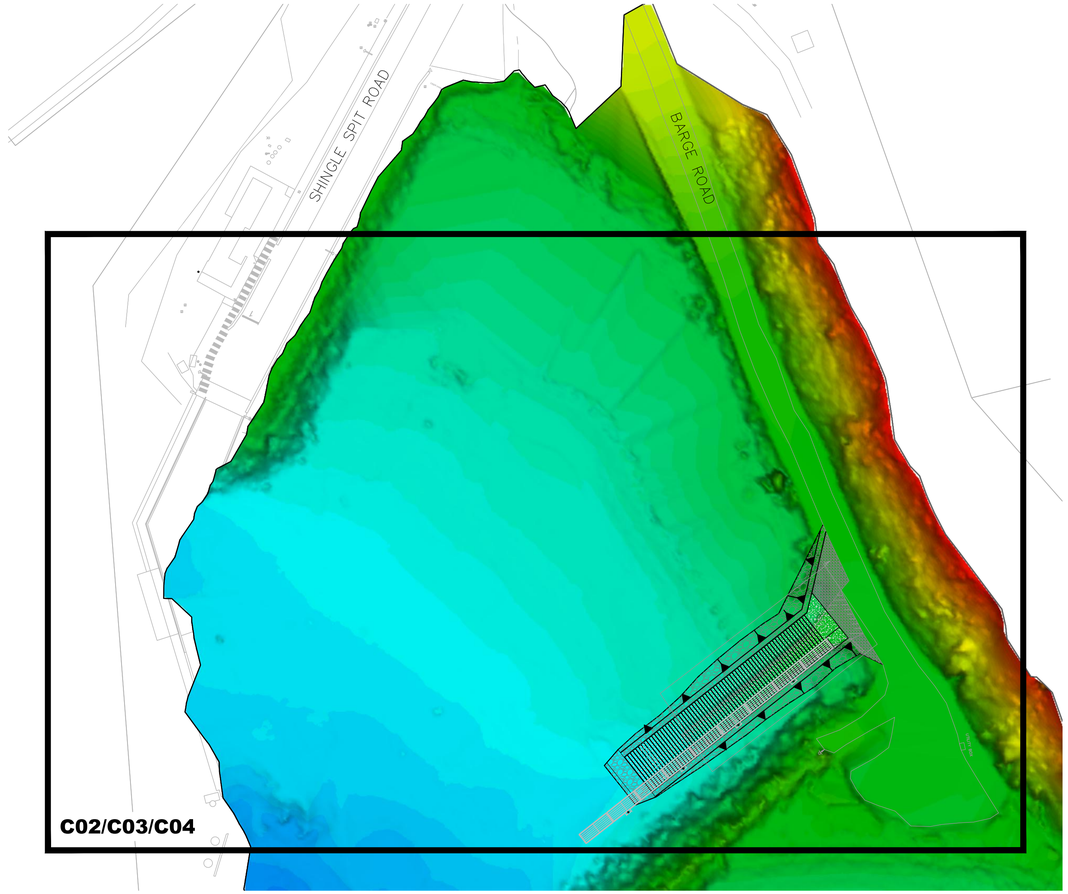
SHINGLE SPIT BOAT LAUNCH
HORNBY ISLAND, BC



KEY PLAN

LEGEND	EXISTING	PROPOSED		EXISTING	PROPOSED		EXISTING	PROPOSED
LAMP STANDARD	LS	LS	CLEANOUT			WATER	W	W
UTILITY POLE	UP	UP	CATCHBASIN			SANITARY	S	S
GUY WIRE ANCHOR			ROUND CATCHBASIN			STORM	D	D
U/G HYDRO/TEL/CABLE			MANHOLE			WATER METER		
JUNCTION BOX			INSPECTION CHAMBER			FLUSHOUT		
GAS	G	G	MOUNTABLE CURB & GUTTER	MC	MC	GATE VALVE		
FENCE			NON-MOUNT. CURB & GUTTER	NMC	NMC	REDUCER		
ELEVATION	113.78	109.28	ASPHALT CURB	AC	AC	FIRE HYDRANT		
EDGE ASPHALT			TOP OF BANK			AIR RELEASE VALVE		
ASPHALT REMOVAL			BOTTOM OF BANK			DITCH		
PROPOSED ASPHALT			CULVERT OUTLET			ROAD SIGN		
PROPOSED CONCRETE			CULVERT HEADWALL			CENTERLINE ALIGNMENT		1+250

NOTES ON ELEVATIONS:

1. ALL ELEVATIONS SHOWN ARE IN METERS AND REDUCED TO CHART DATUM (LLWLT = 0m). CHART DATUM IS 3.089 BELOW GEODETIC CGVD28 VERTICAL DATUM AS DEFINED AT THE PUBLISHED CHS BENCHMARK 29-1967 LOCATED IN FORDS COVE.
2. MEAN WATER LEVEL (MWL) IS EQUAL TO 3.2m
3. LOWEST LOW WATER LARGE TIDE (LLWLT) IS EQUAL TO 0.0m
4. HIGHEST HIGH WATER LARGE TIDE (HHWLT) IS EQUAL TO 5.3m
5. MEAN HIGH WATER LEVEL (HHW) IS EQUAL TO 4.6m
6. MEAN LOW WATER LEVEL (LLW) IS EQUAL TO 1.2m

1:500 0 10 30m

DRAWING LIST

CASCARA

C01	LOCATION PLAN, KEY PLAN, DRAWING LIST & GENERAL NOTES
C02	EXISTING CONDITIONS
C03	OVERALL SITE PLAN
C04	BOAT LAUNCH PLAN & PROFILE
C05	DETAILS
C06	STEEL FRAME SYSTEM
C07	EROSION AND SEDIMENT CONTROL PLAN

FLOAT DRAWING LIST

1207-1000-0	OVERVIEW DRAWING
1207-100-0	FLOAT AT SHORE
1207-200-0	FLOAT WITH PILE
1207-300-0	FLOAT NO PILE
1207-400-0	FLOAT AT END
1207-BOM-0	BILL OF MATERIALS

LOCATION PLAN
NTS

GENERAL NOTES:

1. ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), LATEST EDITION, OR AS OTHERWISE APPROVED BY THE ENGINEER.
2. ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY USE OF A PIPE LOCATOR AND MANUAL DIGGING. ALL OR ANY STRUCTURES NOT NECESSARILY SHOWN.
3. ANY ALTERNATIVES TO SPECIFIED MATERIALS OR APPURTENANCES TO BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
4. ALL DISTURBED SURFACES TO BE RESTORED TO EXISTING CONDITION OR BETTER.
5. THE ENGINEER SHALL BE NOTIFIED 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
6. CONTRACTOR TO COMPLY WITH ALL APPLICABLE MINISTRY OF ENVIRONMENT REQUIREMENTS AT ALL TIMES DURING CONSTRUCTION.
7. ALL DIMENSIONS ARE IN METERS, UNLESS NOTED OTHERWISE.
8. CONTRACTOR TO MEASURE AND CONFIRM ALL OFFSETS IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REVIEWED WITH THE ENGINEER.
9. COORDINATES ARE GROUND LEVEL (UTM NAD 83 WITH COMBINED SCALE FACTOR OF 1/0.9996851) AND ALL ELEVATIONS ARE METRES AND ARE TO CGVD28BC DATUM, DERIVED FROM DUAL FREQUENCY GNSS OBSERVATIONS.
10. TOPOGRAPHIC AND BATHYMETRIC SURVEY COMPLETED BY MCCOI MARINE LTD. HYDROGRAPHIC SURVEYING AND MARINE CONTRACTING IN JANUARY 2024.

BOAT RAMP BASE, SHOT ROCK FILL, CORE MATERIAL, AND RIP RAP FILL GRADATIONS:

1. GRADATION TO CONFORM WITH THE FOLLOWING TABLE:
2. CORE MATERIAL TO BE PIT RUN GRAVEL AS PER MMCD SPECIFICATION 32 05 17 2.3
2. CLASS 250 AND 500 RIPRAP MATERIAL TO MEET SECTION 205 OF THE MOTI STANDARD SPECIFICATION.

SIEVE DESIGNATION	SIEVE SIZE	(PERCENT PASSING BY WEIGHT)		
		BOAT RAMP BASE COURSE	BOAT RAMP SHOT ROCK FILL	FILTER MATERIAL
6	150mm		100	100
4	100mm	100	70-100	70-100
2	50mm	85-100	40-80	40-80
¾	20mm	-	-	30-50
No. 4	4.75mm	30-60	30-50	-
No. 200	0.075mm	0-6	0-6*	0-6*
*GRADATION SHALL BE DETERMINED ON THAT PORTION PASSING THE 50mm SCREEN				

CLASS OF RIPRAP (kg)	APPROXIMATE AVERAGE DIMENSION (mm) - EQUIVALENT DIAMETER			
	15%	50%	85%	<100%
250	260	565	815	965
500	330	715	1030	1220

REINFORCED CONCRETE:

1. CONCRETE MATERIALS, QUALITY, MIXING, PLACING, FORMWORK, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CAN CSA STD A23.1, A23.2 AND A23.4.
2. MATERIALS
   - 2.1. CEMENT TO CAN/CSA-A3001, TYPE GUL.
   - 2.2. SUPPLEMENTARY CEMENTING MATERIALS: WITH 15% TYPE F FLY ASH REPLACEMENT AND 5% TYPE SF SILICA FUME, BY MASS OF TOTAL CEMENTITIOUS MATERIALS TO CAN/CSA A3001. TOTAL SUPPLEMENTARY MATERIALS NOT TO EXCEED 20% BY MASS OF TOTAL CEMENTITIOUS MATERIAL.
   - 2.3. WATER: TO CSA-A23.1/A23.2
   - 2.4. REINFORCING STEEL: TO CAN/CSA-G30.18, BARE WHEN SILICA FUME USED.
   - 2.5. HARDWARE AND MISCELLANEOUS MATERIALS: TO CSA-A23.1/A23.2.
   - 2.6. FORMS: TO CSA-A23.4.
   - 2.7. AIR ENTRAINMENT ADMIXTURES: TO ASTM C260.
   - 2.8. FINE AGGREGATE SHALL CONFORM TO CLAUSE 5.3 CSA STANDARD CAN3.A23.1-M.
   - 2.9. COARSE AGGREGATE SHALL CONFORM TO CLAUSE 5.4 CSA STANDARD CAN3.A23.1-M GROUP 1. MAX AGGREGATE SIZE TO BE 20mm.
   - 2.10. WATER SHALL BE CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OIL, ALKALI, ORGANIC MATTER AND DELETERIOUS MATERIALS.
3. CONCRETE MIXES
   - 3.1. CONCRETE TO MEET PERFORMANCE CRITERIA IN ACCORDANCE WITH CAN/CSA-A23.1/A23.2
   - 3.2. DURABILITY AND CLASS OF EXPOSURE: C-1
   - 3.3. MINIMUM 28-DAY COMPRESSIVE STRENGTH: 35MPa
   - 3.4. INTENDED APPLICATION: CONTINUOUS WATER SUBMERSION AND SPLASH ZONE (FREQUENT WETTING AND DRYING CYCLES)
   - 3.5. MAXIMUM WATER CEMENT RATIO SHALL BE 0.40.
   - 3.6. AIR CONTENT SHALL BE BETWEEN 5% AND 8%.
   - 3.7. SET RETARDING ADMIXTURES SHALL NOT BE USED UNLESS APPROVED BY THE ENGINEER.
   - 3.8. THE CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING CONCRETE. THE MIX DESIGN INCLUDING ADMIXTURES SHALL NOT BE CHANGED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. ALL REINFORCING STEEL TO BE DEFORMED BARS GRADE 400 CONFORMING TO CAN CSA STD. G30.18.
5. MINIMUM COVER TO ALL REINFORCEMENT TO BE 60mm UNLESS OTHERWISE NOTED.
6. ALL REINFORCEMENT HOOKS, LAPS AND DEVELOPMENT LENGTHS TO BE IN ACCORDANCE WITH CAN CSA STD A23.2.
7. ALL EXPOSED CONCRETE EDGE TO BE CHAMFERED 25mm.
8. ALLOWABLE BEARING PRESSURE: 150 kPA
9. NOTIFY ENGINEER 48 HOURS PRIOR TO CONCRETE PLACEMENT FOR REVIEW OF REINFORCEMENT AND FORMWORK.
10. FIELD AND LABORATORY TESTING OF CONCRETE TO BE COMPLETED BY A THIRD PARTY TESTING AND INSPECTION AGENCY APPROVED BY AND RESPONSIBLE TO THE ENGINEER. TESTING AGENCY SHALL BE CERTIFIED TO CSA-A283. ONE SET OF 3 CYLINDERS SHALL BE MADE FOR EACH DAY'S POUR. COPIES OF TEST RESULTS TO BE SENT TO THE ENGINEER AND CONTRACTOR. C.O.N. TO PAY FOR TESTS.
11. COLD WEATHER REQUIREMENTS FOR PLACING CONCRETE AS DEFINED BY CAN/CSA 23.1, CLAUSE 7.4.2.5 MUST BE MET.
12. HOT WEATHER REQUIREMENTS FOR PLACING CONCRETE AS DEFINED BY CAN/CSA 23.1, CLAUSE 7.4.1.8.1 MUST BE MET.
13. REINFORCEMENT IS NOT TO BE WELDED, UNLESS SPECIFICALLY APPROVED BY THE ENGINEER
14. ALL REINFORCEMENT TO BE SUPPORTED AT 900mm MAXIMUM SPACING
15. DESIGN, FABRICATION, ERECTION, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CAN/CSA-S269.3

STRUCTURAL AND MISCELLANEOUS STEEL:

1. ALL ROLLED SECTION AND MISCELLANEOUS PLATES TO BE GRADE 300W CONFORMING TO CAN CSA STD. G40.20/G40.21 UNLESS OTHERWISE NOTED.
2. ALL BOLTS TO CONFORM TO ASTM A325 UNLESS OTHERWISE NOTED.
3. ALL WELDING TO CONFORM TO ASTM A325 UNLESS OTHERWISE NOTED.

MISCELLANEOUS NOTES:

1. ALL NON-WOVEN GEOTEXTILE TO BE ADS 601T OR APPROVED EQUAL.

CLIENT

COMOX VALLEY
REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
1	2025FEB06	BGF	ISSUED FOR CONSTRUCTION	BGF
E	2024DEC19	BGF	ISSUED FOR TENDER	BGF
D	2024AUG27	BGF	ISSUED FOR APPROVAL	BGF
C	2024JULY04	BGF	ISSUED FOR COORDINATION	BGF
B	2024MAR28	BGF	REISSUED FOR REVIEW	BGF
A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT
BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

LOCATION PLAN,
KEY PLAN, DRAWING LIST
& GENERAL NOTES

CASCARA
CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY:	BGF	CHECKED BY:	CDR
DRAWN BY:	BGF	APPROVED BY:	

SEAL: PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA B. G. FORBES # 58632

SCALE: HORIZ: SHOWN VERT: N/A
DATE: 2024FEB23 | SHEET: 1 OF 7
ENG. FILE NUMBER:
CITY DWG #: | PROJECT #: 1172-001
DRAWING NUMBER: C01 | REV: 1

2.6.2025

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1:250 0 5 15m

RIP RAP BREAKWATER

DEMOLISH EXISTING CONCRETE BOAT RAMP AND DISTRIBUTE EXISTING CONCRETE AND FILL MATERIAL TO CREATE A LEVEL SURFACE FOR NEW CONSTRUCTION

AVOID PLACING DEMOLISHED CONCRETE NEAR THE PROPOSED PILE LOCATIONS TO MINIMIZE CONFLICTS DURING PILE INSTALLATION

RELOCATE NO POST BARRIER. LOCATION TO BE DETERMINED DURING CONSTRUCTION

REMOVE AND RELOCATE EXISTING SIGN. LOCATION TO BE DETERMINED DURING CONSTRUCTION

END OF THE EXISTING RAMP

EXISTING GROUND

APPROXIMATE HORNBY ISLAND BOAT RAMP TENURE BOUNDARY

UTILITY BOX

PARKING (GRAVEL)

CONCRETE BOAT RAMP

TIMBER DOLPHIN (LEANING)

TIMBER DOLPHIN (3 PILE)

STEEL PILE (FERRY TERMINAL)

BARGE ROAD

ACCESS ROAD (GRAVEL)

TOP OF BANK

EXISTING BC FERRIES TERMINAL

BOUNDARIES AS SHOWN ON BCFSI PLAN 32-266-V001

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2.6.2025

CLIENT

COMOX VALLEY REGIONAL DISTRICT

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C	2024JULY04	BGF	ISSUED FOR COORDINATION	BGF
B	2024MAR28	BGF	REISSUED FOR REVIEW	BGF
A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

EXISTING CONDITIONS & DEMOLITION PLAN

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY: BGF	CHECKED BY: CDR
DRAWN BY: BGF	APPROVED BY:

SEAL: PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B. G. FORBES # 58632

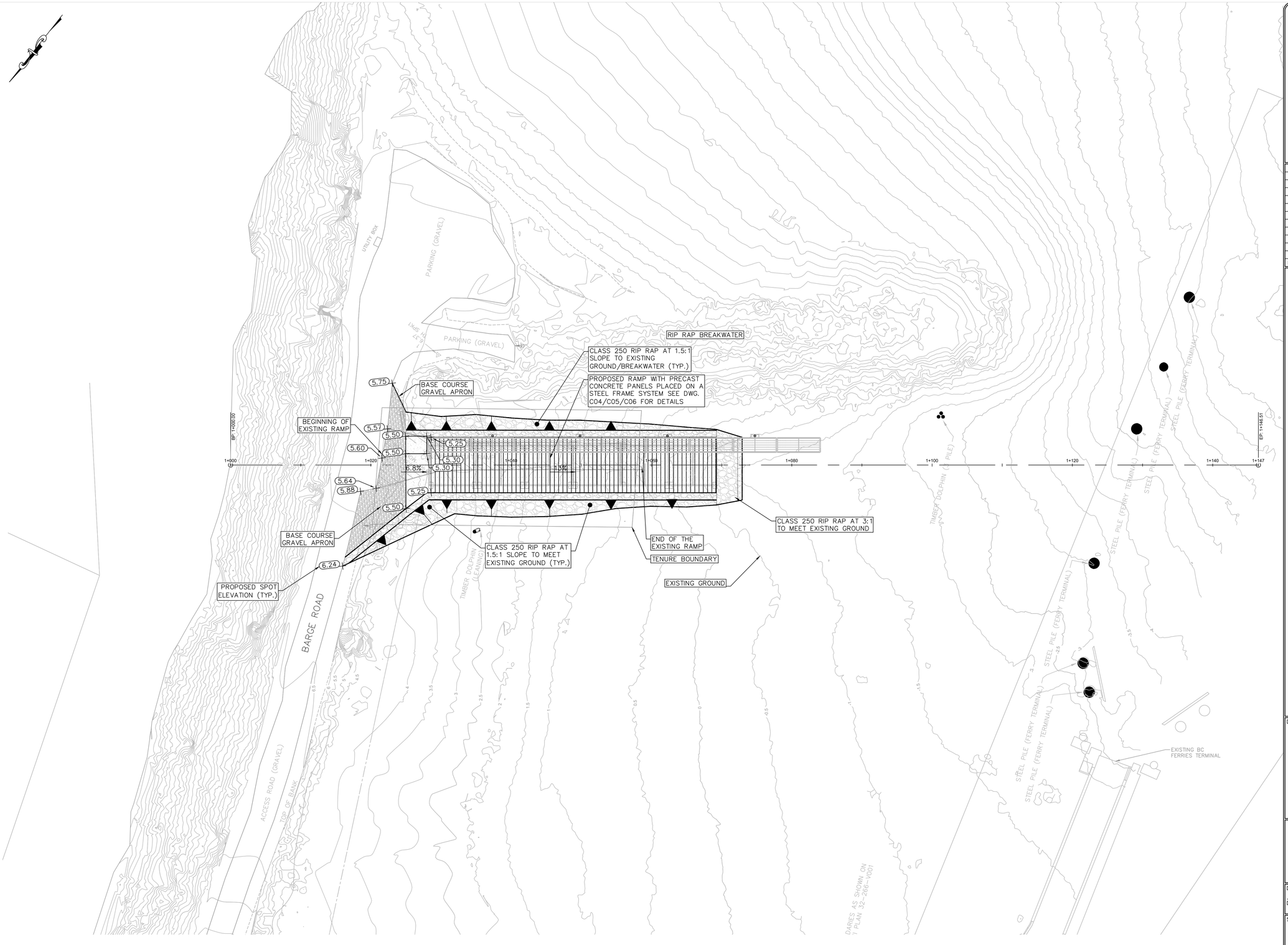
SCALE: HORIZ: SHOWN VERT: N/A

DATE: 2024FEB23 | SHEET: 2 OF 7

ENG. FILE NUMBER:

CITY DWG #: | PROJECT #: 1172-001

DRAWING NUMBER: C02 | REV: 1



NOTES:

1. REFER TO DRAWING NUMBER C01 FOR GENERAL NOTES.

OVERALL SITE PLAN

1:250 0 5 15m

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2.6.2025

CLIENT

COMOX VALLEY REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
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B	2024MAR28	BGF	REISSUED FOR REVIEW	BGF
A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

OVERALL SITE PLAN

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY: BGF	CHECKED BY: CDR
DRAWN BY: BGF	APPROVED BY:

SEAL: PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B. G. FORBES # 58632

SCALE: HORIZ: SHOWN VERT: N/A

DATE: 2024FEB23 | SHEET: 3 OF 7

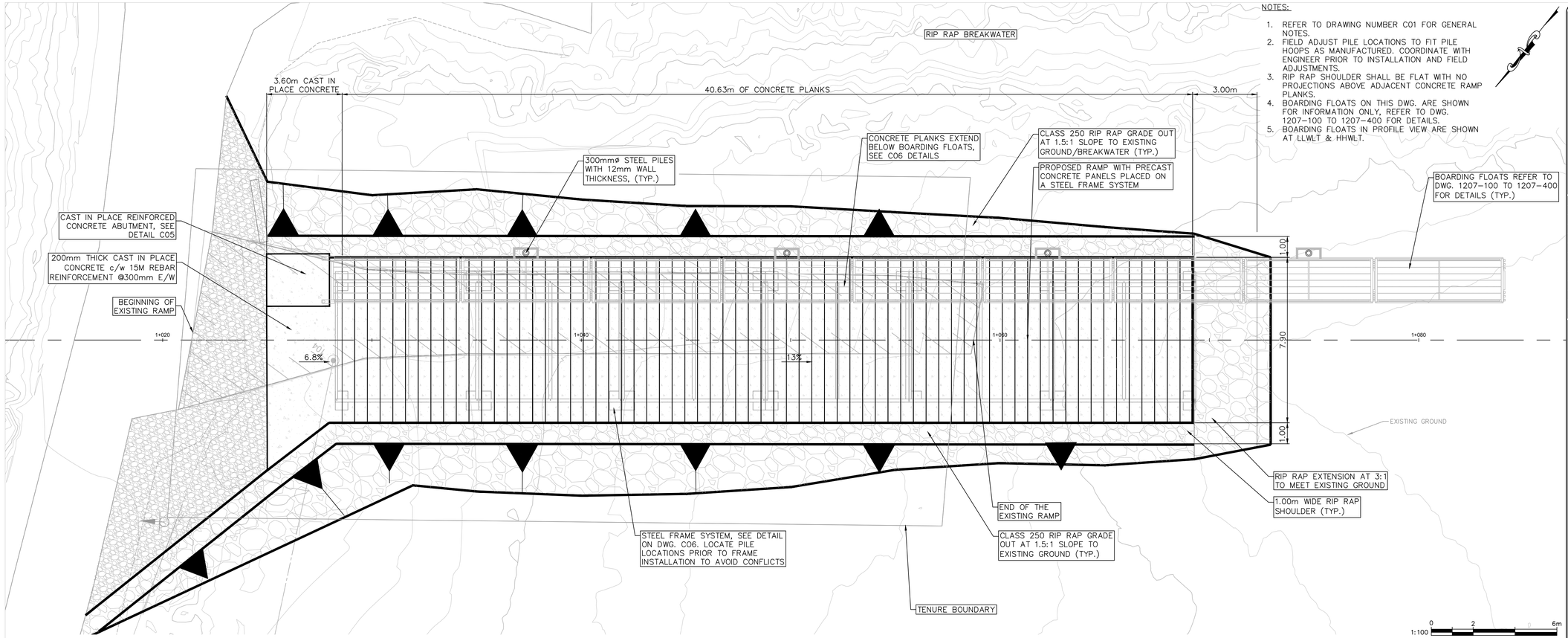
ENG. FILE NUMBER:

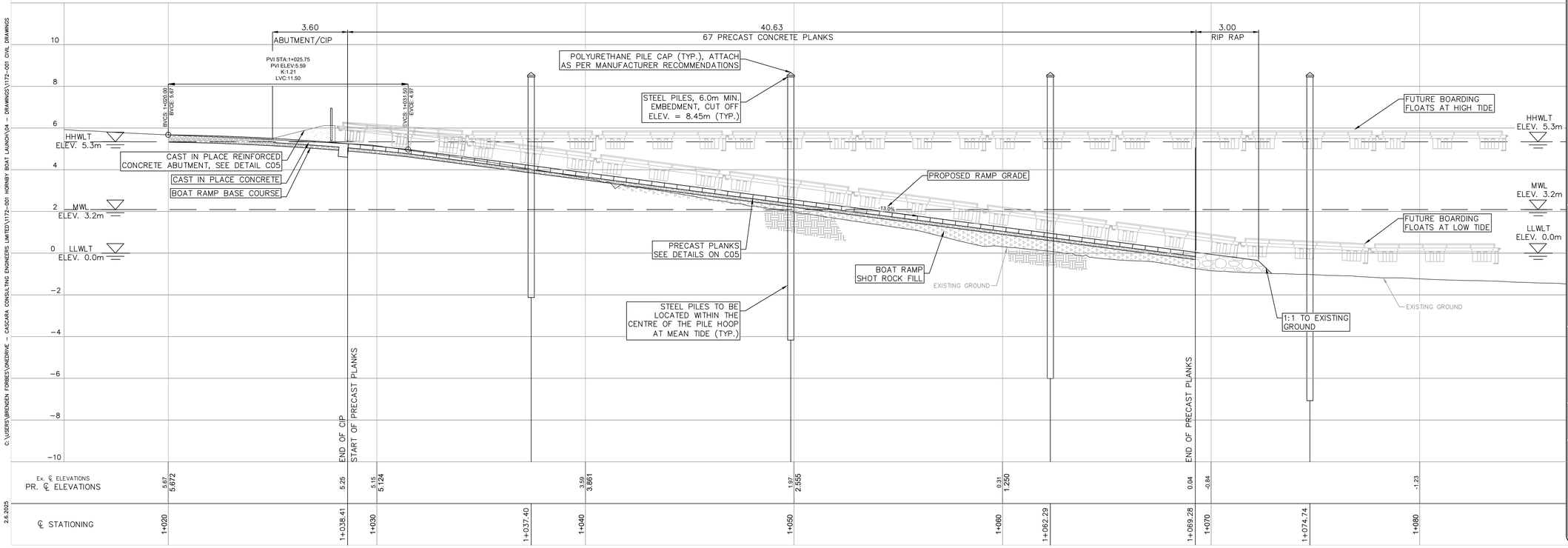
CITY DWG #: | PROJECT #: 1172-001

DRAWING NUMBER: C03 | REV: 1

NOTES:

1. REFER TO DRAWING NUMBER C01 FOR GENERAL NOTES.
2. FIELD ADJUST PILE LOCATIONS TO FIT PILE HOOPS AS MANUFACTURED. COORDINATE WITH ENGINEER PRIOR TO INSTALLATION AND FIELD ADJUSTMENTS.
3. RIP RAP SHOULDER SHALL BE FLAT WITH NO PROJECTIONS ABOVE ADJACENT CONCRETE RAMP PLANKS.
4. BOARDING FLOATS ON THIS DWG. ARE SHOWN FOR INFORMATION ONLY, REFER TO DWG. 1207-100 TO 1207-400 FOR DETAILS.
5. BOARDING FLOATS IN PROFILE VIEW ARE SHOWN AT LLWLT & HHWLT.





CLIENT

COMOX VALLEY REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
1	2025FEB06	BGF	ISSUED FOR CONSTRUCTION	BGF
E	2024DEC19	BGF	ISSUED FOR TENDER	BGF
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A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

BOAT LAUNCH PLAN & PROFILE

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY: BGF	CHECKED BY: CDR
DRAWN BY: BGF	APPROVED BY:

SEAL: PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B. G. FORBES # 58632 — 2025-02-06

SCALE: HORIZ: SHOWN VERT: 1:100

DATE: 2024FEB23 | SHEET: 4 OF 7

ENG. FILE NUMBER:

CITY DWG #: | PROJECT #: 1172-001

DRAWING NUMBER: C04 | REV: 1

2.6.2025

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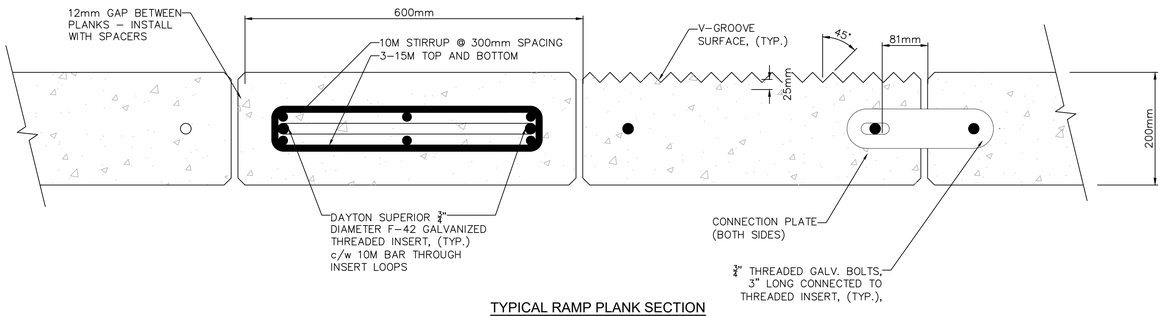
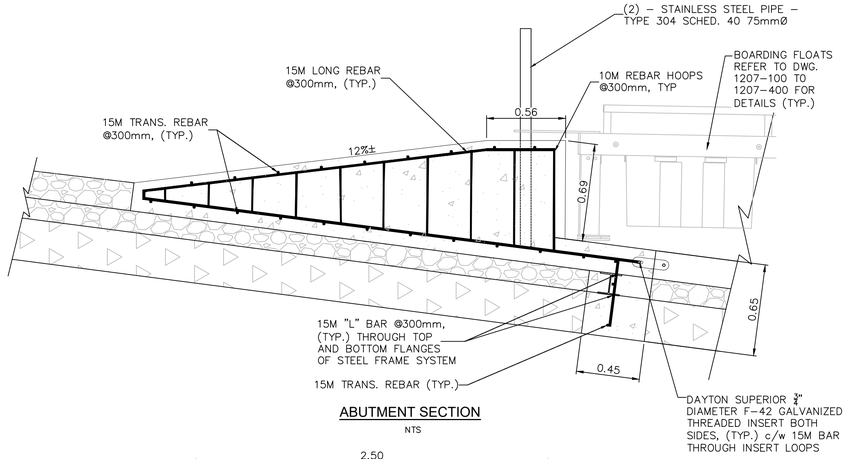


TYPICAL RAMP PLANK SECTION

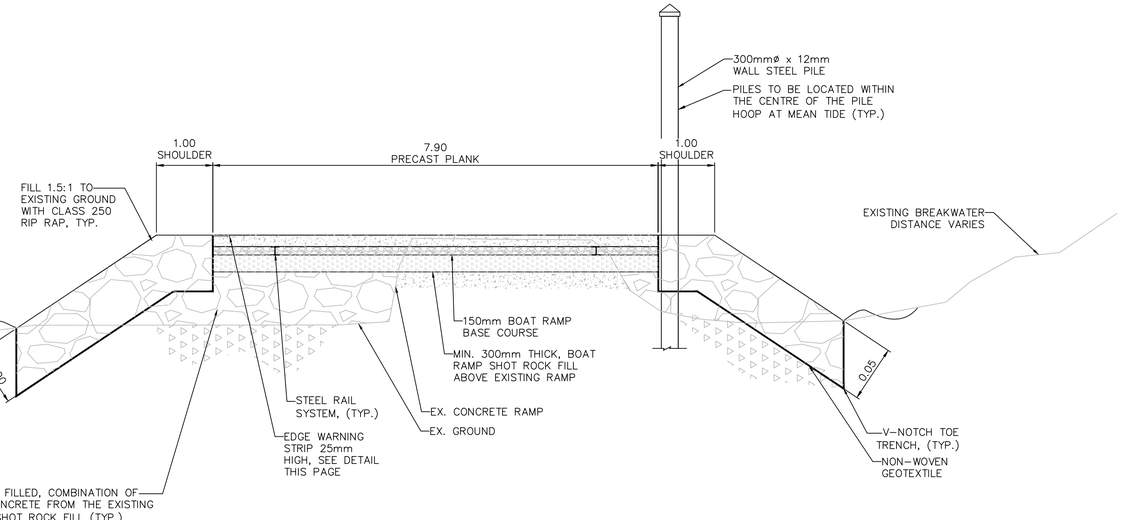
NTS

NOTE: V–GROOVE SURFACE AND SLOPE NOT SHOWN FOR CLARITY



ABUTMENT SECTION

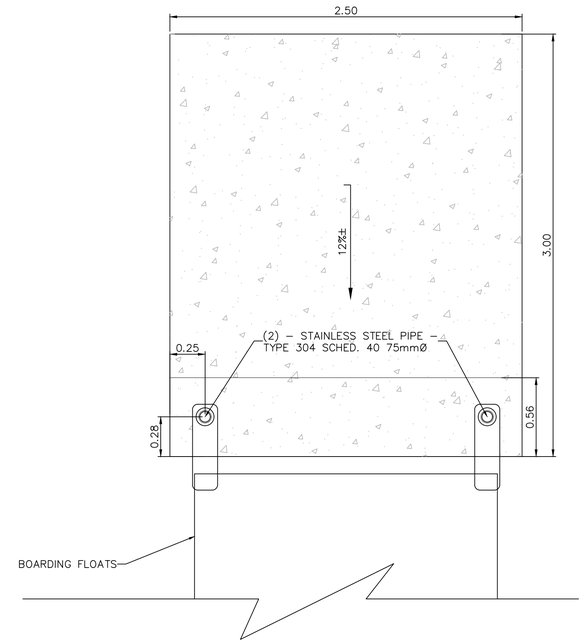
NTS



TYPICAL BOAT LAUNCH SECTION

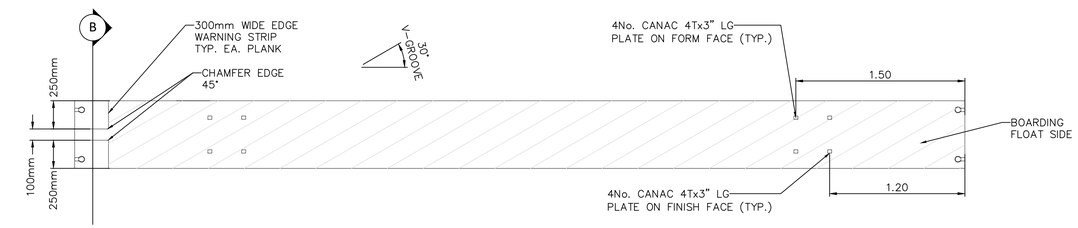
NTS

NOTE: V–GROOVE NOT SHOWN FOR CLARITY



ABUTMENT PLAN VIEW

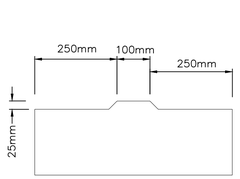
NTS



NOTE: V–GROOVE ORIENTATED AWAY FROM BOARDING FLOATS

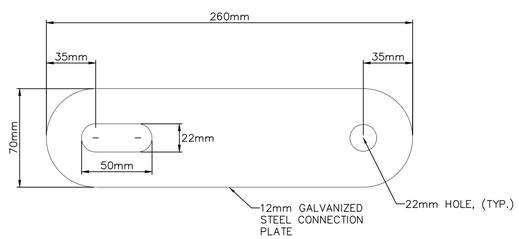
RAMP PLANK PLAN

NTS



B WARNING STRIP DETAIL

NTS



CONNECTION PLATE DETAIL

NTS

NOTES:

1. REFER TO DRAWING NUMBER C01 FOR GENERAL NOTES.

C:\USERS\BRENDEN FORBES\ONEDRIVE - CASCARA CONSULTING ENGINEERS LIMITED\1172-001 HORNBY BOAT LAUNCH\04 - DRAWINGS\1172-001 CIVIL DRAWINGS

2.6.2025

CLIENT

COMOX VALLEY REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
1	2025FEB06	BGF	ISSUED FOR CONSTRUCTION	BGF
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SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

DETAILS

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206–335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY:	BGF	CHECKED BY:	CDR
DRAWN BY:	BGF	APPROVED BY:	

SEAL:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B. G. FORBES # 58632

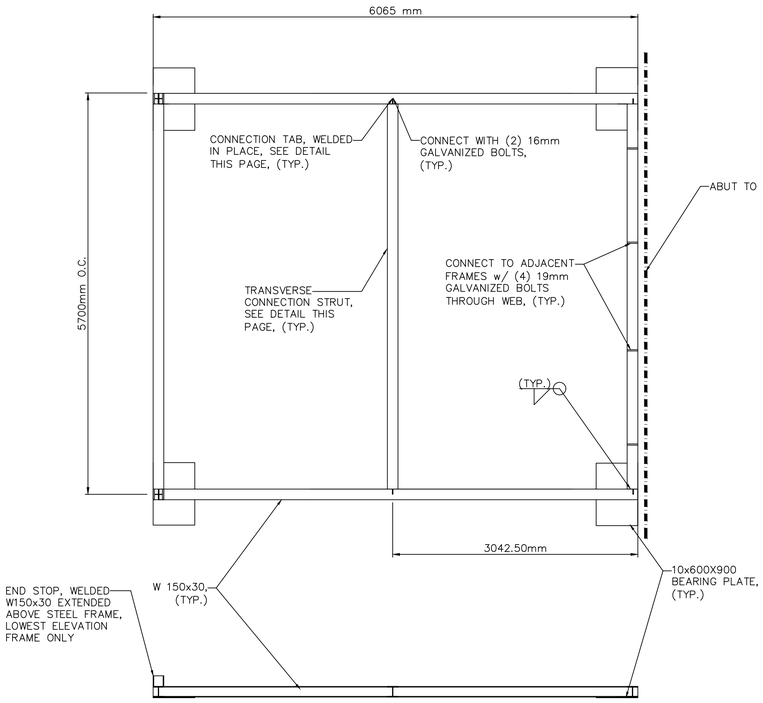
SCALE: HORIZ: SHOWN VERT: N/A

DATE: 2024FEB23 | SHEET: 5 OF 7

ENG. FILE NUMBER:

CITY DWG #: | PROJECT #: 1172-001

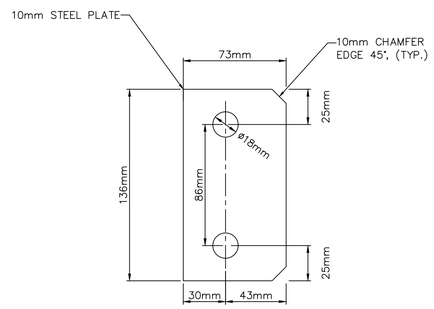
DRAWING NUMBER: C05 | REV: 1



STEEL RAIL SYSTEM - PLAN VIEW

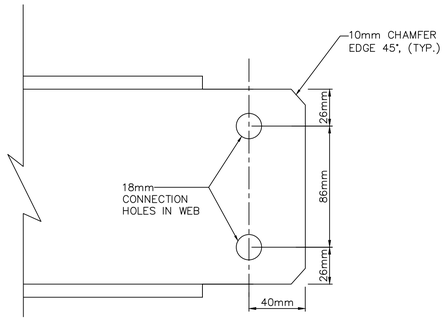
NTS

NOTE: 6 REQUIRED



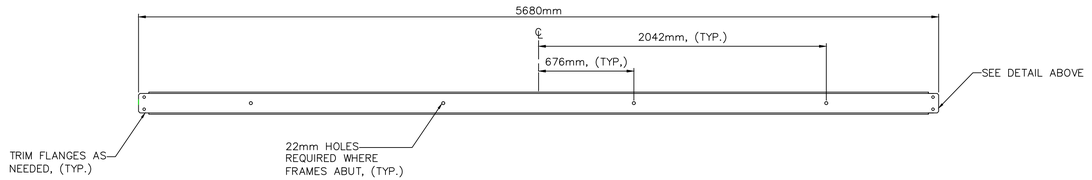
CONNECTION TAB

NTS



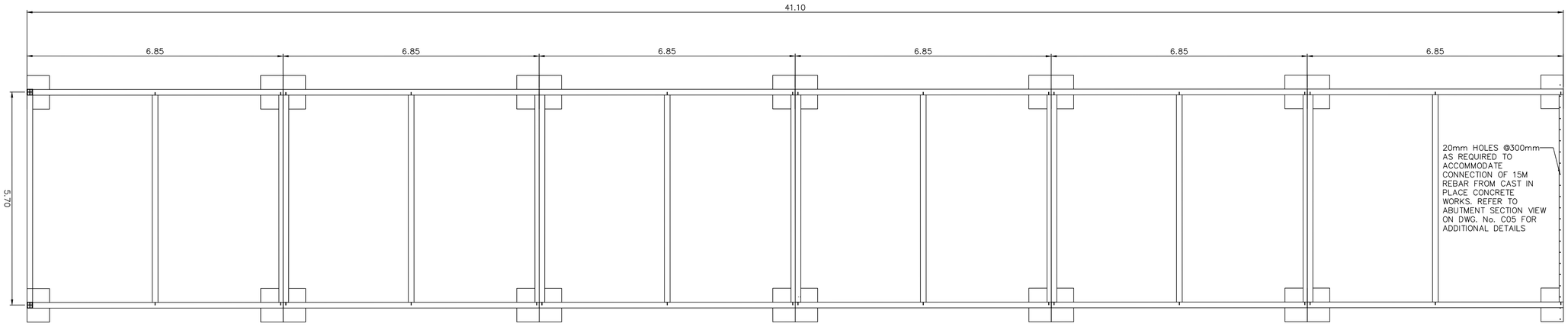
TRANSVERSE CONNECTION STRUT END DETAIL

NTS



TRANSVERSE CONNECTION STRUT

NTS



COMPLETE STEEL RAIL SYSTEM - PLAN VIEW

NTS

C:\USERS\BRENDEN.FORBES\ONEDRIVE - CASCARA CONSULTING ENGINEERS LIMITED\1172-001 HORNBY BOAT LAUNCH\V04 - DRAWINGS\1172-001 CIVIL DRAWINGS

2.6.2025

CLIENT

COMOX VALLEY REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
1	2025FEB06	BGF	ISSUED FOR CONSTRUCTION	BGF
E	2024DEC19	BGF	ISSUED FOR TENDER	BGF
D	2024AUG27	BGF	ISSUED FOR APPROVAL	BGF
C	2024JULY04	BGF	ISSUED FOR COORDINATION	BGF
B	2024MAR28	BGF	REISSUED FOR REVIEW	BGF
A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

STEEL FRAME SYSTEM

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY: BGF	CHECKED BY: CDR
DRAWN BY: BGF	APPROVED BY:

SEAL:

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B. G. FORBES # 58632

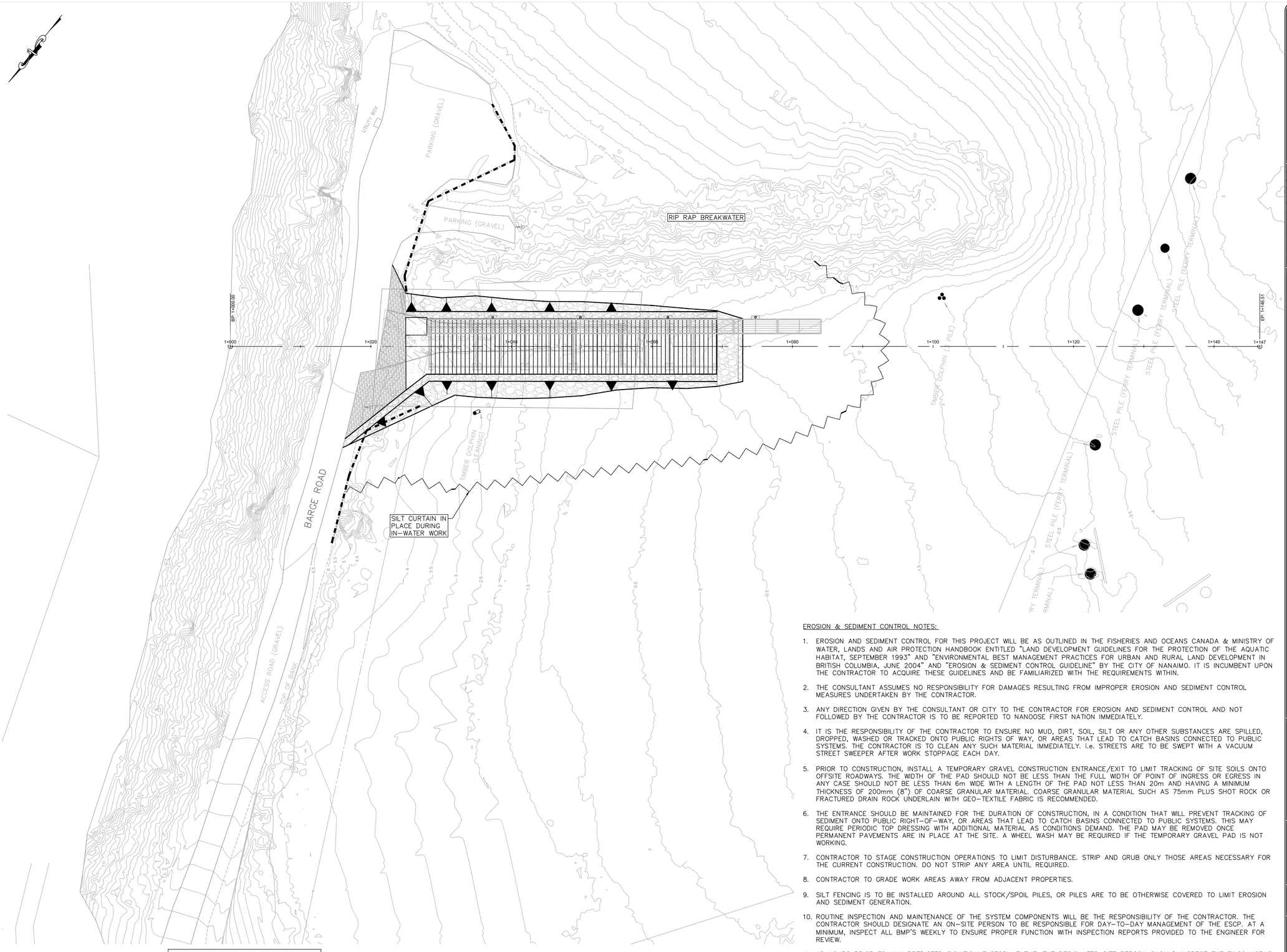
SCALE: HORIZ: SHOWN VERT: N/A

DATE: 2024FEB23 | SHEET: 6 OF 7

ENG. FILE NUMBER:

CITY DWG #: | PROJECT #: 1172-001

DRAWING NUMBER: C06 | REV: 1



NOTES:

1. REFER TO DRAWING NUMBER C01 FOR GENERAL NOTES.

LEGEND	
SILT FENCE	- - - - - - -
SILT CURTAIN	~~~~~

EROSION AND SEDIMENT CONTROL PLAN

1:250 0 5 15m

EROSION & SEDIMENT CONTROL NOTES:

1. EROSION AND SEDIMENT CONTROL FOR THIS PROJECT WILL BE AS OUTLINED IN THE FISHERIES AND OCEANS CANADA & MINISTRY OF WATER, LANDS AND AIR PROTECTION HANDBOOK ENTITLED "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF THE AQUATIC HABITAT, SEPTEMBER 1993" AND "ENVIRONMENTAL BEST MANAGEMENT PRACTICES FOR URBAN AND RURAL LAND DEVELOPMENT IN BRITISH COLUMBIA, JUNE 2004" AND "EROSION & SEDIMENT CONTROL GUIDELINE" BY THE CITY OF NANAIMO. IT IS INCUMBENT UPON THE CONTRACTOR TO ACQUIRE THESE GUIDELINES AND BE FAMILIARIZED WITH THE REQUIREMENTS WITHIN.
2. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
3. ANY DIRECTION GIVEN BY THE CONSULTANT OR CITY TO THE CONTRACTOR FOR EROSION AND SEDIMENT CONTROL AND NOT FOLLOWED BY THE CONTRACTOR IS TO BE REPORTED TO NANOOSE FIRST NATION IMMEDIATELY.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE NO MUD, DIRT, SOIL, SILT OR ANY OTHER SUBSTANCES ARE SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY, OR AREAS THAT LEAD TO CATCH BASINS CONNECTED TO PUBLIC SYSTEMS. THE CONTRACTOR IS TO CLEAN ANY SUCH MATERIAL IMMEDIATELY. i.e. STREETS ARE TO BE SWEPT WITH A VACUUM STREET SWEEPER AFTER WORK STOPPAGE EACH DAY.
5. PRIOR TO CONSTRUCTION, INSTALL A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT TO LIMIT TRACKING OF SITE SOILS ONTO OFFSITE ROADWAYS. THE WIDTH OF THE PAD SHOULD NOT BE LESS THAN THE FULL WIDTH OF POINT OF INGRESS OR EGRESS IN ANY CASE SHOULD NOT BE LESS THAN 6m WIDE WITH A LENGTH OF THE PAD NOT LESS THAN 20m AND HAVING A MINIMUM THICKNESS OF 200mm (8") OF COARSE GRANULAR MATERIAL. COARSE GRANULAR MATERIAL SUCH AS 75mm PLUS SHOT ROCK OR FRACTURED DRAIN ROCK UNDERLAIN WITH GEO-TEXTILE FABRIC IS RECOMMENDED.
6. THE ENTRANCE SHOULD BE MAINTAINED FOR THE DURATION OF CONSTRUCTION, IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY, OR AREAS THAT LEAD TO CATCH BASINS CONNECTED TO PUBLIC SYSTEMS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL MATERIAL AS CONDITIONS DEMAND. THE PAD MAY BE REMOVED ONCE PERMANENT PAVEMENTS ARE IN PLACE AT THE SITE. A WHEEL WASH MAY BE REQUIRED IF THE TEMPORARY GRAVEL PAD IS NOT WORKING.
7. CONTRACTOR TO STAGE CONSTRUCTION OPERATIONS TO LIMIT DISTURBANCE. STRIP AND GRUB ONLY THOSE AREAS NECESSARY FOR THE CURRENT CONSTRUCTION. DO NOT STRIP ANY AREA UNTIL REQUIRED.
8. CONTRACTOR TO GRADE WORK AREAS AWAY FROM ADJACENT PROPERTIES.
9. SILT FENCING IS TO BE INSTALLED AROUND ALL STOCK/SPOIL PILES, OR PILES ARE TO BE OTHERWISE COVERED TO LIMIT EROSION AND SEDIMENT GENERATION.
10. ROUTINE INSPECTION AND MAINTENANCE OF THE SYSTEM COMPONENTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHOULD DESIGNATE AN ON-SITE PERSON TO BE RESPONSIBLE FOR DAY-TO-DAY MANAGEMENT OF THE ESCP. AT A MINIMUM, INSPECT ALL BMP'S WEEKLY TO ENSURE PROPER FUNCTION WITH INSPECTION REPORTS PROVIDED TO THE ENGINEER FOR REVIEW.
11. 48 HOURS PRIOR TO ANY PREDICTED SIGNIFICANT STORM EVENT, THE DESIGNATED SITE PERSON SHOULD INSPECT THE E&SC WORKS AND ENSURE THAT THE WORKS ARE ADEQUATE TO PROTECT THE SITE DURING THE STORM EVENT AND PROVIDE A WRITTEN REPORT TO THE ENGINEER AND/OR THE CITY UPON REQUEST. IF THE DESIGNATED SITE PERSON DETERMINES THAT THE E&SC WORKS ARE NOT ADEQUATE TO PROTECT THE SITE DURING THE ANTICIPATED STORM EVENT, THEN HE/SHE IS TO IMMEDIATELY INFORM THE ENGINEER AND CONTRACTOR SO THAT THE WORKS CAN BE MODIFIED TO ADEQUATELY PROTECT THE SITE DURING THE STORM EVENT AND PROVIDE A WRITTEN REPORT TO THE ENGINEER AND/OR THE NANOOSE FIRST NATION UPON REQUEST.

CLIENT

COMOX VALLEY
REGIONAL DISTRICT

REV.	DATE	BY	DESCRIPTION	ENG
1	2025FEB06	BGF	ISSUED FOR CONSTRUCTION	BGF
E	2024DEC19	BGF	ISSUED FOR TENDER	BGF
D	2024AUG27	BGF	ISSUED FOR APPROVAL	BGF
C	2024JULY04	BGF	ISSUED FOR COORDINATION	BGF
B	2024MAR28	BGF	REISSUED FOR REVIEW	BGF
A	2024FEB23	BGF	ISSUED FOR REVIEW	BGF

SHINGLE SPIT BOAT LAUNCH

HORNBY ISLAND, B.C.

DRAWING TITLE:

EROSION & SEDIMENT CONTROL PLAN

CASCARA CONSULTING ENGINEERS LIMITED
EGBC PERMIT No. 1000784
#206-335 WESLEY STREET NANAIMO, BC V9R 2T5
TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY:	BGF	CHECKED BY:	CDR
DRAWN BY:	BGF	APPROVED BY:	

SEAL: PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, B. G. FORBES # 58632

SCALE: HORIZ: SHOWN VERT: N/A
DATE: 2024FEB23 | SHEET: 7 OF 7
ENG. FILE NUMBER:
CITY DWG #: | PROJECT #: 1172-001
DRAWING NUMBER: C07 | REV: 1

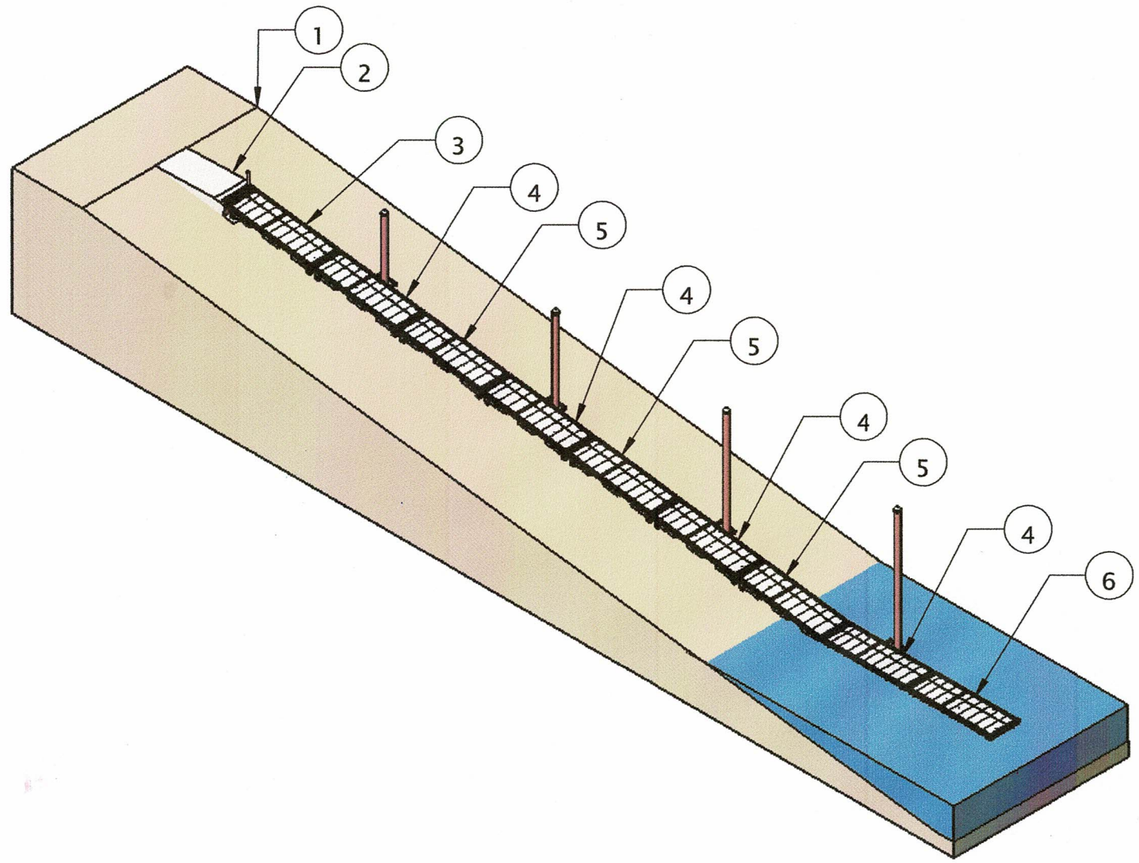
C:\USERS\BRENDEN FORBES\ONEDRIVE - CASCARA CONSULTING ENGINEERS LIMITED\1172-001 HORNBY BOAT LAUNCH\04 - DRAWINGS\1172-001 CIVIL DRAWINGS

2.6.2025

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2022 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES 6061-T6, PLATE 5052-H32
4. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
5. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356

ITEM No.	PART No.	DWG No.	REV	DESCRIPTION	QTY.	LBS
1	1207-1001			SHINGLE SPIT BOAT RAMP	1	
2	1207-1010		0	CONCRETE RAMP APPROACH	1	
3	1207-100	1207-100	0	FLOAT AT SHORE	1	1362
4	1207-100	1207-200	0	FLOAT WITH PILE	4	1329
5	1207-100	1207-300	0	FLOAT NO PILE	3	1292
6	1207-100	1207-400	0	FLOAT AT END	1	1292
7	1207-1003			PILE CAP 12"	4	



PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. J. KING
25441
12/17/24

REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

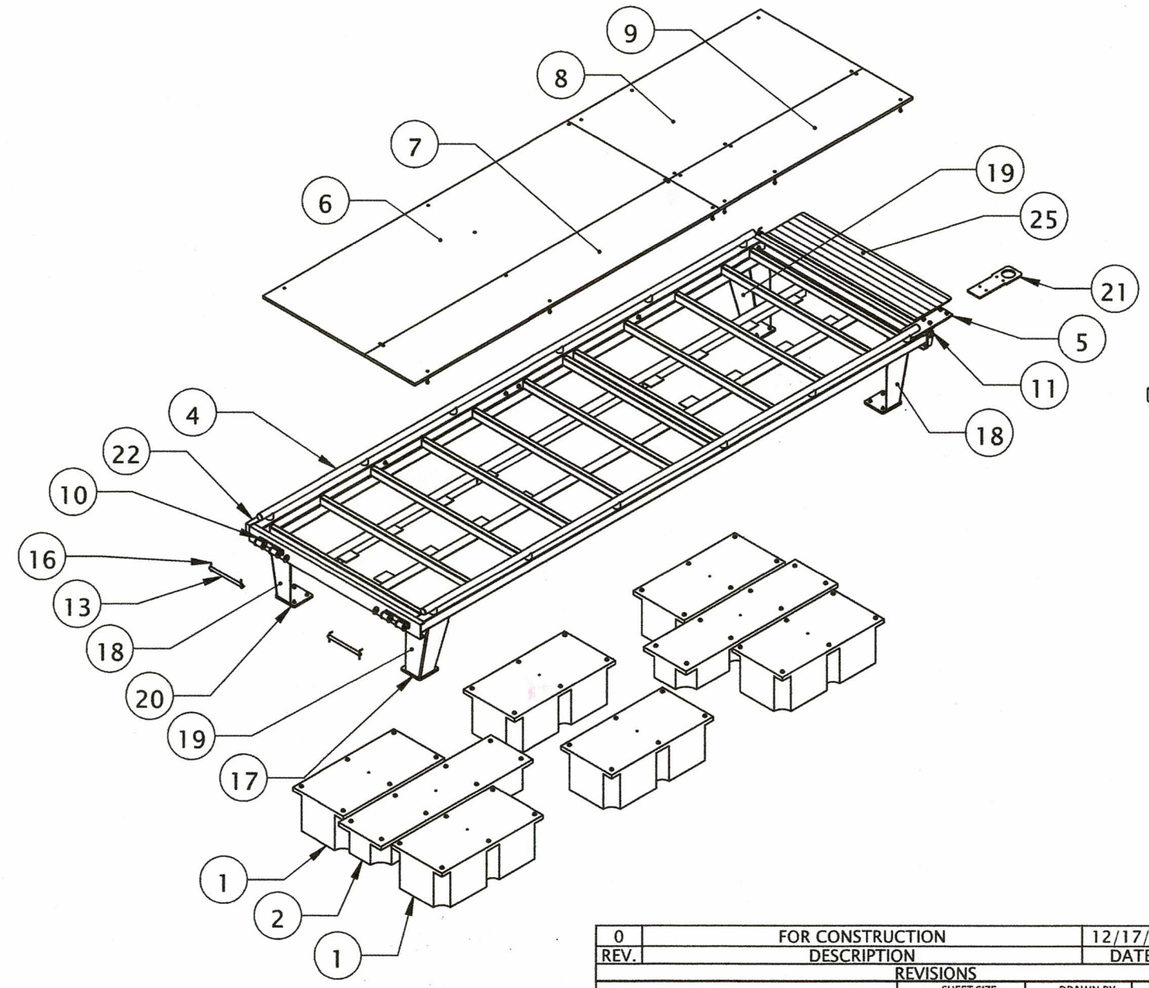
CR Engineering Inc.

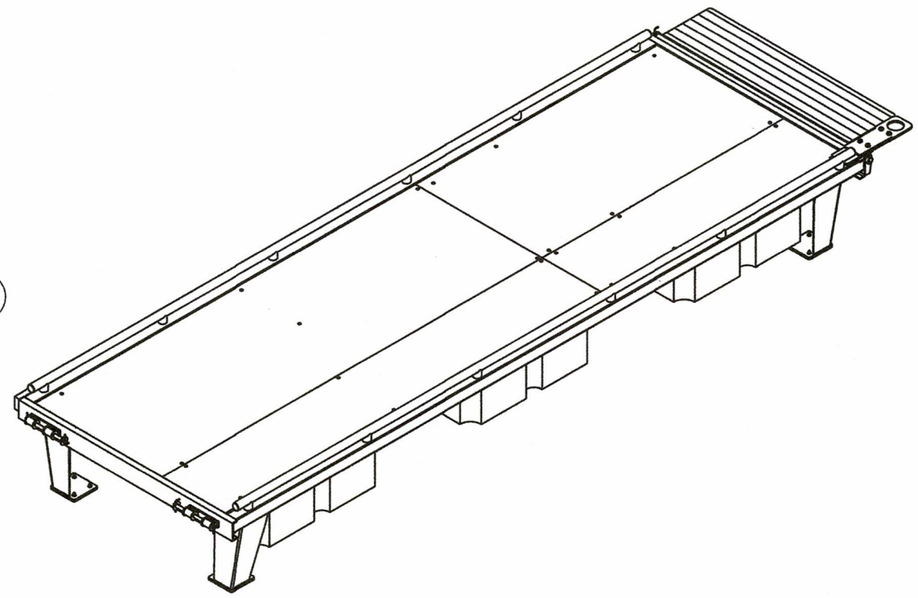
TITLE:
GENERAL ARRANGEMENT

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-1000	1 OF 1	0

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2022 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES: 6061-T6, PLATE 5052-H32
4. GRATING: FRP MINIMESH 1" THICK, FASTEN WITH SIX CARRIAGE BOLTS PER PANEL
5. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
6. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356





REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

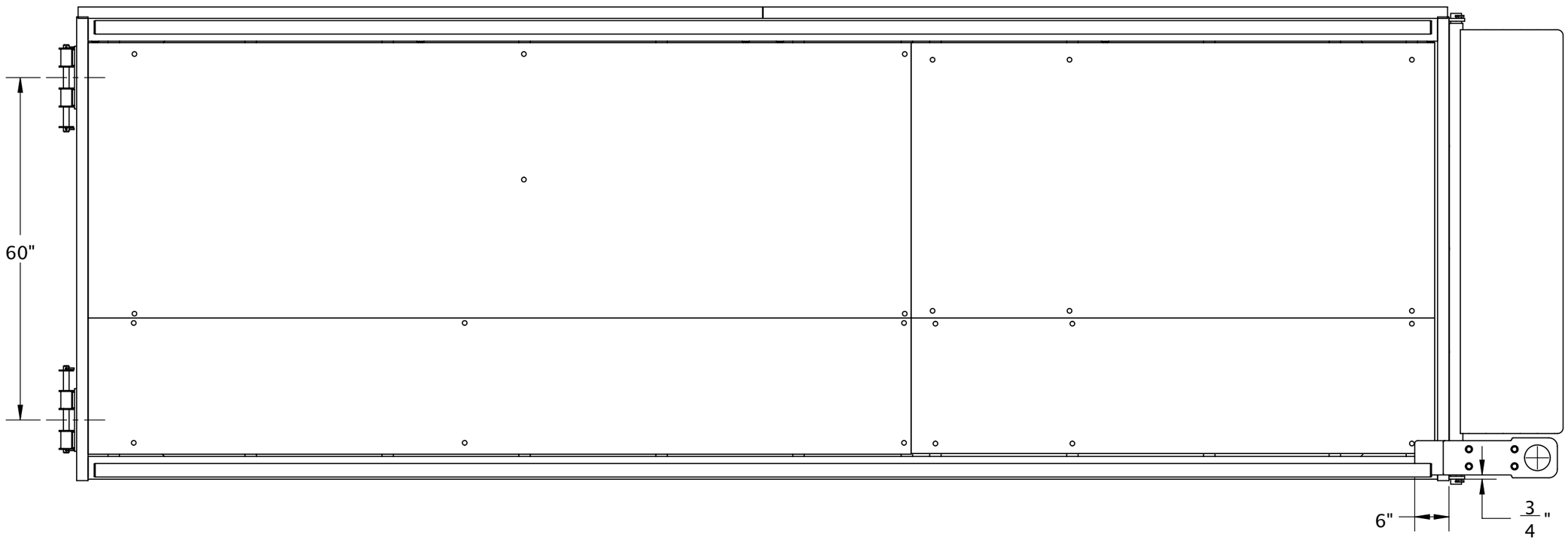
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GENERAL ARRANGEMENT
FLOAT AT SHORE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	1 OF 14	0



DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

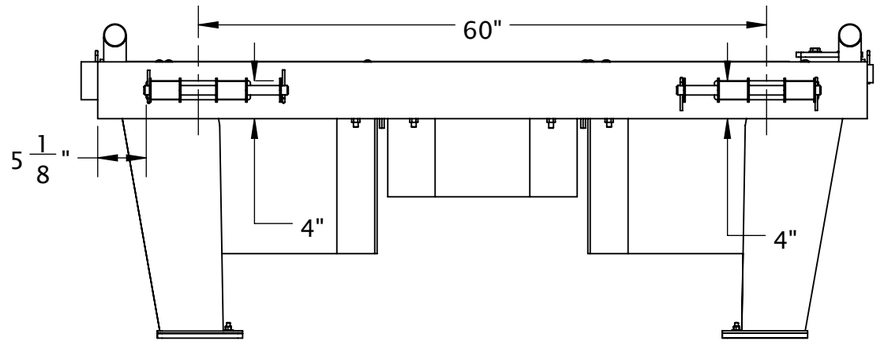
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

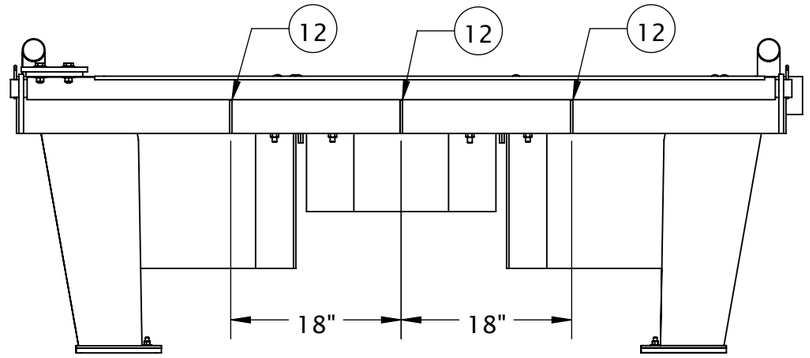
CR Engineering Inc.

TITLE:

TOP VIEW

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	2 OF 14	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

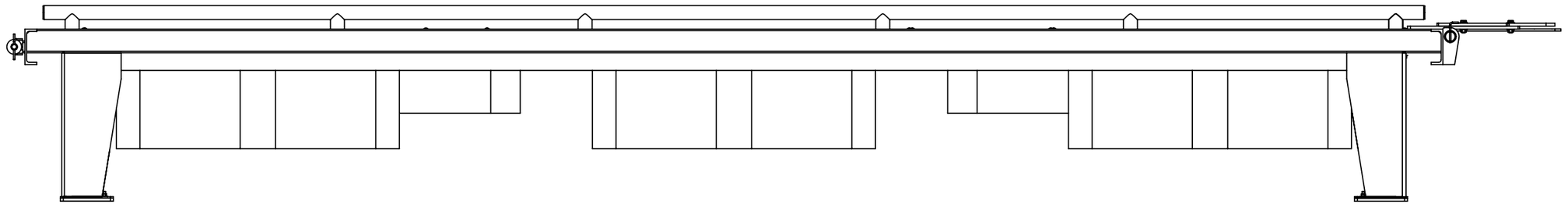
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

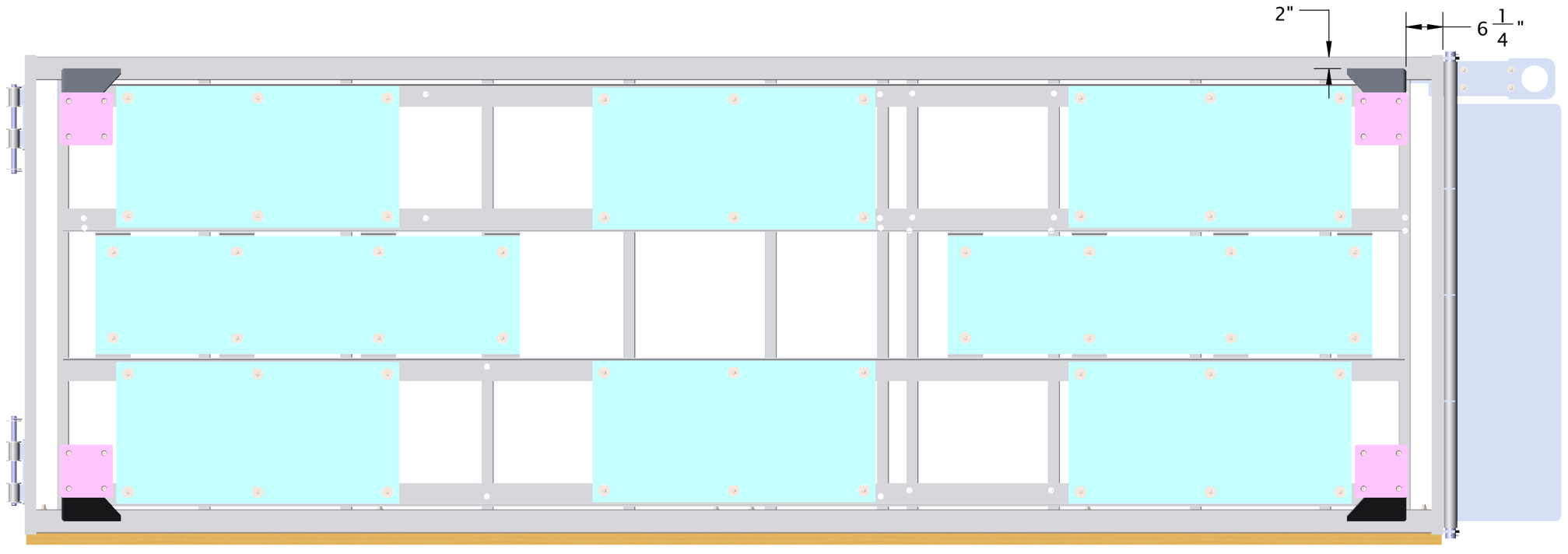
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
END VIEWS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	3 OF 14	0





CLIENT

COMOX VALLEY
REGIONAL DISTRICT

PROJECT

SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:

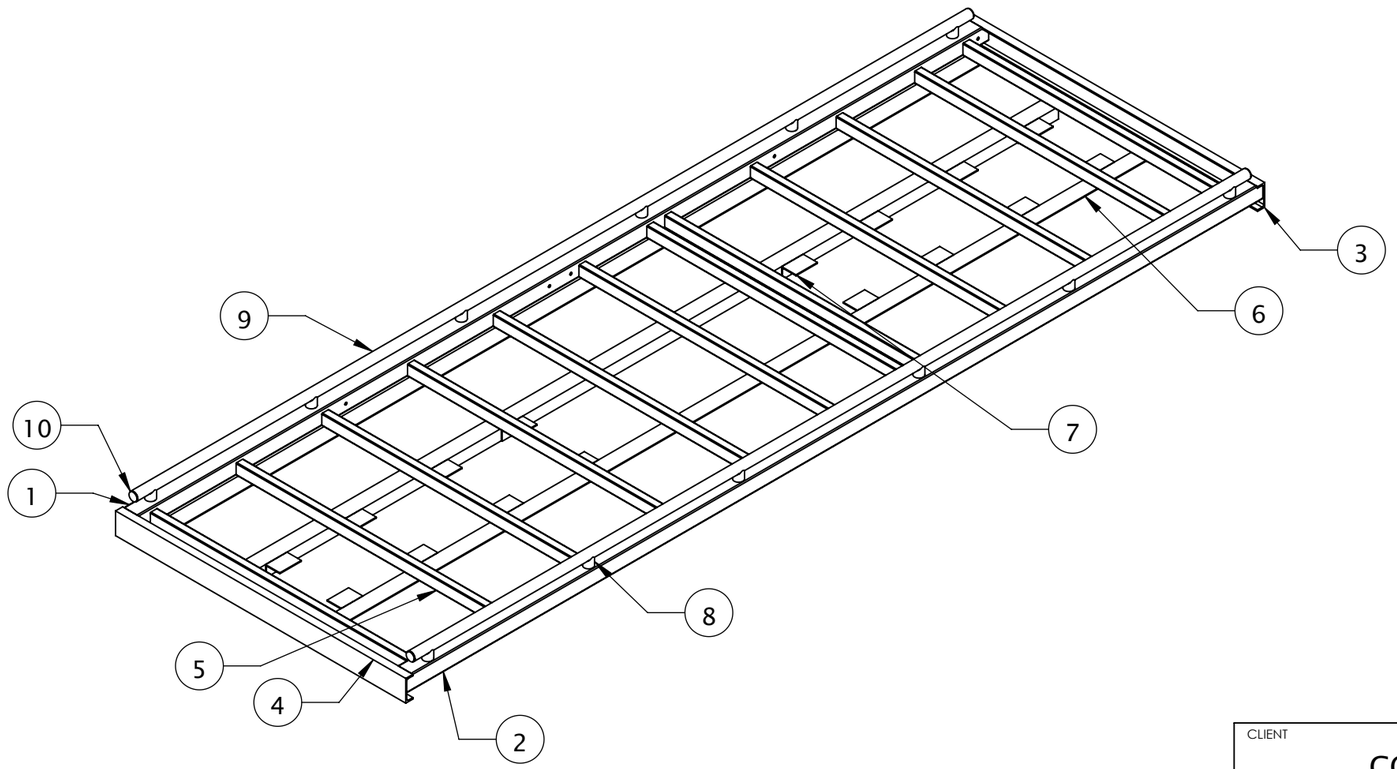
BOTTOM VIEW BILLETS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	4 OF 14	0

ITEM NO.	QTY.	DESCRIPTION	LENGTH	TOTAL LENGTH
1	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
2	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
3	1	CHANNEL SQUARE 6 x 3.60	81 1/4"	81 1/4"
4	1	CHANNEL SQUARE 6 x 3.60		
5	12	RECTANGULAR ROUND CORNER 3 x 2 x 1/8	72 3/4"	873"
6	4	ANGLE 4.00 x 3.00 x 0.250	227 1/2"	1006"
7	16	ANGLE 4.00 x 3.00 x 0.250	6"	1006"
8	12	PIPE SCH 40 2	2 9/16"	499 1/16"
9	2	PIPE SCH 40 2	234"	499 1/16"
10	4	END CAP		



DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

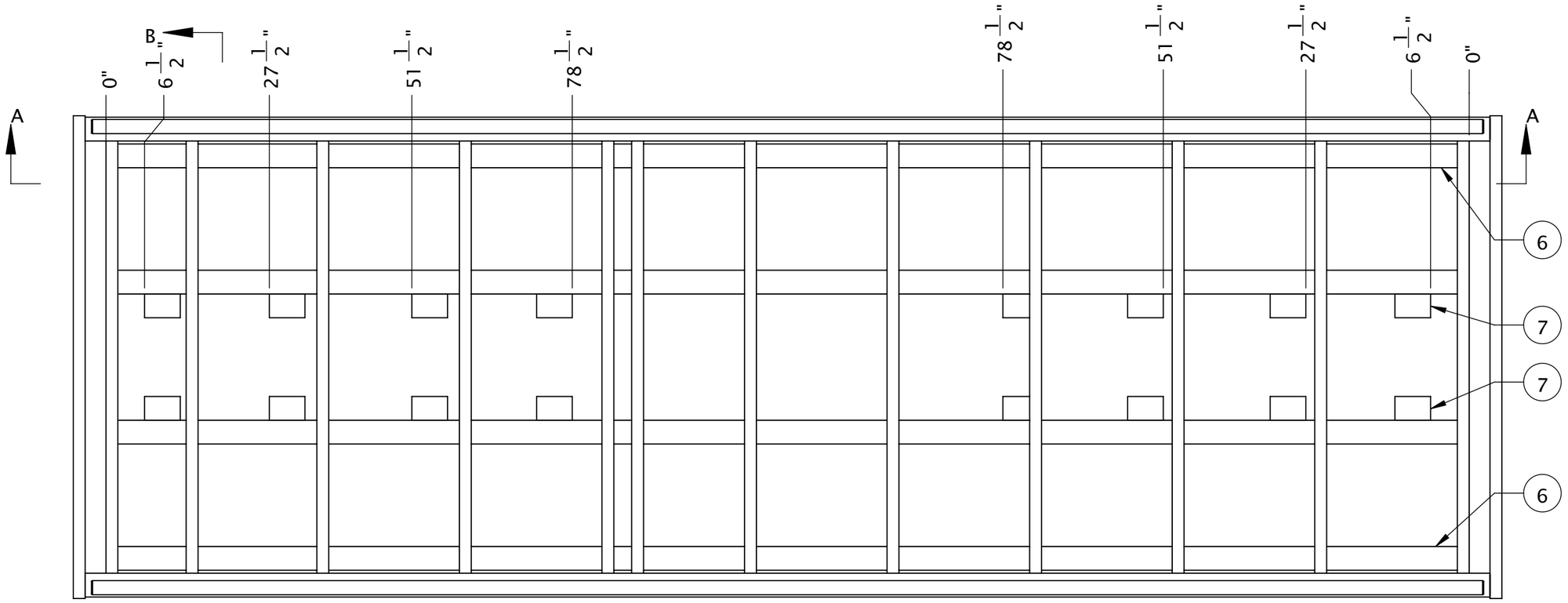
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

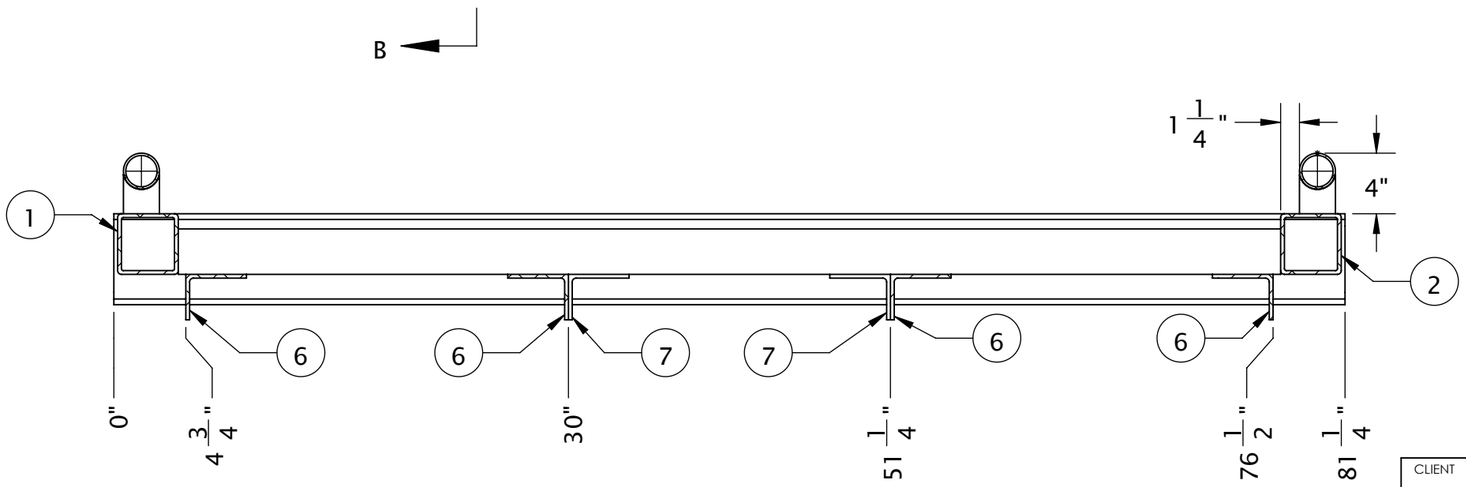
CR Engineering Inc.

TITLE:

FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	5 OF 14	0





SECTION B–B
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

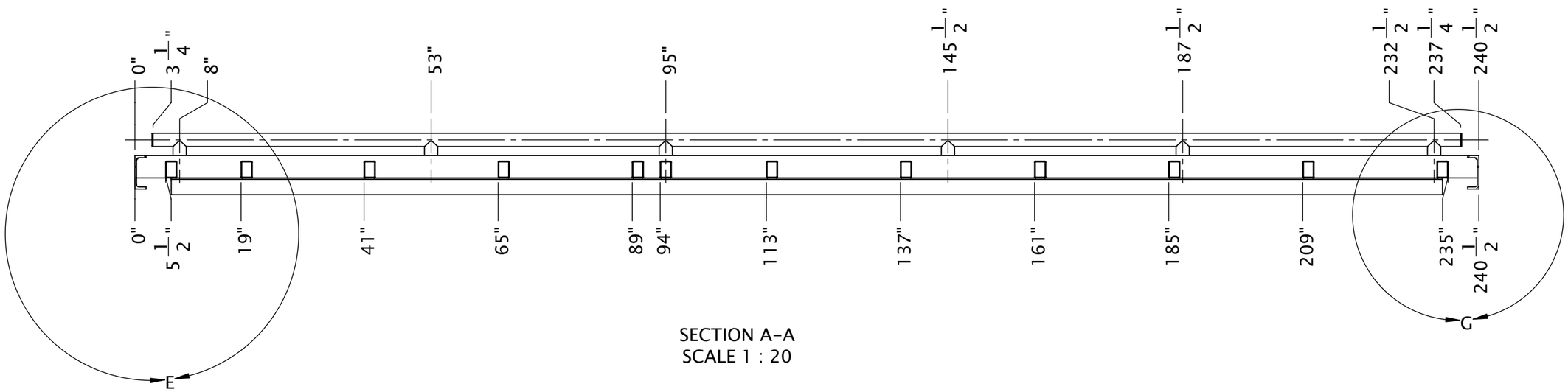
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

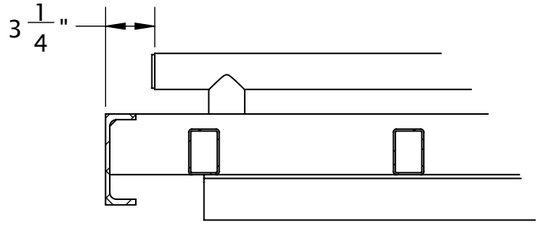
CR Engineering Inc.

TITLE:
FLOAT FRAME

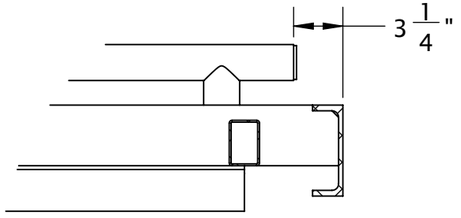
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	6 OF 14	0



SECTION A–A
SCALE 1 : 20



DETAIL E
SCALE 1 : 10



DETAIL G
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

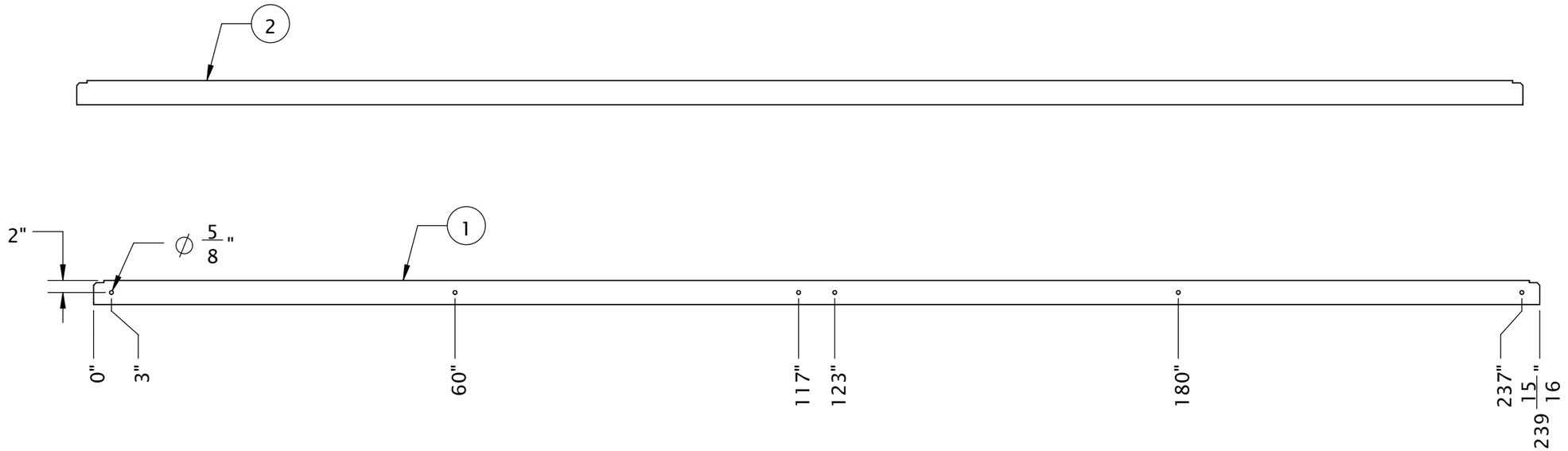
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

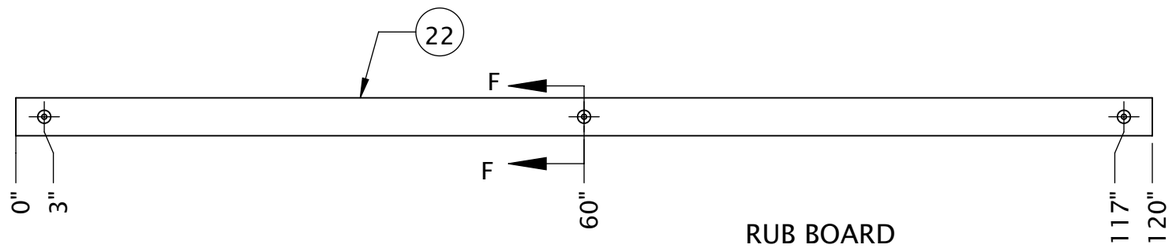
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

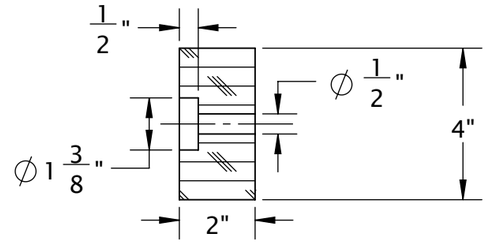
TITLE:
FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	7 OF 14	0





RUB BOARD
1207-104
2"
SCALE 1:16



SECTION F-F
SCALE 1 : 4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

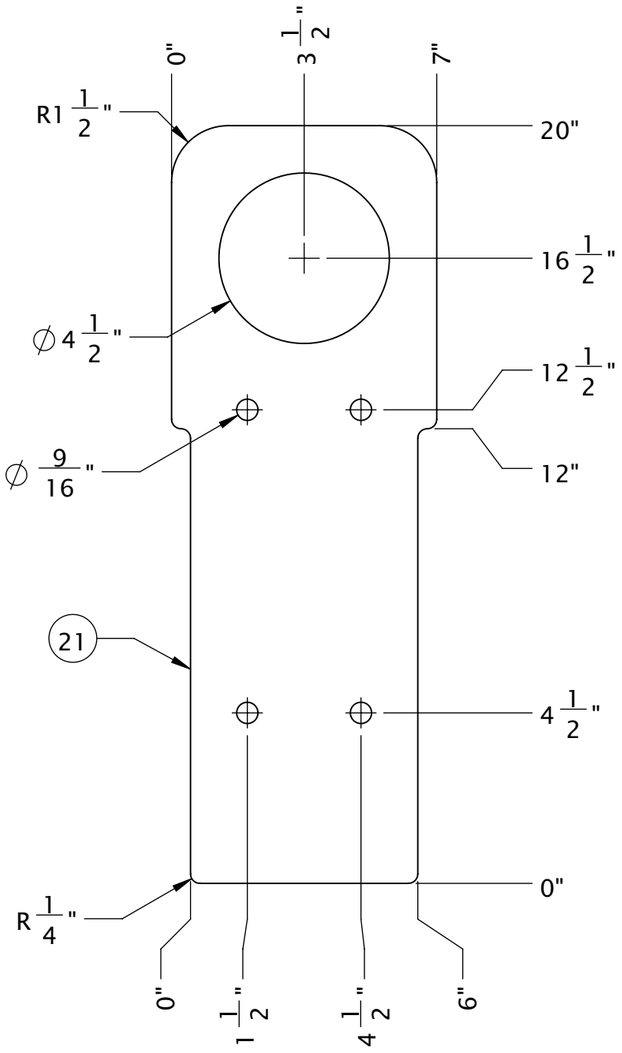
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

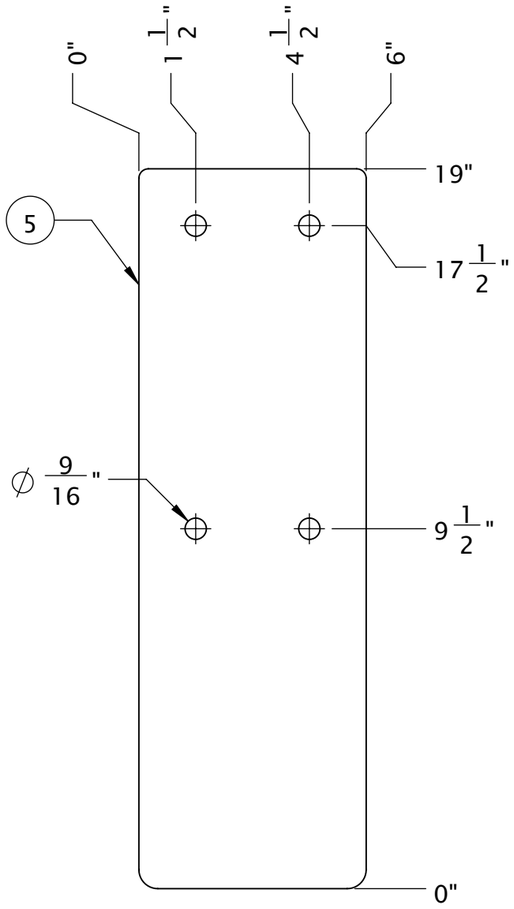
CR Engineering Inc.

TITLE:
SIDE MEMBERS

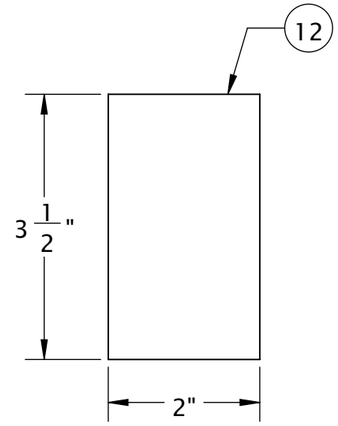
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	8 OF 14	0



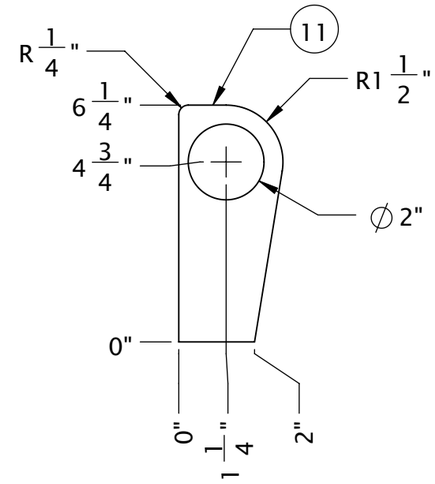
RAMP CONNECTOR PLATE
1207-108
1/2"
SCALE 1:4



FLOAT CONNECTOR PLATE
1207-102
1/2"
SCALE 1:4



HINGE SUPPORT
1207-106
1/4"
SCALE 1:2



HINGE LUG
1207-105
1/2"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

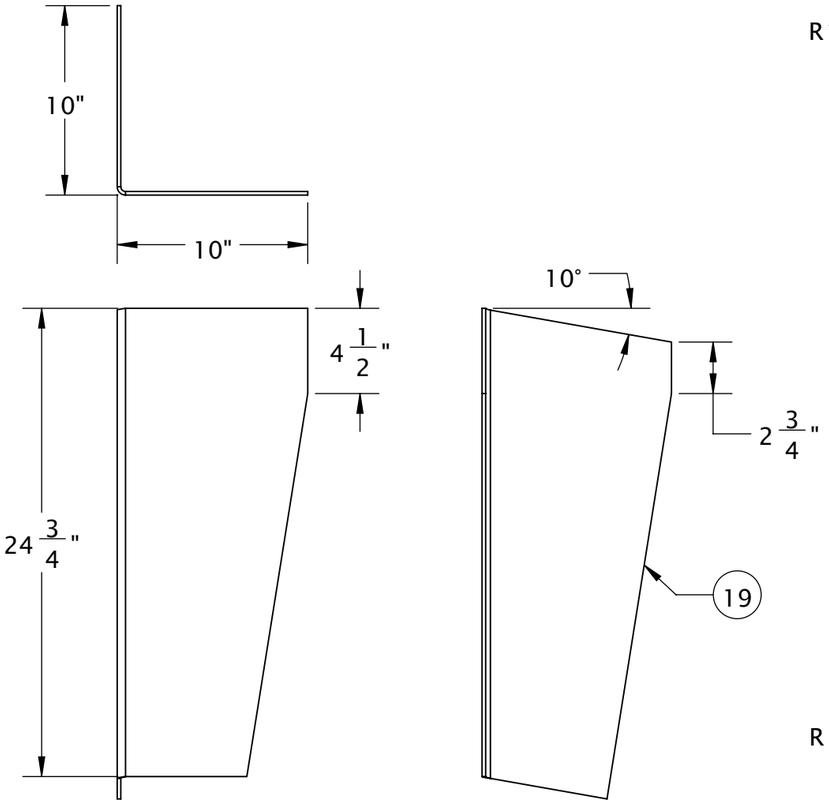
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

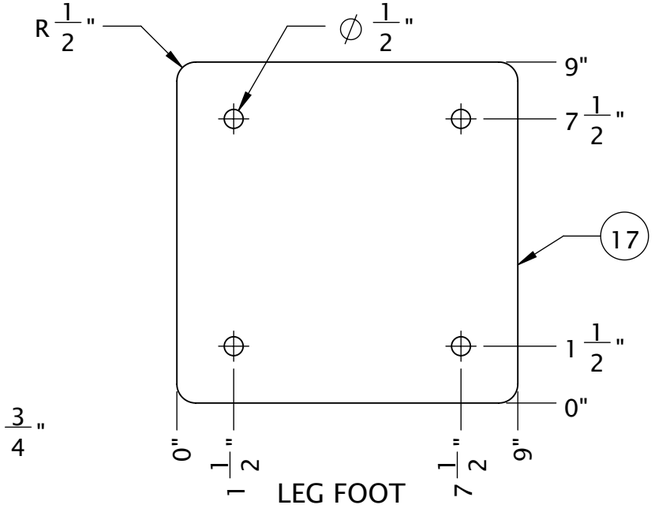
CR Engineering Inc.

TITLE:
DETAILS

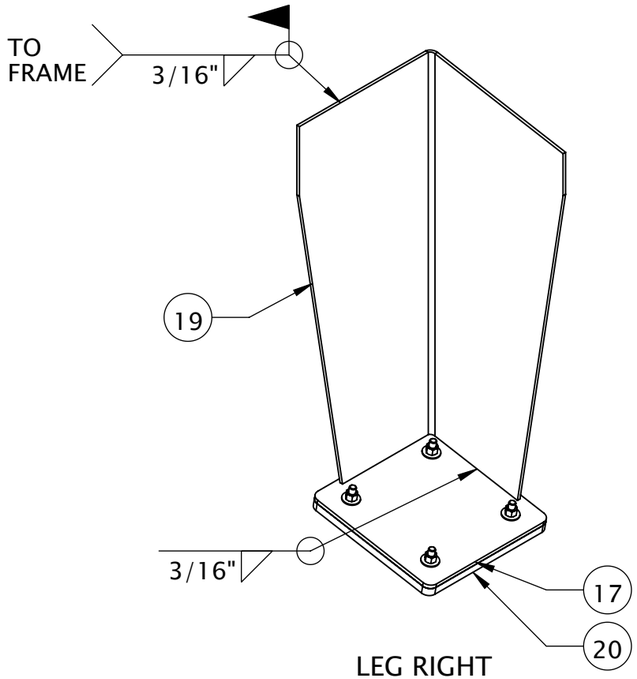
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	9 OF 14	0



LEG RIGHT
1207-118
3/16"
SCALE 1:8

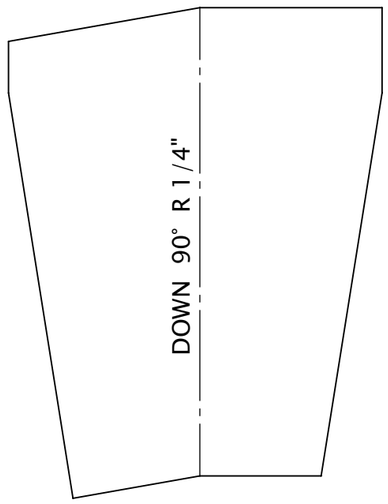


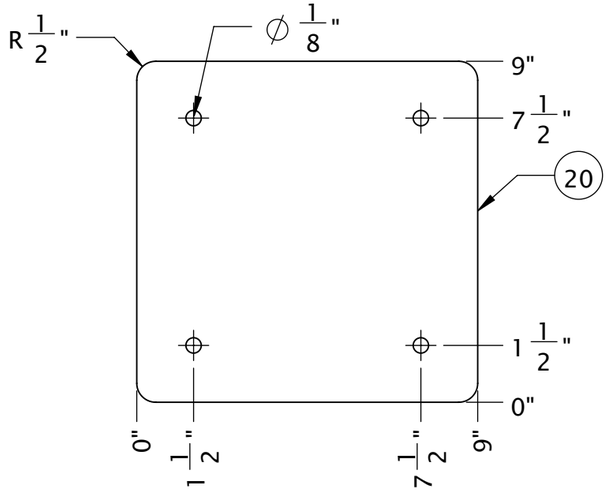
LEG FOOT
1207-117
1/4"
SCALE 1:4



LEG RIGHT
1207-115R

SCALE 1:8





LEG WEAR PAD
1207-116
1/2"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

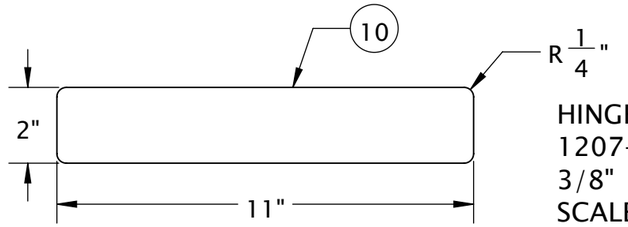
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

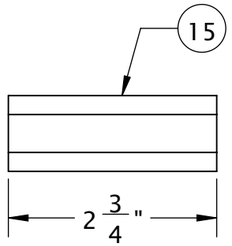
CR Engineering Inc.

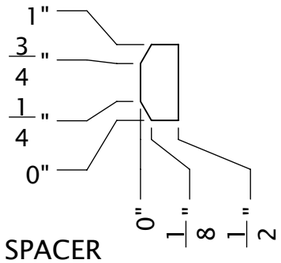
TITLE:
LEG
MAKE LEFT AND RIGHT

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	10 OF 14	0

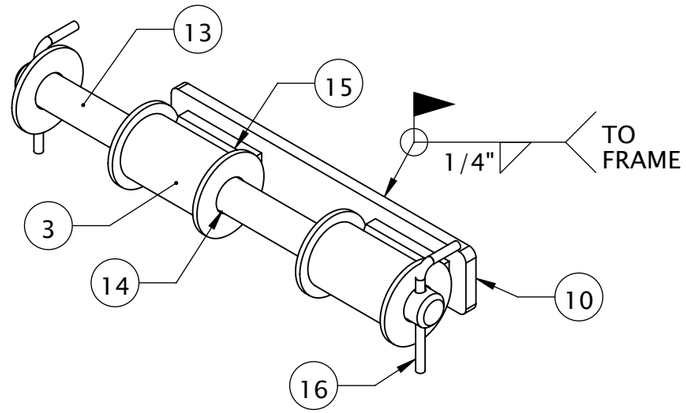


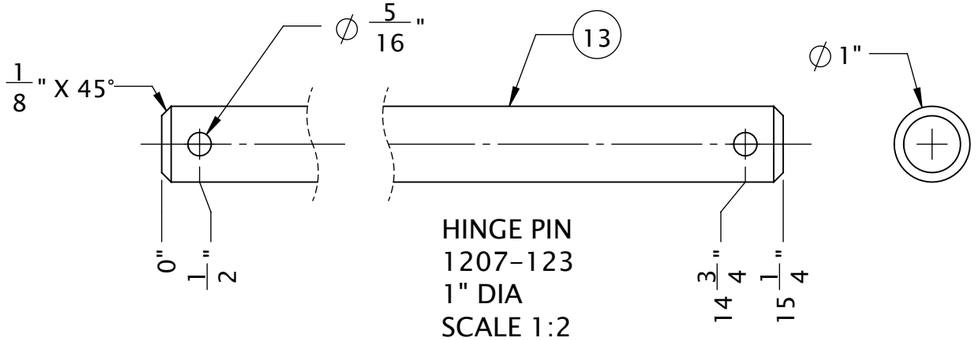
HINGE BACKING PLATE
1207-121
3/8"
SCALE 1:4



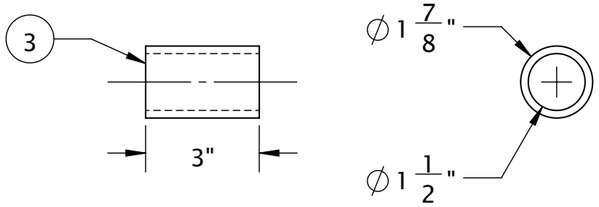


HINGE SPACER
1207-128
1/2"
SCALE 1:2

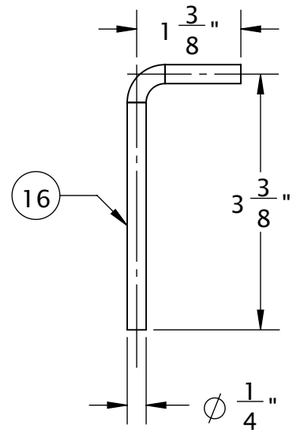




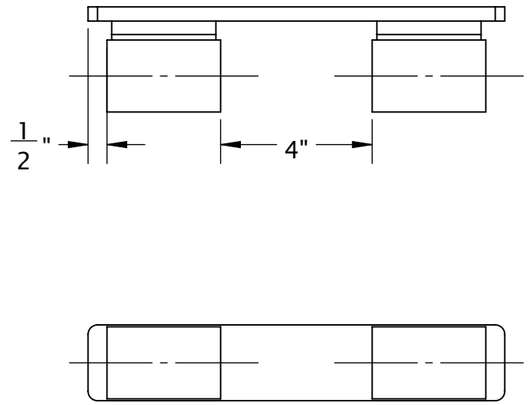
HINGE PIN
1207-123
1" DIA
SCALE 1:2

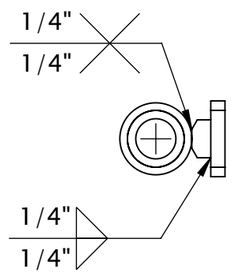


HINGE PIPE
1207-126
1-1/2" SCH 80
SCALE 1:4



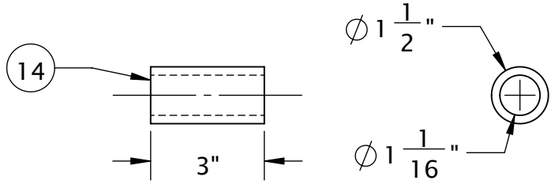
KEEPER PIN
1207-129
1/4"
SCALE 1:2





HINGE NO PIN
1207-120

SCALE 1:4



HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"
1207-127
UHMW
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

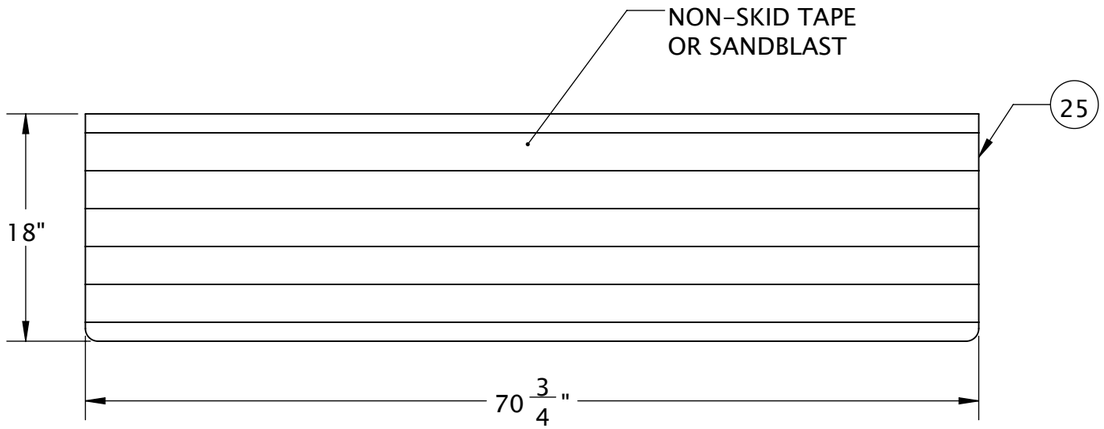
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

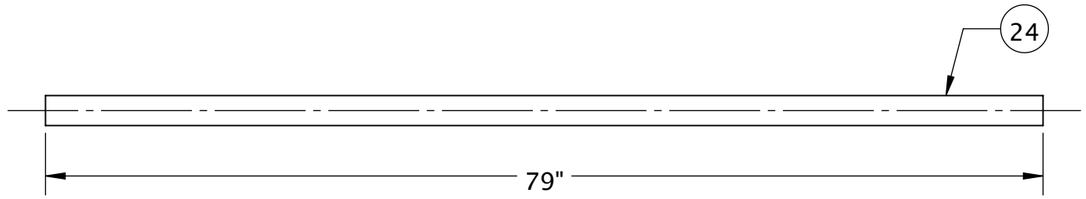
CR Engineering Inc.

TITLE:
HINGE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	11 OF 14	0

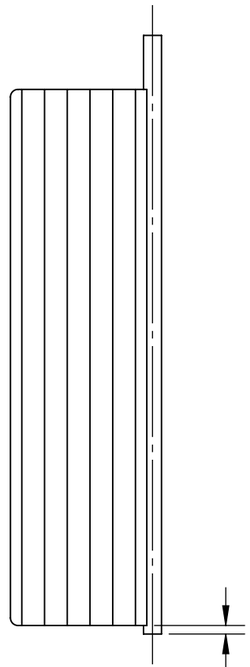


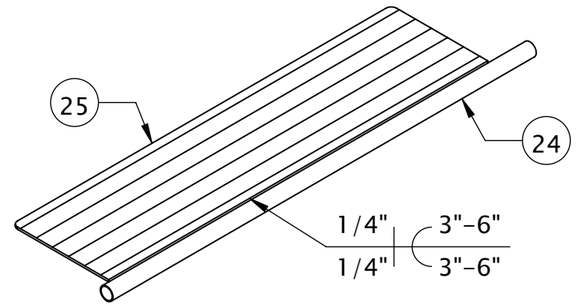
TRANSITION PLATE
1207-52
3/8"
SCALE 1:12



TRANSITION PIPE
1207-51
2" sch 40
SCALE 1:12

TRANSITION HINGE PIN
1207-1004
1-1/2 SCH 40
SCALE 1:12





TRANSITION PLATE
1207-50

SCALE 1:20

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
TRANSITION TO SHORE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	12 OF 14	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
1	1207-115	0	BARR FLOAT 24" x 48" x 16"	6		24"	48"	16"	39
2	1207-142	0	BARR FLOAT 20" x 72" x 10"	2		20"	72"	10"	34
3	1207-126	0	HINGE PIPE	4	6061-T6		3"	1-1/2" SCH 80	0
4	1207-101	0	FLOAT FRAME SHORE	1	6061-T6	81 1/4"	240 1/2"		539
5	1207-102	0	FLOAT CONNECTOR PLATE	1	5052-H32	6"	19"	1/2"	5
6	1207-111	0	MICROMESH ONE	1	FIBERGLASS	48 1/4"	144 1/4"	1"	140
7	1207-112	0	MICROMESH TWO	1	FIBERGLASS	23 7/8"	144 1/4"	1"	69
8	1207-113	0	MICROMESH THREE	1	FIBERGLASS	48 1/4"	91 3/4"	1"	89
9	1207-114	0	MICROMESH FOUR	1	FIBERGLASS	23 3/4"	91 3/4"	1"	44
10	1207-121	0	HINGE BACKING PLATE	2	5052-H32	2"	11"	3/8"	1
11	1207-105	0	HINGE LUG	2	5052-H32		6 1/4"	1/2"	1
12	1207-106	0	HINGE SUPPORT	4	5052-H32	3 1/2"	2"	1/4"	0
13	1207-123	0	HINGE PIN	2	316L		15 1/4"	1" DIA	3
14	1207-127	0	HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"	4	UHMW			UHMW	
15	1207-128	0	HINGE SPACER	4	5052-H32	2 3/4"	1"	1/2"	0
16	1207-129	0	KEEPER PIN	6	304 SS		5	1/4"	
17	1207-117	0	LEG FOOT	4	5052-H32	9"	9"	1/4"	2
18	1207-119	0	LEG LEFT	2	5052-H32		26 9/16"	1/4"	10
19	1207-118	0	LEG RIGHT	2	5052-H32		26 1/2"	3/16"	8
20	1207-116	0	LEG WEAR PAD	4	UHMW	9"	9"	1/2"	1
21	1207-108	0	RAMP CONNECTOR PLATE	1	5052-H32	7"	20"	1/2"	5
22	1207-104	0	RUB BOARD	2	ROUGH CUT FIR	4"	120"	2"	18
23	1207-1004	0	TRANSITION HINGE PIN	1	304L			1-1/2 SCH 40	19
24	1207-51	0	TRANSITION PIPE	1	6061-T6			2" sch 40	8
25	1207-52	0	TRANSITION PLATE	1	5052-H32	18"	70 3/4"	3/8"	46

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT: COMOX VALLEY REGIONAL DISTRICT

PROJECT: SHINGLE SPIT BOAT RAMP HORNBY ISLAND

CR Engineering Inc.

TITLE: BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	13 OF 14	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
26	HHSBOLT 0.5000-13x1.75x1-N		BOLT A307 1/2" x 1-3/4"	4	GALVANIZED				
27	HBOLT 0.5000-13x3x1.25-N		BOLT 1/2" x 3"	52	GALVANIZED				
28	HBOLT 0.5000-13x6.5x1.375-N		BOLT 1/2" x 6-1/2"	6	GALVANIZED				
29	HNUT 0.5000-13-D-N		NUT 1/2"	62	GALVANIZED				
30	SCHCSCREW 0.375-16x1.5x1.5-HX-N		COUNTERSUNK SCREW 3/8" x 1-1/2"	16	304 SS				
31	Regular FW 0.375		FLAT WASHER 3/8"	40	304 SS				
32	Regular FW 0.5		FLAT WASHER 1/2"	124	304 SS				
33	Regular FW 0.75		FLAT WASHER 3/4"	52	304 SS				
34	Regular FW 1		FLAT WASHER 1"	10	304 SS				
35	HTNUT 0.3750-16-D-N		NYLOCK NUT 3/8"	40	304 SS				
36	RHSNBOLT 0.375-16x5x1-N		CARRIAGE BOLT 3/8" x 5"	24	304 SS				

NOTE - BLUE LOCKTITE ON NUTS FOR BILLETS, GRATING AND RUB BOARDS
DO NOT USE LOCK WASHERS

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

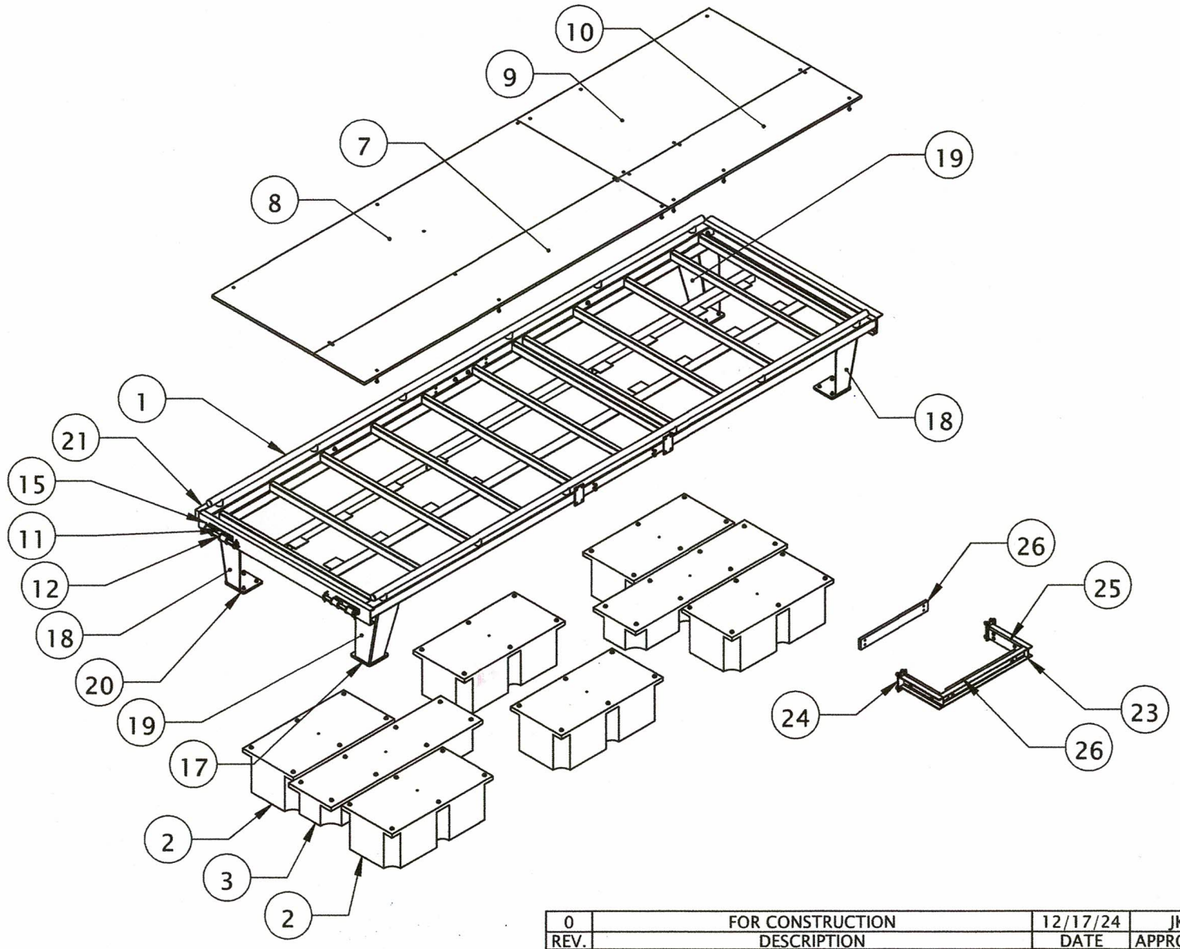
CR Engineering Inc.

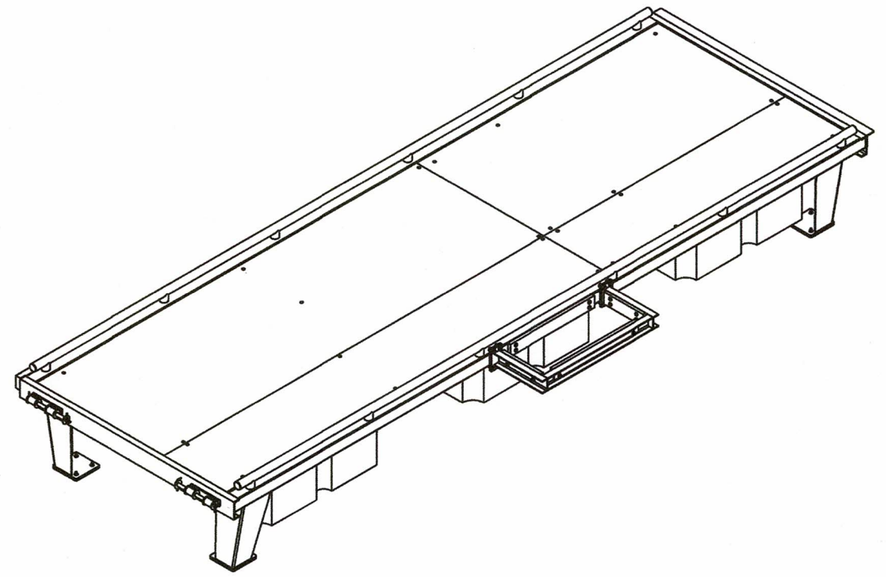
TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-100	14 OF 14	0

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2022 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES: 6061-T6, PLATE 5052-H32
4. GRATING: FRP MINIMESH 1" THICK, FASTEN WITH SIX CARRIAGE BOLTS PER PANEL
5. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
6. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356





PROFESSIONAL ENGINEER
J. J. KING
25441
PROVINCE OF BRITISH COLUMBIA

REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

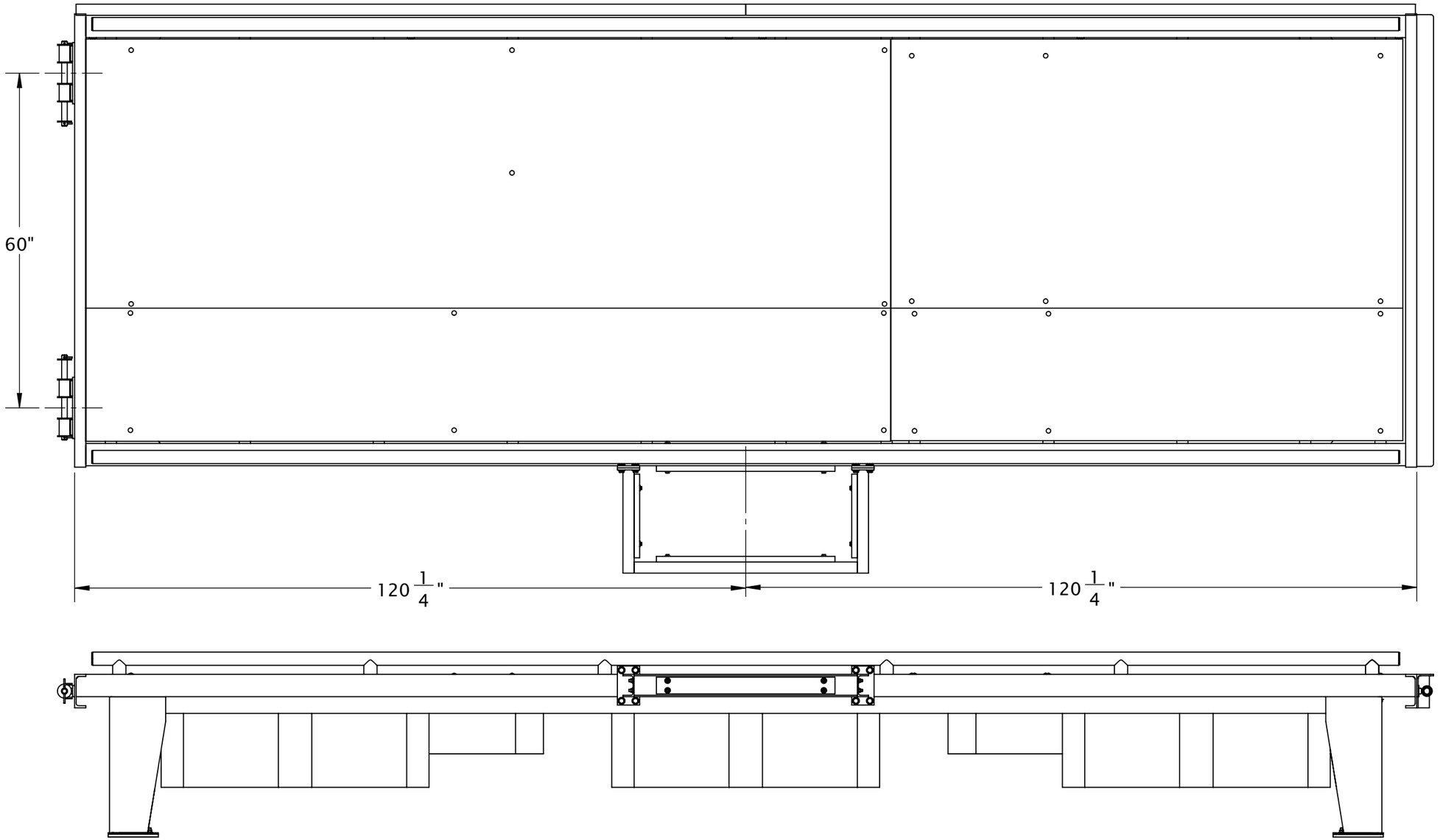
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GENERAL ARRANGEMENT
FLOAT WITH PILE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	1 OF 14	0



DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

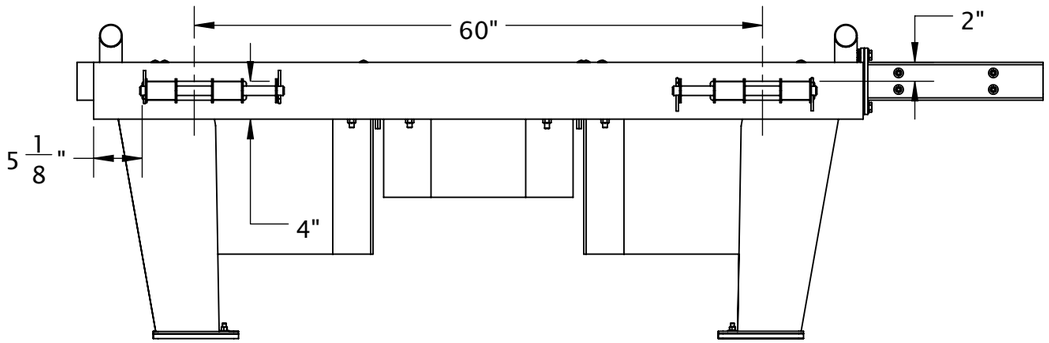
CLIENT
COMOX VALLEY REGIONAL DISTRICT

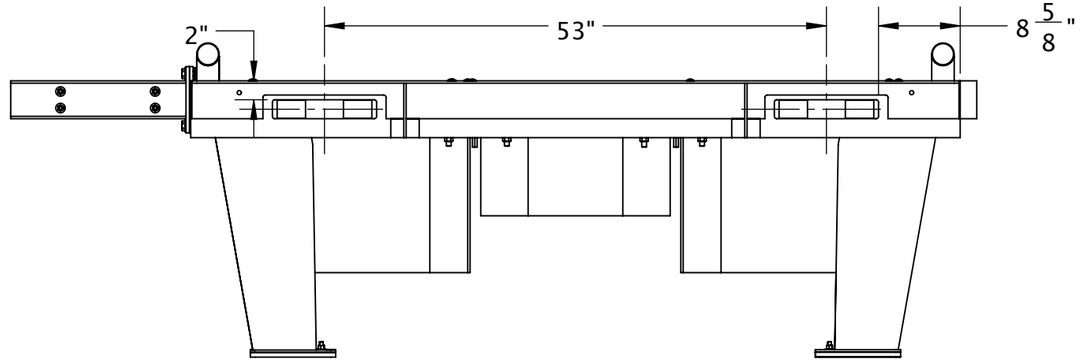
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
TOP VIEW

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	2 OF 14	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

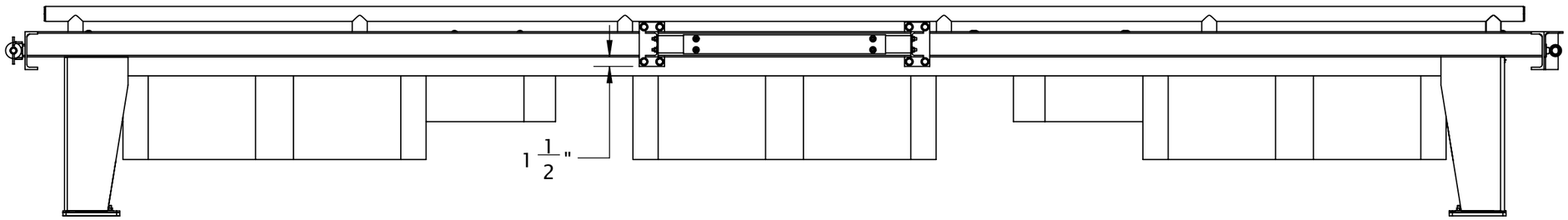
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

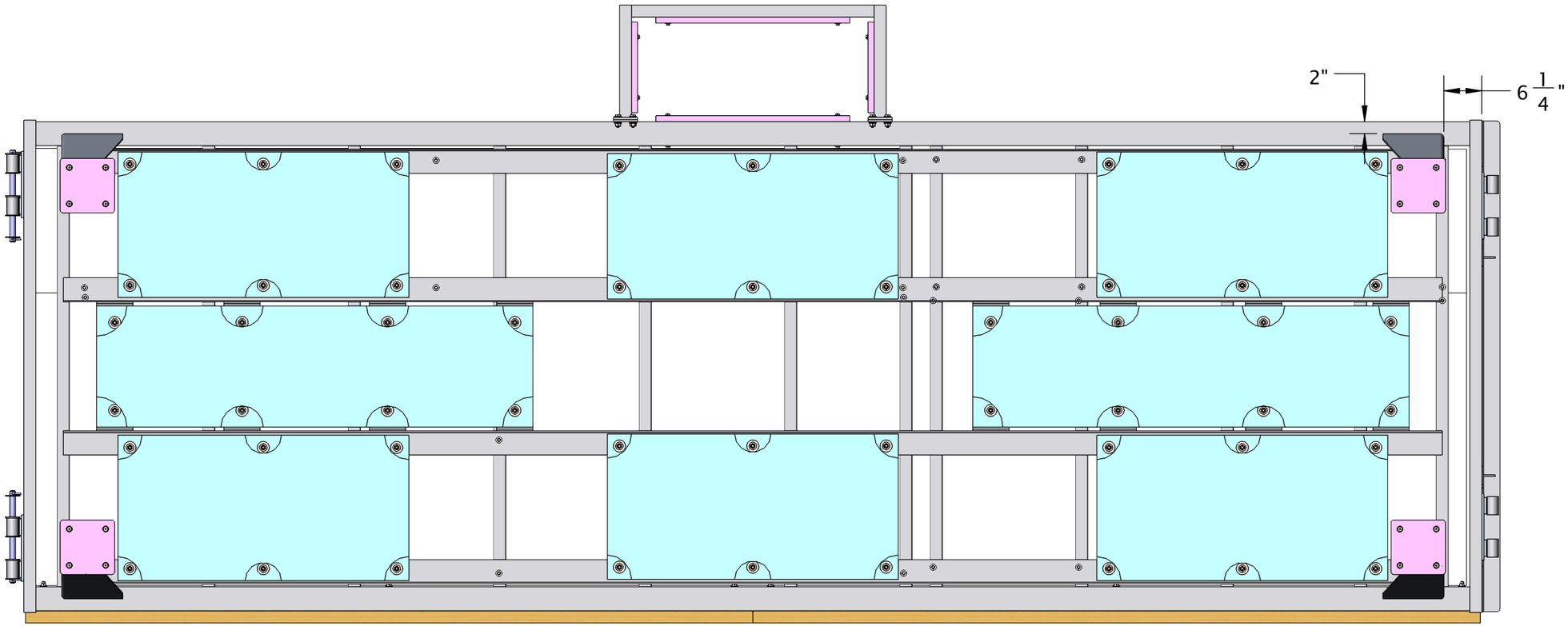
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
END VIEWS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	3 OF 14	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

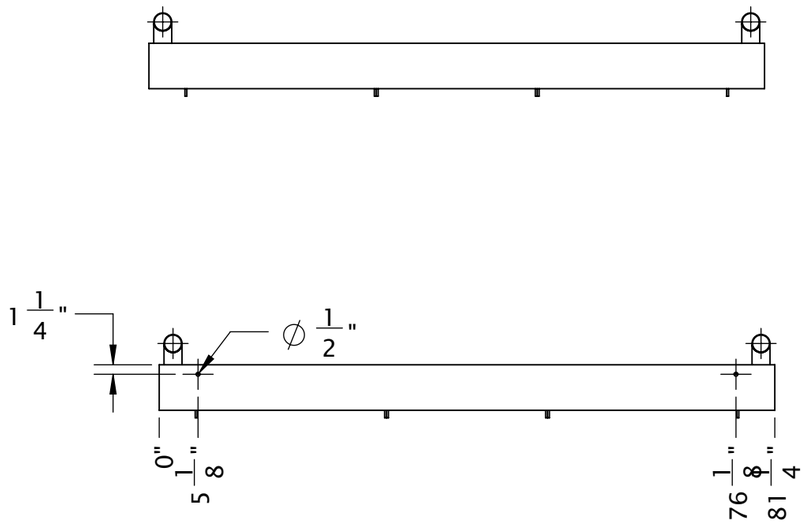
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

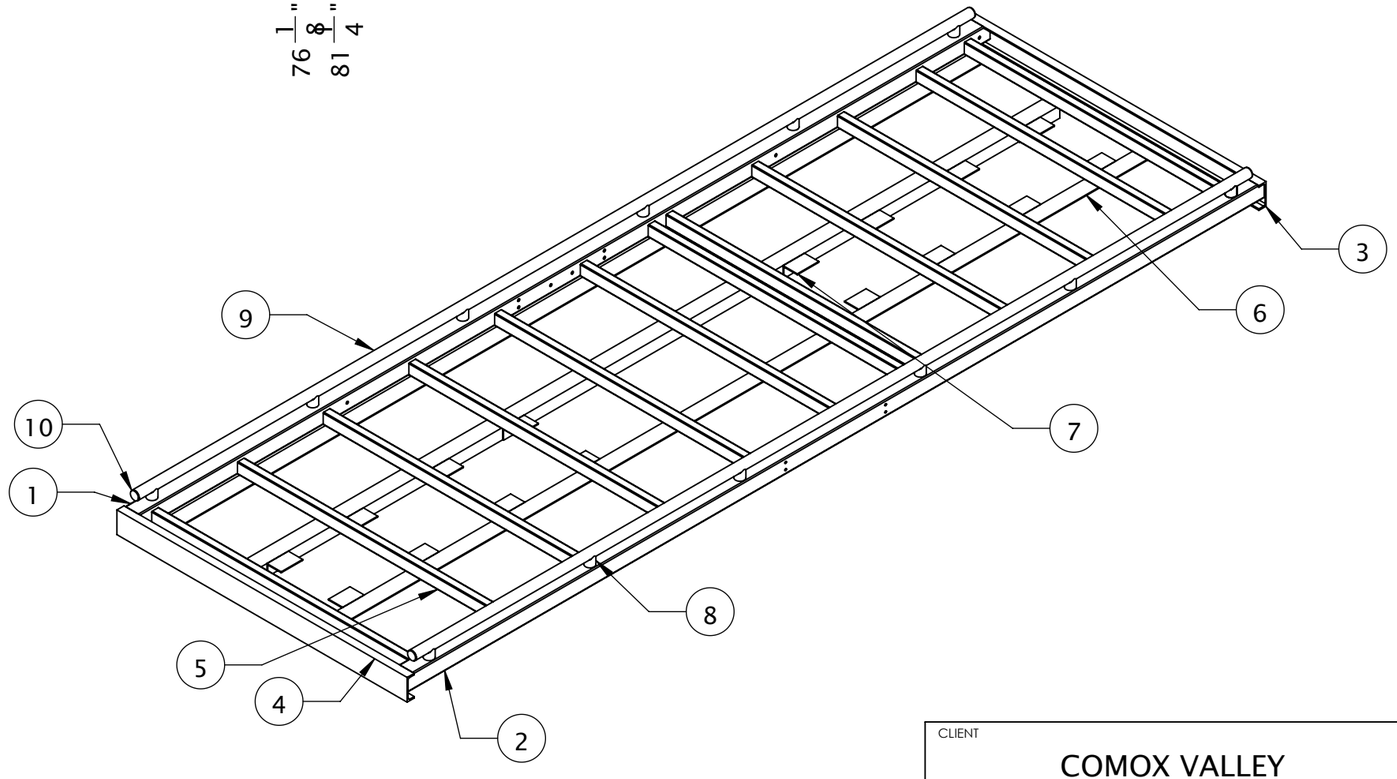
CR Engineering Inc.

TITLE:
BOTTOM VIEW BILLETS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	4 OF 14	0



ITEM NO.	QTY.	DESCRIPTION	LENGTH	TOTAL LENGTH
1	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
2	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
3	1	CHANNEL SQUARE 6 x 3.60	81 1/4"	81 1/4"
4	1	CHANNEL SQUARE 6 x 3.60		
5	12	RECTANGULAR ROUND CORNER 3 x 2 x 1/8	72 3/4"	873"
6	4	ANGLE 4.00 x 3.00 x 0.250	227 1/2"	1006"
7	16	ANGLE 4.00 x 3.00 x 0.250	6"	1006"
8	13	PIPE SCH 40 2	2 9/16"	501 11/16"
9	2	PIPE SCH 40 2	234"	501 11/16"
10	4	END CAP		



DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

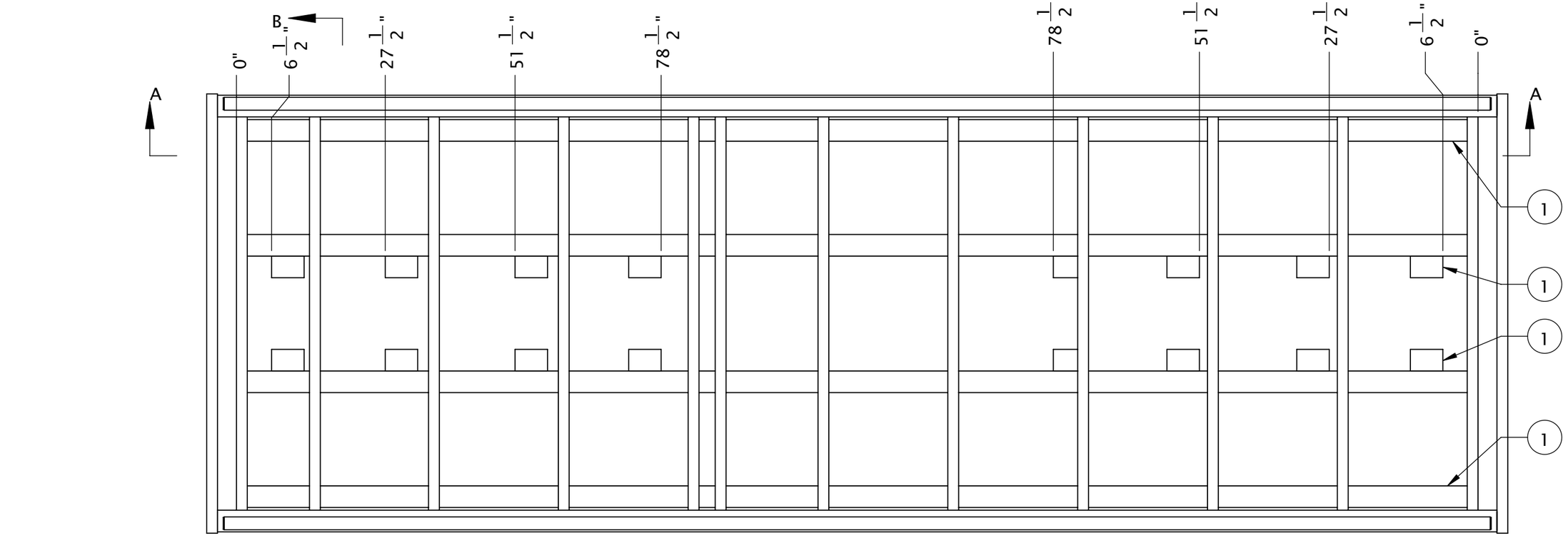
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

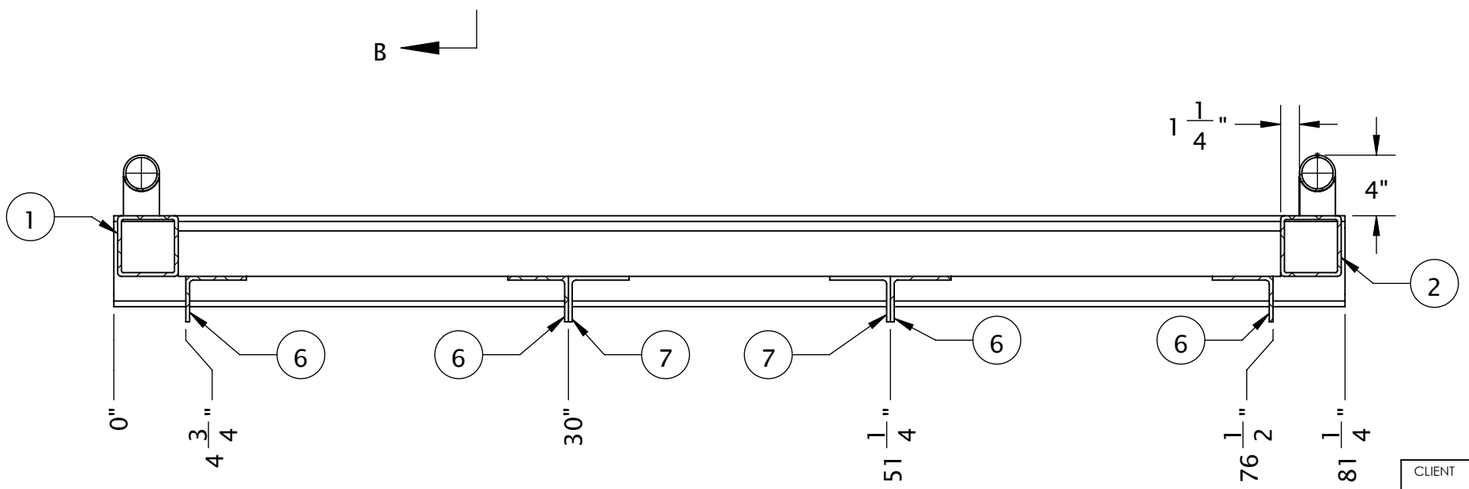
CR Engineering Inc.

TITLE:

FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	5 OF 14	0





SECTION B-B
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

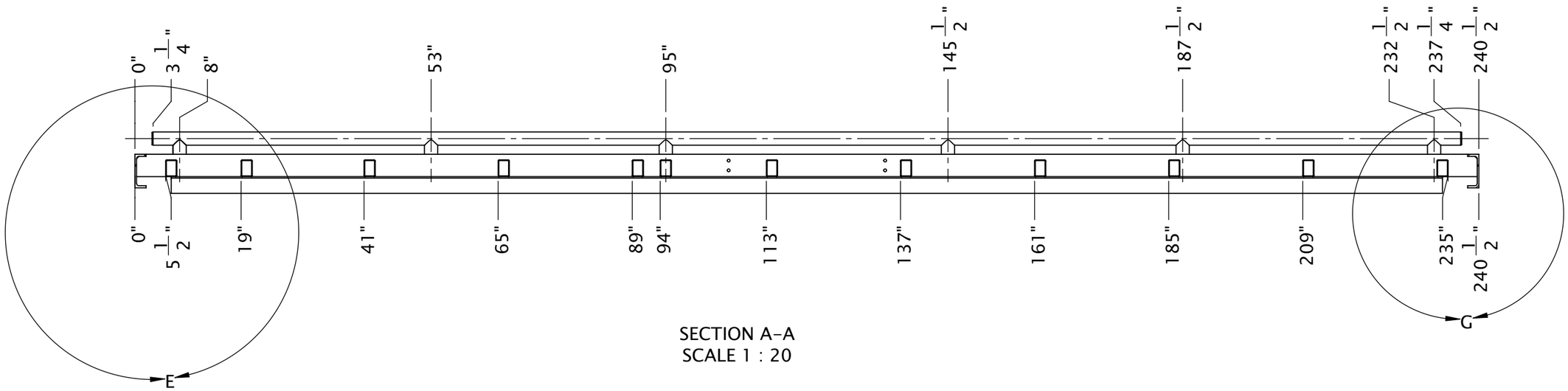
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

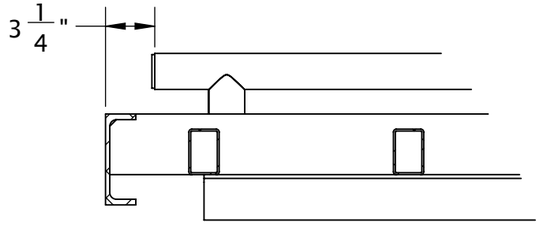
CR Engineering Inc.

TITLE:
FLOAT FRAME

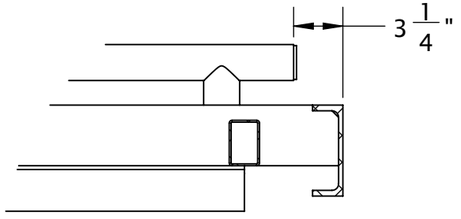
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	6 OF 14	0



SECTION A–A
SCALE 1 : 20



DETAIL E
SCALE 1 : 10



DETAIL G
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

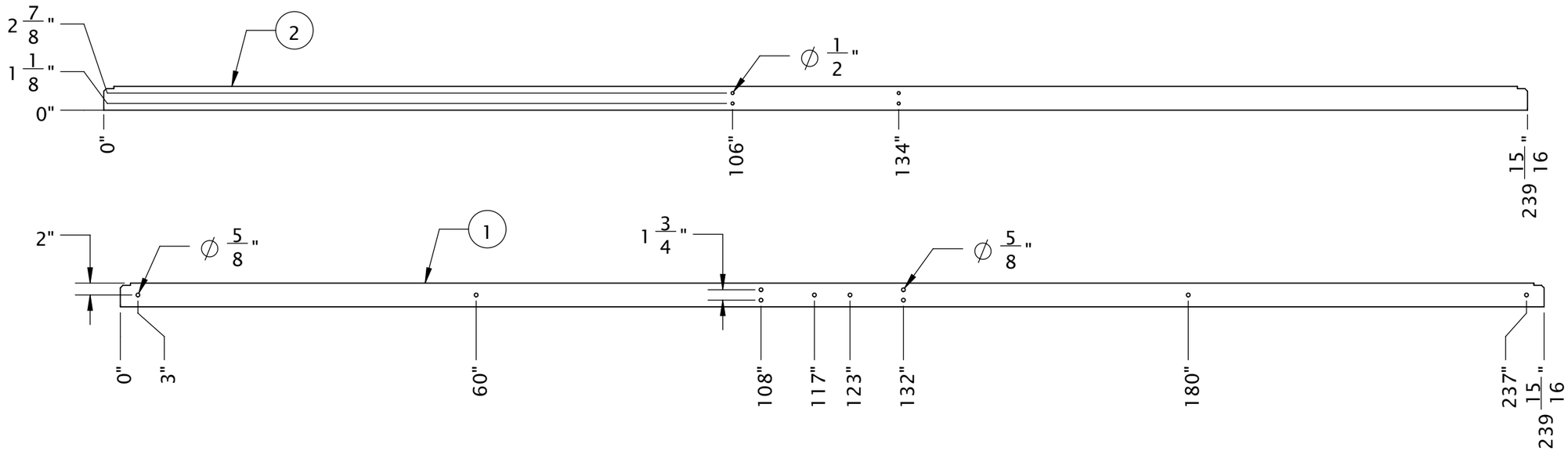
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

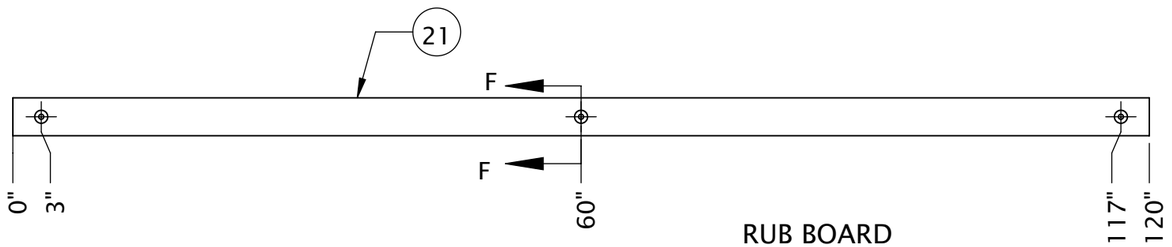
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

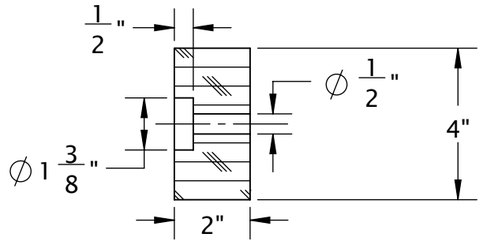
TITLE:
FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	7 OF 14	0





RUB BOARD
1207-104
2"
SCALE 1:16



SECTION F-F
SCALE 1 : 4

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

CR Engineering Inc.

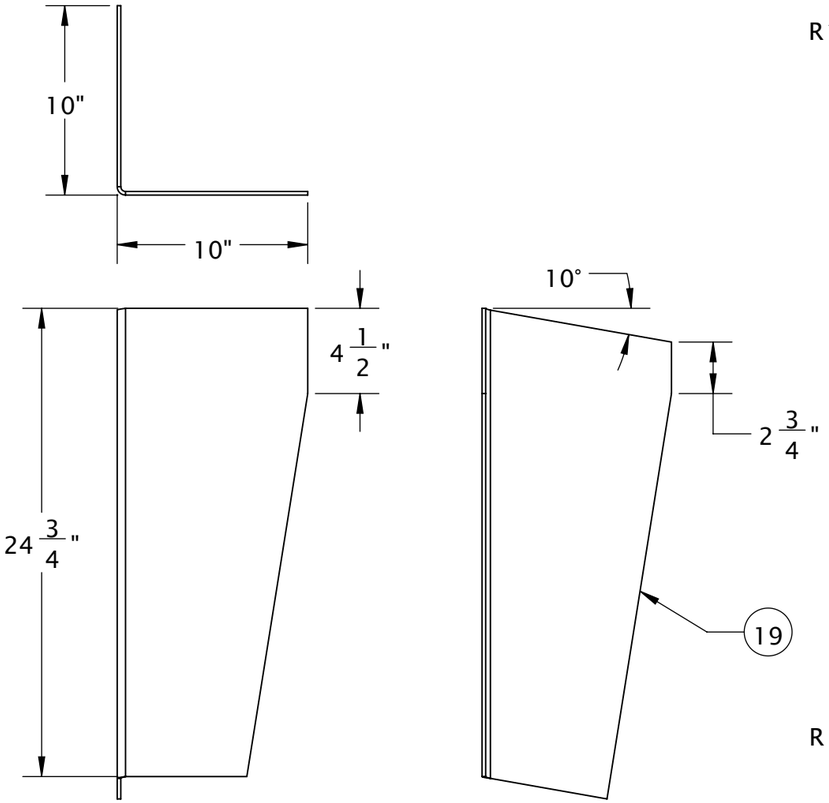
TITLE:
SIDE MEMBERS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

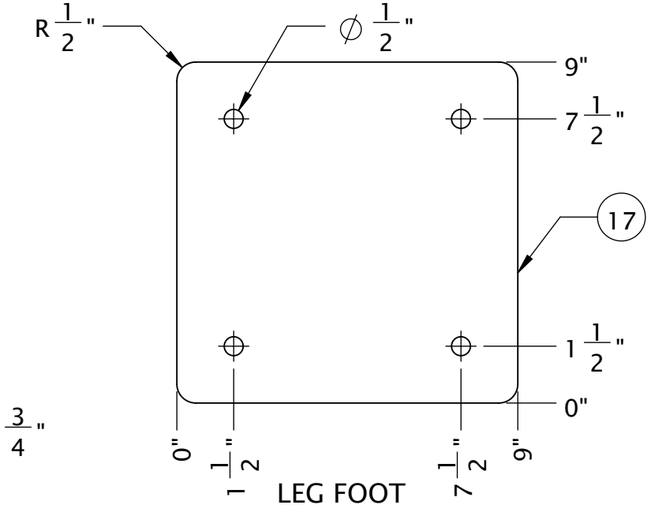
PERMIT TO PRACTICE No. 10000370

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

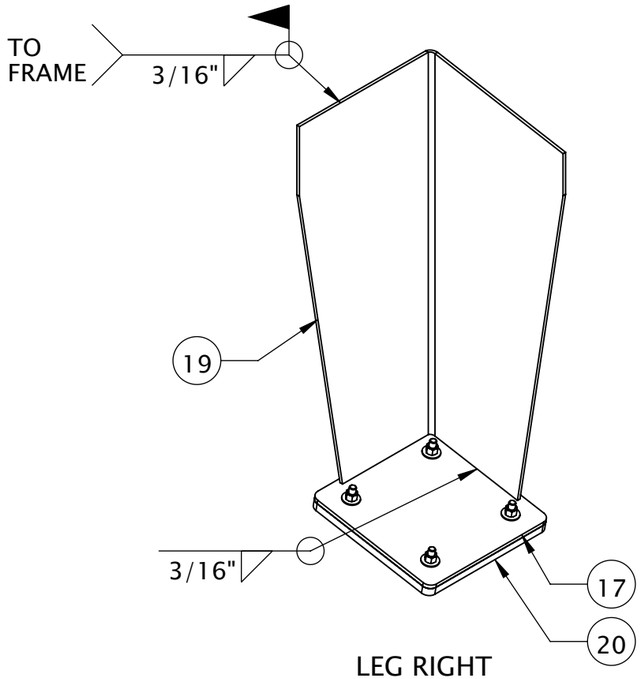
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	8 OF 14	0



LEG RIGHT
1207-118
3/16"
SCALE 1:8

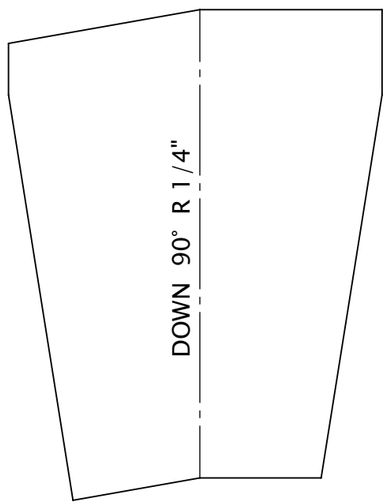


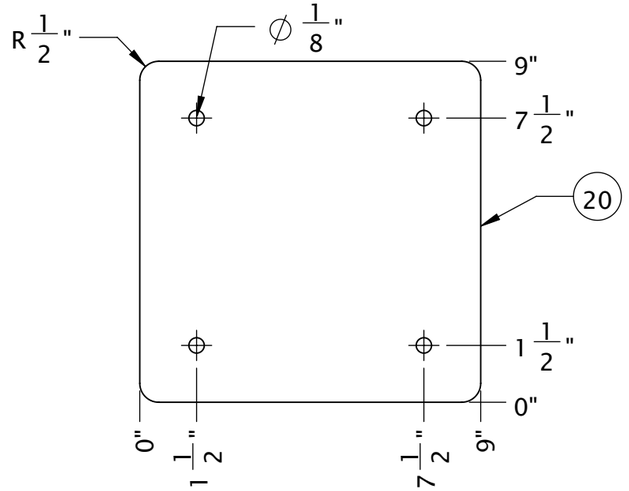
LEG FOOT
1207-117
1/4"
SCALE 1:4



LEG RIGHT
1207-115R

SCALE 1:8





LEG WEAR PAD
1207-116
1/2"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

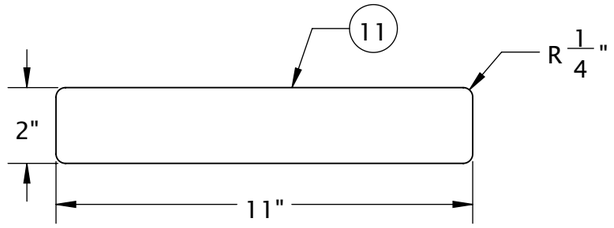
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

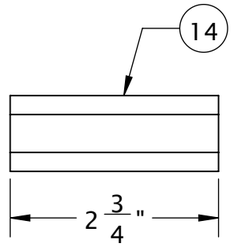
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

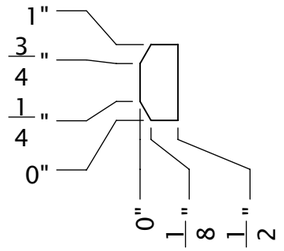
CR Engineering Inc.

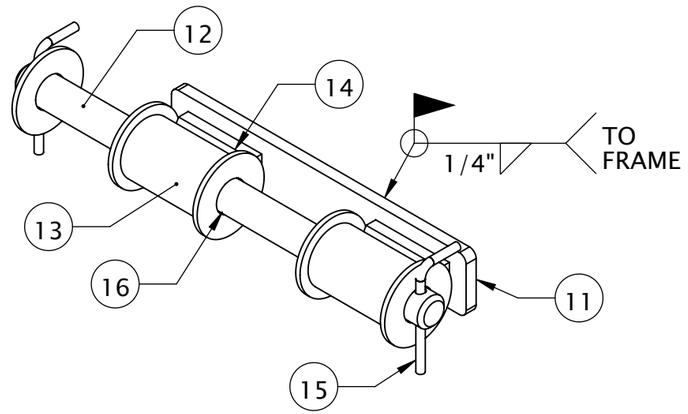
TITLE:
LEG
MAKE LEFT AND RIGHT

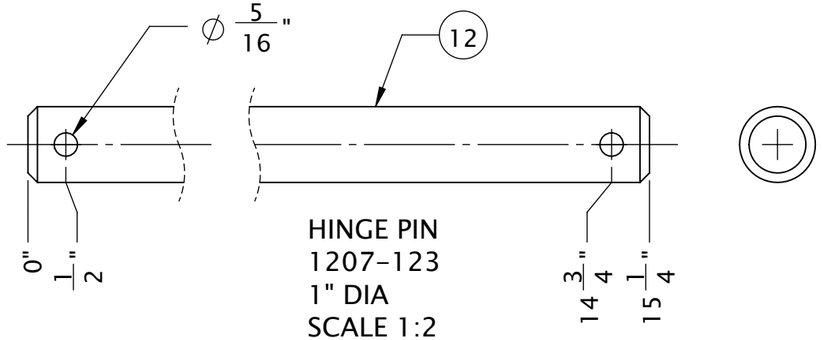
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	9 OF 14	0



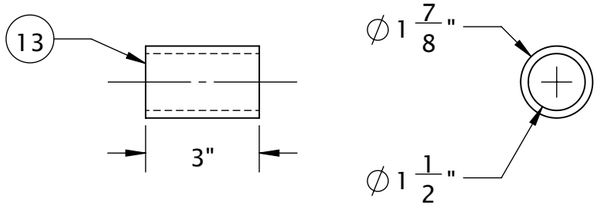




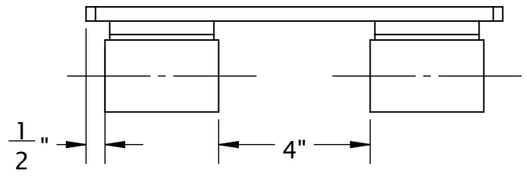


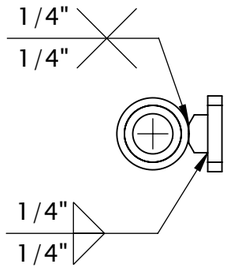


HINGE PIN
1207-123
1" DIA
SCALE 1:2



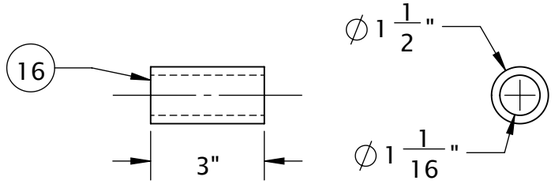
HINGE PIPE
1207-126
1-1/2" SCH 80
SCALE 1:4



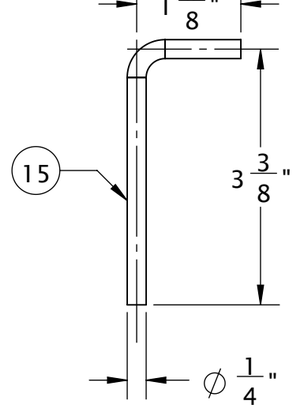


HINGE NO PIN
1207-120

SCALE 1:4



HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"
1207-127
UHMW
SCALE 1:4



KEEPER PIN
1207-129
1/4"
SCALE 1:2

DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

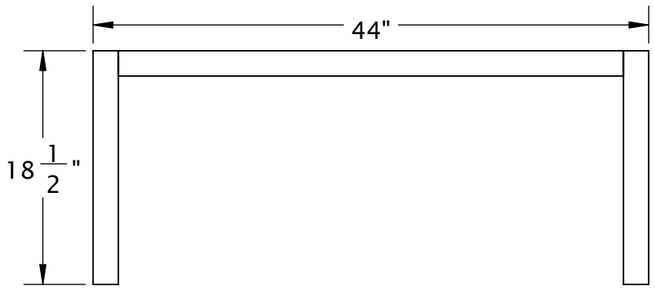
CLIENT
COMOX VALLEY REGIONAL DISTRICT

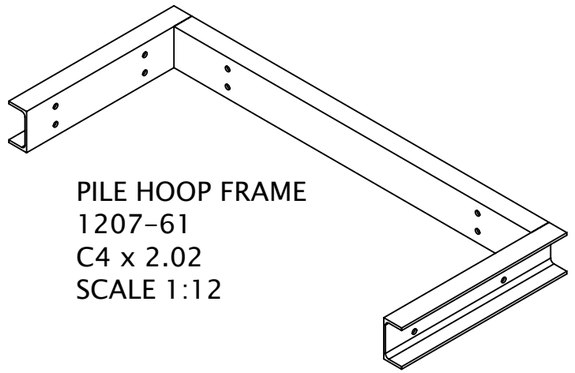
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

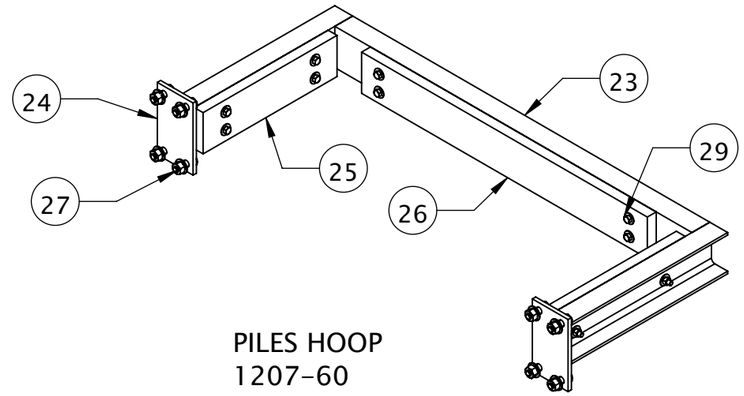
TITLE:
HINGE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	10 OF 14	0



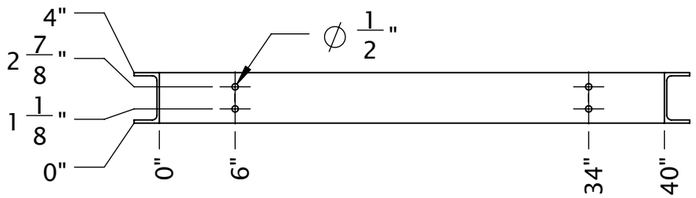


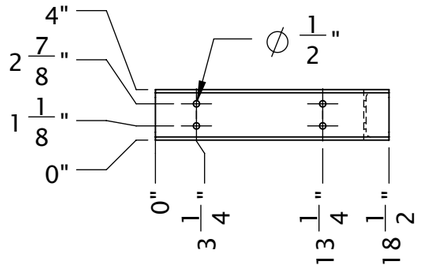
PILE HOOP FRAME
1207-61
C4 x 2.02
SCALE 1:12

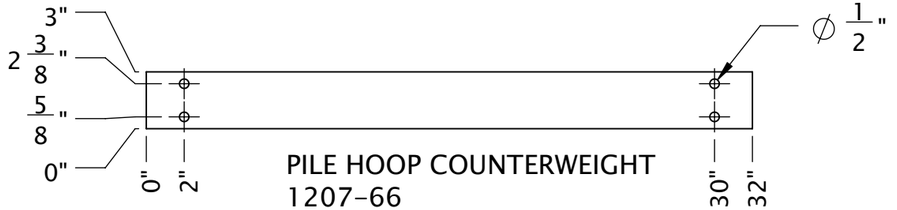


PILES HOOP
1207-60

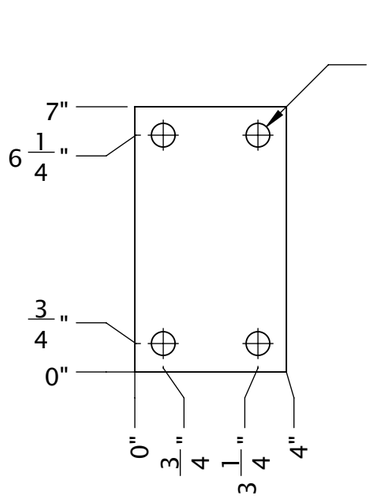
SCALE 1:12

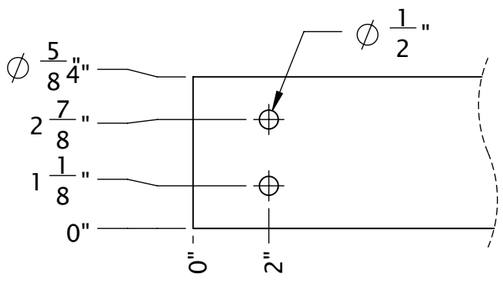




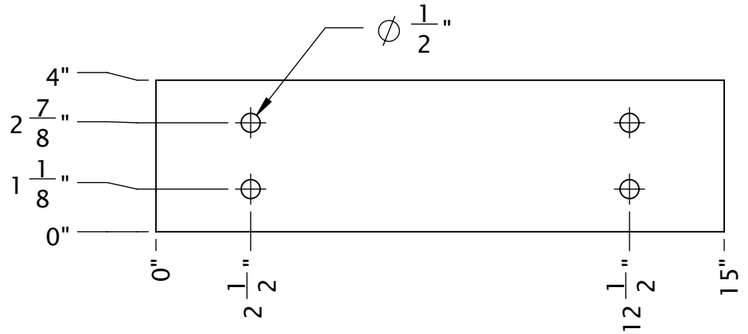


PILE HOOP COUNTERWEIGHT
1207-66
1/4"
SCALE 1:8





PILE HOOP WEAR PLATE 2
1207-63
1"
SCALE 1:4



PILE HOOP WEAR PLATE 1
1207-64
1"
SCALE 1:4

PILE HOOP PLATE
1207-62
3/8"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

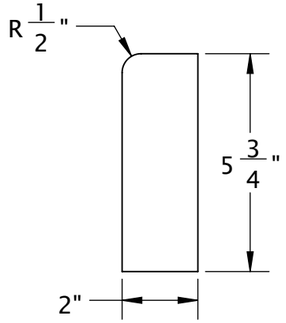
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

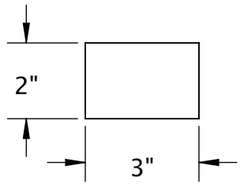
CR Engineering Inc.

TITLE:
PILE HOOP

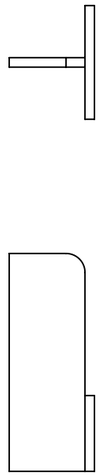
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	11 OF 14	0

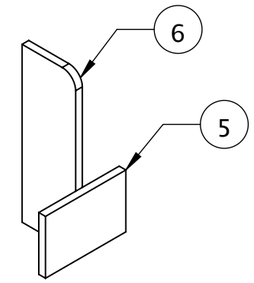


GAP ANGLE SUPPORT
1207-23
1/4"
SCALE 1:4



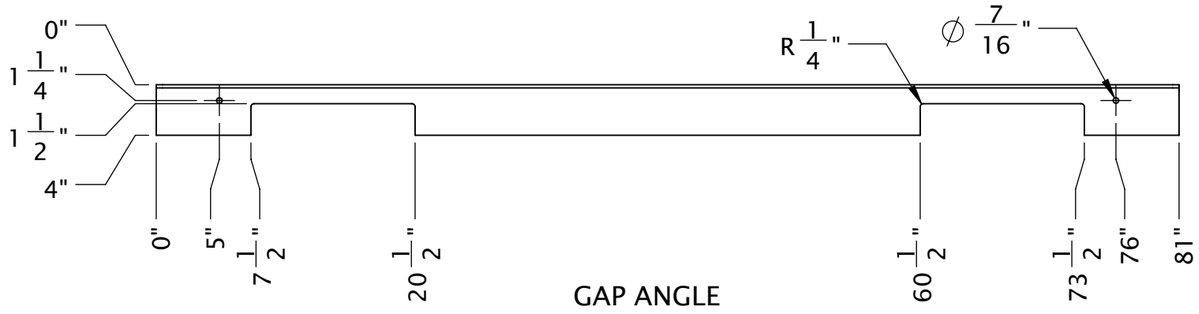
GAP ANGLE SUPPORT BASE
1207-24
1/4"
SCALE 1:4



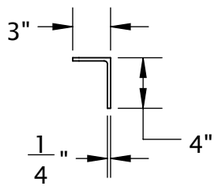


GAP ANGLE SUPPORT
1207-25

SCALE 1:4



GAP ANGLE
1207-139
L4x3 x 1/4
SCALE 1:12



DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GAP ANGLE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	12 OF 14	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
1	1207-101	0	FLOAT FRAME WITH PILE	1	6061-T6	81"	240 1/2"		539
2	1207-115	0	BARR FLOAT 24" x 48" x 16"	6		24"	48"	16"	39
3	1207-142	0	BARR FLOAT 20" x 72" x 10"	2		20"	72"	10"	34
4	1207-139	0	GAP ANGLE	1	6061-T6		81"	L4x3 x 1/4	12
5	1207-24	0	GAP ANGLE SUPPORT BASE	2	6061-T6	2"	3"	1/4"	0
6	1207-23	0	GAP ANGLE SUPPORT	2	6061-T6	2"	5 3/4"	1/4"	0
7	1207-112	0	MICROMESH TWO	1	FIBERGLASS	23 7/8"	144 1/4"	1"	69
8	1207-111	0	MICROMESH ONE	1	FIBERGLASS	48 1/4"	144 1/4"	1"	140
9	1207-113	0	MICROMESH THREE	1	FIBERGLASS	48 1/4"	91 3/4"	1"	89
10	1207-114	0	MICROMESH FOUR	1	FIBERGLASS	23 3/4"	91 3/4"	1"	44
11	1207-121	0	HINGE BACKING PLATE	4	5052-H32	2"	11"	3/8"	1
12	1207-123	0	HINGE PIN	2	316L		15 1/4"	1" DIA	3
13	1207-126	0	HINGE PIPE	8	6061-T6		3"	1-1/2" SCH 80	0
14	1207-128	0	HINGE SPACER	8	5052-H32	2 3/4"	1"	1/2"	0
15	1207-129	0	KEEPER PIN	4	304 SS		5	1/4"	
16	1207-127	0	HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"	8	UHMW			UHMW	
17	1207-117	0	LEG FOOT	4	5052-H32	9"	9"	1/4"	2
18	1207-119	0	LEG LEFT	2	5052-H32		26 9/16"	1/4"	10
19	1207-118	0	LEG RIGHT	2	5052-H32		26 1/2"	3/16"	8
20	1207-116	0	LEG WEAR PAD	4	UHMW	9"	9"	1/2"	1
21	1207-104	0	RUB BOARD	2	ROUGH CUT FIR	4"	120"	2"	18
22	1207-66	0	PILE HOOP COUNTERWEIGHT	1	304L	3"	32"	1/4"	7
23	1207-61	0	PILE HOOP FRAME	1	6061-T6			C4 x 2.02	13
24	1207-62	0	PILE HOOP PLATE	4	6061-T6	4"	7"	3/8"	1
25	1207-64	0	PILE HOOP WEAR PLATE 1	2	BLACK UHMW	4"	15"	1"	2
26	1207-63	0	PILE HOOP WEAR PLATE 2	2	BLACK UHMW	4"	32"	1"	4

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:

BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	13 OF 14	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
27	HHSBOLT 0.5000-13x1.75x1-N		BOLT A307 1/2" x 1-3/4"	8	GALVANIZED				
28	HHNUT 0.5000-13-D-N		NUT A307 1/2"	8	GALVANIZED				
29	HBOLT 0.3750-16x2x1-N		BOLT 3/8" x 2"	12	GALVANIZED				
30	HBOLT 0.3750-16x6x1-N		BOLT 3/8" x 6"	4	GALVANIZED				
31	HBOLT 0.5000-13x3x1.25-N		BOLT 1/2" x 3"	52	GALVANIZED				
32	HBOLT 0.5000-13x6.5x1.375-N		BOLT 1/2" x 6-1/2"	6	GALVANIZED				
33	HNUT 0.3750-16-D-N		NUT 3/8"	16	GALVANIZED				
34	HNUT 0.5000-13-D-N		NUT 1/2"	58	GALVANIZED				
35	SCHCSCREW 0.375-16x1.5x1.5-HX-N		COUNTERSUNK SCREW 3/8" x 1-1/2"	16	304 SS				
36	Regular FW 0.375		FLAT WASHER 3/8"	72	304 SS				
37	Regular FW 0.5		FLAT WASHER 1/2"	132	304 SS				
38	Regular FW 0.75		FLAT WASHER 3/4"	52	304 SS				
39	Regular FW 1		FLAT WASHER 1"	10	304 SS				
40	RHSNBOLT 0.375-16x5x1-N		CARRIAGE BOLT 3/8" x 5"	24	304 SS				
41	HTNUT 0.3750-16-D-N		NYLOCK NUT 3/8"	40	304 SS				

NOTE - BLUE LOCKTITE ON NUTS FOR BILLETS, GRATING AND RUB BOARDS
DO NOT USE LOCK WASHERS

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

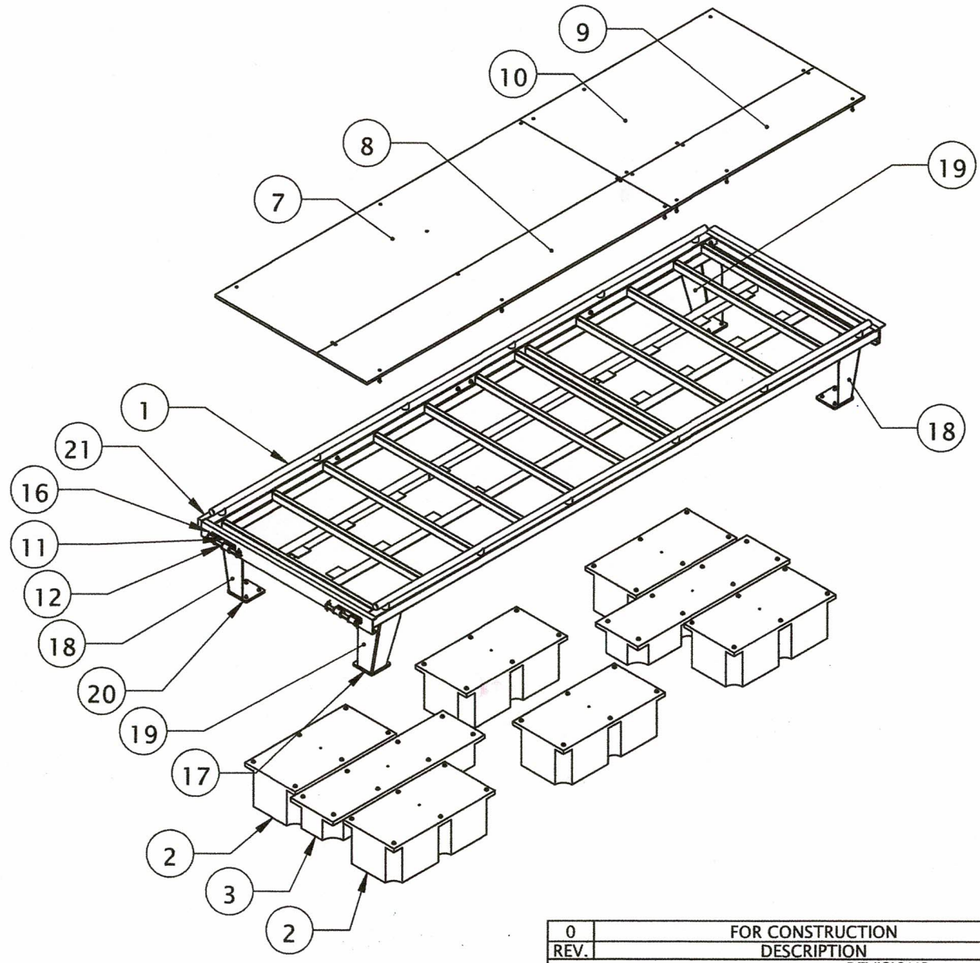
CR Engineering Inc.

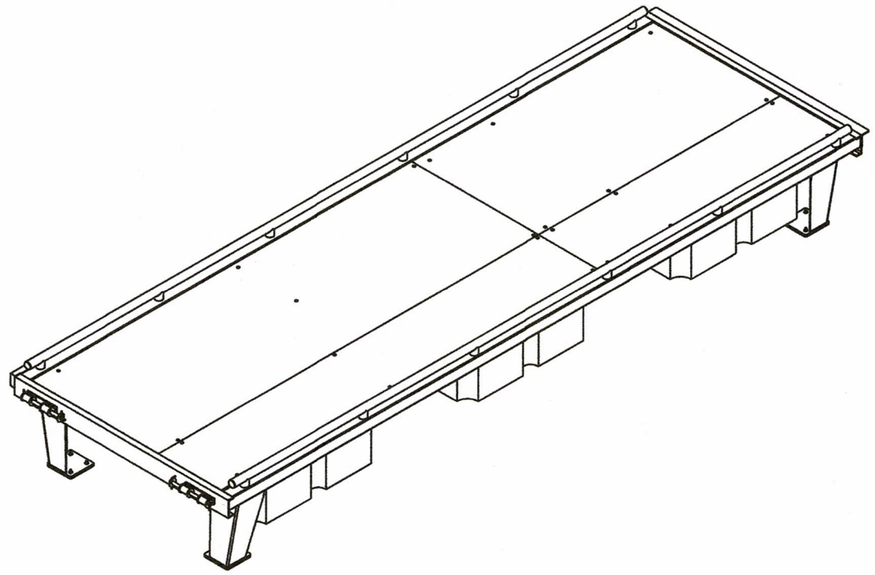
TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-200	14 OF 14	0

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2022 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES: 6061-T6, PLATE 5052-H32
4. GRATING: FRP MINIMESH 1" THICK, FASTEN WITH SIX CARRIAGE BOLTS PER PANEL
5. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
6. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356





REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J.J. KING # 25441 — 17 DEC 2024

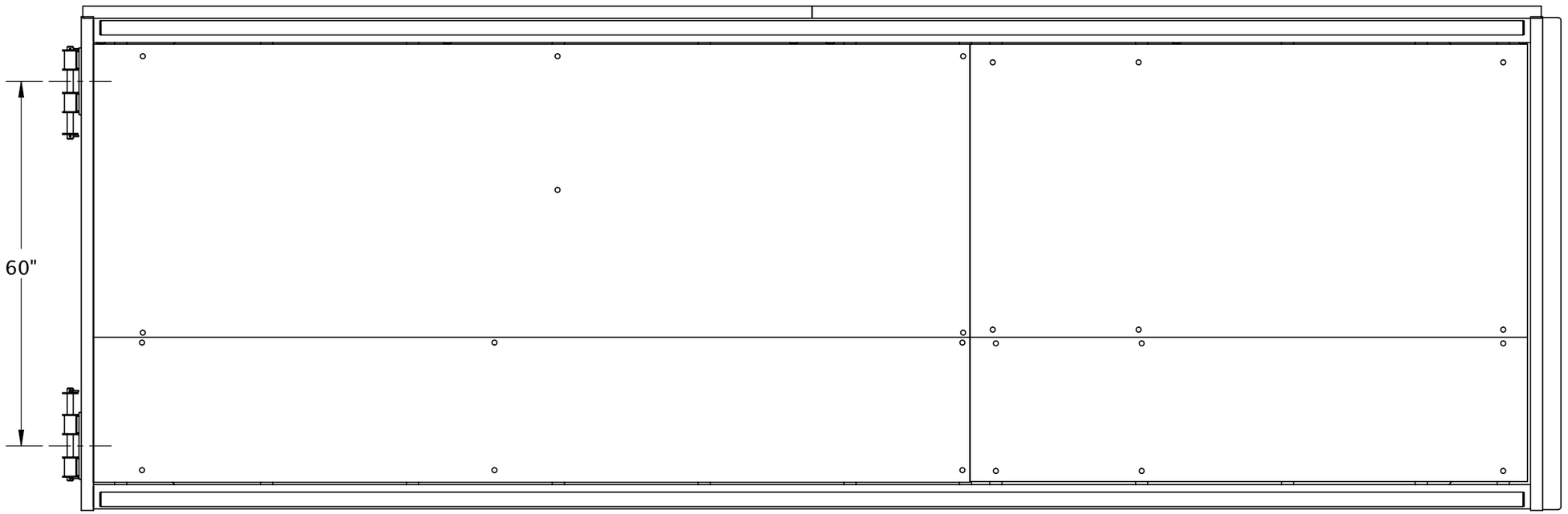
CLIENT
COMOX VALLEY REGIONAL DISTRICT

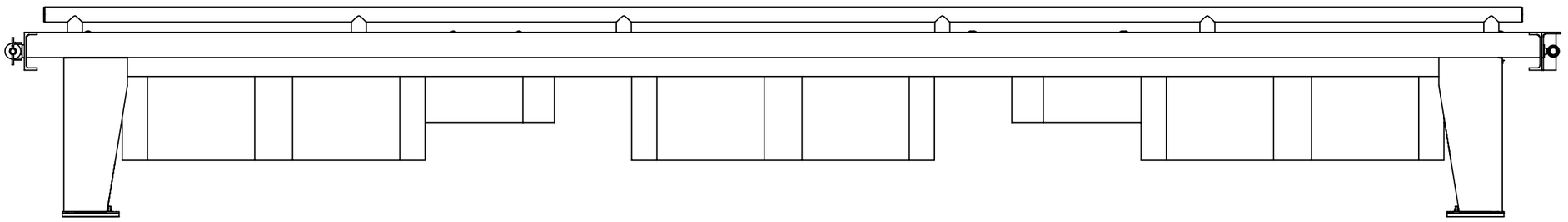
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GENERAL ARRANGEMENT
FLOAT NO PILE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	1 OF 13	0





CLIENT

COMOX VALLEY
REGIONAL DISTRICT

PROJECT

SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

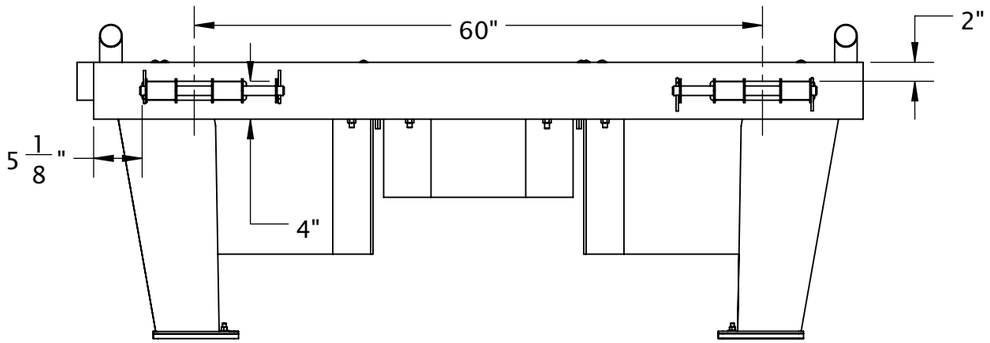
TITLE:

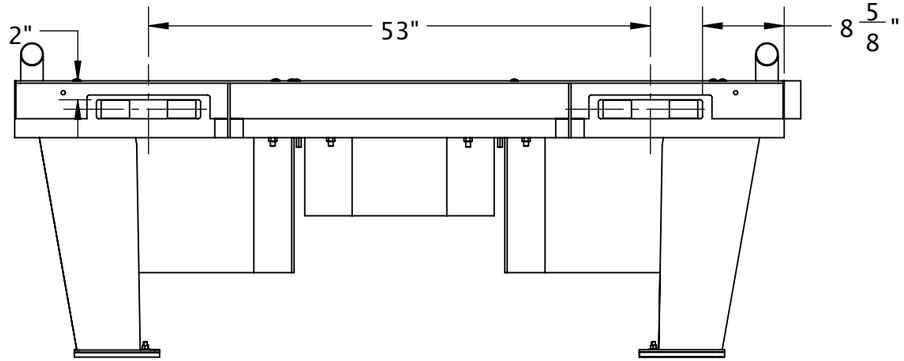
TOP VIEW

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	2 OF 13	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

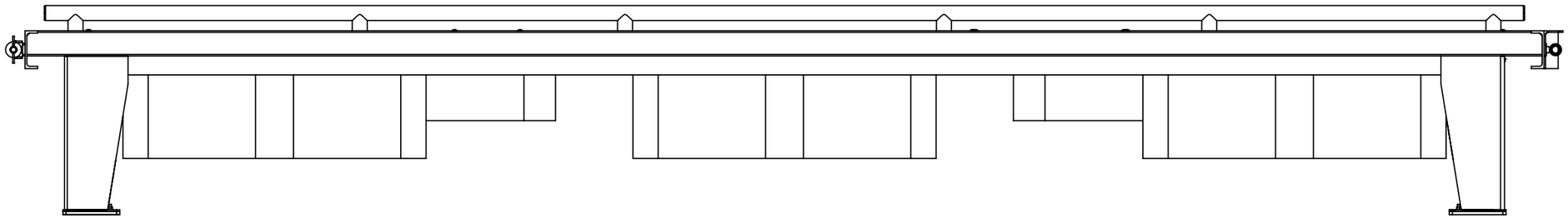
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

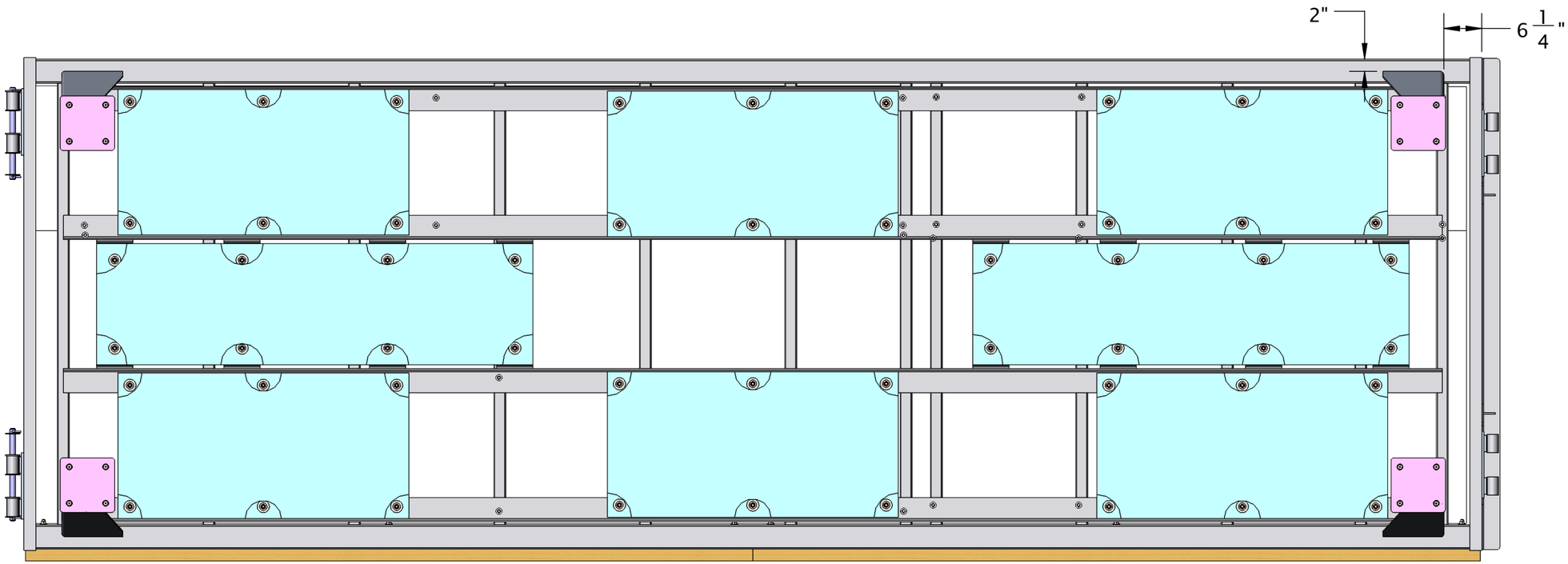
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
END VIEWS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	3 OF 13	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

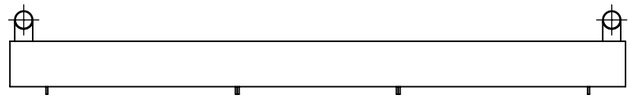
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

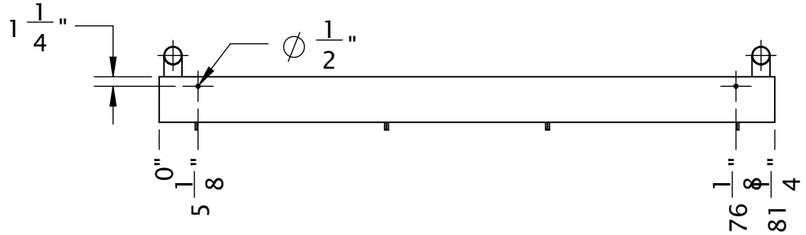
CR Engineering Inc.

TITLE:

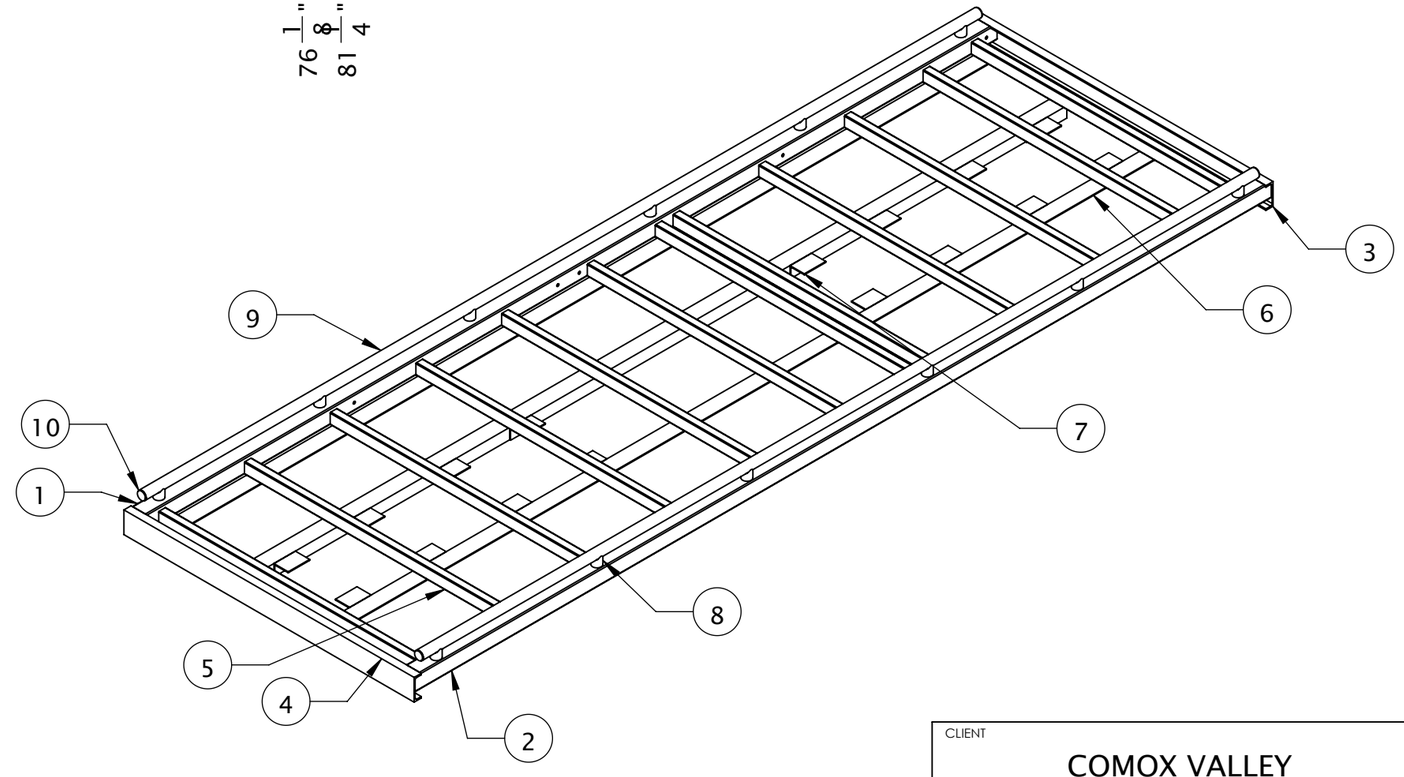
BOTTOM VIEW BILLETS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	4 OF 13	0





ITEM NO.	QTY.	DESCRIPTION	LENGTH	TOTAL LENGTH
1	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
2	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
3	1	CHANNEL SQUARE 6 x 3.60	81 1/4"	81 1/4"
4	1	CHANNEL SQUARE 6 x 3.60		
5	12	RECTANGULAR ROUND CORNER 3 x 2 x 1/8	72 3/4"	873"
6	4	ANGLE 4.00 x 3.00 x 0.250	227 1/2"	1006"
7	16	ANGLE 4.00 x 3.00 x 0.250	6"	1006"
8	13	PIPE SCH 40 2	2 9/16"	501 11/16"
9	2	PIPE SCH 40 2	234"	501 11/16"
10	4	END CAP		



DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

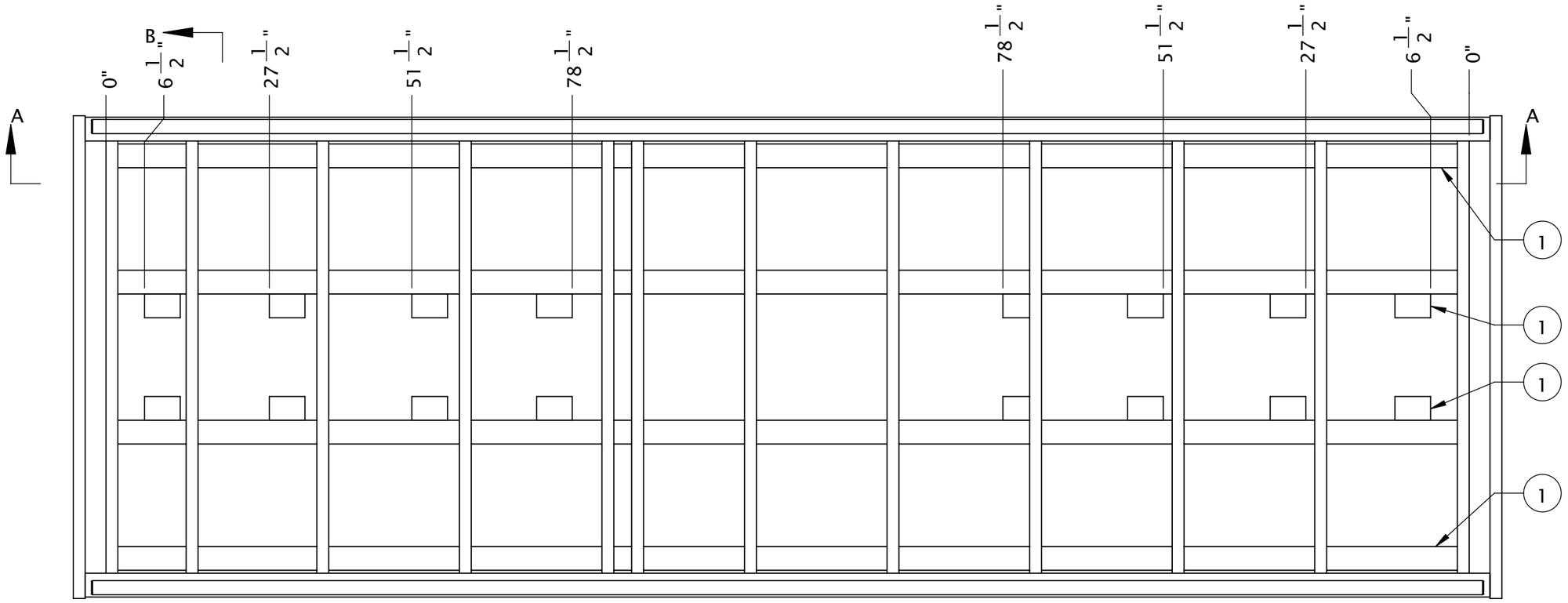
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

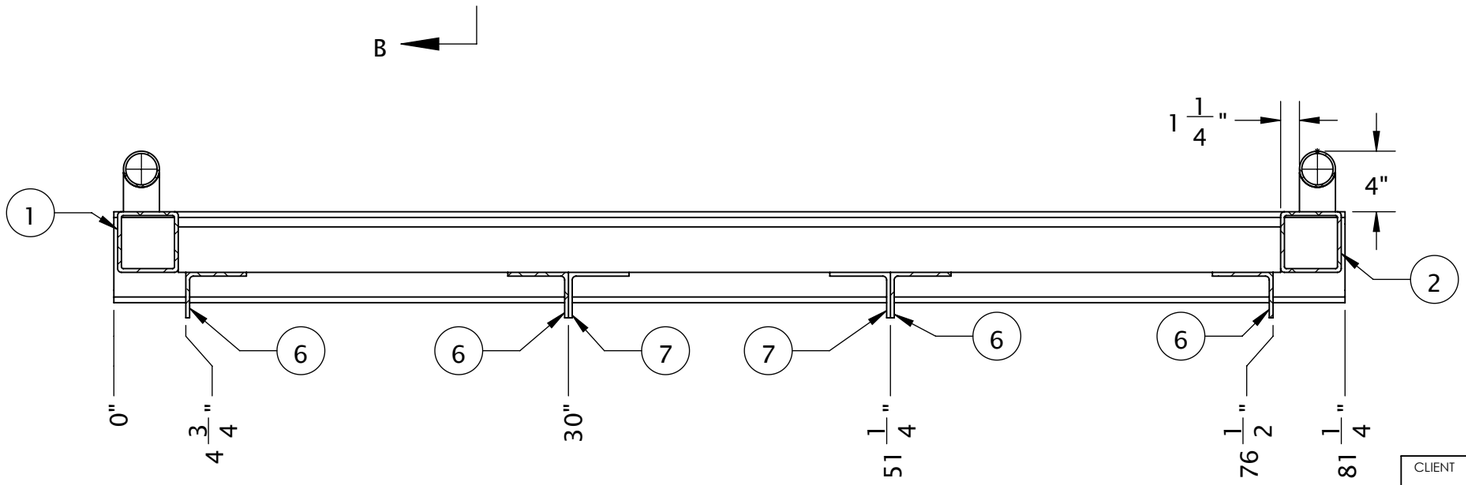
CR Engineering Inc.

TITLE:

FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	5 OF 13	0





SECTION B-B
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

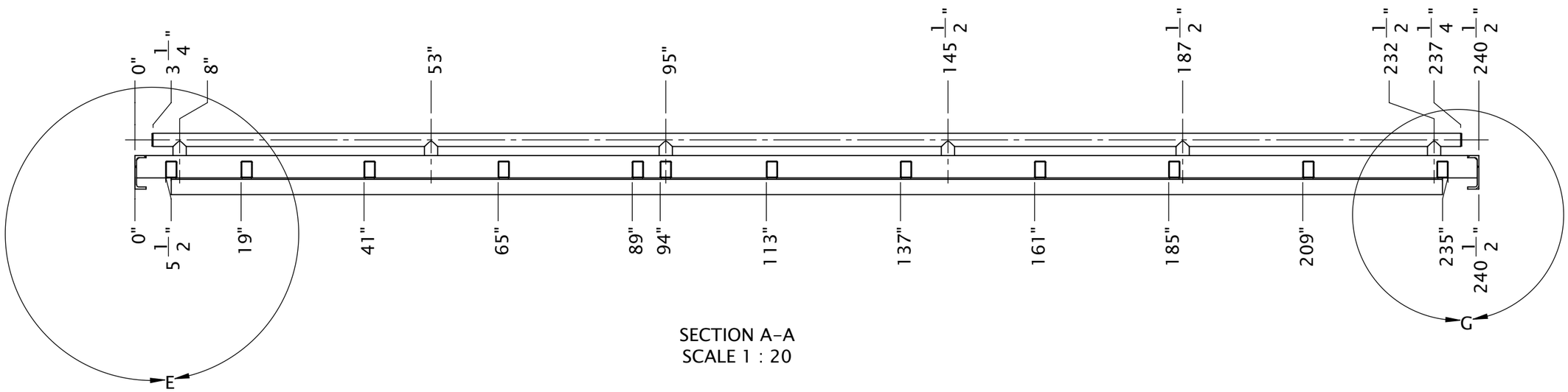
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

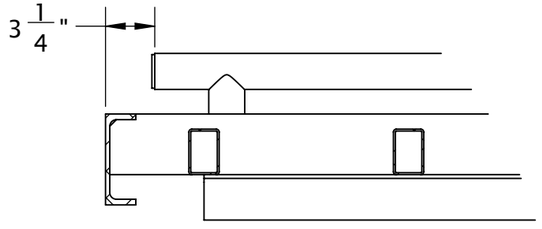
CR Engineering Inc.

TITLE:
FLOAT FRAME

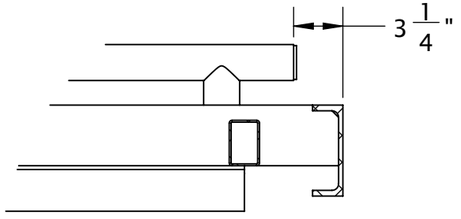
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	6 OF 13	0



SECTION A–A
SCALE 1 : 20



DETAIL E
SCALE 1 : 10



DETAIL G
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

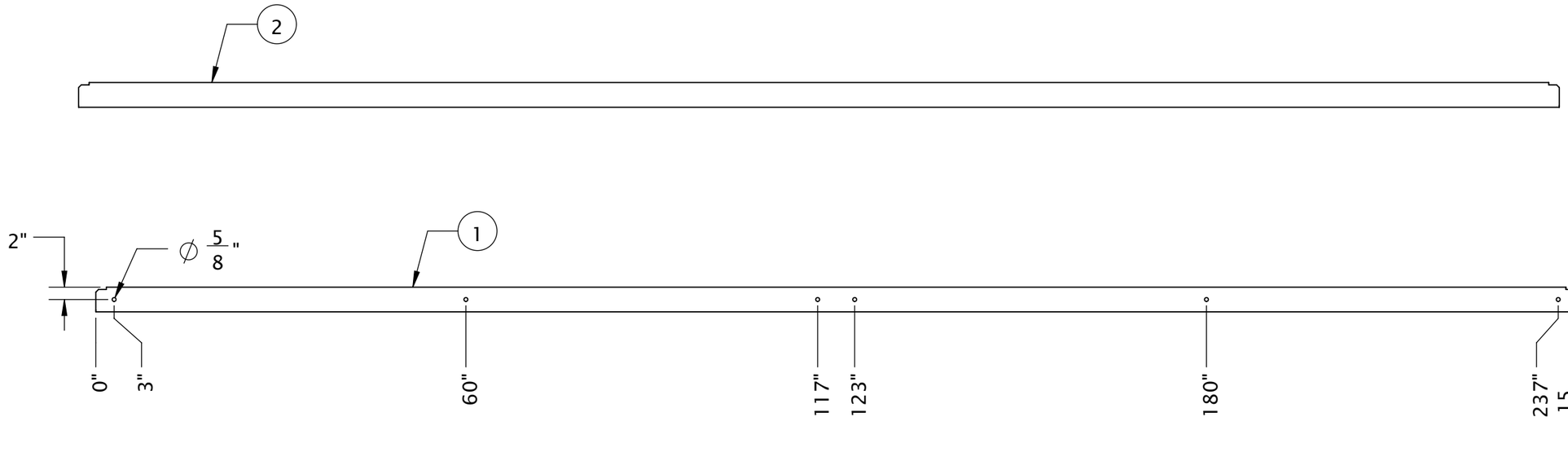
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

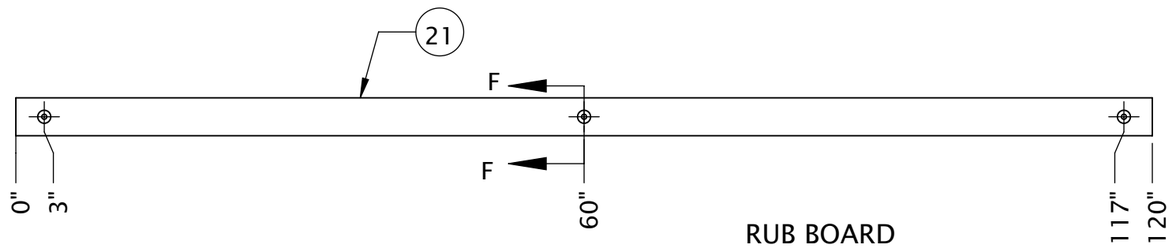
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

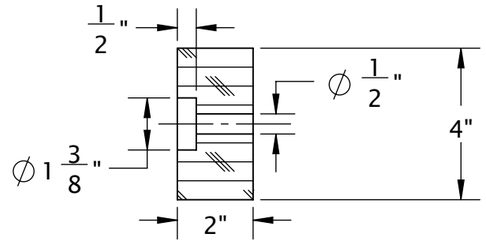
TITLE:
FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	7 OF 13	0





RUB BOARD
1207-104
2"
SCALE 1:16



SECTION F-F
SCALE 1 : 4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

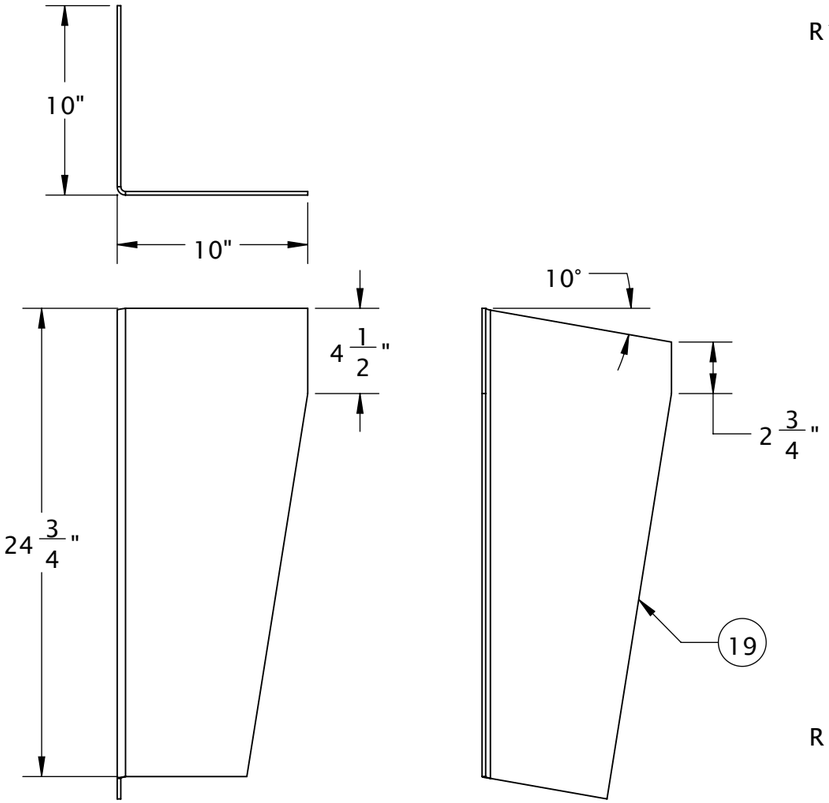
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

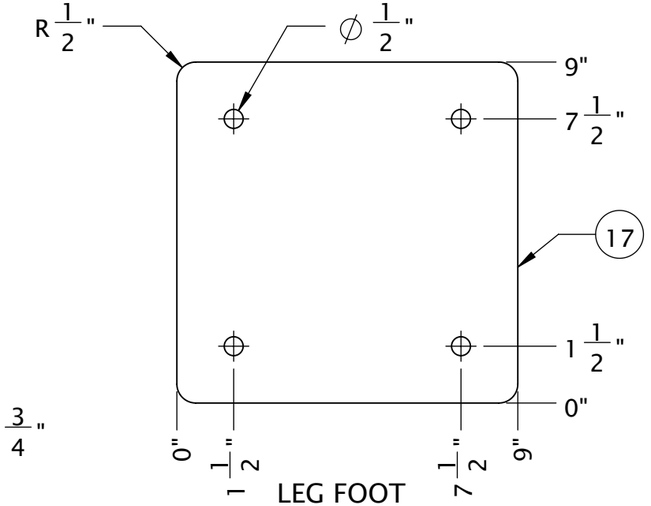
CR Engineering Inc.

TITLE:
SIDE MEMBERS

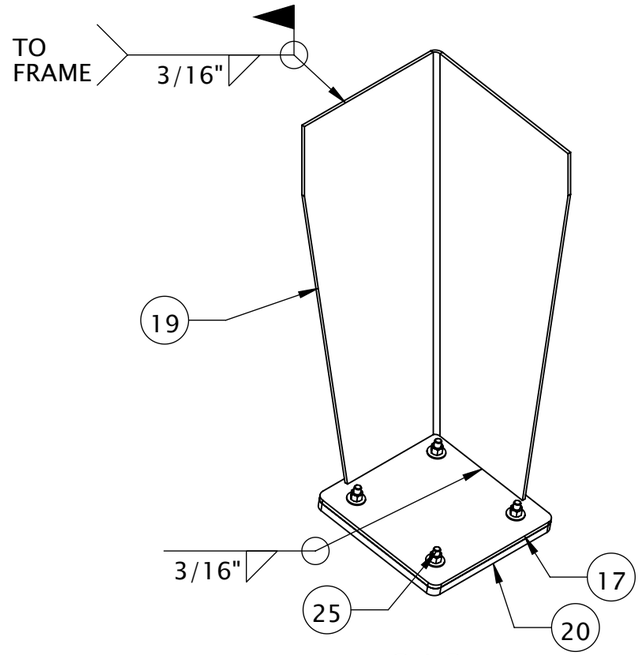
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	8 OF 13	0



LEG RIGHT
1207-118
3/16"
SCALE 1:8

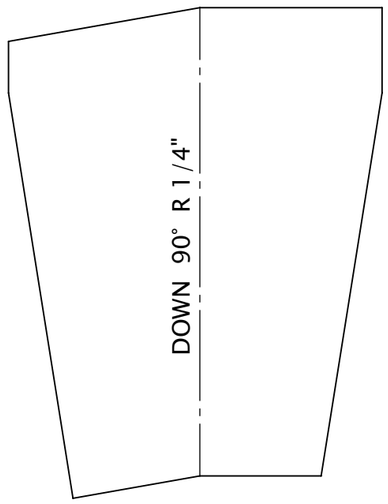


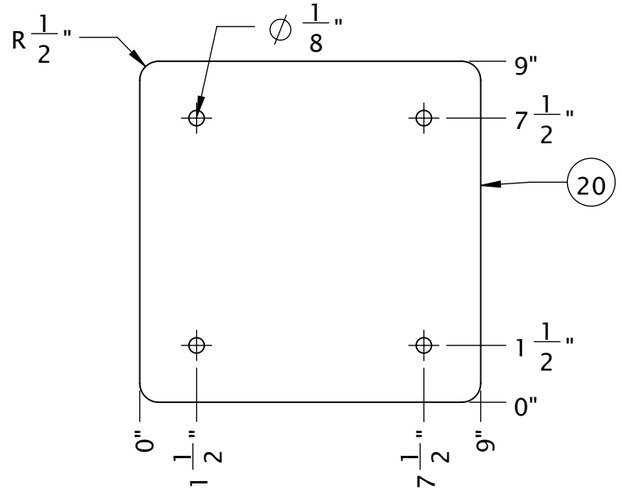
LEG FOOT
1207-117
1/4"
SCALE 1:4



LEG RIGHT
1207-115R

SCALE 1:8





LEG WEAR PAD
1207-116
1/2"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

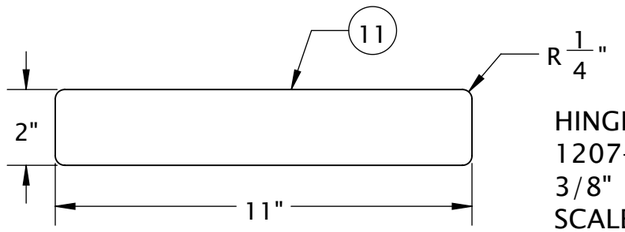
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

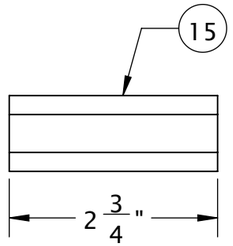
CR Engineering Inc.

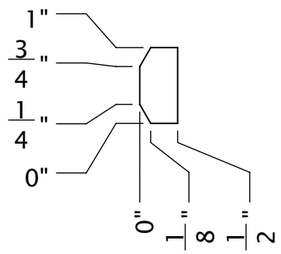
TITLE:
LEG
MAKE LEFT AND RIGHT

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	9 OF 13	0

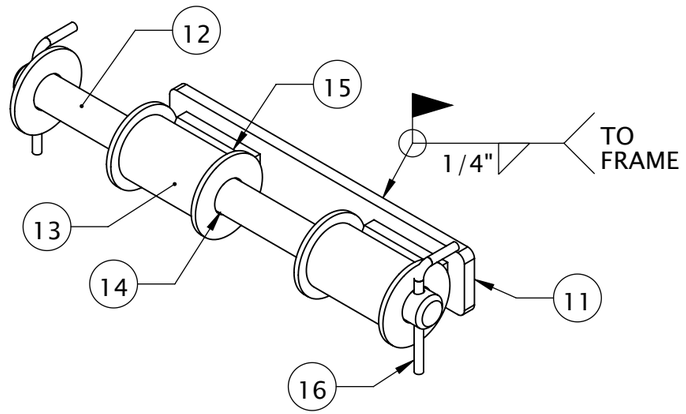


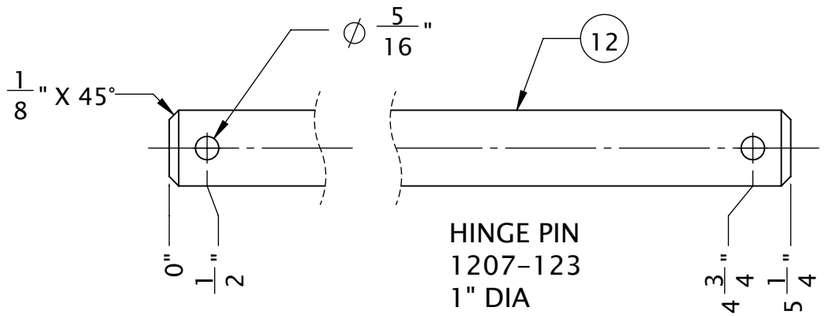
HINGE BACKING PLATE
1207-121
3/8"
SCALE 1:4



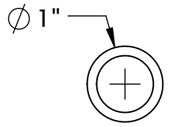


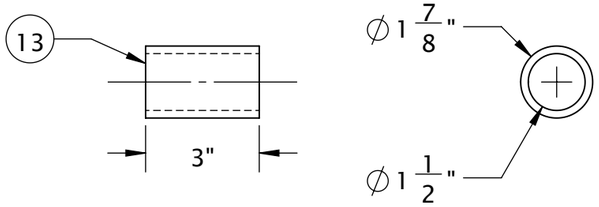
HINGE SPACER
1207-128
1/2"
SCALE 1:2



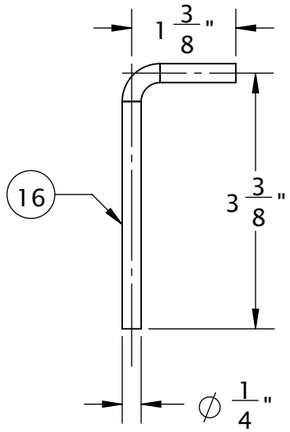


HINGE PIN
1207-123
1" DIA
SCALE 1:2

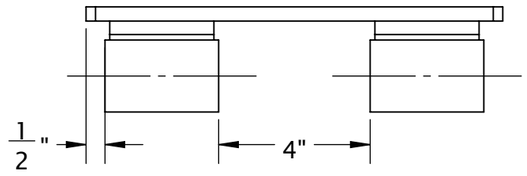


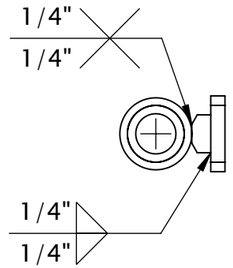


HINGE PIPE
1207-126
1-1/2" SCH 80
SCALE 1:4



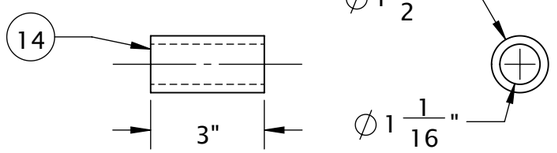
KEEPER PIN
1207-129
1/4"
SCALE 1:2





HINGE NO PIN
1207-120

SCALE 1:4



HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"
1207-127
UHMW
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

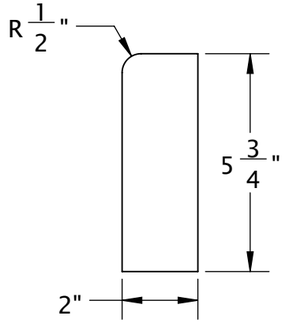
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

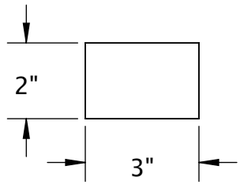
CR Engineering Inc.

TITLE:
HINGE

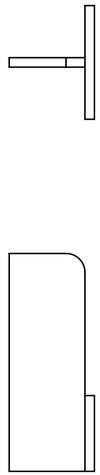
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	10 OF 13	0

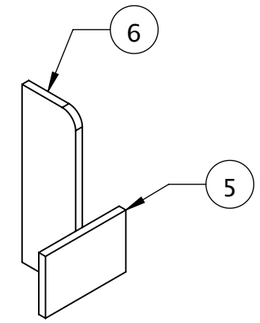


GAP ANGLE SUPPORT
1207-23
1/4"
SCALE 1:4



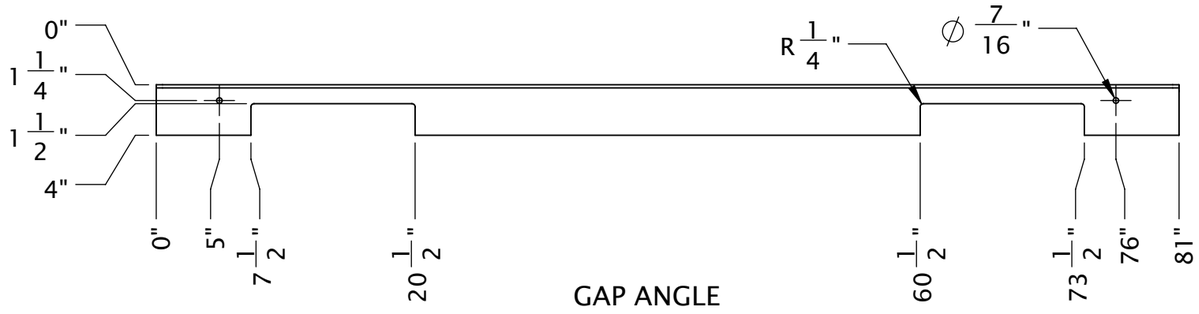
GAP ANGLE SUPPORT BASE
1207-24
1/4"
SCALE 1:4



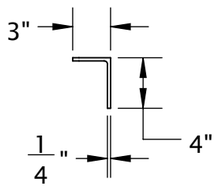


GAP ANGLE SUPPORT
1207-25

SCALE 1:4



GAP ANGLE
1207-139
L4x3 x 1/4
SCALE 1:12



DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GAP ANGLE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	11 OF 13	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
1	1207-101	0	FLOAT FRAME NO PILE	1	6061-T6	81"	240 1/2"		539
2	1207-115	0	BARR FLOAT 24" x 48" x 16"	6		24"	48"	16"	39
3	1207-142	0	BARR FLOAT 20" x 72" x 10"	2		20"	72"	10"	34
4	1207-139	0	GAP ANGLE	1	6061-T6		81"	L4x3 x 1/4	12
5	1207-24	0	GAP ANGLE SUPPORT BASE	2	6061-T6	2"	3"	1/4"	0
6	1207-23	0	GAP ANGLE SUPPORT	2	6061-T6	2"	5 3/4"	1/4"	0
7	1207-111	0	MICROMESH ONE	1	FIBERGLASS	48 1/4"	144 1/4"	1"	140
8	1207-112	0	MICROMESH TWO	1	FIBERGLASS	23 7/8"	144 1/4"	1"	69
9	1207-114	0	MICROMESH FOUR	1	FIBERGLASS	23 3/4"	91 3/4"	1"	44
10	1207-113	0	MICROMESH THREE	1	FIBERGLASS	48 1/4"	91 3/4"	1"	89
11	1207-121	0	HINGE BACKING PLATE	4	5052-H32	2"	11"	3/8"	1
12	1207-123	0	HINGE PIN	2	316L		15 1/4"	1" DIA	3
13	1207-126	0	HINGE PIPE	8	6061-T6		3"	1-1/2" SCH 80	0
14	1207-127	0	HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"	8	UHMW			UHMW	
15	1207-128	0	HINGE SPACER	8	5052-H32	2 3/4"	1"	1/2"	0
16	1207-129	0	KEEPER PIN	4	304 SS		5	1/4"	
17	1207-117	0	LEG FOOT	4	5052-H32	9"	9"	1/4"	2
18	1207-119	0	LEG LEFT	2	5052-H32		26 9/16"	1/4"	10
19	1207-118	0	LEG RIGHT	2	5052-H32		26 1/2"	3/16"	8
20	1207-116	0	LEG WEAR PAD	4	UHMW	9"	9"	1/2"	1
21	1207-104	0	RUB BOARD	2	ROUGH CUT FIR	4"	120"	2"	18

DIMENSIONS IN INCHES | SHEET SIZE: B (11x17) | DRAWN BY: J KING | DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	12 OF 13	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
22	HBOLT 0.5000-13x3x1.25-N		BOLT 1/2" x 3"	52	GALVANIZED				
23	HBOLT 0.5000-13x6.5x1.375-N		BOLT 1/2" x 6-1/2"	6	GALVANIZED				
24	HNUT 0.5000-13-D-N		NUT 1/2"	58	GALVANIZED				
25	SCHCSCREW 0.375-16x1.5x1.5-HX-N		COUNTERSUNK SCREW 3/8" x 1-1/2"	16	304 SS				
26	Regular FW 0.375		FLAT WASHER 3/8"	40	304 SS				
27	Regular FW 0.5		FLAT WASHER 1/2"	116	304 SS				
28	Regular FW 0.75		FLAT WASHER 3/4"	52	304 SS				
29	Regular FW 1		FLAT WASHER 1"	10	304 SS				
30	HTNUT 0.3750-16-D-N		NYLOCK NUT 3/8"	40	304 SS				
31	RHSNBOLT 0.375-16x5x1-N		CARRIAGE BOLT 3/8" x 5"	24	304 SS				

NOTE - BLUE LOCKTITE ON NUTS FOR BILLETS, GRATING AND RUB BOARDS
DO NOT USE LOCK WASHERS

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

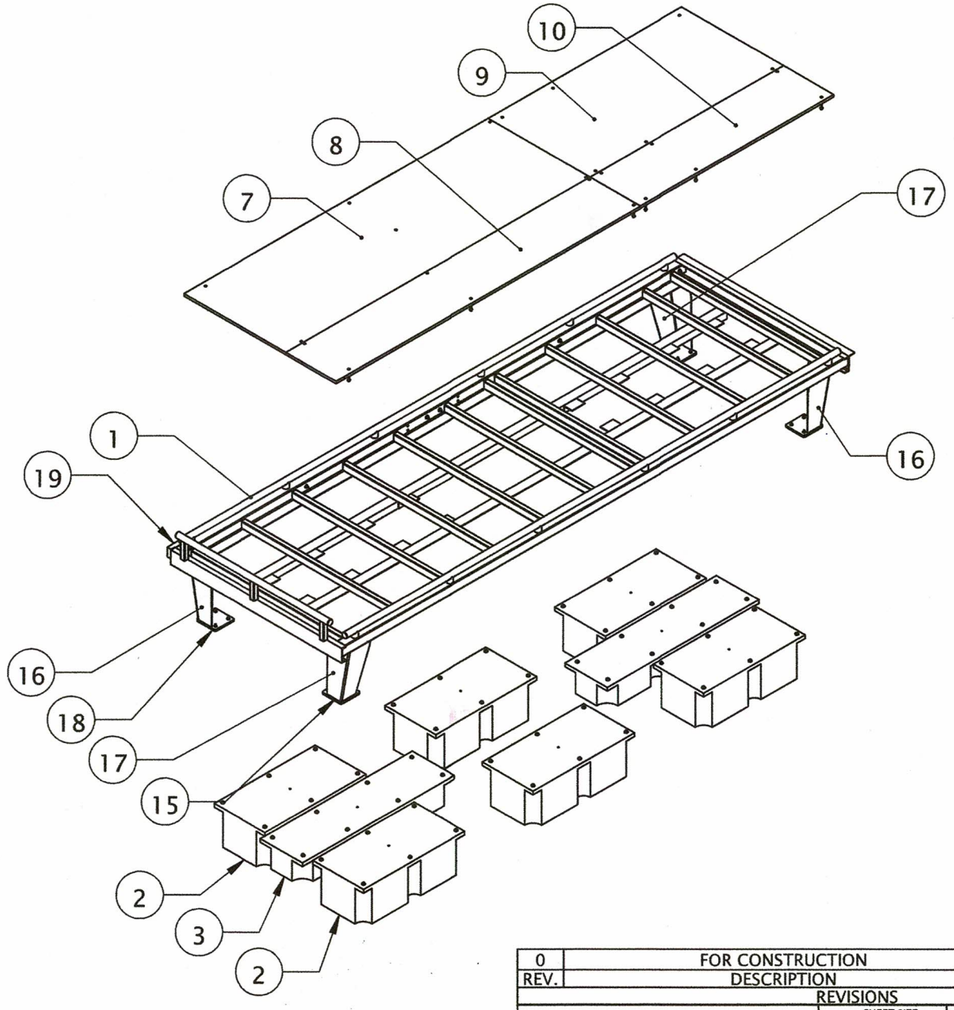
CR Engineering Inc.

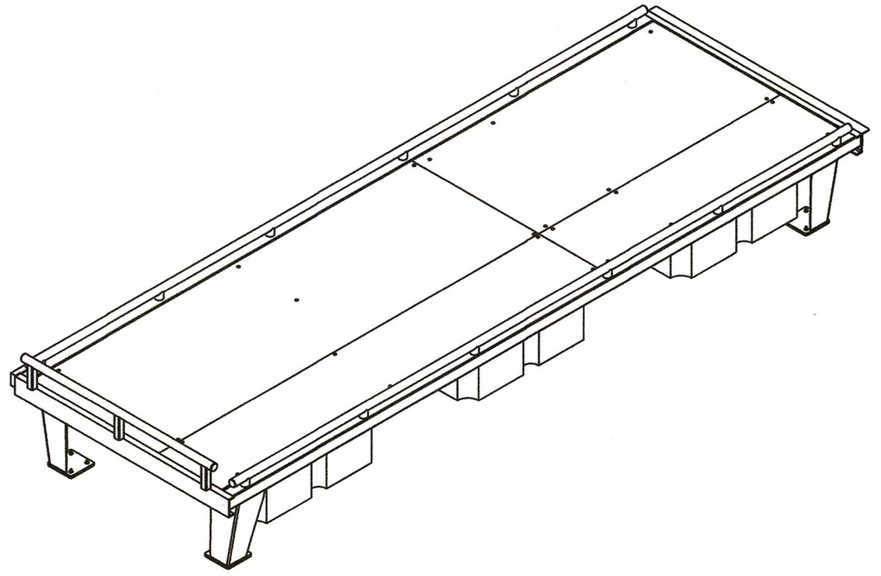
TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-300	13 OF 13	0

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2022 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES: 6061-T6, PLATE 5052-H32
4. GRATING: FRP MINIMESH 1" THICK, FASTEN WITH SIX CARRIAGE BOLTS PER PANEL
5. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
6. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356





PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. J. KING
#25441
18/12/24

REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

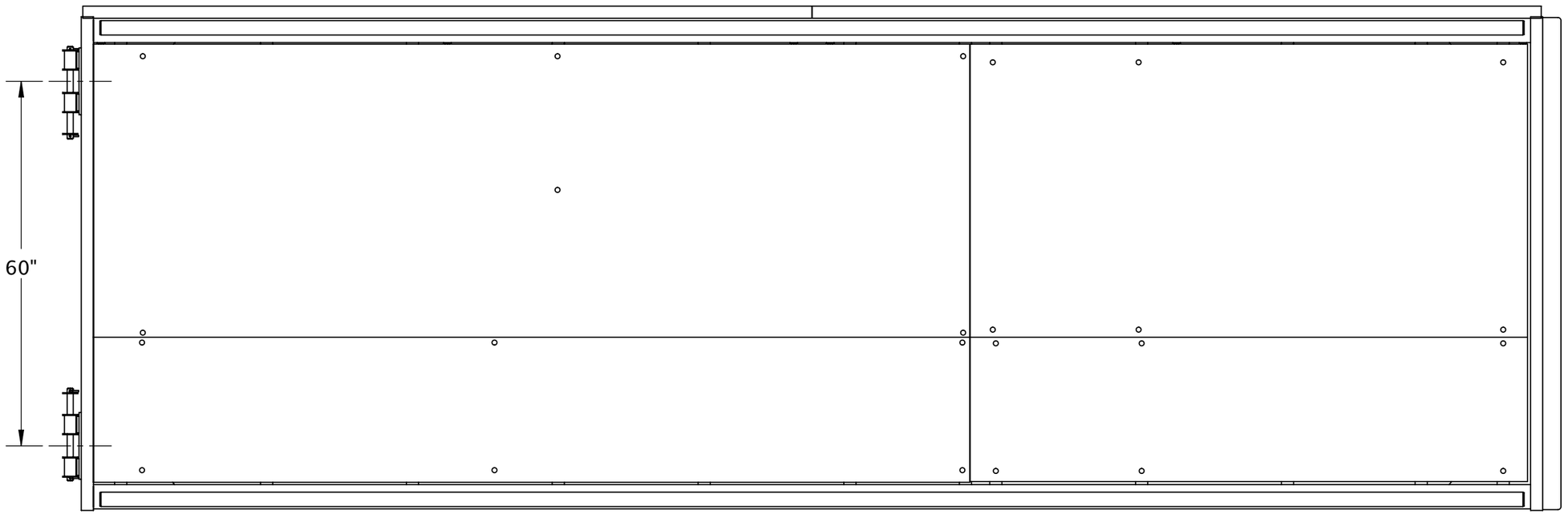
CLIENT
COMOX VALLEY REGIONAL DISTRICT

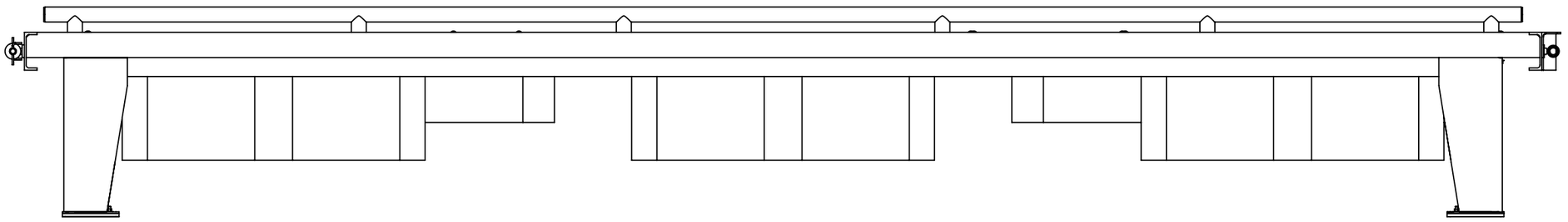
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GENERAL ARRANGEMENT
FLOAT AT END

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	1 OF 13	0





CLIENT

COMOX VALLEY
REGIONAL DISTRICT

PROJECT

SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

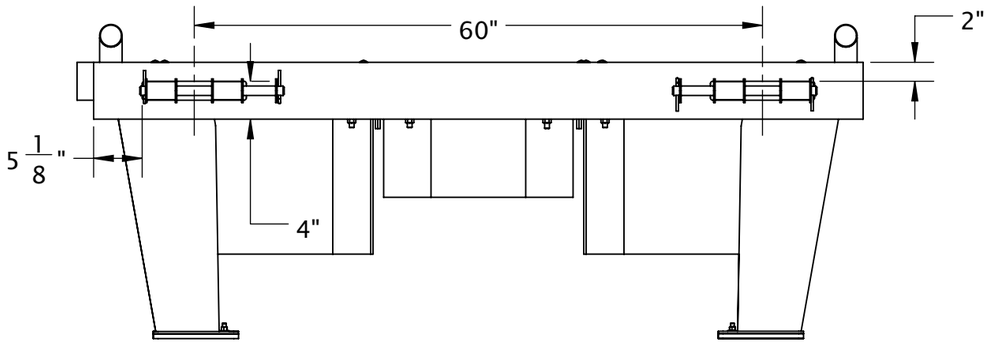
TITLE:

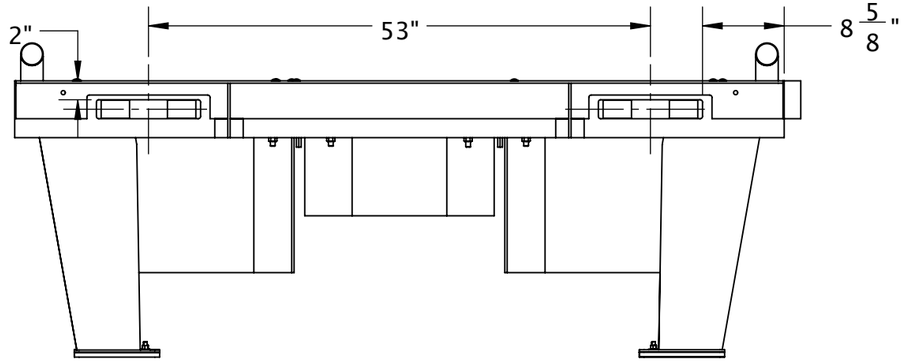
TOP VIEW

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	2 OF 13	0





DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY
REGIONAL DISTRICT

PROJECT

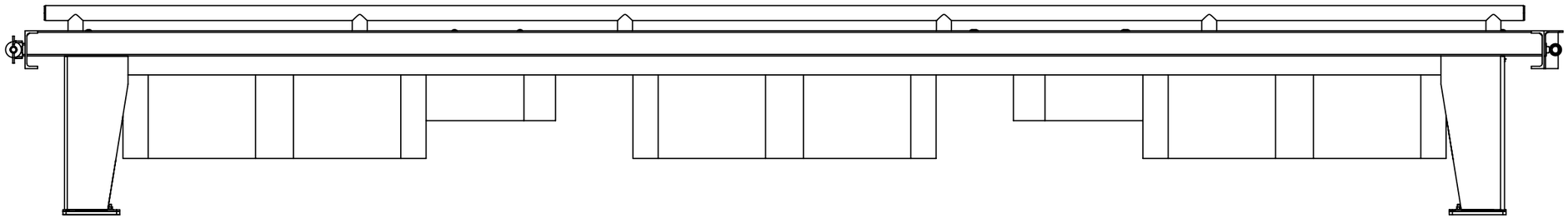
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

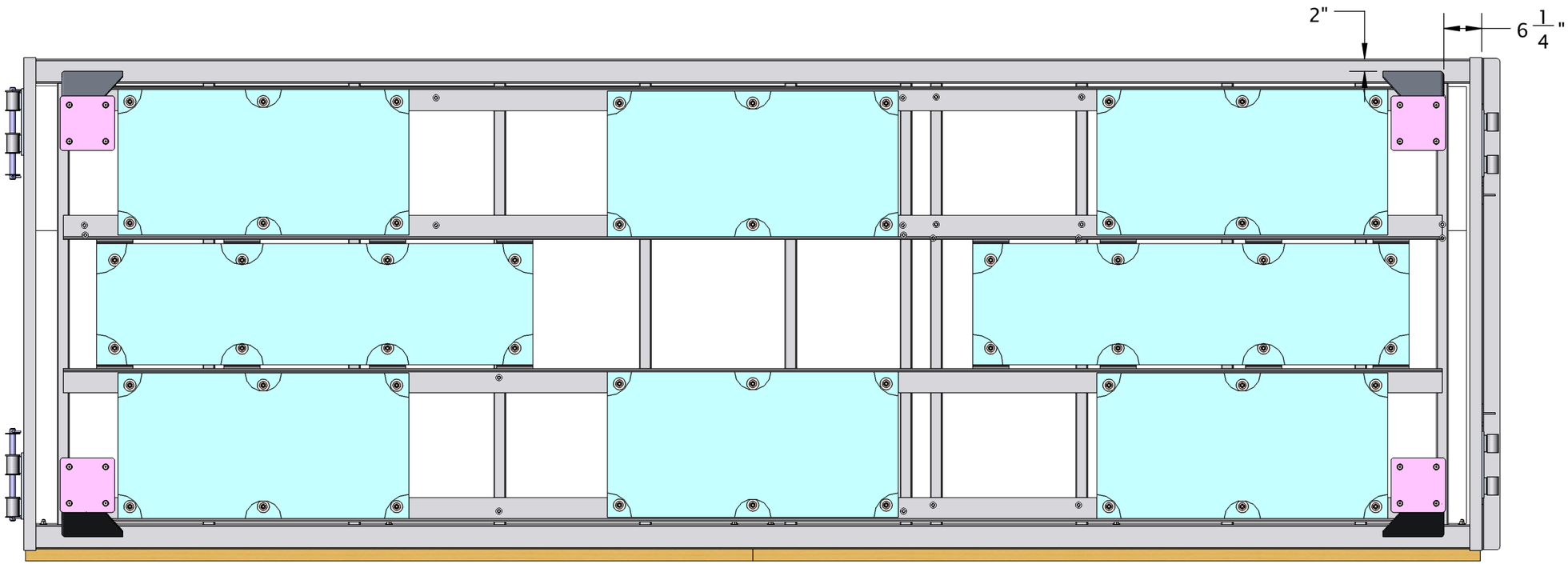
CR Engineering Inc.

TITLE:

END VIEWS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	3 OF 13	0





DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

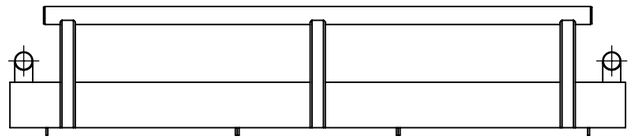
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

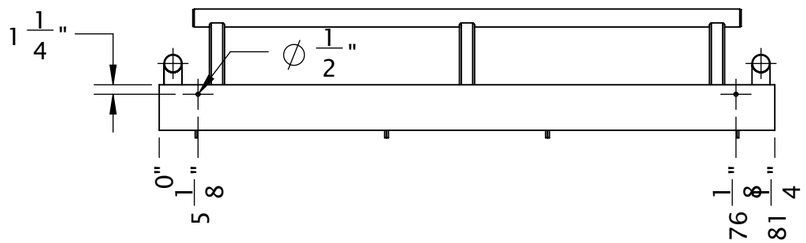
CR Engineering Inc.

TITLE:

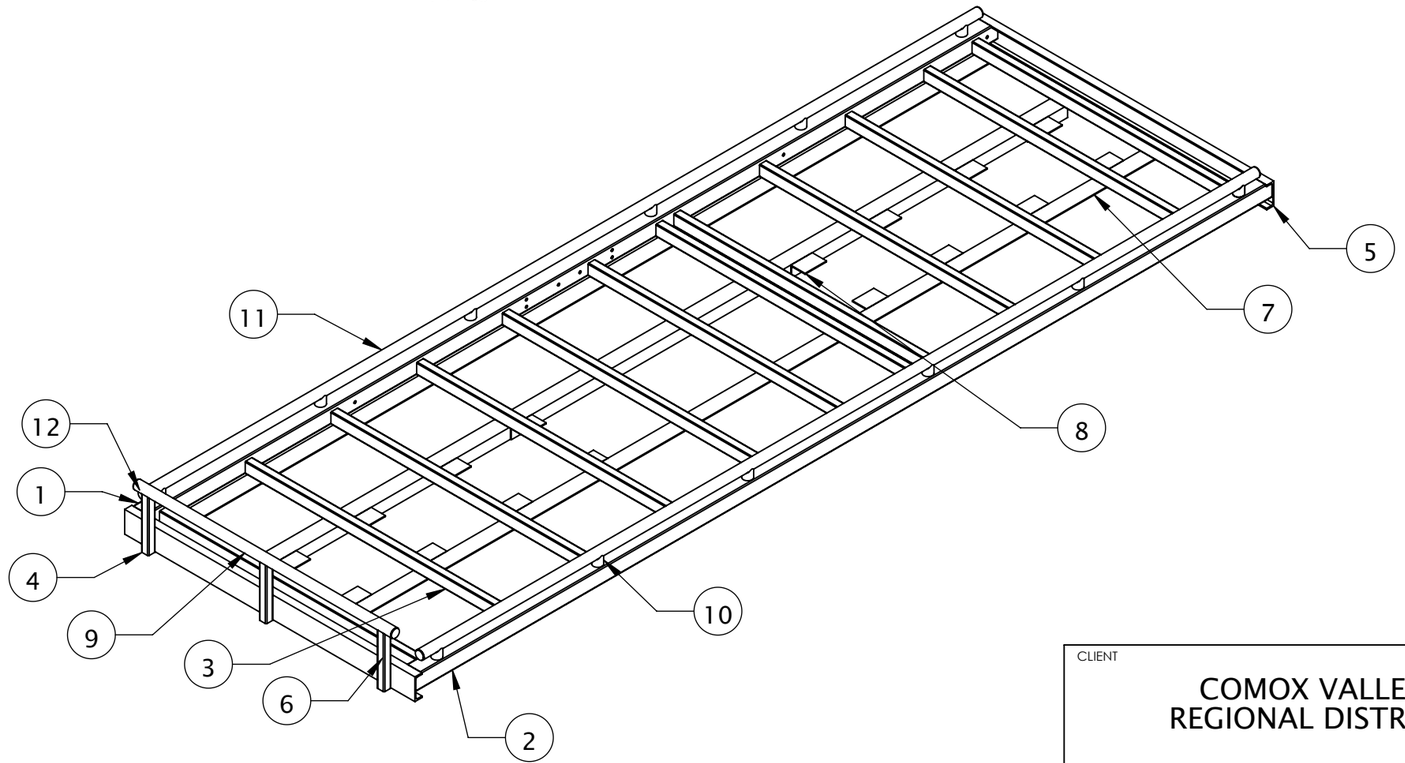
BOTTOM VIEW BILLETS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	4 OF 13	0





ITEM NO.	QTY.	DESCRIPTION	LENGTH	TOTAL LENGTH
1	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
2	1	SQUARE ROUND CORNER 4 x 4 x 1/4	239 15/16"	479 7/8"
3	12	RECTANGULAR ROUND CORNER 3 x 2 x 1/8	72 3/4"	873"
4	3	SQUARE ROUND CORNER 2 x 2 x 3/16	14 3/16"	42 1/2"
5	1	CHANNEL SQUARE 6 x 3.60	81 1/4"	81 1/4"
6	1	CHANNEL SQUARE 6 x 3.60		
7	4	ANGLE 4.00 x 3.00 x 0.250	227 1/2"	1006"
8	16	ANGLE 4.00 x 3.00 x 0.250	6"	1006"
9	1	PIPE SCH 40 2	72"	573 11/16"
10	13	PIPE SCH 40 2	2 9/16"	573 11/16"
11	2	PIPE SCH 40 2	234"	573 11/16"
12	6	END CAP		



DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT

COMOX VALLEY REGIONAL DISTRICT

PROJECT

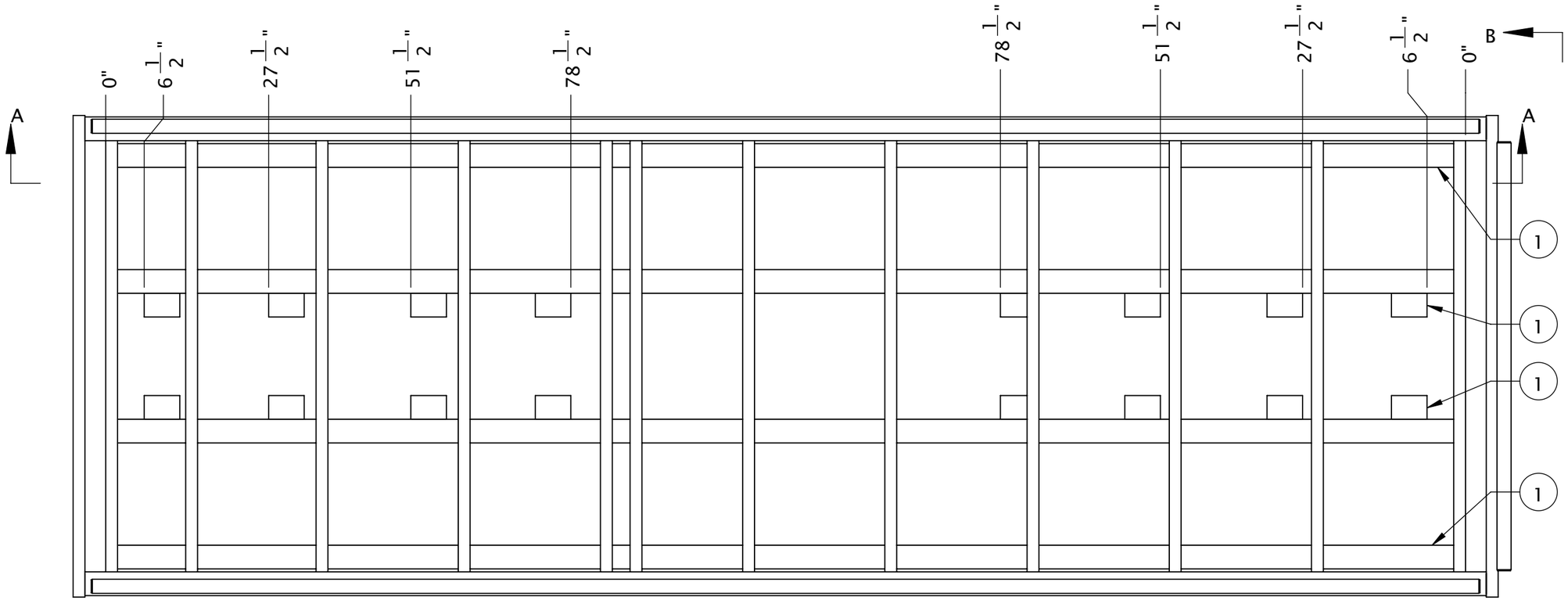
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

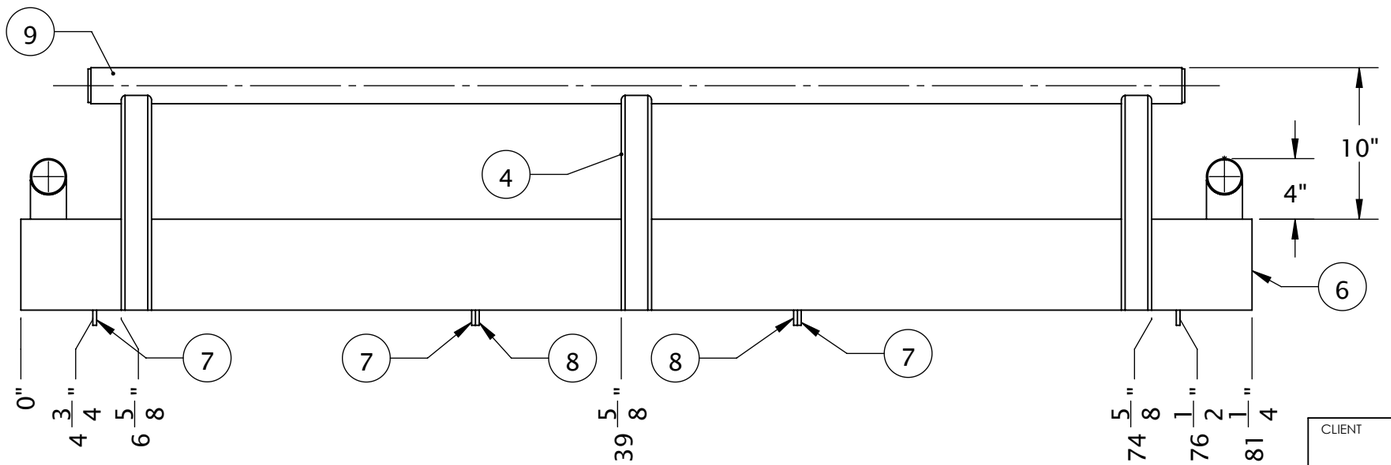
CR Engineering Inc.

TITLE:

FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	5 OF 13	0





SECTION B-B
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

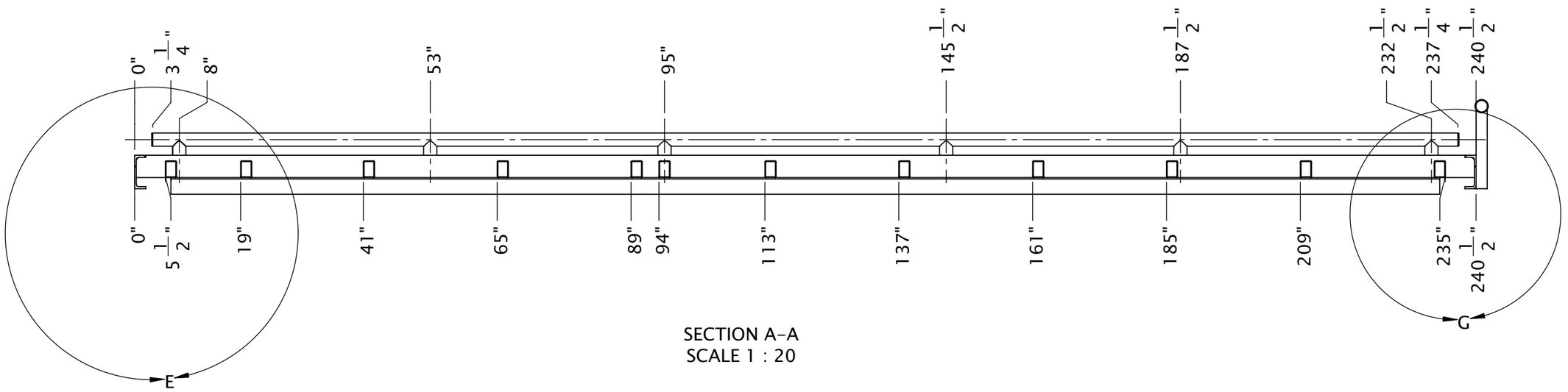
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

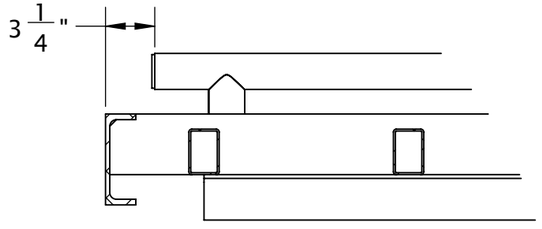
CR Engineering Inc.

TITLE:
FLOAT FRAME

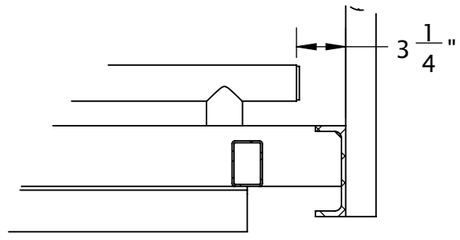
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	6 OF 13	0



SECTION A-A
SCALE 1 : 20



DETAIL E
SCALE 1 : 10



DETAIL G
SCALE 1 : 10

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

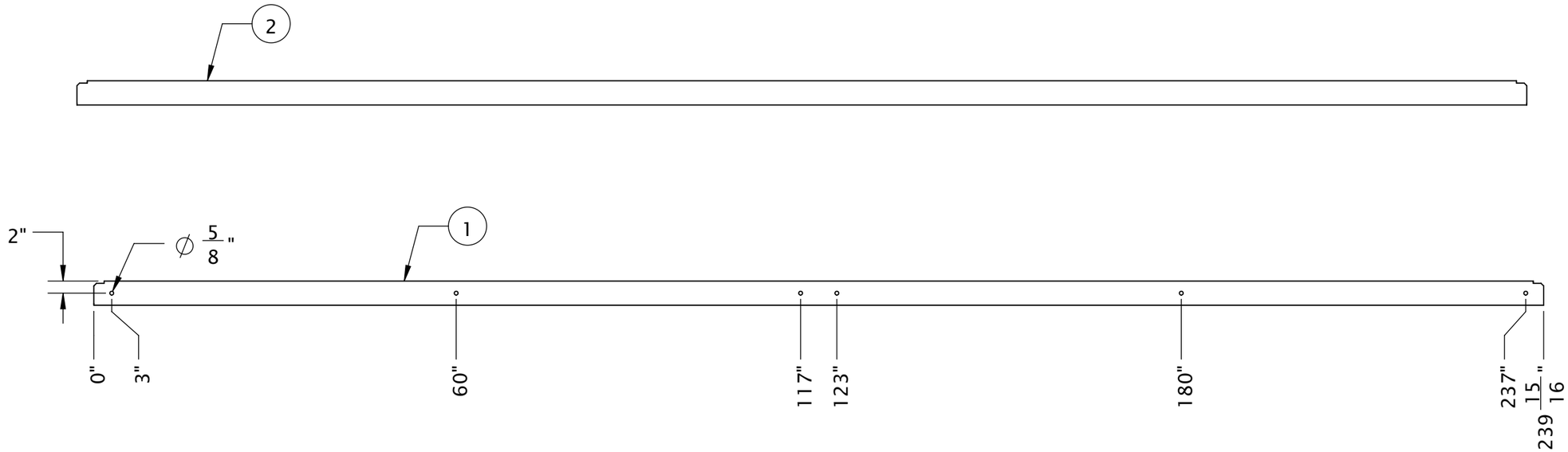
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

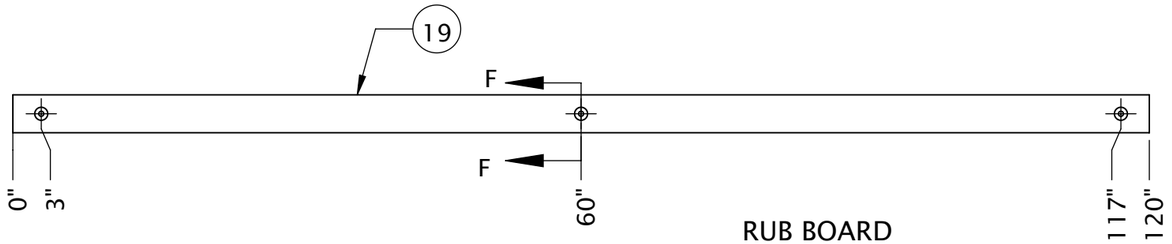
PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

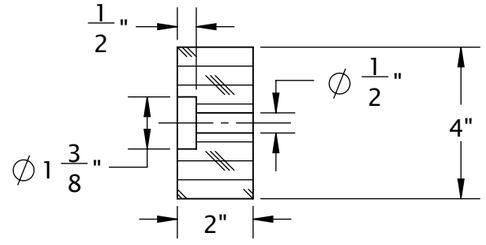
TITLE:
FLOAT FRAME

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	7 OF 13	0





RUB BOARD
1207-104
2"
SCALE 1:16



SECTION F-F
SCALE 1 : 4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

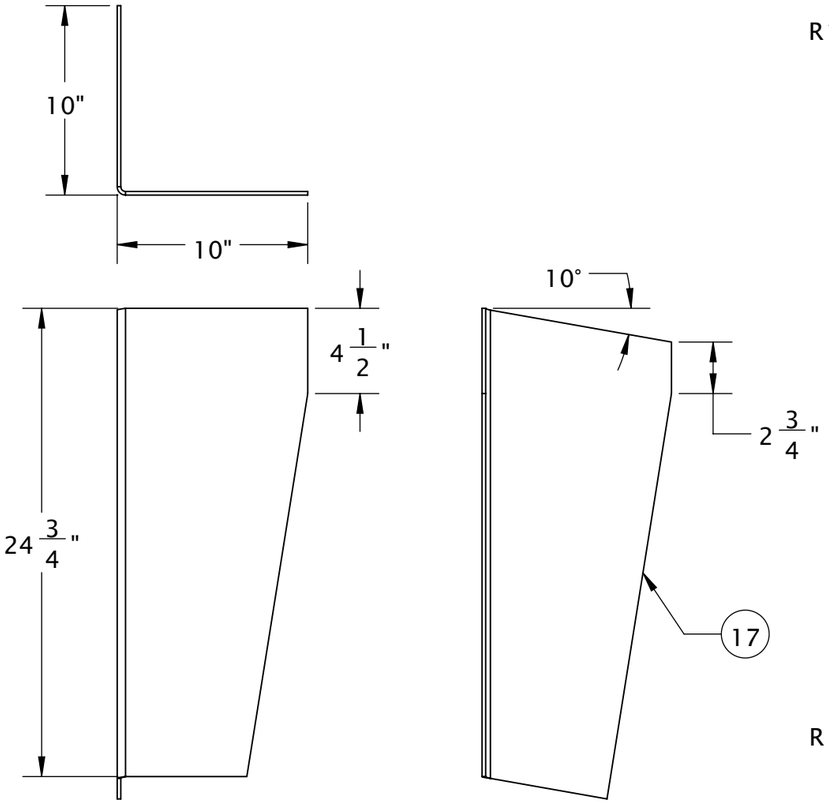
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

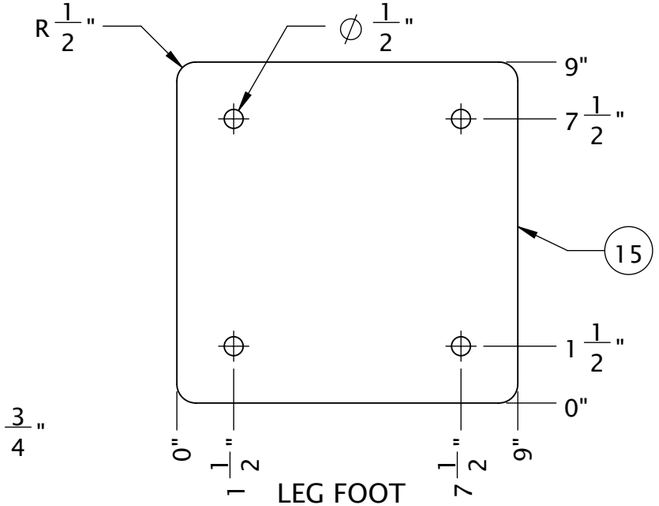
CR Engineering Inc.

TITLE:
SIDE MEMBERS

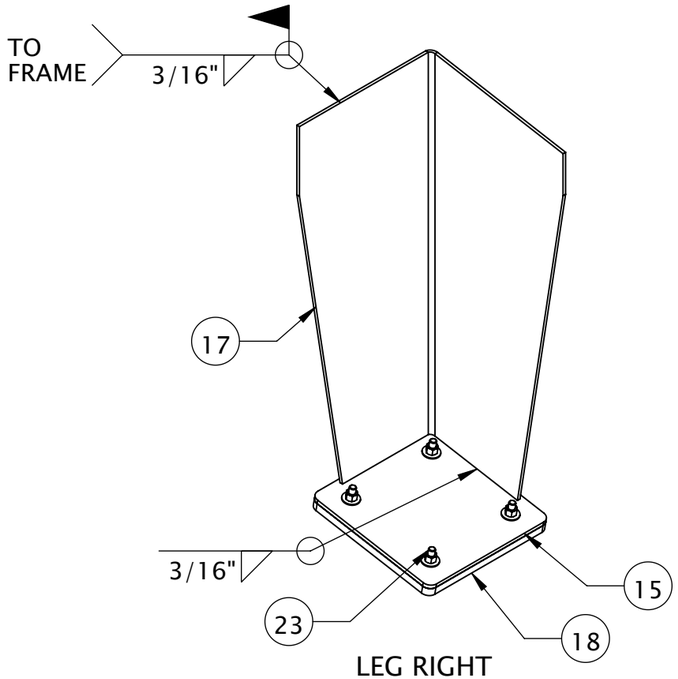
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	8 OF 13	0



LEG RIGHT
1207-118
3/16"
SCALE 1:8

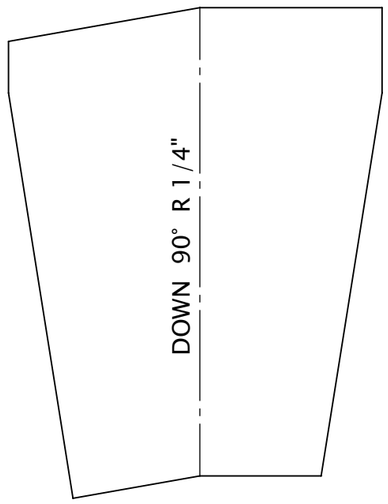


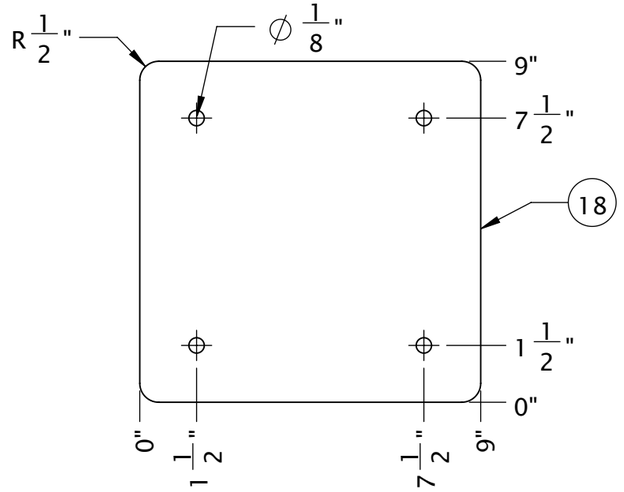
LEG FOOT
1207-117
1/4"
SCALE 1:4



LEG RIGHT
1207-115R

SCALE 1:8





LEG WEAR PAD
1207-116
1/2"
SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

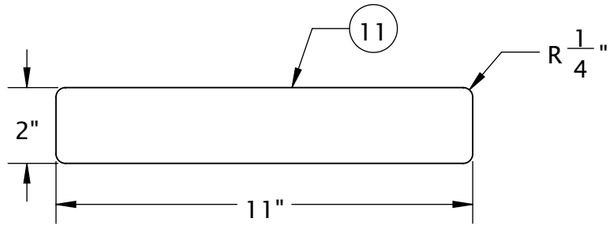
CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

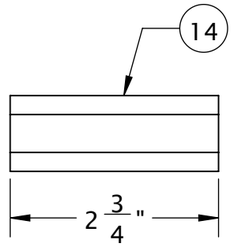
CR Engineering Inc.

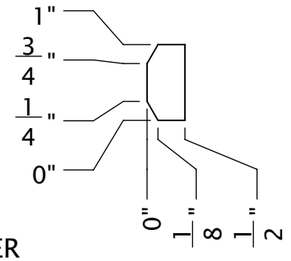
TITLE:
LEG
MAKE LEFT AND RIGHT

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	9 OF 13	0

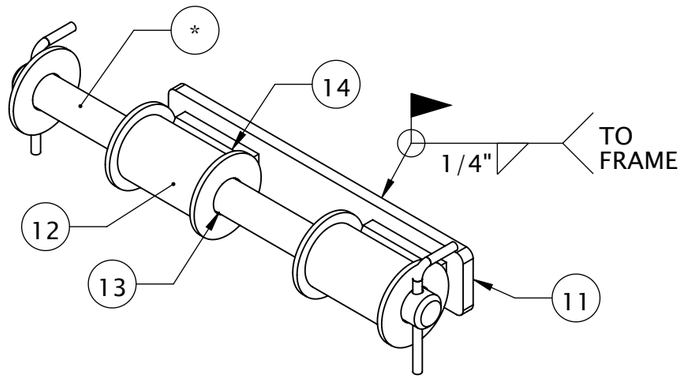


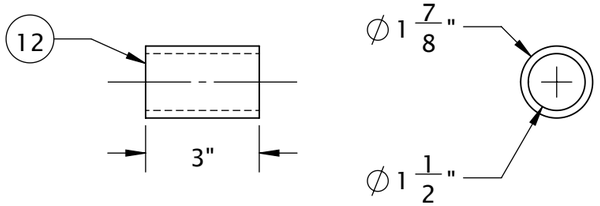
HINGE BACKING PLATE
1207-121
3/8"
SCALE 1:4



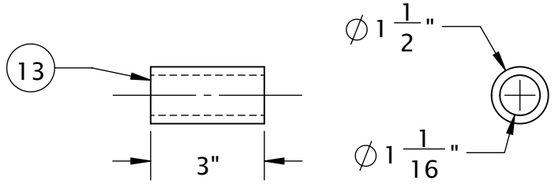


HINGE SPACER
1207-128
1/2"
SCALE 1:2

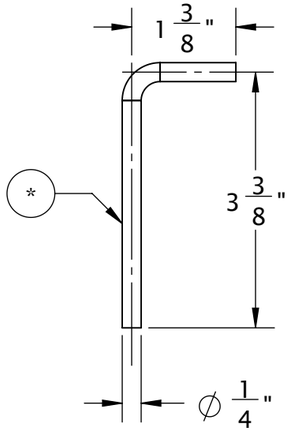




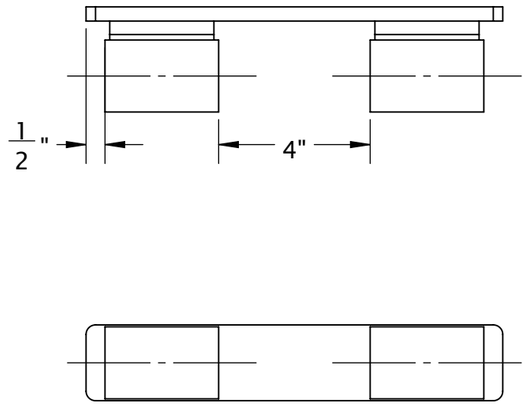
HINGE PIPE
1207-126
1-1/2" SCH 80
SCALE 1:4

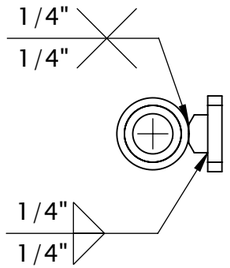


HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"
1207-127
UHMW
SCALE 1:4



KEEPER PIN
1207-129
1/4"
SCALE 1:2





HINGE NO PIN
1207-120

SCALE 1:4

DIMENSIONS IN INCHES	SHEET SIZE B (11x17)	DRAWN BY J KING	DATE (mm/dd/yyyy) 12/12/24

PERMIT TO PRACTICE No. 10000370

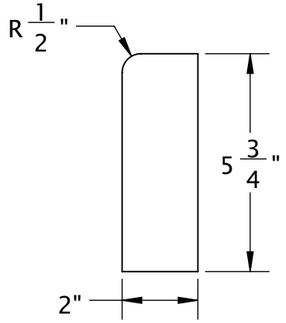
CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

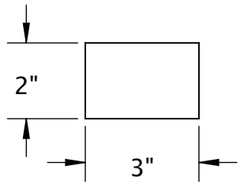
CR Engineering Inc.

TITLE:
HINGE

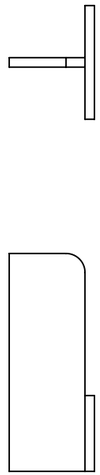
PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	10 OF 13	0

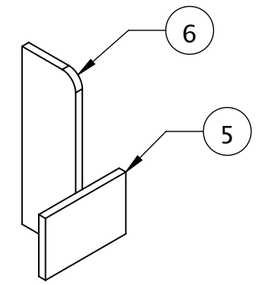


GAP ANGLE SUPPORT
1207-23
1/4"
SCALE 1:4



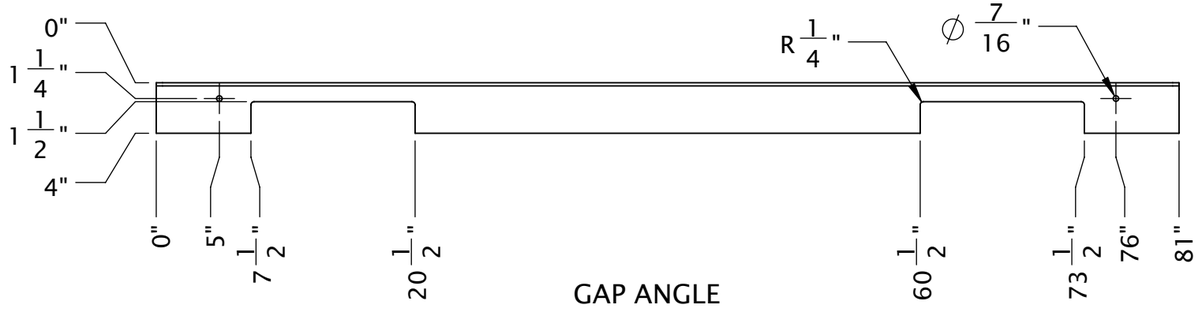
GAP ANGLE SUPPORT BASE
1207-24
1/4"
SCALE 1:4



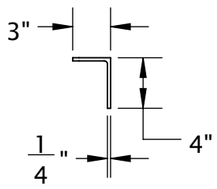


GAP ANGLE SUPPORT
1207-25

SCALE 1:4



GAP ANGLE
1207-139
L4x3 x 1/4
SCALE 1:12



DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
GAP ANGLE

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	11 OF 13	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
1	1207-101	0	FLOAT FRAME END	1	6061-T6	81 1/4"	240 1/2"		550
2	1207-115	0	BARR FLOAT 24" x 48" x 16"	6		24"	48"	16"	39
3	1207-142	0	BARR FLOAT 20" x 72" x 10"	2		20"	72"	10"	34
4	1207-139	0	GAP ANGLE	1	6061-T6		81"	L4x3 x 1/4	12
5	1207-24	0	GAP ANGLE SUPPORT BASE	2	6061-T6	2"	3"	1/4"	0
6	1207-23	0	GAP ANGLE SUPPORT	2	6061-T6	2"	5 3/4"	1/4"	0
7	1207-111	0	MICROMESH ONE	1	FIBERGLASS	48 1/4"	144 1/4"	1"	140
8	1207-112	0	MICROMESH TWO	1	FIBERGLASS	23 7/8"	144 1/4"	1"	69
9	1207-113	0	MICROMESH THREE	1	FIBERGLASS	48 1/4"	91 3/4"	1"	89
10	1207-114	0	MICROMESH FOUR	1	FIBERGLASS	23 3/4"	91 3/4"	1"	44
11	1207-121	0	HINGE BACKING PLATE	2	5052-H32	2"	11"	3/8"	1
12	1207-126	0	HINGE PIPE	4	6061-T6		3"	1-1/2" SCH 80	0
13	1207-127	0	HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"	4	UHMW			UHMW	
14	1207-128	0	HINGE SPACER	4	5052-H32	2 3/4"	1"	1/2"	0
15	1207-117	0	LEG FOOT	4	5052-H32	9"	9"	1/4"	2
16	1207-119	0	LEG LEFT	2	5052-H32		26 9/16"	1/4"	10
17	1207-118	0	LEG RIGHT	2	5052-H32		26 1/2"	3/16"	8
18	1207-116	0	LEG WEAR PAD	4	UHMW	9"	9"	1/2"	1
19	1207-104	0	RUB BOARD	2	ROUGH CUT FIR	4"	120"	2"	18

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	12 OF 13	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	MATERIAL	WIDTH	LENGTH	THICKNESS	LBS
20	HBOLT 0.5000-13x3x1.25-N		BOLT 1/2" x 3"	52	GALVANIZED				
21	HBOLT 0.5000-13x6.5x1.375-N		BOLT 1/2" x 6-1/2"	6	GALVANIZED				
22	HNUT 0.5000-13-D-N		NUT 1/2"	58	GALVANIZED				
23	SCHCSCREW 0.375-16x1.5x1.5-HX-N		COUNTERSUNK SCREW 3/8" x 1-1/2"	16	304 SS				
24	Regular FW 0.375		FLAT WASHER 3/8"	40	304 SS				
25	Regular FW 0.5		FLAT WASHER 1/2"	116	304 SS				
26	Regular FW 0.75		FLAT WASHER 3/4"	52	304 SS				
27	HTNUT 0.3750-16-D-N		NYLOCK NUT 3/8"	40	304 SS				
28	RHSNBOLT 0.375-16x5x1-N		CARRIAGE BOLT 3/8" x 5"	24	304 SS				

NOTE - BLUE LOCKTITE ON NUTS FOR BILLETS, GRATING AND RUB BOARDS
DO NOT USE LOCK WASHERS

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

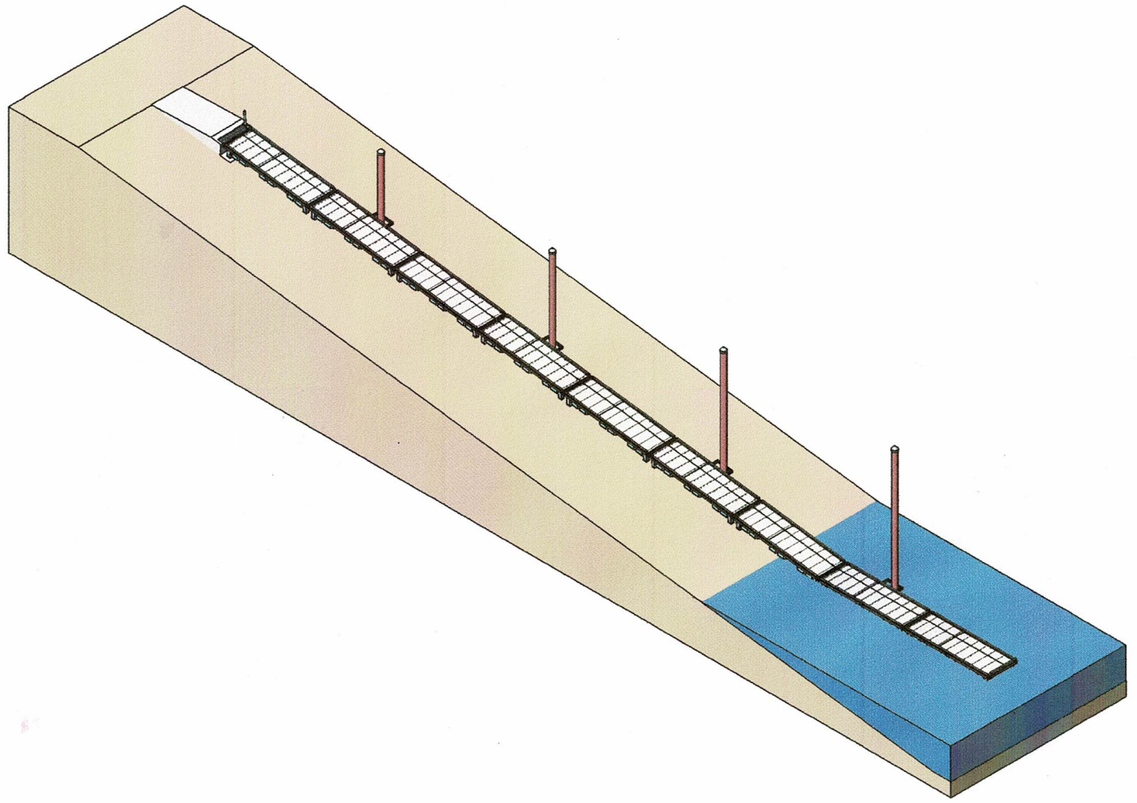
CR Engineering Inc.

TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-400	13 OF 13	0

NOTES

1. DESIGN TO OREGON BOAT LAUNCH FACILITIES 2011
   CSA S157-2017 STRENGTH DESIGN IN ALUMINUM
2. DESIGN LOADS:
   LIVE LOAD 1.0 kPa (21 psf), POINT LOAD 1.8 kN (400 lbs)
   WAVE LOAD 0.2 kN/m (14 plf)
3. MATERIALS SHAPES 6061-T6, PLATE 5052-H32
4. WELDING TO CONFORM TO CSA W59.2 WELDED ALUMINUM
5. WELDS 1/4" FILLET AND FLARE GROOVE UNO, FILLER 5356



PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. J. KING
25441
12/17/24

REV.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	12/17/24	JK

REVISIONS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

CLIENT
COMOX VALLEY REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-BOM	1 OF 3	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	LBS	MATERIAL	THICKNESS	LENGTH	WIDTH
1	1207-142	0	BARR FLOAT 20" x 72" x 10"	18	34		10"	72"	20"
2	1207-115	0	BARR FLOAT 24" x 48" x 16"	54	39		16"	48"	24"
3	1207-102	0	FLOAT CONNECTOR PLATE	1	5	5052-H32	1/2"	19"	6"
4	1207-101	0	FLOAT FRAME SHORE	1	539	6061-T6		240 1/2"	81 1/4"
5	1207-101	0	FLOAT FRAME WITH PILE	4	539	6061-T6		240 1/2"	81"
6	1207-101	0	FLOAT FRAME NO PILE	3	539	6061-T6		240 1/2"	81"
7	1207-101	0	FLOAT FRAME END	1	550	6061-T6		240 1/2"	81 1/4"
8	1207-139	0	GAP ANGLE	8	12	6061-T6	L4x3 x 1/4	81"	
9	1207-23	0	GAP ANGLE SUPPORT	16	0	6061-T6	1/4"	5 3/4"	2"
10	1207-24	0	GAP ANGLE SUPPORT BASE	16	0	6061-T6	1/4"	3"	2"
11	1207-105	0	HINGE LUG	2	1	5052-H32	1/2"	6 1/4"	
12	1207-121	0	HINGE BACKING PLATE	32	1	5052-H32	3/8"	11"	2"
13	1207-127	0	HINGE BUSHING 1.06" x 1-1/2" x 1-1/2"	64		UHMW	UHMW		
14	1207-123	0	HINGE PIN	16	3	316L	1" DIA	15 1/4"	
15	1207-126	0	HINGE PIPE	64	0	6061-T6	1-1/2" SCH 80	3"	
16	1207-128	0	HINGE SPACER	64	0	5052-H32	1/2"	1"	2 3/4"
17	1207-106	0	HINGE SUPPORT	4	0	5052-H32	1/4"	2"	3 1/2"
18	1207-129	0	KEEPER PIN	34		304 SS	1/4"	5	
19	1207-117	0	LEG FOOT	36	2	5052-H32	1/4"	9"	9"
20	1207-119	0	LEG LEFT	18	10	5052-H32	1/4"	26 9/16"	
21	1207-118	0	LEG RIGHT	18	8	5052-H32	3/16"	26 1/2"	
22	1207-116	0	LEG WEAR PAD	36	1	UHMW	1/2"	9"	9"
23	1207-111	0	MICROMESH ONE	9	140	FIBERGLASS	1"	144 1/4"	48 1/4"
24	1207-112	0	MICROMESH TWO	9	69	FIBERGLASS	1"	144 1/4"	23 7/8"
25	1207-113	0	MICROMESH THREE	9	89	FIBERGLASS	1"	91 3/4"	48 1/4"
26	1207-114	0	MICROMESH FOUR	9	44	FIBERGLASS	1"	91 3/4"	23 3/4"
27	1207-61	0	PILE HOOP FRAME	4	13	6061-T6	C4 x 2.02		
28	1207-62	0	PILE HOOP PLATE	16	1	6061-T6	3/8"	7"	4"
29	1207-66	0	PILE HOOP COUNTERWEIGHT	4	7	304L	1/4"	32"	3"
30	1207-64	0	PILE HOOP WEAR PLATE 1	8	2	BLACK UHMW	1"	15"	4"
31	1207-63	0	PILE HOOP WEAR PLATE 2	8	4	BLACK UHMW	1"	32"	4"
32	1207-1003		PILE CAP 12"	4					
33	1207-108	0	RAMP CONNECTOR PLATE	1	5	5052-H32	1/2"	20"	7"
34	1207-1012	0	RAMP POST	1	46	304L	PIPE 3" SCH 40	72"	
35	1207-1011		RAMP TRANSITION	1		CONCRETE			
36	1207-104	0	RUB BOARD	18	18	ROUGH CUT FIR	2"	120"	4"
37	1207-1004	0	TRANSITION HINGE PIN	1	19	304L	1-1/2 SCH 40		
38	1207-51	0	TRANSITION PIPE	1	8	6061-T6	2" sch 40		
39	1207-52	0	TRANSITION PLATE	1	46	5052-H32	3/8"	70 3/4"	18"

CLIENT

COMOX VALLEY
REGIONAL DISTRICT

CR Engineering Inc.

TITLE:

BILL OF MATERIALS

DIMENSIONS IN INCHES	SHEET SIZE	DRAWN BY	DATE (mm/dd/yyyy)
	B (11x17)	J KING	12/12/24

PERMIT TO PRACTICE No. 10000370

PROJECT

SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-BOM	2 OF 3	0

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.	LBS	MATERIAL	THICKNESS	LENGTH	WIDTH
40	HBOLT 0.3750-16x2x1-N		BOLT 3/8" x 2"	48		GALVANIZED			
41	HBOLT 0.3750-16x6x1-N		BOLT 3/8" x 6"	16		GALVANIZED			
42	HBOLT 0.5000-13x3x1.25-N		BOLT 1/2" x 3"	468		GALVANIZED			
43	HBOLT 0.5000-13x6.5x1.375-N		BOLT 1/2" x 6-1/2"	54		GALVANIZED			
44	HHSBOLT 0.5000-13x1.75x1-N		BOLT A307 1/2" x 1-3/4"	36		GALVANIZED			
45	HHNUT 0.5000-13-D-N		NUT A307 1/2"	32		GALVANIZED			
46	HNUT 0.3750-16-D-N		NUT 3/8"	64		GALVANIZED			
47	HNUT 0.5000-13-D-N		NUT 1/2"	526		GALVANIZED			
48	Regular FW 0.375		FLAT WASHER 3/8"	488		304 SS			
49	Regular FW 0.5		FLAT WASHER 1/2"	1116		304 SS			
50	Regular FW 0.75		FLAT WASHER 3/4"	468		304 SS			
51	Regular FW 1		FLAT WASHER 1"	80		304 SS			
52	SCHCSCREW 0.375-16x1.5x1.5-HX-N		COUNTERSUNK SCREW 3/8"' x 1-1/2"	144		304 SS			
53	RHSNBOLT 0.375-16x5x1-N		CARRIAGE BOLT 3/8" x 5"	216		304 SS			
54	HTNUT 0.3750-16-D-N		NYLOCK NUT 3/8"	360		304 SS			

DIMENSIONS IN INCHES	SHEET SIZE: B (11x17)	DRAWN BY: J KING	DATE (mm/dd/yyyy): 12/12/24

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CLIENT
COMOX VALLEY
REGIONAL DISTRICT

PROJECT
SHINGLE SPIT BOAT RAMP
HORNBY ISLAND

CR Engineering Inc.

TITLE:
BILL OF MATERIALS

PROJECT NUMBER	DRAWING NUMBER	SHEET	REV
1207	1207-BOM	3 OF 3	0