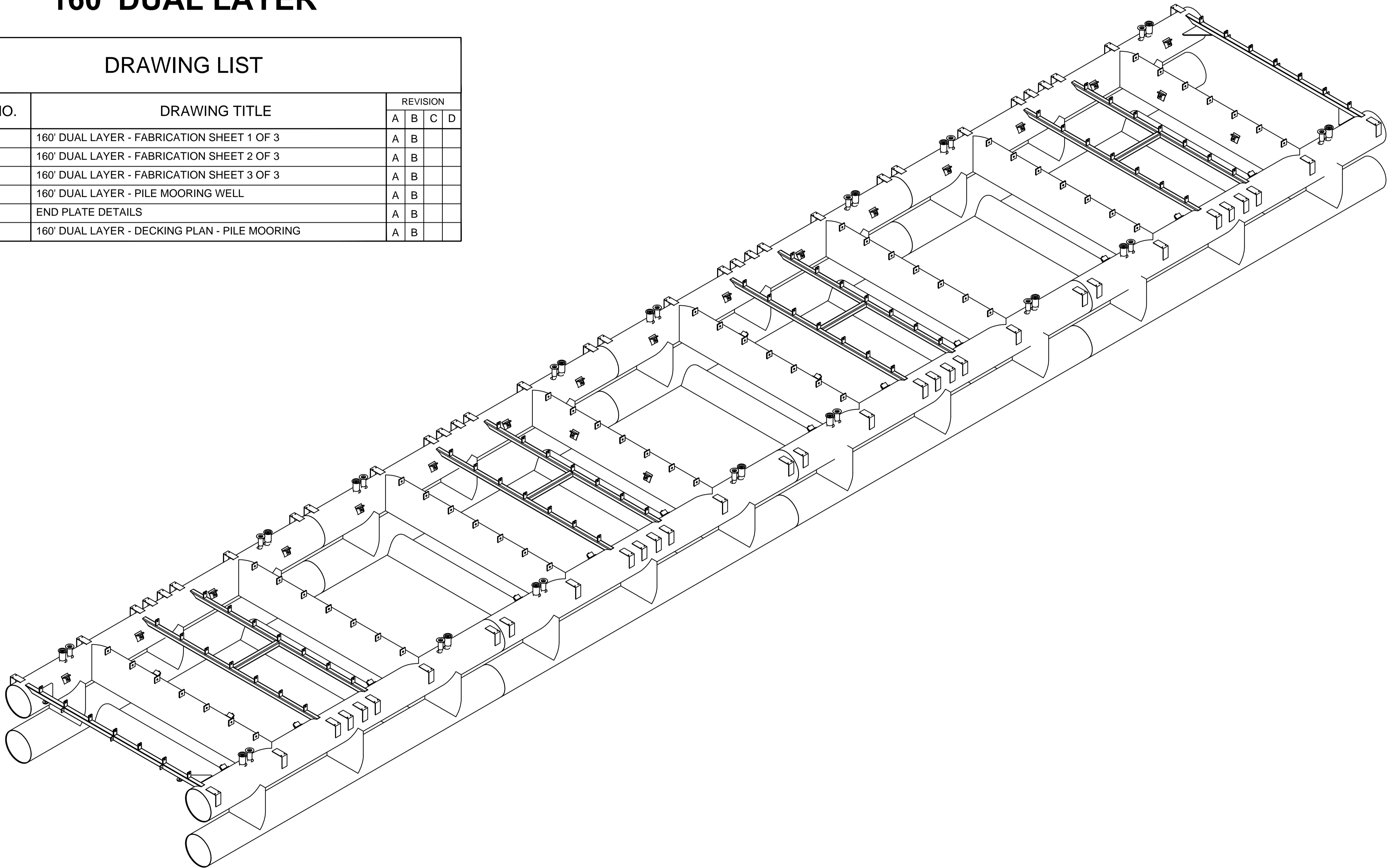
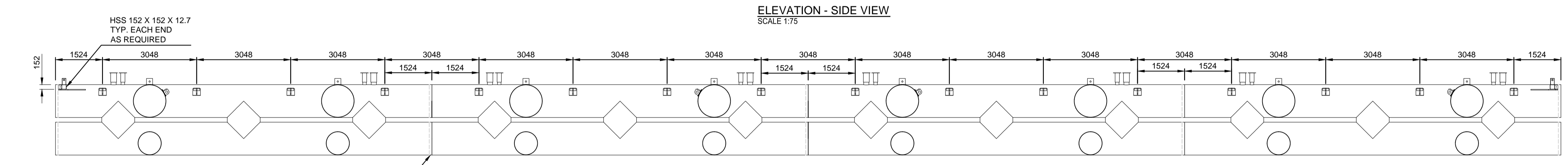
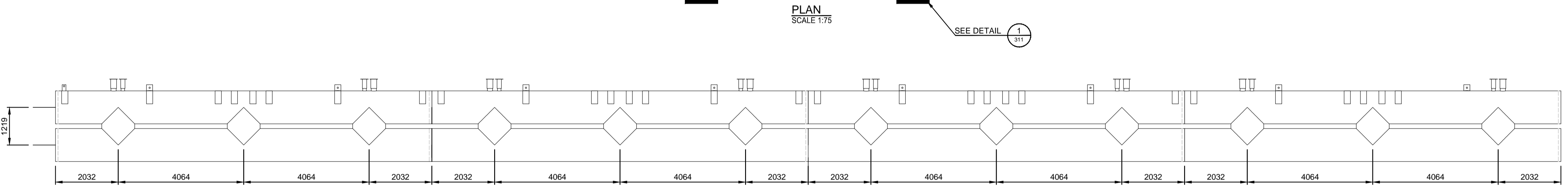
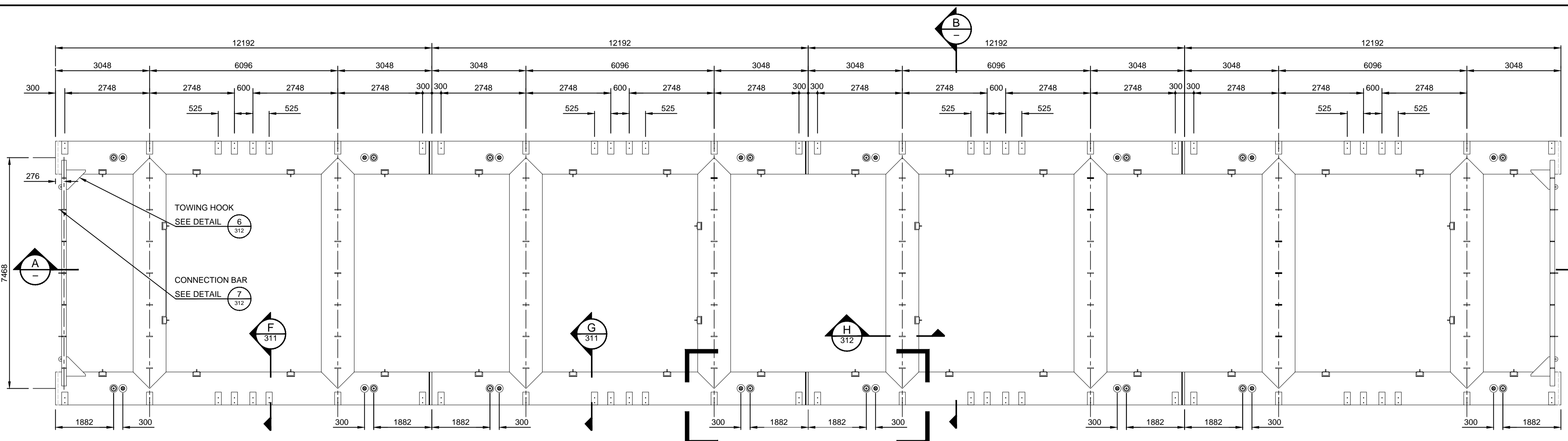


# TYPICAL CATAMARAN BREAKWATER WITH PILE BRACKET OPTION 160' DUAL LAYER

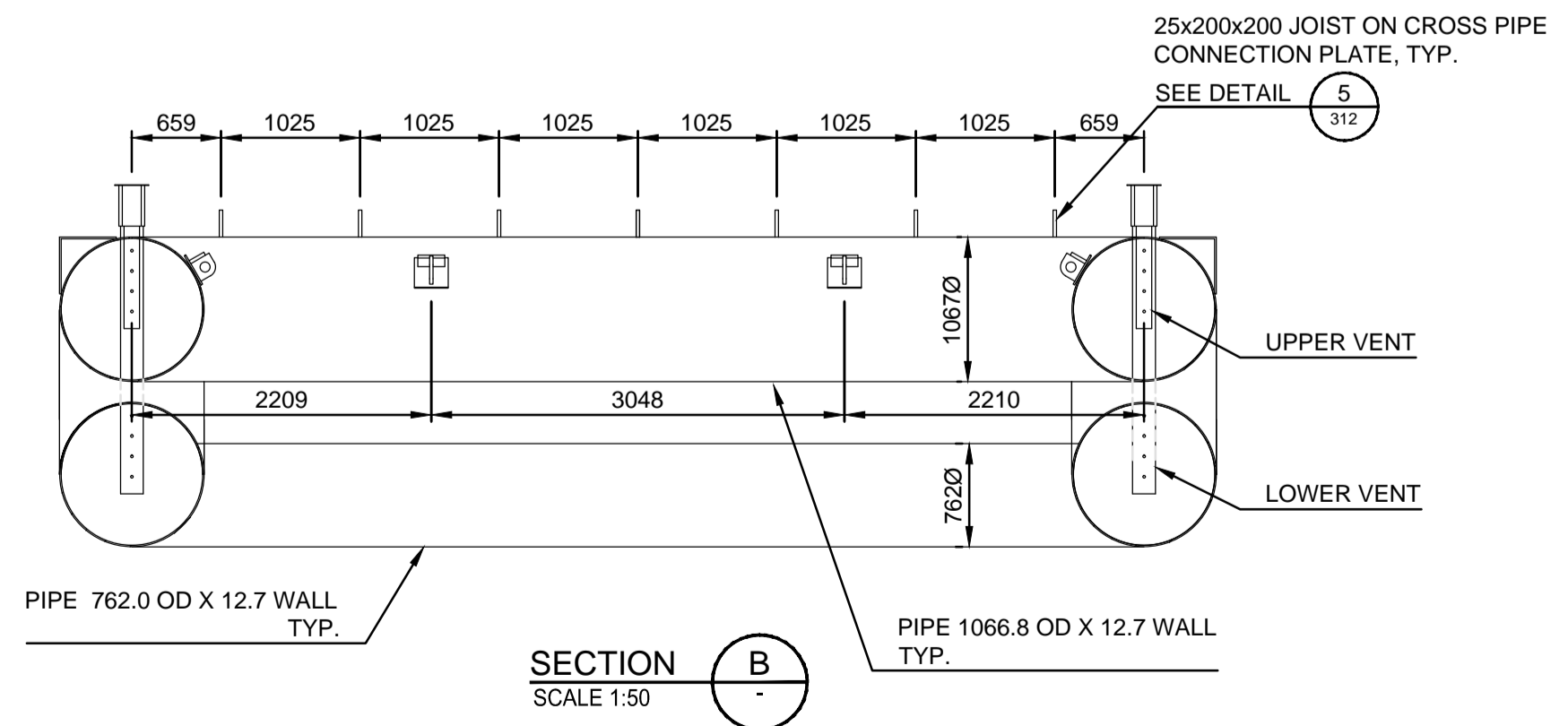
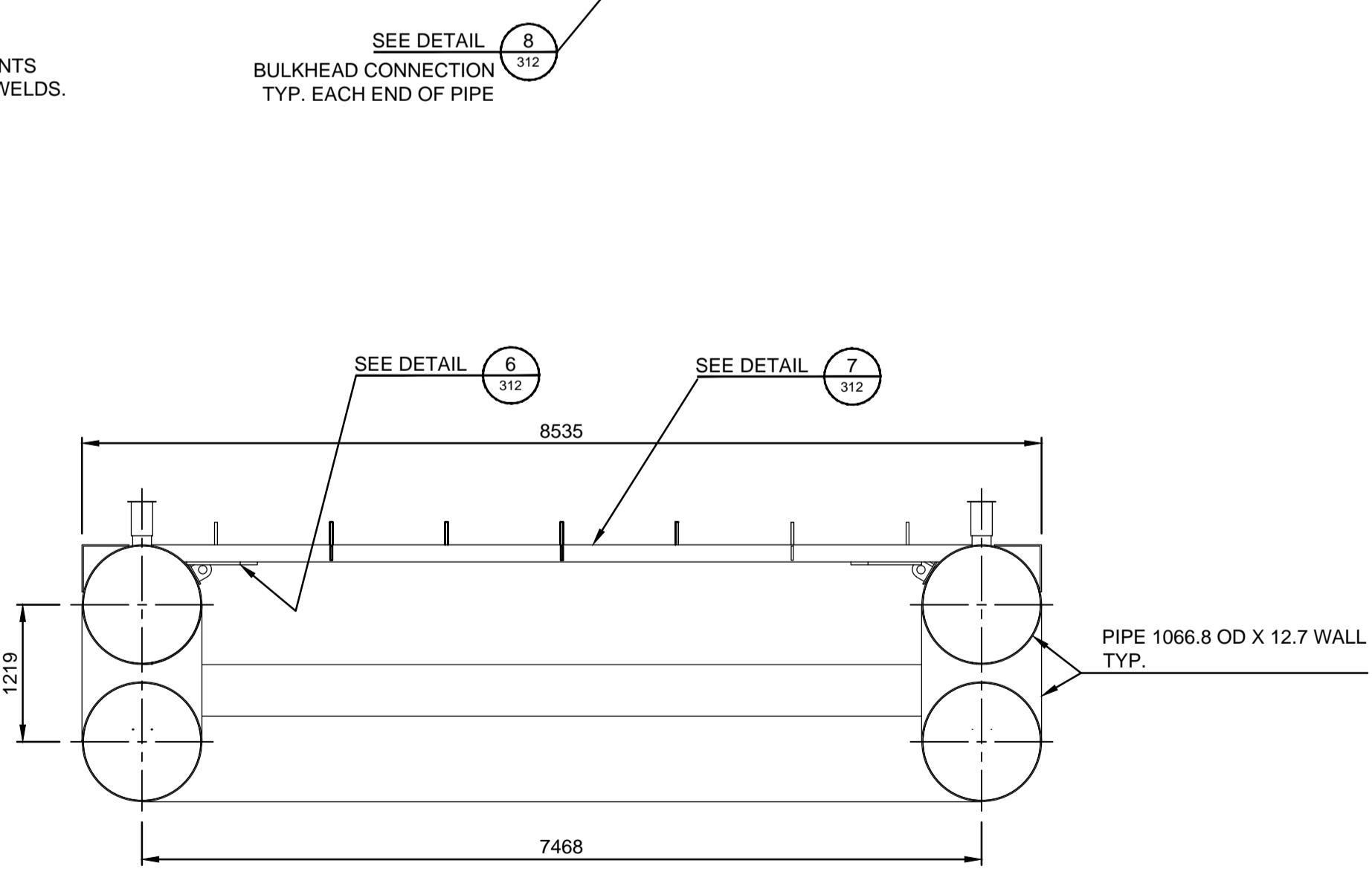
DRAWING LIST					
DRAWING NO.	DRAWING TITLE	REVISION			
		A	B	C	D
310	160' DUAL LAYER - FABRICATION SHEET 1 OF 3	A	B		
311	160' DUAL LAYER - FABRICATION SHEET 2 OF 3	A	B		
312	160' DUAL LAYER - FABRICATION SHEET 3 OF 3	A	B		
320	160' DUAL LAYER - PILE MOORING WELL	A	B		
330	END PLATE DETAILS	A	B		
351	160' DUAL LAYER - DECKING PLAN - PILE MOORING	A	B		



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NOTE: ALL CONNECTIONS BETWEEN PIPE SEGMENTS TO BE FORMED WITH FULL PENETRATION WELDS.



NOTE: COMPLETED FABRICATION TO BE PAINTED - REFER TO SPECIFICATIONS FOR APPROVED PAINT SYSTEM. COLOUR TO BE WEST COAST GREEN - FORMULA: BLK OP30+; YOX OP27+; GRN 2P56+ (MEASURED AS 1/64 THS)

**DO NOT SCALE DRAWINGS**

Revision	Description/Description	Date/Date
B	ISSUED FOR CONSTRUCTION	16/01/12
A	ISSUED FOR TENDER	15/09/13

**Fisheries & Oceans Canada  
 Small Craft Harbours Branch  
 Pacific Division**  
 200 - 401 Burrard Street  
 Vancouver, Canada, V6C 3S4

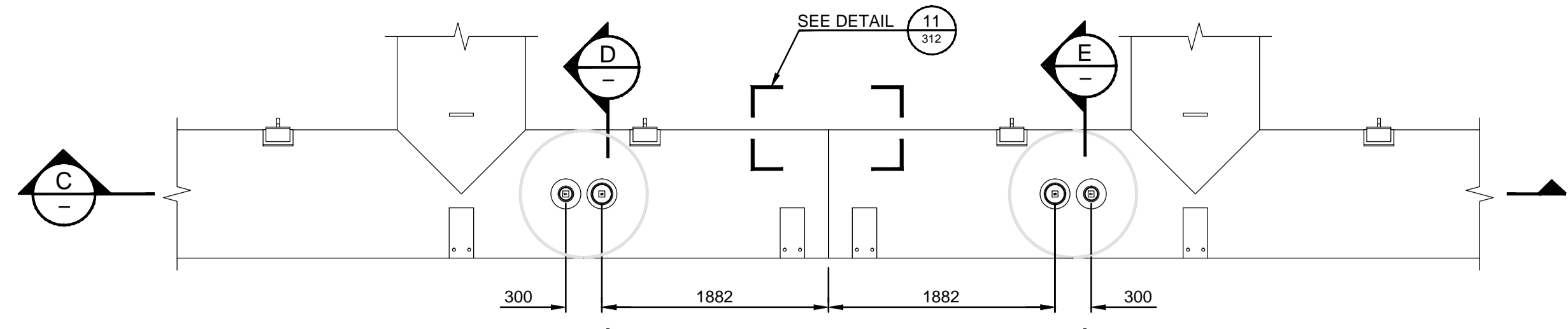
**TYPICAL CATAMARAN BREAKWATER**

Approved by/Approve par  
**R.E.**  
 Designed by/Concept par  
**R.E.**  
 Drawn by/Dessine par  
**WSL**  
 PWGSC Project Manager/Administrateur de Projets TPSGC  
 PWGSC, Architectural and Engineering Resources Manager/  
 Ressources Architectural et de Directeur d'ingénierie, TPSGC  
 Client/client  
**KLA**  
 Drawing title/Titre du dessin

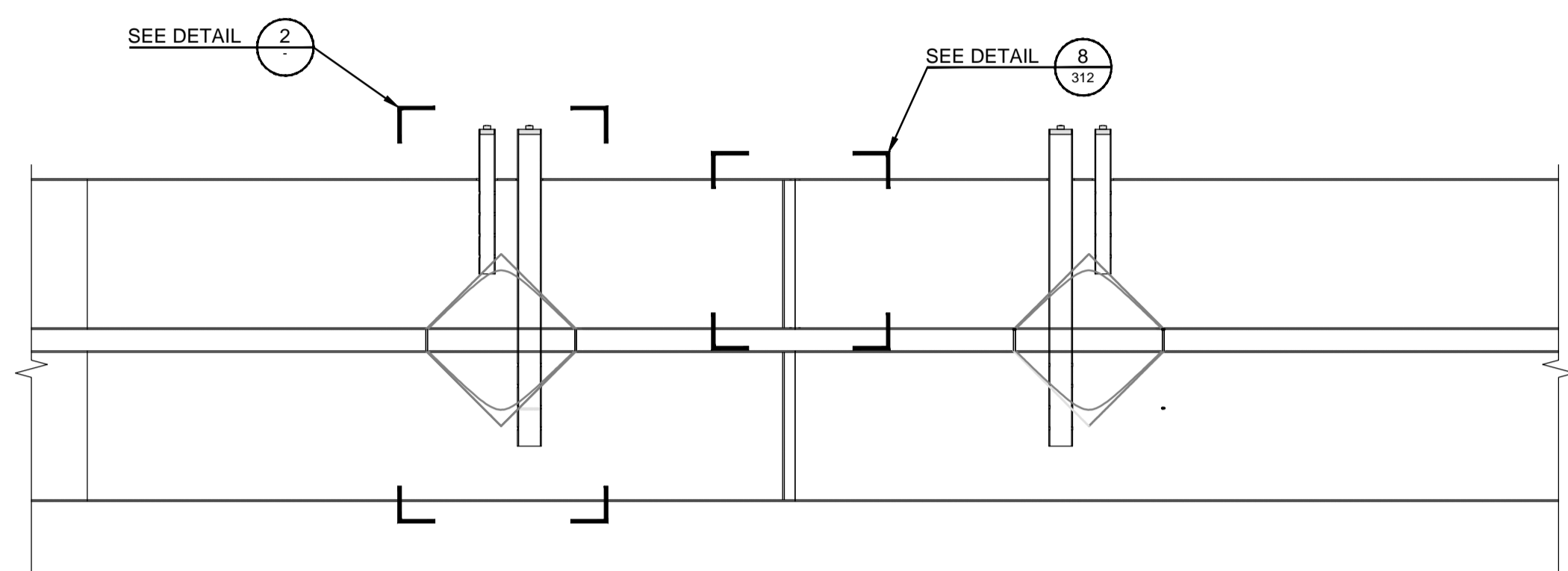
**160' DUAL LAYER  
 FABRICATION  
 SHEET 1 OF 3**

Project No./No. du projet	Sheet/ Feuille	Revision no./ La Révision no.
<b>BW-CAT</b>	<b>310</b> OF	<b>B</b>

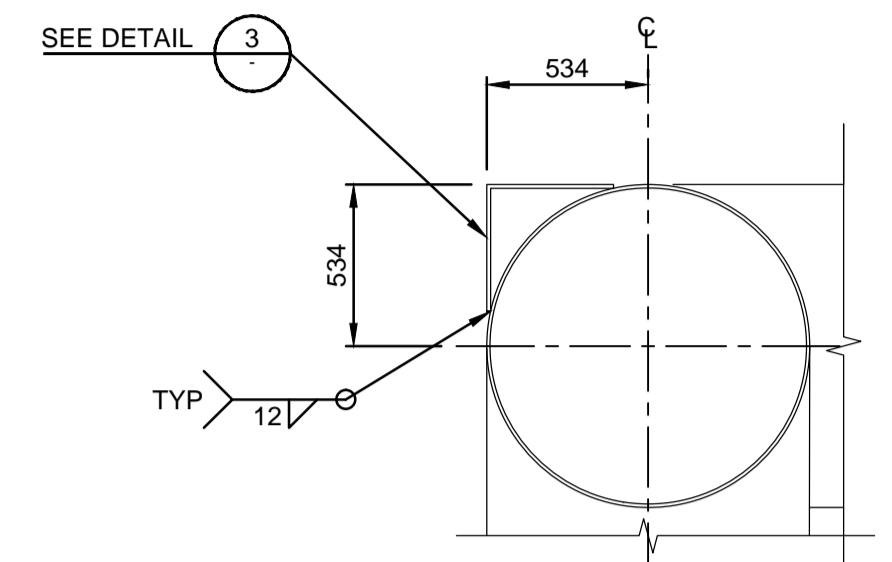
**KLA ENGINEERING LTD.**  
 PO BOX 21115  
 102-22441 DEWDNEY TRUNK ROAD  
 MAPLE RIDGE, B.C.



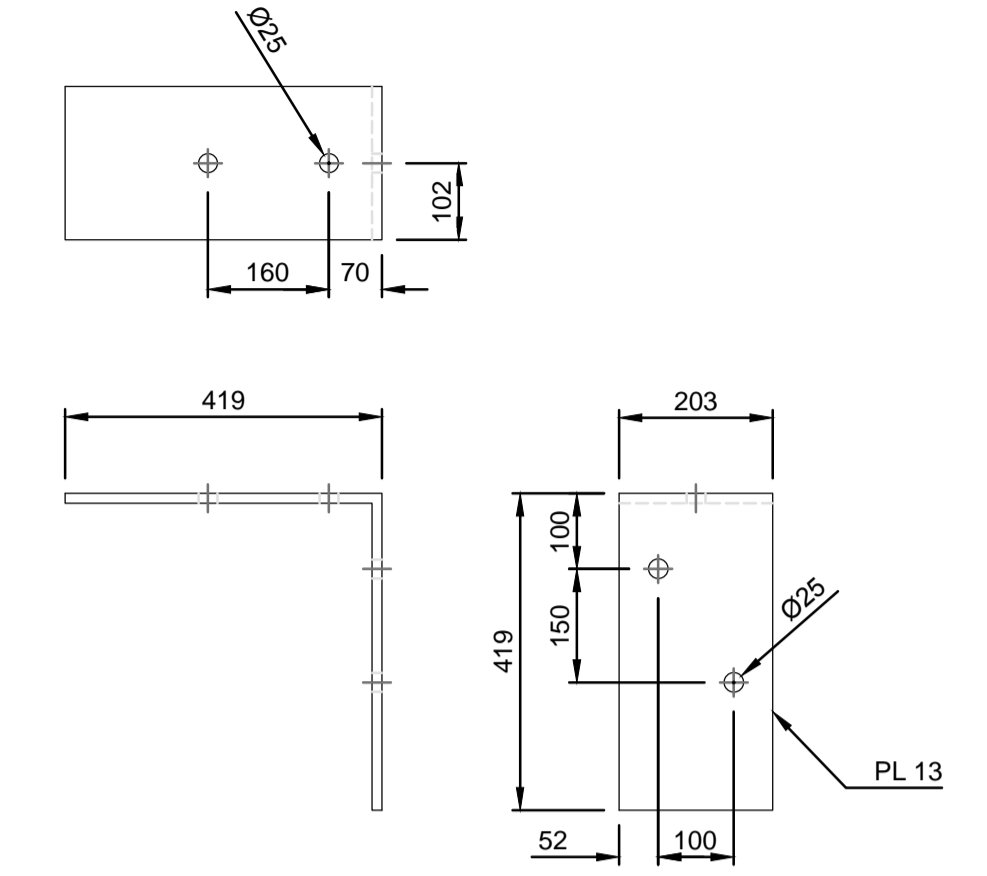
**DETAIL 1**  
SCALE 1:40



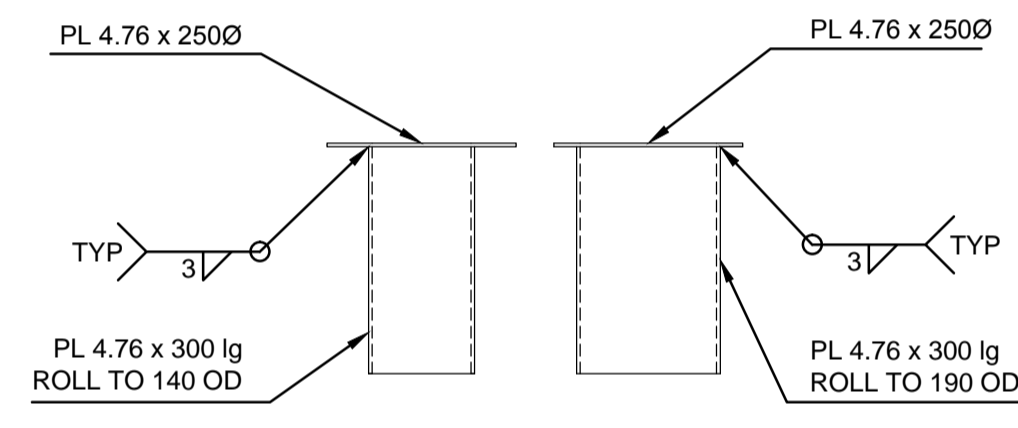
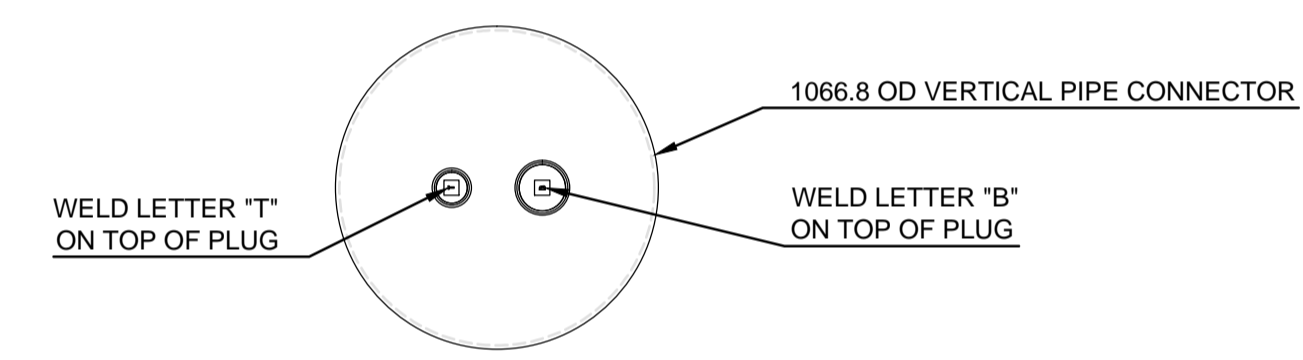
**SECTION C**  
SCALE 1:40



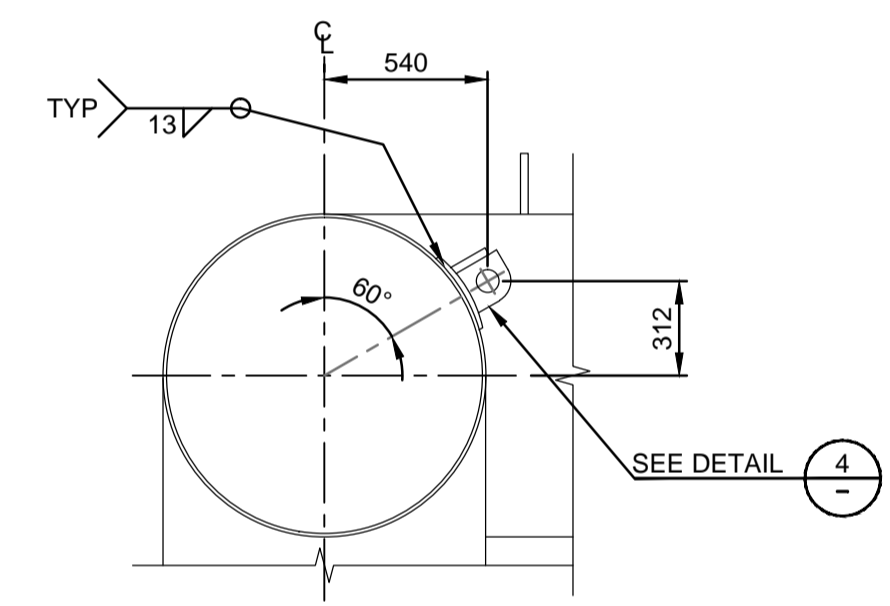
**SECTION F**  
SCALE 1:25



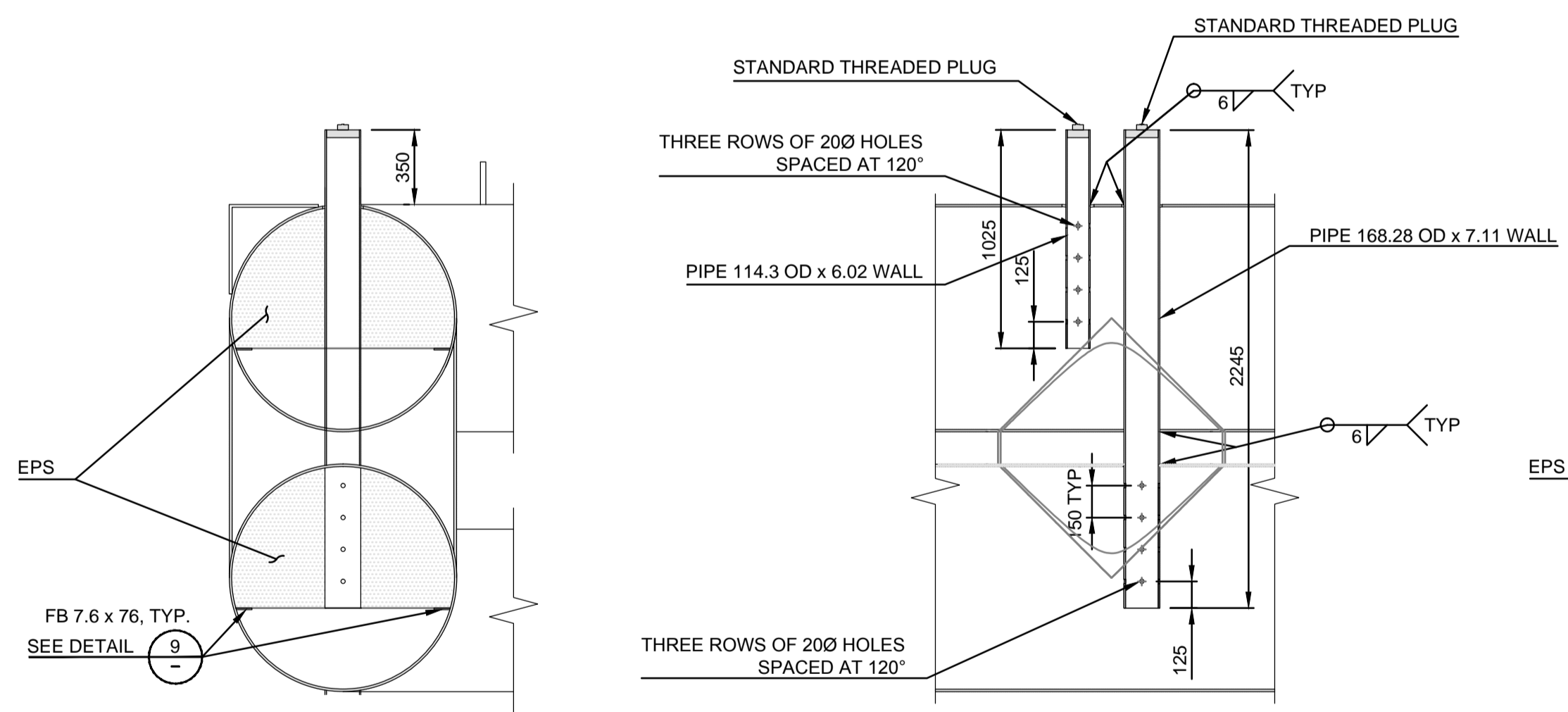
**RUB BOARD ATTACHMENT BRACKET DETAIL 3**  
SCALE 1:10



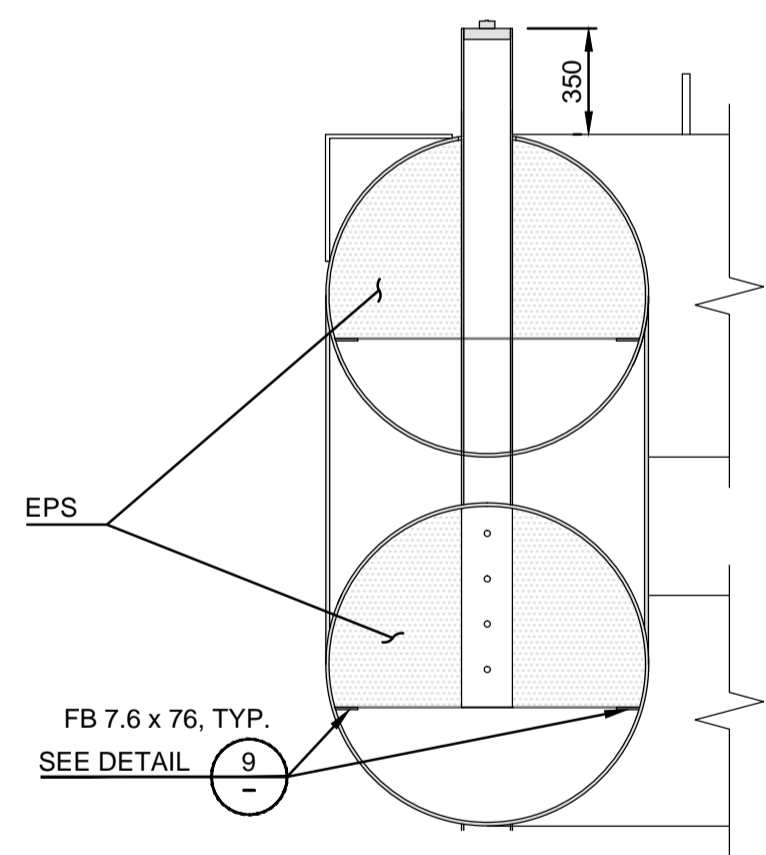
**DECK SLEEVE DETAIL 10**  
SCALE 1:10



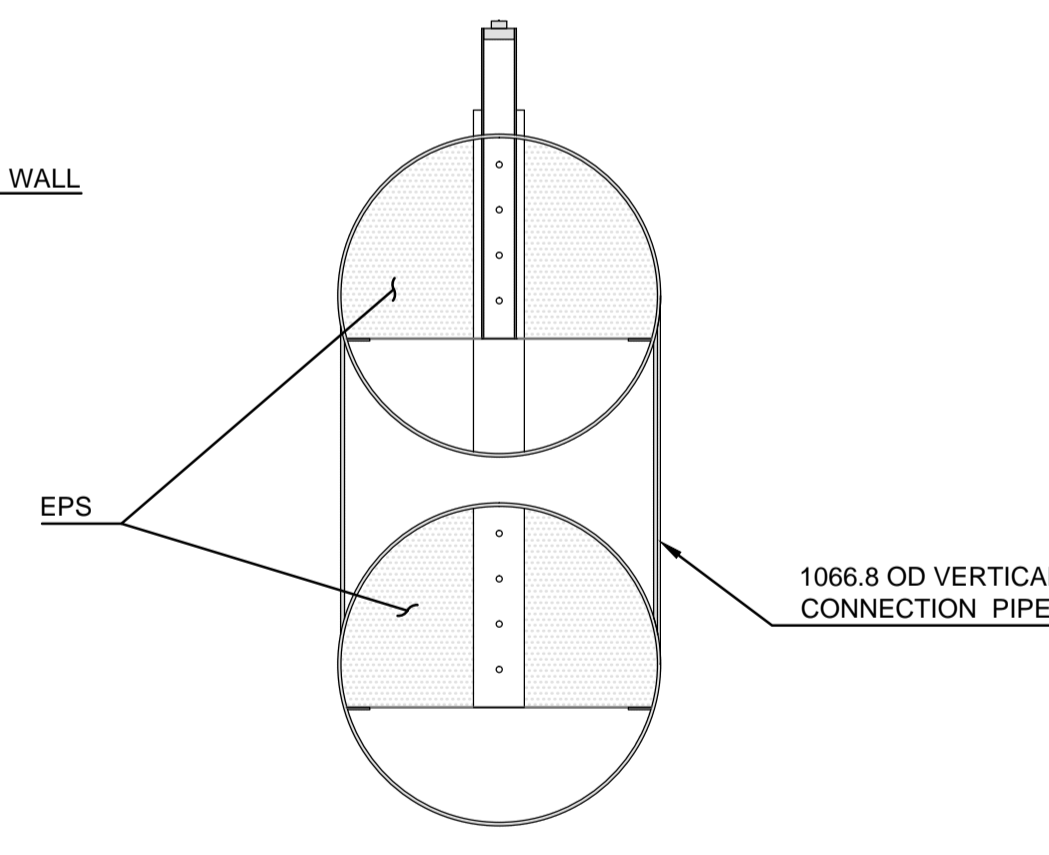
**SECTION G**  
SCALE 1:25



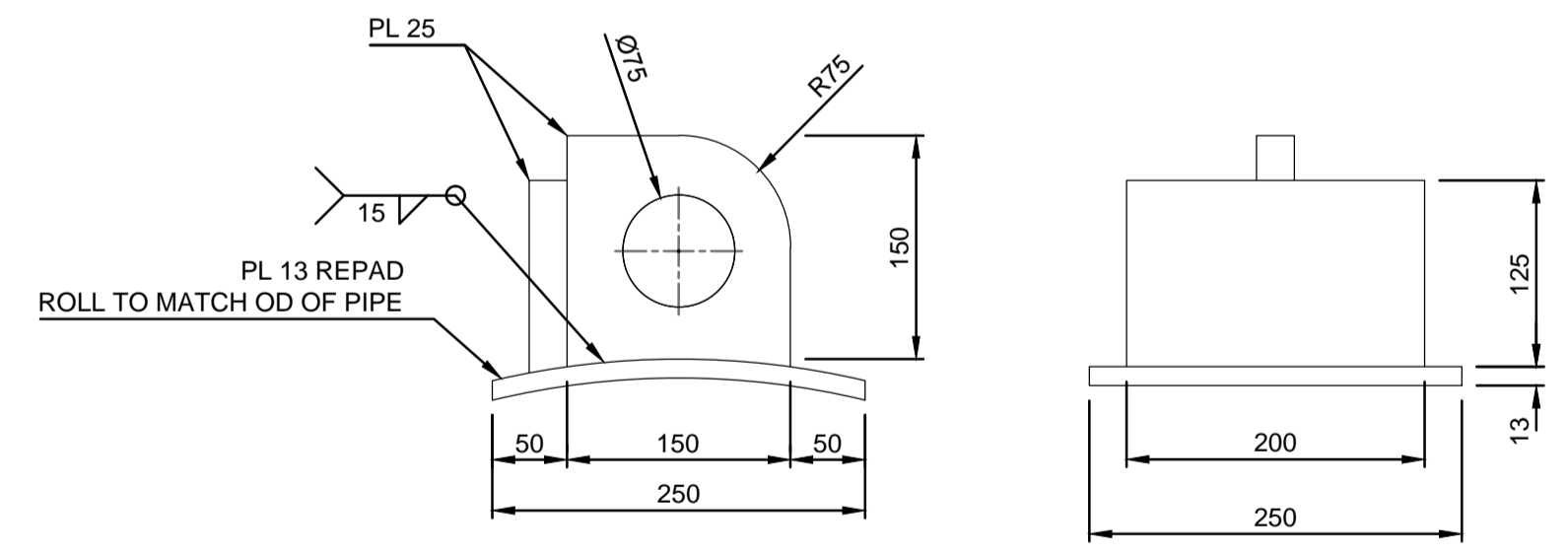
**BALLAST FILL / VENT PIPE DETAIL 2**  
SCALE 1:25



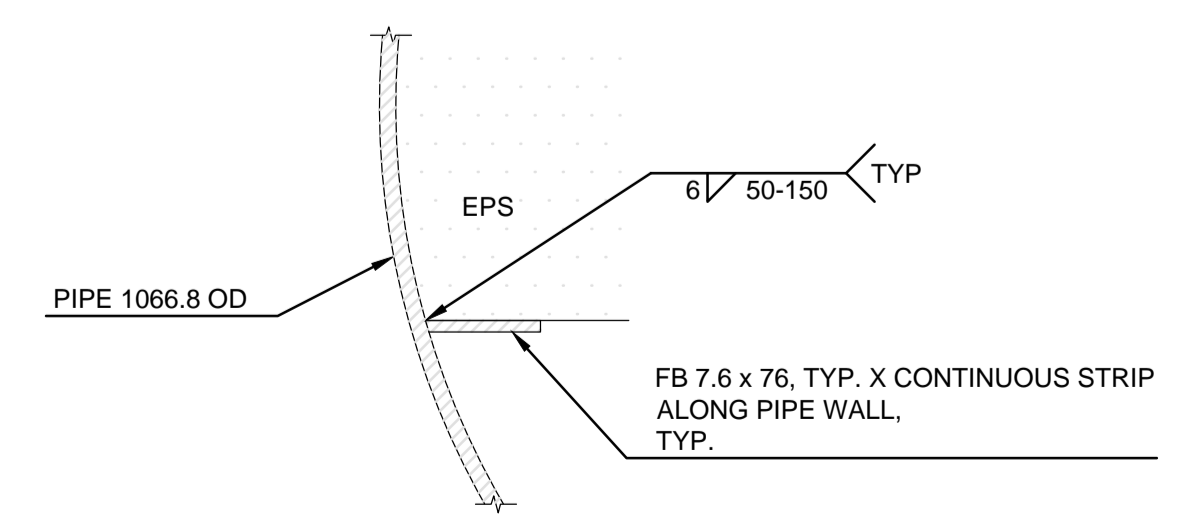
**SECTION D**  
SCALE 1:25



**SECTION E**  
SCALE 1:25



**MOORING LUG DETAIL 4**  
SCALE 1:5



**DETAIL 9**  
SCALE 1:5

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Revision/	Description/Description	Date/Date
B	ISSUED FOR CONSTRUCTION	16/01/12
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**Pacific Division**  
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 Vancouver, Canada, V6C 3S4

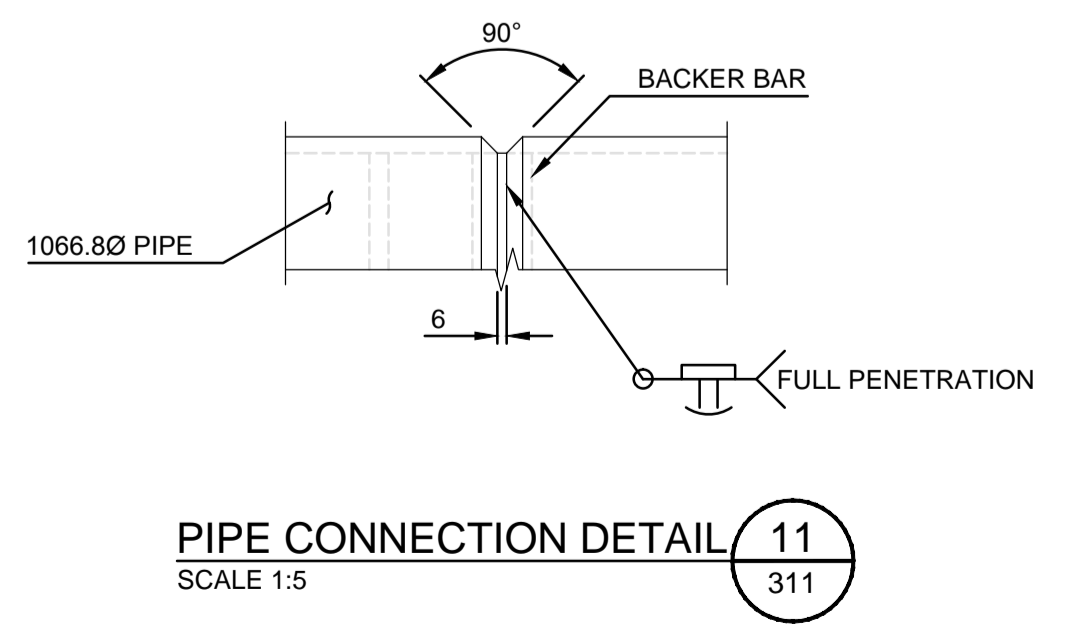
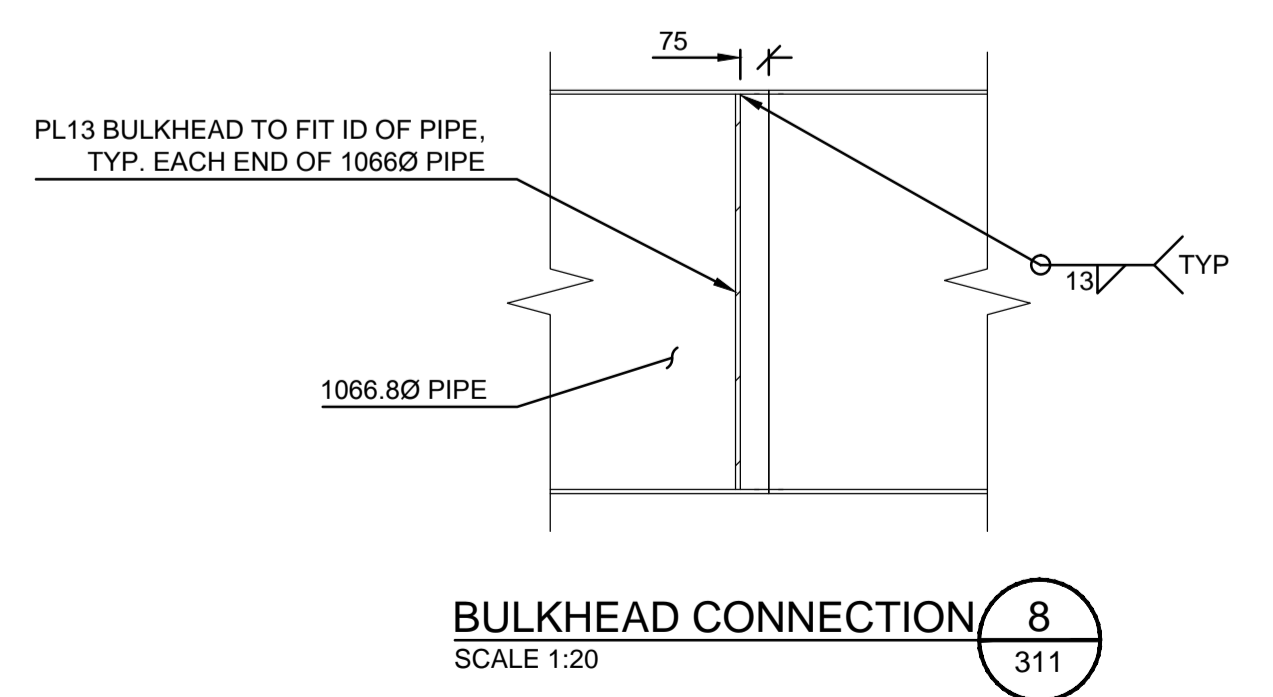
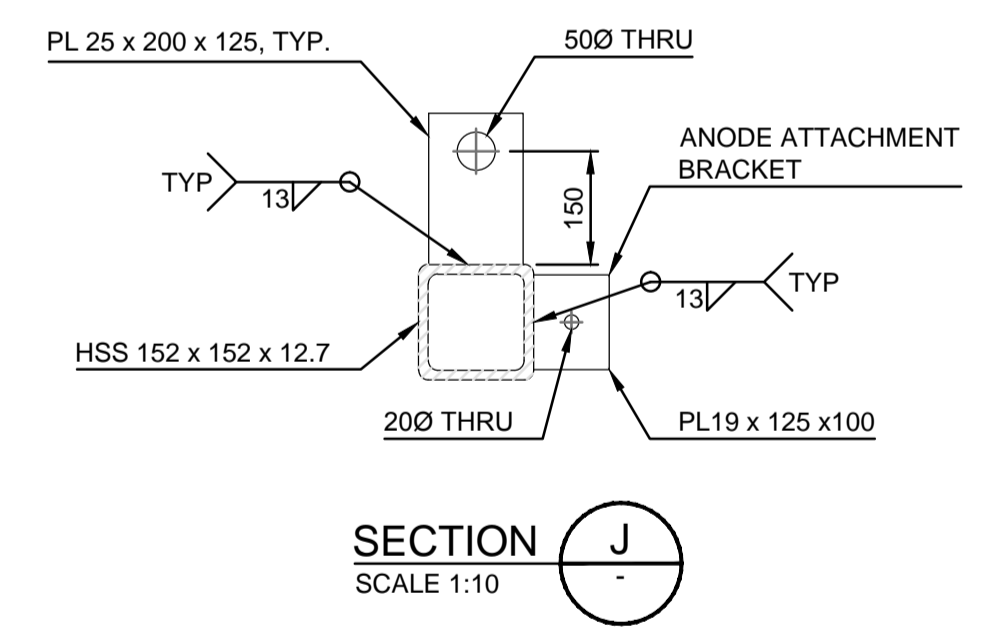
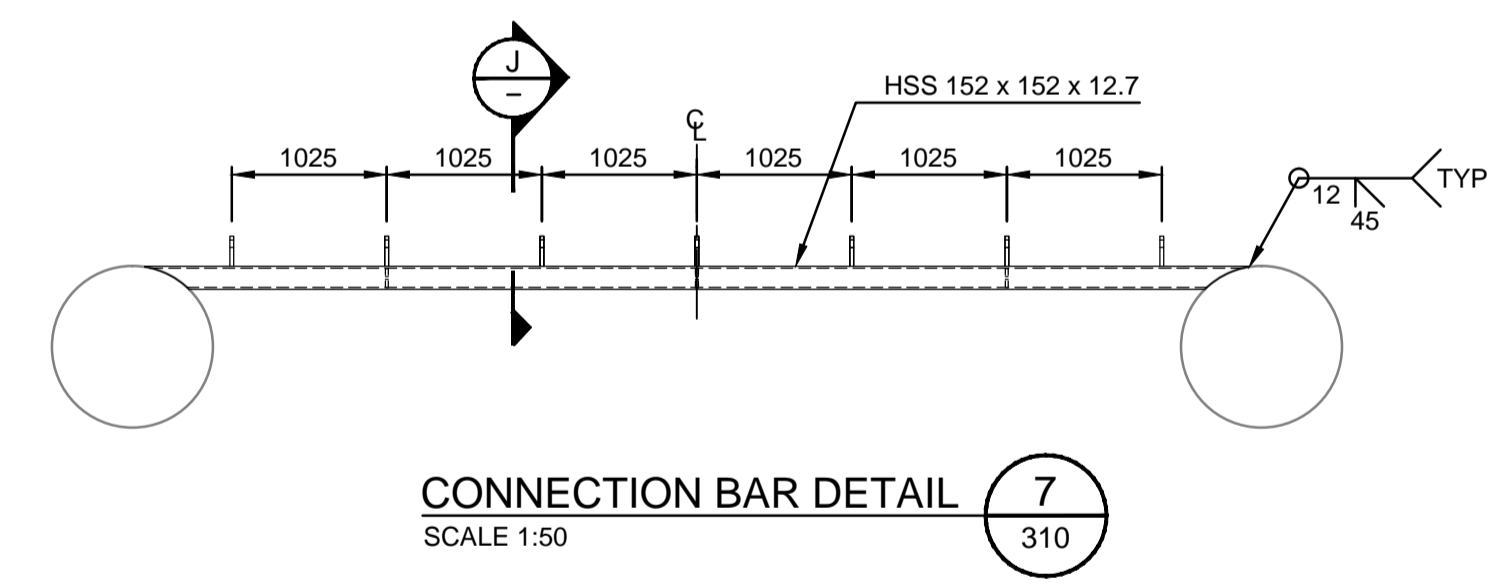
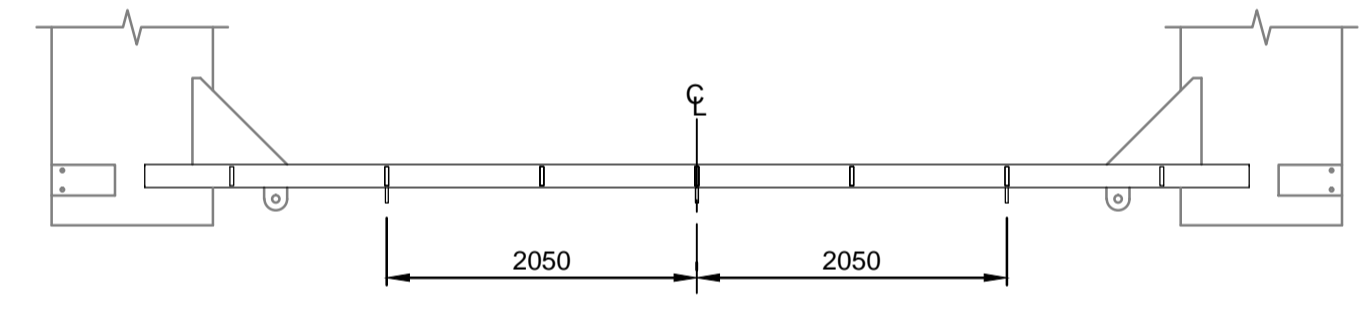
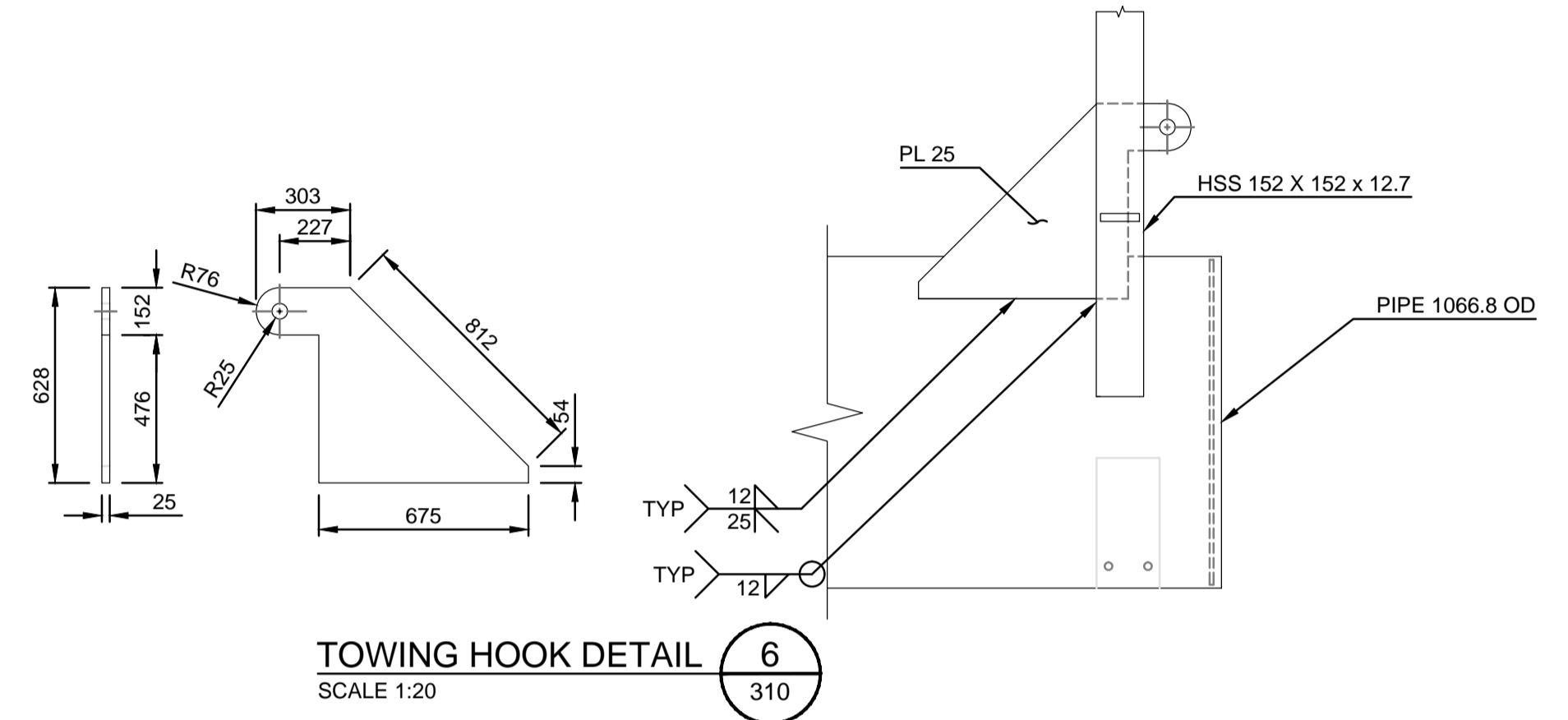
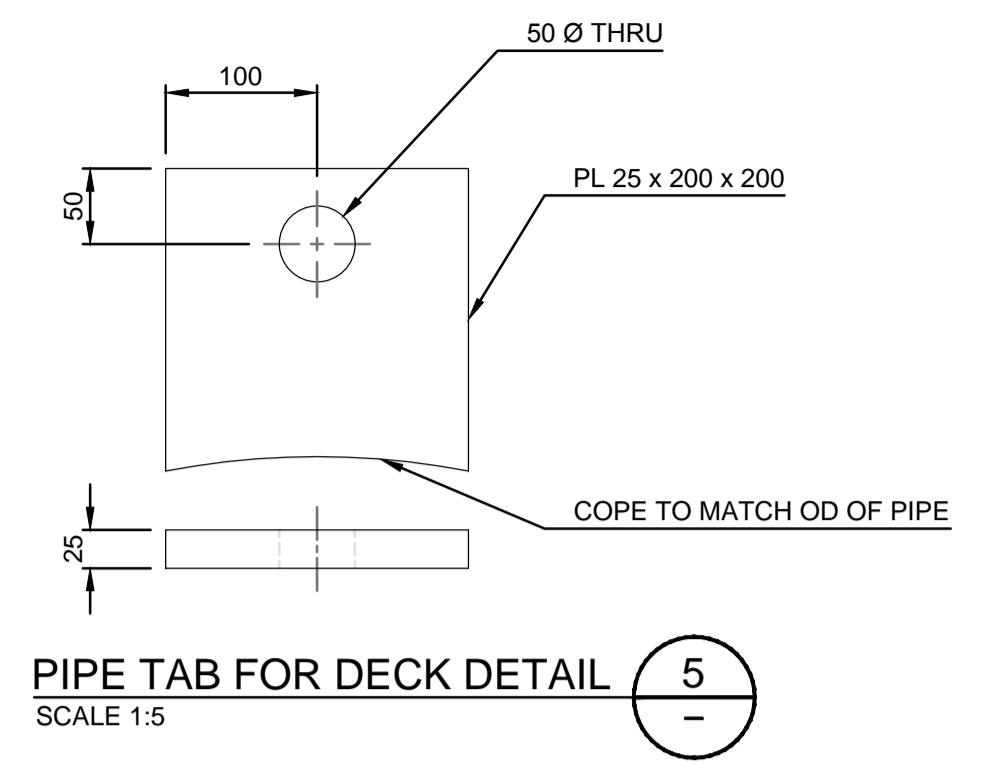
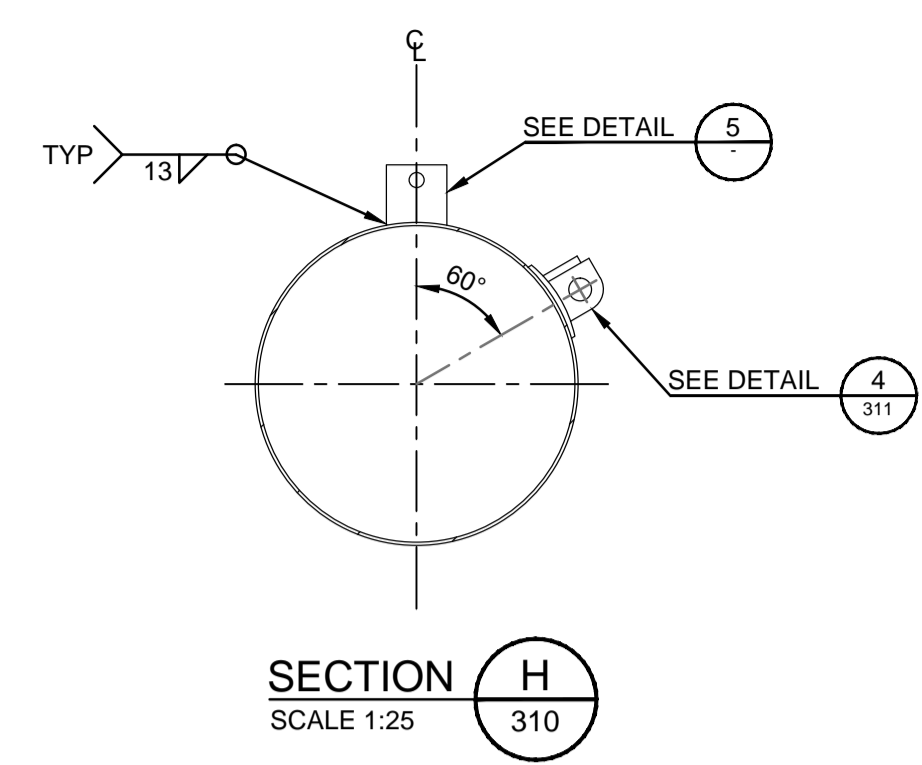
**TYPICAL CATAMARAN BREAKWATER**

Approved by/Approve par  
**R.E.**  
 Designed by/Concept par  
**R.E.**  
 Drawn by/Dessine par  
**WSL**  
 PWGSC Project Manager/Administrateur de Projets TPSSGC  
 PWGSC, Architectural and Engineering Resources Manager/  
 Ressources Architectural et de Directeur d'ingénierie, TPSSGC  
 Client/client  
**KLA**  
 Drawing title/Titre du dessin

**160' DUAL LAYER FABRICATION SHEET 2 OF 3**

Project No./No. du projet	Sheet/ Feuille	Revision no./ La Révision no.
<b>BW-CAT</b>	<b>311</b>	<b>B</b>

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Revision/Revision	Description/Description	Date/Date
B	ISSUED FOR CONSTRUCTION	16/01/12
A	ISSUED FOR TENDER	15/05/13

Client/Client  
**Fisheries & Oceans Canada**  
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**Pacific Division**  
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Project title/Titre du projet  
**TYPICAL CATAMARAN BREAKWATER**

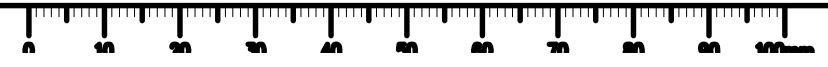
Approved by/Approuvé par  
**R.E.**  
 Designed by/Concept par  
**R.E.**  
 Drawn by/Dessiné par  
**WSL**  
 PWGSC Project Manager/Administrateur de Projets TPSGC

PWGSC, Architectural and Engineering Resources Manager/  
 Ressources Architecturales et de Directeur d'ingénierie, TPSGC

Client/Client  
**KLA**

Drawing title/Titre du dessin  
**160' DUAL LAYER FABRICATION SHEET 3 OF 3**

Project No./No. du projet <b>BW-CAT</b>	Sheet/ Feuille <b>312</b> OF	Revision no./ La Révision no. <b>B</b>
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Revision/Revison	Description/Description	Date/Date
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Small Craft Harbours Branch  
Pacific Division  
200 - 401 Burrard Street  
Vancouver, Canada, V6C 3S4

**TYPICAL CATAMARAN BREAKWATER**

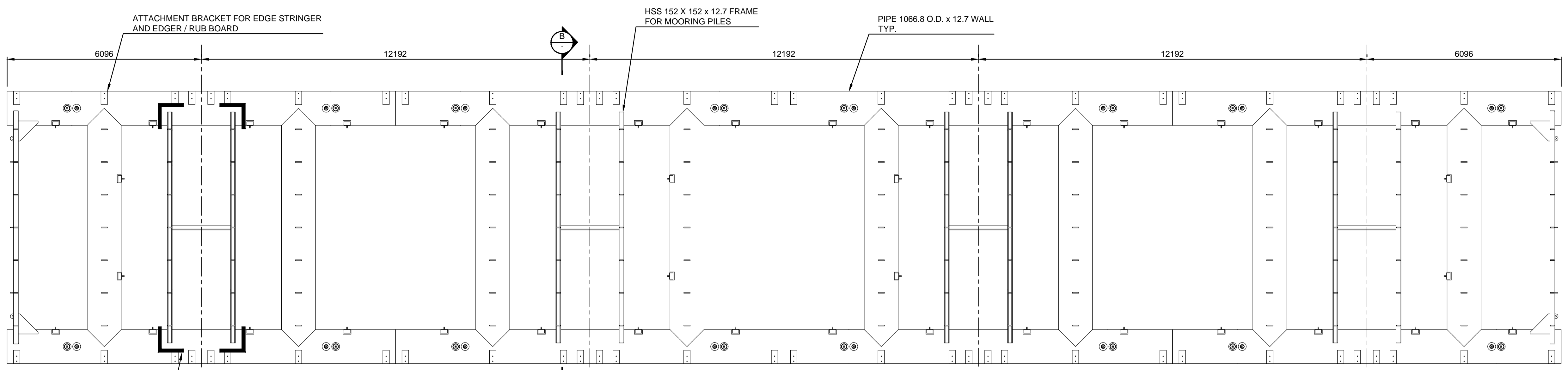
Approved by/Approve par  
**R.E.**  
Designed by/Concept par  
**R.E.**  
Drawn by/Dessine par  
**WSL**  
PWGSC Project Manager/Administrateur de Projets TPSGC

PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'ingénierie, TPSGC

Client/client  
**KLA**  
Drawing title/Titre du dessin

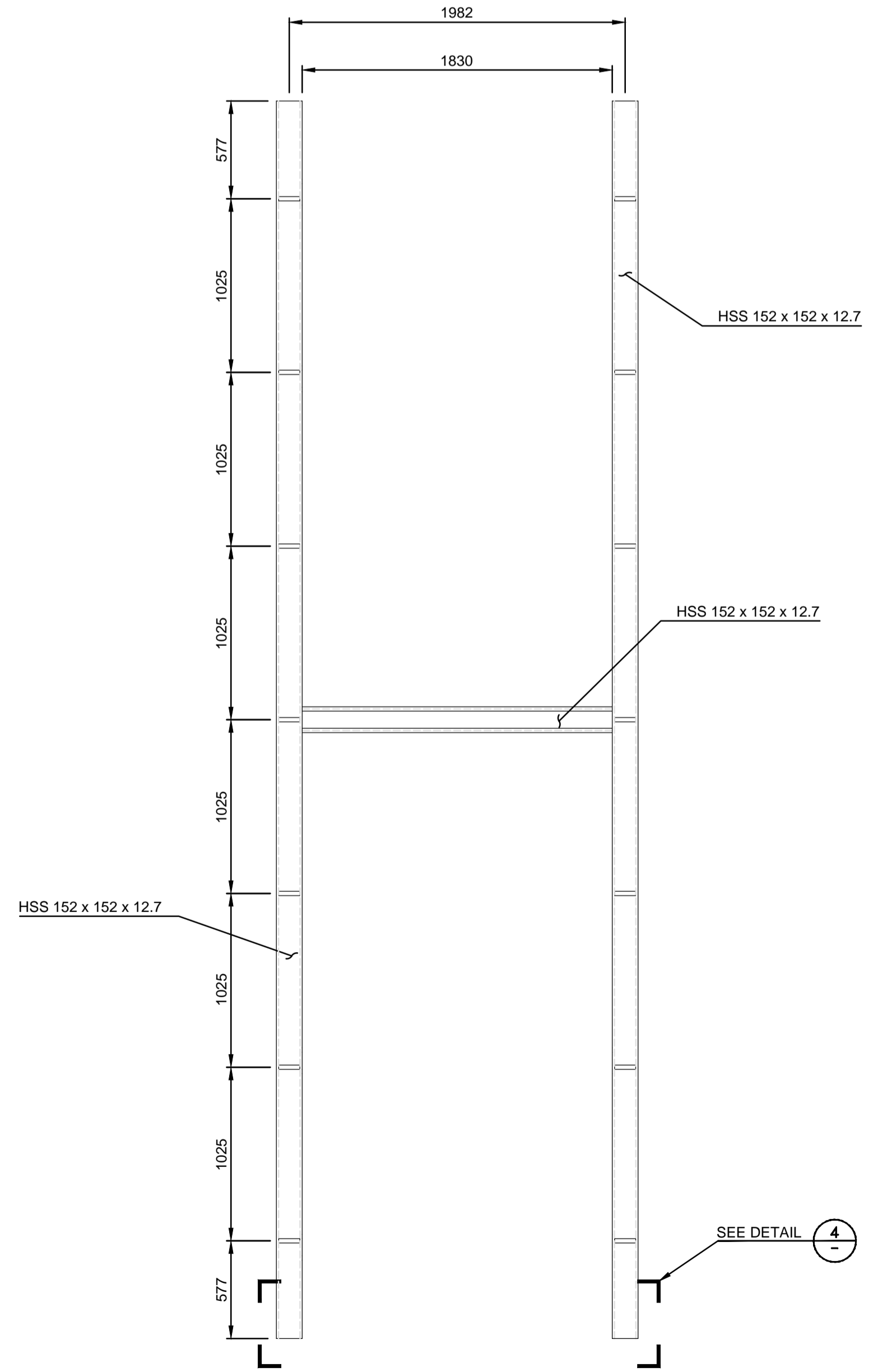
**160' DUAL LAYER  
PILE MOORING WELL**

Project No./No. du projet <b>XXX</b>	Sheet/ Feuille <b>320</b> OF	Revision no./ La Révision no. <b>B</b>
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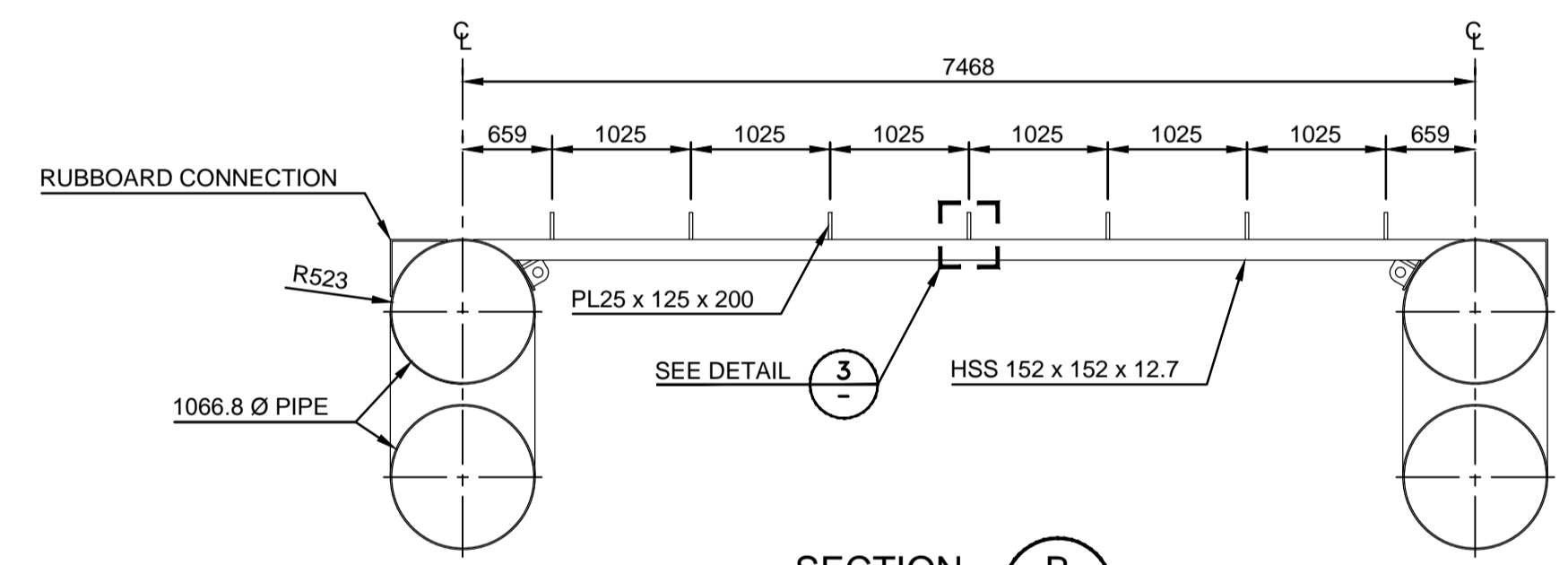


**PLAN**  
SCALE 1:75

SEE DETAIL 1

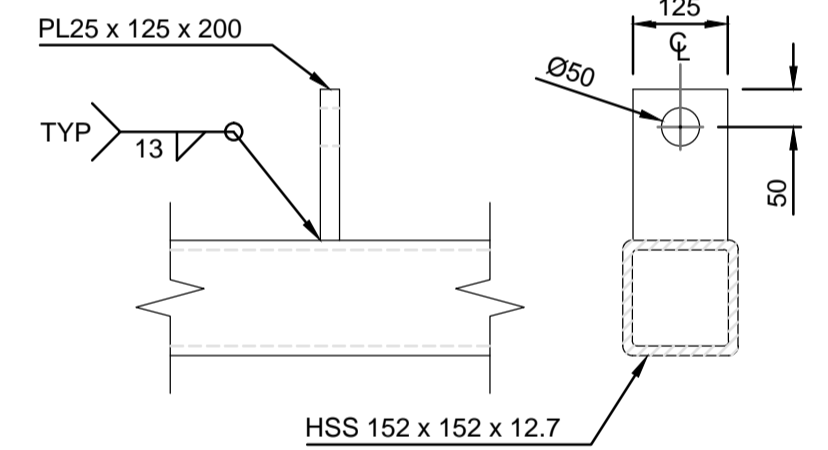


**DETAIL 1**  
SCALE 1:25

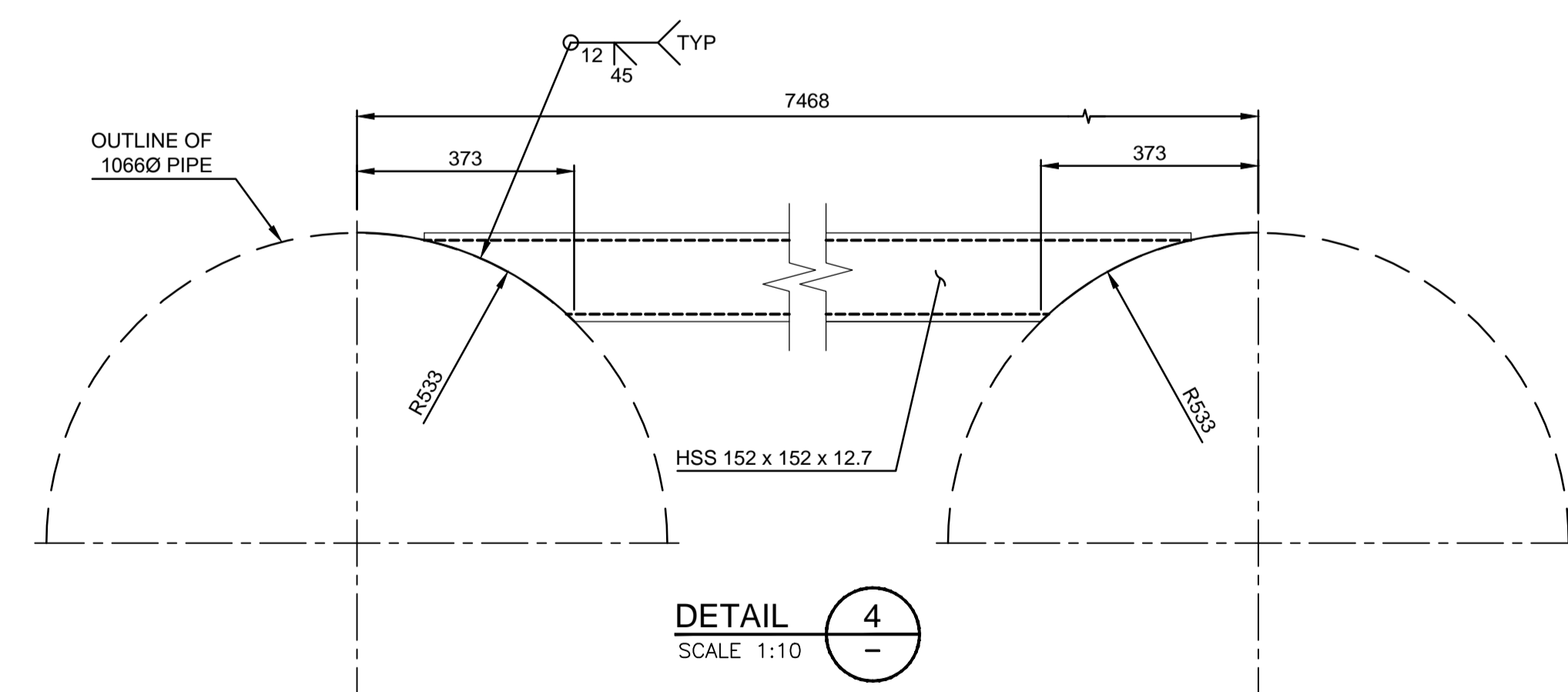


**SECTION B**  
SCALE 1:50

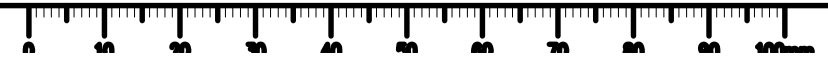
SEE DETAIL 3



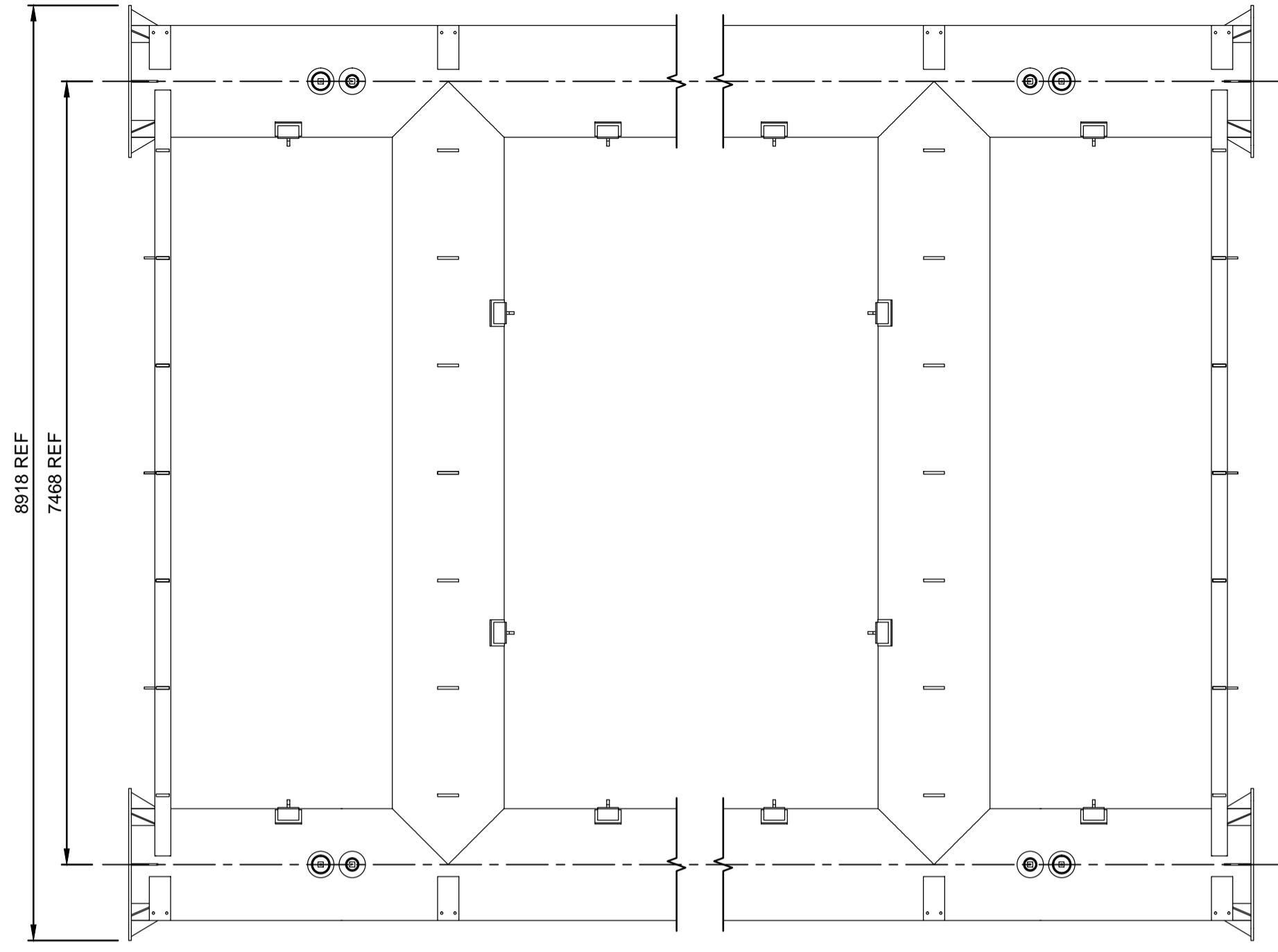
**DETAIL 3**  
SCALE 1:10



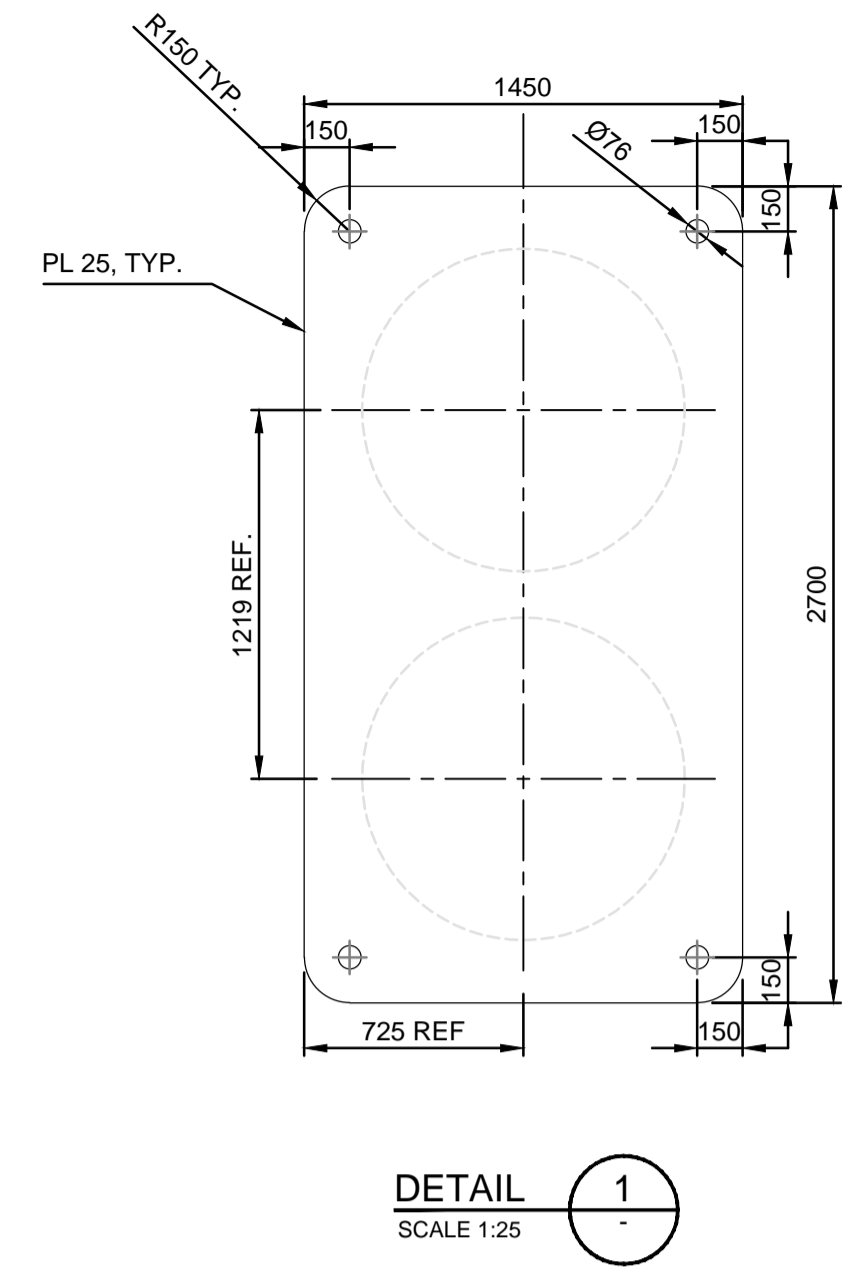
**DETAIL 4**  
SCALE 1:10



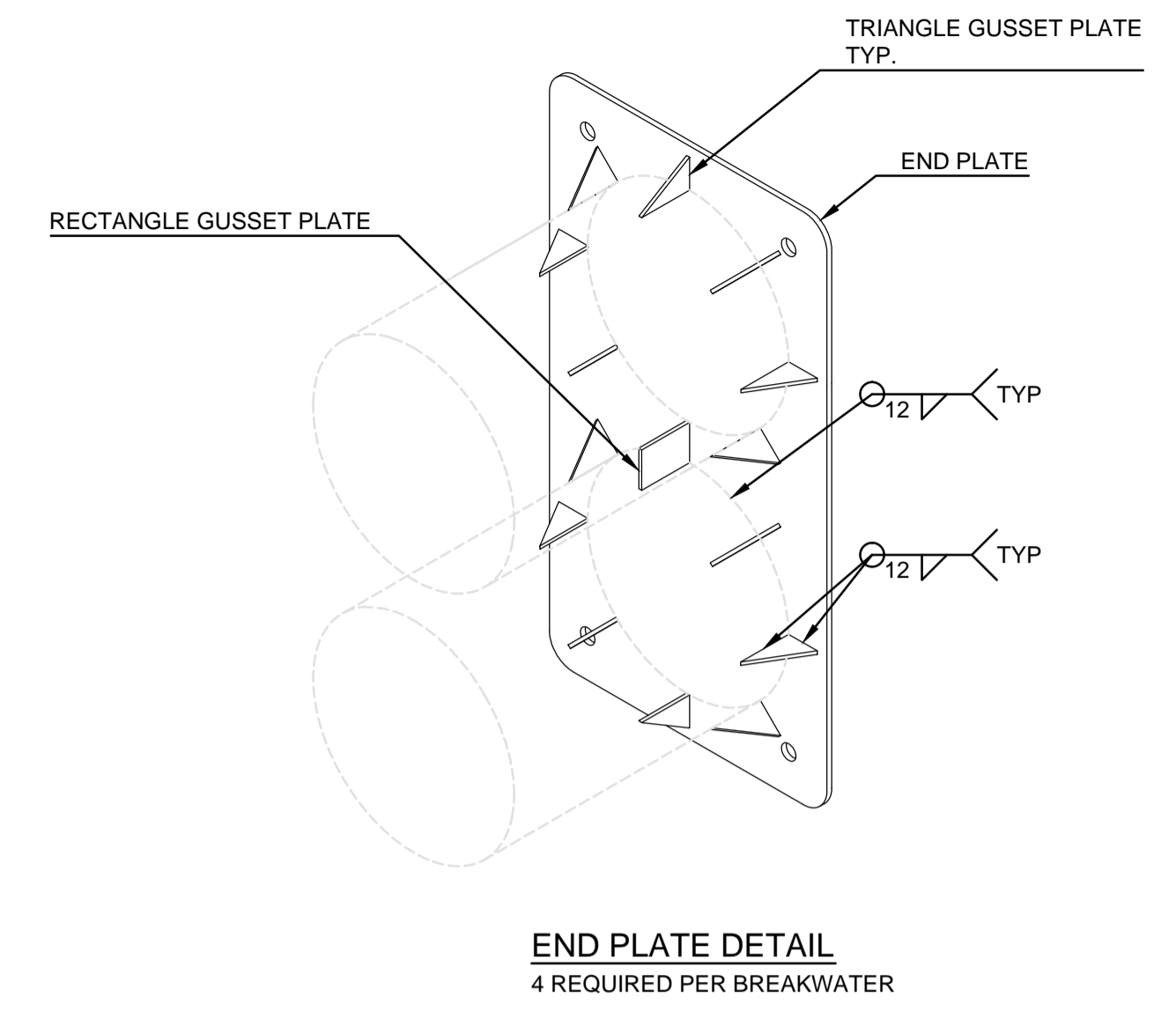
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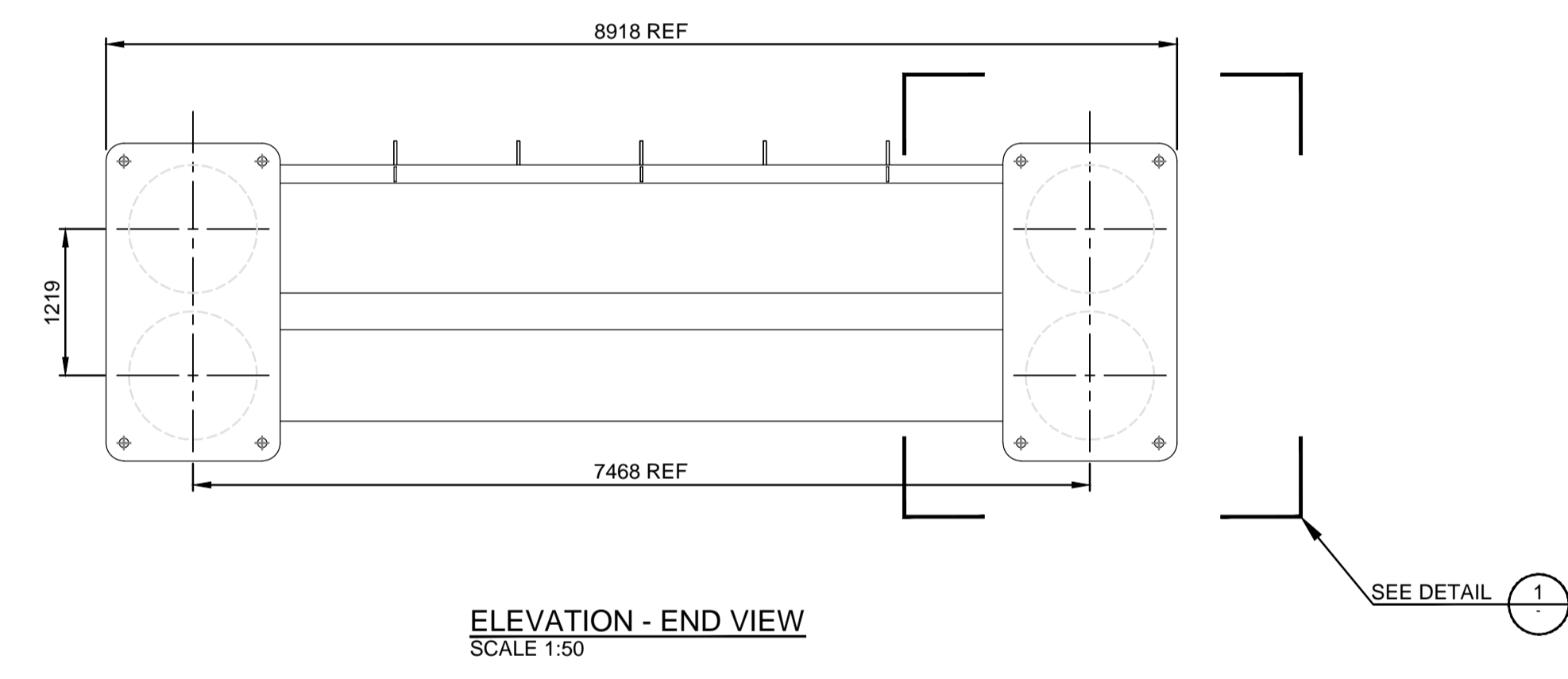
**PLAN - EACH END OF BREAKWATER**  
 SCALE 1:50



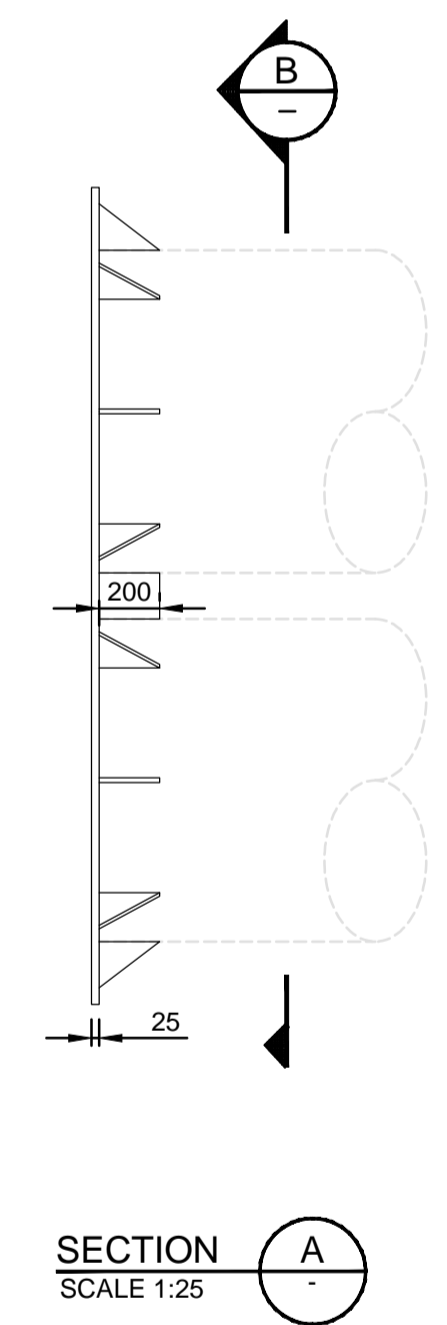
**DETAIL 1**  
 SCALE 1:25



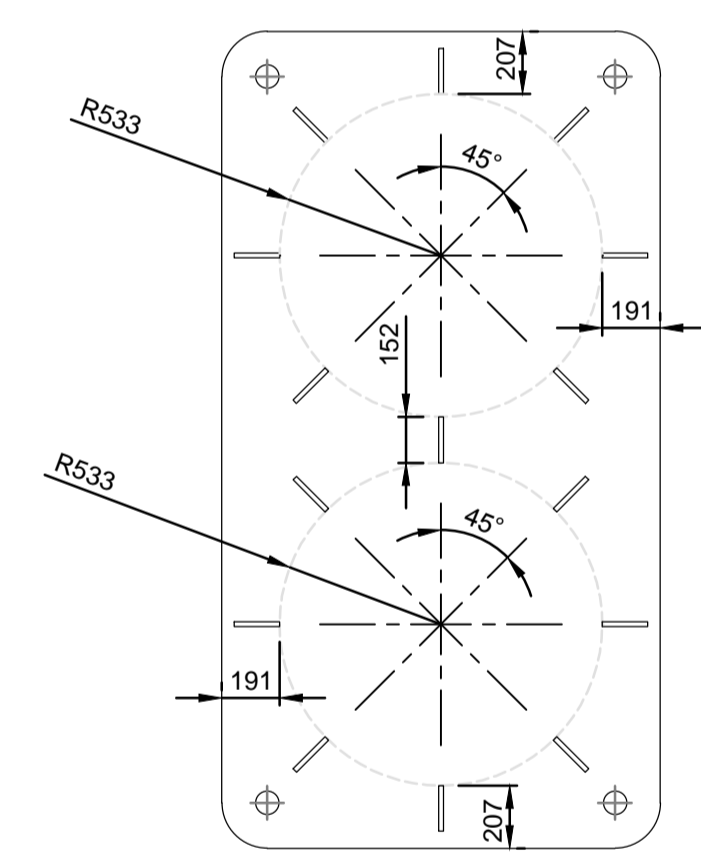
**END PLATE DETAIL**  
 4 REQUIRED PER BREAKWATER



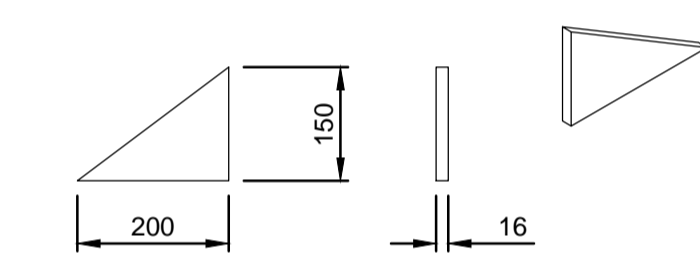
**ELEVATION - END VIEW**  
 SCALE 1:50



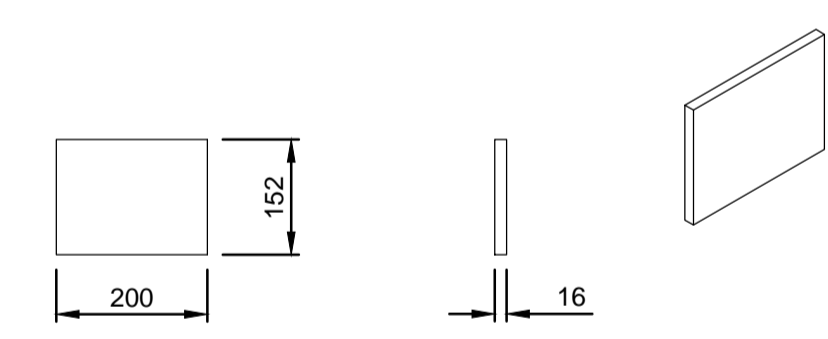
**SECTION A**  
 SCALE 1:25



**SECTION B**  
 SCALE 1:25



**TRIANGLE GUSSET PLATE DETAIL**  
 SCALE 1:10  
 14 REQUIRED PER END PLATE



**RECTANGLE GUSSET PLATE DETAIL**  
 SCALE 1:10  
 1 REQUIRED PER END PLATE

**DO NOT SCALE DRAWINGS**

Revision/	Description/Description	Date/Date
B	ISSUED FOR CONSTRUCTION	16/01/12
A	ISSUED FOR TENDER	15/09/13

Client/client  
**Fisheries & Oceans Canada**  
**Small Craft Harbours Branch**  
**Pacific Division**  
 200 - 401 Burrard Street  
 Vancouver, Canada, V6C 3S4

Project title/Titre du projet  
**TYPICAL CATAMARAN BREAKWATER**

Approved by/Approve par  
**R.E.**  
 Designed by/Concept par  
**R.E.**  
 Drawn by/Dessine par  
**WSL**  
 PWGSC Project Manager/Administrateur de Projets TPSGC

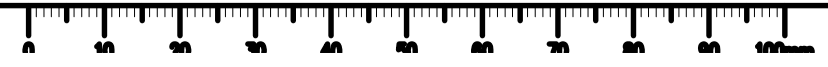
PWGSC, Architectural and Engineering Resources Manager/  
 Ressources Architectural et de Directeur d'ingénierie, TPSGC

Client/client  
**KLA**  
 Drawing title/Titre du dessin

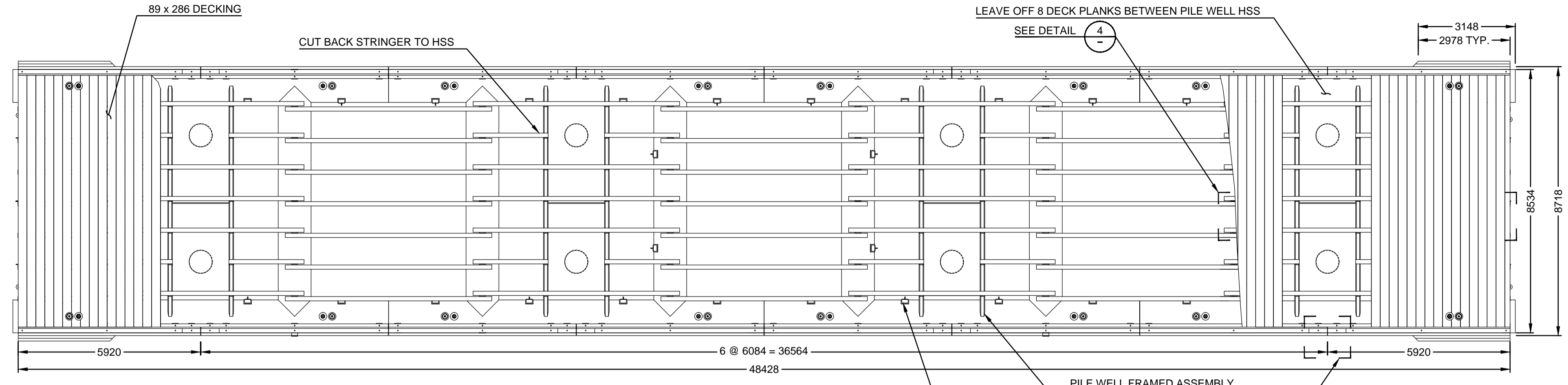
**END PLATE DETAILS**

END PLATES WILL ONLY BE PROVIDED AT ENDS OF ENTIRE CATAMARAN

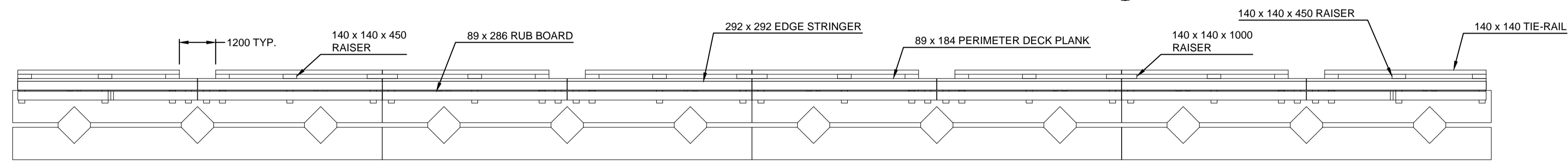
Project No./No. du projet <b>BW-CAT</b>	Sheet/ Feuille <b>330</b> OF	Revision no./ La Révision no. <b>B</b>
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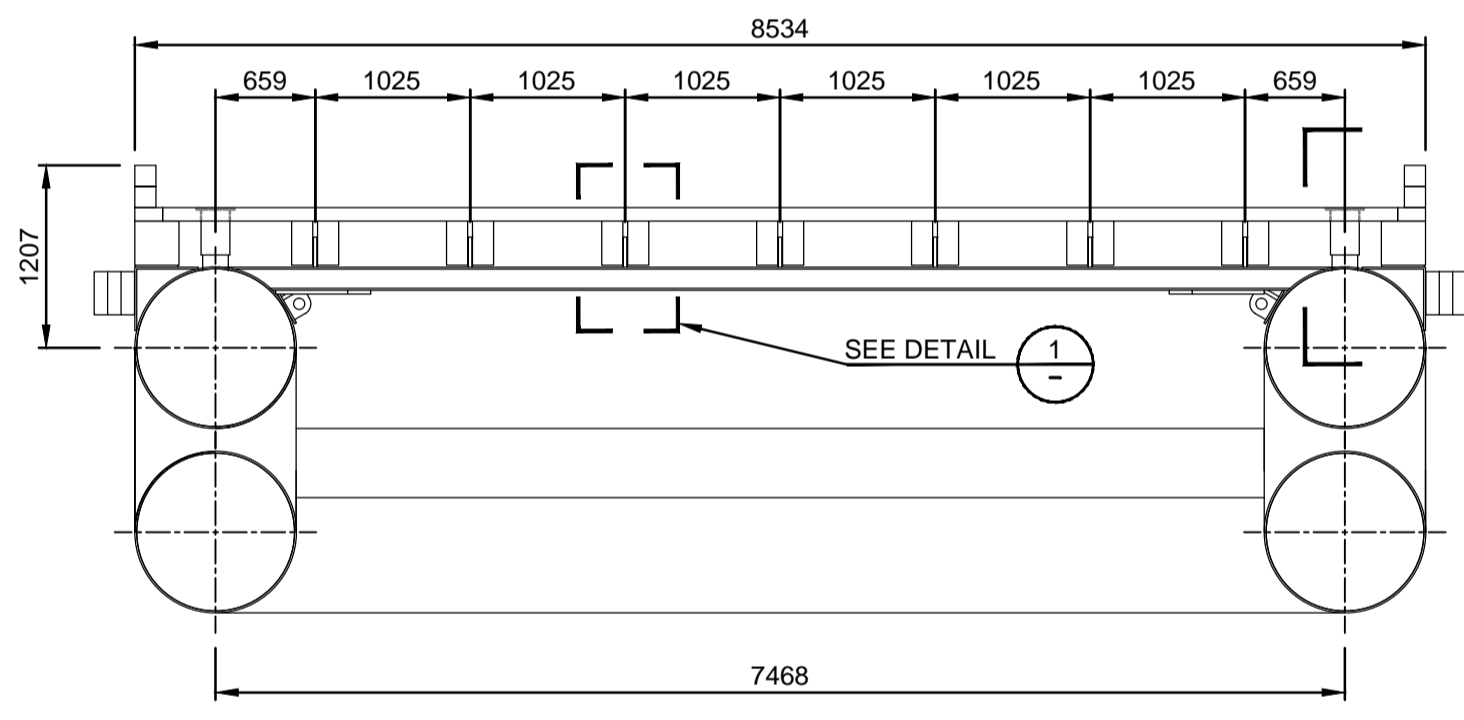
**KLA ENGINEERING LTD.**  
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 102-22441 DEWDNEY TRUNK ROAD  
 MAPLE RIDGE, B.C.



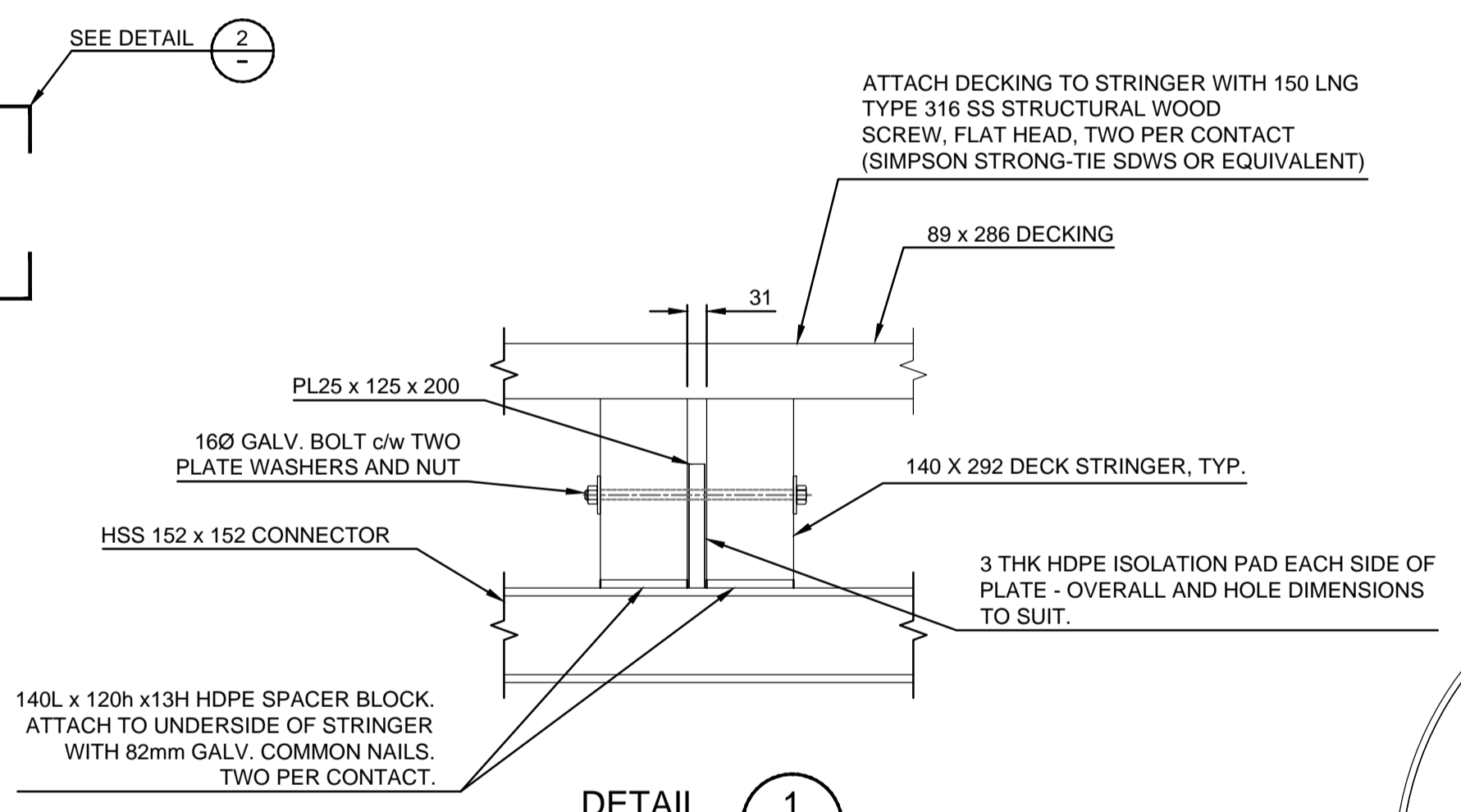
**PLAN**  
1:100



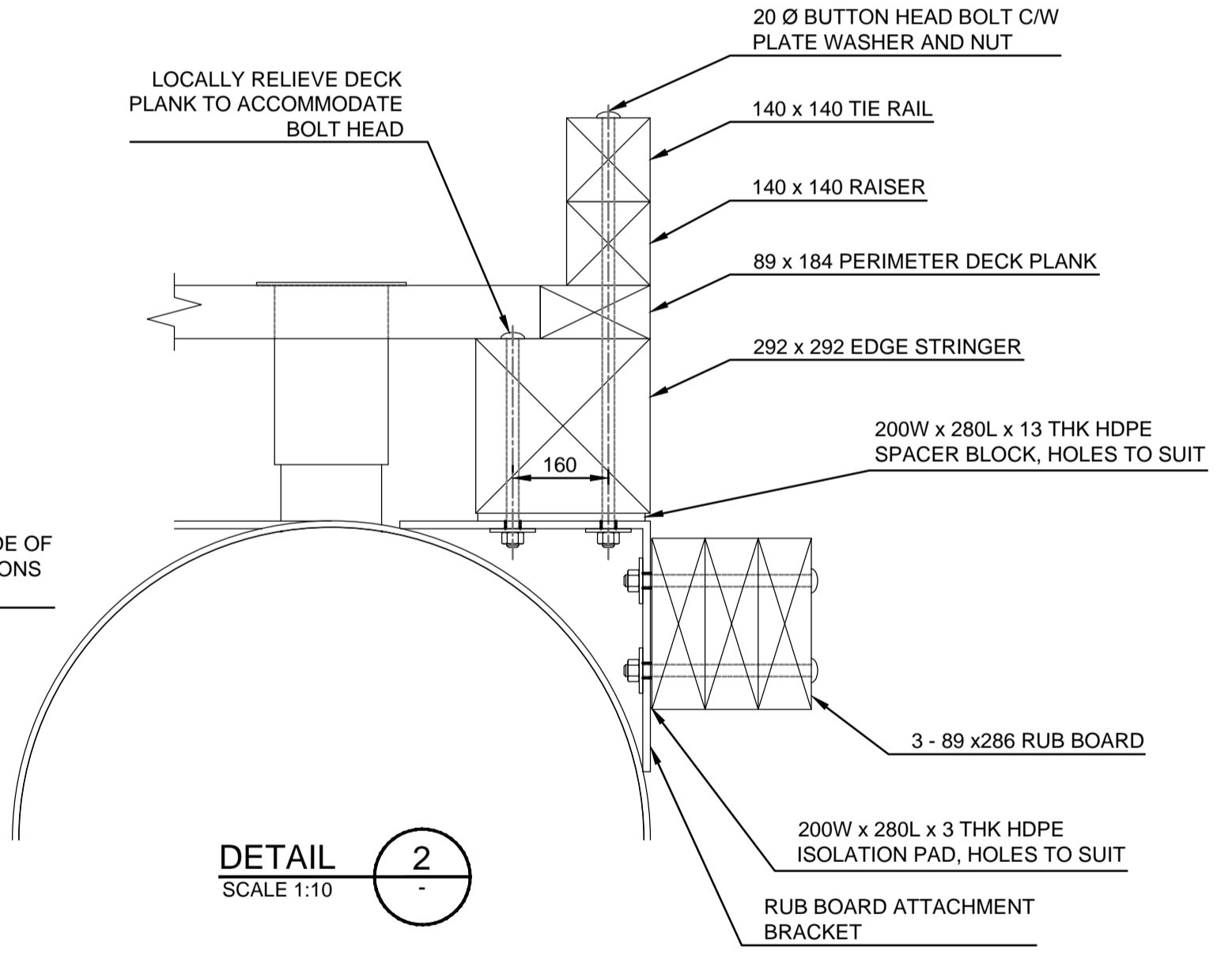
**ELEVATION**  
1:100  
(DOUBLE PIPE CATAMARAN SHOWN)



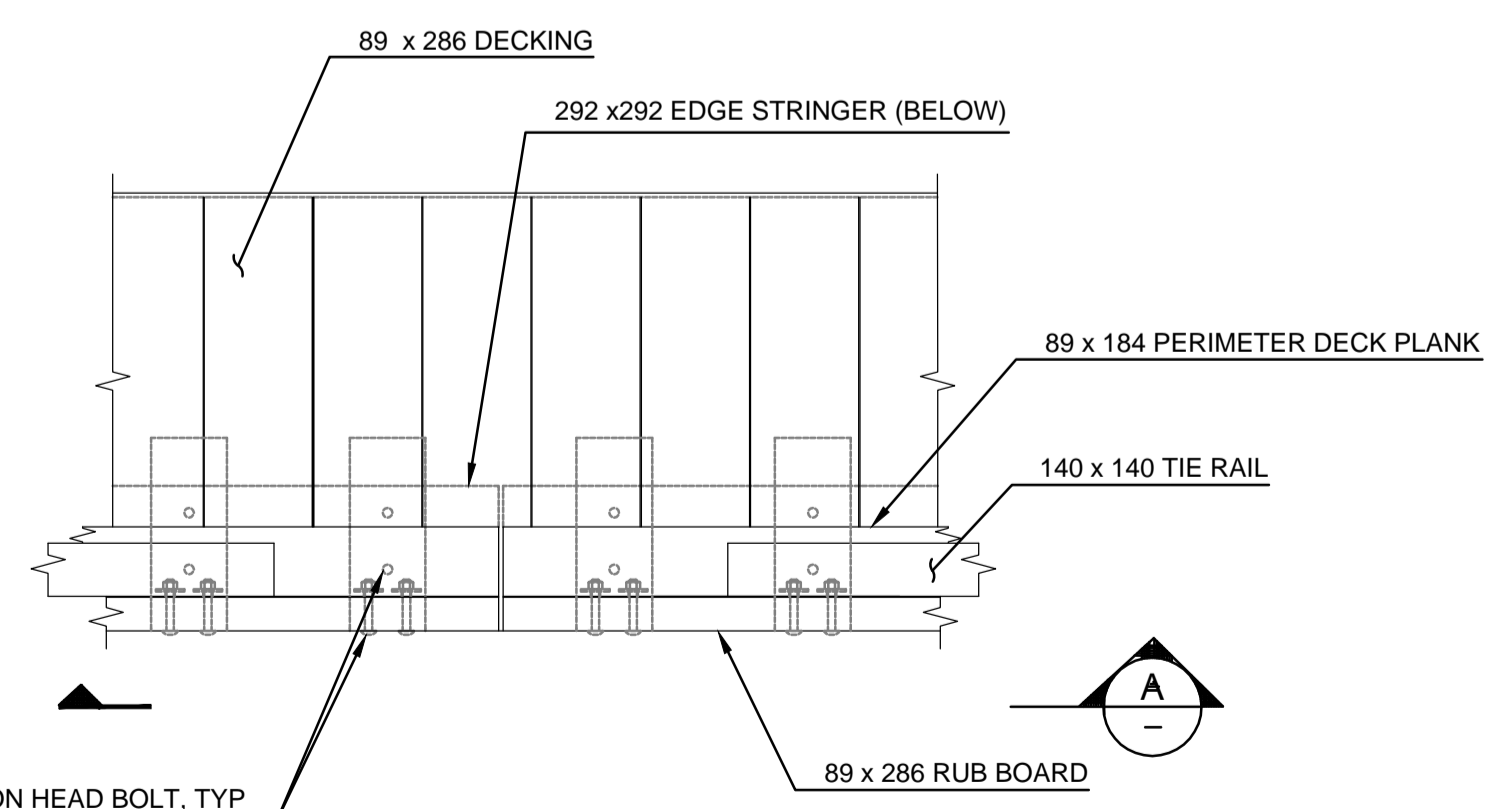
**ELEVATION - END VIEW**  
SCALE 1:50



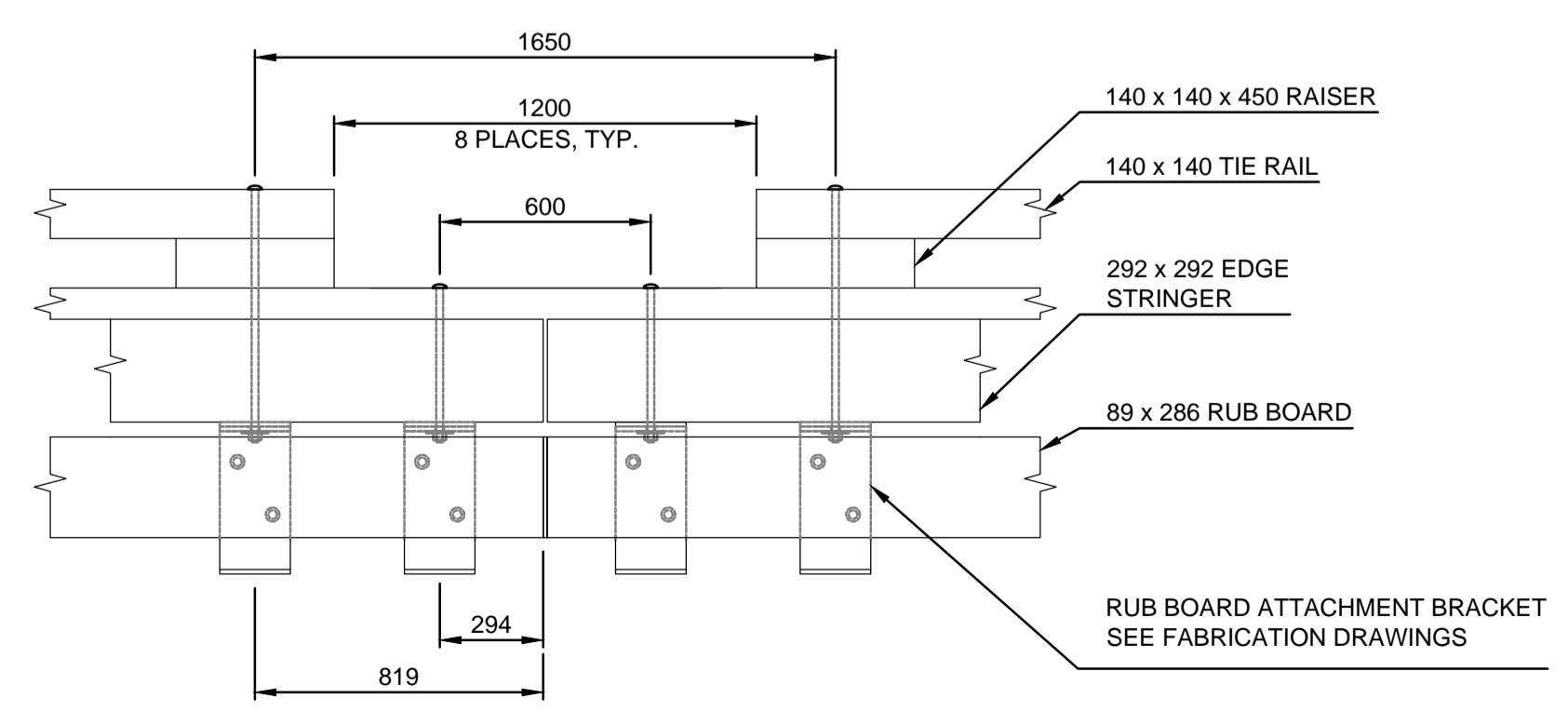
**DETAIL 1**  
SCALE 1:10  
SIMILAR AT PIPE LOCATIONS



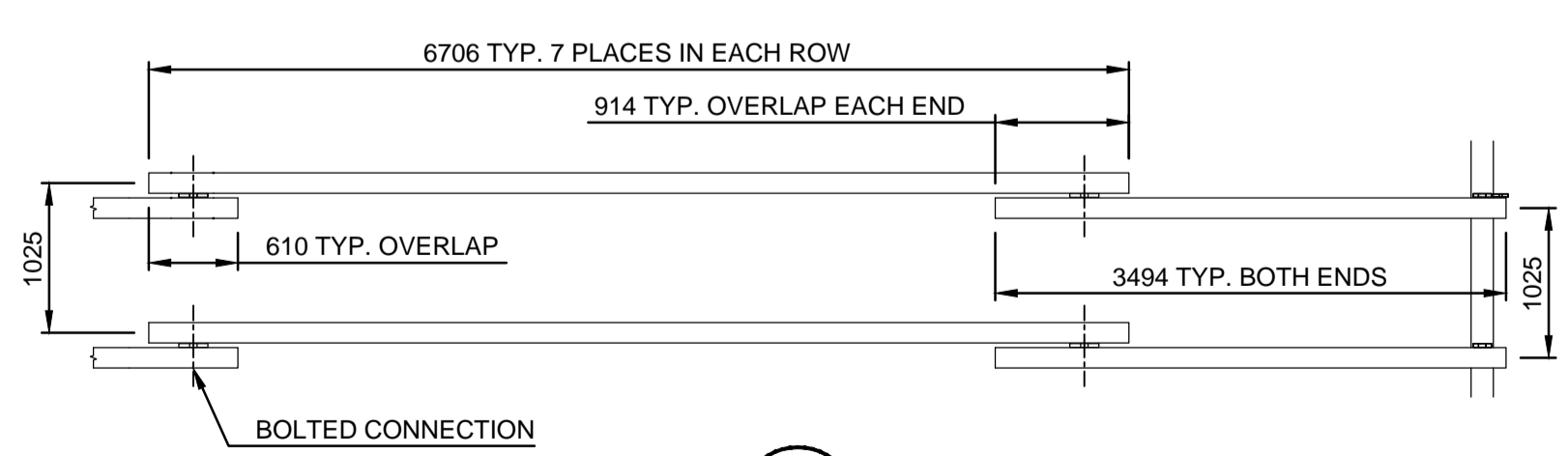
**DETAIL 2**  
SCALE 1:10



**DETAIL 3**  
SCALE 1:20



**SECTION A ELEVATION**  
SCALE 1:20



**DETAIL 4**  
SCALE 1:50  
(STRINGER LEVEL ONLY SHOWN)

**DO NOT SCALE DRAWINGS**

Revision/	Description/Description	Date/Date
B	ISSUED FOR CONSTRUCTION	16/01/12
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**Fisheries & Oceans Canada**  
**Small Craft Harbours Branch**  
**Pacific Division**  
 200 - 401 Burrard Street  
 Vancouver, Canada, V6C 3S4

**TYPICAL CATAMARAN BREAKWATER**

Approved by/Approve par  
**R.E.**  
 Designed by/Concept par  
**R.E.**  
 Drawn by/Dessine par  
**WSL**  
 PWGSC Project Manager/Administrateur de Projets TPSGC  
 PWGSC, Architectural and Engineering Resources Manager/  
 Ressources Architectural et de Directeur d'ingénierie, TPSGC  
 Client/client  
**KLA**  
 Drawing title/Titre du dessin

**160' DUAL LAYER**  
**DECKING PLAN - PILE MOORING**

Project No./No. du projet	Sheet/ Feuille	Revision no./ La Revision no.
<b>BW-CAT</b>	<b>351</b>	<b>B</b>
	OF	