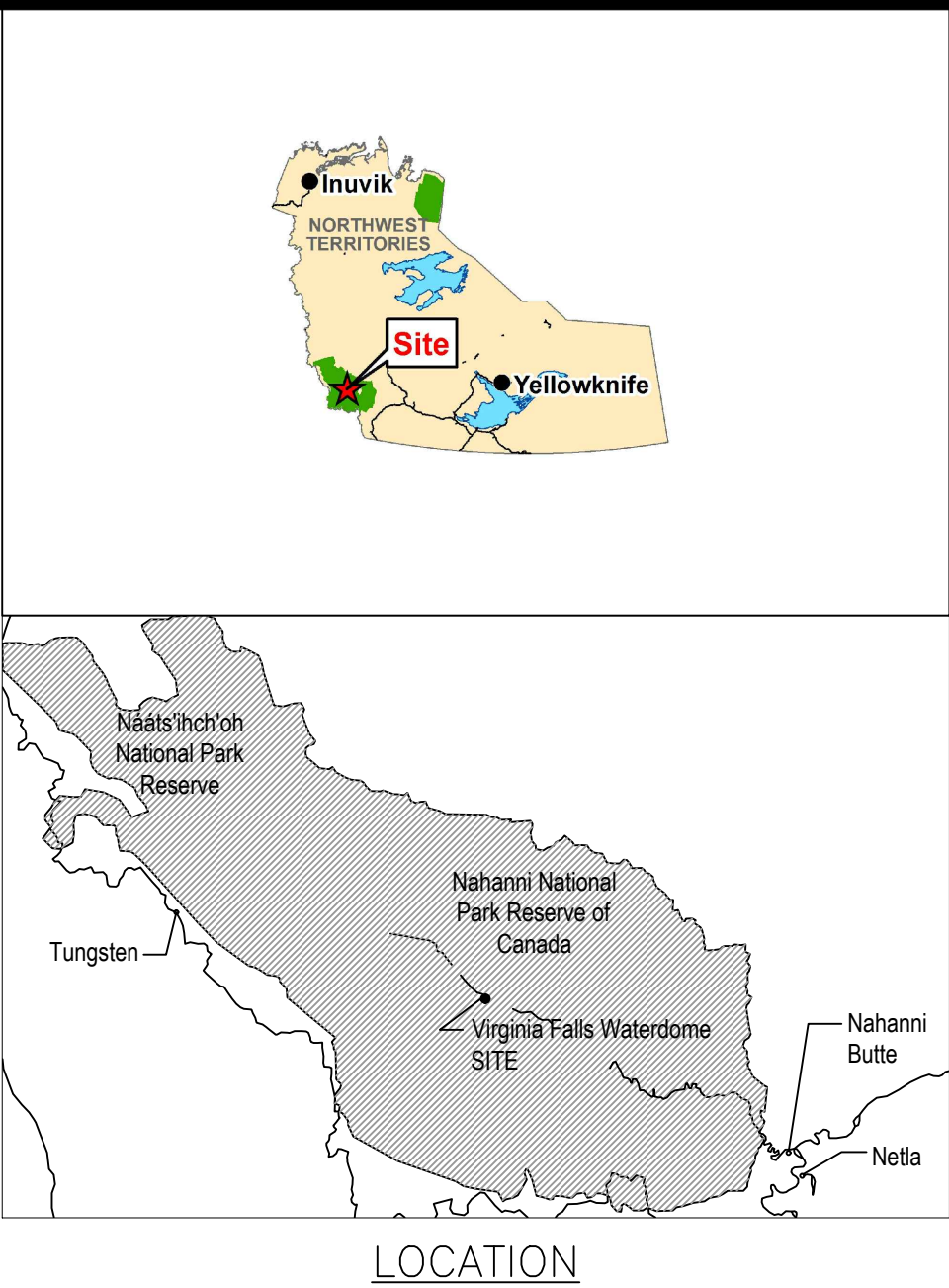


- PROJECT DESCRIPTION**
- PARK'S CANADA REQUIRES A NEW FLOATING DOCK SYSTEM FOR THREE FLOAT PLANES AND NON-MOTORIZED VESSELS TO REPLACE THE TWO EXISTING DOCKS THAT PROVIDE BERTHAGE FOR TWO FLOAT PLANES AND NON-MOTORIZED VESSELS ON THE SOUTH NAHANNI RIVER.
 - TETRA TECH CANADA HAS PREPARED THE RFP DOCUMENT THAT INCLUDES THE PERFORMANCE SPECIFICATION AND THESE PLANS FOR PARKS CANADA TO CALL FOR TENDERS FOR A DESIGN BUILD CONTRACTOR TO PROVIDE A FLOATING DOCK SYSTEM THAT COMPLIES WITH THE GEOMETRY AND MOORING ARRANGEMENT.
 - THE CONTRACTOR SHALL BE A DESIGN BUILD CONTRACTOR WITH EXPERIENCE IN DESIGN / BUILD OF BOTH RECREATIONAL AND COMMERCIAL MARINAS.
 - THE DESIGN INTENT OF THE RFP IS TO ALLOW THE CONTRACTOR TO EMPLOY PROVEN TECHNOLOGY AND STANDARD INDUSTRY PRACTICE FOR THE PERFORMANCE OF THE DOCK SYSTEM AND TO ALLOW THE ASSEMBLY AND DIS-ASSEMBLY ANNUALLY TO BEACH THE SYSTEM PRIOR TO FREEZE UP AND TO LAUNCH THE SYSTEM FOR USE DURING ICE FREE PERIODS.
 - THE DOCK SYSTEM ESSENTIALLY IS TO BE COMPRISED OF THE FOLLOWING:
 - THREE INDEPENDENT FLOATS, EACH WITH ITS OWN ACCESS RAMP AND MOORING BOOM;
 - THREE FLOATING DOCKS EACH 7.3m X 3.6m (24 ft X 12 ft);
 - EACH ARTICULATING ALUMINUM RAMP 12.2 m X 1.2m (40 ft X 4 ft) THAT ALSO ALLOW UPSTREAM HORIZONTAL SWING UP TO 200 MILLIMETERS AT LOW WATER TO PROVIDE ACCESS TO SHORE AND STIFF LEG PERFORMANCE TO SECURE THE DOCKS DURING THE 3 METER WATER LEVEL CHANGE. THE RAMP TO BE DESIGNED TO RESIST THE LOADING ECCENTRICITY CAUSED BY THE MOORING BOOM TENSION APPLIED TO THE DOCK THAT THE RAMP AND FLOAT STRUCTURAL FRAMING AND FLOAT AND RAMP HINGES MUST ACCOMMODATE;
 - THE BURIED GRILLAGE FOUNDATIONS HAVE BEEN SIZED GEOTECHNICAL FOR A MOORING BOOM AXIAL DESIGN FORCE TENSION OF 50 kN (6 TONS) THAT INCLUDES ENVIRONMENTAL FORCES FROM HYDRODYNAMIC, WIND AND DEBRIS;
 - THE MOORING LINE IS TO BE DESIGNED BY THE DESIGN BUILD CONTRACTOR AND TO BE COMPRISED OF MARINE CHAIN INSIDE HIGH DENSITY POLYETHYLENE PIPE FILLED WITH EXPANDED POLYSTYRENE FOAM TO PROVIDE POSITIVE BUOYANCY TO NOT CAUSE ANY CHAIN WEIGHT DRAG DOWN FORCES ON THE DOCKS.
 - THE DESIGN BUILD CONTRACTOR SHALL DESIGN THE FLOAT AND RAMP FRAMING TO WITHSTAND THE BOOM'S AXIAL TENSION ACCOUNTING FOR THE ECCENTRICITY THAT INCLUDES YAW MOMENTS IMPOSED ON THE PULL SYSTEM FROM BOOM TO GRILLAGE;
 - THE BACKFILL MATERIAL AND GEOGRID APPLIES A HOLDDOWN FORCE 3.74 kN/m² OF PLAN AREA OF EACH GRILLAGE THAT PROVIDES ADEQUATE A SLIDING RESISTANCE AGAINST THE 50 kN PULL FORCE AND OVERTURNING CONDITION;
 - THE DESIGN BUILD SHALL PERFORM A STRUCTURAL ANALYSIS OF THE BOOM LOADING ON THE FLOAT / RAMP / GRILLAGE SYSTEM USING THE 50 kN DESIGN FORCE TO DESIGN ALL PARTS AND COMPONENTS. THE STEEL SHAPES SHOWN ON THESE DRAWINGS FOR THE GRILLAGES AND PADEYES ARE SUGGESTED SIZES AND PADEYE STYLES FOR PROPER ARTICULATION ONLY AND THE ANALYSIS ABOVE IS REQUIRED WITH ACTUAL FLOAT AND RAMP FRAMING TO BE USED BY THE DESIGN BUILD CONTRACTOR;
 - RUBBER TIRES SHALL BE PROVIDED ALONG THE BERTH FACE FOR THE PLANES AND THE BERTH FACES SHALL HAVE A FREEBOARD OF 350mm;
 - PARKS CANADA'S LABOUR FORCE CAN EMPLOY ONLY A LIGHT HELICOPTER WITH A NET LIFT CAPACITY OF 454kg (1,000 LBS) TO BEACH AND LAUNCH THE DOCKS EVERY YEAR. LIFT CAPACITY TO BE CONFIRMED.
 - THE EXISTING PLASTIC DOCKS BEND AND OVER STRESS THE PLASTIC TANKS THAT ARE BOLTED TOGETHER WHEN HOISTED WITH TYPICAL LIGHT RIGGING EMPLOYED FOR HELICOPTER LIFTING;
 - THE BASIC DESIGN INTENT FOR THIS NEW DOCK SYSTEM IS TO PROVIDE FLOATATION TANKS FILLED WITH FOAM AND MADE OF DURABLE LIGHT WEIGHT MATERIAL SUCH AS HIGH DENSITY POLYETHYLENE TO PROVIDE POSITIVE BUOYANCY AFTER DEBRIS IMPACT
 - THE BASIC DESIGN INTENT IS ALSO TO FRAME THE FLOATATION TANKS WITH ALUMINUM MEMBERS WITH THE STRENGTH AND LIGHT WEIGHT TO PERMIT LIGHT HELICOPTER HOIST RIGGING SO THE FLOAT FRAMING PROVIDES SPREADER BAR PROTECTION OF THE DOCKS DURING BEACH AND LAUNCHING ANNUALLY AND THAT DOCK SECTIONS GREATER THAN 454 kg CAN BE DISASSEMBLED INTO SMALLER SECTIONS THROUGH THE USE OF PINNED QUICK RELEASE CONNECTIONS.
 - THE DECKING SHOULD BE A LIGHT WEIGHT GRATED TYPE THAT IS NON SLIP DESIGNED FOR PEDESTRIAN LOADING OF 1 kPa (21 psf).
 - PARKS CANADA SHALL PROVIDE APPROVAL FOR THE REMOVAL METHOD OF POSSIBLE VEGETATIVE MATS ON THE FORESHORE AND RIVER BOTTOM BELOW THE RAMPS THAT COULD INTERFERE WITH THE LOW WATER OPERATION OF THE RAMPS ON DOCKS 1, 2, AND 3.
 - DOCK TO BE LIFTED VERTICALLY; CONNECTIONS TO SUSTAIN WEIGHT OF LIFT.

LEGEND
○.XX BATHYMETRY DEPTHS ARE SHOWN IN METERS



NOTES:

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Revision/ Revision	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
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A B	Detail number	A Numéro de détail
	Sheet number	B Numéro de la feuille
Linear dimensions in millimetres		Dimensions linéaires en millimètres
Consultant's Name Nom de l'expert-conseil		Eng. Stamp Sceau de l'ingénieur

	Parks Canada Strategic Asset Management, Western and Northern Region	Parcs Canada Gestion Stratégique des Biens, Région de l'Ouest et du Nord

Project title/Titre du projet

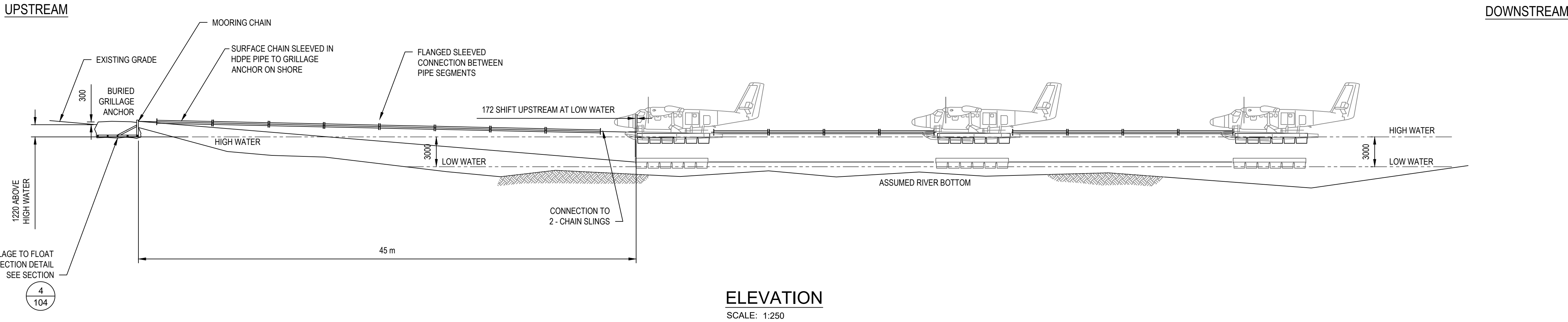
**VIRGINIA FALLS
NAHANNI NATIONAL PARK RESERVE**

Drawing title/Titre du dessin

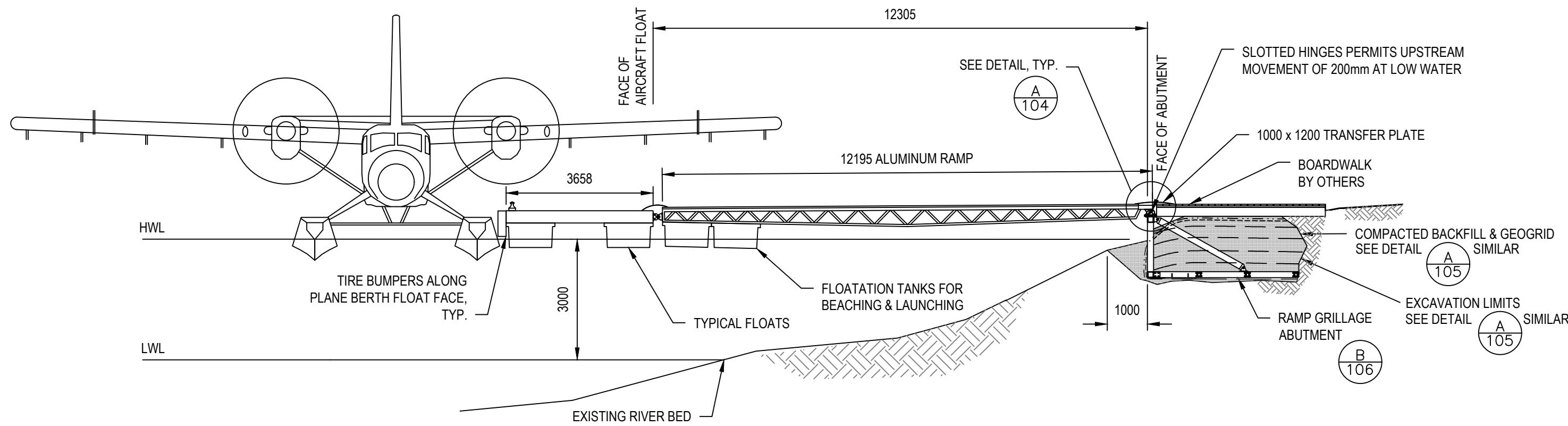
GENERAL ARRANGEMENT

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	WSL	2018 / 02 / 19
Designed by/Concept par	Reviewed by/Revisé par	Scale/Échelle
GJG		
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Project No./N° du projet		Sheet No./ N°de la feuille
Drawing Set No./N° de série du dessin		S100

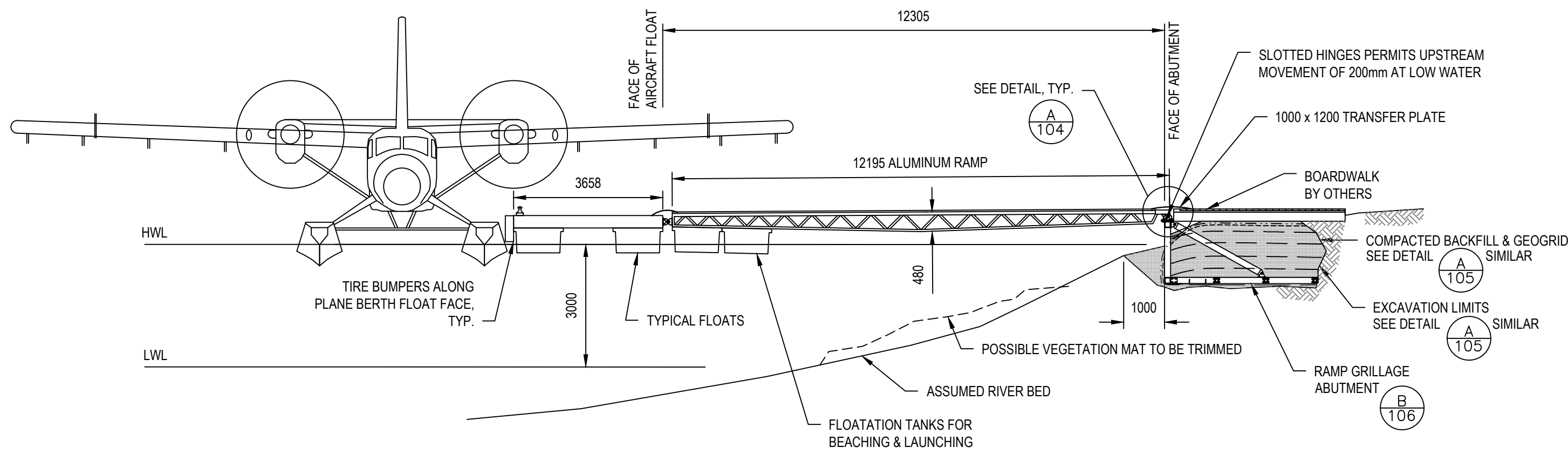
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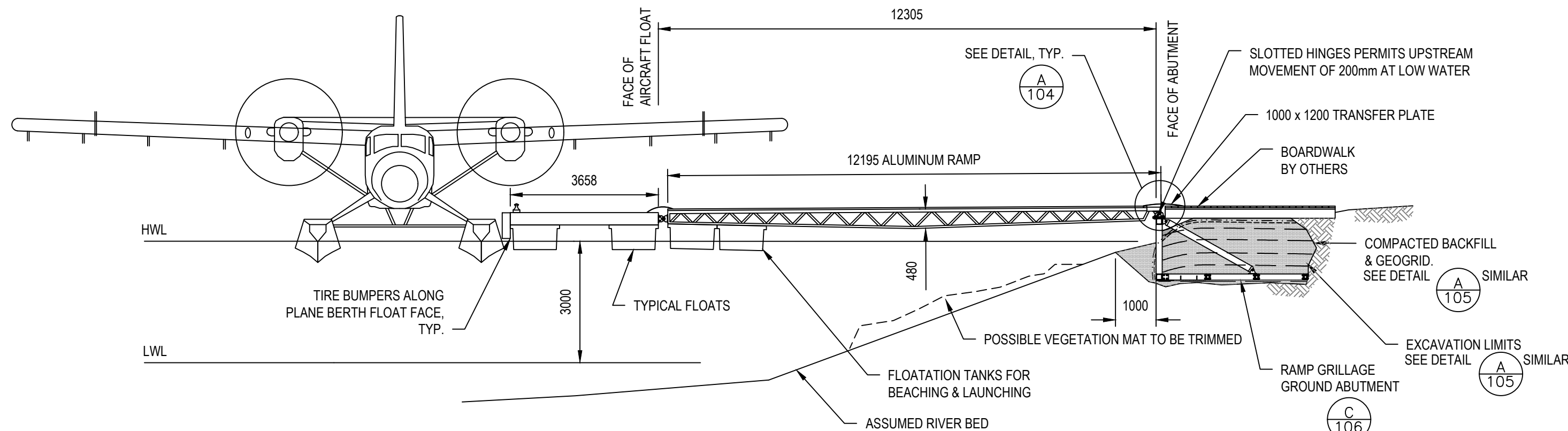
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SECTION 1 HIGH WATER ELEVATION
SCALE: 1:100



SECTION 2 HIGH WATER ELEVATION
SCALE: 1:100
THESE FLOATS ARE DOWNSTREAM OF THE BATHYMETRIC SURVEY LINE



SECTION 3 HIGH WATER ELEVATION
SCALE: 1:100
THESE FLOATS ARE DOWNSTREAM OF THE BATHYMETRIC SURVEY LINE

ISSUED FOR TENDER

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A Numéro de détail B Numéro de la feuille	
Linear dimensions in millimètres	
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Consultant's Name Nom de l'expert-conseil	
Eng. Stamp Sceau de l'ingénieur	

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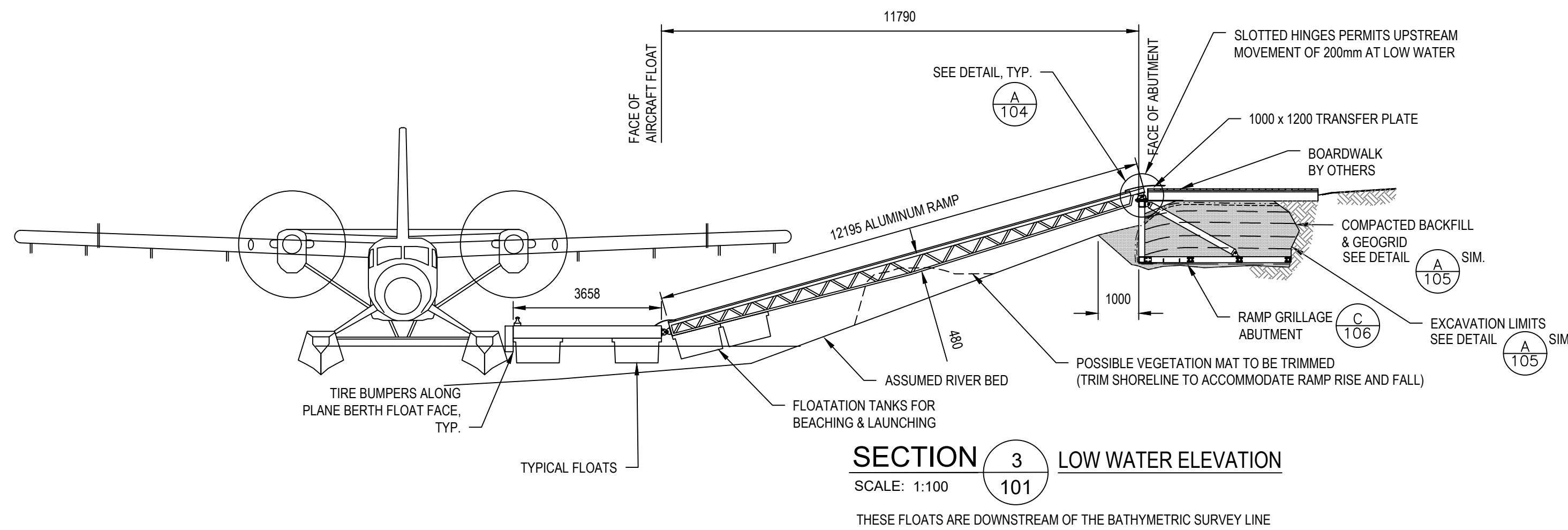
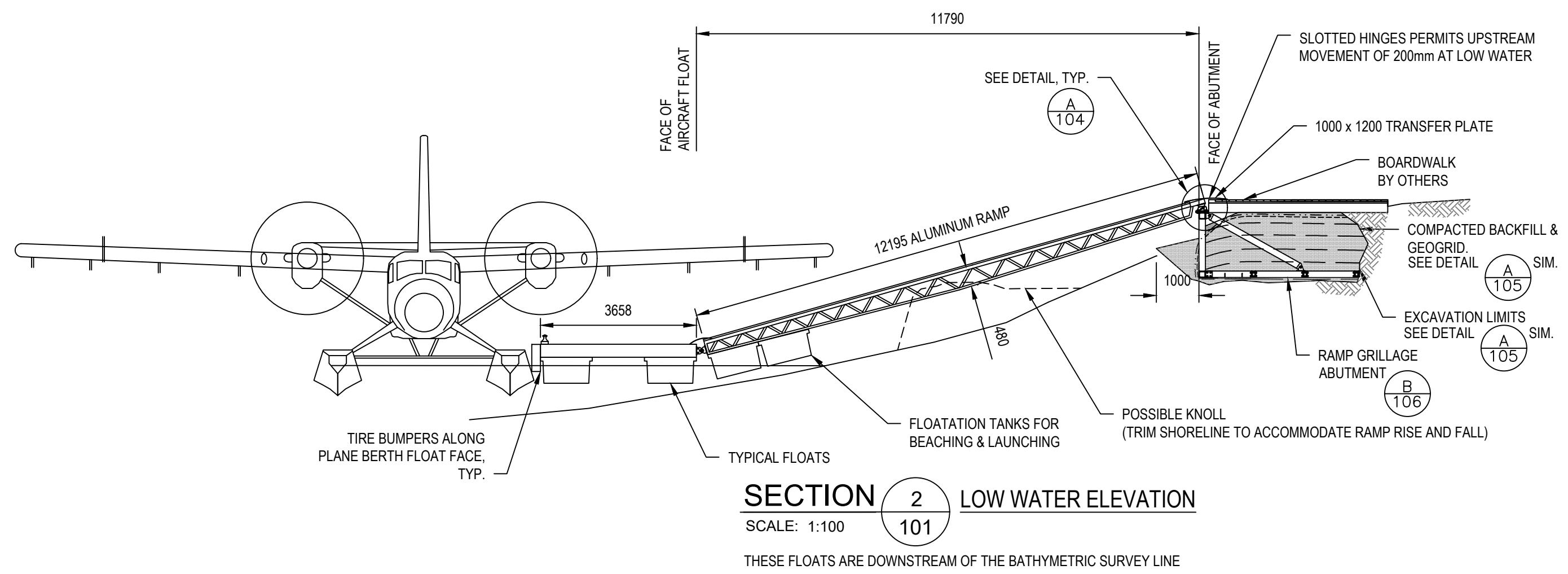
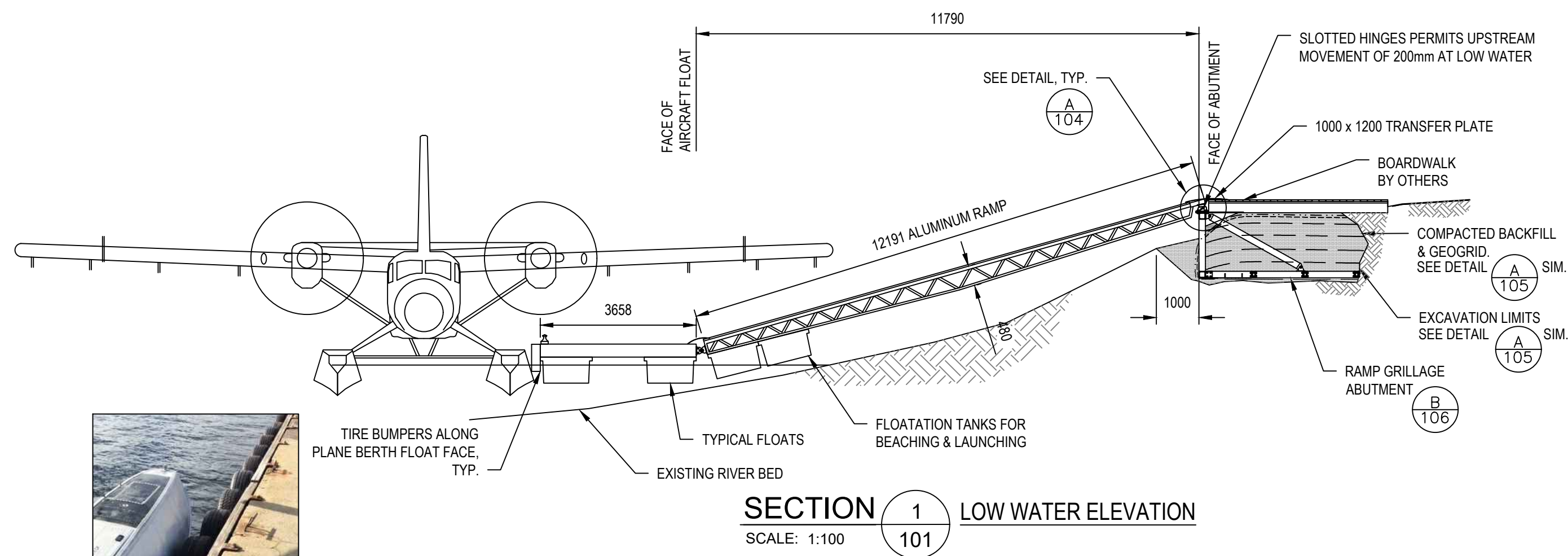
Project title/Titre du projet

VIRGINIA FALLS
NAHANNI NATIONAL PARK RESERVE

Drawing title/Titre du dessin

ELEVATIONS 1 OF 2
HIGH WATER

Surveyed by/Arpenté par GJG	Drawn by/Dessiné par WSL	Date 2018 / 02 / 19
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Dimensions linéaires en millimètres	
Consultant's Name Nom de l'expert-conseil	
Eng. Stamp Sceau de l'ingénieur	

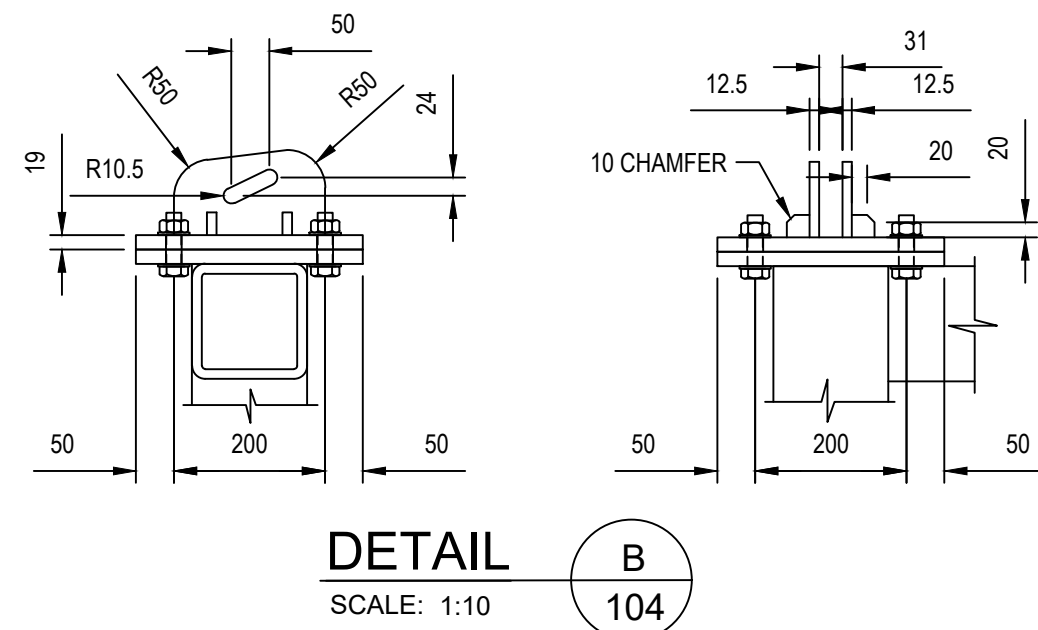
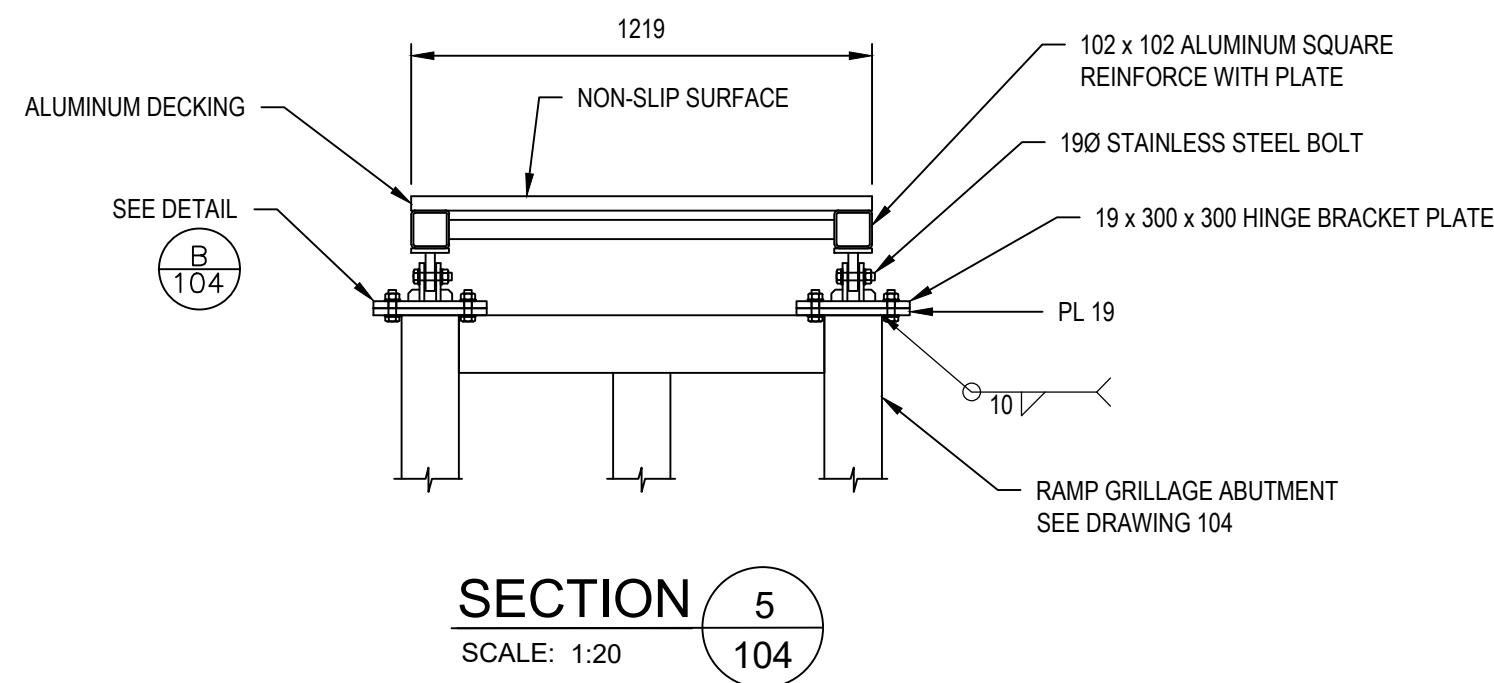
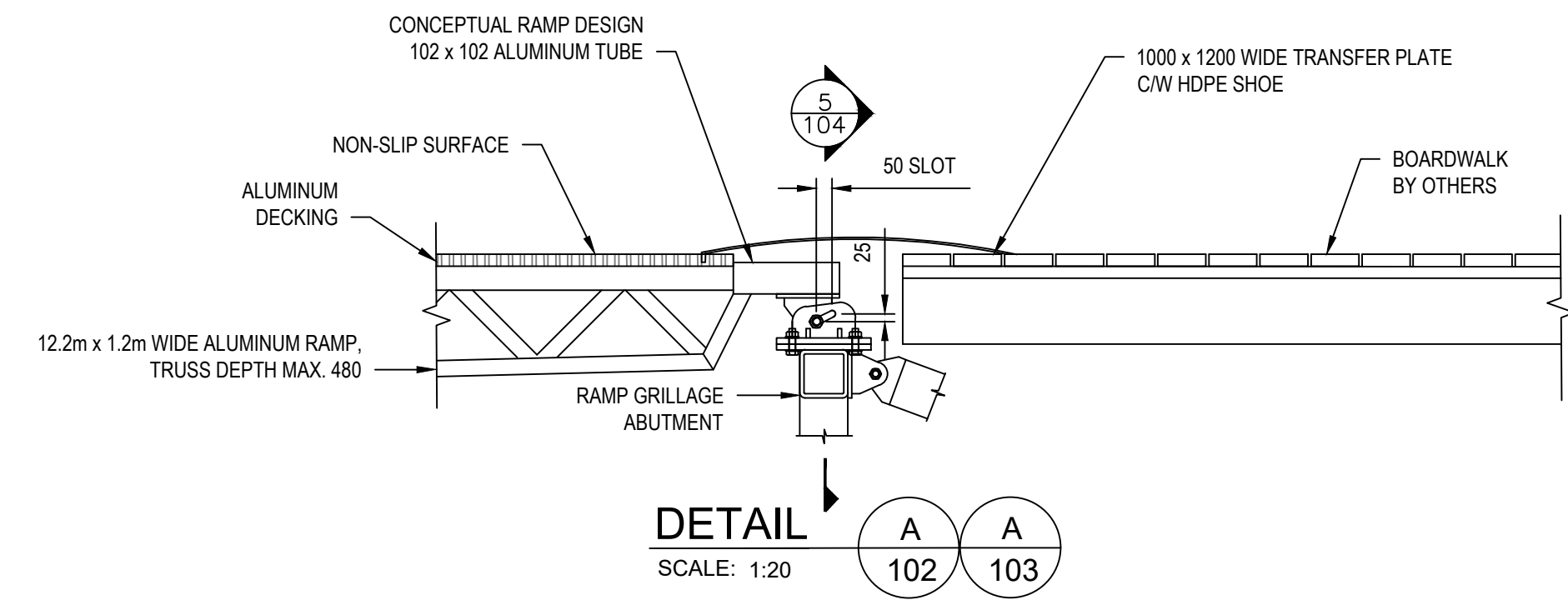
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Strategic Asset Management, Western and Northern Region	Gestion Stratégique des Biens, Région de l'Ouest et du Nord	

Project title/Titre du projet
VIRGINIA FALLS NAHANNI NATIONAL PARK RESERVE

Drawing title/Titre du dessin
ELEVATIONS 2 OF 2 LOW WATER

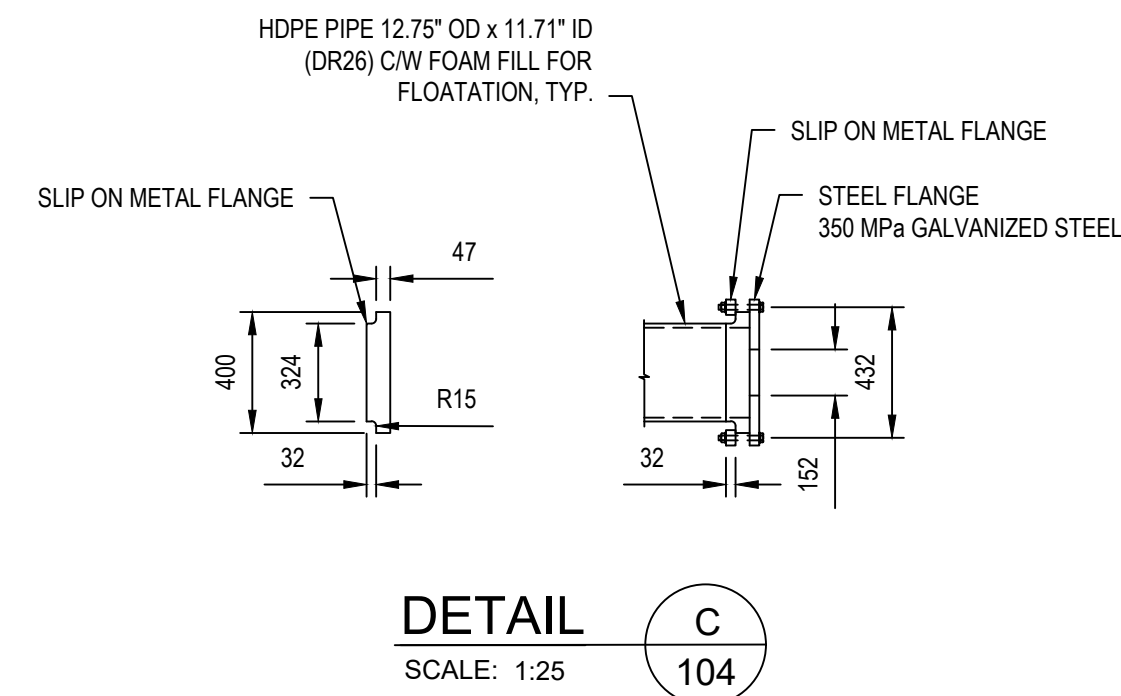
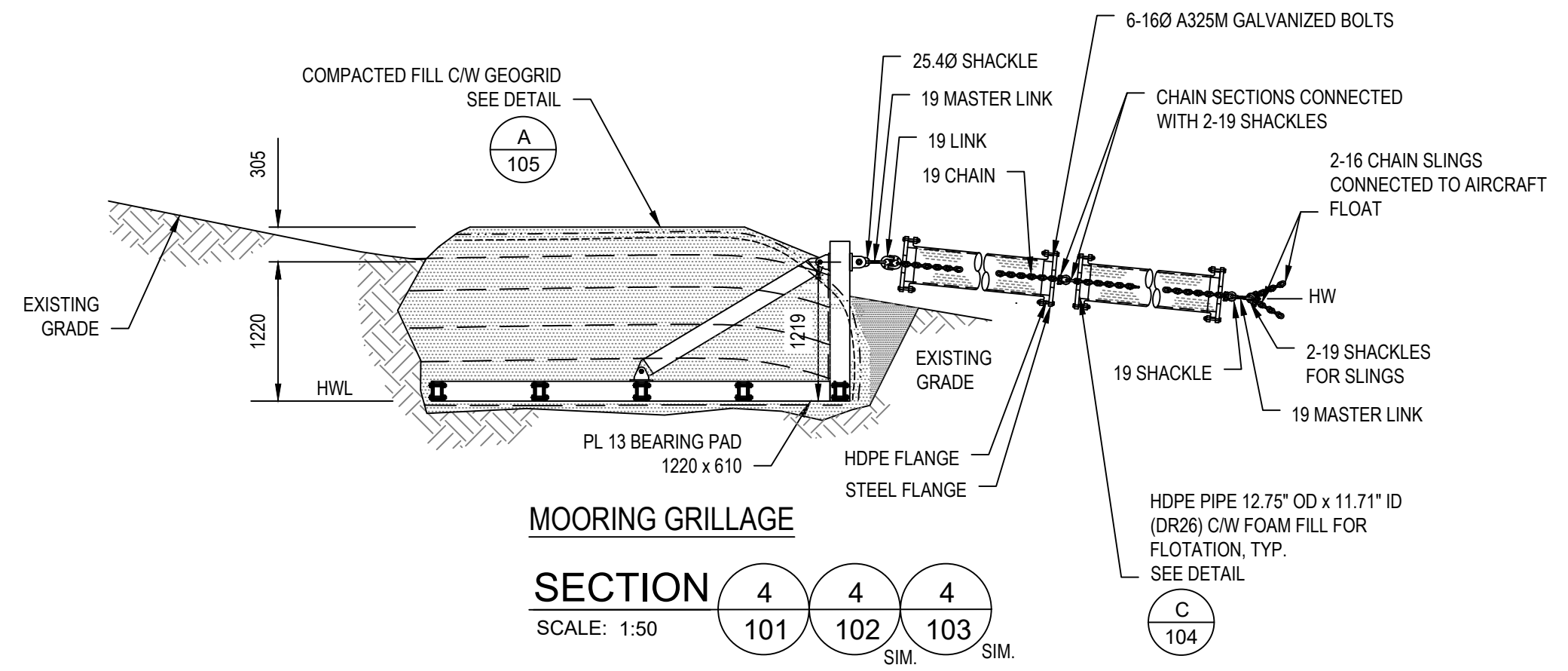
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Date		THS Date
Project No./N° du projet	Asset No./N° du bien	Sheet No./N° de la feuille
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NOTE:

- SUGGESTED PAD EYE STYLE, DETAIL DESIGN BY BUILDING CONTRACTOR



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Linear dimensions in millimètres		Dimensions linéaires en millimètres

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Canada

Project title/Titre du projet

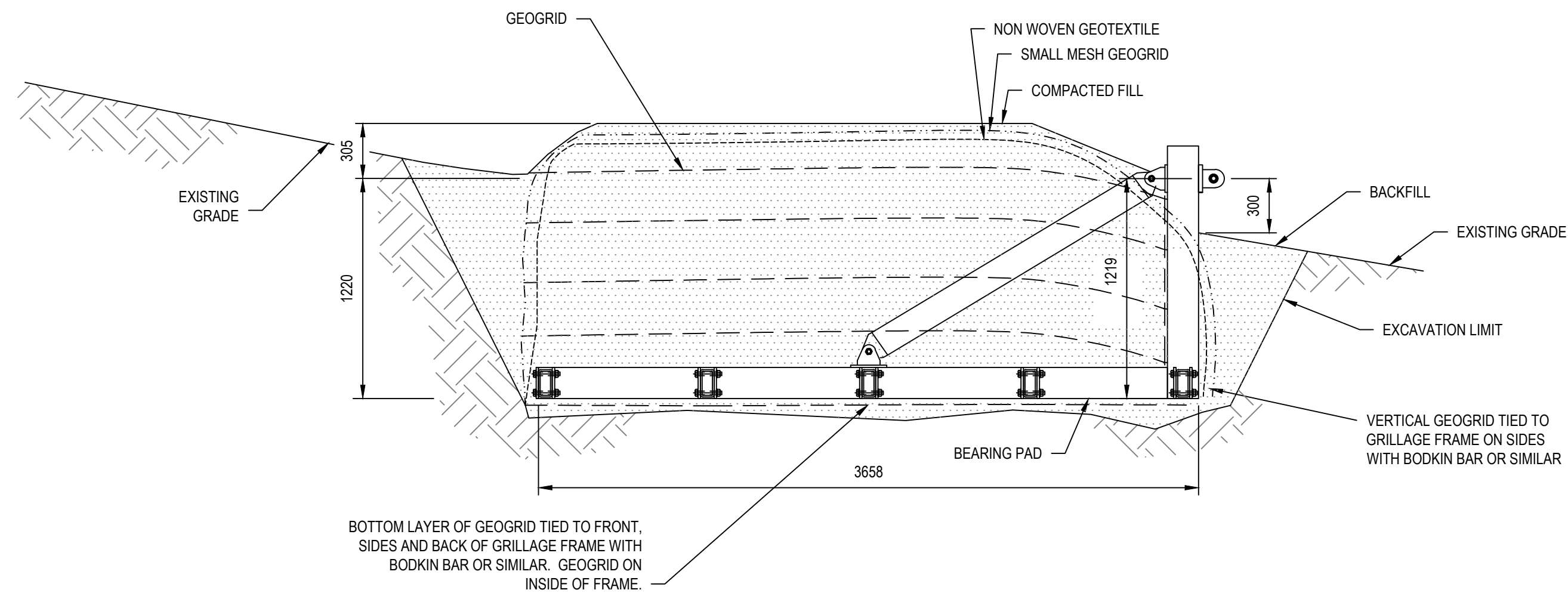
VIRGINIA FALLS
NAHANNI NATIONAL PARK RESERVE

Drawing title/Titre du dessin

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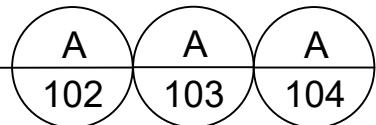
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DETAIL

SCALE: 1:25



THIS GEOTECHNICAL DESIGN IS FOR TYPE A/B/C TYPE GRILLAGES

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Linear dimensions in millimetres	Dimensions linéaires en millimètres

Consultant's Name
Nom de l'expert-conseil

Eng. Skarip
Scieur et Ingénieur

Parks Canada

Strategic Asset
Management,
Western and Northern
Region

Parcs Canada

Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord

Project title/Titre du projet

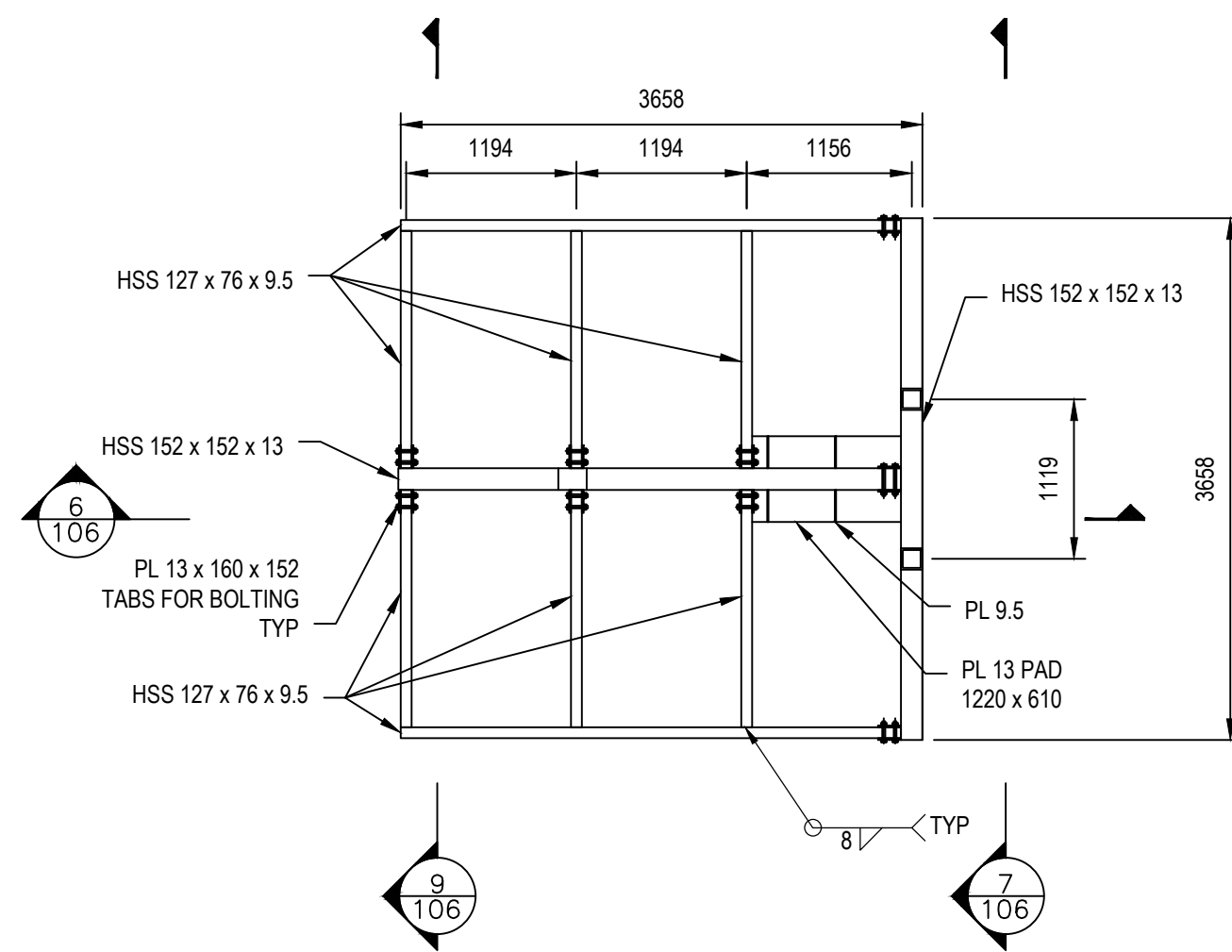
**VIRGINIA FALLS
NAHANNI NATIONAL PARK RESERVE**

Drawing title/Titre du dessin

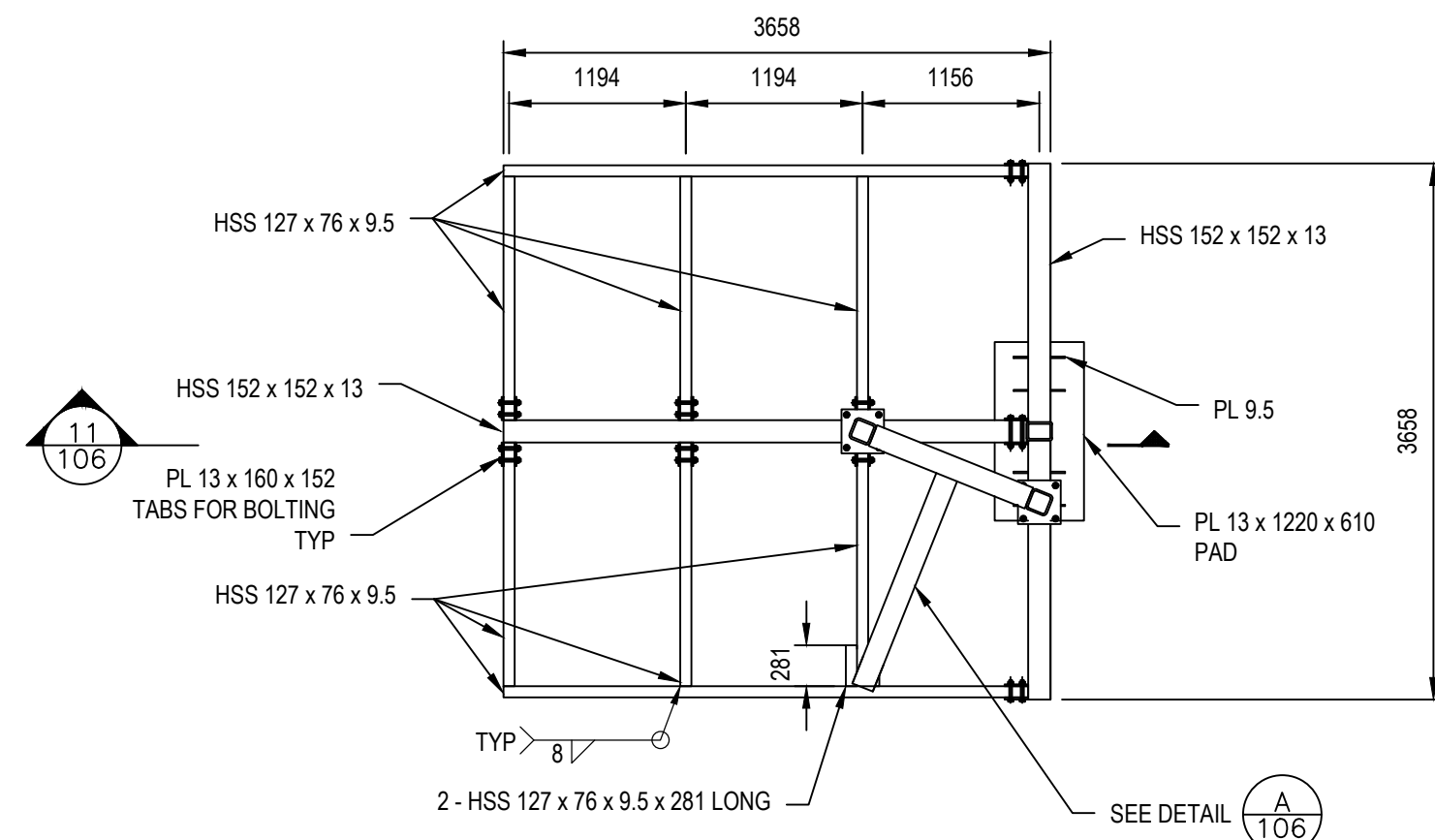
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GJG		
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Drawing Set No./Nº de série du dessin		S105

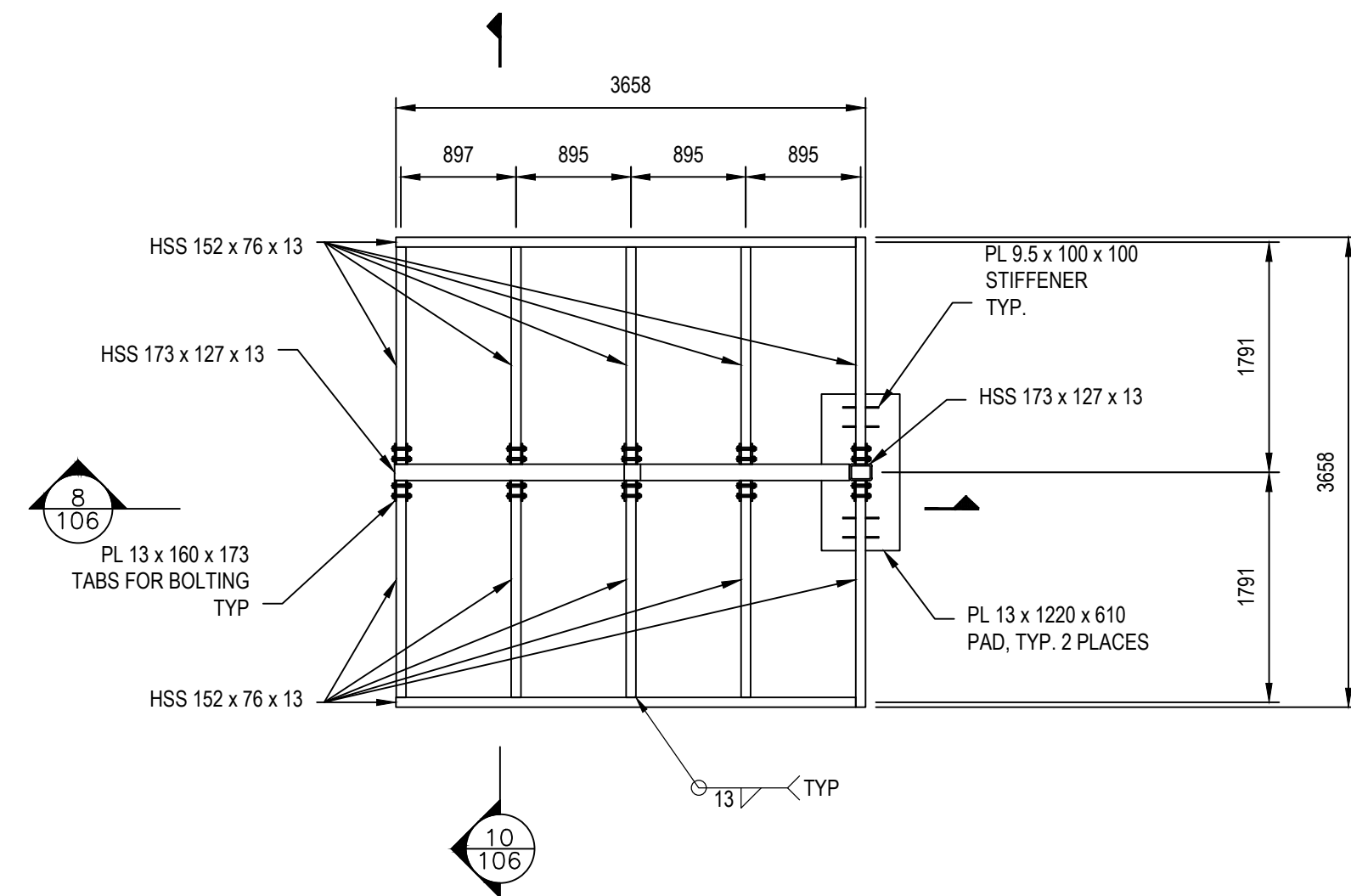
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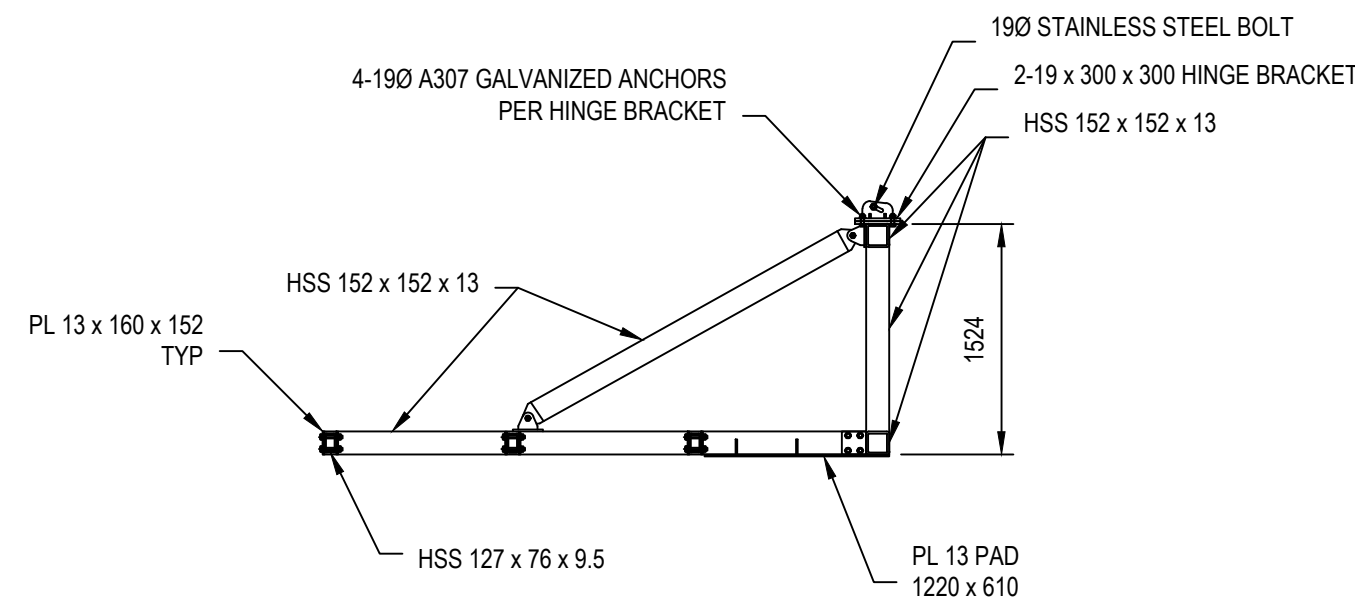
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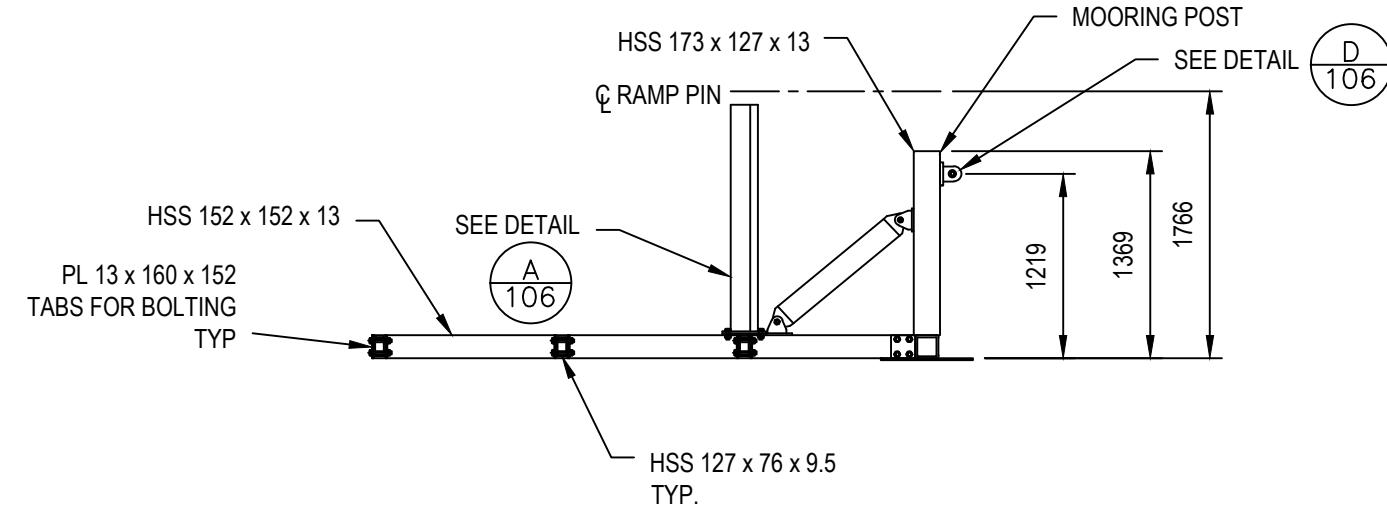
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SCALE: 1:50



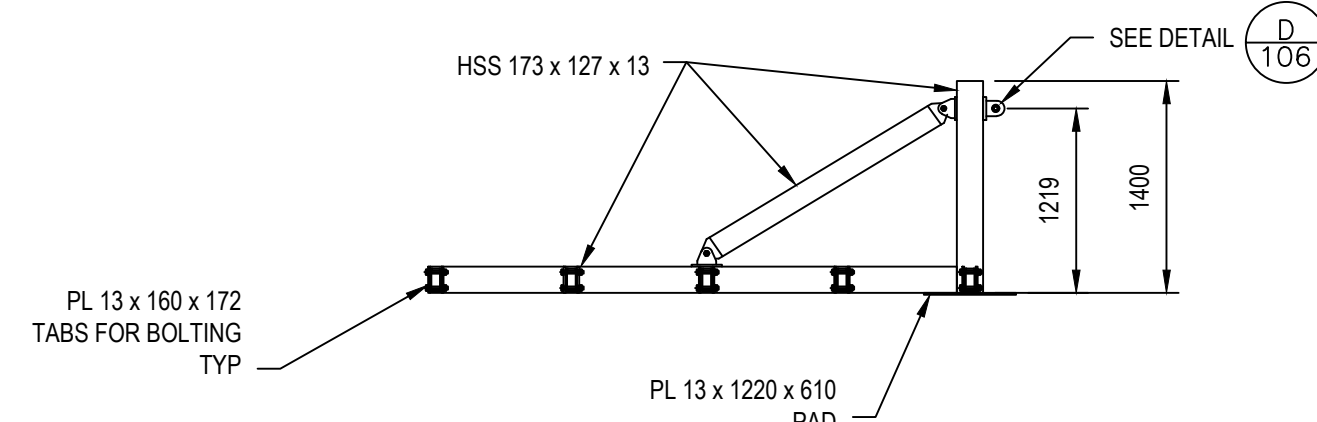
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SCALE: 1:50



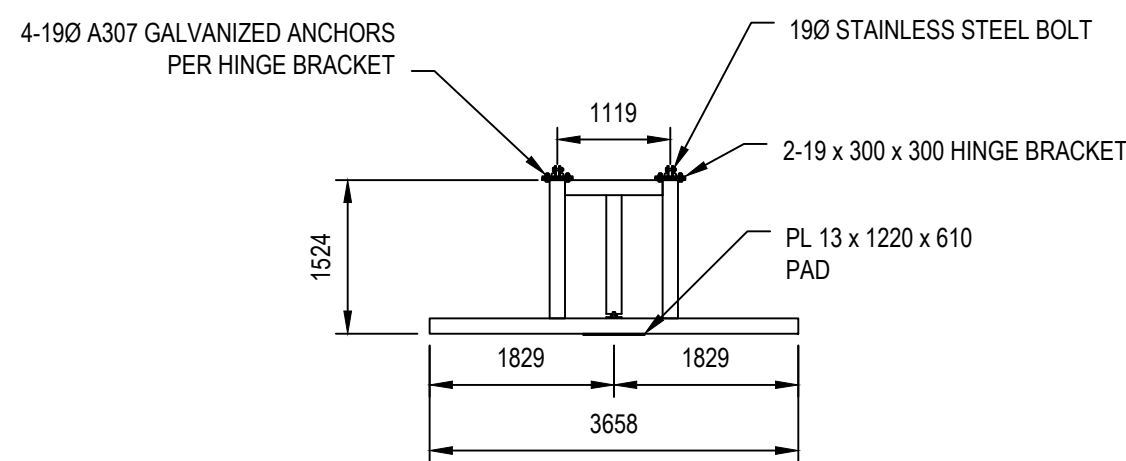
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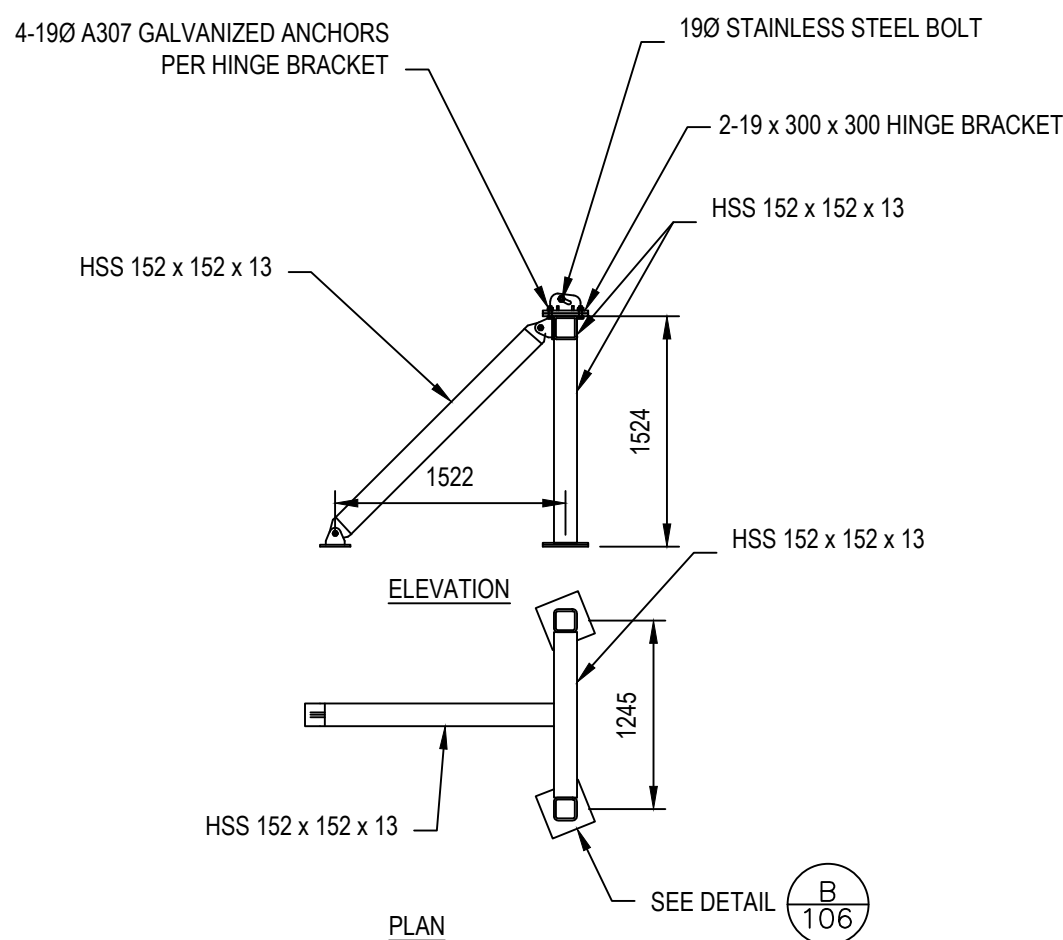
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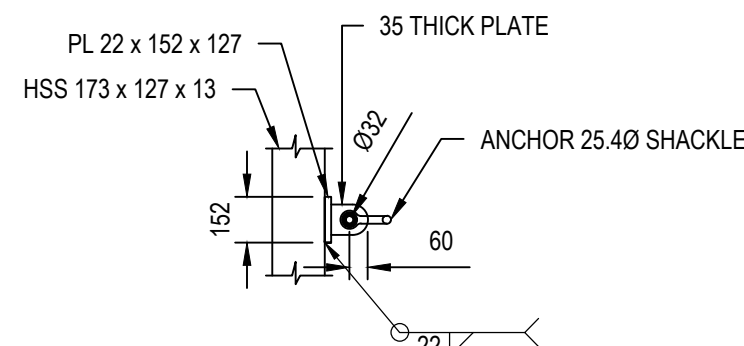
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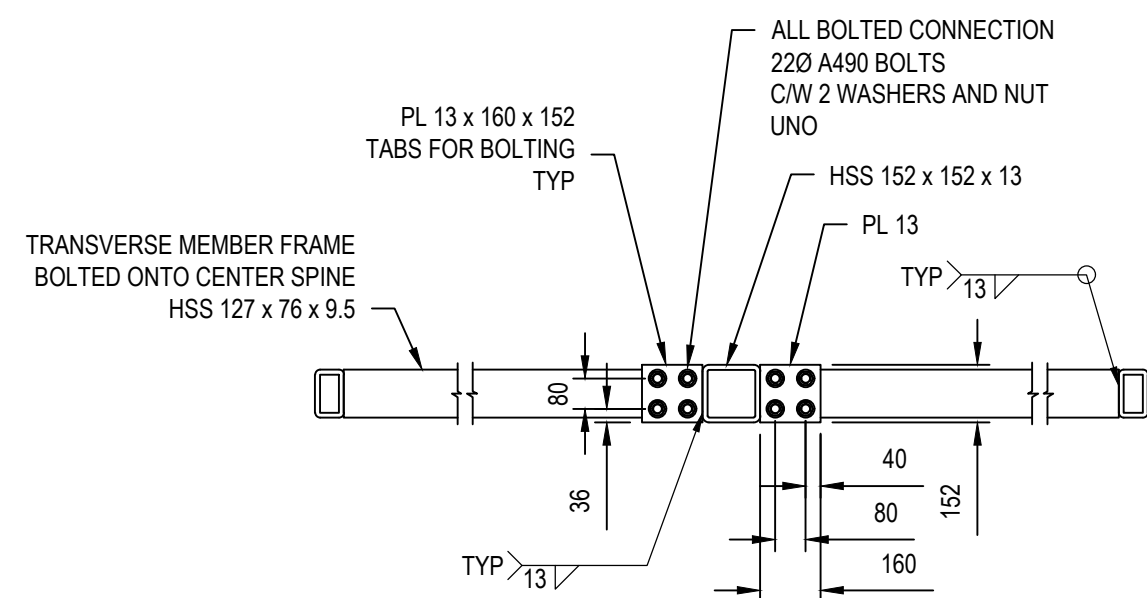
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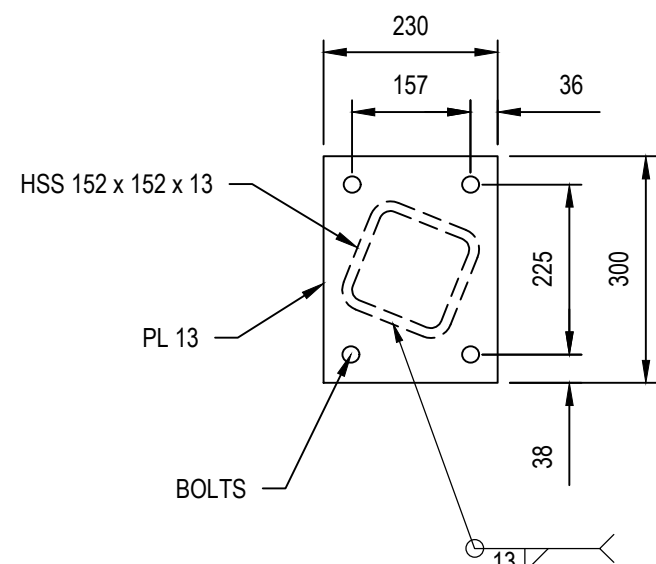
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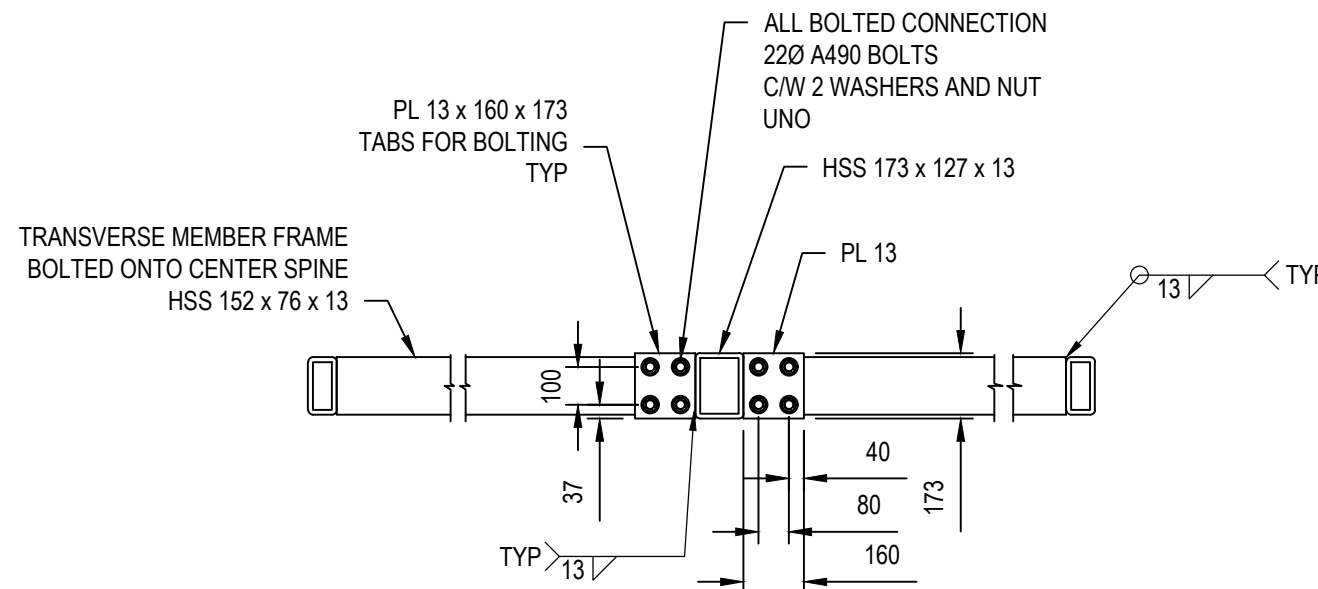
DETAIL D
SCALE: 1:25



SECTION 9
SCALE: 1:20



DETAIL B
SCALE: 1:10



SECTION 10
SCALE: 1:20

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Revision / Revision				
<div><div><div>A</div><div>B</div></div><div><div>Detail number</div><div>Sheet number</div></div></div> <div><div>A Numéro de détail</div><div>B Numéro de la feuille</div></div>				
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Consultant's Name Nom de l'expert-conseil			Eng. Stamp Sceau de l'ingénieur	
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Parks Canada
Strategic Asset Management,
Western and Northern Region

Parcs Canada
Gestion Stratégique des Biens,
Région de l'Ouest et du Nord

Project title/Titre du projet

**VIRGINIA FALLS
NAHANNI NATIONAL PARK RESERVE**

Drawing title/Titre du dessin

GRILLAGE DETAILS

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Designed by/Concept par	Reviewed by/Revisé par	Scale/Échelle
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S106