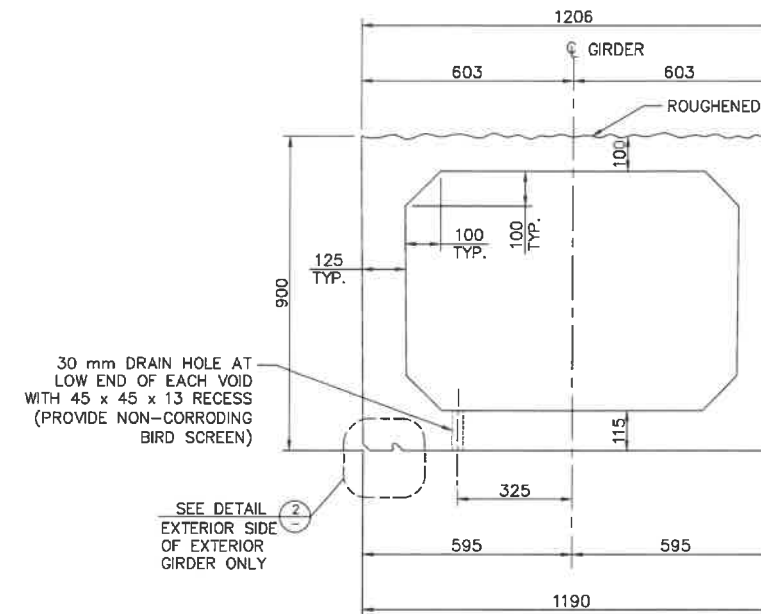
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PCA #1522	S-5.10	0
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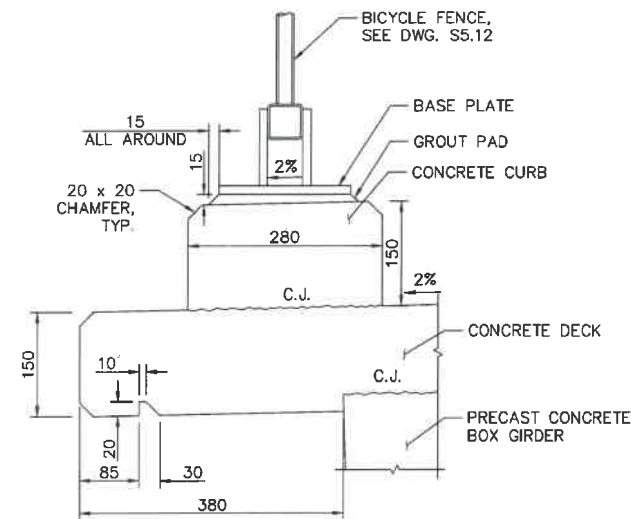
**PARSONS**



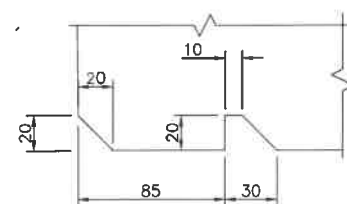
TYPICAL DECK LAYOUT  
1:20



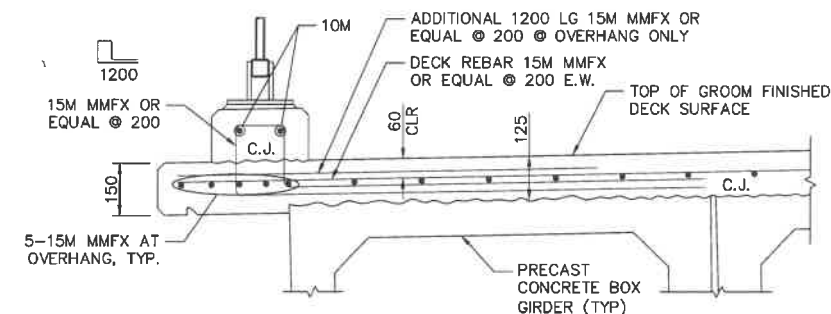
TYPICAL BOX GIRDER SECTION  
1:10



DETAIL 1  
1:5



DETAIL 2  
1:2



DECK REINFORCEMENT  
1:10

**NOTES:**

1. HIGH WATER LEVEL (HWL) BASED ON 1:200 YEAR EVENT.
2. FOUNDATION DETAILS TO BE CONFIRMED FOLLOWING GROUND INVESTIGATION ON SITE.
3. ALL CONCRETE WORKS SHALL BE COMPLETELY ISOLATED FROM THE CREEK, WITH SECONDARY CONTAINMENT TO PREVENT GROUT ENTERING THE CREEK. THE CONTRACTOR SHALL SUBMIT A GROUT CONTAINMENT PLAN TO THE ENVIRONMENTAL MONITOR FOR APPROVAL AND REQUEST INSPECTION AND APPROVAL OF FORMWORK BY THE ENVIRONMENTAL MONITOR PRIOR TO ANY CONCRETE POURS.



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Revision/	Description/Description	Date/Date
Client/Client		

Project title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčik fašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**

Consultant Signature Only

Designed by/Concept par  
DANIEL YANG / 2018-11

Drawn by/Dessiné par  
SHAWN LI / 2018-12

PCA Project Manager/Technical Authority  
Administrateur de Projets APC  
JACKIE HICKS

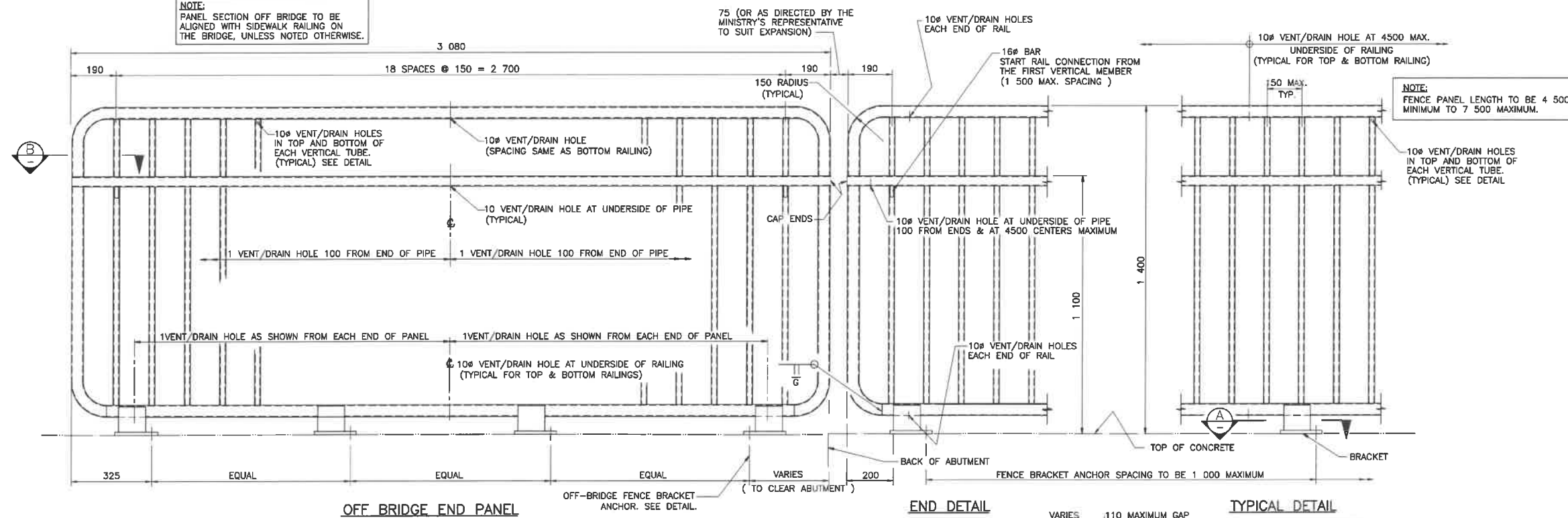
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**ʔapsčik fašii (Ups-cheek ta-shee)**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**DECK LAYOUT AND DETAILS**

Project No./No. du projet <b>PCA #1522</b>	Sheet/Feuille <b>S-5.11</b> OF	Revision no./Le Révision no. <b>0</b>
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**PARSONS**

**NOTE:**  
PANEL SECTION OFF BRIDGE TO BE ALIGNED WITH SIDEWALK RAILING ON THE BRIDGE, UNLESS NOTED OTHERWISE.

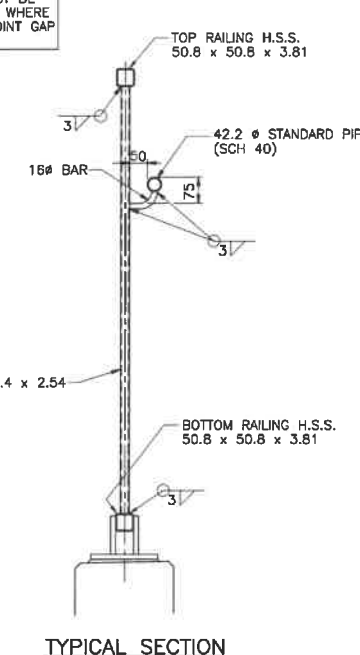
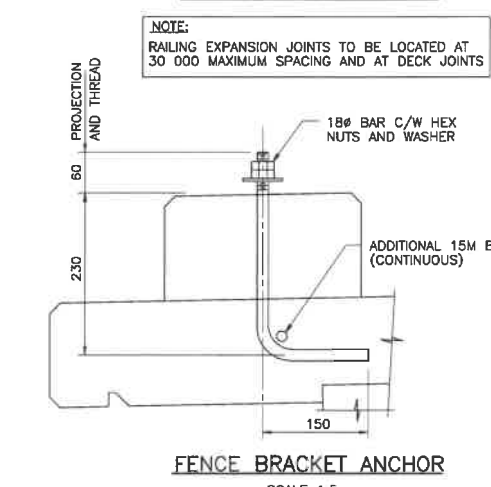
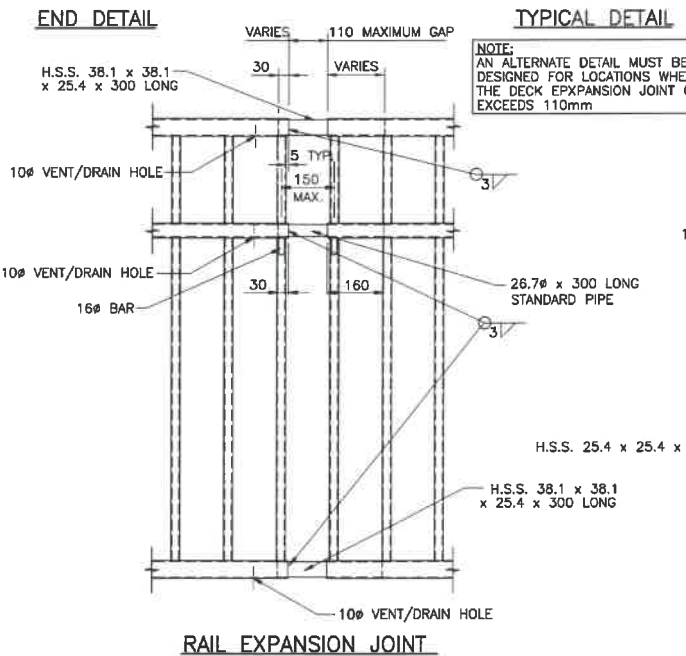
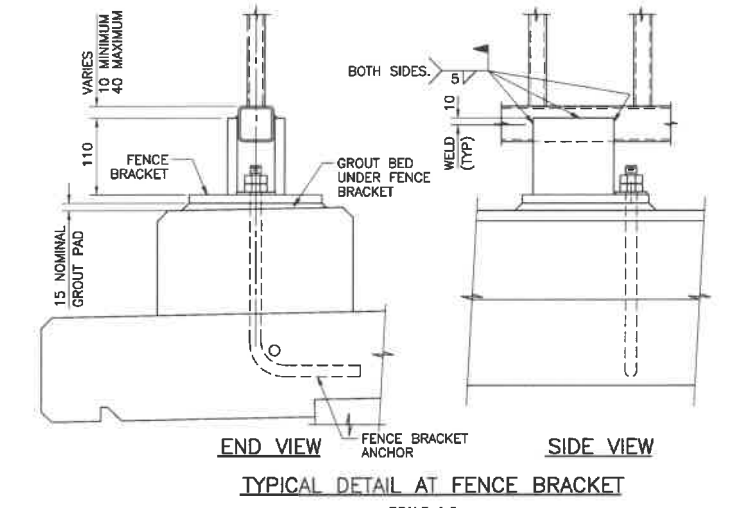
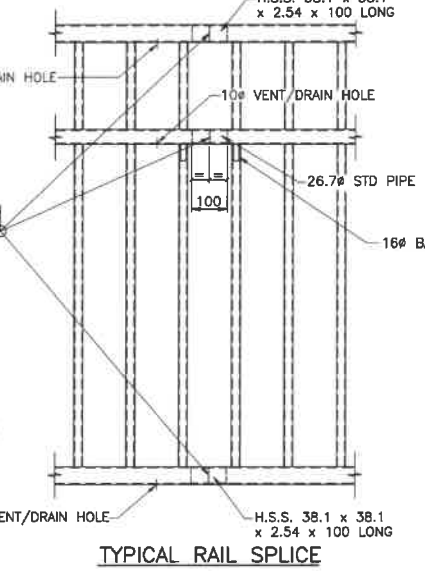
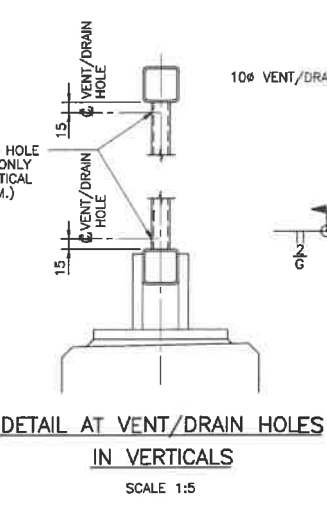
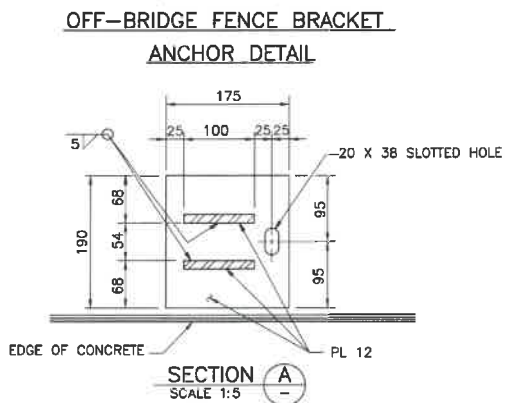
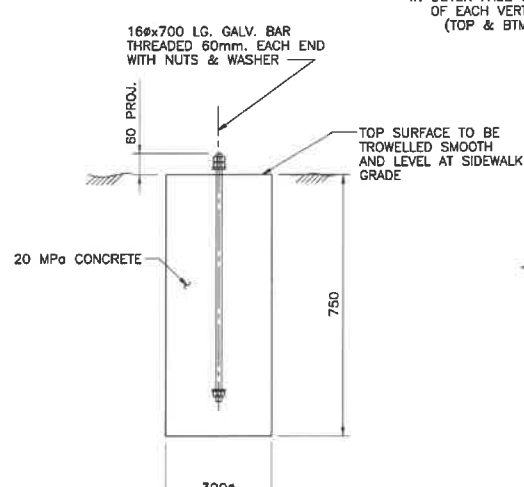
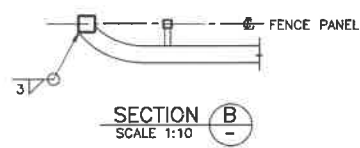


**NOTE:**  
FENCE PANEL LENGTH TO BE 4 500 MINIMUM TO 7 500 MAXIMUM.

10# VENT/DRAIN HOLES IN TOP AND BOTTOM OF EACH VERTICAL TUBE. (TYPICAL) SEE DETAIL.

**NOTE:**  
AN ALTERNATE DETAIL MUST BE DESIGNED FOR LOCATIONS WHERE THE DECK EXPANSION JOINT GAP EXCEEDS 110mm

**NOTE:**  
RAILING EXPANSION JOINTS TO BE LOCATED AT 30 000 MAXIMUM SPACING AND AT DECK JOINTS



- NOTES:**
- ALL H.S.S. STEELWORK FOR FENCES TO BE C.S.A. SPECIFICATION G40.21M GRADE 350W CLASS C. ALL OTHER STEELWORK TO BE 260W. PIPE TO BE ASTM STD. A53, GRADE B.
  - FENCE SECTIONS, BRACKETS AND ANCHORS TO BE GALVANIZED AFTER FABRICATION. GALVANIZING TO BE IN ACCORDANCE WITH C.S.A. SPECIFICATION G164, TABLE 1.
  - FIELD CONNECTIONS TO BE WELDED EXCEPT AS NOTED.
  - FIELD WELDS TO BE PAINTED WITH 2 COATS OF "GALVACON" OR EQUAL.
  - RAIL ELEMENTS TO BE USED IN CURVES HAVING RADII 300m OR LESS SHALL BE SHOP FORMED TO THE REQUIRED CURVATURE.



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0	ISSUED FOR TENDER	18/12/2018
Revision/Description	Description/Description	Date/Date

Parks Canada Agency L'Agence Parcs Canada

Project Title/Titre du projet  
**TOFINO, BC**  
**PACIFIC RIM NATIONAL PARK RESERVE**  
**ʔapsčlik ʔasłi**  
**"Going in the right direction on the trail"**

Consultant Signature Only  
Designed by/Conçeu par DANIEL YANG / 2018-11  
Drawn by/Dessiné par SHAWN LI / 2018-12  
PCA Project Manager/Technical Authority Administrateur de Projets APC JACKIE HICKS

Drawing Title/Titre du dessin  
**ʔapsčlik ʔasłi**  
**"Going in the right direction on the trail"**  
**BRIDGE #20**  
**BICYCLE FENCE**

Project No./No. du projet	Sheet/Feuille	Revision no./no. de révisión
PCA #1522	S-5.12	0

