

SV.5023-1350 - 3D VIEW

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
SP21-CT24560-C	COVER SHEET AND DRAWING INDEX
SP21-CT24570-C	GENERAL NOTES
SP21-CT24580-C	GENERAL ARRANGEMENT
SP21-CT24590-C	PERMISSIBLE PENETRATIONS SHEET 1,2 & 3
SP21-CT24600-C	TANK LID PENETRATION OPTIONS
SP21-CT48180-C	GENERAL LIFTING ARRANGEMENTS

A

1	08/04/21	G.T	INITIAL RELEASE	
2	11/21	G.T	GENERAL REVISION	
REV	DATE	BY	DESCRIPTION	CHK

6

5

4

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Drawn

G.T

Date

9/04/2021

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Date

Request No.

2

PROJECT :

TITLE

COVER SHEET AND DRAWING INDEX
13.70 kL SPEL PRECAST CONCRETE TANK
SV.5023-1350

SCALE

N.T.S

SIZE

A3

SHEET

1

REV

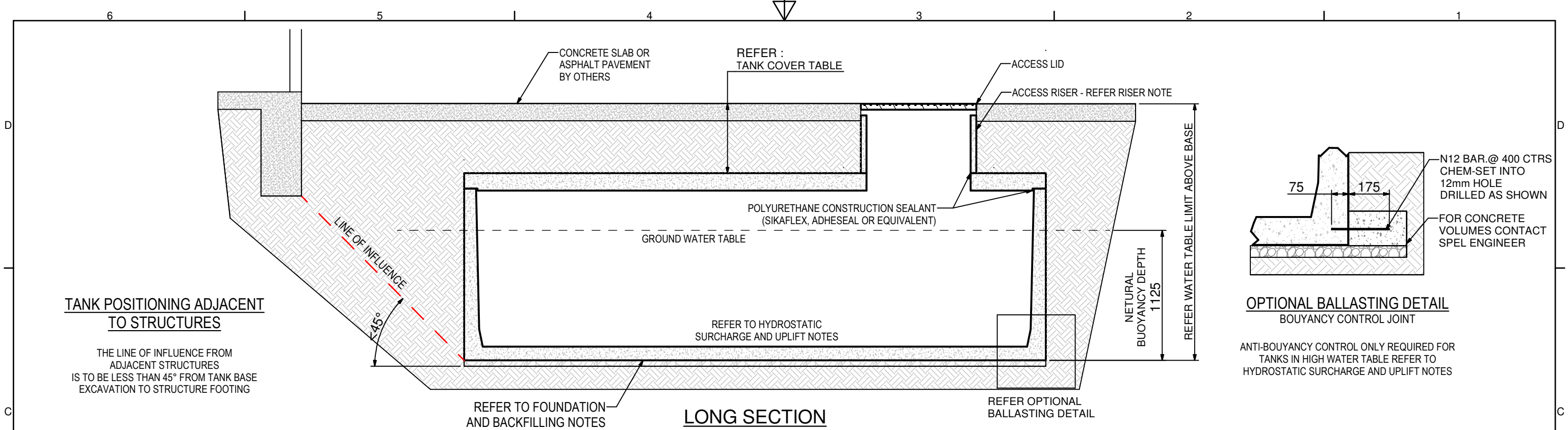
2

CUSTOMER CODE :

DWG No.

SP21-CT24560-C

1



DESIGN CRITERIA

DESIGN IN ACCORDANCE WITH:
AS/NZS 1170.0 - DESIGN LOAD GENERAL REQUIREMENTS
AS/NZS 1170.1 - PERMANENT AND SUPERIMPOSED LOADS
EXPOSURE CLASSIFICATION IN ACCORDANCE WITH AS/NZS 3600 - 'B2'
THE TANK DESIGN LIFE EXPECTANCY IS UP TO 50 YRS.

HEAVY VEHICLES ARE ASSUMED TO BE WITHIN THE GROSS VEHICLE MASS (GVM) AND AXLE LIMITS PRESCRIBED BY THE QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS. THE HEAVY VEHICLES THAT THE TANK AND LID ARE DESIGNED FOR INCLUDES:

- SINGLE RIGID TRUCK
- RIGID TRUCK WITH TRAILER
- SEMI TRAILER
- B-DOUBLE
- TWIN STEER TRUCKS

WHICH REPRESENTS AXLE GROUPS OF:

- SINGLE AXLE = 9.0 TONNES
- TANDEM AXLE = 16.0 TONNES
- TRI-AXLE = 20.0 TONNES

WHEEL LOADS ARE BASED ON TANKS INSTALLED IN CONTROLLED TRAFFIC AREA (CARPARK) WITH VEHICLES OPERATING AT REDUCED SPEED.

NOTE: TANKS ARE NOT DESIGNED TO BE INSTALLED UNDER OPEN ROADS. IF W80 AND SM1600 RATING IS REQUIRED, CONSULT SPEL ENGINEERS

CONCRETE

- TO COMPLY WITH THE REQUIREMENTS OF AS 3600-2018-CONCRETE STRUCTRES.
- 50 MPa

TANK COVER						
TANK TYPE	COVER	BASE THICKNESS	LID THICKNESS	EXTRA REINFORCEMENT	EXCAVATION kPa	WATER TABLE LIMIT ABOVE BASE
STOCK	0-2000	120	150	-	100 kPa	5000
CUSTOM	2001-2500	150	200	Y	125 kPa	7000
CUSTOM	2501-3000	150	200	Y	150 kPa	7000
CUSTOM	3001-3500	150	200	Y	175 kPa	7000

HYDROSTATIC SURCHARGE AND UPLIFT

IMPORTANT NOTE:

NEUTRAL BUOYANCY DEPTH PROVIDED IS A GUIDE ONLY. IT IS CONSERVATIVELY CALCULATED WITH ZERO SOIL COVER AND ZERO SLAB COVER. SEEK SPEL ADVISE FOR SITE SPECIFIC BALLASTING CALCULATIONS, THAT CAN TAKE INTO CONSIDERATION SOIL / SLAB COVER OVER TANK, ANY ADDITIONAL CLEAR OPENINGS IN THE TANK LID,AND ANY PENETRATIONS IN THE TANK WALLS OR BASE.

- TANK WITH WATER LEVEL UP TO 1125 FROM THE TANK BASE HAS NIL HYDROSTATIC UPLIFT (NEUTRAL BUOYANCY MARK). FOR WATER LEVELS GREATER THAN THIS CONTACT SPEL ENGINEERS FOR SITE SEPTIC BALLASTING ADVICE..

RISER NOTES:

IF PROCURING NON-"SPEL" MANUFACTURED RISERS. THE SUPPLIER IS TO CONFIRM THE RISER IS SUITABLE FOR:

- THE DEPTHS REQUIRED FOR THE PROJECT.
- THE TRAFFIC RATING REQUIRED.
- 35mm MINIMUM RISER WALL THICKNESS BEARING ON TANK LID.

FOUNDATION REQUIREMENTS AND BACKFILLING

- THE TANK MUST BE FOUNDED ON COMPACTED 50mm MINIMUM LEVELLING SUB-BASE COMPRISED OF SAND OR ROAD BASE THAT ACHIEVES CBR40 WHEN THE TANK IS SUBJECTED TO VEHICLE LOADING. CBR15 OR OTHERWISE. 5-10mm DRAINAGE GRAVEL IS AN ACCEPTABLE SUB-BASE MATERIAL WHEN TANK IS SUBJECTED TO VEHICLE LOADING, 10mm MAXIMUM TO BE STRICTLY ADHERED TO.
- BACKFILL AROUND THE TANK WITH A WELL DRAINING GRANULAR MATERIAL IN LAYERS NO THICKER THAN 500mm. MAXIMUM VARIATION OF 500mm IN BACKFILL PLACEMENT HEIGHT FROM ONE SIDE OF TANK TO THE OTHER
- COMPACT PAVEMENT SUBGRADES ABOVE THE TANK LID WITH LIGHT DUTY HAND OPERATED COMPACTION EQUIPMENT. DO NOT USE HEAVY MECHANICAL COMPACTION TECHNIQUES (SUCH AS VIBRATORY OR STATIC ROLLERS) ABOVE OR ADJACENT TO THE TANK WALLS WITHIN 1500mm OF TANKS WITHOUT ENGINEER'S APPROVAL
- BACKFILL SUPPORTING BUILDINGS OR PAVEMENTS TO HAVE LEVEL 1 SUPERVISION & TESTING (PROJECT ENGINEER TO ADVISE)
- BACKFILL SUPPORTING TRAFFICABLE PAVEMENT MUST BE LEVEL 1 SUPERVISION & TESTING. A PAVEMENT THAT IS DESIGNED TO BE SUSPENDED OVER BACKFILL SHOULD EXTEND A NOMINAL DISTANCE BEYOND THE EDGE OF THE EXCAVATION ONTO NATURAL GROUND. THE SPECIFIC DESIGN IS THE RESPONSIBILITY OF THE PROJECT ENGINEER.

LIFTING NOTES:

- TOTAL APPROVED 15.0 t (WLL) LIMIT AS SPECIFIED ON DRAWING. CONSULT AN RPEQ ENGINEER FOR LIFTING DESIGN OF SPECIFICALLY DESIGNED TANKS WITH ADDITIONAL FIXTURES INSTALLED AND TOTAL WEIGHT EXCEEDING APPROVED 15.0 t
- THE ERECTOR SHALL COORDINATE WITH THE SITE PROJECT ENGINEER FOR SITE ACCESS, GROUND CONDITIONS AND PLANNED LIFTING EQUIPMENT PRIOR TO TANK DELIVERY ON SITE.
- RIGGING ARRANGEMENT SHALL ENSURE THE LOAD IS EVENLY DISTURBED BETWEEN ALL LIFTING ANCHORS.
- ONLY USE LIFTING PINS PROVIDED WHEN LIFTING, DAMAGED LIFTING PINS SHALL NOT BE USED UNLESS CAPACITY IS VERIFIED AND APPROVED BY A RPEQ ENGINEER.

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1	04/21	G.T.	INITIAL RELEASE	
2	10/21	GT	GENERAL AMENDMENTS	
REV	DATE	BY	DESCRIPTION	CHK

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GT

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Verified

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Request No.

7/04/2021

Date

Date

Date



spelstormwater
joy in water
spel.com.au

PROJECT :

TITLE
GENERAL NOTES
13.70 kL SPEL PRECAST CONCRETE TANK
SV.5023-1350

SCALE
N.T.S

SIZE
A3

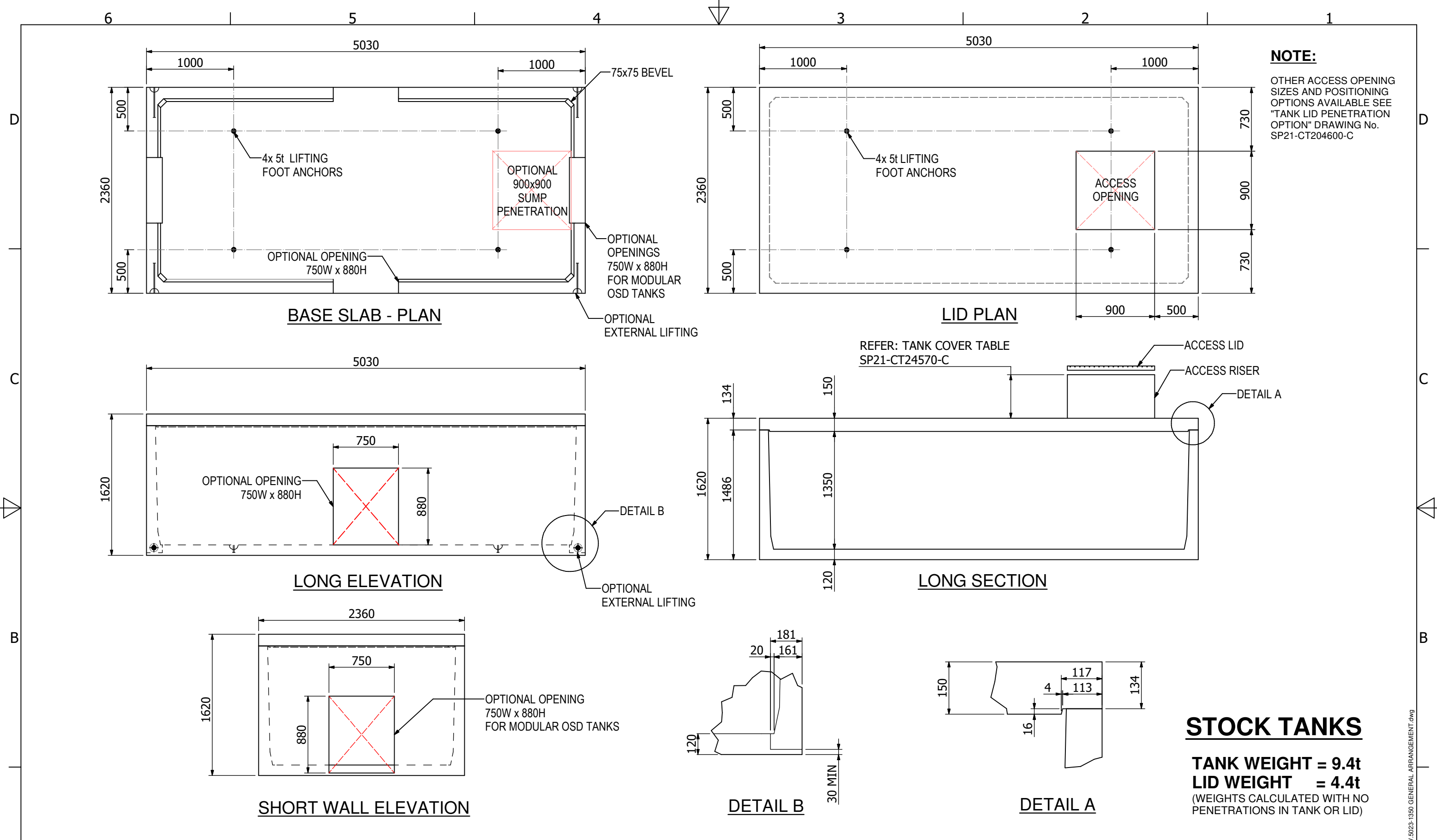
SHEET
1

REV
2

CUSTOMER CODE :

DWG No.
SP21-CT24570-C

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STOCK TANKS

TANK WEIGHT = 9.4t
LID WEIGHT = 4.4t
(WEIGHTS CALCULATED WITH NO PENETRATIONS IN TANK OR LID)

1	05/21	G.T	INITIAL RELEASE	
2	10/21	GT	GENERAL AMENDMENTS	
REV	DATE	BY	DESCRIPTION	CHK

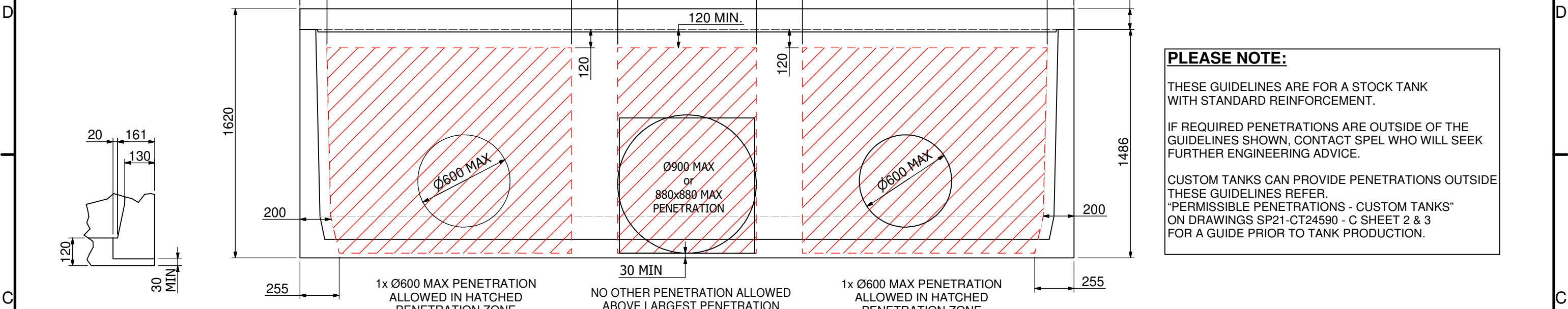
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Verified	Date
Approved	Date
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PROJECT :

TITLE
GENERAL ARRANGEMENT
13.70 kL SPEL PRECAST CONCRETE TANK
SV.5023-1350

SCALE N.T.S	SIZE A3	SHEET 1	REV 2
CUSTOMER CODE : DWG No.		SP21-CT24580-C	



PLEASE NOTE:

THESE GUIDELINES ARE FOR A STOCK TANK WITH STANDARD REINFORCEMENT.

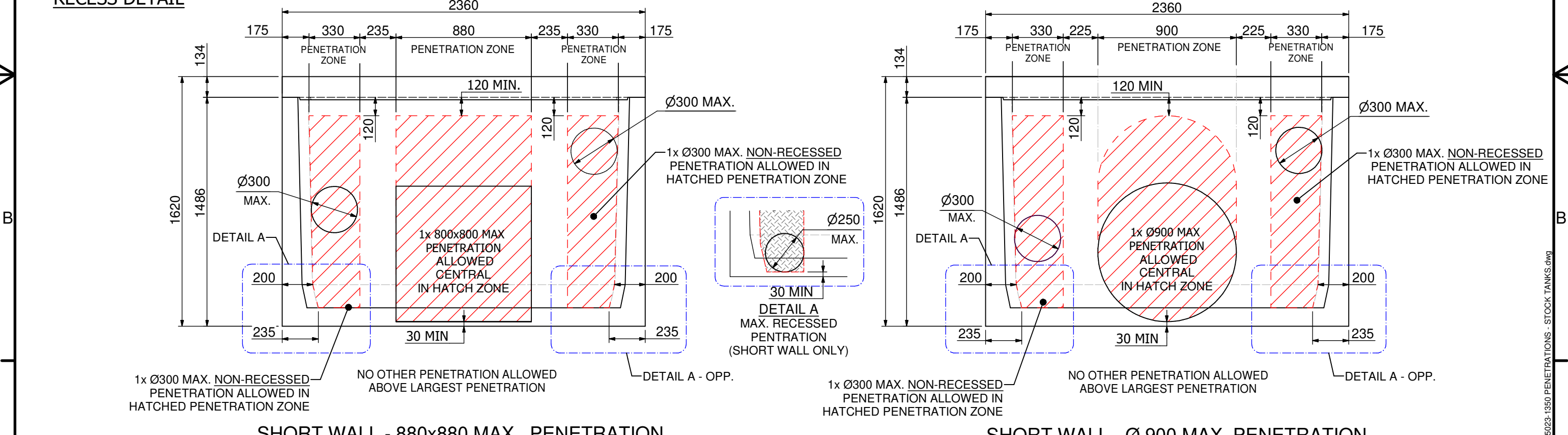
IF REQUIRED PENETRATIONS ARE OUTSIDE OF THE GUIDELINES SHOWN, CONTACT SPEL WHO WILL SEEK FURTHER ENGINEERING ADVICE.

CUSTOM TANKS CAN PROVIDE PENETRATIONS OUTSIDE THESE GUIDELINES REFER.

"PERMISSIBLE PENETRATIONS - CUSTOM TANKS"

ON DRAWINGS SP21-CT24590 - C SHEET 2 & 3
FOR A GUIDE PRIOR TO TANK PRODUCTION.

LONG WALL - SINGLE LARGEST PERMISSIBLE PENETRATION



SHORT WALL - Ø 900 MAX PENETRATION

1	07/21	G.T	INITIAL RELEASE	
2	10/21	GT	DRAWING SET EXPANDED	
REV	DATE	BY	DESCRIPTION	CHK

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Drawn GT	Date 7/04/2021
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Approved	Date
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PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 13.70kL SPEL PRECAST CONCRETE TANK SV.5023-1350- STOCK TANKS			
SCALE N.T.S	SIZE A3	SHEET 1	REV 2

SP21-CT24590-C

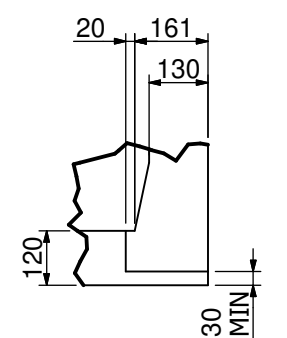
CUSTOM TANKS

IMPORTANT NOTE:

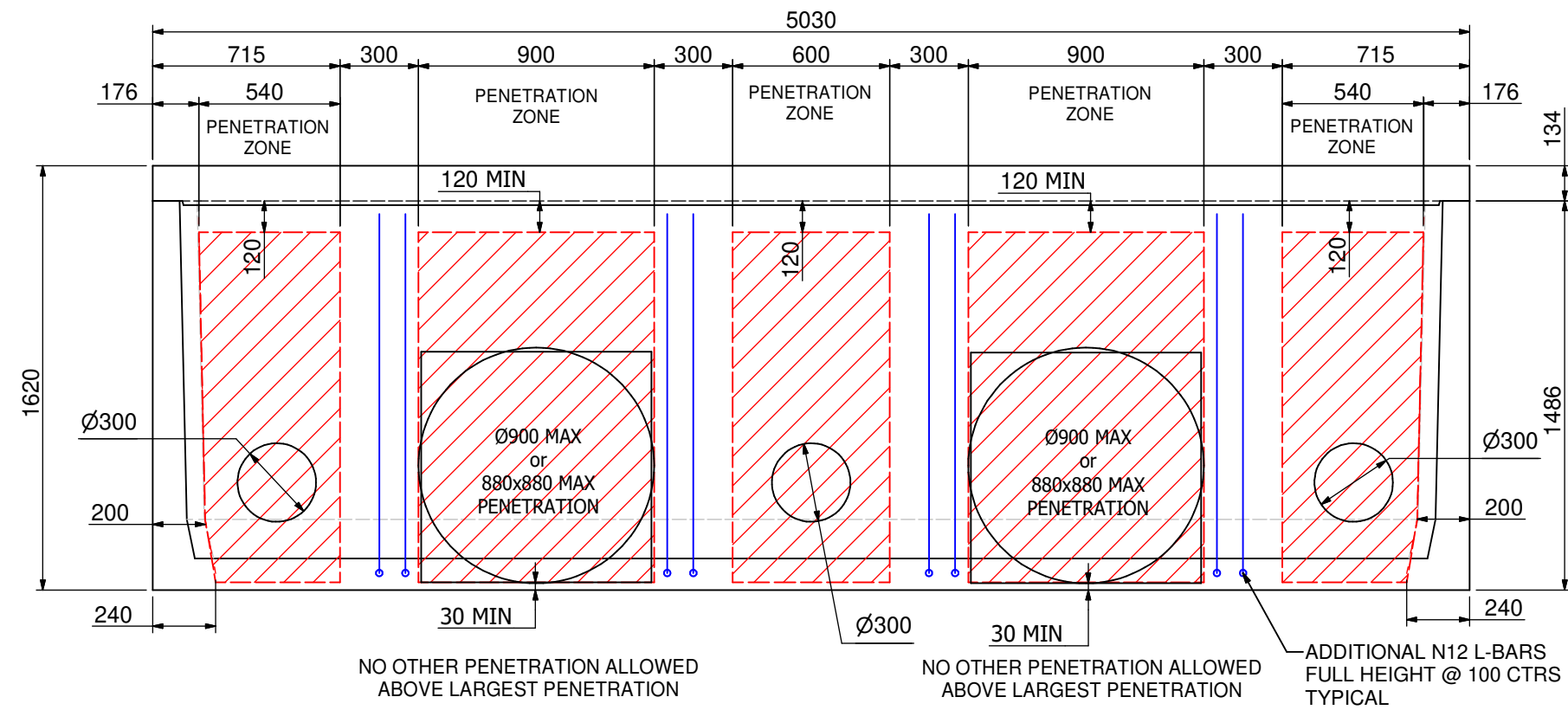
THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH SPEL, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

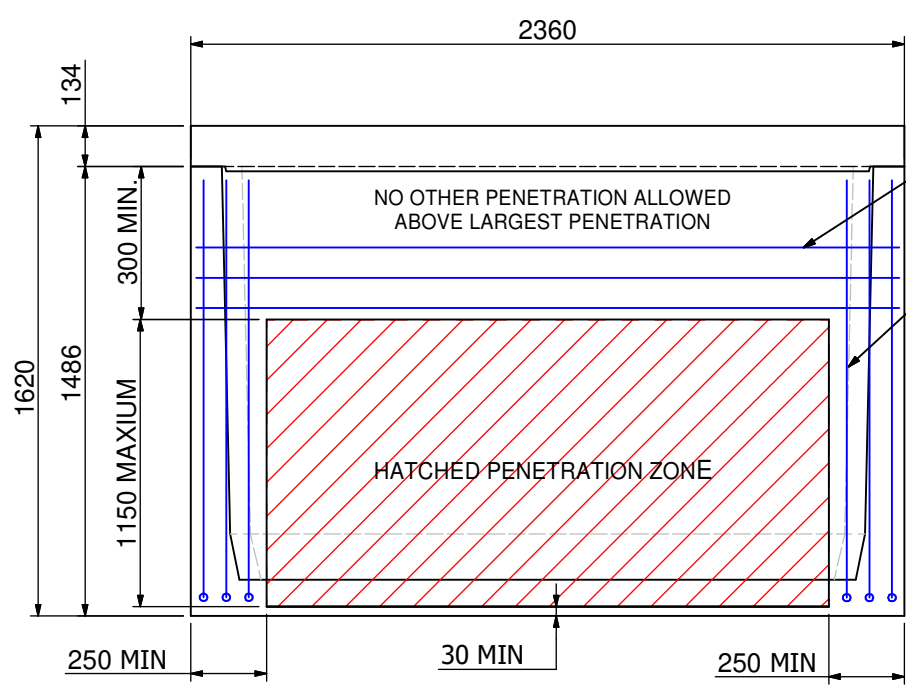
FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING SP21-CT24590-C SHEET 1 FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT SPEL FOR DESIGN / ENGINEERING ASSISTANCE.



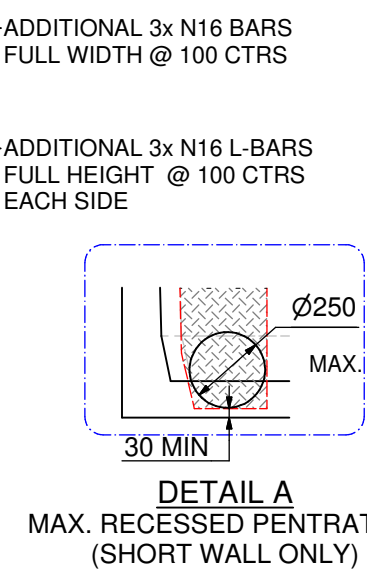
TYPICAL BASE RECESS DETAIL



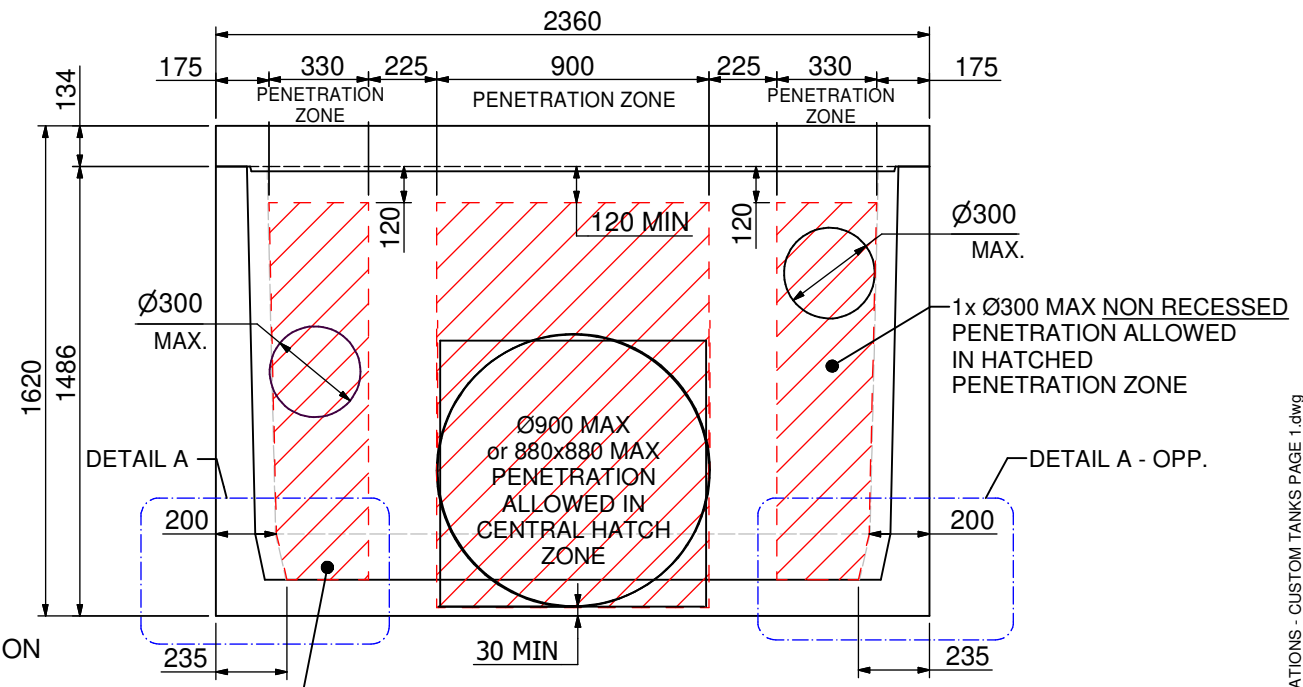
LONG WALL - 2x LARGEST PERMISSIBLE PENETRATIONS



SHORT WALL - MAX. CUSTOM PENETRATION



1x Ø300 MAX NON RECESSED PENETRATION ALLOWED IN HATCHED PENETRATION ZONE



SHORT WALL - Ø 900 MAX PENETRATION

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GT	7/04/2021
Check	Date
Verified	Date
Approved	Date
Request No.	



PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 13.70 kL SPEL PRECAST CONCRETE TANK SV.5023-1350- CUSTOM TANKS			
SCALE N.T.S	SIZE A3	SHEET 2	REV 1
CUSTOMER CODE : DWG No.		SP21-CT24590-C	

1	10/11/2020	G.T	INITIAL RELEASE	
REV	DATE	BY	DESCRIPTION	CHK

SV.5023-1350 PENETRATIONS - CUSTOM TANKS PAGE 1.dwg

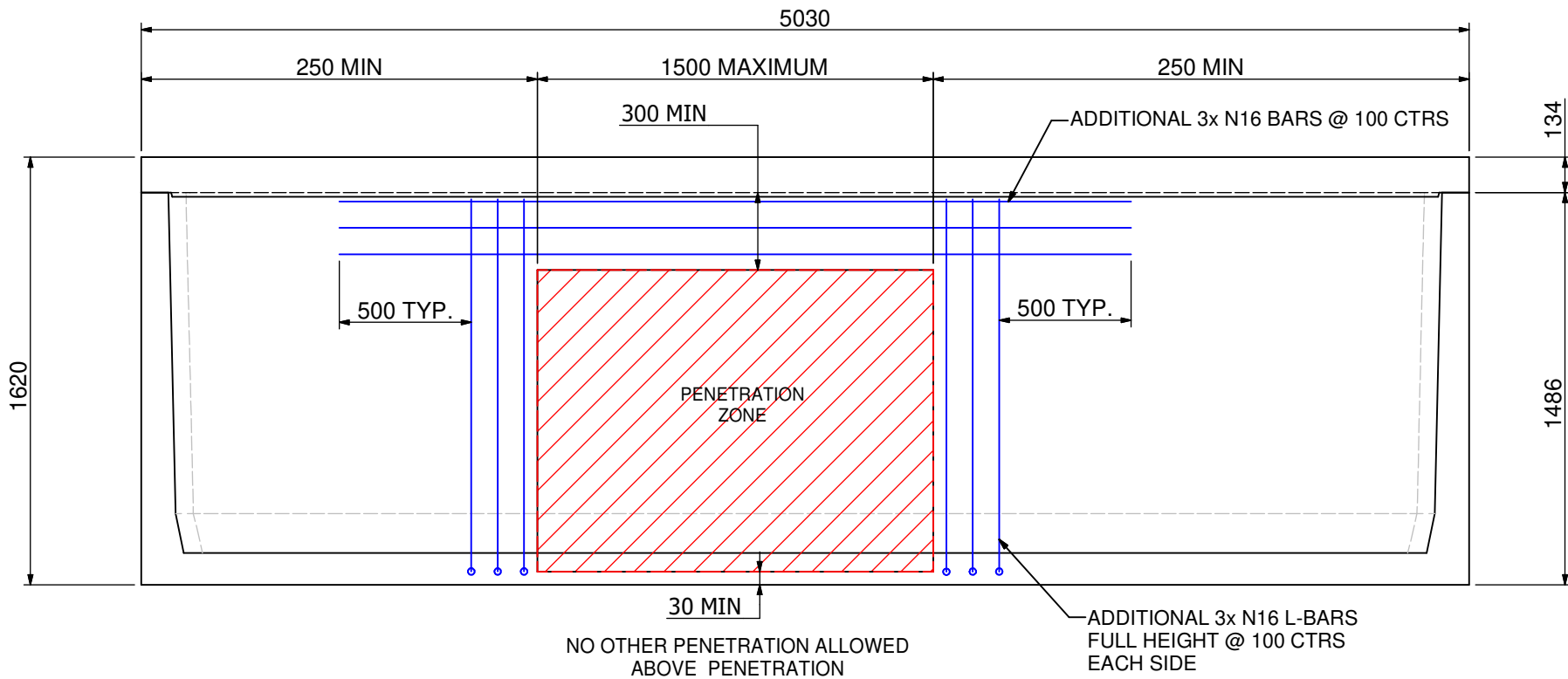
CUSTOM TANKS

IMPORTANT NOTE:

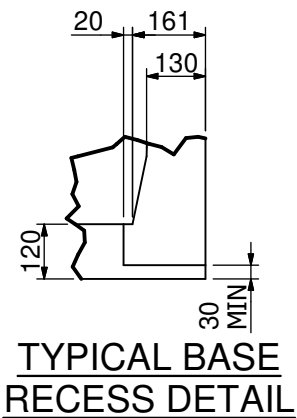
THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH SPEL, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING SP21-CT24590-C SHEET 1 FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT SPEL FOR DESIGN / ENGINEERING ASSISTANCE.



LONG WALL - MAXIMUM SINGLE PENETRATION



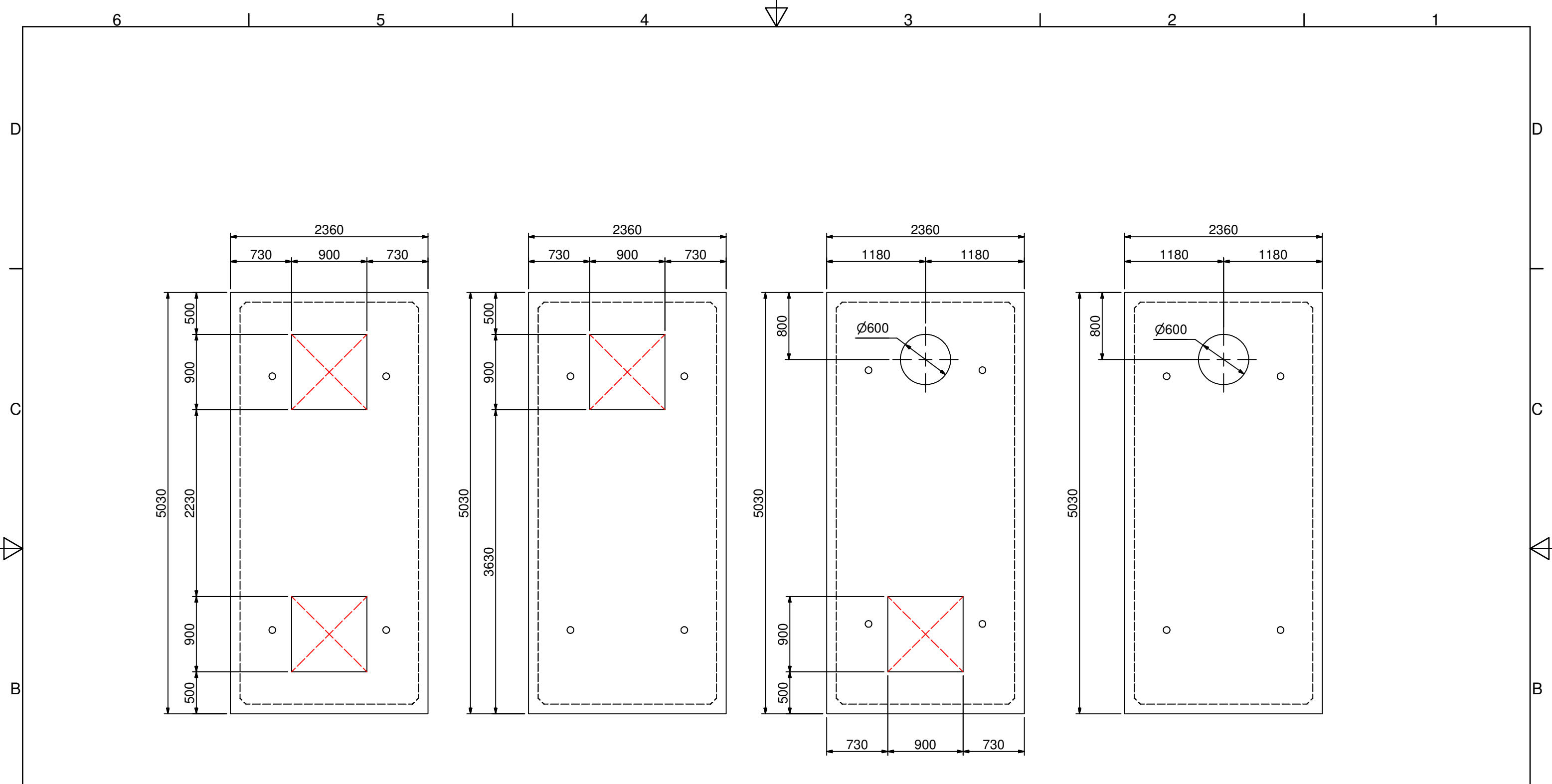
1	10/11/2020	G.T	INITIAL RELEASE	
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Verified	Date
Approved	Date
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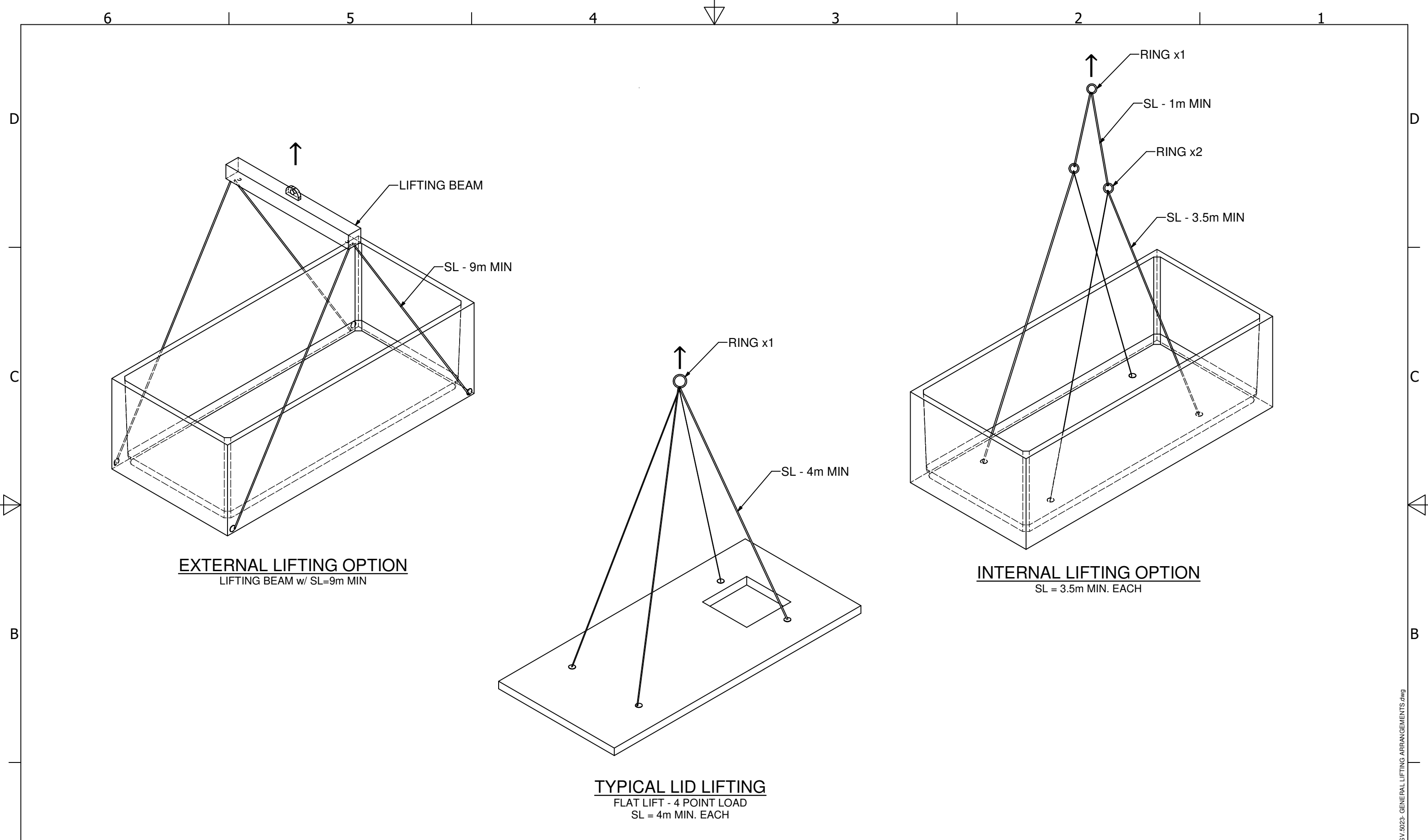
PROJECT :			
TITLE PERMISSIBLE PENETRATIONS 13.70 kL SPEL PRECAST CONCRETE TANK SV.5023-1350- CUSTOM TANK			
SCALE N.T.S	SIZE A3	SHEET 3	REV 1
CUSTOMER CODE :		DWG No. SP21-CT24590-C	



STANDARD LID FORMATIONS
FOR ADDITIONAL ACCESS OPENING AND POSITIONING OPTIONS
CONTACT SPEL

<div>1</div> <div>08/04/21</div> <div>G.T</div> <div>INITIAL RELEASE</div> <div>REV</div> <div>DATE</div> <div>BY</div> <div>DESCRIPTION</div> <div>CHK</div>					CLIENT:	<p>CONFIDENTIAL - The drawings must not be disclosed to any third parties without written permission from SPEL STORMWATER . Unauthorised disclosure may result in prosecution. © SPEL STORMWATER - This drawing is the property of SPEL STORMWATER ABN: 83 151 832 629 and is subject to return on demand. It is submitted for the use only in connection with the proposal and contracts of SPEL STORMWATER with the expressed conditions that it is not to be reproduced or copied in any form. This data must only be used in accordance with our standard terms and conditions. © Copyright SPEL STORMWATER accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL STORMWATER for confirmation of current specifications.</p>	Drawn G.T	Date 9/04/2021	<div> spelstormwater joy in water spel.com.au</div>	PROJECT :			
							Check	Date		TITLE TANK LID PENETRATION OPTIONS SPEL PRECAST CONCRETE TANK SV.5023			
Verified	Date	SCALE N.T.S	SIZE A3	SHEET 1	REV 1								
Approved	Date	CUSTOMER CODE : DWG No. SP21-CT24600-C											
Request No.													


SV.5023- STD LID TYPES.dwg



EXTERNAL LIFTING OPTION
LIFTING BEAM w/ SL=9m MIN

TYPICAL LID LIFTING
FLAT LIFT - 4 POINT LOAD
SL = 4m MIN. EACH

INTERNAL LIFTING OPTION
SL = 3.5m MIN. EACH

<div><div>11/21</div><div>GT</div><div>INITIAL ISSUE</div></div>					CLIENT:	<p>CONFIDENTIAL - The drawings must not be disclosed to any third parties without written permission from SPEL STORMWATER . Unauthorised disclosure may result in prosecution. © SPEL STORMWATER - This drawing is the property of SPEL STORMWATER ABN: 83 151 832 629 and is subject to return on demand. It is submitted for the use only in connection with the proposal and contracts of SPEL STORMWATER with the expressed conditions that it is not to be reproduced or copied in any form. This data must only be used in accordance with our standard terms and conditions. © Copyright SPEL STORMWATER accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL STORMWATER for confirmation of current specifications.</p>	Drawn GT	Date 9/11/2021	<div><div></div><div>spelstormwater</div><div>joy in water</div><div>spel.com.au</div></div>	PROJECT :			
							Check	Date		TITLE GENERAL LIFTING ARRANGEMENT SPEL PRECAST CONCRETE TANK SV.5023			
Verified	Date	SCALE N.T.S				SIZE A3	SHEET 1	REV 1					
Approved	Date	CUSTOMER CODE : Request No.				DWG No. SP21-CT48180-C							
REV	DATE	BY	DESCRIPTION	CHK									