規劃署
粉嶺、上水及元朗東規劃處
新界荃灣青山公路388號
中染大廈22樓2202室

Planning Department
Fanling, Sheung Shui & Yuen Long East
District Planning Office
Unit 2202, 22/F, CDW Building,
388 Castle Peak Road, Tsuen Wan, N.T.

來函檔號	Your Reference:	
本署檔號	Our Reference:	( ) in TPB/A/YL-MP/341
電話號碼	Tel. No. :	3168 4037 / 3168 4072
傳真機號碼	Fax No. :	3168 4074 / 3168 4045

By Post and Fax [redacted]
18 March 2026

[redacted]

Dear Madam,

Compliance with Approval Condition (g) –
Implementation of the Mitigation Measures as identified
in the Revised Sewerage Impact Assessment

Proposed Temporary Light Public Housing Development for a Period of 3 Years and Associated Filling and Excavation of Land in "Recreation" and "Residential (Group C)" Zones, Various Lots in D.D. 104 and Adjoining Government Land, Yau Pok Road, Mai Po, Yuen Long

(Planning Application No. A/YL-MP/341)

I refer to your submission dated 13.2.2026 for compliance with the captioned approval condition. Relevant departments have been consulted on your submission. Your submission is considered:

☑ Acceptable. The captioned condition **has been complied with**.

☐ Acceptable. Since the captioned condition requires both the submission and implementation of the proposal, it **has not been fully complied with**.

☐ Not acceptable. The captioned condition **has not been complied with**.

Please refer to the advisory comments from the Chief Engineer/Mainland North of Drainage Services Department (DSD) at **Appendix**. Should you have any queries, please contact Ms. KWAN Ching Kei, Jessica (Tel.: 3965 8924) of DSD and Mr. WONG Chi Chung (Tel.: 2835 1145) of the Environmental Protection Department directly.

Yours faithfully,

(Josephine LO)
District Planning Officer/
Fanling, Sheung Shui and Yuen Long East
Planning Department

c.c.
CE/MN, DSD (Attn: Ms. KWAN Ching Kei, Jessica)
DEP (Attn: Mr. WONG Chi Chung, Chris)
CTP/TPB(3)

JL/SYL/cl

Appendix

Advisory comments from the Chief Engineer/Mainland North, DSD:

The applicant should be reminded to note the following general comments / reminders:

1. The applicant should properly maintain the implemented sewerage facilities on site in good condition.
2. The proposed development should not cause adverse sewerage impact.
3. The applicant is required to rectify the sewerage system if it is found to be inadequate or ineffective during operation. The applicant shall also be liable for and shall indemnify claims and demands arising out of damage or nuisance caused by failure of the sewerage system.

☒ Urgent ☐ Return Receipt Requested ☐ Sign ☐ Encrypt ☐ Mark Subject Restricted ☐ Expand personal&public g

Re: [REMINDER] Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

12/03/2026 18:30

From: Ching Kei KWAN/MND/DSD/HKSARG
To: "Jessie Sin Yee LAU/PLAND" <jsylau@pland.gov.hk>, "Chloe Kit Ying LEUNG/PLAND" <ckyleung@pland.gov.hk>
Cc: "Fei Kit CHEUNG/MND/DSD" <fkcheung@dsd.gov.hk>, "Yen PY LEUNG/PLAND" <pyleung@pland.gov.hk>
Bcc: Dennis Yiu Keung KWAN/ST1/DSD <ykkwan@dsd.gov.hk>, Chi Wai KWAN/MND/DSD/HKSARG@DSD, Yiu Ting PANG/MND/DSD/HKSARG@DSD
Serial No.:

Ref.: (01EMD2) in MN 10/YL/DD104/3054

Dear Jessie / Chloe (PlanD),

Further to our on-site inspection carried out on 12 March 2026 and subject to EPD's agreement, the as-built sewerage facilities is considered acceptable for compliance with approval condition (g) under the captioned planning application. Nevertheless, the
applicant should be reminded to note the following general comments / reminders.

(i) The applicant should properly maintain the implemented sewerage facilities on site in good condition.

(ii) The proposed development should not cause adverse sewerage impact.

(iii) The applicant is required to rectify the sewerage system if it is found to be inadequate or ineffective during operation. The applicant shall also be liable for and shall indemnify claims and demands arising out of damage or nuisance caused by failure of the sewerage system.

This is a coordinated reply from Mainland North Division and Sewage Treatment Division 1.

Thanks & Regards,
Jessica Kwan
Con PC/YL3, MND, DSD
Tel: 3965 8924

Ching Kei KWAN | Dear Jessie / Chloe (PlanD), Please note that we... | 10/03/2026 15:10:23

From: Ching Kei KWAN/MND/DSD/HKSARG
To: "Jessie Sin Yee LAU/PLAND" <jsylau@pland.gov.hk>
Cc: "Fei Kit CHEUNG/MND/DSD" <fkcheung@dsd.gov.hk>, "Chloe Kit Ying LEUNG/PLAND" <ckyleung@pland.gov.hk>, "Yen PY LEUNG/PLAND" <pyleung@pland.gov.hk>
Date: 10/03/2026 15:10
Subject: Re: [REMINDER] Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

Serial No.:

Dear Jessie / Chloe (PlanD),

Please note that we had contacted the applicant for inspection of the as-built sewerage system on 24 February 2026 and the applicant replied us that the as-built sewerage system is not ready for our inspection. We contacted the applicant again in this morning and the applicant replied us that the site will be ready for our inspection on 16 March 2026. Please be advised that this Office is available for earlier inspection in order to facilitate the process.



Cover Letter_S3114_YPR_LPH_23_014Lg_woe.pdf

Thanks & Regards,
Jessica Kwan
Con PC/YL3, MND, DSD
Tel: 3965 8924

"Jessie Sin Yee LAU | Dear Chris and Jessica, I refer to the email dat... | 10/03/2026 10:46:20

From: "Jessie Sin Yee LAU/PLAND" <jsylau@pland.gov.hk>
To: "CC WONG/EPD" <ccwong@epd.gov.hk>, "Jessica Ching Kei KWAN/MND/DSD" <ckkwan02@dsd.gov.hk>
Cc: "Fei Kit CHEUNG/MND/DSD" <fkcheung@dsd.gov.hk>, "Yen PY LEUNG/PLAND" <pyleung@pland.gov.hk>, "Chloe Kit Ying LEUNG/PLAND" <ckyleung@pland.gov.hk>
Date: 10/03/2026 10:46
Subject: Re: [REMINDER] Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)
Serial No.:

Dear Chris and Jessica,

I refer to the email dated 16.2.2026 appended below, seeking your comments on the submission for compliance with the captioned approval condition.

As your comments are still awaited, grateful for your comments **by c.o.b. today** please.

Regards,
Jessie SY LAU
TP/YLE8, FS&YLE DPO
Planning Department

Tel: 3168 4037

From: Chloe Kit Ying LEUNG/PLAND <ckyleung@pland.gov.hk>
Sent: Monday, February 16, 2026 11:45 AM
To: CC WONG/EPD <ccwong@epd.gov.hk>; Jessica Ching Kei KWAN/MND/DSD <ckkwan02@dsd.gov.hk>
Cc: Jessie Sin Yee LAU/PLAND <jsylau@pland.gov.hk>; Yen PY LEUNG/PLAND <pyleung@pland.gov.hk>
Subject: [Reply by 9.3.2026] Planning Application No. A/YL-MP/341 - Submission for Compliance

with Approval Condition (g)

Dear both,

Submission for Compliance with Approval Condition (g)
(Planning Application No. A/YL-MP/341)

On 13.2.2026, the applicant submitted a certificate of completion, photo records as well as AIP and DDA Submission of Sewerage Holding Tank (Structure) for the implementation of the mitigation measures as identified in the revised sewerage impact assessment for compliance with approval condition (g).

Condition (g) the implementation of the mitigation measures as identified in the revised sewerage impact assessment before the occupation of the proposed development to the satisfaction of the Director of Drainage Services and the Director of Environmental Protection or of the TPB

2. The subject application for Planning Approval for Proposed Temporary Light Public Housing Development and Associated Filling and Excavation of Land was approved by the RNTPC on 9.6.2023 for a period of 3 years until 9.6.2026, subject to, inter alia, the fulfilment of the above condition.

3. Attached cover letter for your review please. Please kindly access the full submission via File Exchange Services:
https://fespld.pland.gov.hk/FsShare?key=3b2ff989b75c31da6322541704de69f08810d348834a3650e72aaa30f900e485

[attachment "Cover Letter_S3114_YPR_LPH_23_014Lg_woe.pdf" deleted by Jessie Sin Yee LAU/PLAND]

4. I would be grateful if you could advise whether the submission is satisfactory for compliance with the captioned approval condition **on or before 9.3.2026 (Monday)**. Thank you.

Regards,
Chloe LEUNG
TPG/FSYLE5
Tel: 3168 4028



☐ Urgent ☐ Return Receipt Requested ☐ Sign ☐ Encrypt ☐ Mark Subject Restricted

Fw: Yau Pok Road Light Public Housing , Yuen Long - Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

13/03/2026 07:04 PM

From: Hyde HT MAK/EPD/HKSARG@EPD
To: Pak Him CHIU/PLAND <phchiu@pland.gov.hk>
Cc: Chloe Kit Ying LEUNG/PLAND <ckyleung@pland.gov.hk>, "Jessie Sin Yee LAU/PLAND" <jsylau@pland.gov.hk>, pyleung@pland.gov.hk, CC WONG/EPD/HKSARG@EPD, Mandy Yue Wai LAM/ARCHSD/HKSARG@ARCHSD, Esther Ling Fung LEE/ARCHSD/HKSARG@ARCHSD

History: This message has been forwarded.

Dear Kimson,

Re. the subject case, based on the site inspection result by DSD, we consider that the as-built sewerage facilities is acceptable for compliance with **approval condition (g)** under the captioned planning application.

Our Mr. Chris WONG has provided a reply to PlanD expressing comments on the applicant's submission (see attached email on 10/3/2026). In this connection, by copy to Mandy/ArchSD, grateful for your follow up on these information for our proper record. Thanks.

regards,
Hyde MAK
EPD

EPD reply 20260310.pdf *(File-Checksum-00000001)*

----- Forwarded by CC WONG/EPD/HKSARG on 13/03/2026 18:15 -----

From: Mandy Yue Wai LAM/ARCHSD/HKSARG@ARCHSD
To: htmak@epd.gov.hk
Cc: CC WONG/EPD/HKSARG@EPD, Esther Ling Fung LEE/ARCHSD/HKSARG
Date: 13/03/2026 18:14
Subject: Yau Pok Road Light Public Housing, Yuen Long - Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

Dear Hyde,

We spoke just now. Please note that DSD has advised PlanD that the as-built sewerage facilities is considered acceptable for compliance with **approval condition (g)** under the captioned planning application. I forwarded herewith DSD's email to PlanD for your information, please.

Thanks.

Regards,
Mandy LAM
SA/34
ArchSD
Tel 2154 3145 . Fax 2530 3087

----- Forwarded by Mandy Yue Wai LAM/ARCHSD/HKSARG on 13/03/2026 06:08 PM -----

From: Esther Ling Fung LEE/ARCHSD/HKSARG
To: ccwong@epd.gov.hk
Cc: Mandy Yue Wai LAM/ARCHSD/HKSARG@ARCHSD
Date: 13/03/2026 05:01 PM

Subject: Fw: Yau Pok Road Light Public Housing, Yuen Long - Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

Dear Chris,

Refer to the Planning Application No. A/YL-MP/341 for Light Public Housing at Yau Pok Road, Yuen Long, please find below DSD's reply to PlanD for your information.

[attachment "20260312 DSD reply (01EMD2).pdf" deleted by CC WONG/EPD/HKSARG]
Please note that DSD has carried out a site inspection on 12 March 2026 regarding the sewerage mitigation measures as stipulated in the Sewerage Impact Assessment and noted that the as-built sewerage facilities is considered acceptable for compliance with **approval condition (g)** under the captioned planning application.

Thank you.
Regards,
Esther LEE
A/304, ArchSD
Tel: 2154 3147
----- Forwarded by Esther Ling Fung LEE/ARCHSD/HKSARG on 13/03/2026 04:19 PM -----

From: Ching Kei KWAN/MND/DSD/HKSARG@DSD
To: Mandy Yue Wai LAM/ARCHSD/HKSARG@ARCHSD
Cc: Chi Wai KWAN/MND/DSD/HKSARG@DSD, Cyrus HC CHEUNG/HD <cyrushc.cheung@hd.gov.hk>, Esther Ling Fung LEE/ARCHSD/HKSARG@ARCHSD, Fiona WY LAM/HD/HKSARG@HD, fkcheung@dsd.gov.hk, King Chi LAM/HD <kingchi.lam@hd.gov.hk>, Paul Chun Kau LEE/ARCHSD/HKSARG@ARCHSD, Yiu Ting PANG/MND/DSD/HKSARG@DSD
Date: 12/03/2026 06:34 PM
Subject: Re: Yau Pok Road Light Public Housing, Yuen Long - Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

Dear Mandy (ArchsD),

Please find our reply to PlanD regarding compliance of the captioned approval condition under planning application (No. A/YL-MP/341) for your information.

[attachment "20260312 DSD reply (01EMD2).pdf" deleted by CC WONG/EPD/HKSARG]

Thanks & Regards,
Jessica Kwan
Con PC/YL3, MND, DSD
Tel: 3965 8924

Mandy Yue Wai LAM | Dear Ms KWAN, Thank you for your prompt fo... | 10/03/2026 19:30:06

From: Mandy Yue Wai LAM/ARCHSD/HKSARG@ARCHSD
To: Ching Kei KWAN/MND/DSD/HKSARG@DSD
Cc: Cyrus HC CHEUNG/HD <cyrushc.cheung@hd.gov.hk>, Paul Chun Kau LEE/ARCHSD/HKSARG@ARCHSD, King Chi LAM/HD <kingchi.lam@hd.gov.hk>, Fiona WY LAM/HD/HKSARG@HD, fkcheung@dsd.gov.hk, Chi Wai KWAN/MND/DSD/HKSARG@DSD, Yiu Ting PANG/MND/DSD/HKSARG@DSD, Esther Ling Fung LEE/ARCHSD/HKSARG
Date: 10/03/2026 19:30
Subject: Yau Pok Road Light Public Housing, Yuen Long - Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)
Serial No.:

Dear Ms KWAN,

Thank you for your prompt follow-up action today.
Regarding the approval condition (g) under the captioned planning application (No. A/YL-MP/341), we note that no supplementary information is required to be

submitted to DSD, but an inspection of the as-built sewerage system is required for DSD.

As Yau Pok Road Light Public Housing has already been handed over to Housing Bureau (HB) in March 2025 for operation and resident intake, we are now coordinating with HB and their operator (領先管理有限公司–東華三院聯營) to arrange the inspection for your office as soon as possible, hopefully within this week.

I take the liberty to copy this email to HB Vincent for his information, please.

Thanks.

Regards,
Mandy LAM
SA/34
ArchSD
Tel 2154 3145 . Fax 2530 3087
----- Forwarded by Mandy Yue Wai LAM/ARCHSD/HKSARG on 10/03/2026 07:14 PM -----
From: Ching Kei KWAN/MND/DSD/HKSARG@DSD
To: lamyw2@archsd.gov.hk
Cc: Fei Kit CHEUNG/MND/DSD <fkcheung@dsd.gov.hk>, Chi Wai KWAN/MND/DSD/HKSARG@DSD, Yiu Ting PANG/MND/DSD/HKSARG@DSD
Date: 10/03/2026 06:38 PM
Subject: Fw: [REMINDER] Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)

Dear Mandy (ArchsD),

Please find our reply to PlanD regarding the compliance of the captioned approval condition under planning application (No. A/YL-MP/341) for your information. Please be advised that this **Office is available for earlier inspection in order to facilitate the planning application process** and we had reached the application site in this afternoon for preliminary inspection.

Please note that we contacted KTA Planning Limited at 3426 8840 for inspection arrangement and 其士 replied us the inspection arrangement.

Thanks & Regards,
Jessica Kwan
Con PC/YL3, MND, DSD
Tel: 3965 8924
----- Forwarded by Ching Kei KWAN/MND/DSD/HKSARG on 10/03/2026 18:28 -----
From: Ching Kei KWAN/MND/DSD/HKSARG
To: "Jessie Sin Yee LAU/PLAND" <jsylau@pland.gov.hk>
Cc: "Fei Kit CHEUNG/MND/DSD" <fkcheung@dsd.gov.hk>, "Chloe Kit Ying LEUNG/PLAND" <ckyleung@pland.gov.hk>, "Yen PY LEUNG/PLAND" <pyleung@pland.gov.hk>
Date: 10/03/2026 15:10
Subject: Re: [REMINDER] Planning Application No. A/YL-MP/341 - Submission for Compliance with Approval Condition (g)
Serial No.:

Dear Jessie / Chloe (PlanD),

Please note that we had contacted the applicant for inspection of the as-built sewerage system on 24 February 2026 and the applicant replied us that the as-built sewerage system is not ready for our inspection. We contacted the applicant again in this morning and the applicant replied us that the site will be ready for our inspection on 16 March 2026. Please be advised that this Office is available for earlier inspection in order to facilitate the process.

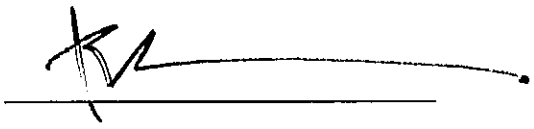
[attachment "Cover Letter_S3114_YPR_LPH_23_014Lg_woe.pdf" deleted by Mandy Yue Wai LAM/ARCHSD/HKSARG]

Thanks & Regards,
Jessica Kwan
Con PC/YL3, MND, DSD
Tel: 3965 8924

Completion Report for the Sewage Pumping Station

Light Public Housing at Yau Pok Road, Yuen Long

Acting as the Authorized Person for the captioned project, I confirm that all works for the Sewage Pumping Station at Light Public Housing at Yau Pok Road, Yuen Long comply with the specified requirements and standards as noted under the Sewerage Impact Assessment (SIA) Report.



ZHOU Raymond Chun Sum

AP No.: AP(A) 34/07

Date: 16 March 2026

Part A : Background

Extract from Sewage Impact Assessment (SIA) Report on the proposed Effluent Treatment at the proposed Sewage Pumping Station:

2.4 Proposed Effluent Treatment

Proposed Sewage Pumping Station

2.4.1 As the Application Site is not served by any public sewerage, it is required to provide their own sewage treatment or disposal facilities to ensure the sewage can be discharged in a proper manner and hence achieving the best protection to the public and the nearby environment. On-site Sewage Pumping Stations (hereafter as "SPS") are recommended for the Indicative Scheme to be constructed on the Application Site to ensure the sewage generated from the Indicative Scheme will be discharged and pumped to nearby public pumping station for further treatment. The total design ADWF of the proposed SPS is 1056 m^3/day (with the adopted pumping capacity of 0.064 m^3/s). The SPS will then pump the generated sewage to the Nam Sang Wai Sewage Pumping Station ("NSWSPS") located at southeast side of the Proposed Development. It is demonstrated that the proposed SPS have sufficient capacity to cater for the sewage generated from the Proposed Development in the future.

2.4.2 The effluent discharge from the Proposed Development will be collected by the holding tank via underground drainage system by gravity. The sewage will be discharged to holding tanks with screening which will be constructed in dry-pit arrangement. The total maximum flow rate of north and south side shall not exceed 37 L/s. The sewage will then be diverted from the holding tank by sump pumps to the proposed SPS to be constructed by Drainage Services Department ("DSD"). Subsequently, the proposed SPS will pump the sewage through a proposed twin rising main to be constructed by DSD to NSWSPS. The sewage discharged from the Proposed Development is conveyed to Yuen Long Sewage Treatment Works ("YLSTW") for further treatment and ultimate disposal.

2.4.3 Based on the information provided by DSD, the design capacity of NSWSPS is 42,921 m^3/day. The rolling average flow data from March 2022 to February 2023 showed that the existing flow handling by NSWSPS is 3,625 m^3/day. With the Proposed Development, the total handling flow of NSWSPS will be 4681 m^3/day, where only 10.76% of the capacity is occupied. NSWSPS has 3 pumps in total (2 duty, 1 standby) and design capacity for each NSWSPS's pump is 0.738 m^3/s, while as mentioned in S.2.4.1, the pumping capacity of the proposed SPS will be 0.064 m^3/s. Hence, the SPS has adequate pumping capacity for the sewage pumped from the proposed SPS. Therefore, the capacity of NSWSPS is adequate to cater for the additional flow from the operation of the Proposed Development.

2.4.4 The existing treatment capacity of the YLSTW is 35,000 m^3/day due to upgrading works. Based on the data provided by DSD, the existing flow handling by the YLSTW based on the rolling average flow data from March 2022 to February 2023 is 24,709 m^3/day, adding the sewage loading from the Proposed Development will only take up 73.61% in capacity of the YLSTW, which proven that no potential issue associated with increase in sewage generated by the Proposed Development. Upon completion of the stage 1 upgrading works, the treatment capacity of the YLSTW will be 100,000 m^3/day.

2.4.5 Owing to sufficient capacity to cater for the additional sewage flow generated from the Proposed Development, no adverse impact to public sewerage system associated with the Proposed Development is anticipated.

Proposed Sewage Rising Main

2.4.6 After collection of the sewage generated within the Proposed Development by the proposed SPS, it will be conveyed by 200 mm diameter twin rising mains with total length of approximately 1700m to be laid adjacent to Ngau Tam Mei Open Channel along Yau Pok Road and Pok Wai South Road before its connection to the existing NSWSPS. The location of the SPS and the proposed rising mains are shown in **Figure 2**. The site level is lower which causes the gravity sewer incapable to gravitate the sewage to the NSWSPS. Hence, rising main is proposed to pump the sewage. The sewage rising main is designed with sufficient capacity to convey the sewage.

Part B : Implementation of Mitigation Measures

The relevant mitigation measures as illustrated in the SIA has been completed and implemented on 24 December 2024. The occupation of the proposed development has commenced on 28 March 2025.

Part C: Record Photos

Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

Photo 1:

Pipe Connection from holding tank to DSD Pump Station (Zone 1 & 2)



Photo 2:

Pump Control Panel (Zone 2)



Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

Photo 3

Submersible Sewage Pump (Zone 2)

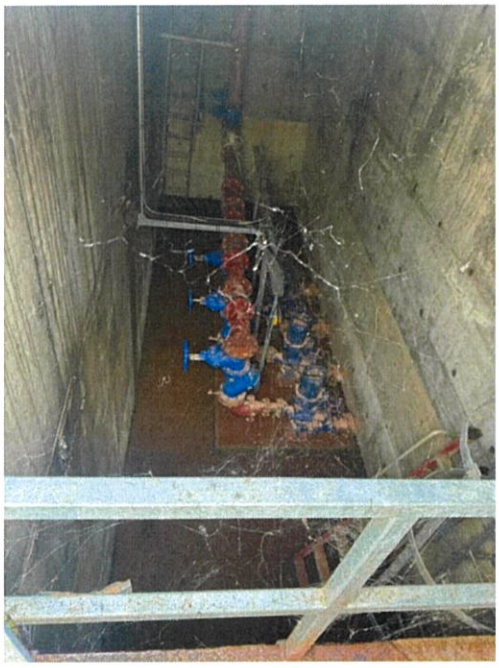


Photo 4:

Drainage Works (From Zone 2 to Zone 1)





Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

Photo 5:

Drainage Works (From Zone 2 to Zone 1)





Photo 6:

Drainage Works (From Zone 2 to Zone 1)





Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

Photo 7:

Pump Control Panel (Zone 1)



Photo 8:

Submersible Sewage Pump (Zone 1)



Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

Photo 9:

On-site Pumping Station (Zone 2)



Photo 10:

Aerial photo showing on-site Pumping Station (Zone 2)



Address: **Light Public Housing at Yau Pok Road, Yuen Long**	
Holding Tank Drainage Pump System Record Photos	**Completion Date: 23/12/2024**

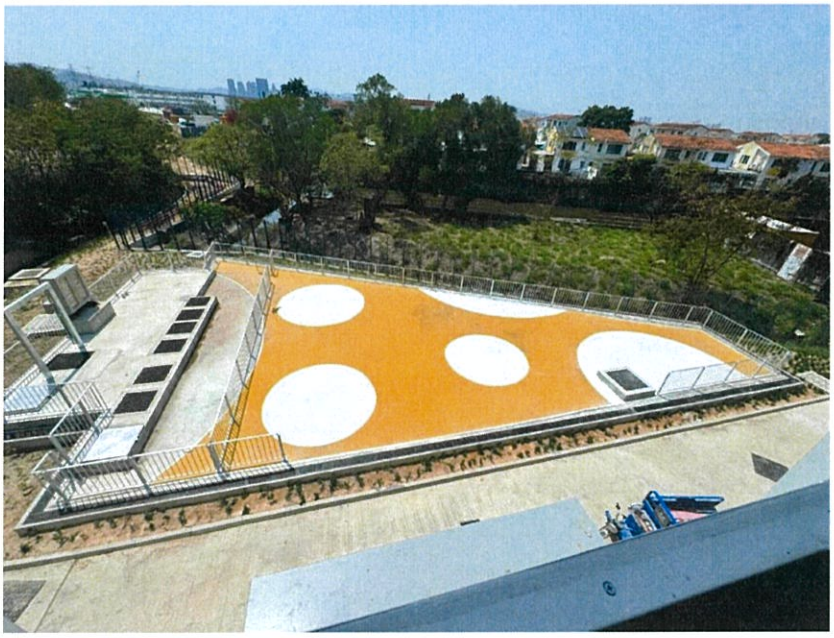
Photo 11:

Aerial photo showing on-site Pumping Station and Holding Tank (Zone 2)



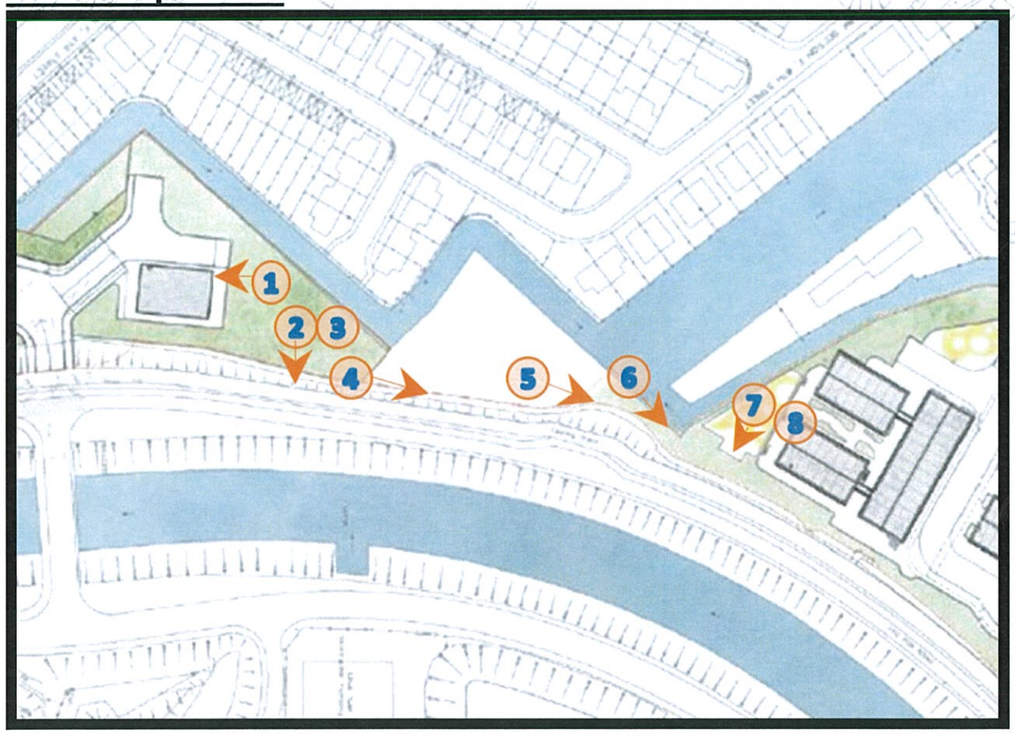
Photo 12:

Holding Tank (Zone 1)

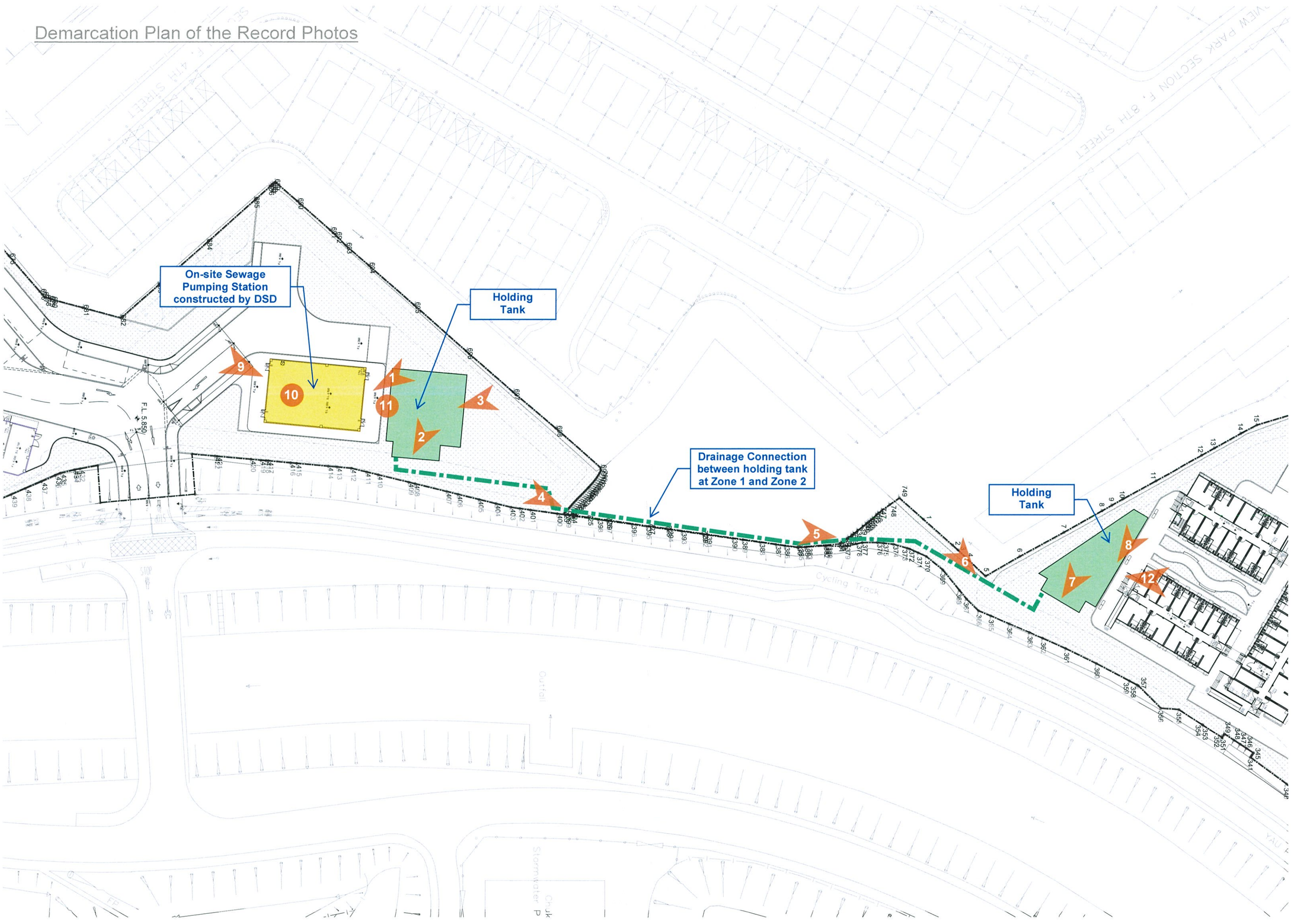


Demarcation Plan of the Record Photos

Blow Up Plan



Demarcation Plan of the Record Photos



PLANNING LIMITED
規劃顧問有限公司
[redacted]

By Email

Our Ref: S3114/YPR_LPH/23/014Lg

13 February 2026

Fanling, Sheung Shui &
Yuen Long East District Planning Office
Planning Department
Unit 2202
22/F CDW Building
388 Castle Peak Road
Tsuen Wan, N.T..

Attn: Ms Jessie Lau

Dear Jessie,

S16A(2) Application for Amendment to Permission
Approved Temporary Light Public Housing Development For a Period of 3 Years
at Various Lots in DD 104 and the Adjoining Government Land,
Yau Pok Road, Yuen Long
TPB Ref.: A/YL-MP/341
- Discharge of Approval Condition (g) -

Reference is made to the S16 Planning Application approved by the Town Planning Board on 9 June 2023. We hereby submit information to facilitate compliance with the following Planning Approval Condition:

(g) – "the implementation of the mitigation measures as identified in the revised sewerage impact assessment before the occupation of the proposed development to the satisfaction of the Director of Drainage Services and the Director of Environmental Protection or of the TPB"

Meanwhile, should you have any queries in relation to the above, please do not hesitate to contact Mr Kenneth To or the undersigned at [redacted]

Thank you for your kind attention.

Yours faithfully
For and on behalf of
KTA PLANNING LIMITED

Gladys Ng

Encl.

cc. the Applicant & Team

KT/GN/vy

bsi ISO 9001 Quality Management Systems
FS 579819

Certificate of Completion

Our Ref. : 23071-518/0335
Your Ref. : -
Date : 13 January 2025

RONALD LU & PARTNERS
呂元祥建築師事務所
ARCHITECTS | PLANNERS | INTERIOR DESIGNERS

BY EMAIL AND TO BE COLLECTED

[redacted]

Attn.: Mr. John Chow

Dear Sir,

Contract No. SS M518
Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long,
At Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok (Programme No. 002HL)
Certificate of Completion of *section* 1 of the *works*

We issued herewith the Certificate for Completion of *section* 1 of the works for your information and record.

The *defects date* of *section* 1 is 12 months after Completion of *section* 1 of the *works* or at the date of expiry of the period of the Establishment Works for *section* 1 of the *works*, whichever is the later.

Yours faithfully,
For and on behalf of
Ronald Lu & Partners (Hong Kong) Ltd.

Alfred Woo
Project Manager
Director

AN/ECY/kmy

Encl.
- 12.Form CC(230509)_section 1

[redacted]

Our Ref. : 23071-518/0335
Your Ref. : -
Date : 13 January 2025

RONALD LU & PARTNERS
呂元祥建築師事務所
ARCHITECTS | PLANNERS | INTERIOR DESIGNERS

BY EMAIL AND TO BE COLLECTED

Chevalier – China Railway Joint Venture
Attn.: Mr. John Chow

c.c.

Cost Manager	- ArchSD - CQS/1
Arcadis	- Ms Cynthia SZETO / Mr Tommy CHAN / Ms Ewa HO / Mr Liam LI
ArchSD	- Ms Mandy LAM (SA/34)

(by email and by hand)

Housing Bureau	- Mr Stephen LAM [PD(LPH)]
ArchSD	- Mr Edward WONG (PD2)
ArchSD	- Mr Paul LEE (CPM202)
ArchSD	- Mr Thomas KWOK (SPM227) / Ms Xenia KWAN (SA/32)
ArchSD	- Mr Jonathan CHAN (SPM235) / Mr Arthur Chan (CntTC/PMB2/2)
ArchSD	- Ms Esther LEE (A/304) / Mr Kann CHEUNG (PM272)
	- Ms Sophia AU (A/302) / Ms Kit LAW (PM248)
ArchSD	- Mr Alan Nip (PM228) / Mr H T LAM (PM287)
ArchSD	- Mr K H CHUNG (SPM223) / Ms Elva LI (PM273) / Mr Francis NG (PM251)
ArchSD	- Mr Terry HO (PM269)
ArchSD	- Mr Stanley Hoi (SPM237) / Ms Maisy CHUI / Mr. Yves WONG
ArchSD	- Ms Serena YUE (SQS/24) / Ms Fiona CHAN (QS/QSB/25(4))
ArchSD	- CW/LPH/2 (thro CCOW/Zone 6)
ArchSD	- BSI/LPH/2 (thro CTO(BS)/E)
ArchSD	- TS/Contractor Management
ArchSD	- CCOW/Admin
C M Wong & Associates Ltd.	- Mr Ben LEUNG / Ms YY YEUNG
AECOM	- Mr Victor SUEN / Mr CHAN Chi Nam / Mr Eric Lau
SCENIC Landscape Studio Ltd.	- Mr Chris FOOT / Ms Claris Ma
Egis Engineering & Consulting HK	- Mr CK CHAN / Mr Leo LI

(by email only)

[redacted]

RONALD LU & PARTNERS

Contract No. SS M518
Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok
(Programme No. 002HL)

Certificate of Completion of *section* 1 of the *works*

To: Chevalier – China Railway Joint Venture		Date:	13 January 2025
From: *Project Manager*			
Other Relevant Correspondence (if any):	CCRJV undertaking letter ref SSM518-B1-OUT-3398		

Legends: * Delete as appropriate; ☐ Put a "X" as appropriate

To the *Contractor*:

In accordance with NEC Clause 30.2 as amended by the Schedule to the Articles of Agreement and secondary Option Clause X5, I certify that the *Contractor* has, on 24 December 2024 being the date of Completion for *section* 1 of the *works*,

- done all the work which the Scope states is to be done by the Completion Date of *section* 1 of the *works*; and
- corrected notified Defects which would have prevented the *Client* from using *section* 1 of the *works* or Others from doing their work.

This certificate is for *section* 1 of the *works*.

Certified by the *Project Manager*:

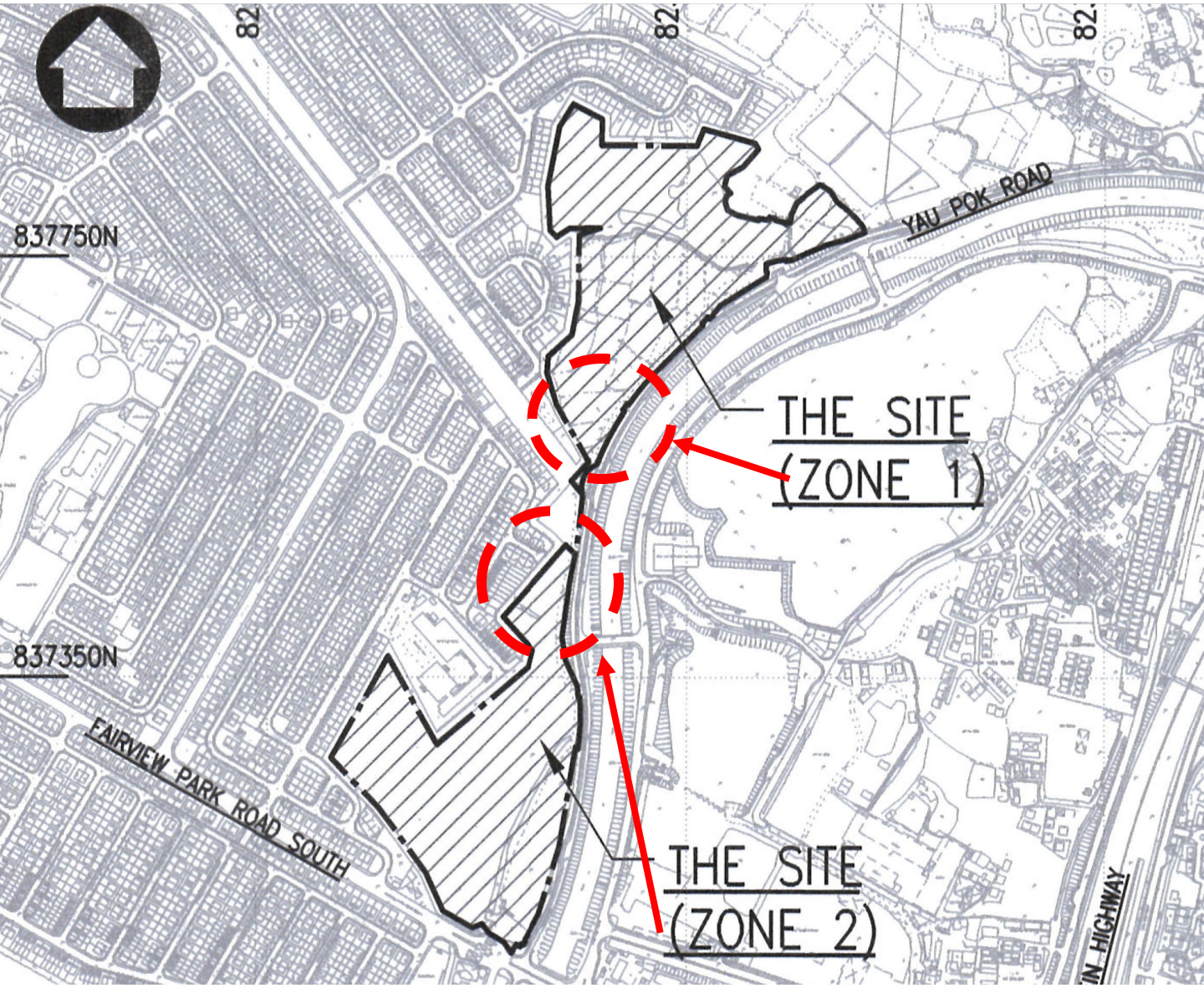
(Signature)
Alfred Woo
(Name in full)

Distribution

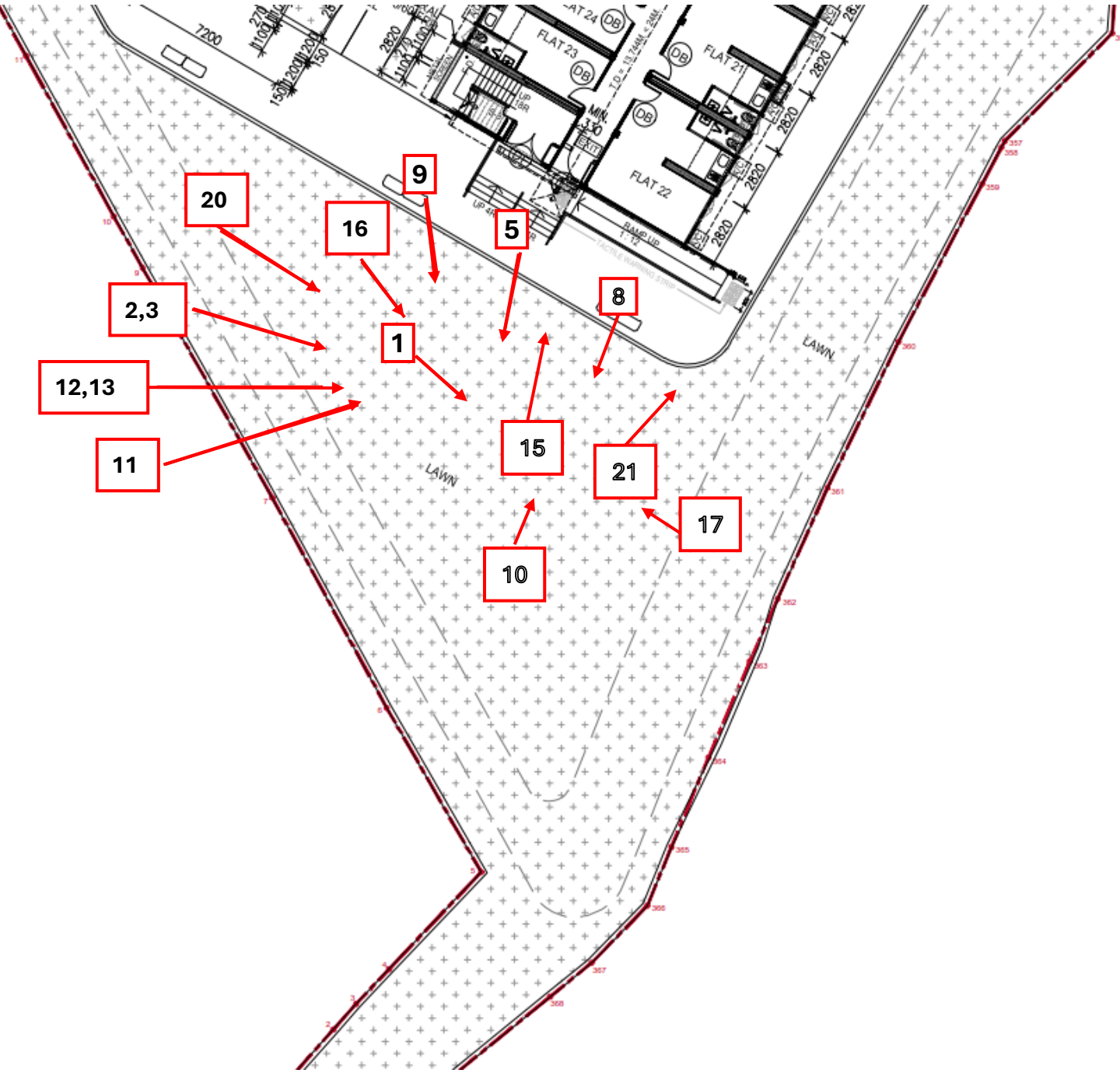
☒ *Client*	☒ *Project*	☒ *Cost Manager*	☒ *Supervisor*	☒ Other(s):
ArchSD - SA/34,A/304(thro PD/2, CPM202) PM287(thro SPM228) PM273(thro SPM223)	CMA, AECOM, Scenic, Egis	ArchSD- CQS1, SQS/24, QS/QSB/25(4) CMD-Arcadis	SUPD/RSCOW, RCOW, RBSI	Housing Bureau CW/LPH/2 (thro CCOW/Zone 6) BSI/LPH/2 (thro CTO(BS)/E) TS/Contractor Management CCOW/Admin

Photo Records

Locations of the Photos Records Taken



Zone 1


20
16
9
5
2,3
1
8
12,13
11
15
21
17
10
LAWN
LAWN
FLAT 24
FLAT 23
FLAT 22
FLAT 21
7200
2820
RAMP UP
1 : 12

Zone 2

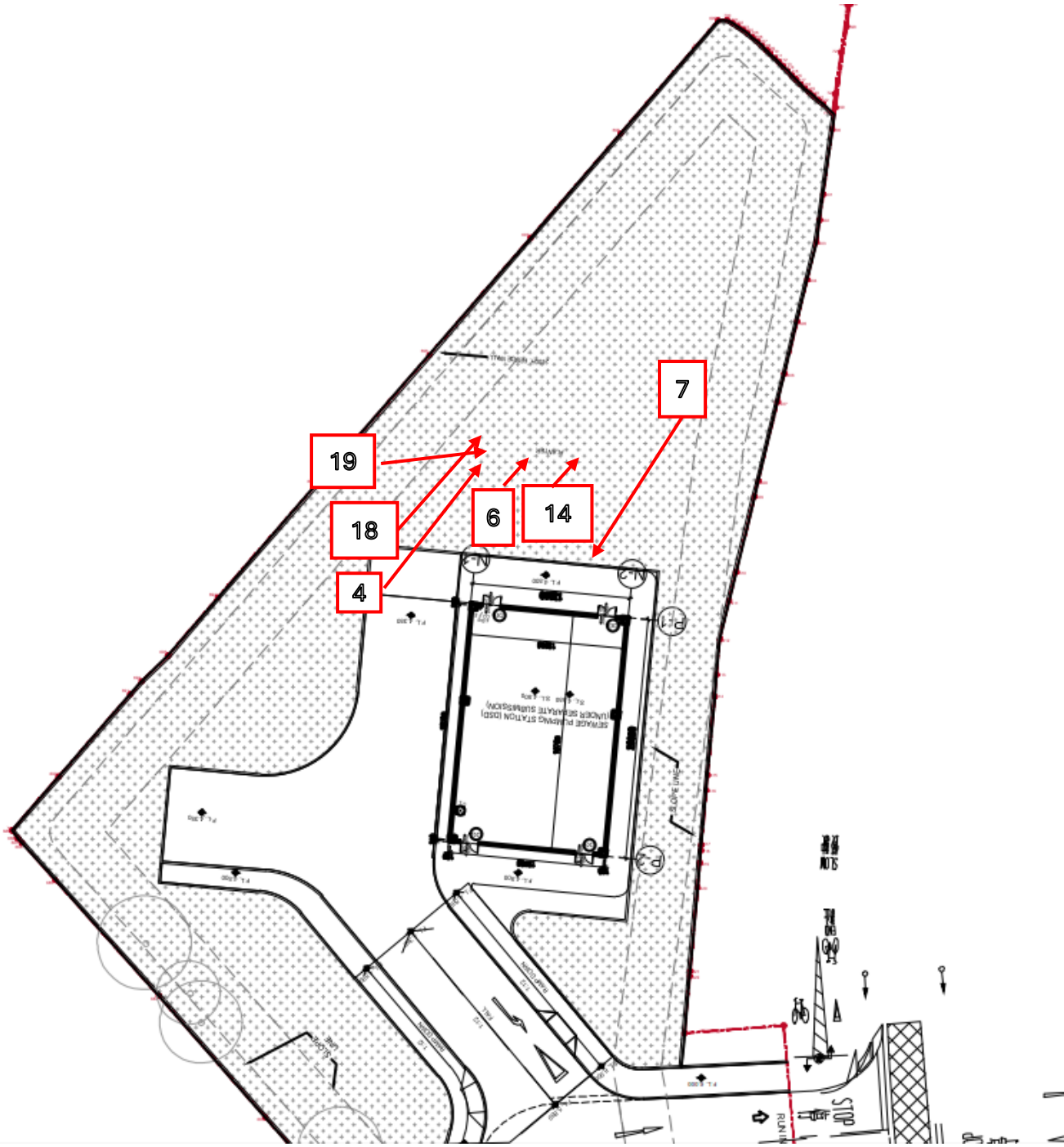


Photo 1



Photo 2

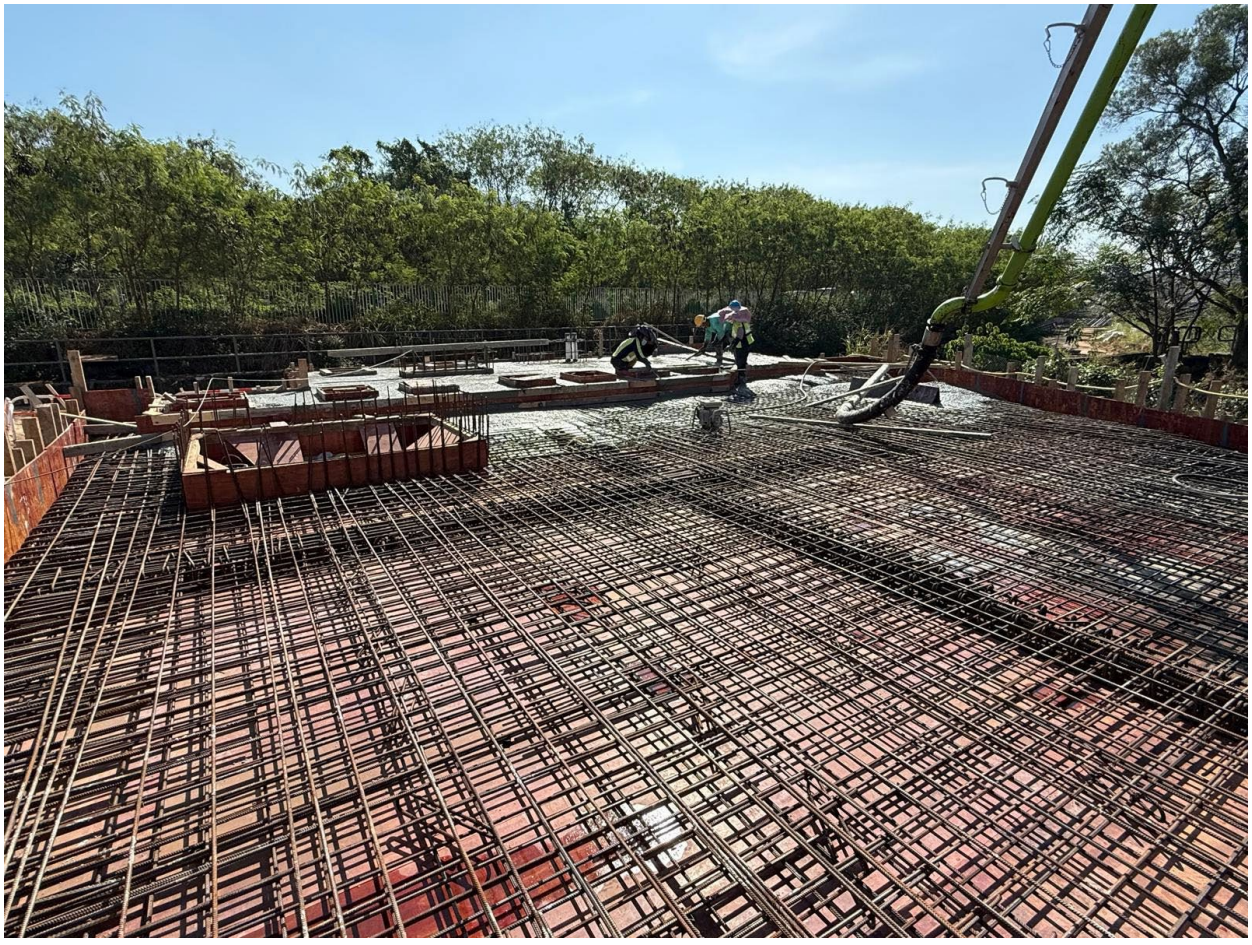


Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11

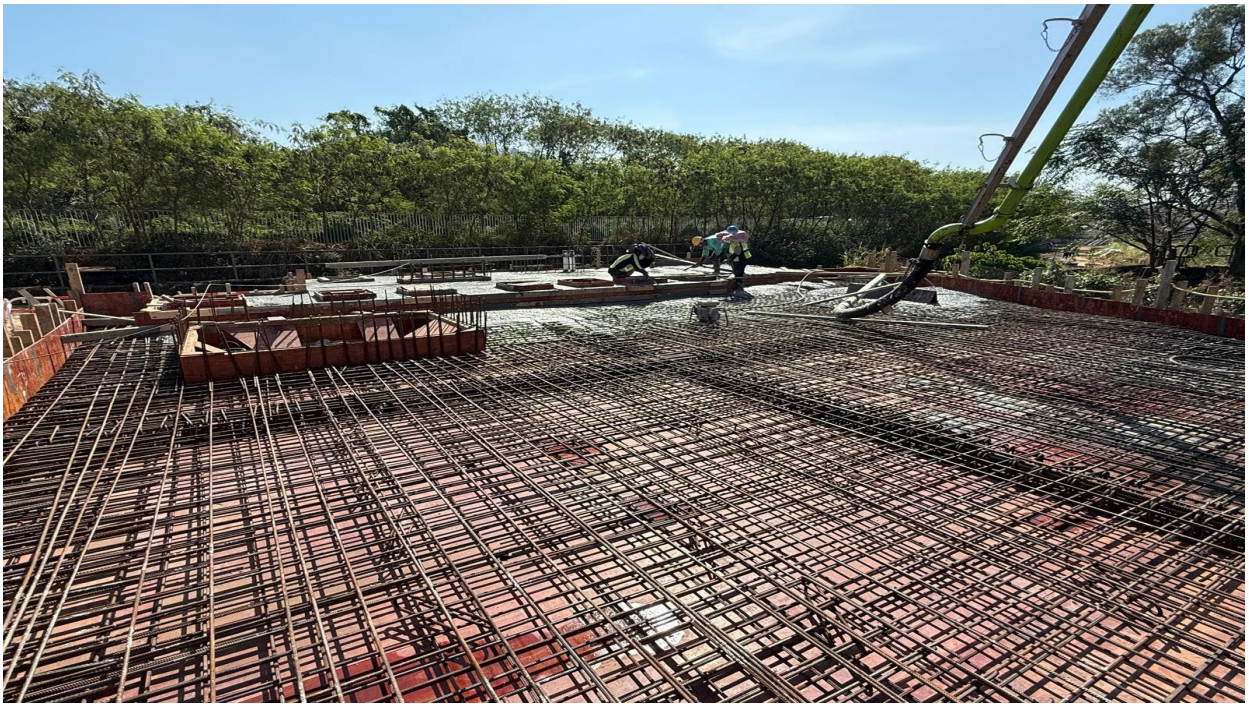


Photo 12



Photo 13



Photo 14

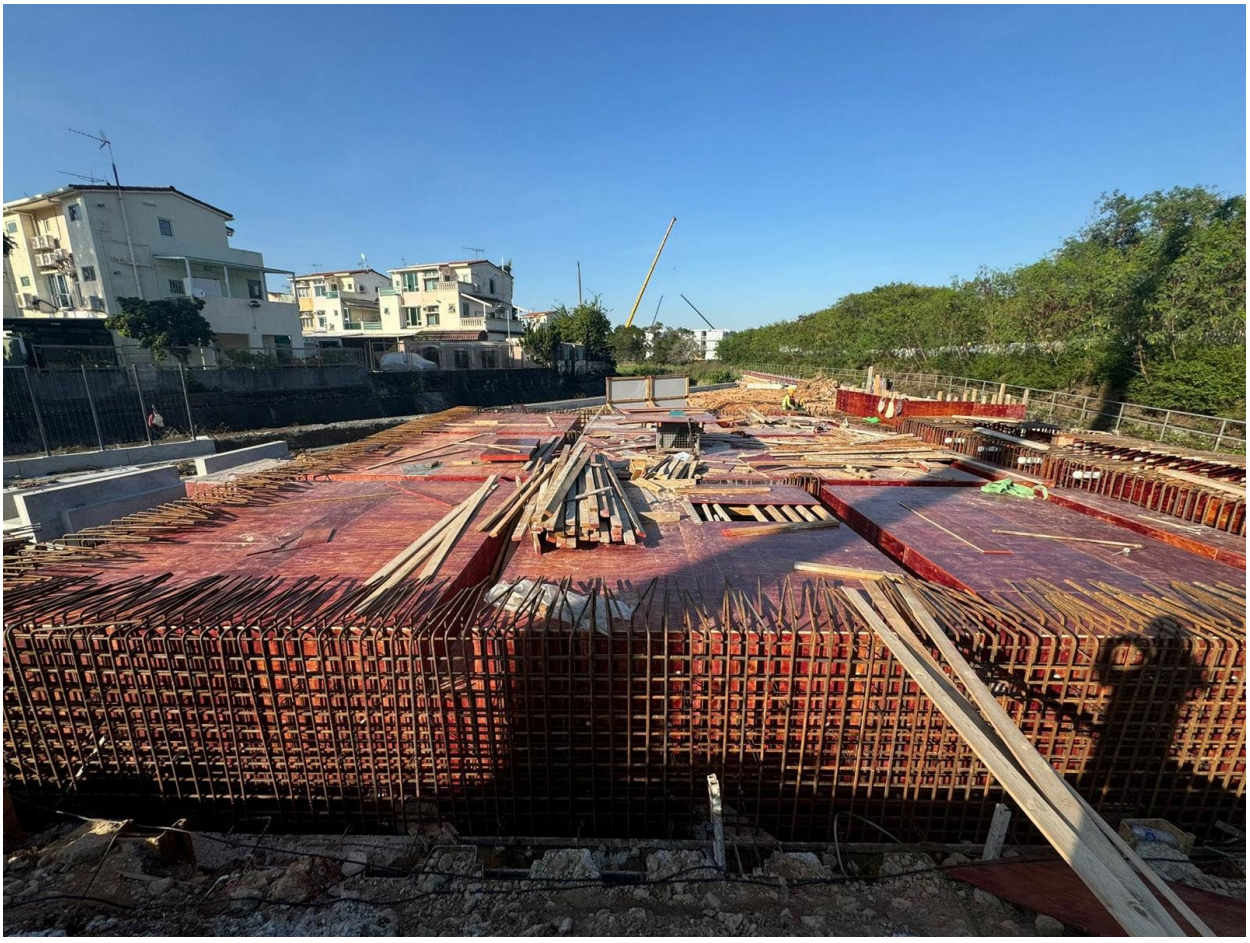


Photo 15

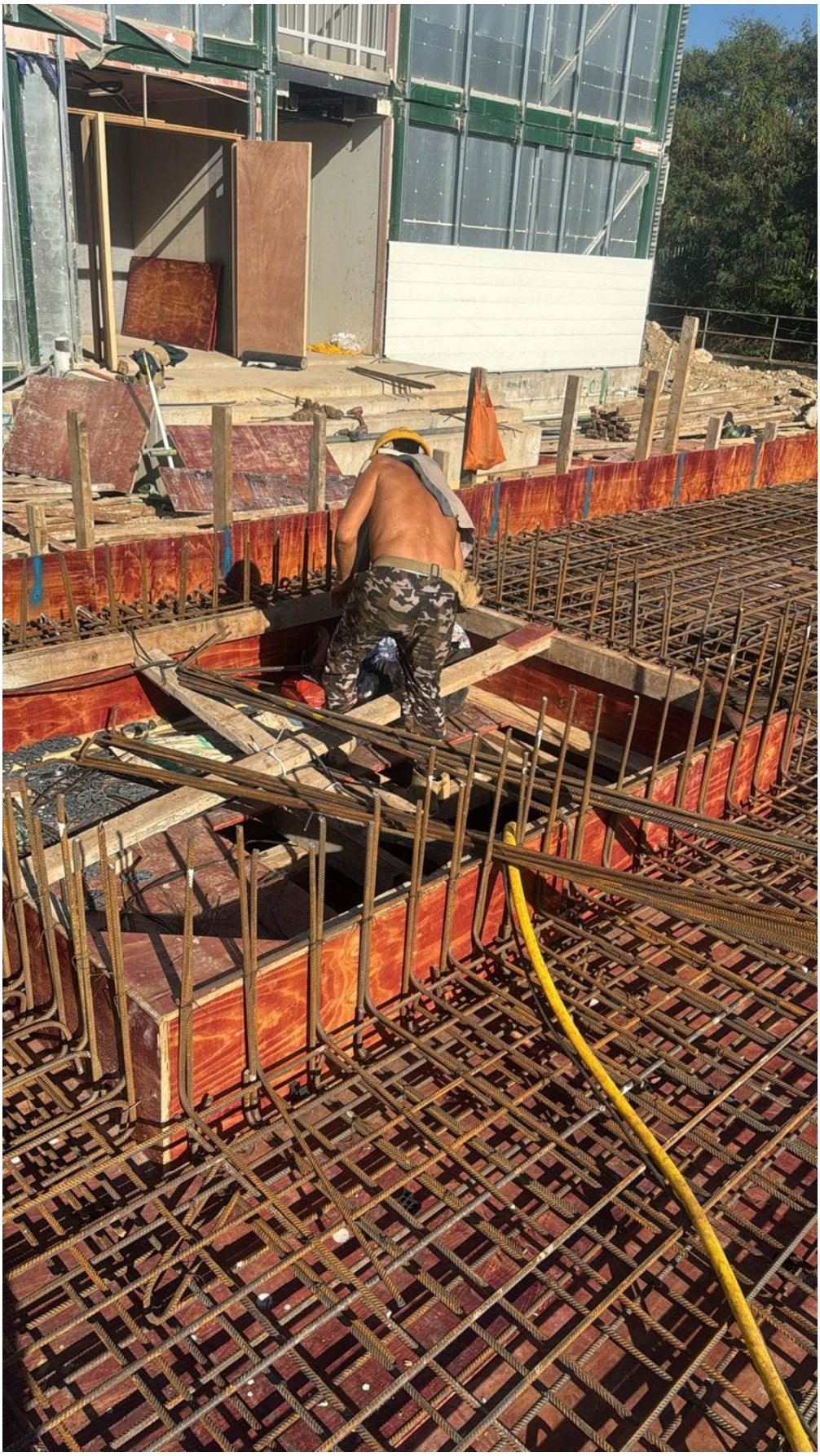


Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



AIP and DDA Submission of Sewerage Holding Tank (Structure)

Approval Letter, Calculations and Drwaings

Contract No. SS M518
Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok (Programme No. 2HL)

Response to *Contractor*'s Submission (Except for Programme)

To:	Chevalier – China Railway Joint Venture	CS Ref.:	SSM518-C1-OUT-2749	Date:	12 November 2024
From:	*Project Manager ~~/ Cost Manager / Supervisor~~ **	RCS Ref.:	RCS- SSM518-C1-OUT-2749A	Date:	04 December 2024

Previous Communications issued by:	~~*Client / Project Manager / Cost Manager / Supervisor /*~~ *Contractor* *			
	Ref:		Date:	
Other Relevant Correspondence (if any):				

Legends: * Delete as appropriate; ☐ Put a "X" as appropriate ☒

***Project Manager*'s ~~/ Cost Manager's / Supervisor's~~ * Response:**

DESCRIPTION: 1st AIP & DDA Submission of AIP & DDA Submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

*The submission(s) made under General Obligations and Requirements Clause 16.19 is hereby:

☒ Accepted.

☐ Not accepted due to:

- ☐ More information required in order to assess the submission fully.
- ☐ It / They* will not allow the *Contractor* to Provide the Works.
- ☐ Other reason(s) _____

Re-submission by the *Contractor* is required.

*The submission has been reviewed with the following comments provided to the *Contractor*:
The approval conditions as attached. Your representative amended/ superseded the drawings and calculations from 12 November 2024 to 4 December 2024.

Re-submission by the *Contractor* ~~is /~~ is not* required.

Response given by the
*Project Manager ~~/ Cost Manager / Supervisor~~ **:

(Signature)

Leung Chi Hung, Ben
(~~PM,~~ PMD/SE~~, PMD/BSE, PMD/LA or PMD/EC~~*)
(Name in full)

Distribution
☒ *Client* ☒ *Project Manager** ☒ Cost *Manager** ☐ *Supervisor**
☐ Other(s): (Please specify)

Contract No. SS M518
Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok (Programme No. 2HL)

RCS Ref.: RCS-SSM518-C1-OUT-2749A
04 December 2024
1st AIP & DDA Submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)
Comment List:

1. The consent is given based on our curtailed checking on the submission and your Structural Designer Checker's endorsement on the drawings. You are reminded that it is the Contractor's and Design/ Design Checker's responsibilities to ensure the design and construction of the works in compliance with the Employer's Requirements, Statutory Requirements and relevant parts of the contract. Any area of non-compliance should be "specifically" brought to the attention of the Project Manager.
2. You are reminded that the standard of the drawings and details shown in the submission shall comply with the Drafting Manual. If any non-compliance is observed, you have to update the drawings and submit the amendment DDA submission for our acceptance.
3. You are reminded that this comment should be not be deemed to confer any compliance or act as a waiver of any term in any relevant structural requirement, specification, manual, guidance and statutory requirement.
4. It is noted that your representative made some amendments on the plans and design report to clarify certain details from 12 November 2024 to 04 December 2024. Moreover, it is noted that you superseded and supplemented drawings and calculations for approval.
5. It is noted that the allowable bearing pressure at founding level is assumed values. Probe test should be carried out to verify the adequacy of the allowable bearing capacity of the founding stratum. The Structural Designer shall review and justify the foundation design with test results, if necessary, you have to submit an amendment DDA submission for our acceptance.



Leung Chi Hung, Ben
PMD/SE

Contract No. SS M518
Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok
(Programme No. 2HL)

DESIGN SUBMISSION FORM

Structural

To: C M Wong & Associates Ltd. Contract No. SS M518 Date: 12 / 11 / 2024

Attn: Mr. Ben Leung / Ms. YY Yeung / Mr. Sam Mo
PM(SE)

Our Ref: SSM518-C1-OUT-2749
DSF Ref:
Package No.:

From: Chevalier – China Railway Joint Venture

We submit herewith 2 sets of the following design documents together with a duly completed Design Checking Form for your *AIP/DDA.

Documents Ref. No.	Title/Description
SSM518-C1-OUT-2749	Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

Signed:
Name: John Chow
Construction Manager

cc: SOR(A/BSE/EME/QS/COW/BSI/EMI) - w/o encl.
* delete as appropriate

To: Chevalier – China Railway Joint Venture Date:
From: C M Wong & Associates Ltd.

We return herewith ONE (/) set/sets of the above documents duly endorsed and confirm that:

~~( ) * AIP/DDA for these documents is hereby granted.~~
~~( ) * Consent to proceed detailed design for DDA/Consent to construct is hereby given.~~
(✓) * AIP/DDA for these documents is hereby granted subject to the conditions enclosed.
(✓) * Consent to proceed detailed design for DDA/Consent to construct is hereby given subject to the conditions enclosed.
~~( ) * They are not in compliance with Contract No. SS M518 in the following aspects and resubmission~~ is required.
~~( ) * Resubmission is required to incorporate/amend/alter the following aspects~~.

Signed:
Name: LEUNG CHI HUNG, BEN
PM(SE)

cc: SOR(A/BSE/EME/QS/COW/BSI/EMI) - w/attachment (if any)
*** delete as appropriate**

Contract No.: SS M518

Design and Construction of Light Public Housing at

Yau Pok Road, Yuen long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok

Programme No.: 2HL

DESIGN CHECKING FORM

STRUCTURAL

To: Kewisk Engineering & Consulting Co. Ltd. Contract No. SS M518 Date: 12 November 2024

Attn: Mr. Freddy S.C. Wai

Our ref.: SSM518-C1-OUT-2749
DCF Ref:
Package No.:

From : **Chevalier – China Railway Joint Venture**

We submit herewith 2 set of the following design documents for your endorsement.

Documents Ref. No.	Title/ Description
SSM518-C1-OUT-2749	Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

Drawing no. and titles of the submission refer to enclosed drawing register.

Signed:
Name: John Chow
Construction Manager

To: **Chevalier – China Railway Joint Venture** Date:

From: Design Checker of Contract No. SS M518 of ArchSD

We return herewith two (2) ~~set~~/sets of the above documents duly endorsed and confirm that:

( ) * These documents are in compliance with Contract No. SS M518.
( ) * These documents are in compliance with Contract No. SS M518 subject to the conditions enclosed.
( ) * They are not in compliance with Contract No. SS M518 in the following aspects and resubmission is required.

Signed:
Name: Freddy S.C. Wai
Structural Design Checker

* Delete as appropriate

Government of the Hong Kong Special Administrative Region
Architectural Services Department

Contract No. SS M518
Design and Construction of Light Public Housing
at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A
and at Choi Hing Road, Ngau Tau Kok

CHECK CERTIFICATE FOR ACCEPTANCE IN PRINCIPLE

This Check Certificate refers to submission No. SSM518-C1-OUT-2749 which comprises
(nature and description of the submission)

Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

in respect of :

(description of works to which the submission refers)
Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

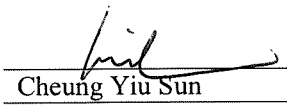
The contents of this submission are scheduled in Schedule A below and are attached to this Check Certificate.

We certify that

(a) the design of the *works*, as illustrated and described in the documents scheduled in Schedule A below, complies with this contract requirements including without limitation, the *Client's Requirements* and the *Contractor*'s Proposals.

(b) an in-house check has been undertaken and completed to confirm the completeness, adequacy and validity of the design of the *works* as illustrated and described in documents scheduled in Schedule A below, and

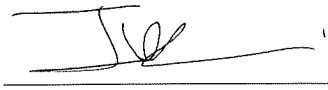
(c) all necessary and required acceptances relating to the design of the *works*, as illustrated and described in the documents scheduled in Schedule A below, have been obtained and copies of such acceptances are annexed at Schedule B below.

Signed : 

for	Cheung Yiu Sun	(name of designer)
	Wilson & Associates Ltd.	(name)
	Director & Founder	(Position/Designation)
	12 November 2024	(Date)

We certify that, the above Check Certificate is issued by the designer on the basis that it has exercised all the skill and care to be expected of a professionally qualified and competent designer experienced in work of similar nature and scope as the *works* in the performance of its duties relating to the preparation, review, checking and certification of design of the *works*.

We endorse the content of the above Check Certificate.

Signed : 

for	John Chow	(name of *Contractor*)
	Chevalier – China Railway Joint Venture	(name)
	Construction Manager	(Position/Designation)
	12 November 2024	(Date)

We certify that reasonable professional skill and care has been used in the checking of the design refers to this submission No. SSM518-C1-OUT-2749

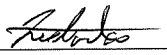
We all satisfied that it complies with this contract requirements including without limitation, the *Client's Requirements*, the *Contractor*'s Proposals, and the additions agreed by the *Client*.

We are satisfied that the detailed design of

(Name of structure or works)
Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

can commence.

We further certify that we are satisfied that the checking of the above design is completed.

Signed : 

for	Freddy S.C. Wai	(name of Design Checker)
	Kewisk Engineering & Consulting Co. Ltd.	(name)
	Director	(Position/Designation)
	12 November 2024	(Date)

Schedule A

Submission No. SSM518-C1-OUT-2749 comprises the following

Documents : *(Title, reference number and revision)*

_____

_____

_____

Drawings : *(Title, drawing number and revision)*

_____

_____

Others : _____

Schedule B

Acceptances from : *(List of Government Departments or Statutory Authorities)*

_____

_____

(The Contractor to bind and attach all documents, drawings and copies of necessary and required acceptances associated with this Check Certificate)

Government of the Hong Kong Special Administrative Region
Architectural Services Department

Contract No. SS M518
Design and Construction of Light Public Housing
at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A
and at Choi Hing Road, Ngau Tau Kok

CHECK CERTIFICATE FOR DETAILED DESIGN ACCEPTANCE

This Check Certificate refers to submission No. SSM518-C1-OUT-2749 which comprises
(nature and description of the submission)

Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

in respect of :

(description of works to which the submission refers)
Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

The contents of this submission are scheduled in Schedule A below and are attached to this Check Certificate.

This submission is made in accordance with the provisions stated in Clause _____ of the *Client's Requirements*.

(and with special reference to

[any change to the Scope arising from any error, inconsistency, divergence, omission, ambiguity or discrepancy]

)*

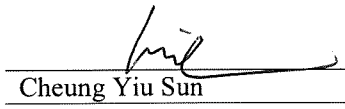
* *(delete if not required)*

We certify that

(a) the design of the *works*, as illustrated and described in the documents scheduled in Schedule A below, complies with this contract requirements including without limitation, the *Client's Requirements*, the *Contractor*'s Proposals, the submission no(s). SSM518-C1-OUT-2749 for which an Acceptance in Principle that has been issued together with any conditions and comments pertaining thereto.

(b) an in-house check has been undertaken and completed to confirm the completeness, adequacy and validity of the design of the *works* as illustrated and described in documents scheduled in Schedule A below, and

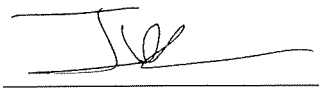
(c) all necessary and required acceptances relating to the design of the *works*, as illustrated and described in the documents scheduled in Schedule A below, have been obtained and copies of such acceptances are annexed at Schedule B below.

Signed : 

for	Cheung Yiu Sun	(name of designer)
	Wilson & Associates Ltd.	(name)
	Director & Founder	(Position/Designation)
	12 November 2024	(Date)

We certify that, the above Check Certificate is issued by the designer on the basis that it has exercised all the skill and care to be expected of a professionally qualified and competent designer experienced in work of similar nature and scope as the *works* in the performance of its duties relating to the preparation, review, checking and certification of design of the *works*.

We endorse the content of the above Check Certificate.

Signed : 

for	John Chow	(name of *Contractor*)
	Chevalier – China Railway Joint Venture	(name)
	Construction Manager	(Position/Designation)
	12 November 2024	(Date)

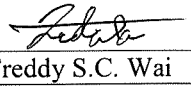
We certify that reasonable professional skill and care has been used in the checking of the design refers to this submission No. SSM518-C1-OUT-2749

We all satisfied that it complies with this contract requirements including without limitation, the *Client's Requirements*, the *Contractor*'s Proposals, the submission no(s). SSM518-C1-OUT-2749 for which an Acceptance in Principle has been issued together with any conditions and comments pertaining thereto, and the additions agreed by the *Client* :

We are satisfied that the construction of
Design Report and Drawings for 1st AIP & DDA submission of Sewerage Holding Tank (Structure) for Yau Pok Road, Yuen Long (1st Submission)

(Name of structure or works) can commence.

We further certify that we are satisfied that the checking of the *Contractor*'s Design is completed.

Signed : 

for	Freddy S.C. Wai	(name of Design Checker)
	Kewisk Engineering & Consulting Co. Ltd.	(name)
	Director	(Position/Designation)
	12 November 2024	(Date)

Schedule A

Submission No. SSM518-C1-OUT-2749 comprises the following

Documents : *(Title, reference number and revision)*

_____

_____

Drawings : *(Title, drawing number and revision)*

_____

_____

Others : _____

Schedule B
Acceptances from : *(List of Government Departments or Statutory Authorities)*

_____

_____

(The Contractor to bind and attach all documents, drawings and copies of necessary and required acceptances associated with this Check Certificate)

Wilson & Associates Ltd

[redacted]

張耀新建築工程師有限公司

[redacted]

Document / Drawing Issue and Register

Project Title	Reference Number
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK	Proj. No.

D	28	07	14	08	22	06						
M	02	03	03	05	07	11						
Y	24	24	24	24	24	24						

Document / Drawing Title			Doc./Dwg. Number										
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - GENERAL NOTES			SE/8800/DS001/GN001	-	-	-	-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - TYPICAL DETAILS			SE/8800/DS001/TD001	-	-	-	-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - STRUCTURAL DETAILS (SHEET 1 OF 5)			SE/8800/DS001/DD001	-	-	-	-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - STRUCTURAL DETAILS (SHEET 2 OF 5)			SE/8800/DS001/DD002	-	-	-	-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - STRUCTURAL DETAILS (SHEET 3 OF 5)			SE/8800/DS001/DD003			-	-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - STRUCTURAL DETAILS (SHEET 4 OF 5)			SE/8800/DS001/DD004				-	-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - STRUCTURAL DETAILS (SHEET 5 OF 5)			SE/8800/DS001/DD005					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - FRAMING PLAN			SE/8800/DS001/WT101					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - SLAB R.C. DETAILS			SE/8800/DS001/WT102					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - BEAM AND COLUMN R.C. DETAILS			SE/8800/DS001/WT103					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - SECTION NWA-NWA			SE/8800/DS001/WT104						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - SECTION NWB-NWB,NWC-NWC AND NWD-NWD			SE/8800/DS001/WT105						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - SECTION NWE-NWE (SHEET 1 OF 2)			SE/8800/DS001/WT106						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 1) - SECTION NWE-NWE (SHEET 2 OF 2)			SE/8800/DS001/WT107						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - FRAMING PLAN			SE/8800/DS001/WT201					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - SLAB R.C. DETAILS			SE/8800/DS001/WT202					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - BEAM AND COLUMN R.C. DETAILS			SE/8800/DS001/WT203					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - SECTION SWA-SWA			SE/8800/DS001/WT204					-	-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - SECTION SWB-SWB AND SWC-SWC			SE/8800/DS001/WT205						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - SECTION SWE-SWE (SHEET 1 OF 2)			SE/8800/DS001/WT206						-						
YAU POK ROAD, YUEN LONG DRAINAGE (STRUCTURE) - SEWAGE HOLDING TANK (ZONE 2) - SECTION SWE-SWE (SHEET 2 OF 2)			SE/8800/DS001/WT207						-						

Distribution :

	P	P	P	P	P	P						

Reason for Issue:

A = Approval Y = Information C = Construction S = Submission

T = Tender B = BQ P = Preliminary D = Action E = Comment R = Revision

Status: A = Tape S = Sepia D = Disk T = Tracing P = Paper

Reason for Issue												
	S	S	S	S	S	S						
	1st Submission	1st Submission	1st Submission	1st Submission	1st Submission	1st Submission						

Remark :

Initial	Date
	2024-11-06

DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

Yau Pok Road, Yuen Long
Design Report for Sewerage Holding Tank (1st AIP DDA Submission)

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 29-11-2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 12 NOV 2024

Wilson & Associates Ltd.
Nov 2024 |

WILSON & ASSOCIATES LTD.

Consulting Engineers Planners Project Managers

Project: Design and Construction of Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun Area 3A and at Choi Hing Road, Ngau Tau Kok

Comment From: CMA

Subject: Yuen Long Sewerage Holding Tank – 1st AIP and DDA Submission

Date of comment: 13 November 2024

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date:

Response to Comment

	Drawing No.	Comment	Response
1	GN101	Provide Allowable Bearing Pressure and Notes for Probe Tests.	Noted
		Clarify the concrete grade of blinding layer and mass concrete fill.	Noted
2	LP101	Provide setting out the slab at +2.50 on the loading key plan	Noted
3	FP101, 201	1. Provide setting out of the tank measured from site boundary	Noted
		2. Provide setting out of the chamfer corner of the tank.	Noted
		3. Provide elevation of the sump pit near wall.	Noted
		4. Add 150 RC Curb Legend	Noted
		5. Add beam size & column size on the plan	Noted
		6. Move Section Mark NWC-NWC to avoid the cranked portion	Noted
		7. Add guidelines to demarcate the location of Part Plan (+2.50)	Noted
		8. Remove unnecessary lines from plan.	Noted
		9. Add level difference mark	Noted
4	SE101, 102, 201, 202	Cross check the bar number and bar marks on the section against plans	Noted
5	SE103, 104, 203, 204	Add bar mark, bar number and bar sizes on plan so that all vertical /horizontal rebars in walls could be shown.	Noted
6	SL101, 201	1. Clarify rebar arrangement near sump-pit	Noted
		2. Cross check the bar number and bar marks on the plan against sections	Noted
		3. Revise the rebar arrangement at slabs close to openings.	Noted
7	BE101, 201	1. Add spacer bars for doubly reinforced beams	Noted
		2. Clarify the bar number / link number at sections.	Noted
		3. Add TAL at end of beam rebars	Noted
8	CL101, 201	Missing Zone 0 Details	Noted

[redacted]

Table of Content

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Conclusion 4

Appendix

Appendix A Design Calculation

Introduction

This project involves the development of the Light Public Housing at Yau Pok Road, Yuen Long, at Tuen Mun 3A and at Choi Hing Road, Ngau Tau Kok

This design submission includes the design of sewerage holding tanks structure for Yau Pok Road, Yuen Long. This submission shall be read in conjunction with the drainage layout plan under separate submission.

Design Criteria

Design Codes, Standards and Publications

All structural design shall comply with the following Codes of Practice, reference, standards and publications

- General Specification for Building Works 2022 and its corrigendum No. GS2017-02 (GS) – ASD, HKSAR Government
- Code of Practice for Structural Use of Concrete 2013 – BD, HKSAR Government
- GEOSpec 3 – CEDD, HKSAR Government
- Code of Practice for Foundations 2017 – BD, HKSAR Government
- Code of Practice for Dead and Imposed Loads 2011 – BD, HKSAR Government
- BS8007 : 1987 Design of concrete structures for retaining aqueous liquids.

Design Load

Dead Load

Concrete Density = 24.5kN/m^3

USAGE	IMPOSED LIVE LOAD (kPa)	SUPERIMPOSED DEAD LOAD (kPa)
LAWN	5	9 (450mH BACKFILL)
MAINTENANCE (GROUND FLOOR)	7.5	3 (150mH BACKFILL)
LANDING OF CAT LADDER	7.5	1.25
SEWERAGE HOLDING TANK	19.6 (2mH WATER)	1.25
MAINTENANCE/EQUIPMENT FLOOR	7.5	1.25

Surcharge Load

10kPa of Vehicular Traffic Surcharge is applied (Private Road) to consider the nearby driveway.

Soil Load

Design soil parameter is shown as below: -

Material	Density ϒ	Friction Angle φ	Static pressure coefficient, Ko
Fill	20 kN/m^3	30 degrees	0.5

Note: Static Pressure coefficient is taken as 1-sin φ

Design Groundwater Level

The design groundwater level is taken as the Highest Anticipated Ground Water Level. Factor of Safety (F.O.S.) of 1.5 is taken for checking the buoyancy of the tanks.

As the site is generally filled up with non-cohesive soils (including Grade 200 Rockfill and dense sand) from the existing ground level to the future formation ground level, the design ground water level is taken at the existing ground level.

Tank Location	Original Ground Level (mPD)	Design Ground Water Level (mPD)
North Site (Zone 1)	+1.92	+1.95
South Site (Zone 2)	+2.07	+2.10

Refer to the following appendices for existing topography plans and calculations of overall stability.

Design Material

Concrete

Reinforced concrete shall be used. The design of concrete shall be in accordance with Code of Practice for Structural Use of Concrete 2013. The concrete parameter is stated as below: -

Structure Element	Concrete Grade	Design Strength	Maximum aggregate size	Elastic Modulus
Holding Tank	45D/20	45MPa	20mm	26.4MPa

Reinforcement

The reinforcement is proposed to be high yield type 2 deformed bar. The material complied with the Code of Practice for Structural Use of Concrete 2013 and CS2:2012. The design parameter is tabulated as below: -

Yield Strength	Elastic Modulus
500MPa	205GPa

Crack width design

All structural elements (including slabs, beams, columns* and walls) are designed to satisfy the maximum crack width of 0.2mm. Refer to the following Appendices for the detailed calculations.

**As the columns are subject to compression load only, design of crack width is not necessary. Refer to the relevant sections for information.*

Bearing Pressure Summary

Tank Location	Founding Material	Max. Bearing Pressure (kPa)	Allowable Bearing Pressure (kPa)
North Site (Zone 1)	Submerged Fill	64.4	65(#)
South Site (Zone 2)	Submerged Fill	62.3	65(#)

(#) Probe tests shall be conducted at the founding level to verify the allowable bearing pressure.

Design Software

Computer Programme	BD Ref No.	Expiry Date	Remarks
SADS Module (Beam/Column/Joint)	S0919/ S0920 / S1012	2026-08-01	RC Design to CoP 2013
SAFE v16.0.1	S1116	2026-07-26	Static Linear Analysis Part (Design Strip taken as 1m max.)

Conclusion

It is proposed to construct underground sewerage holding tanks by reinforced concrete structure. The design calculation shown in Appendix A demonstrates that the tank structure shall satisfy the current design standard.

Appendix A

Design Calculation

Appendix A

Design Calculation

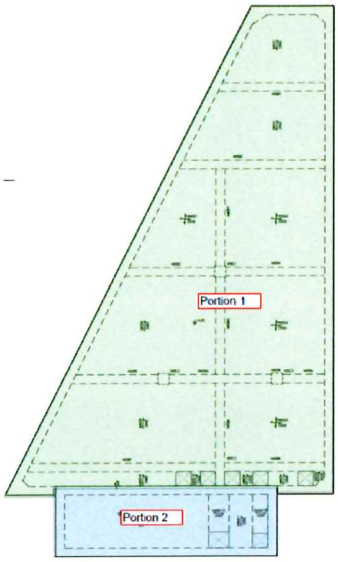
Zone 1
Overall Stability

(1) Bearing Pressure Check of Zone 1 Sediment Holding Tank

Portion 1

Area = 203.49 m2

No.	Load Type	Item	Density (kN/m3)	Thickness/Height (m)	Pressure (kPa)	Area (m2)	Total Load (kN)	
1	Dead	S.W. of Top Slab	24.5	0.2	4.9	200.4	981.8	*
2	Dead	450H Backfill (Top)	20	0.45	9	200.4	1803.3	*
3	Dead	RC Plinth	24.5	0.15	3.675	3.3	12.1	*
4	LL	L.L. of Top Slab	-	-	5	203.5	1017.5	
5	Dead	S.W. Bottom Slab	24.5	0.45	11.025	203.5	2243.5	*
6	Dead	S.W. of Column	24.5	4.65	114	0.8	85.4	*
7	Dead	S.W. of Beam	24.5	0.75	18	20.6	379.1	*
8	Dead	S.W. of Side Wall	24.5	0.4	10	262.5	2572.4	*
9	SDL	SDL of Bottom Slab	-	-	1.25	180.3	225.3	
10	LL	Water Pressure	9.81	2	20	180.3	3536.5	
						Min DL Load	8077.7	kN
						Total Load	12857	kN



Portion 2

Area = 32.3 m2

No.	Load Type	Item	Density (kN/m3)	Thickness/Height (m)	Pressure (kPa)	Area (m2)	Total Load (kN)	
1	Dead	S.W. of Top Slab	24.5	0.2	4.9	32.35	158.51	*
2	Dead	150H Backfill (Top)	20	0.15	3	32.35	97.05	*
3	LL	L.L. of Top Slab	-	-	7.5	32.30	242.25	
4	Dead	S.W. of Middle Slab	24.5	0.2	4.9	2.00	9.80	*
5	SDL	S.D.L. of Middle Slab	-	-	1.25	2.00	2.50	*
6	LL	L.L. of Middle Slab	-	-	7.5	2.00	15.00	
7	Dead	S.W. of Bottom Slab	24.5	0.4	9.8	22.54	220.89	*
8	SDL	Mass fill of Bottom Slab	24.5	0.2	4.9	6.44	31.56	*
9	LL	L.L. of Bottom Slab	-	-	7.5	22.50	168.75	
10	SDL	S.D.L. of Bottom Slab	-	-	1.25	22.50	28.13	
11	Dead	Side Wall Weight	24.5	0.4	10	137.6	1347.99	*
						Min DL Load	1868.3	kN
						Total Load	2322	kN

Bearing Pressure 64.4 kPa (w/o Wind)

(2) Uplift Check of Zone 1 Sediment Holding Tank

Uplift Pressure and Force

Portion	Area (m2)	Proposed Ground Level (mPD)	Top Level (mPD)	Water Level (mPD)	Bottom Level (mPD)	Water Depth (m)	Uplift (kPa)	Uplift (kN)
Portion 1	203.49	4.7	4.25	1.95	-1.05	3.00	29.4	5989
Portion 2	29.43	4.7	4.55	1.95	-1.30	3.25	31.9	938
Portion 2 (Sump Pit)	2.87	4.7	4.55	1.95	-1.60	3.55	34.8	100
							Total	6527

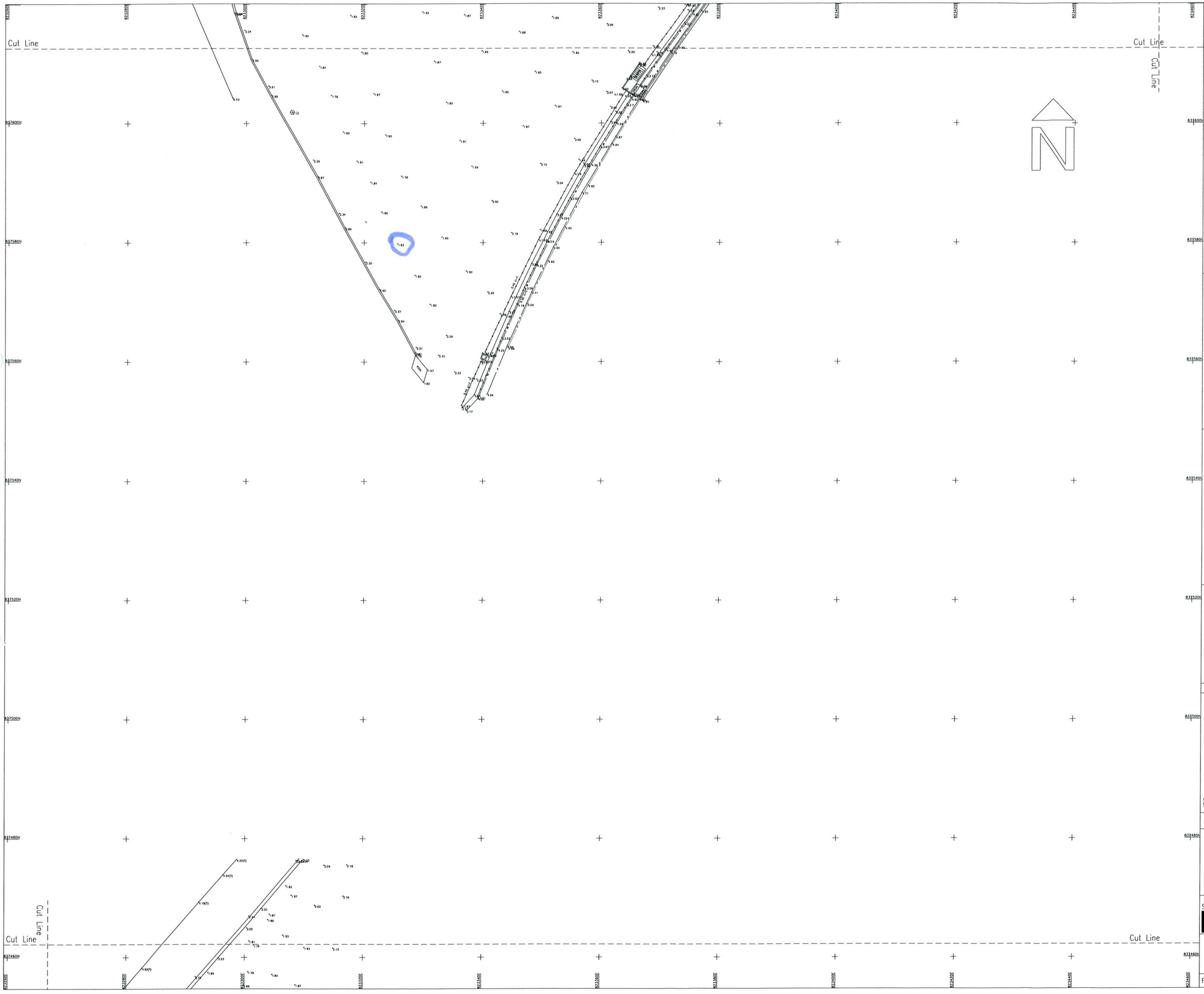
Total Min. DL (*) 9946 kN

FOS $\frac{9946}{6527}$ = 1.52 > 1.5 OK

Zone 1 - Sewerage Holding Tank
(Existing Topograpphy)

-C/R 29

+1.88
+2.00
+1.86
+2.34
10
+2.89
9
8
+1.95
+2.18
+1.92
+2.30
2.30
+1.92
+1.92
+1.83
+2.90
7
+2.37
+2.84
+2.57
+2.29
6
2.57
Track
+2.29
+3.88
+IL3.5
+IL1.51
0.40 U-C
0.30 U-C
+4.1
+3.87
362
363
+IL3.5
+4.2
.98
.90
.95
36
4
1


Cut Line
Cut Line
Cut Line
Cut Line
B23580E
B23600E
B23620E
B23640E
B23660E
B23680E
B23700E
B23720E
B23740E
B23760E
B23780E
B23800E
B23820E
B23840E
B23860E
B23880E
B23900E
B23920E
B23940E
B23960E
B23980E
B24000E
B24020E
B24040E
B24060E
B24080E
B24100E
B24120E
B24140E
B24160E
B24180E
B24200E
B24220E
B24240E
B24260E
B24280E
B24300E
B24320E
B24340E
B24360E

Zone 1
RC Design – Top & Middle Slab & Btm Slab (Portion 2)

One Way Slab : NWBS2 Span L = 2.900 Thick.= 400
Simply Support (Btm Slab - Portion 2) Conc. : C45

Own Weight	9.800
Finish.	13.000
Total Dead Load	22.050
Live Load(N)	7.500
Up-lift	61.800

Crack Width Limit = 0.2mm No Direct Tension.
+M = $0.125*Q*L^2$ = 45.067
K = 0.0078
Z = 341.05
As= 600
Provided T12 @150 C/C
T12 @150 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 8.078 < Allowable = 39.239 O.K.
To Beam : 31.973 (10.875) {14.210, 89.610}

One Way Slab : NWGS1 Span L = 3.575 Thick.= 200
Continuous(End) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab	Far from End of Slab
-M = 0	-M = $0.086*Q*L^2$ = 20.279
	r = 0.266%
	X/d= 0.245
	Fs= 309.01 < 0.8Fy
	Em= 0.00121
	Acr= 112.12
	Wcr= 0.2000 O.K.
	As= 436
	Provided T12 @225 C/C

+M = $0.086*Q*L^2$ = 20.279
r = 0.266%
X/d= 0.245
Fs= 309.01 < 0.8Fy
Em= 0.00121
Acr= 112.12
Wcr= 0.2000 O.K.
As= 436
Provided T12 @225 C/C
T10 @225 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 21.799 < Allowable = 30.700 O.K.
To Beam : 24.042 (8.938)

One Way Slab : NWGS2 Span L = 3.625 Thick.= 200
Continuous(2nd) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab	Far from End of Slab
-M = 0.086*Q*L^2 = 20.850	-M = 0.063*Q*L^2 = 22.211
r = 0.280%	K = 0.0184
X/d= 0.251	Z = 155.80
Fs= 301.93 < 0.8Fy	As= 328
Em= 0.00121	Provided T12 @300 C/C
Acr= 112.12	
Wcr= 0.1996 < 0.20 O.K.	
As= 460	
Provided T12 @225 C/C	

+M = 0.063*Q*L^2 = 22.211
K = 0.0184
Z = 155.80
As= 328
Provided T12 @300 C/C
T10 @225 C/C (D.B.)

Span-Effective Depth Ratio : Actual = 22.104 < Allowable = 37.804 O.K.
To Beam : 24.378 (9.063)

Two Ways Slab : NWGS3 Short Span S = 4.800 Thick.= 200
1 L.E.Continue Long Span L = 5.000 L/S = 1.042 Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Short Way	Long Way
-M = 0.060*Q*L^2 = 25.647	-M = 0
r = 0.364%	
X/d= 0.280	
Fs= 288.90 < 0.8Fy	
Em= 0.00132	
Acr= 88.62	
Wcr= 0.1999 < 0.20 O.K.	
As= 597	
Provided T12 @175 C/C	
+M = 0.045*Q*L^2 = 27.869	+M = 0.044*Q*L^2 = 18.704
K = 0.0230	r = 0.342%
Z = 155.80	X/d= 0.273
As= 411	Fs= 260.49 < 0.8Fy
Provided T12 @250 C/C	Em= 0.00114
	Acr= 104.92
	Wcr= 0.1999 < 0.20 O.K.
	As= 520
	Provided T12 @200 C/C

Span-Effective Depth Ratio : Actual = 29.268 < Allowable = 29.876 O.K.
To Beam : 32.280 (12.000)

Two Ways Slab : NWGS4 Short Span S = 4.800 Thick.= 200
1 L.E.Continue Long Span L = 5.000 L/S = 1.042 Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Short Way	Long Way
-M = 0.060*Q*L^2 = 25.647	-M = 0
r = 0.364%	
X/d= 0.280	
Fs= 288.90 < 0.8Fy	
Em= 0.00132	
Acr= 88.62	
Wcr= 0.1999 < 0.20 O.K.	
As= 597	
Provided T12 @175 C/C	
+M = 0.045*Q*L^2 = 27.869	+M = 0.044*Q*L^2 = 18.704
K = 0.0230	r = 0.342%
Z = 155.80	X/d= 0.273
As= 411	Fs= 260.49 < 0.8Fy
Provided T12 @250 C/C	Em= 0.00114
	Acr= 104.92
	Wcr= 0.1999 < 0.20 O.K.
	As= 520
	Provided T12 @200 C/C

Span-Effective Depth Ratio : Actual = 29.268 < Allowable = 29.876 O.K.
To Beam : 32.280 (12.000)

Two Ways Slab : NWGS5 Short Span S = 4.125 Thick.= 200
1 L.E.Continue Long Span L = 4.800 L/S = 1.164 Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Short Way	Long Way
-M = 0.069*Q*L^2 = 21.605	-M = 0
r = 0.287%	
X/d= 0.253	
Fs= 305.78 < 0.8Fy	
Em= 0.00125	
Acr= 100.28	
Wcr= 0.1996 < 0.20 O.K.	
As= 471	
Provided T12 @200 C/C	
+M = 0.051*Q*L^2 = 23.366	+M = 0.044*Q*L^2 = 20.087
K = 0.0193	K = 0.0193
Z = 155.80	Z = 144.40
As= 345	As= 320
Provided T12 @300 C/C	Provided T12 @300 C/C

Span-Effective Depth Ratio : Actual = 25.152 < Allowable = 31.305 O.K.
To Beam : 27.741 (10.313)

One Way Slab : NWGS6 Span L = 1.075 Thick.= 200
Continuous(End) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab	Far from End of Slab
-M = 0	-M = 0.086*Q*L^2 = 2.666
	K = 0.0022
	Z = 155.80
	As= 300
	Provided T12 @300 C/C

+M = 0.086*Q*L^2 = 2.666
K = 0.0022
Z = 155.80
As= 300
Provided T12 @300 C/C
T10 @225 C/C (D.B.)

Span-Effective Depth Ratio : Actual = 6.555 < Allowable = 46.000 O.K.
To Beam : 7.229 (2.688)

Two Ways Slab : NWGS7 Short Span S = 4.350 Thick.= 200
1 S.E.Continue Long Span L = 5.000 L/S = 1.149 Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Short Way	Long Way
-M = 0	-M = 0.058*Q*L^2 = 20.249
	r = 0.336%
	X/d= 0.271
	Fs= 272.14 < 0.8Fy
	Em= 0.00119
	Acr= 91.94
	Wcr= 0.1952 < 0.20 O.K.
	As= 524
	Provided T12 @175 C/C
+M = 0.058*Q*L^2 = 20.405	+M = 0.044*Q*L^2 = 15.361
r = 0.270%	r = 0.245%
X/d= 0.247	X/d= 0.237
Fs= 306.66 < 0.8Fy	Fs= 294.09 < 0.8Fy
Em= 0.00120	Em= 0.00104
Acr= 112.12	Acr= 139.64
Wcr= 0.1995 < 0.20 O.K.	Wcr= 0.1995 < 0.20 O.K.
As= 442	As= 373
Provided T12 @225 C/C	Provided T12 @275 C/C

Span-Effective Depth Ratio : Actual = 26.524 < Allowable = 34.424 O.K.
To Beam : 29.254 (10.875)

One Way Slab : NWGS8 Span L = 4.900 Thick.= 200
Continuous(Mid) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab	Far from End of Slab

-M = 0.063*Q*L^2 = 27.908
r = 0.393%
X/d= 0.289
Fs= 292.21 < 0.8Fy
Em= 0.00140
Acr= 77.19
Wcr= 0.1997 < 0.20 O.K.
As= 645
Provided T12 @150 C/C

-M = 0.063*Q*L^2 = 27.908
r = 0.393%
X/d= 0.289
Fs= 292.21 < 0.8Fy
Em= 0.00140
Acr= 77.19
Wcr= 0.1997 < 0.20 O.K.
As= 645
Provided T12 @150 C/C

+M = 0.063*Q*L^2 = 27.908
r = 0.393%
X/d= 0.289
Fs= 292.21 < 0.8Fy
Em= 0.00140
Acr= 77.19
Wcr= 0.1997 < 0.20 O.K.
As= 645
Provided T12 @150 C/C
T0 @0 C/C (D.B.)

Span-Effective Depth Ratio : Actual = 29.878 < Allowable = 31.573 O.K.
To Beam : 32.953 (12.250)

One Way Slab : NWGS9 Span L = 4.125 Thick.= 200
Continuous(2nd) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab

-M = 0.086*Q*L^2 = 26.999
r = 0.374%
X/d= 0.283
Fs= 296.62 < 0.8Fy
Em= 0.00139
Acr= 77.19
Wcr= 0.1996 < 0.20 O.K.
As= 613
Provided T12 @150 C/C

+M = 0.063*Q*L^2 = 28.761
K = 0.0238
Z = 155.80
As= 424
Provided T12 @225 C/C
T0 @0 C/C (D.B.)

Far from End of Slab

-M = 0.063*Q*L^2 = 28.761
K = 0.0238
Z = 155.80
As= 424
Provided T12 @225 C/C

Span-Effective Depth Ratio : Actual = 25.152 < Allowable = 35.817 O.K.
To Beam : 27.741 (10.313)

One Way Slab : NWGS10 Span L = 1.075 Thick.= 200
Continuous(End) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab
 -M = 0

Far from End of Slab
 -M = 0.086*Q*L^2 = 2.666
  K = 0.0022
  Z = 155.80
  As= 300
  Provided T12 @300 C/C

 +M = 0.086*Q*L^2 = 2.666
  K = 0.0022
  Z = 155.80
  As= 300
  Provided T12 @300 C/C
          T0 @0 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 6.555 < Allowable = 46.000 O.K.
To Beam : 7.229 (2.688)

One Way Slab : NWGS11 Span L = 2.900 Thick.= 200
Simply Support Conc. : C45

Own Weight	4.900
Finish.	1.250
Total Dead Load	6.150
Live Load(N)	7.500

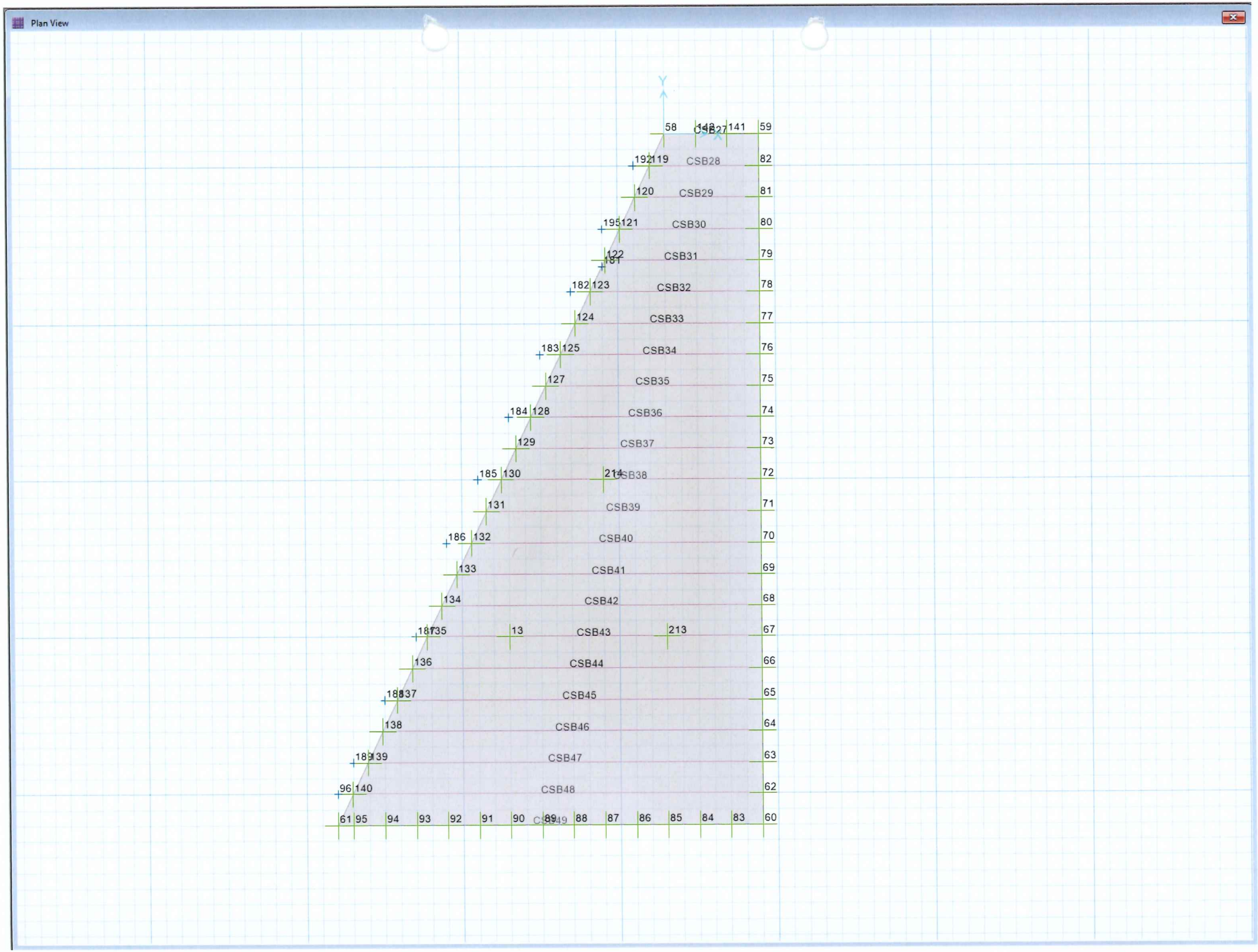
Crack Width Limit = 0.2mm No Direct Tension.
 +M = 0.125*Q*L^2 = 21.666
  K = 0.0179
  Z = 155.80
  As= 320
  Provided T12 @300 C/C
          T0 @0 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 17.683 < Allowable = 29.990 O.K.
To Beam : 8.918 (10.875)

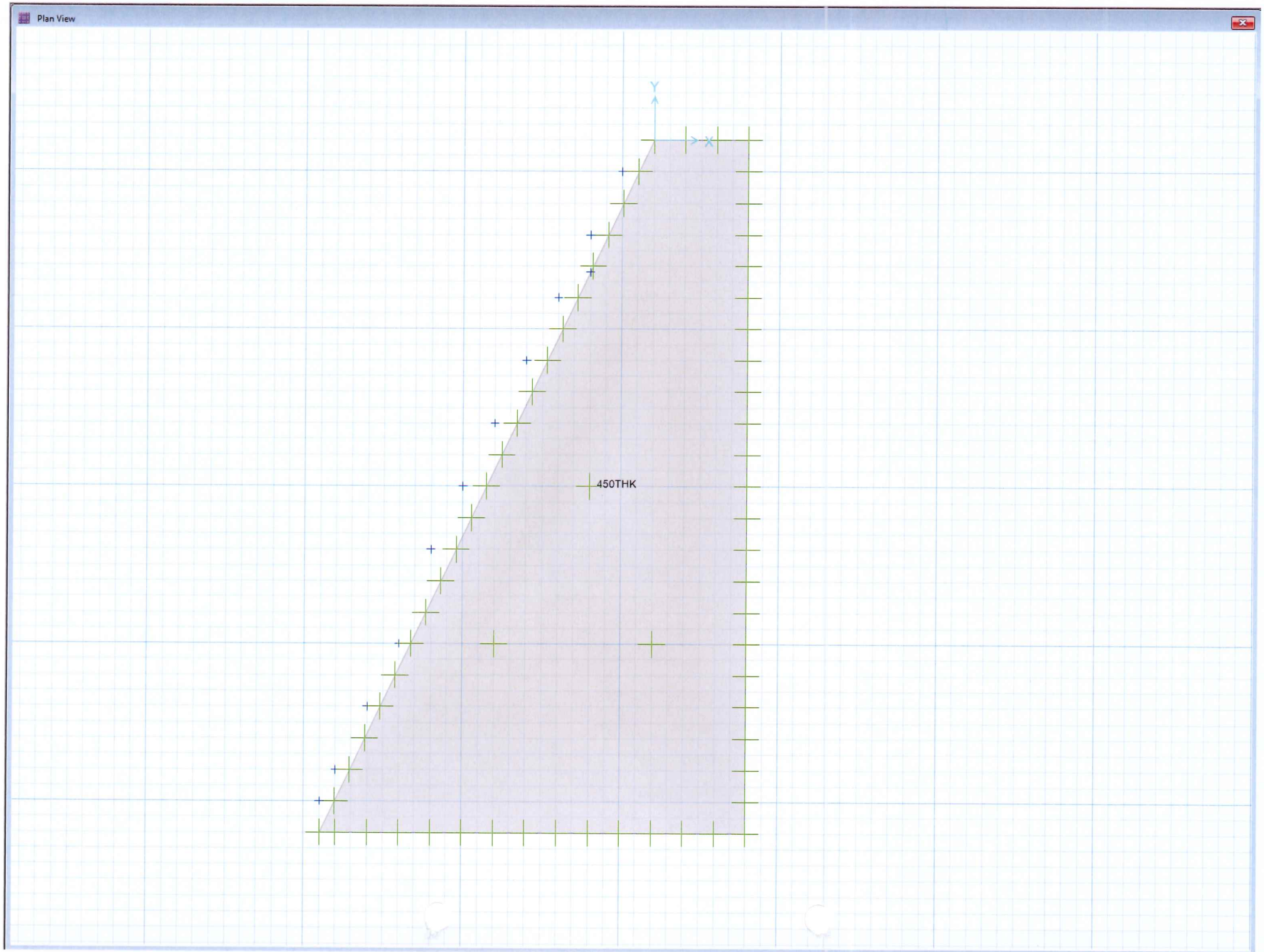
One Way Slab : NWMS1 Span L = 2.900 Thick.= 200
Simply Support Conc. : C45

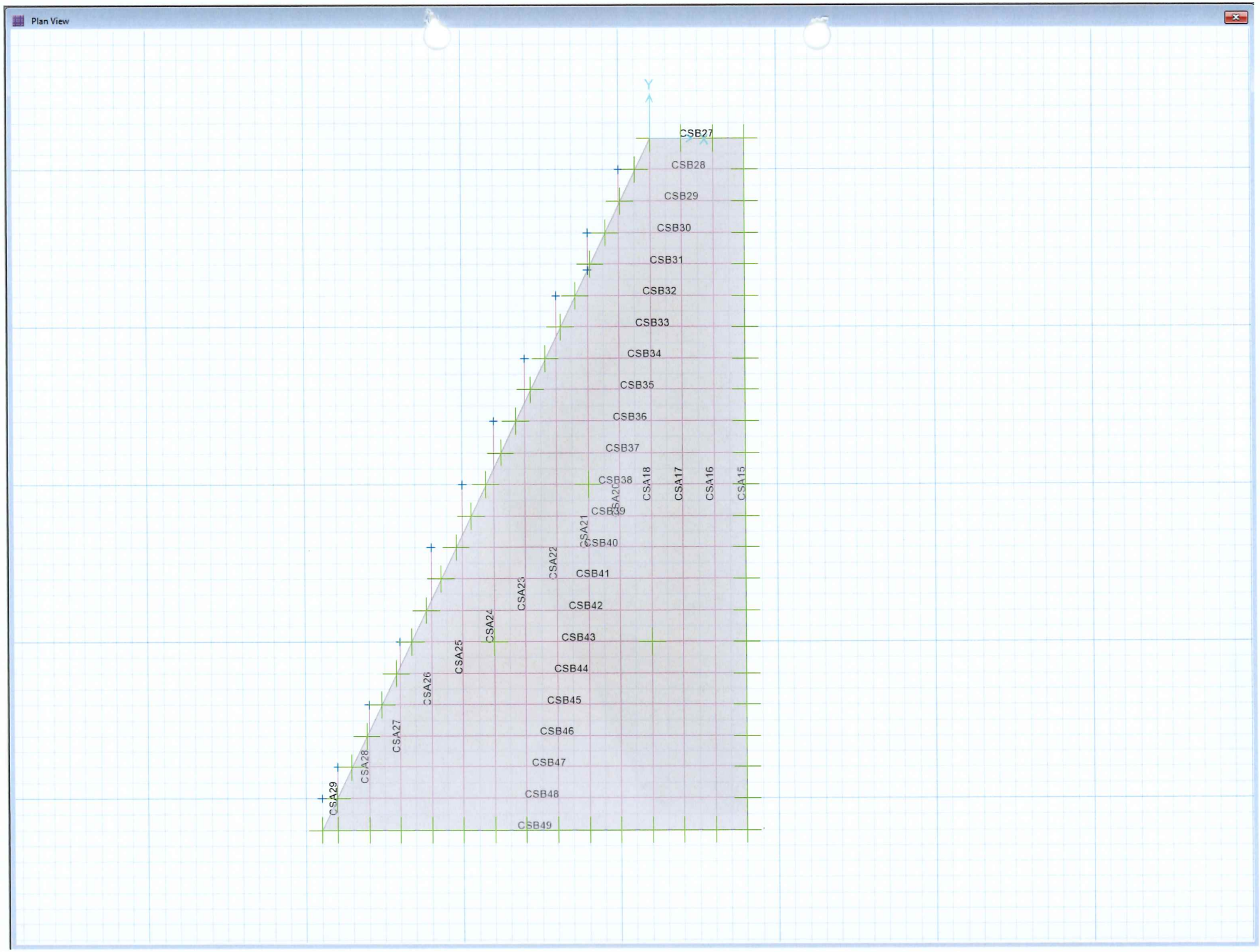
Own Weight	4.900
Finish.	1.250
Total Dead Load	6.150
Live Load(N)	7.500

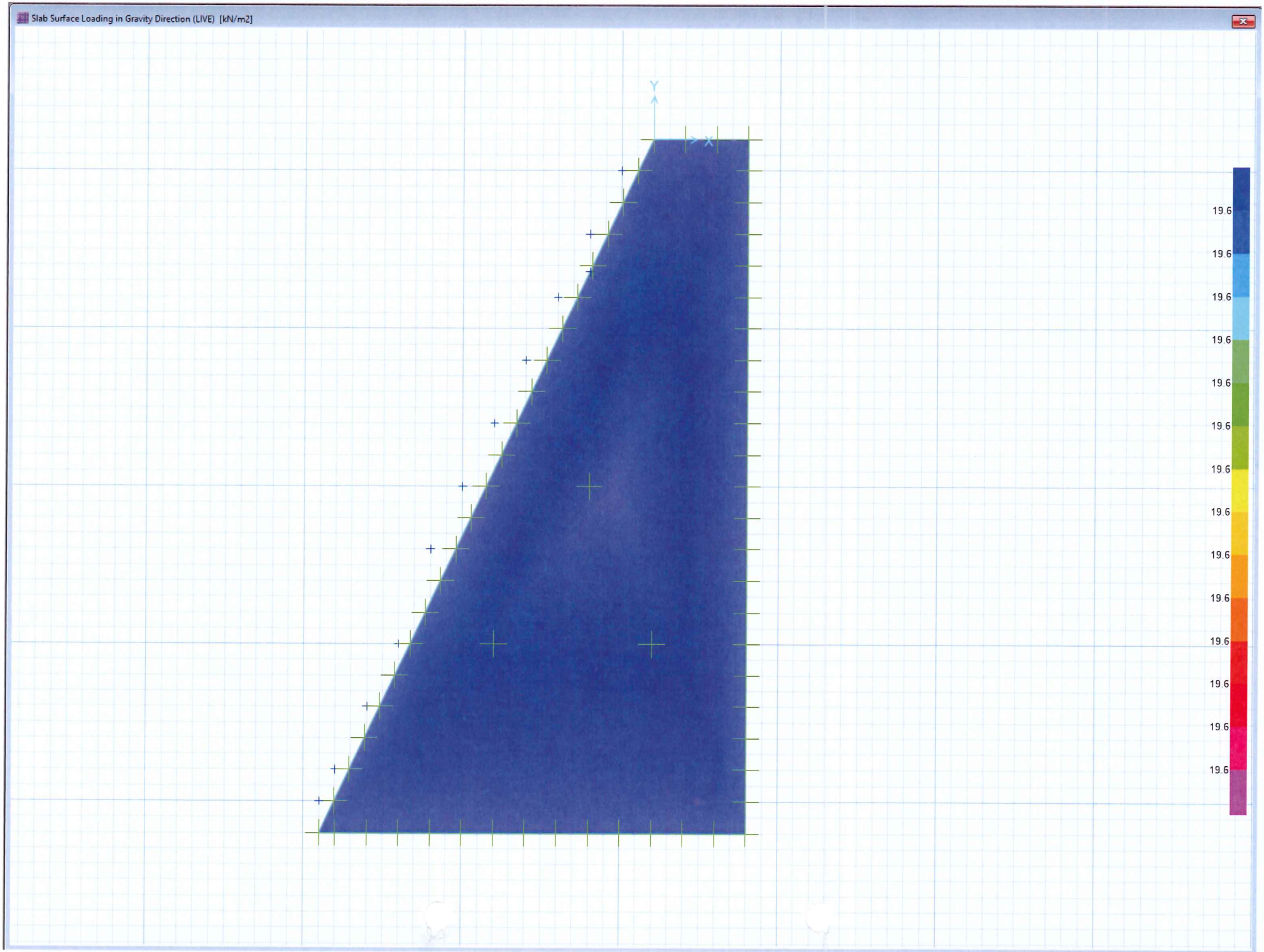
Crack Width Limit = 0.2mm No Direct Tension.
 +M = 0.125*Q*L^2 = 21.666
  K = 0.0190
  Z = 151.05
  As= 330
  Provided T12 @300 C/C
          T0 @0 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 18.239 < Allowable = 28.591 O.K.
To Beam : 8.918 (10.875)

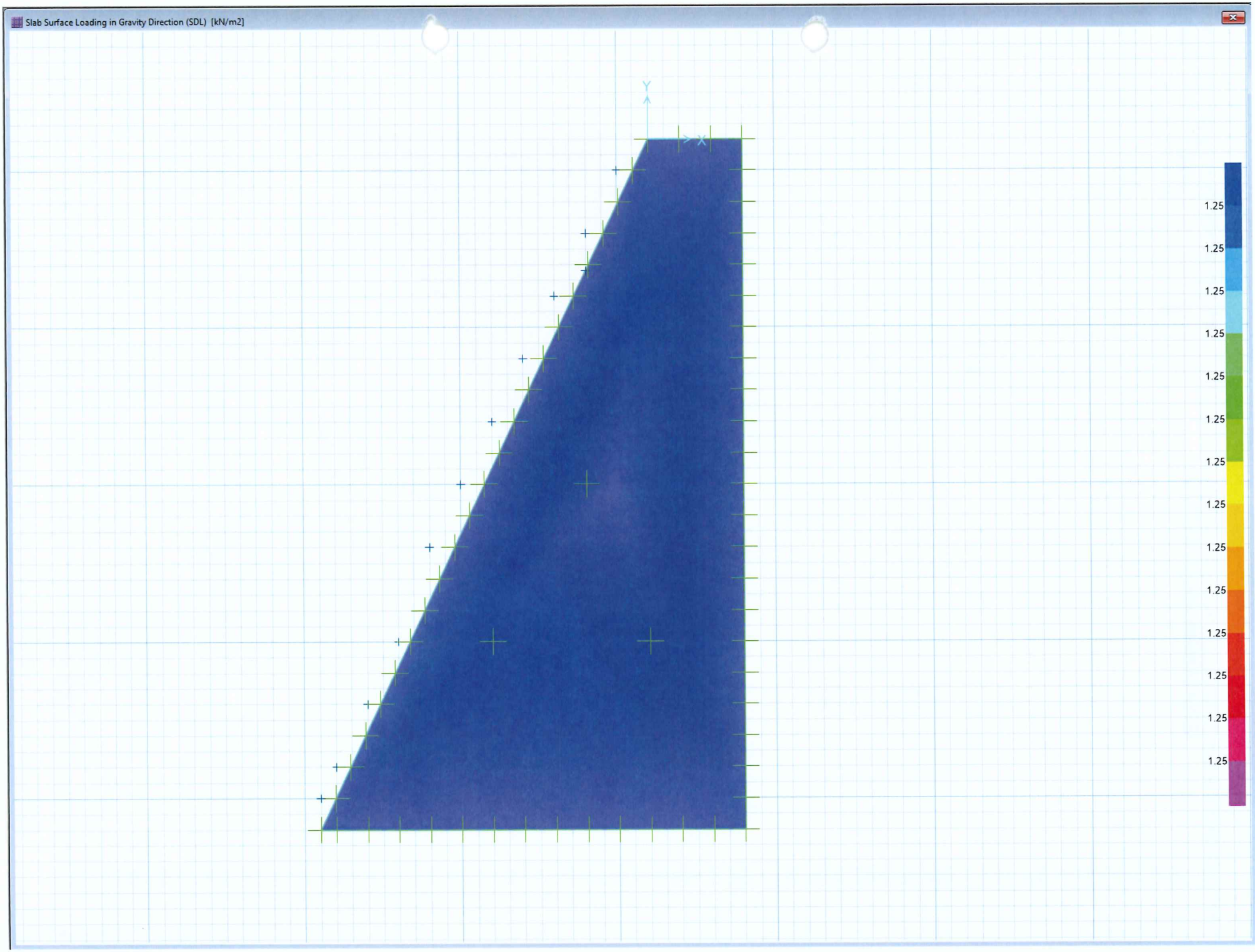
Zone 1
RC Design - Bottom Slab
(Portion 1)

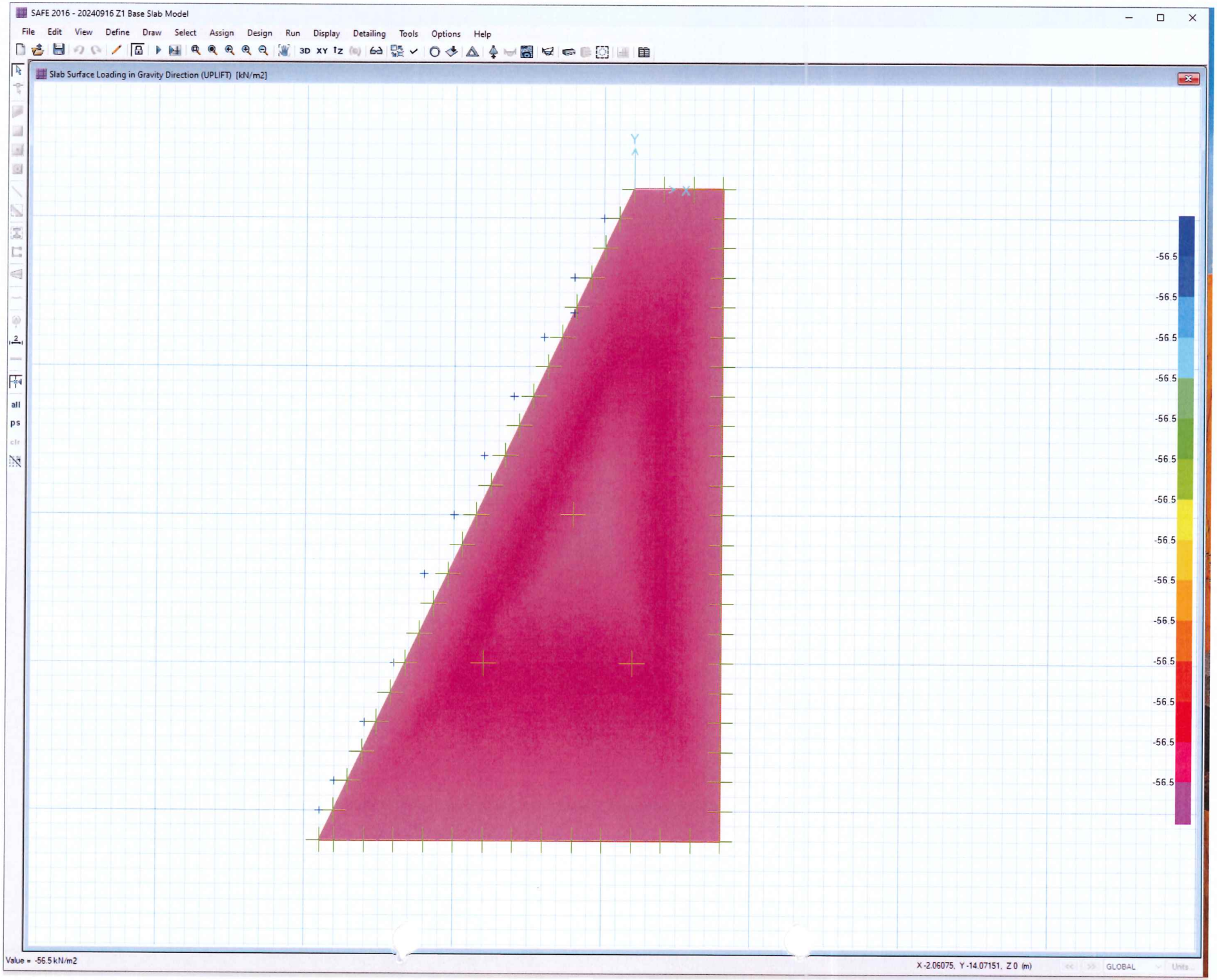

Plan View
Y
58
141
59
192
119
CSB28
82
120
CSB29
81
195
121
CSB30
80
122
CSB31
79
182
123
CSB32
78
124
CSB33
77
183
125
CSB34
76
127
CSB35
75
184
128
CSB36
74
129
CSB37
73
185
130
214
72
131
CSB39
71
186
132
CSB40
70
133
CSB41
69
134
CSB42
68
135
13
CSB43
213
67
136
CSB44
66
137
CSB45
65
138
CSB46
64
139
CSB47
63
96
140
CSB48
62
61
95
94
93
92
91
90
89
88
87
86
85
84
83
60


Plan View
Y
X
450THK


Plan View
Y
X
CSB27
CSB28
CSB29
CSB30
CSB31
CSB32
CSB33
CSB34
CSB35
CSB36
CSB37
CSB38
CSB39
CSB40
CSB41
CSB42
CSB43
CSB44
CSB45
CSB46
CSB47
CSB48
CSB49
CSA15
CSA16
CSA17
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CSA24
CSA25
CSA26
CSA27
CSA28
CSA29

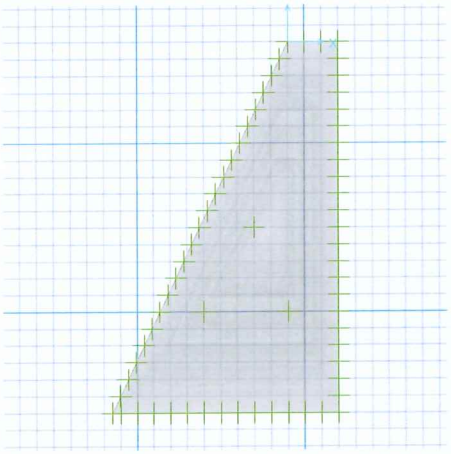

Slab Surface Loading in Gravity Direction (LIVE) [kN/m2]
Y
X
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6
19.6


Slab Surface Loading in Gravity Direction (SDL) [kN/m2]
Y
X
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25
1.25


SAFE 2016 - 20240916 Z1 Base Slab Model
File Edit View Define Draw Select Assign Design Run Display Detailing Tools Options Help
Slab Surface Loading in Gravity Direction (UPLIFT) [kN/m2]
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
-56.5
Value = -56.5 kN/m2
X -2.06075, Y -14.07151, Z 0 (m)
GLOBAL

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SAFE Analysis & Design Report

Prepared by

HP Inc.

Model Name: 20240916 Z1 Base Slab Model.fdb

29 October 2024

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Model Definition

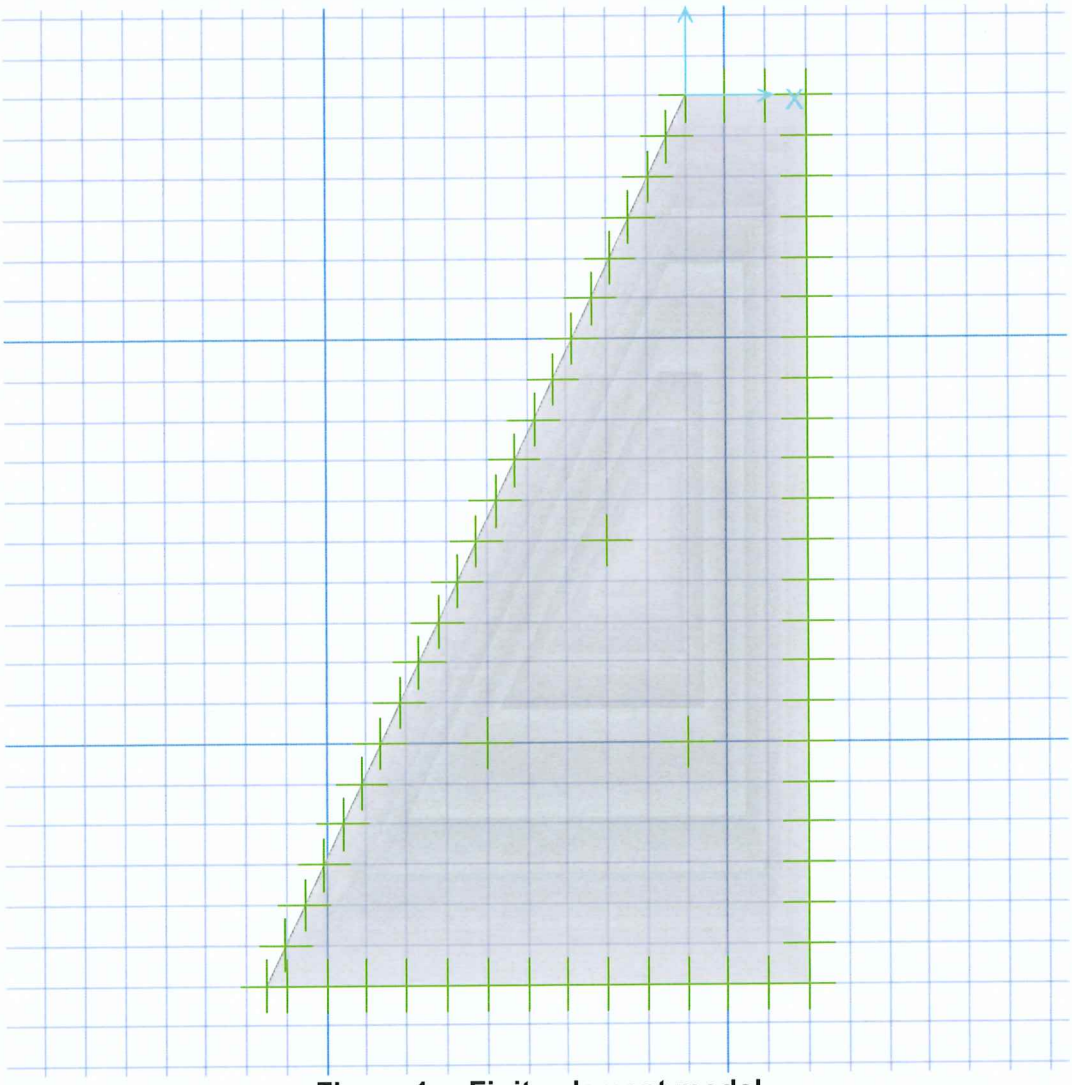


Figure 1: Finite element model

1. Model properties

This section provides model properties, including items such as material properties, section properties, and support properties.

1.1. Material properties

Table 1: Material Properties 03 - Concrete

Table 1: Material Properties 03 - Concrete

Material	E	U	A	UnitWt	Fc	LtWtConc	UserModRup
	N/mm2		1/C	kN/m3	N/mm2		
C45	26400.00000	0.200000	9.9000E-06	2.4500E+01	45.00000	No	No
CSAC30	26667.31234	0.200000	9.9000E-06	2.3563E+01	30.00000	No	No

Table 2: Material Properties 04 - Rebar

Table 2: Material Properties 04 - Rebar

Material	E	UnitWt	Fy	Fu
	N/mm2	kN/m3	N/mm2	N/mm2
CSA-G30.18Gr400	200000	7.6973E+01	400.00000	500.00000

Table 3: Material Properties 05 - Tendon

Table 3: Material Properties 05 - Tendon

Material	E	UnitWt	Fy	Fu
	N/mm2	kN/m3	N/mm2	N/mm2
A416MGr186	196501	7.6973E+01	1690.00000	1860.00000

1.2. Section properties

Table 4: Slab Properties 02 - Solid Slabs

Table 4: Slab Properties 02 - Solid Slabs

Slab	Type	MatProp	Thickness	Ortho
			mm	
400THK	Slab	C45	400.000	No
450THK	Slab	C45	450.000	No
500THK	Slab	C45	500.000	No
SLAB1	Slab	C45	500.000	No
STIFF	Stiff	C45	450.000	No

Table 5: Beam Properties 02 - Rectangular Beam

Table 5: Beam Properties 02 - Rectangular Beam

Beam	MatProp	Depth	WidthTop	WidthBot
		mm	mm	mm
BEAM1	CSAC30	600.000	300.000	300.000

Table 6: Beam Properties 06 - Design Data

Table 6: Beam Properties 06 - Design Data

Beam	MatRebarL	MatRebarS	FlngWOpt	CoverTop	CoverBot	NoDesign
				mm	mm	
BEAM1	CSA-G30.18Gr400	CSA-G30.18Gr400	Analysis Property	75.000	75.000	No

Table 7: Tendon Properties

Table 7: Tendon Properties

TendonProp	MatProp	StrandArea
		mm2
TENDON1	A416MGr186	98.71

Table 8: Column Properties 02 - Rectangular

Table 8: Column Properties 02 - Rectangular

Column	MatProp	SecDim2	SecDim3	AutoRigid	AutoDrop	IncludeCap
		mm	mm			
COL1	C45	500.000	500.000	Yes	No	No

1.3. Support properties

Table 9: Soil Properties

Table 9: Soil Properties

Soil	Subgrade	NonlinOpt
	kN/m3	
SOIL1	2.0000E+04	Compression Only

Table 10: Spring Properties - Point

Table 10: Spring Properties - Point

Spring	Ux	Uy	Uz	Rx	Ry	Rz	NonlinOpt
	kN/mm	kN/mm	kN/mm	kN-mm/rad	kN-mm/rad	kN-mm/rad	
PSPR1	0.00000	0.00000	0.00100	0.00	0.00	0.00	None (Linear)

Table 11: Spring Properties - Line

Table 11: Spring Properties - Line

Spring	VertStiff kN/mm/mm	RotStiff kN/rad	NonlinOpt
LSPR1	0.001000	1.000E-003	None (Linear)

2. Model assignments

This section provides model assignments, including assignments to slabs, beams, and joints.

2.1. Slab assignments

Table 12: Slab Property Assignments

Table 12: Slab Property Assignments

Area	SlabProp
3	450THK

2.2. Support assignments

Table 13: Point Restraint Assignments

Table 13: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
13	Yes	Yes	Yes	No	No	No
58	Yes	Yes	Yes	No	No	No
59	Yes	Yes	Yes	No	No	No
60	Yes	Yes	Yes	No	No	No
61	Yes	Yes	Yes	No	No	No
62	Yes	Yes	Yes	No	No	No
63	Yes	Yes	Yes	No	No	No
64	Yes	Yes	Yes	No	No	No
65	Yes	Yes	Yes	No	No	No
66	Yes	Yes	Yes	No	No	No
67	Yes	Yes	Yes	No	No	No
68	Yes	Yes	Yes	No	No	No
69	Yes	Yes	Yes	No	No	No
70	Yes	Yes	Yes	No	No	No
71	Yes	Yes	Yes	No	No	No
72	Yes	Yes	Yes	No	No	No
73	Yes	Yes	Yes	No	No	No
74	Yes	Yes	Yes	No	No	No
75	Yes	Yes	Yes	No	No	No
76	Yes	Yes	Yes	No	No	No
77	Yes	Yes	Yes	No	No	No
78	Yes	Yes	Yes	No	No	No
79	Yes	Yes	Yes	No	No	No
80	Yes	Yes	Yes	No	No	No
81	Yes	Yes	Yes	No	No	No
82	Yes	Yes	Yes	No	No	No
83	Yes	Yes	Yes	No	No	No
84	Yes	Yes	Yes	No	No	No
85	Yes	Yes	Yes	No	No	No
86	Yes	Yes	Yes	No	No	No
87	Yes	Yes	Yes	No	No	No

Table 13: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
88	Yes	Yes	Yes	No	No	No
89	Yes	Yes	Yes	No	No	No
90	Yes	Yes	Yes	No	No	No
91	Yes	Yes	Yes	No	No	No
92	Yes	Yes	Yes	No	No	No
93	Yes	Yes	Yes	No	No	No
94	Yes	Yes	Yes	No	No	No
95	Yes	Yes	Yes	No	No	No
119	Yes	Yes	Yes	No	No	No
120	Yes	Yes	Yes	No	No	No
121	Yes	Yes	Yes	No	No	No
122	Yes	Yes	Yes	No	No	No
123	Yes	Yes	Yes	No	No	No
124	Yes	Yes	Yes	No	No	No
125	Yes	Yes	Yes	No	No	No
127	Yes	Yes	Yes	No	No	No
128	Yes	Yes	Yes	No	No	No
129	Yes	Yes	Yes	No	No	No
130	Yes	Yes	Yes	No	No	No
131	Yes	Yes	Yes	No	No	No
132	Yes	Yes	Yes	No	No	No
133	Yes	Yes	Yes	No	No	No
134	Yes	Yes	Yes	No	No	No
135	Yes	Yes	Yes	No	No	No
136	Yes	Yes	Yes	No	No	No
137	Yes	Yes	Yes	No	No	No
138	Yes	Yes	Yes	No	No	No
139	Yes	Yes	Yes	No	No	No
140	Yes	Yes	Yes	No	No	No
141	Yes	Yes	Yes	No	No	No
142	Yes	Yes	Yes	No	No	No
213	Yes	Yes	Yes	No	No	No
214	Yes	Yes	Yes	No	No	No

3. Model loading

This section provides model loading information, including load patterns, load cases, and load combinations.

3.1. Load patterns

Table 14: Load Patterns

Table 14: Load Patterns

LoadPat	Type	SelfWtMult
DEAD	DEAD	1.000000
LIVE	LIVE	0.000000
SDL	SUPER DEAD	0.000000
UPLIFT	OTHER	0.000000

Table 15: Load Assignments - Surface Loads

Table 15: Load Assignments - Surface Loads

Area	LoadPat	Dir	UnifLoad kN/m2	A kN/m3	B kN/m3	C kN/m2
3	SDL	Gravity	1.25	0.0000E+00	0.0000E+00	0.00
3	LIVE	Gravity	19.62	0.0000E+00	0.0000E+00	0.00
3	UPLIFT	Gravity	-56.50	0.0000E+00	0.0000E+00	0.00

3.2. Load cases

Table 16: Load Cases 02 - Static

Table 16: Load Cases 02 - Static

LoadCase	InitialCond	AType
DEAD	Zero	Linear
LIVE	Zero	Linear
SDL	Zero	Linear
UPLIFT	Zero	Linear

Table 17: Load Cases 06 - Loads Applied

Table 17: Load Cases 06 - Loads Applied

LoadCase	LoadPat	SF
DEAD	DEAD	1.000000
LIVE	LIVE	1.000000
SDL	SDL	1.000000
UPLIFT	UPLIFT	1.000000

3.3. Load combinations

Table 18: Load Combinations

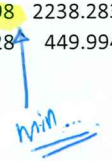
Table 18: Load Combinations

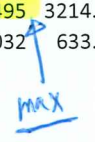
Combo	Load	SF	Type	DSStrength	DSServInit	DSServNorm	DSServLong
1.4DLSDL+1.4UP	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.4UP	UPLIFT	1.400000					
1.4DLSDL+1.4UP	SDL	1.400000					
1.4DLSDL+1.6LL	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.6LL	SDL	1.400000					
1.4DLSDL+1.6LL	LIVE	1.600000					
1.4DLSDL+1.6LL+1.4UP	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.6LL+1.4UP	SDL	1.400000					
1.4DLSDL+1.6LL+1.4UP	LIVE	1.600000					
1.4DLSDL+1.6LL+1.4UP	UPLIFT	1.400000					
1DL+1.4UP	DEAD	1.000000	Linear Add	Yes	No	No	No
1DL+1.4UP	UPLIFT	1.400000					

TABLE: Concrete Slab Design 01 - Flexural And Shear Data

Strip	Station	ConcWidth	TopCombo	TopMomer	FTopArea	FTopAMin	FBotCombo	BotMomer	FBotArea	FBotAMin	AxialForce	VCombo	VForce	VArea	Status	GlobalX	GlobalY	Layer
Text	mm	mm	Text	kN-m	mm2	mm2	Text	kN-m	mm2	mm2	kN	Text	kN	mm2/m	Text	m	m	Text
CSA15	0	500	1DL+1.4UP	-64.3728	512.478	363.214	1.4DLSDL+	45.9352	363.095	0	-5.2E-18	1DL+1.4UP	29.034	0	OK	3	-22	A
CSA15	1000	500	1DL+1.4UP	-56.4588	448.091	363.214	1DL+1.4UP	42.0246	331.688	363.214	-2.9E-18	1DL+1.4UP	29.034	0	OK	3	-21	A
CSA15	2000	500	1DL+1.4UP	-28.3489	222.596	363.214	1.4DLSDL+	20.2292	158.359	0	-6.2E-18	1DL+1.4UP	20.056	0	OK	3	-20	A
CSA15	3000	500	1DL+1.4UP	-10.7394	83.776	363.214	1DL+1.4UP	8.1775	63.731	0	-1.9E-18	1DL+1.4UP	5.231	0	OK	3	-19	A
CSA15	4000	500	1DL+1.4UP	-31.0808	244.297	363.214	1DL+1.4UP	22.8635	179.157	0	-9.5E-18	1DL+1.4UP	0.698	0	OK	3	-18	A
CSA15	5000	500	1DL+1.4UP	-23.2856	182.493	363.214	1DL+1.4UP	26.0373	204.269	363.214	-4.9E-18	1DL+1.4UP	3.594	0	OK	3	-17	A
CSA15	6000	500	1.4DLSDL+	-7.7983	60.768	0	1DL+1.4UP	10.9284	85.257	363.214	-4.9E-18	1DL+1.4UP	4.806	0	OK	3	-16	A
CSA15	7000	500	1DL+1.4UP	-13.0451	101.849	363.214	1DL+1.4UP	12.3484	96.385	0	-1.5E-18	1DL+1.4UP	4.806	0	OK	3	-15	A
CSA15	8000	500	1DL+1.4UP	-28.1542	221.051	363.214	1DL+1.4UP	23.3783	183.226	363.214	-5.9E-18	1DL+1.4UP	7.81	0	OK	3	-14	A
CSA15	9000	500	1DL+1.4UP	-28.4065	223.053	363.214	1.4DLSDL+	20.2704	158.684	0	-6.6E-18	1DL+1.4UP	9.606	0	OK	3	-13	A
CSA15	10000	500	1DL+1.4UP	-22.6116	177.166	363.214	1DL+1.4UP	17.0134	133.026	363.214	-1.1E-17	1DL+1.4UP	9.606	0	OK	3	-12	A
CSA15	11000	500	1DL+1.4UP	-20.7074	162.131	363.214	1DL+1.4UP	14.8523	116.036	0	-9.3E-18	1DL+1.4UP	7.546	0	OK	3	-11	A
CSA15	12000	500	1DL+1.4UP	-20.4625	160.199	363.214	1.4DLSDL+	14.6016	114.067	0	-7.4E-18	1DL+1.4UP	4.507	0	OK	3	-10	A
CSA15	13000	500	1DL+1.4UP	-19.1288	149.684	363.214	1.4DLSDL+	13.6499	106.595	0	-4.1E-18	1DL+1.4UP	3.051	0	OK	3	-9	A
CSA15	14000	500	1DL+1.4UP	-13.9392	108.866	363.214	1.4DLSDL+	9.9468	77.57	0	-2E-17	1DL+1.4UP	2.824	0	OK	3	-8	A
CSA15	15000	500	1DL+1.4UP	-6.2696	48.828	363.214	1.4DLSDL+	4.4739	34.82	0	-2.7E-17	1DL+1.4UP	2.154	0	OK	3	-7	A
CSA15	16000	500	1DL+1.4UP	-14.0789	109.962	363.214	1.4DLSDL+	10.0464	78.351	0	-1.6E-17	1DL+1.4UP	1.758	0	OK	3	-6	A
CSA15	17000	500	1DL+1.4UP	-21.3897	167.516	363.214	1.4DLSDL+	15.2633	119.265	0	-4.1E-17	1DL+1.4UP	3.808	0	OK	3	-5	A
CSA15	18000	500	1DL+1.4UP	-27.304	214.307	363.214	1.4DLSDL+	19.4836	152.48	0	-4E-17	1DL+1.4UP	6.608	0	OK	3	-4	A
CSA15	19000	500	1DL+1.4UP	-29.7794	233.954	363.214	1DL+1.4UP	21.8619	171.244	0	-4.8E-17	1DL+1.4UP	8.505	0	OK	3	-3	A
CSA15	20000	500	1DL+1.4UP	-33.2708	261.727	363.214	1DL+1.4UP	25.1202	197.006	363.214	-3.8E-17	1DL+1.4UP	14.258	0	OK	3	-2	A
CSA15	21000	500	1DL+1.4UP	-39.3355	310.146	363.214	1DL+1.4UP	29.9154	235.034	363.214	-5.8E-18	1DL+1.4UP	14.258	0	OK	3	-1	A
CSA15	22000	500	1DL+1.4UP	-38.7809	305.709	363.214	1.4DLSDL+	27.6733	217.236	0	-1.7E-17	1DL+1.4UP	12.925	0	OK	3	0	A
CSA16	0	1000	1DL+1.4UP	-103.685	821.438	726.429	1.4DLSDL+	73.9875	582.847	0	-2E-17	1DL+1.4UP	3.409	0	OK	2	-22	A
CSA16	1000	1000	1DL+1.4UP	-133.108	1060.592	726.429	1.4DLSDL+	94.9835	751.245	0	-1E-17	1DL+1.4UP	11.787	0	OK	2	-21	A
CSA16	2000	1000	1DL+1.4UP	-105.667	837.458	726.429	1.4DLSDL+	75.4016	594.146	0	-1.7E-17	1DL+1.4UP	11.787	0	OK	2	-20	A
CSA16	3000	1000	1DL+1.4UP	-74.5703	587.503	726.429	1.4DLSDL+	53.2119	417.548	0	-1.8E-17	1DL+1.4UP	14.199	0	OK	2	-19	A
CSA16	4000	1000	1DL+1.4UP	-97.6028	772.35	726.429	1.4DLSDL+	69.6475	548.208	0	-6.3E-18	1DL+1.4UP	28.229	0	OK	2	-18	A
CSA16	5000	1000	1DL+1.4UP	-53.4457	419.401	0	1DL+1.4UP	71.1533	560.22	726.429	-8.7E-18	1DL+1.4UP	37.099	0	OK	2	-17	A
CSA16	6000	1000	1.4DLSDL+	-50.5311	396.313	0	1DL+1.4UP	70.8135	557.508	726.429	-6.9E-18	1DL+1.4UP	37.099	0	OK	2	-16	A
CSA16	7000	1000	1.4DLSDL+	-37.7974	295.741	0	1DL+1.4UP	52.9686	415.62	726.429	-4E-18	1DL+1.4UP	33.217	0	OK	2	-15	A
CSA16	8000	1000	1DL+1.4UP	-60.2224	473.18	726.429	1.4DLSDL+	42.9735	336.565	0	-1E-17	1DL+1.4UP	20.58	0	OK	2	-14	A
CSA16	9000	1000	1DL+1.4UP	-57.9042	454.767	726.429	1.4DLSDL+	41.3193	323.509	0	-9.6E-18	1DL+1.4UP	12.253	0	OK	2	-13	A
CSA16	10000	1000	1DL+1.4UP	-48.2557	378.307	726.429	1.4DLSDL+	34.4344	269.26	0	-2.2E-17	1DL+1.4UP	12.253	0	OK	2	-12	A
CSA16	11000	1000	1DL+1.4UP	-46.0451	360.827	726.429	1.4DLSDL+	32.8569	256.85	0	-1.3E-17	1DL+1.4UP	10.42	0	OK	2	-11	A
CSA16	12000	1000	1DL+1.4UP	-55.104	432.548	726.429	1.4DLSDL+	39.3212	307.751	0	-2.3E-17	1DL+1.4UP	2.844	0	OK	2	-10	A
CSA16	13000	1000	1DL+1.4UP	-63.313	497.753	726.429	1.4DLSDL+	45.1789	353.983	0	-1.4E-17	1DL+1.4UP	2.844	0	OK	2	-9	A

CSA16	14000	1000	1DL+1.4UP	-59.0545	463.902	726.429	1.4DLSDL+	42.1402	329.987	0	-4.6E-17	1DL+1.4UP	2.235	0	OK	2	-8	A
CSA16	15000	1000	1DL+1.4UP	-47.0453	368.734	726.429	1.4DLSDL+	33.5706	262.464	0	-4.3E-17	1DL+1.4UP	2.942	0	OK	2	-7	A
CSA16	16000	1000	1DL+1.4UP	-60.3018	473.811	726.429	1.4DLSDL+	43.0302	337.012	0	-2.8E-17	1DL+1.4UP	2.942	0	OK	2	-6	A
CSA16	17000	1000	1DL+1.4UP	-70.9333	558.464	726.429	1.4DLSDL+	50.6166	396.99	0	-7.5E-17	1DL+1.4UP	1.461	0	OK	2	-5	A
CSA16	18000	1000	1DL+1.4UP	-72.643	572.109	726.429	1.4DLSDL+	51.8366	406.651	0	-8.4E-17	1DL+1.4UP	4.113	0	OK	2	-4	A
CSA16	19000	1000	1DL+1.4UP	-71.928	566.402	726.429	1.4DLSDL+	51.3265	402.611	0	-8.7E-17	1DL+1.4UP	6.61	0	OK	2	-3	A
CSA16	20000	1000	1DL+1.4UP	-65.8443	517.9	726.429	1.4DLSDL+	46.9852	368.259	0	-8.6E-17	1DL+1.4UP	7.782	0	OK	2	-2	A
CSA16	21000	1000	1DL+1.4UP	-64.0137	503.328	726.429	1.4DLSDL+	45.6789	357.934	0	-4.9E-17	1DL+1.4UP	14.792	0	OK	2	-1	A
CSA16	22000	1000	1DL+1.4UP	-42.4568	332.486	726.429	1DL+1.4UP	36.9868	289.355	0	-4.1E-17	1DL+1.4UP	14.792	0	OK	2	0	A
CSA17	0	1000	1DL+1.4UP	-61.5801	483.971	0	1DL+1.4UP	71.2936	561.339	726.429	-3.6E-17	1DL+1.4UP	92.16	0	OK	1	-22	A
CSA17	1000	1000	1DL+1.4UP	-142.58	1138.181	726.429	1.4DLSDL+	101.7425	805.749	0	-2.4E-17	1DL+1.4UP	92.16	0	OK	1	-21	A
CSA17	2000	1000	1DL+1.4UP	-147.604	1179.452	726.429	1.4DLSDL+	105.3272	834.714	0	-1.7E-17	1DL+1.4UP	32.574	0	OK	1	-20	A
CSA17	3000	1000	1DL+1.4UP	-128.121	1019.856	726.429	1.4DLSDL+	91.4245	722.604	0	-2.8E-17	1DL+1.4UP	41.986	0	OK	1	-19	A
CSA17	4000	1000	1DL+1.4UP	-117.477	933.19	726.429	1.4DLSDL+	83.829	661.61	0	-9.2E-18	1DL+1.4UP	89.351	0	OK	1	-18	A
CSA17	5000	1000	1.4DLSDL+	-63.3246	497.845	0	1DL+1.4UP	88.742	701.042	726.429	-1.8E-17	1DL+1.4UP	191.156	1243.94	OK	1	-17	A
CSA17	6000	1000	1.4DLSDL+	-164.937	1322.502	0	1DL+1.4UP	231.1393	1878.538	726.429	-1.7E-17	1DL+1.4UP	191.156	0	OK	1	-16	A
CSA17	7000	1000	1.4DLSDL+	-60.7746	477.568	0	1DL+1.4UP	85.1685	672.353	726.429	-1.4E-17	1DL+1.4UP	175.162	1243.94	OK	1	-15	A
CSA17	8000	1000	1DL+1.4UP	-58.4718	459.274	726.429	1.4DLSDL+	41.7243	326.705	0	-1.2E-17	1DL+1.4UP	71.783	0	OK	1	-14	A
CSA17	9000	1000	1DL+1.4UP	-58.7207	461.251	726.429	1.4DLSDL+	41.9019	328.107	0	-8.2E-18	1DL+1.4UP	23.11	0	OK	1	-13	A
CSA17	10000	1000	1DL+1.4UP	-36.5216	285.692	726.429	1.4DLSDL+	26.0611	203.47	0	-2.5E-17	1DL+1.4UP	9.011	0	OK	1	-12	A
CSA17	11000	1000	1DL+1.4UP	-31.6135	247.073	726.429	1.4DLSDL+	22.5588	176.012	0	-2E-17	1DL+1.4UP	18.702	0	OK	1	-11	A
CSA17	12000	1000	1DL+1.4UP	-56.0222	439.831	726.429	1.4DLSDL+	39.9763	312.917	0	-4.8E-17	1DL+1.4UP	25.208	0	OK	1	-10	A
CSA17	13000	1000	1DL+1.4UP	-83.0872	655.663	726.429	1.4DLSDL+	59.2894	465.768	0	-6.5E-17	1DL+1.4UP	25.208	0	OK	1	-9	A
CSA17	14000	1000	1DL+1.4UP	-88.7212	700.875	726.429	1.4DLSDL+	63.3097	497.727	0	-3.5E-17	1DL+1.4UP	13.872	0	OK	1	-8	A
CSA17	15000	1000	1DL+1.4UP	-83.5385	659.281	726.429	1.4DLSDL+	59.6115	468.326	0	-1E-16	1DL+1.4UP	7.286	0	OK	1	-7	A
CSA17	16000	1000	1DL+1.4UP	-91.6856	724.703	726.429	1.4DLSDL+	65.4251	514.562	0	-8.3E-17	1DL+1.4UP	11.7	0	OK	1	-6	A
CSA17	17000	1000	1DL+1.4UP	-88.9049	702.351	726.429	1.4DLSDL+	63.4408	498.77	0	-6.3E-17	1DL+1.4UP	12.851	0	OK	1	-5	A
CSA17	18000	1000	1DL+1.4UP	-78.9163	622.256	726.429	1.4DLSDL+	56.3132	442.14	0	-1.3E-16	1DL+1.4UP	12.851	0	OK	1	-4	A
CSA17	19000	1000	1DL+1.4UP	-60.9766	479.174	726.429	1.4DLSDL+	43.5117	340.814	0	-1.1E-16	1DL+1.4UP	12.148	0	OK	1	-3	A
CSA17	20000	1000	1DL+1.4UP	-42.4777	332.651	726.429	1.4DLSDL+	30.3113	236.839	0	-9.5E-17	1DL+1.4UP	13.862	0	OK	1	-2	A
CSA17	21000	1000	1DL+1.4UP	-37.9203	296.709	726.429	1.4DLSDL+	27.0592	211.301	0	-5.2E-17	1DL+1.4UP	29.648	0	OK	1	-1	A
CSA17	22000	1000	1.4DLSDL+	-19.9334	155.453	0	1DL+1.4UP	27.9344	218.171	726.429	-5.9E-17	1DL+1.4UP	29.648	0	OK	1	0	A
CSA18	0	1000	1.4DLSDL+	-40.022	313.276	0	1DL+1.4UP	56.0861	440.338	726.429	-5E-17	1DL+1.4UP	122.046	0	OK	0	-22	A
CSA18	1000	1000	1DL+1.4UP	-152.43	1219.181	726.429	1.4DLSDL+	108.771	862.579	0	-4.9E-17	1DL+1.4UP	122.046	0	OK	0	-21	A
CSA18	2000	1000	1DL+1.4UP	-177.984	1430.862	726.429	1.4DLSDL+	127.006	1010.762	0	-5E-17	1DL+1.4UP	55.915	0	OK	0	-20	A
CSA18	3000	1000	1DL+1.4UP	-167.599	1344.567	726.429	1.4DLSDL+	119.5955	950.412	0	-3.8E-17	1DL+1.4UP	58.615	0	OK	0	-19	A
CSA18	4000	1000	1DL+1.4UP	-147.286	1176.838	726.429	1.4DLSDL+	105.1004	832.88	0	-2E-17	1DL+1.4UP	142.374	0	OK	0	-18	A
CSA18	5000	1000	1DL+1.4UP	-36.7539	287.521	0	1DL+1.4UP	45.8357	359.172	726.429	-4.8E-17	1DL+1.4UP	300.957	0	OK	0	-17	A
CSA18	6000	1000	1.4DLSDL+	-272.98	2238.283	0	1DL+1.4UP	382.5495	3214.086	726.429	-1.7E-17	1DL+1.4UP	300.957	0	OK	0	-16	A
CSA18	7000	1000	1.4DLSDL+	-57.3028	449.994	0	1DL+1.4UP	80.3032	633.358	726.429	-1.5E-17	1DL+1.4UP	325.293	0	OK	0	-15	A





CSA18	8000	1000	1DL+1.4UP	-104.481	827.869	726.429	1.4DLSDL+	74.5552	587.382	0	-2.1E-17	1DL+1.4UP	115.266	0	OK	0	-14 A
CSA18	9000	1000	1DL+1.4UP	-99.1472	784.804	726.429	1.4DLSDL+	70.7495	556.998	0	-1.8E-17	1DL+1.4UP	30.77	0	OK	0	-13 A
CSA18	10000	1000	1DL+1.4UP	-50.7214	397.82	726.429	1.4DLSDL+	36.1938	283.11	0	-2.3E-17	1DL+1.4UP	23.884	0	OK	0	-12 A
CSA18	11000	1000	1.4DLSDL+	-24.5835	191.881	0	1DL+1.4UP	34.4508	269.389	726.429	-6.6E-17	1DL+1.4UP	44.973	0	OK	0	-11 A
CSA18	12000	1000	1DL+1.4UP	-41.9108	328.177	726.429	1.4DLSDL+	29.9067	233.66	0	-1.1E-16	1DL+1.4UP	51.244	0	OK	0	-10 A
CSA18	13000	1000	1DL+1.4UP	-95.4247	754.799	726.429	1.4DLSDL+	68.0932	535.816	0	-1.3E-16	1DL+1.4UP	51.244	0	OK	0	-9 A
CSA18	14000	1000	1DL+1.4UP	-104.601	828.846	726.429	1.4DLSDL+	74.6415	588.072	0	-1.6E-16	1DL+1.4UP	25.783	0	OK	0	-8 A
CSA18	15000	1000	1DL+1.4UP	-111.941	888.263	726.429	1.4DLSDL+	79.879	629.961	0	-1.3E-16	1DL+1.4UP	12.816	0	OK	0	-7 A
CSA18	16000	1000	1DL+1.4UP	-108.23	858.203	726.429	1.4DLSDL+	77.2311	608.773	0	-2E-16	1DL+1.4UP	21.806	0	OK	0	-6 A
CSA18	17000	1000	1DL+1.4UP	-91.8525	726.046	726.429	1.4DLSDL+	65.5442	515.51	0	-2.1E-16	1DL+1.4UP	24.949	0	OK	0	-5 A
CSA18	18000	1000	1DL+1.4UP	-62.2114	488.991	726.429	1.4DLSDL+	44.3929	347.773	0	-2.1E-16	1DL+1.4UP	24.973	0	OK	0	-4 A
CSA18	19000	1000	1DL+1.4UP	-31.0806	242.885	726.429	1.4DLSDL+	22.1785	173.033	0	-2.1E-16	1DL+1.4UP	24.973	0	OK	0	-3 A
CSA18	20000	1000	1DL+1.4UP	-9.5214	74.112	726.429	1DL+1.4UP	10.7051	83.344	726.429	-1.1E-16	1DL+1.4UP	21.526	0	OK	0	-2 A
CSA18	21000	974.89	1.4DLSDL+	-32.7947	256.401	0	1DL+1.4UP	45.958	360.218	708.185	-6.1E-17	1DL+1.4UP	29.702	0	OK	0	-1 A
CSA18	22000	502.39	1.4DLSDL+	-25.4332	199.475	0	1DL+1.4UP	35.6416	280.61	364.948	-5.7E-17	1DL+1.4UP	1.771	0	OK	0	0 A
CSA20	0	1000	1.4DLSDL+	-31.5714	246.742	0	1DL+1.4UP	44.2436	346.594	726.429	-7E-17	1DL+1.4UP	138.9	0	OK	-1	-22 A
CSA20	1000	1000	1DL+1.4UP	-152.834	1222.508	726.429	1.4DLSDL+	109.0591	864.912	0	-7.2E-17	1DL+1.4UP	138.9	0	OK	-1	-21 A
CSA20	2000	1000	1DL+1.4UP	-194.397	1568.016	726.429	1.4DLSDL+	138.7182	1106.51	0	-8.1E-17	1DL+1.4UP	67.601	0	OK	-1	-20 A
CSA20	3000	1000	1DL+1.4UP	-183.714	1478.638	726.429	1.4DLSDL+	131.095	1044.138	0	-8.3E-17	1DL+1.4UP	59.666	0	OK	-1	-19 A
CSA20	4000	1000	1DL+1.4UP	-133.175	1061.139	726.429	1.4DLSDL+	95.0312	751.63	0	-7.6E-17	1DL+1.4UP	131.187	0	OK	-1	-18 A
CSA20	5000	1000	1.4DLSDL+	-34.6895	271.268	0	1DL+1.4UP	48.6133	381.136	726.429	-6.9E-17	1DL+1.4UP	157.91	1243.94	OK	-1	-17 A
CSA20	6000	1000	1.4DLSDL+	-131.598	1048.246	0	1DL+1.4UP	184.4189	1484.52	726.429	-7.2E-17	1DL+1.4UP	157.91	0	OK	-1	-16 A
CSA20	7000	1000	1.4DLSDL+	-85.0562	671.453	0	1DL+1.4UP	119.1964	947.168	726.429	-4.4E-17	1DL+1.4UP	123.65	0	OK	-1	-15 A
CSA20	8000	1000	1DL+1.4UP	-98.603	780.415	726.429	1.4DLSDL+	70.3612	553.9	0	-4.3E-17	1DL+1.4UP	94.025	0	OK	-1	-14 A
CSA20	9000	1000	1DL+1.4UP	-114.076	905.575	726.429	1.4DLSDL+	81.4021	642.159	0	-2.8E-17	1DL+1.4UP	60.857	0	OK	-1	-13 A
CSA20	10000	1000	1.4DLSDL+	-67.2346	528.974	0	1DL+1.4UP	94.2215	745.109	726.429	-8.6E-17	1DL+1.4UP	125.916	0	OK	-1	-12 A
CSA20	11000	1000	1.4DLSDL+	-116.43	924.685	0	1DL+1.4UP	163.1626	1307.814	726.429	-1.4E-16	1DL+1.4UP	147.967	0	OK	-1	-11 A
CSA20	12000	1000	1DL+1.4UP	-31.7597	248.222	0	1DL+1.4UP	39.5671	309.69	726.429	-1.7E-16	1DL+1.4UP	147.967	0	OK	-1	-10 A
CSA20	13000	1000	1DL+1.4UP	-97.1034	768.324	726.429	1.4DLSDL+	69.2911	545.366	0	-4.3E-16	1DL+1.4UP	90.93	0	OK	-1	-9 A
CSA20	14000	1000	1DL+1.4UP	-127.759	1016.907	726.429	1.4DLSDL+	91.1666	720.53	0	-4E-16	1DL+1.4UP	35.419	0	OK	-1	-8 A
CSA20	15000	1000	1DL+1.4UP	-128.824	1025.594	726.429	1.4DLSDL+	91.9263	726.639	0	-9.1E-16	1DL+1.4UP	23.296	0	OK	-1	-7 A
CSA20	16000	1000	1DL+1.4UP	-108.977	864.249	726.429	1.4DLSDL+	77.764	613.036	0	-1.1E-15	1DL+1.4UP	34.76	0	OK	-1	-6 A
CSA20	17000	1000	1DL+1.4UP	-71.657	564.239	726.429	1.4DLSDL+	51.133	401.079	0	-8.7E-16	1DL+1.4UP	39.053	0	OK	-1	-5 A
CSA20	18000	1000	1DL+1.4UP	-32.2358	251.966	726.429	1.4DLSDL+	23.0029	179.492	0	-3.9E-16	1DL+1.4UP	39.053	0	OK	-1	-4 A
CSA20	19000	929.43	1.4DLSDL+	-17.1218	133.487	0	1DL+1.4UP	23.9942	187.319	678.633	-3.6E-16	1DL+1.4UP	35.551	0	OK	-1	-3 A
CSA20	19904.76	497.61	1.4DLSDL+	-17.1071	133.76	0	1DL+1.4UP	23.9737	187.926	364.948	-9.4E-17	1DL+1.4UP	16.068	0	OK	-1	-2.09524 A
CSA20	20000	452.16	1.4DLSDL+	-16.4969	129.037	0	1DL+1.4UP	23.1185	181.319	331.928	-7.8E-17	1DL+1.4UP	15.28	0	OK	-1	-2 A
CSA20	21000	0		0	0	0		0	0	0	0		0	0	OK	-1	-1 A
CSA21	0	1000	1.4DLSDL+	-19.0548	148.577	0	1DL+1.4UP	26.703	218.41	726.429	-2.2E-16	1DL+1.4UP	144.923	0	OK	-2	-22 A
CSA21	1000	1000	1DL+1.4UP	-144.077	1178.438	726.429	1.4DLSDL+	102.8104	814.374	0	-2.3E-16	1DL+1.4UP	144.923	0	OK	-2	-21 A

CSA21	2000	1000	1DL+1.4UP	-192.585	1552.824	726.429	1.4DLSDL+	137.4249	1095.914	0	-1.6E-16	1DL+1.4UP	73.049	0	OK	-2	-20	A
CSA21	3000	1000	1DL+1.4UP	-184.56	1485.7	726.429	1.4DLSDL+	131.6986	1049.07	0	-1.7E-16	1DL+1.4UP	49.558	0	OK	-2	-19	A
CSA21	4000	1000	1DL+1.4UP	-125.47	998.241	726.429	1.4DLSDL+	89.5332	707.399	0	-2.3E-16	1DL+1.4UP	94.518	0	OK	-2	-18	A
CSA21	5000	1000	1DL+1.4UP	-19.8097	154.485	726.429	1.4DLSDL+	14.1358	110.123	0	-2.8E-16	1DL+1.4UP	94.518	0	OK	-2	-17	A
CSA21	6000	1000	1.4DLSDL+	-49.6932	389.681	0	1DL+1.4UP	69.6392	548.142	726.429	-2.3E-16	1DL+1.4UP	74.857	0	OK	-2	-16	A
CSA21	7000	1000	1.4DLSDL+	-33.8255	264.469	0	1DL+1.4UP	47.4025	371.559	726.429	-1.8E-16	1DL+1.4UP	51.433	0	OK	-2	-15	A
CSA21	8000	1000	1DL+1.4UP	-78.8919	622.06	726.429	1.4DLSDL+	56.2957	442.002	0	-5.1E-17	1DL+1.4UP	51.433	0	OK	-2	-14	A
CSA21	9000	1000	1DL+1.4UP	-101.087	800.457	726.429	1.4DLSDL+	72.1338	568.044	0	-2.4E-17	1DL+1.4UP	88.922	0	OK	-2	-13	A
CSA21	10000	1000	1DL+1.4UP	-40.3151	315.588	0	1DL+1.4UP	52.2075	409.59	726.429	-2E-17	1DL+1.4UP	301.285	0	OK	-2	-12	A
CSA21	11000	1000	1.4DLSDL+	-268.54	2199.786	0	1DL+1.4UP	376.327	3157.271	726.429	-1.2E-16	1DL+1.4UP	316.445	0	OK	-2	-11	A
CSA21	12000	1000	1DL+1.4UP	-51.2263	401.818	726.429	1DL+1.4UP	45.4445	356.081	726.429	-2.3E-16	1DL+1.4UP	316.445	0	OK	-2	-10	A
CSA21	13000	1000	1DL+1.4UP	-140.833	1123.849	726.429	1.4DLSDL+	100.4959	795.686	0	-2.1E-16	1DL+1.4UP	107.369	0	OK	-2	-9	A
CSA21	14000	1000	1DL+1.4UP	-147.547	1178.987	726.429	1.4DLSDL+	105.2868	834.388	0	-4.3E-16	1DL+1.4UP	29.36	0	OK	-2	-8	A
CSA21	15000	1000	1DL+1.4UP	-129.375	1030.092	726.429	1.4DLSDL+	92.3195	729.802	0	-3.9E-15	1DL+1.4UP	43.193	0	OK	-2	-7	A
CSA21	16000	1000	1DL+1.4UP	-84.6419	668.129	726.429	1.4DLSDL+	60.3988	474.582	0	-1.3E-15	1DL+1.4UP	50.045	0	OK	-2	-6	A
CSA21	17000	883.98	1DL+1.4UP	-26.5094	207.12	642.146	1.4DLSDL+	18.9166	147.563	0	-6.4E-16	1DL+1.4UP	45.299	0	OK	-2	-5	A
CSA21	17809.52	497.61	1.4DLSDL+	-8.5178	66.39	0	1DL+1.4UP	11.9366	93.155	364.948	-7.2E-16	1DL+1.4UP	24.751	0	OK	-2	-4.19048	A
CSA21	18000	406.7	1.4DLSDL+	-7.7183	60.179	0	1DL+1.4UP	10.8164	84.451	298.909	-6.1E-16	1DL+1.4UP	20.739	0	OK	-2	-4	A
CSA21	19000	0		0	0	0		0	0	0	0		0	0	OK	-2	-3	A
CSA22	0	1000	1.4DLSDL+	-11.9071	92.723	0	1DL+1.4UP	16.6865	130.054	726.429	-1.4E-16	1DL+1.4UP	144.953	0	OK	-3	-22	A
CSA22	1000	1000	1DL+1.4UP	-136.731	1090.234	726.429	1.4DLSDL+	97.5687	772.075	0	-5.9E-17	1DL+1.4UP	144.953	0	OK	-3	-21	A
CSA22	2000	1000	1DL+1.4UP	-190.299	1533.676	726.429	1.4DLSDL+	135.7934	1082.557	0	-4.5E-16	1DL+1.4UP	73.729	0	OK	-3	-20	A
CSA22	3000	1000	1DL+1.4UP	-188.832	1521.407	726.429	1.4DLSDL+	134.7472	1073.995	0	-1.8E-15	1DL+1.4UP	47.789	0	OK	-3	-19	A
CSA22	4000	1000	1DL+1.4UP	-137.226	1094.285	726.429	1.4DLSDL+	97.9218	774.921	0	-1E-15	1DL+1.4UP	91.34	0	OK	-3	-18	A
CSA22	5000	1000	1DL+1.4UP	-35.0439	274.057	726.429	1.4DLSDL+	25.0066	195.199	0	-7.3E-16	1DL+1.4UP	91.34	0	OK	-3	-17	A
CSA22	6000	1000	1.4DLSDL+	-46.2777	362.666	0	1DL+1.4UP	64.8528	510.006	726.429	-4.1E-16	1DL+1.4UP	74.018	0	OK	-3	-16	A
CSA22	7000	1000	1.4DLSDL+	-24.3734	190.234	0	1DL+1.4UP	34.1565	267.073	726.429	-3.1E-16	1DL+1.4UP	47.148	0	OK	-3	-15	A
CSA22	8000	1000	1DL+1.4UP	-61.3864	482.431	726.429	1.4DLSDL+	43.8041	343.123	0	-5.9E-17	1DL+1.4UP	47.148	0	OK	-3	-14	A
CSA22	9000	1000	1DL+1.4UP	-71.1181	559.939	726.429	1.4DLSDL+	50.7485	398.034	0	-1.6E-17	1DL+1.4UP	77.651	0	OK	-3	-13	A
CSA22	10000	1000	1.4DLSDL+	-43.9302	344.119	0	1DL+1.4UP	61.5631	483.836	726.429	-2.9E-17	1DL+1.4UP	133.478	0	OK	-3	-12	A
CSA22	11000	1000	1.4DLSDL+	-127.627	1015.825	0	1DL+1.4UP	178.854	1438.108	726.429	-7.8E-17	1DL+1.4UP	140.022	0	OK	-3	-11	A
CSA22	12000	1000	1DL+1.4UP	-73.3551	577.796	0	1DL+1.4UP	100.9062	798.998	726.429	-1.3E-16	1DL+1.4UP	140.022	0	OK	-3	-10	A
CSA22	13000	1000	1DL+1.4UP	-145.201	1159.704	726.429	1.4DLSDL+	103.6128	820.857	0	-1.8E-16	1DL+1.4UP	83.02	0	OK	-3	-9	A
CSA22	14000	1000	1DL+1.4UP	-145.682	1163.655	726.429	1.4DLSDL+	103.9559	823.629	0	-1.8E-16	1DL+1.4UP	44.55	0	OK	-3	-8	A
CSA22	15000	838.52	1DL+1.4UP	-83.6766	662.428	609.127	1.4DLSDL+	59.71	470.127	0	-2E-16	1DL+1.4UP	43.838	0	OK	-3	-7	A
CSA22	15714.29	497.61	1DL+1.4UP	-25.2706	198.187	364.948	1.4DLSDL+	18.0326	141.044	0	-1.8E-16	1DL+1.4UP	28.022	0	OK	-3	-6.28571	A
CSA22	16000	361.25	1DL+1.4UP	-15.5738	121.976	262.422	1.4DLSDL+	11.1132	86.84	0	-6E-17	1DL+1.4UP	21.607	0	OK	-3	-6	A
CSA22	17000	0		0	0	0		0	0	0	0		0	0	OK	-3	-5	A
CSA23	0	1000	1.4DLSDL+	-17.1109	133.372	0	1DL+1.4UP	23.9789	187.141	726.429	-1.4E-16	1DL+1.4UP	142.204	0	OK	-4	-22	A
CSA23	1000	1000	1DL+1.4UP	-144.535	1154.226	726.429	1.4DLSDL+	103.137	817.012	0	-2.7E-17	1DL+1.4UP	142.204	0	OK	-4	-21	A

CSA23	2000	1000	1DL+1.4UP	-198.073	1598.86	726.429	1.4DLSDL+	141.341	1128.013	0	-4.2E-16	1DL+1.4UP	70.214	0	OK	-4	-20 A
CSA23	3000	1000	1DL+1.4UP	-196.197	1583.114	726.429	1.4DLSDL+	140.0025	1117.036	0	-9.8E-16	1DL+1.4UP	56.508	0	OK	-4	-19 A
CSA23	4000	1000	1DL+1.4UP	-149.445	1194.596	726.429	1.4DLSDL+	106.6407	845.338	0	-1E-15	1DL+1.4UP	118.939	0	OK	-4	-18 A
CSA23	5000	1000	1DL+1.4UP	-53.9125	423.101	726.429	1DL+1.4UP	46.2312	362.298	0	-4.1E-16	1DL+1.4UP	175.097	1243.94	OK	-4	-17 A
CSA23	6000	1000	1.4DLSDL+	-129.759	1033.223	0	1DL+1.4UP	181.8414	1463.01	726.429	-2.5E-16	1DL+1.4UP	175.097	0	OK	-4	-16 A
CSA23	7000	1000	1.4DLSDL+	-63.9562	502.871	0	1DL+1.4UP	89.6272	708.155	726.429	-2.2E-16	1DL+1.4UP	137.581	0	OK	-4	-15 A
CSA23	8000	1000	1DL+1.4UP	-66.5958	523.886	726.429	1.4DLSDL+	47.5215	372.5	0	-3.1E-16	1DL+1.4UP	76.337	0	OK	-4	-14 A
CSA23	9000	1000	1DL+1.4UP	-70.9816	558.849	726.429	1.4DLSDL+	50.6511	397.263	0	-2.5E-16	1DL+1.4UP	41.671	0	OK	-4	-13 A
CSA23	10000	1000	1DL+1.4UP	-16.8614	131.422	726.429	1DL+1.4UP	14.2169	110.756	0	-6.9E-16	1DL+1.4UP	41.671	0	OK	-4	-12 A
CSA23	11000	1000	1.4DLSDL+	-35.8164	280.138	0	1DL+1.4UP	50.1925	393.633	726.429	-3.3E-16	1DL+1.4UP	41.233	0	OK	-4	-11 A
CSA23	12000	1000	1DL+1.4UP	-52.2545	409.962	726.429	1DL+1.4UP	48.1138	377.184	0	-4.1E-16	1DL+1.4UP	40.062	0	OK	-4	-10 A
CSA23	13000	793.07	1DL+1.4UP	-87.0291	690.29	576.107	1.4DLSDL+	62.1023	489.62	0	-6.9E-17	1DL+1.4UP	30.836	0	OK	-4	-9 A
CSA23	13619.05	497.61	1DL+1.4UP	-50.5016	399.853	364.948	1.4DLSDL+	36.037	283.765	0	-6.4E-17	1DL+1.4UP	9.591	0	OK	-4	-8.38095 A
CSA23	14000	315.8	1DL+1.4UP	-33.2871	263.803	229.403	1.4DLSDL+	23.7531	187.162	0	-1.4E-17	1DL+1.4UP	15.453	0	OK	-4	-8 A
CSA23	15000	0		0	0	0		0	0	0	0		0	0	OK	-4	-7 A
CSA24	0	1000	1.4DLSDL+	-27.3289	213.418	0	1DL+1.4UP	38.2983	313.251	726.429	-2.1E-16	1DL+1.4UP	135.849	0	OK	-5	-22 A
CSA24	1000	1000	1DL+1.4UP	-151.399	1238.326	726.429	1.4DLSDL+	108.0352	856.623	0	-1.5E-16	1DL+1.4UP	135.849	0	OK	-5	-21 A
CSA24	2000	1000	1DL+1.4UP	-195.115	1574.034	726.429	1.4DLSDL+	139.2303	1110.706	0	-3.5E-16	1DL+1.4UP	63.927	0	OK	-5	-20 A
CSA24	3000	1000	1DL+1.4UP	-188.164	1515.815	726.429	1.4DLSDL+	134.27	1070.092	0	-6.5E-16	1DL+1.4UP	61.368	0	OK	-5	-19 A
CSA24	4000	1000	1DL+1.4UP	-166.219	1333.129	726.429	1.4DLSDL+	118.6109	942.407	0	-1.8E-16	1DL+1.4UP	141.405	0	OK	-5	-18 A
CSA24	5000	1000	1DL+1.4UP	-42.4406	332.358	726.429	1.4DLSDL+	30.2848	236.631	0	-2.6E-16	1DL+1.4UP	349.764	1520.26	OK	-5	-17 A
CSA24	6000	1000	1.4DLSDL+	-259.727	2123.606	0	1DL+1.4UP	363.9768	3045.027	726.429	-1.4E-16	1DL+1.4UP	349.764	1243.94	OK	-5	-16 A
CSA24	7000	1000	1.4DLSDL+	-47.7277	374.13	0	1DL+1.4UP	66.8848	526.188	726.429	-2.5E-16	1DL+1.4UP	318.097	1274.197	OK	-5	-15 A
CSA24	8000	1000	1DL+1.4UP	-81.7135	644.654	726.429	1.4DLSDL+	58.3091	457.983	0	-5.1E-16	1DL+1.4UP	99.532	0	OK	-5	-14 A
CSA24	9000	1000	1DL+1.4UP	-49.3819	387.217	726.429	1.4DLSDL+	35.2379	275.584	0	-2.4E-15	1DL+1.4UP	32.523	0	OK	-5	-13 A
CSA24	10000	1000	1DL+1.4UP	-16.4512	128.215	726.429	1.4DLSDL+	11.7393	91.413	0	-5E-16	1DL+1.4UP	32.523	0	OK	-5	-12 A
CSA24	11000	747.61	1.4DLSDL+	-8.8964	69.277	0	1DL+1.4UP	12.4673	97.167	546.555	-2.2E-16	1DL+1.4UP	20.341	0	OK	-5	-11 A
CSA24	11523.81	497.61	1.4DLSDL+	-4.1077	31.966	0	1DL+1.4UP	5.7565	44.823	364.948	-2E-16	1DL+1.4UP	13.418	0	OK	-5	-10.4762 A
CSA24	12000	270.34	1DL+1.4UP	-5.7939	45.197	196.383	1.4DLSDL+	4.1344	32.215	0	-1E-17	1DL+1.4UP	5.284	0	OK	-5	-10 A
CSA24	13000	0		0	0	0		0	0	0	0		0	0	OK	-5	-9 A
CSA25	0	1000	1.4DLSDL+	-36.3817	284.59	0	1DL+1.4UP	50.9847	399.905	726.429	-7.2E-17	1DL+1.4UP	125.423	0	OK	-6	-22 A
CSA25	1000	1000	1DL+1.4UP	-154.704	1237.928	726.429	1.4DLSDL+	110.3937	875.723	0	-8.1E-17	1DL+1.4UP	125.423	0	OK	-6	-21 A
CSA25	2000	1000	1DL+1.4UP	-184.746	1487.25	726.429	1.4DLSDL+	131.831	1050.152	0	-1.2E-15	1DL+1.4UP	51.072	0	OK	-6	-20 A
CSA25	3000	1000	1DL+1.4UP	-162.746	1304.364	726.429	1.4DLSDL+	116.1322	922.269	0	-8.4E-16	1DL+1.4UP	58.517	0	OK	-6	-19 A
CSA25	4000	1000	1DL+1.4UP	-126.03	1002.8	726.429	1.4DLSDL+	89.9323	710.607	0	-3.2E-16	1DL+1.4UP	111.524	0	OK	-6	-18 A
CSA25	5000	1000	1.4DLSDL+	-54.8714	430.704	0	1DL+1.4UP	76.8959	606.092	726.429	-3E-16	1DL+1.4UP	167.637	1243.94	OK	-6	-17 A
CSA25	6000	1000	1.4DLSDL+	-139.944	1116.553	0	1DL+1.4UP	196.1145	1582.42	726.429	-8.2E-17	1DL+1.4UP	167.637	0	OK	-6	-16 A
CSA25	7000	1000	1.4DLSDL+	-59.0148	463.587	0	1DL+1.4UP	82.7024	652.578	726.429	-4.3E-16	1DL+1.4UP	146.898	0	OK	-6	-15 A
CSA25	8000	1000	1DL+1.4UP	-46.7155	366.127	726.429	1.4DLSDL+	33.3353	260.612	0	-9.1E-16	1DL+1.4UP	68.342	0	OK	-6	-14 A
CSA25	9000	702.16	1DL+1.4UP	-27.4259	214.641	510.068	1.4DLSDL+	19.5706	152.847	0	-8.8E-17	1DL+1.4UP	22.77	0	OK	-6	-13 A

CSA25	9428.57	497.61	1DL+1.4UP	-11.8962	92.838	364.948	1.4DLSDL+	8.4889	66.165	0	-8.4E-17	1DL+1.4UP	16.699	0	OK	-6	-12.5714 A
CSA25	10000	224.89	1.4DLSDL+	-1.0736	8.35	0	1DL+1.4UP	1.5046	11.705	163.364	-1.7E-18	1DL+1.4UP	8.41	0	OK	-6	-12 A
CSA25	11000	0		0	0	0		0	0	0	0		0	0	OK	-6	-11 A
CSA26	0	1000	1DL+1.4UP	-49.5754	388.748	0	1DL+1.4UP	59.611	468.322	726.429	-2.7E-16	1DL+1.4UP	106.903	0	OK	-7	-22 A
CSA26	1000	1000	1DL+1.4UP	-149.804	1197.558	726.429	1.4DLSDL+	106.8975	847.415	0	-3.5E-17	1DL+1.4UP	106.903	0	OK	-7	-21 A
CSA26	2000	1000	1DL+1.4UP	-170.314	1367.091	726.429	1.4DLSDL+	121.5328	966.172	0	-1.1E-15	1DL+1.4UP	35.236	0	OK	-7	-20 A
CSA26	3000	1000	1DL+1.4UP	-123.853	985.061	726.429	1.4DLSDL+	88.379	698.126	0	-5.5E-16	1DL+1.4UP	53.758	0	OK	-7	-19 A
CSA26	4000	1000	1DL+1.4UP	-89.8217	709.718	726.429	1.4DLSDL+	64.095	503.975	0	-4.9E-16	1DL+1.4UP	76.241	0	OK	-7	-18 A
CSA26	5000	1000	1.4DLSDL+	-39.1694	306.555	0	1DL+1.4UP	54.8914	430.862	726.429	-3.2E-17	1DL+1.4UP	76.241	0	OK	-7	-17 A
CSA26	6000	1000	1.4DLSDL+	-66.6098	523.997	0	1DL+1.4UP	93.3458	738.061	726.429	-4E-17	1DL+1.4UP	49.218	0	OK	-7	-16 A
CSA26	7000	656.7	1.4DLSDL+	-20.7257	161.972	0	1DL+1.4UP	29.0447	227.515	480.516	-3.7E-17	1DL+1.4UP	34.213	0	OK	-7	-15 A
CSA26	7333.33	497.61	1.4DLSDL+	-12.0222	93.826	0	1DL+1.4UP	16.8478	131.719	364.948	-4.8E-17	1DL+1.4UP	18.06	0	OK	-7	-14.6667 A
CSA26	8000	179.43	1DL+1.4UP	-8.9616	70.278	130.344	1.4DLSDL+	6.3949	50.016	0	-1.4E-18	1DL+1.4UP	8.966	0	OK	-7	-14 A
CSA26	9000	0		0	0	0		0	0	0	0		0	0	OK	-7	-13 A
CSA27	0	1000	1DL+1.4UP	-64.1104	504.097	726.429	1DL+1.4UP	59.8203	469.985	0	-2.3E-18	1DL+1.4UP	77.676	0	OK	-8	-22 A
CSA27	1000	1000	1DL+1.4UP	-144.81	1156.493	726.429	1.4DLSDL+	103.3339	818.603	0	-1.8E-16	1DL+1.4UP	77.676	0	OK	-8	-21 A
CSA27	2000	1000	1DL+1.4UP	-150.657	1204.575	726.429	1.4DLSDL+	107.5057	852.337	0	-1.3E-15	1DL+1.4UP	35.752	0	OK	-8	-20 A
CSA27	3000	1000	1DL+1.4UP	-98.5162	779.714	726.429	1.4DLSDL+	70.2992	553.406	0	-1.3E-15	1DL+1.4UP	61.927	0	OK	-8	-19 A
CSA27	4000	1000	1DL+1.4UP	-41.234	322.837	726.429	1.4DLSDL+	29.4238	229.867	0	-7.7E-17	1DL+1.4UP	61.927	0	OK	-8	-18 A
CSA27	5000	611.25	1.4DLSDL+	-20.7936	162.575	0	1DL+1.4UP	29.1398	228.404	447.497	-1.3E-16	1DL+1.4UP	40.339	0	OK	-8	-17 A
CSA27	5238.1	497.61	1.4DLSDL+	-20.9106	163.741	0	1DL+1.4UP	29.3038	230.189	361.481	-6.2E-17	1DL+1.4UP	7.17	0	OK	-8	-16.7619 A
CSA27	6000	138.75	1.4DLSDL+	-8.5819	67.45	0	1DL+1.4UP	12.0265	94.969	100.792	-4.3E-18	1DL+1.4UP	4.766	0	OK	-8	-16 A
CSA28	0	1000	1DL+1.4UP	-72.0015	566.989	726.429	1.4DLSDL+	51.3789	403.026	0	-1.4E-16	1DL+1.4UP	32.62	0	OK	-9	-22 A
CSA28	1000	1000	1DL+1.4UP	-141.159	1126.518	726.429	1.4DLSDL+	100.7282	797.56	0	-3.5E-16	1DL+1.4UP	32.62	0	OK	-9	-21 A
CSA28	2000	1000	1DL+1.4UP	-113.289	899.196	726.429	1.4DLSDL+	80.841	637.665	0	-1.8E-15	1DL+1.4UP	47.943	0	OK	-9	-20 A
CSA28	3000	565.8	1DL+1.4UP	-39.5266	311.134	411.01	1.4DLSDL+	28.2054	221.186	0	-2.8E-15	1DL+1.4UP	30.049	0	OK	-9	-19 A
CSA28	3142.86	497.61	1DL+1.4UP	-30.5073	239.725	364.948	1.4DLSDL+	21.7694	170.507	0	-2E-15	1DL+1.4UP	26.861	0	OK	-9	-18.8571 A
CSA28	4000	93.3	1.4DLSDL+	-0.9531	7.419	0	1DL+1.4UP	1.3356	10.405	67.772	-2E-17	1DL+1.4UP	6.295	0	OK	-9	-18 A
CSA29	0	1000	1DL+1.4UP	-61.7946	485.677	726.429	1.4DLSDL+	44.0955	345.424	0	-1E-16	1DL+1.4UP	26.418	0	OK	-10	-22 A
CSA29	1000	520.34	1DL+1.4UP	-43.9729	347.096	377.991	1.4DLSDL+	31.3782	246.549	0	-1.3E-16	1DL+1.4UP	26.638	0	OK	-10	-21 A
CSA29	1047.62	497.61	1DL+1.4UP	-42.0864	332.158	364.948	1.4DLSDL+	30.032	235.948	0	-1.4E-16	1DL+1.4UP	25.704	0	OK	-10	-20.9524 A
CSA29	2000	47.84	1DL+1.4UP	-2.1692	16.996	34.753	1.4DLSDL+	1.5479	12.099	0	-3.3E-17	1DL+1.4UP	2.038	0	OK	-10	-20 A
CSB27	0	500	1DL+1.4UP	-60.3462	454.006	363.214	1.4DLSDL+	43.0619	322.045	0	-5E-17	1DL+1.4UP	20.02	0	OK	0	0 B
CSB27	1000	500	1DL+1.4UP	-15.9541	118.231	363.214	1.4DLSDL+	11.3845	84.239	0	-4.3E-17	1DL+1.4UP	20.02	0	OK	1	0 B
CSB27	2000	500	1DL+1.4UP	-36.0398	268.886	363.214	1.4DLSDL+	25.7173	191.205	0	-2.7E-17	1DL+1.4UP	15.359	0	OK	2	0 B
CSB27	3000	500	1DL+1.4UP	-44.472	332.751	363.214	1.4DLSDL+	31.7343	236.419	0	-1.7E-17	1DL+1.4UP	15.359	0	OK	3	0 B
CSB28	0	510.48	1DL+1.4UP	-36.4565	271.964	370.824	1.4DLSDL+	26.0147	193.4	0	-4.4E-17	1DL+1.4UP	57.112	0	OK	-0.47727	-1 B
CSB28	477.27	1000	1DL+1.4UP	-118.56	891.635	726.429	1.4DLSDL+	84.6018	632.544	0	-7.4E-17	1DL+1.4UP	116.421	0	OK	5.68E-17	-1 B
CSB28	1477.27	1000	1DL+1.4UP	-92.5351	692.798	726.429	1.4DLSDL+	66.0312	492.142	0	-1.1E-16	1DL+1.4UP	4.045	0	OK	1	-1 B
CSB28	2477.27	1000	1DL+1.4UP	-108.18	812.115	726.429	1.4DLSDL+	77.1954	576.44	0	-4.3E-17	1DL+1.4UP	15.192	0	OK	2	-1 B

CSB28	3477.27	1000	1DL+1.4UP	-78.8556	589.004	726.429	1.4DLSDL+	56.2698	418.699	0	-4.5E-17	1DL+1.4UP	15.192	0 OK	3	-1 B
CSB29	0	510.48	1DL+1.4UP	-27.5373	204.823	370.824	1.4DLSDL+	19.6501	145.78	0	-6E-17	1DL+1.4UP	66.704	0 OK	-0.95455	-2 B
CSB29	954.55	1000	1DL+1.4UP	-134.333	1013.042	726.429	1.4DLSDL+	95.8573	718.08	0	-1.6E-16	1DL+1.4UP	99.426	0 OK	0	-2 B
CSB29	1954.55	1000	1DL+1.4UP	-153.761	1163.531	726.429	1.4DLSDL+	109.721	823.901	0	-7.1E-17	1DL+1.4UP	31.8	0 OK	1	-2 B
CSB29	2954.55	1000	1DL+1.4UP	-140.512	1060.787	726.429	1.4DLSDL+	100.2663	751.678	0	-8.5E-17	1DL+1.4UP	80.044	0 OK	2	-2 B
CSB29	3954.55	1000	1DL+1.4UP	-56.3221	419.092	726.429	1DL+1.4UP	50.986	379.046	0	-1E-16	1DL+1.4UP	80.044	0 OK	3	-2 B
CSB30	0	510.48	1DL+1.4UP	-21.0262	156.06	370.824	1.4DLSDL+	15.0039	111.143	0	-1.5E-16	1DL+1.4UP	74.737	0 OK	-1.43182	-3 B
CSB30	431.82	1000	1DL+1.4UP	-95.9703	718.94	726.429	1.4DLSDL+	68.4825	510.624	0	-2.2E-16	1DL+1.4UP	143.542	0 OK	-1	-3 B
CSB30	1431.82	1000	1DL+1.4UP	-164.624	1248.133	726.429	1.4DLSDL+	117.4722	883.291	0	-1.7E-16	1DL+1.4UP	79.031	0 OK	0	-3 B
CSB30	2431.82	1000	1DL+1.4UP	-191.378	1457.956	726.429	1.4DLSDL+	136.5635	1030.267	0	-1.3E-16	1DL+1.4UP	40.349	0 OK	1	-3 B
CSB30	3431.82	1000	1DL+1.4UP	-151.096	1142.825	726.429	1.4DLSDL+	107.8193	809.354	0	-6.4E-17	1DL+1.4UP	108.794	0 OK	2	-3 B
CSB30	4431.82	1000	1DL+1.4UP	-48.0263	356.866	726.429	1DL+1.4UP	48.0069	356.72	0	-1E-16	1DL+1.4UP	108.794	0 OK	3	-3 B
CSB31	0	510.48	1DL+1.4UP	-10.6172	78.536	370.824	1.4DLSDL+	7.5762	55.986	0	-6.4E-16	1DL+1.4UP	80.774	0 OK	-1.90909	-4 B
CSB31	909.09	1000	1DL+1.4UP	-129.404	975.03	726.429	1.4DLSDL+	92.3401	691.315	0	-7.3E-16	1DL+1.4UP	131.324	0 OK	-1	-4 B
CSB31	1909.09	1000	1DL+1.4UP	-195.455	1490.116	726.429	1.4DLSDL+	139.4728	1052.753	0	-2.1E-16	1DL+1.4UP	62.383	0 OK	-2.3E-16	-4 B
CSB31	2909.09	1000	1DL+1.4UP	-206.756	1579.512	726.429	1.4DLSDL+	147.537	1115.204	0	-1.1E-16	1DL+1.4UP	55.803	0 OK	1	-4 B
CSB31	3909.09	1000	1DL+1.4UP	-158.633	1201.43	726.429	1.4DLSDL+	113.1971	850.514	0	-7.3E-17	1DL+1.4UP	126.153	0 OK	2	-4 B
CSB31	4909.09	1000	1DL+1.4UP	-35.6964	264.701	0	1DL+1.4UP	47.4489	352.541	726.429	-1.5E-16	1DL+1.4UP	126.153	0 OK	3	-4 B
CSB32	0	510.48	1DL+1.4UP	-5.0987	37.648	370.824	1.4DLSDL+	3.6383	26.852	0	-2.6E-16	1DL+1.4UP	89.556	635.002 OK	-2.38636	-5 B
CSB32	386.36	1000	1DL+1.4UP	-82.515	616.722	726.429	1.4DLSDL+	58.8811	438.322	0	-2.2E-16	1DL+1.4UP	184.369	1243.94 OK	-2	-5 B
CSB32	1386.36	1000	1DL+1.4UP	-165.519	1255.124	726.429	1.4DLSDL+	118.1113	888.195	0	-9E-16	1DL+1.4UP	104.644	0 OK	-1	-5 B
CSB32	2386.36	1000	1DL+1.4UP	-212.337	1623.802	726.429	1.4DLSDL+	151.5195	1146.113	0	-2.3E-16	1DL+1.4UP	44.524	0 OK	0	-5 B
CSB32	3386.36	1000	1DL+1.4UP	-212.429	1624.536	726.429	1.4DLSDL+	151.5855	1146.625	0	-7.3E-17	1DL+1.4UP	68.881	0 OK	1	-5 B
CSB32	4386.36	1000	1DL+1.4UP	-160.288	1214.325	726.429	1.4DLSDL+	114.3785	859.567	0	-8.6E-17	1DL+1.4UP	139.156	0 OK	2	-5 B
CSB32	5386.36	1000	1.4DLSDL+	-28.4869	210.987	0	1DL+1.4UP	39.9211	296.237	726.429	-9.5E-17	1DL+1.4UP	139.156	0 OK	3	-5 B
CSB33	0	510.48	1.4DLSDL+	-14.4455	106.987	0	1DL+1.4UP	20.2436	150.213	370.824	-1.5E-16	1DL+1.4UP	79.421	0 OK	-2.86364	-6 B
CSB33	863.64	1000	1DL+1.4UP	-101.91	764.214	726.429	1.4DLSDL+	72.7207	542.614	0	-1.1E-15	1DL+1.4UP	146.362	0 OK	-2	-6 B
CSB33	1863.64	1000	1DL+1.4UP	-176.427	1340.45	726.429	1.4DLSDL+	125.8952	948.012	0	-1.1E-15	1DL+1.4UP	81.743	0 OK	-1	-6 B
CSB33	2863.64	1000	1DL+1.4UP	-214.052	1637.434	726.429	1.4DLSDL+	152.7436	1155.623	0	-9.9E-17	1DL+1.4UP	27.675	0 OK	0	-6 B
CSB33	3863.64	1000	1DL+1.4UP	-209.863	1604.161	726.429	1.4DLSDL+	149.7545	1132.409	0	-8.5E-17	1DL+1.4UP	78.346	0 OK	1	-6 B
CSB33	4863.64	1000	1DL+1.4UP	-151.266	1144.143	726.429	1.4DLSDL+	107.9403	810.28	0	-4.5E-17	1DL+1.4UP	147.485	0 OK	2	-6 B
CSB33	5863.64	1000	1.4DLSDL+	-21.8326	161.524	0	1DL+1.4UP	30.5958	226.686	726.429	-5.5E-17	1DL+1.4UP	147.485	0 OK	3	-6 B
CSB34	0	510.48	1.4DLSDL+	-27.6586	205.733	0	1DL+1.4UP	38.7603	289.372	370.824	-5E-18	1DL+1.4UP	62.978	0 OK	-3.34091	-7 B
CSB34	340.91	1000	1DL+1.4UP	-42.1036	312.546	726.429	1.4DLSDL+	30.0443	222.579	0	-1.7E-17	1DL+1.4UP	131.361	0 OK	-3	-7 B
CSB34	1340.91	1000	1DL+1.4UP	-122.106	918.872	726.429	1.4DLSDL+	87.1325	651.746	0	-3.5E-16	1DL+1.4UP	101.643	0 OK	-2	-7 B
CSB34	2340.91	1000	1DL+1.4UP	-168.561	1278.886	726.429	1.4DLSDL+	120.2822	904.86	0	-1.2E-15	1DL+1.4UP	59.487	0 OK	-1	-7 B
CSB34	3340.91	1000	1DL+1.4UP	-204.232	1559.515	726.429	1.4DLSDL+	145.7361	1101.242	0	-8E-17	1DL+1.4UP	22.332	0 OK	0	-7 B
CSB34	4340.91	1000	1DL+1.4UP	-198.478	1513.99	726.429	1.4DLSDL+	141.6298	1069.44	0	-2.9E-17	1DL+1.4UP	82.13	0 OK	1	-7 B
CSB34	5340.91	1000	1DL+1.4UP	-139.883	1055.923	726.429	1.4DLSDL+	99.8176	748.256	0	-3.5E-17	1DL+1.4UP	149.532	0 OK	2	-7 B
CSB34	6340.91	1000	1.4DLSDL+	-13.2278	97.725	0	1DL+1.4UP	18.5373	137.07	726.429	-4.4E-17	1DL+1.4UP	149.532	0 OK	3	-7 B

CSB35	0	510.48	1.4DLSDL+	-33.9806	253.287	0	1DL+1.4UP	47.6199	356.57	370.824	-3.5E-17	1DL+1.4UP	35.04	0	OK	-3.81818	-8	B
CSB35	818.18	1000	1DL+1.4UP	-48.1181	357.553	726.429	1DL+1.4UP	38.4391	285.169	0	-1.9E-16	1DL+1.4UP	87.754	0	OK	-3	-8	B
CSB35	1818.18	1000	1DL+1.4UP	-98.7807	740.352	726.429	1.4DLSDL+	70.488	525.756	0	-5.7E-16	1DL+1.4UP	62.952	0	OK	-2	-8	B
CSB35	2818.18	1000	1DL+1.4UP	-133.084	1003.405	726.429	1.4DLSDL+	94.9662	711.296	0	-6.7E-16	1DL+1.4UP	43.657	0	OK	-1	-8	B
CSB35	3818.18	1000	1DL+1.4UP	-194.182	1480.068	726.429	1.4DLSDL+	138.5643	1045.729	0	-8.4E-17	1DL+1.4UP	20.316	0	OK	4.55E-16	-8	B
CSB35	4818.18	1000	1DL+1.4UP	-201.513	1537.991	726.429	1.4DLSDL+	143.7958	1086.208	0	-4.2E-17	1DL+1.4UP	78.018	0	OK	1	-8	B
CSB35	5818.18	1000	1DL+1.4UP	-146	1103.285	726.429	1.4DLSDL+	104.1825	781.564	0	-1.1E-17	1DL+1.4UP	144.219	0	OK	2	-8	B
CSB35	6818.18	1000	1.4DLSDL+	-19.274	142.535	0	1DL+1.4UP	27.0102	200.001	726.429	-2.4E-17	1DL+1.4UP	144.219	0	OK	3	-8	B
CSB36	0	510.48	1.4DLSDL+	-19.6539	145.808	0	1DL+1.4UP	27.5426	204.863	370.824	-5.9E-17	1DL+1.4UP	3.046	0	OK	-4.29545	-9	B
CSB36	295.45	1000	1.4DLSDL+	-50.9612	378.86	0	1DL+1.4UP	71.4162	532.763	726.429	-1.1E-16	1DL+1.4UP	14.835	0	OK	-4	-9	B
CSB36	1295.45	1000	1DL+1.4UP	-58.168	432.961	0	1DL+1.4UP	71.808	535.721	726.429	-1.9E-16	1DL+1.4UP	18.851	0	OK	-3	-9	B
CSB36	2295.45	1000	1DL+1.4UP	-67.3656	502.201	726.429	1.4DLSDL+	48.0708	357.199	0	-2.8E-16	1DL+1.4UP	61.024	0	OK	-2	-9	B
CSB36	3295.45	1000	1DL+1.4UP	-86.7003	648.466	726.429	1.4DLSDL+	61.8677	460.786	0	-3.5E-16	1DL+1.4UP	50.016	0	OK	-1	-9	B
CSB36	4295.45	1000	1DL+1.4UP	-191.908	1462.132	726.429	1.4DLSDL+	136.9415	1033.187	0	-6.7E-17	1DL+1.4UP	29.706	0	OK	0	-9	B
CSB36	5295.45	1000	1DL+1.4UP	-201.958	1541.508	726.429	1.4DLSDL+	144.113	1088.666	0	-4.4E-17	1DL+1.4UP	64.897	0	OK	1	-9	B
CSB36	6295.45	1000	1DL+1.4UP	-150.729	1139.973	726.429	1.4DLSDL+	107.5572	807.35	0	-1.5E-17	1DL+1.4UP	132.451	0	OK	2	-9	B
CSB36	7295.45	1000	1.4DLSDL+	-23.3897	173.088	0	1DL+1.4UP	32.7779	242.941	726.429	-1.9E-17	1DL+1.4UP	132.451	0	OK	3	-9	B
CSB37	0	510.48	1DL+1.4UP	-5.5734	41.16	0	1DL+1.4UP	6.108	45.115	370.824	-1.8E-16	1DL+1.4UP	6.416	0	OK	-4.77273	-10	B
CSB37	772.73	1000	1DL+1.4UP	-52.7571	392.33	726.429	1DL+1.4UP	46.2929	343.885	0	-3.1E-16	1DL+1.4UP	29.872	0	OK	-4	-10	B
CSB37	1772.73	1000	1.4DLSDL+	-78.1174	583.417	0	1DL+1.4UP	109.4724	821.999	726.429	-1.2E-16	1DL+1.4UP	106.622	0	OK	-3	-10	B
CSB37	2772.73	1000	1.4DLSDL+	-137.08	1034.261	0	1DL+1.4UP	192.1023	1463.667	726.429	-1.3E-16	1DL+1.4UP	225.607	1243.94	OK	-2	-10	B
CSB37	3772.73	1000	1DL+1.4UP	-89.8617	672.475	726.429	1.4DLSDL+	64.1236	477.77	0	-1.8E-16	1DL+1.4UP	176.986	1243.94	OK	-1	-10	B
CSB37	4772.73	1000	1DL+1.4UP	-181.397	1379.438	726.429	1.4DLSDL+	129.4415	975.32	0	-6.9E-17	1DL+1.4UP	90.971	0	OK	0	-10	B
CSB37	5772.73	1000	1DL+1.4UP	-197.249	1504.285	726.429	1.4DLSDL+	140.7533	1062.657	0	-4.5E-17	1DL+1.4UP	46.367	0	OK	1	-10	B
CSB37	6772.73	1000	1DL+1.4UP	-146.42	1106.542	726.429	1.4DLSDL+	104.4824	783.854	0	-2.3E-17	1DL+1.4UP	117.84	0	OK	2	-10	B
CSB37	7772.73	1000	1DL+1.4UP	-30.116	223.114	0	1DL+1.4UP	32.784	242.987	726.429	-1.1E-17	1DL+1.4UP	117.84	0	OK	3	-10	B
CSB38	0	510.48	1DL+1.4UP	-7.6087	56.227	370.824	1.4DLSDL+	5.4294	40.094	0	-1.3E-16	1DL+1.4UP	25.193	0	OK	-5.25	-11	B
CSB38	250	1000	1DL+1.4UP	-19.9847	147.808	726.429	1.4DLSDL+	14.2607	105.373	0	-2.2E-16	1DL+1.4UP	53.247	0	OK	-5	-11	B
CSB38	1250	1000	1DL+1.4UP	-37.2614	276.378	726.429	1.4DLSDL+	26.589	196.869	0	-2.7E-16	1DL+1.4UP	65.523	0	OK	-4	-11	B
CSB38	2250	1000	1.4DLSDL+	-50.2218	373.316	0	1DL+1.4UP	70.3799	524.94	726.429	-1.1E-16	1DL+1.4UP	200.22	0	OK	-3	-11	B
CSB38	3250	1000	1.4DLSDL+	-256.992	1981.614	0	1DL+1.4UP	360.1449	2832.97	726.429	-7.7E-17	1DL+1.4UP	335.494	0	OK	-2	-11	B
CSB38	4250	1000	1DL+1.4UP	-74.6519	557.207	726.429	1.4DLSDL+	53.2702	396.179	0	-1.1E-16	1DL+1.4UP	291.533	0	OK	-1	-11	B
CSB38	5250	1000	1DL+1.4UP	-157.88	1195.568	726.429	1.4DLSDL+	112.6598	846.399	0	-4.2E-17	1DL+1.4UP	134.61	0	OK	0	-11	B
CSB38	6250	1000	1DL+1.4UP	-181.386	1379.352	726.429	1.4DLSDL+	129.4336	975.26	0	-2.6E-17	1DL+1.4UP	48.455	0	OK	1	-11	B
CSB38	7250	1000	1DL+1.4UP	-140.25	1058.764	726.429	1.4DLSDL+	100.0797	750.255	0	-2.9E-17	1DL+1.4UP	104.792	0	OK	2	-11	B
CSB38	8250	1000	1DL+1.4UP	-33.3974	247.558	726.429	1DL+1.4UP	32.2192	238.778	0	-1.6E-17	1DL+1.4UP	104.792	0	OK	3	-11	B
CSB39	0	510.48	1.4DLSDL+	-1.6315	12.034	0	1DL+1.4UP	2.2864	16.867	370.824	-1.8E-16	1DL+1.4UP	32.043	0	OK	-5.72727	-12	B
CSB39	727.27	1000	1DL+1.4UP	-40.9377	303.832	726.429	1.4DLSDL+	29.2124	216.386	0	-8.2E-16	1DL+1.4UP	43.927	0	OK	-5	-12	B
CSB39	1727.27	1000	1DL+1.4UP	-51.2779	381.235	726.429	1.4DLSDL+	36.5909	271.375	0	-3.6E-16	1DL+1.4UP	38.937	0	OK	-4	-12	B
CSB39	2727.27	1000	1.4DLSDL+	-33.8127	250.654	0	1DL+1.4UP	47.3845	352.059	726.429	-5.5E-17	1DL+1.4UP	117.693	0	OK	-3	-12	B

CSB39	3727.27	1000	1.4DLSDL+	-137.17	1034.951	0	1DL+1.4UP	192.2275	1464.655	726.429	-2.4E-17	1DL+1.4UP	216.201	0	OK	-2	-12 B
CSB39	4727.27	1000	1DL+1.4UP	-91.665	686.182	726.429	1.4DLSDL+	65.4104	487.464	0	-4.1E-17	1DL+1.4UP	171.168	1243.94	OK	-1	-12 B
CSB39	5727.27	1000	1DL+1.4UP	-143.487	1083.814	726.429	1.4DLSDL+	102.3893	767.874	0	-2.6E-17	1DL+1.4UP	94.806	0	OK	9.1E-16	-12 B
CSB39	6727.27	1000	1DL+1.4UP	-139.666	1054.247	726.429	1.4DLSDL+	99.663	747.077	0	-2.2E-17	1DL+1.4UP	40.177	0	OK	1	-12 B
CSB39	7727.27	1000	1DL+1.4UP	-121.395	913.409	726.429	1.4DLSDL+	86.6251	647.895	0	-1.5E-17	1DL+1.4UP	92.944	0	OK	2	-12 B
CSB39	8727.27	1000	1DL+1.4UP	-35.0979	260.237	0	1DL+1.4UP	36.1355	267.977	726.429	-1E-17	1DL+1.4UP	92.944	0	OK	3	-12 B
CSB40	0	510.48	1.4DLSDL+	-11.021	81.533	0	1DL+1.4UP	15.4446	114.423	370.824	-1.1E-16	1DL+1.4UP	15.977	0	OK	-6.20455	-13 B
CSB40	204.55	918.1	1.4DLSDL+	-12.935	95.575	0	1DL+1.4UP	18.1269	134.062	666.931	-1.2E-16	1DL+1.4UP	43.307	0	OK	-6	-13 B
CSB40	1204.55	1000	1DL+1.4UP	-30.0418	222.561	726.429	1.4DLSDL+	21.4373	158.589	0	-1.5E-15	1DL+1.4UP	29.821	0	OK	-5	-13 B
CSB40	2204.55	1000	1DL+1.4UP	-57.1753	425.501	726.429	1.4DLSDL+	40.7992	302.797	0	-1.7E-16	1DL+1.4UP	1.784	0	OK	-4	-13 B
CSB40	3204.55	1000	1DL+1.4UP	-35.9508	266.599	726.429	1.4DLSDL+	25.6538	189.915	0	-8.7E-18	1DL+1.4UP	12.626	0	OK	-3	-13 B
CSB40	4204.55	1000	1DL+1.4UP	-49.3736	366.96	726.429	1.4DLSDL+	35.2321	261.238	0	-2.8E-17	1DL+1.4UP	30.184	0	OK	-2	-13 B
CSB40	5204.55	1000	1DL+1.4UP	-68.2498	508.869	726.429	1.4DLSDL+	48.7018	361.925	0	-1.8E-17	1DL+1.4UP	30.94	0	OK	-1	-13 B
CSB40	6204.55	1000	1DL+1.4UP	-99.7119	747.45	726.429	1.4DLSDL+	71.1525	530.772	0	-1.9E-17	1DL+1.4UP	33.376	0	OK	-9.1E-16	-13 B
CSB40	7204.55	1000	1DL+1.4UP	-91.7334	686.702	726.429	1.4DLSDL+	65.4592	487.832	0	-1.2E-17	1DL+1.4UP	25.26	0	OK	1	-13 B
CSB40	8204.55	1000	1DL+1.4UP	-104.885	786.93	726.429	1.4DLSDL+	74.844	558.659	0	-1.2E-17	1DL+1.4UP	75.602	0	OK	2	-13 B
CSB40	9204.55	1000	1DL+1.4UP	-37.3382	276.951	0	1DL+1.4UP	44.8458	333.055	726.429	-1E-17	1DL+1.4UP	75.602	0	OK	3	-13 B
CSB41	0	510.48	1.4DLSDL+	-4.6804	34.555	0	1DL+1.4UP	6.559	48.454	370.824	-7.4E-17	1DL+1.4UP	21.39	0	OK	-6.68182	-14 B
CSB41	681.82	1000	1.4DLSDL+	-36.0133	267.065	0	1DL+1.4UP	50.4684	375.166	726.429	-5.6E-16	1DL+1.4UP	6.683	0	OK	-6	-14 B
CSB41	1681.82	1000	1.4DLSDL+	-15.8725	117.314	0	1DL+1.4UP	22.2435	164.575	726.429	-2.8E-16	1DL+1.4UP	21.186	0	OK	-5	-14 B
CSB41	2681.82	1000	1DL+1.4UP	-44.2834	328.848	726.429	1.4DLSDL+	31.5998	234.164	0	-2.3E-16	1DL+1.4UP	30.931	0	OK	-4	-14 B
CSB41	3681.82	1000	1DL+1.4UP	-62.5575	465.978	726.429	1.4DLSDL+	44.6398	331.514	0	-1.2E-16	1DL+1.4UP	17.096	0	OK	-3	-14 B
CSB41	4681.82	1000	1DL+1.4UP	-78.8033	588.608	726.429	1.4DLSDL+	56.2325	418.419	0	-6.8E-17	1DL+1.4UP	13.532	0	OK	-2	-14 B
CSB41	5681.82	1000	1DL+1.4UP	-83.6382	625.237	726.429	1.4DLSDL+	59.6826	444.348	0	-3E-17	1DL+1.4UP	18.955	0	OK	-1	-14 B
CSB41	6681.82	1000	1DL+1.4UP	-44.9499	333.834	726.429	1.4DLSDL+	32.0754	237.707	0	-1.8E-17	1DL+1.4UP	34.238	0	OK	0	-14 B
CSB41	7681.82	1000	1DL+1.4UP	-62.7066	467.101	726.429	1.4DLSDL+	44.7462	332.31	0	-1.1E-17	1DL+1.4UP	34.238	0	OK	1	-14 B
CSB41	8681.82	1000	1DL+1.4UP	-92.1438	689.822	726.429	1.4DLSDL+	65.752	490.038	0	-1.2E-17	1DL+1.4UP	45.967	0	OK	2	-14 B
CSB41	9681.82	1000	1DL+1.4UP	-45.5252	338.139	726.429	1DL+1.4UP	34.822	258.179	0	-1.3E-18	1DL+1.4UP	45.967	0	OK	3	-14 B
CSB42	0	510.48	1DL+1.4UP	-30.768	229.097	370.824	1.4DLSDL+	21.9555	163.006	0	-7.9E-18	1DL+1.4UP	36.568	0	OK	-7.15909	-15 B
CSB42	159.09	822.86	1DL+1.4UP	-33.2257	246.572	597.747	1.4DLSDL+	23.7092	175.611	0	-2.5E-17	1DL+1.4UP	54.4	0	OK	-7	-15 B
CSB42	1159.09	1000	1.4DLSDL+	-44.396	329.69	0	1DL+1.4UP	62.2159	463.407	726.429	-3.4E-16	1DL+1.4UP	129.145	0	OK	-6	-15 B
CSB42	2159.09	1000	1.4DLSDL+	-126.89	955.671	0	1DL+1.4UP	177.8219	1351.383	726.429	-3.3E-16	1DL+1.4UP	198.511	0	OK	-5	-15 B
CSB42	3159.09	1000	1DL+1.4UP	-60.1688	448.005	726.429	1DL+1.4UP	45.5335	338.201	0	-3.1E-16	1DL+1.4UP	139.57	0	OK	-4	-15 B
CSB42	4159.09	1000	1DL+1.4UP	-98.0208	734.56	726.429	1.4DLSDL+	69.9457	521.663	0	-1.9E-16	1DL+1.4UP	49.86	0	OK	-3	-15 B
CSB42	5159.09	1000	1DL+1.4UP	-125.801	947.286	726.429	1.4DLSDL+	89.769	671.77	0	-1.3E-16	1DL+1.4UP	75.597	0	OK	-2	-15 B
CSB42	6159.09	1000	1DL+1.4UP	-74.7954	558.291	726.429	1.4DLSDL+	53.3725	396.947	0	-6.8E-17	1DL+1.4UP	126.746	0	OK	-1	-15 B
CSB42	7159.09	1000	1.4DLSDL+	-131.344	989.98	0	1DL+1.4UP	184.0625	1400.379	726.429	-3.4E-17	1DL+1.4UP	227.081	1243.94	OK	0	-15 B
CSB42	8159.09	1000	1DL+1.4UP	-55.9784	416.51	726.429	1DL+1.4UP	42.3019	314.029	0	-7.2E-18	1DL+1.4UP	159.147	0	OK	1	-15 B
CSB42	9159.09	1000	1DL+1.4UP	-96.4292	722.435	726.429	1.4DLSDL+	68.81	513.094	0	-1.2E-17	1DL+1.4UP	63.233	0	OK	2	-15 B
CSB42	10159.09	1000	1DL+1.4UP	-48.3394	359.211	726.429	1.4DLSDL+	34.4941	255.734	0	-7.8E-18	1DL+1.4UP	10.348	0	OK	3	-15 B

CSB43	0	510.48	1DL+1.4UP	-38.8484	290.038	370.824	1.4DLSDL+	27.7215	206.205	0	-1E-17	1DL+1.4UP	9.503	0	OK	-7.63636	-16	B
CSB43	636.36	1000	1DL+1.4UP	-83.6273	625.154	726.429	1.4DLSDL+	59.6748	444.29	0	-2.7E-17	1DL+1.4UP	56.197	0	OK	-7	-16	B
CSB43	1636.36	1000	1DL+1.4UP	-36.2839	269.084	726.429	1DL+1.4UP	36.7283	272.4	726.429	-2.1E-16	1DL+1.4UP	207.744	0	OK	-6	-16	B
CSB43	2636.36	1000	1.4DLSDL+	-229.715	1762.315	0	1DL+1.4UP	321.9188	2513.254	726.429	-1.9E-16	1DL+1.4UP	351.406	0	OK	-5	-16	B
CSB43	3636.36	1000	1DL+1.4UP	-58.1425	432.769	726.429	1.4DLSDL+	41.4893	307.955	0	-2.9E-16	1DL+1.4UP	234.168	0	OK	-4	-16	B
CSB43	4636.36	1000	1DL+1.4UP	-118.01	887.413	726.429	1.4DLSDL+	84.2093	629.567	0	-3.3E-16	1DL+1.4UP	73.581	0	OK	-3	-16	B
CSB43	5636.36	1000	1DL+1.4UP	-134.829	1016.873	726.429	1.4DLSDL+	96.2115	720.777	0	-1.7E-16	1DL+1.4UP	115.634	0	OK	-2	-16	B
CSB43	6636.36	1000	1DL+1.4UP	-23.0148	170.304	0	1DL+1.4UP	26.4805	196.061	726.429	-1E-16	1DL+1.4UP	207.408	0	OK	-1	-16	B
CSB43	7636.36	1000	1.4DLSDL+	-248.056	1909.512	0	1DL+1.4UP	347.6216	2727.659	726.429	-4.2E-17	1DL+1.4UP	321.474	0	OK	0	-16	B
CSB43	8636.36	1000	1DL+1.4UP	-33.4862	248.22	0	1DL+1.4UP	44.7537	332.366	726.429	-2.2E-17	1DL+1.4UP	268.88	0	OK	1	-16	B
CSB43	9636.36	1000	1DL+1.4UP	-102.549	769.093	726.429	1.4DLSDL+	73.177	546.061	0	-8.3E-18	1DL+1.4UP	97.036	0	OK	2	-16	B
CSB43	10636.36	1000	1DL+1.4UP	-45.0944	334.915	726.429	1.4DLSDL+	32.1785	238.475	0	-4.7E-18	1DL+1.4UP	2.922	0	OK	3	-16	B
CSB44	0	510.48	1DL+1.4UP	-18.6117	138.03	370.824	1.4DLSDL+	13.2809	98.325	0	-1.5E-16	1DL+1.4UP	52.75	0	OK	-8.11364	-17	B
CSB44	113.64	727.62	1DL+1.4UP	-34.0383	252.818	543.784	1.4DLSDL+	24.2891	180.015	0	-2.6E-16	1DL+1.4UP	74.961	0	OK	-8	-17	B
CSB44	1113.64	1000	1DL+1.4UP	-98.094	735.118	726.429	1.4DLSDL+	69.998	522.057	0	-2.3E-17	1DL+1.4UP	5.43	0	OK	-7	-17	B
CSB44	2113.64	1000	1DL+1.4UP	-67.6716	504.508	726.429	1DL+1.4UP	55.2818	411.279	0	-2.6E-16	1DL+1.4UP	104.426	0	OK	-6	-17	B
CSB44	3113.64	1000	1.4DLSDL+	-113.259	850.99	0	1DL+1.4UP	158.7195	1202.107	726.429	-1.8E-16	1DL+1.4UP	205.383	1243.94	OK	-5	-17	B
CSB44	4113.64	1000	1DL+1.4UP	-80.3516	600.331	726.429	1.4DLSDL+	57.3373	426.719	0	-4.3E-16	1DL+1.4UP	144.175	0	OK	-4	-17	B
CSB44	5113.64	1000	1DL+1.4UP	-130.372	982.491	726.429	1.4DLSDL+	93.0309	696.569	0	-5.1E-16	1DL+1.4UP	50.245	0	OK	-3	-17	B
CSB44	6113.64	1000	1DL+1.4UP	-129.325	974.421	726.429	1.4DLSDL+	92.2836	690.886	0	-2.4E-16	1DL+1.4UP	81.269	0	OK	-2	-17	B
CSB44	7113.64	1000	1DL+1.4UP	-60.1798	448.088	726.429	1.4DLSDL+	42.9431	318.823	0	-1.1E-16	1DL+1.4UP	134.693	0	OK	-1	-17	B
CSB44	8113.64	1000	1.4DLSDL+	-120.226	904.426	0	1DL+1.4UP	168.4822	1278.267	726.429	-1.8E-17	1DL+1.4UP	237.46	1243.94	OK	0	-17	B
CSB44	9113.64	1000	1DL+1.4UP	-79.7693	595.922	726.429	1DL+1.4UP	69.3361	517.063	0	-3.2E-17	1DL+1.4UP	147.986	0	OK	1	-17	B
CSB44	10113.64	1000	1DL+1.4UP	-105.143	788.902	726.429	1.4DLSDL+	75.0281	560.051	0	-9.5E-18	1DL+1.4UP	51.574	0	OK	2	-17	B
CSB44	11113.64	1000	1DL+1.4UP	-56.2141	418.281	726.429	1.4DLSDL+	40.1133	297.673	0	-3.2E-18	1DL+1.4UP	25.412	0	OK	3	-17	B
CSB45	0	510.48	1.4DLSDL+	-3.8888	28.703	0	1DL+1.4UP	5.4497	40.245	370.824	-4.5E-16	1DL+1.4UP	69.907	0	OK	-8.59091	-18	B
CSB45	590.91	1000	1DL+1.4UP	-60.4683	450.258	726.429	1.4DLSDL+	43.149	320.363	0	-5.9E-16	1DL+1.4UP	90.717	0	OK	-8	-18	B
CSB45	1590.91	1000	1DL+1.4UP	-94.4521	707.383	726.429	1.4DLSDL+	67.3992	502.454	0	-1.6E-16	1DL+1.4UP	35.837	0	OK	-7	-18	B
CSB45	2590.91	1000	1DL+1.4UP	-57.4635	427.667	726.429	1.4DLSDL+	41.0048	304.334	0	-6.7E-16	1DL+1.4UP	6.364	0	OK	-6	-18	B
CSB45	3590.91	1000	1DL+1.4UP	-42.7441	317.335	726.429	1.4DLSDL+	30.5013	225.983	0	-3.5E-16	1DL+1.4UP	30.745	0	OK	-5	-18	B
CSB45	4590.91	1000	1DL+1.4UP	-74.0618	552.747	726.429	1.4DLSDL+	52.8491	393.02	0	-8E-16	1DL+1.4UP	33.529	0	OK	-4	-18	B
CSB45	5590.91	1000	1DL+1.4UP	-114.47	860.27	726.429	1.4DLSDL+	81.6838	610.423	0	-9E-16	1DL+1.4UP	17.332	0	OK	-3	-18	B
CSB45	6590.91	1000	1DL+1.4UP	-110.295	828.293	726.429	1.4DLSDL+	78.7044	587.86	0	-3.1E-16	1DL+1.4UP	28.715	0	OK	-2	-18	B
CSB45	7590.91	1000	1DL+1.4UP	-79.0989	590.846	726.429	1.4DLSDL+	56.4435	420.003	0	-9.1E-17	1DL+1.4UP	37.467	0	OK	-1	-18	B
CSB45	8590.91	1000	1DL+1.4UP	-45.9937	341.646	726.429	1.4DLSDL+	32.8202	243.257	0	-4.2E-17	1DL+1.4UP	11.016	0	OK	0	-18	B
CSB45	9590.91	1000	1DL+1.4UP	-81.7852	611.191	726.429	1.4DLSDL+	58.3603	434.407	0	-6E-18	1DL+1.4UP	13.103	0	OK	1	-18	B
CSB45	10590.91	1000	1DL+1.4UP	-106.367	798.253	726.429	1.4DLSDL+	75.9015	566.654	0	-3.9E-19	1DL+1.4UP	72.279	0	OK	2	-18	B
CSB45	11590.91	1000	1.4DLSDL+	-39.9444	296.411	0	1DL+1.4UP	55.9774	416.503	726.429	-8.1E-19	1DL+1.4UP	72.279	0	OK	3	-18	B
CSB46	0	510.48	1.4DLSDL+	-28.2293	210.018	0	1DL+1.4UP	39.5601	295.422	370.824	-1.9E-15	1DL+1.4UP	24.961	0	OK	-9.06818	-19	B
CSB46	68.18	632.38	1.4DLSDL+	-33.3507	248.012	0	1DL+1.4UP	46.7371	348.805	459.38	-2.8E-15	1DL+1.4UP	47.187	0	OK	-9	-19	B

max. shear force

CSB46	1068.18	1000	1DL+1.4UP	-69.3022	516.807	726.429	1.4DLSDL+	49.4527	367.552	0	-2.3E-15	1DL+1.4UP	58.438	0	OK	-8	-19	B
CSB46	2068.18	1000	1DL+1.4UP	-74.4392	555.599	726.429	1.4DLSDL+	53.1184	395.04	0	-1.9E-15	1DL+1.4UP	32.564	0	OK	-7	-19	B
CSB46	3068.18	1000	1DL+1.4UP	-69.2284	516.25	726.429	1.4DLSDL+	49.4	367.158	0	-2.2E-15	1DL+1.4UP	17.678	0	OK	-6	-19	B
CSB46	4068.18	1000	1DL+1.4UP	-69.8746	521.126	726.429	1.4DLSDL+	49.8612	370.614	0	-4.6E-16	1DL+1.4UP	19.963	0	OK	-5	-19	B
CSB46	5068.18	1000	1DL+1.4UP	-84.3404	630.561	726.429	1.4DLSDL+	60.1837	448.117	0	-2.3E-15	1DL+1.4UP	12.196	0	OK	-4	-19	B
CSB46	6068.18	1000	1DL+1.4UP	-92.9389	695.869	726.429	1.4DLSDL+	66.3194	494.314	0	-2.4E-15	1DL+1.4UP	8.662	0	OK	-3	-19	B
CSB46	7068.18	1000	1DL+1.4UP	-95.6459	716.47	726.429	1.4DLSDL+	68.251	508.878	0	-3.6E-16	1DL+1.4UP	7.903	0	OK	-2	-19	B
CSB46	8068.18	1000	1DL+1.4UP	-83.8097	626.537	726.429	1.4DLSDL+	59.805	445.269	0	-1.4E-16	1DL+1.4UP	11.962	0	OK	-1	-19	B
CSB46	9068.18	1000	1DL+1.4UP	-66.6681	496.942	726.429	1.4DLSDL+	47.573	353.471	0	-1.1E-17	1DL+1.4UP	14.888	0	OK	0	-19	B
CSB46	10068.18	1000	1DL+1.4UP	-78.959	589.787	726.429	1.4DLSDL+	56.3436	419.253	0	-6E-18	1DL+1.4UP	40.258	0	OK	1	-19	B
CSB46	11068.18	1000	1DL+1.4UP	-93.0915	697.03	726.429	1.4DLSDL+	66.4283	515.469	0	4.93E-19	1DL+1.4UP	102.364	0	OK	2	-19	B
CSB46	12068.18	1000	1.4DLSDL+	-35.9353	278.85	0	1DL+1.4UP	50.3592	374.346	726.429	1.96E-18	1DL+1.4UP	102.364	0	OK	3	-19	B
CSB47	0	510.48	1.4DLSDL+	-24.2061	179.848	0	1DL+1.4UP	33.9221	252.845	370.824	-3.4E-16	1DL+1.4UP	25.01	0	OK	-9.54545	-20	B
CSB47	545.45	1000	1.4DLSDL+	-41.2872	306.444	0	1DL+1.4UP	57.8592	430.641	726.429	-1.3E-15	1DL+1.4UP	49.879	0	OK	-9	-20	B
CSB47	1545.45	1000	1DL+1.4UP	-80.5867	602.112	726.429	1.4DLSDL+	57.5051	427.98	0	-1.3E-15	1DL+1.4UP	31.119	0	OK	-8	-20	B
CSB47	2545.45	1000	1DL+1.4UP	-88.1891	659.769	726.429	1.4DLSDL+	62.93	468.783	0	-5.2E-16	1DL+1.4UP	19.434	0	OK	-7	-20	B
CSB47	3545.45	1000	1DL+1.4UP	-81.6233	609.964	726.429	1.4DLSDL+	58.2448	433.539	0	-1.2E-15	1DL+1.4UP	12.819	0	OK	-6	-20	B
CSB47	4545.45	1000	1DL+1.4UP	-80.4054	600.739	726.429	1.4DLSDL+	57.3757	427.007	0	-4.1E-16	1DL+1.4UP	8.649	0	OK	-5	-20	B
CSB47	5545.45	1000	1DL+1.4UP	-78.4464	585.907	726.429	1.4DLSDL+	55.9779	416.506	0	-1.2E-15	1DL+1.4UP	9.837	0	OK	-4	-20	B
CSB47	6545.45	1000	1DL+1.4UP	-72.5269	541.15	726.429	1.4DLSDL+	51.7538	384.803	0	-6.6E-16	1DL+1.4UP	7.766	0	OK	-3	-20	B
CSB47	7545.45	1000	1DL+1.4UP	-80.1759	599.001	726.429	1.4DLSDL+	57.212	425.777	0	-3.2E-16	1DL+1.4UP	4.708	0	OK	-2	-20	B
CSB47	8545.45	1000	1DL+1.4UP	-87.1226	651.672	726.429	1.4DLSDL+	62.169	463.054	0	-7.1E-17	1DL+1.4UP	7.701	0	OK	-1	-20	B
CSB47	9545.45	1000	1DL+1.4UP	-88.6157	663.009	726.429	1.4DLSDL+	63.2345	471.075	0	-1.3E-17	1DL+1.4UP	10.475	0	OK	0	-20	B
CSB47	10545.45	1000	1DL+1.4UP	-95.1986	713.065	726.429	1.4DLSDL+	67.9319	506.471	0	-6.1E-18	1DL+1.4UP	32.73	0	OK	1	-20	B
CSB47	11545.45	1000	1DL+1.4UP	-102.474	768.524	726.429	1.4DLSDL+	73.1238	567.425	0	1.78E-18	1DL+1.4UP	91.2	0	OK	2	-20	B
CSB47	12545.45	1000	1.4DLSDL+	-42.6359	330.845	0	1DL+1.4UP	59.7492	444.849	726.429	8.82E-19	1DL+1.4UP	91.2	0	OK	3	-20	B
CSB48	0	510.48	1.4DLSDL+	-19.2323	142.661	0	1DL+1.4UP	26.9519	200.429	370.824	-8.5E-17	1DL+1.4UP	30.283	0	OK	-10.0227	-21	B
CSB48	22.73	537.14	1.4DLSDL+	-12.6216	93.391	0	1DL+1.4UP	17.6877	131.073	405.416	-1.1E-16	1DL+1.4UP	23.611	0	OK	-10	-21	B
CSB48	1022.73	1000	1DL+1.4UP	-60.9606	453.961	726.429	1.4DLSDL+	43.5003	322.99	0	-1.3E-16	1DL+1.4UP	26.901	0	OK	-9	-21	B
CSB48	2022.73	1000	1DL+1.4UP	-84.4166	631.139	726.429	1.4DLSDL+	60.238	448.526	0	-9.5E-17	1DL+1.4UP	44.314	0	OK	-8	-21	B
CSB48	3022.73	1000	1DL+1.4UP	-81.7012	610.555	726.429	1.4DLSDL+	58.3004	433.957	0	-1.8E-16	1DL+1.4UP	48.441	0	OK	-7	-21	B
CSB48	4022.73	1000	1DL+1.4UP	-71.0263	529.819	726.429	1.4DLSDL+	50.683	376.774	0	-2.5E-16	1DL+1.4UP	45.088	0	OK	-6	-21	B
CSB48	5022.73	1000	1DL+1.4UP	-61.152	455.401	726.429	1.4DLSDL+	43.6369	324.011	0	-1.1E-16	1DL+1.4UP	20.918	0	OK	-5	-21	B
CSB48	6022.73	1000	1DL+1.4UP	-52.6549	391.563	726.429	1.4DLSDL+	37.5735	278.708	0	-4.5E-16	1DL+1.4UP	35.289	0	OK	-4	-21	B
CSB48	7022.73	1000	1DL+1.4UP	-45.8391	340.489	726.429	1.4DLSDL+	32.7099	242.435	0	-4.1E-16	1DL+1.4UP	37.85	0	OK	-3	-21	B
CSB48	8022.73	1000	1DL+1.4UP	-50.7447	377.237	726.429	1.4DLSDL+	36.2104	268.536	0	-1.5E-16	1DL+1.4UP	24.189	0	OK	-2	-21	B
CSB48	9022.73	1000	1DL+1.4UP	-63.9747	476.649	726.429	1.4DLSDL+	45.6511	339.081	0	-1E-16	1DL+1.4UP	31.089	0	OK	-1	-21	B
CSB48	10022.73	1000	1DL+1.4UP	-77.8575	581.45	726.429	1.4DLSDL+	55.5576	413.35	0	-6.9E-17	1DL+1.4UP	11.809	0	OK	0	-21	B
CSB48	11022.73	1000	1DL+1.4UP	-97.7687	732.639	726.429	1.4DLSDL+	69.7659	520.306	0	-2.5E-17	1DL+1.4UP	11.809	0	OK	1	-21	B
CSB48	12022.73	1000	1DL+1.4UP	-105.541	791.937	726.429	1.4DLSDL+	75.3117	562.194	0	-9.3E-18	1DL+1.4UP	10.529	0	OK	2	-21	B

CSB48	13022.73	1000	1DL+1.4UP	-79.7605	595.855	726.429	1DL+1.4UP	57.8634	430.672	0	-1.3E-17	1DL+1.4UP	10.529	0	OK	3	-21	B
CSB49	0	10.48	1DL+1.4UP	-0.2363	1.748	7.61	1.4DLSDL+	0.1686	1.246	0	-5.9E-19	1DL+1.4UP	0.745	0	OK	-10.5	-22	B
CSB49	500	500	1DL+1.4UP	-28.7225	213.764	363.214	1.4DLSDL+	20.4958	152.117	0	-7.9E-17	1DL+1.4UP	28.844	0	OK	-10	-22	B
CSB49	1500	500	1DL+1.4UP	-36.0746	269.149	363.214	1DL+1.4UP	39.1479	292.383	363.214	-9.2E-17	1DL+1.4UP	52.598	0	OK	-9	-22	B
CSB49	2500	500	1DL+1.4UP	-33.7034	251.256	363.214	1DL+1.4UP	35.2521	262.939	363.214	-5.9E-17	1DL+1.4UP	62.257	0	OK	-8	-22	B
CSB49	3500	500	1DL+1.4UP	-26.6831	198.45	363.214	1DL+1.4UP	30.0158	223.486	363.214	-1.1E-16	1DL+1.4UP	61.507	0	OK	-7	-22	B
CSB49	4500	500	1DL+1.4UP	-20.2974	150.635	0	1DL+1.4UP	25.8585	192.264	363.214	-3.7E-17	1DL+1.4UP	55.152	0	OK	-6	-22	B
CSB49	5500	500	1DL+1.4UP	-16.5797	128.655	363.214	1DL+1.4UP	16.9463	131.499	363.214	-8.2E-17	1DL+1.4UP	20.464	0	OK	-5	-22	B
CSB49	6500	500	1.4DLSDL+	-10.383	76.803	0	1DL+1.4UP	14.5505	107.779	363.214	-2.3E-16	1DL+1.4UP	44.909	0	OK	-4	-22	B
CSB49	7500	500	1.4DLSDL+	-9.3544	69.171	0	1DL+1.4UP	13.109	97.055	363.214	-2.3E-16	1DL+1.4UP	49.853	0	OK	-3	-22	B
CSB49	8500	500	1.4DLSDL+	-8.654	63.977	0	1DL+1.4UP	12.1276	89.76	363.214	-8.7E-17	1DL+1.4UP	30.277	0	OK	-2	-22	B
CSB49	9500	500	1DL+1.4UP	-14.6814	108.753	0	1DL+1.4UP	19.3118	143.273	363.214	-5.1E-17	1DL+1.4UP	34.26	0	OK	-1	-22	B
CSB49	10500	500	1DL+1.4UP	-26.6385	198.115	363.214	1DL+1.4UP	24.2991	180.575	363.214	-1.8E-17	1DL+1.4UP	13.433	0	OK	0	-22	B
CSB49	11500	500	1DL+1.4UP	-42.7812	319.915	363.214	1DL+1.4UP	32.7159	243.812	363.214	-1.8E-17	1DL+1.4UP	20.461	0	OK	1	-22	B
CSB49	12500	500	1DL+1.4UP	-57.2413	430.183	363.214	1DL+1.4UP	44.8433	335.572	363.214	-3.7E-18	1DL+1.4UP	25.677	0	OK	2	-22	B
CSB49	13500	500	1DL+1.4UP	-60.5049	455.225	363.214	1.4DLSDL+	43.1751	322.905	0	-4E-18	1DL+1.4UP	25.677	0	OK	3	-22	B
CSB14	14000	1000	1DL+1.4UF	-91.6999	791.34	645.714	1.4DLSDL-	69.8715	599.986	0	-7.7E-17	1DL+1.4UF	11.291	0	OK	14	12.8	B
CSB14	14800	1000	1DL+1.4UF	-69.5647	597.31	645.714	1.4DLSDL-	53.0054	453.44	0	-5.8E-17	1DL+1.4UF	11.291	0	OK	14.8	12.8	B
CSB16	0	500	1DL+1.4UF	-46.7213	403.35	322.857	1.4DLSDL-	35.5997	305.786	0	-7.3E-18	1DL+1.4UF	17.24	0	OK	0	13.8	B
CSB16	1000	500	1DL+1.4UF	-42.2618	364.108	322.857	1.4DLSDL-	32.2017	276.176	0	-1.4E-17	1DL+1.4UF	17.24	0	OK	1	13.8	B
CSB16	2000	500	1DL+1.4UF	-25.3775	216.986	322.857	1.4DLSDL-	19.3366	164.892	0	-2.1E-17	1DL+1.4UF	13.855	0	OK	2	13.8	B
CSB16	3000	500	1DL+1.4UF	-11.5026	97.751	322.857	1.4DLSDL-	8.7645	74.393	0	-2.8E-17	1DL+1.4UF	6.827	0	OK	3	13.8	B
CSB16	4000	500	1DL+1.4UF	-4.3604	36.941	322.857	1.4DLSDL-	3.3225	28.135	0	-2.5E-17	1DL+1.4UF	3.855	0	OK	4	13.8	B
CSB16	5000	500	1DL+1.4UF	-4.1695	35.321	322.857	1.4DLSDL-	3.177	26.901	0	-3.5E-17	1DL+1.4UF	2.103	0	OK	5	13.8	B
CSB16	6000	500	1DL+1.4UF	-3.989	33.789	322.857	1.4DLSDL-	3.0395	25.735	0	-3.5E-17	1DL+1.4UF	2.134	0	OK	6	13.8	B
CSB16	7000	500	1DL+1.4UF	-3.4563	29.27	322.857	1.4DLSDL-	2.6336	22.294	0	-3.6E-17	1DL+1.4UF	2.134	0	OK	7	13.8	B
CSB16	8000	500	1DL+1.4UF	-3.1062	26.301	322.857	1.4DLSDL-	2.3668	20.034	0	-4.9E-17	1DL+1.4UF	2.186	0	OK	8	13.8	B
CSB16	9000	500	1DL+1.4UF	-2.0141	17.046	322.857	1DL+1.4UF	2.1843	18.487	322.857	9.38E-18	1DL+1.4UF	5.317	0	OK	9	13.8	B
CSB16	10000	500	1.4DLSDL-	-3.6954	32.892	0	1DL+1.4UF	4.8499	41.096	322.857	9.28E-17	1DL+1.4UF	29.481	0	OK	10	13.8	B
CSB16	11000	500	1DL+1.4UF	-4.4084	37.348	322.857	1DL+1.4UF	3.6308	30.75	0	-7.7E-17	1DL+1.4UF	5.165	0	OK	11	13.8	B
CSB16	12000	500	1DL+1.4UF	-14.5183	123.541	322.857	1.4DLSDL-	11.0623	93.991	0	-4E-17	1DL+1.4UF	8.796	0	OK	12	13.8	B
CSB16	13000	500	1DL+1.4UF	-28.9147	247.62	322.857	1.4DLSDL-	22.0318	188.099	0	-1.2E-17	1DL+1.4UF	16.178	0	OK	13	13.8	B
CSB16	14000	500	1DL+1.4UF	-45.0144	388.311	322.857	1.4DLSDL-	34.2991	294.442	0	-4.3E-17	1DL+1.4UF	25.748	0	OK	14	13.8	B
CSB16	14800	500	1DL+1.4UF	-47.785	412.734	322.857	1.4DLSDL-	36.4101	312.862	0	-2.6E-17	1DL+1.4UF	25.748	0	OK	14.8	13.8	B

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)** (strip B)

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As$_{req}$ (mm^2,strip)	Top-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top T1	Top T3	Bottom B2	Bottom B4	Top-As$_{prov}$ (mm^2,strip)	Top-As$_{prov}$ (mm^2,m)	Bottom-As$_{prov}$ (mm^2,strip)	Bottom-As$_{prov}$ (mm^2,m)	Steel ratio %	Check	Remark
CSB27	500	450	0	374	384	-60.3	43.1	390	781	390	781	271	543	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB27	500	450	1000	374	384	-16.0	11.4	103	206	293	585	72	143	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB27	500	450	2000	374	384	-36.0	25.7	233	466	293	585	162	324	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB27	500	450	3000	374	384	-44.5	31.7	288	575	293	585	200	400	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB28	510.48	450	0	374	384	-36.5	26.0	236	462	299	585	164	321	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB28	1000	450	477	374	384	-118.6	84.6	767	767	767	767	533	533	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB28	1000	450	1477	374	384	-92.5	66.0	599	599	599	599	416	416	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB28	1000	450	2477	374	384	-108.2	77.2	700	700	700	700	486	486	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB28	1000	450	3477	374	384	-78.9	56.3	510	510	585	585	355	355	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB29	510.48	450	0	374	384	-27.5	19.7	178	349	299	585	124	243	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB29	1000	450	955	374	384	-134.3	95.9	869	869	869	869	604	604	604	604	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB29	1000	450	1955	374	384	-153.8	109.7	995	995	995	995	691	691	691	691	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB29	1000	450	2955	374	384	-140.5	100.3	909	909	909	909	632	632	632	632	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB29	1000	450	3955	374	384	-56.3	51.0	364	364	585	585	321	321	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB30	510.48	450	0	374	384	-21.0	15.0	136	267	299	585	95	185	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB30	1000	450	432	374	384	-96.0	68.5	621	621	621	621	432	432	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB30	1000	450	1432	374	384	-164.6	117.5	1065	1065	1065	1065	740	740	740	740	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB30	1000	450	2432	374	384	-191.4	136.6	1238	1238	1238	1238	861	861	861	861	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB30	1000	450	3432	374	384	-151.1	107.8	978	978	978	978	679	679	679	679	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB30	1000	450	4432	374	384	-48.0	48.0	311	311	585	585	303	303	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB31	510.48	450	0	374	384	-10.6	7.6	69	135	299	585	48	94	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB31	1000	450	909	374	384	-129.4	92.3	837	837	837	837	582	582	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB31	1000	450	1909	374	384	-195.5	139.5	1265	1265	1265	1265	879	879	879	879	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB31	1000	450	2909	374	384	-206.8	147.5	1338	1338	1338	1338	930	930	930	930	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB31	1000	450	3909	374	384	-158.6	113.2	1026	1026	1026	1026	713	713	713	713	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB31	1000	450	4909	374	384	-35.7	47.4	231	231	585	585	299	299	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	510.48	450	0	374	384	-5.1	3.6	33	65	299	585	23	45	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB32	1000	450	386	374	384	-82.5	58.9	534	534	585	585	371	371	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	1000	450	1386	374	384	-165.5	118.1	1071	1071	1071	1071	744	744	744	744	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	1000	450	2386	374	384	-212.3	151.5	1374	1374	1374	1374	955	955	955	955	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	1000	450	3386	374	384	-212.4	151.6	1374	1374	1374	1374	955	955	955	955	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	1000	450	4386	374	384	-160.3	114.4	1037	1037	1037	1037	721	721	721	721	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB32	1000	450	5386	374	384	-28.5	39.9	184	184	585	585	252	252	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	510.48	450	0	374	384	-14.4	20.2	93	183	299	585	128	250	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB33	1000	450	864	374	384	-101.9	72.7	659	659	659	659	458	458	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	1000	450	1864	374	384	-176.4	125.9	1142	1142	1142	1142	793	793	793	793	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	1000	450	2864	374	384	-214.1	152.7	1385	1385	1385	1385	963	963	963	963	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	1000	450	3864	374	384	-209.9	149.8	1358	1358	1358	1358	944	944	944	944	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	1000	450	4864	374	384	-151.3	107.9	979	979	979	979	680	680	680	680	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB33	1000	450	5864	374	384	-21.8	30.6	141	141	585	585	193	193	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	510.48	450	0	374	384	-27.7	38.8	179	351	299	585	244	478	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB34	1000	450	341	374	384	-42.1	30.0	272	272	585	585	189	189	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	1341	374	384	-122.1	87.1	790	790	790	790	549	549	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	2341	374	384	-168.6	120.3	1091	1091	1091	1091	758	758	758	758	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	3341	374	384	-204.2	145.7	1321	1321	1321	1321	918	918	918	918	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	4341	374	384	-198.5	141.6	1284	1284	1284	1284	893	893	893	893	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	5341	374	384	-139.9	99.8	905	905	905	905	629	629	629	629	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB34	1000	450	6341	374	384	-13.2	18.5	86	86	585	585	117	117	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	510.48	450	0	374	384	-34.0	47.6	220	431	299	585	300	588	300	588	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB35	1000	450	818	374	384	-48.1	38.4	311	311	585	585	242	242	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	1818	374	384	-98.8	70.5	639	639	639	639	444	444	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	2818	374	384	-133.1	95.0	861	861	861	861	598	598	598	598	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	3818	374	384	-194.2	138.6	1256	1256	1256	1256	873	873	873	873	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	4818	374	384	-201.5	143.8	1304	1304	1304	1304	906	906	906	906	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	5818	374	384	-146.0	104.2	945	945	945	945	657	657	657	657	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB35	1000	450	6818	374	384	-19.3	27.0	125	125	585	585	170	170	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	510.48	450	0	374	384	-19.7	27.5	127	249	299	585	174	340	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB36	1000	450	295	374	384	-51.0	71.4	330	330	585	585	450	450	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	1295	374	384	-58.2	71.8	376	376	585	585	453	453	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	2295	374	384	-67.4	48.1	436	436	585	585	303	303	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	3295	374	384	-86.7	61.9	561	561	585	585	390	390	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	4295	374	384	-191.9	136.9	1242	1242	1242	1242	863	863	863	863	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	5295	374	384	-202.0	144.1	1307	1307	1307	1307	908	908	908	908	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	6295	374	384	-150.7	107.6	975	975	975	975	678	678	678	678	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB36	1000	450	7295	374	384	-23.4	32.8	151	151	585	585	207	207	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	510.48	450	0	374	384	-5.6	6.1	36	71	299	585	38	75	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB37	1000	450	773	374	384	-52.8	46.3	341	341	585	585	292	292	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	1773	374	384	-78.1	109.5	505	505	585	585	690	690	690	690	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	2773	374	384	-137.1	192.1	887	887	887	887	1211	1211	1211	1211	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	3773	374	384	-89.9	64.1	581	581	585	585	404	404	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	4773	374	384	-181.4	129.4	1174	1174	1174	1174	816	816	816	816	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	5773	374	384	-197.2	140.8	1276	1276	1276	1276	887	887	887	887	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2/strip)	Top-As (mm^2/m)	Top-As$_{req}$ (mm^2/strip)	Top-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top		Bottom		Top-As$_{prov}$ (mm^2/strip)	Top-As$_{prov}$ (mm^2/m)	Bottom-As$_{prov}$ (mm^2/strip)	Bottom-As$_{prov}$ (mm^2/m)	Steel ratio %	Check	Remark
																		T1	T3	B2	B4							
CSB37	1000	450	6773	374	384	-146.4	104.5	947	947	947	947	658	658	658	658	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB37	1000	450	7773	374	384	-30.1	32.8	195	195	585	585	207	207	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	510.48	450	0	374	384	-7.6	5.4	49	96	299	585	34	67	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB38	1000	450	250	374	384	-20.0	14.3	129	129	585	585	90	90	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	1250	374	384	-37.3	26.6	241	241	585	585	168	168	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	2250	374	384	-50.2	70.4	325	325	585	585	444	444	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	3250	374	384	-257.0	360.1	1663	1663	1663	1663	2305	2305	2305	2305	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	4250	374	384	-74.7	53.3	483	483	585	585	336	336	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	5250	374	384	-157.9	112.7	1022	1022	1022	1022	710	710	710	710	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	6250	374	384	-181.4	129.4	1174	1174	1174	1174	816	816	816	816	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	7250	374	384	-140.3	100.1	907	907	907	907	631	631	631	631	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB38	1000	450	8250	374	384	-33.4	32.2	216	216	585	585	203	203	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	510.48	450	0	374	384	-1.6	2.3	11	21	299	585	14	28	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB39	1000	450	727	374	384	-40.9	29.2	265	265	585	585	184	184	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	1727	374	384	-51.3	36.6	332	332	585	585	231	231	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	2727	374	384	-33.8	47.4	219	219	585	585	299	299	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	3727	374	384	-137.2	192.2	888	888	888	888	1211	1211	1211	1211	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	4727	374	384	-91.7	65.4	593	593	593	593	412	412	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	5727	374	384	-143.5	102.4	928	928	928	928	645	645	645	645	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	6727	374	384	-139.7	99.7	904	904	904	904	628	628	628	628	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	7727	374	384	-121.4	86.6	785	785	785	785	546	546	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB39	1000	450	8727	374	384	-35.1	36.1	227	227	585	585	228	228	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	510.48	450	0	374	384	-11.0	15.4	71	140	299	585	97	191	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB40	918.1	450	205	374	384	-12.9	18.1	84	91	537	585	114	124	537	585	537	585	T32-125	-	T32-125	-	5907	6434	5907	6434	1.31	ok	
CSB40	1000	450	1205	374	384	-30.0	21.4	194	194	585	585	135	135	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	2205	374	384	-57.2	40.8	370	370	585	585	257	257	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	3205	374	384	-36.0	25.7	233	233	585	585	162	162	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	4205	374	384	-49.4	35.2	319	319	585	585	222	222	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	5205	374	384	-68.2	48.7	442	442	585	585	307	307	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	6205	374	384	-99.7	71.2	645	645	645	645	448	448	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	7205	374	384	-91.7	65.5	594	594	594	594	413	413	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	8205	374	384	-104.9	74.8	679	679	679	679	472	472	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB40	1000	450	9205	374	384	-37.3	44.8	242	242	585	585	283	283	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	510.48	450	0	374	384	-4.7	6.6	30	59	299	585	41	81	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB41	1000	450	682	374	384	-36.0	50.5	233	233	585	585	318	318	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	1682	374	384	-15.9	22.2	103	103	585	585	140	140	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	2682	374	384	-44.3	31.6	287	287	585	585	199	199	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	3682	374	384	-62.6	44.6	405	405	585	585	281	281	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	4682	374	384	-78.8	56.2	510	510	585	585	354	354	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	5682	374	384	-83.6	59.7	541	541	585	585	376	376	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	6682	374	384	-44.9	32.1	291	291	585	585	202	202	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	7682	374	384	-62.7	44.7	406	406	585	585	282	282	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	8682	374	384	-92.1	65.8	596	596	596	596	414	414	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB41	1000	450	9682	374	384	-45.5	34.8	295	295	585	585	219	219	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	510.48	450	0	374	384	-30.8	22.0	199	390	299	585	138	271	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB42	822.86	450	159	374	384	-33.2	23.7	215	261	481	585	149	182	481	585	481	585	T32-125	-	T32-125	-	5294	6434	5294	6434	1.18	ok	
CSB42	1000	450	1159	374	384	-44.4	62.2	287	287	585	585	392	392	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	2159	374	384	-126.9	177.8	821	821	821	821	1121	1121	1121	1121	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	3159	374	384	-60.2	45.5	389	389	585	585	287	287	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	4159	374	384	-98.0	69.9	634	634	634	634	441	441	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	5159	374	384	-125.8	89.8	814	814	814	814	566	566	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	6159	374	384	-74.8	53.4	484	484	585	585	336	336	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	7159	374	384	-131.3	184.1	850	850	850	850	1160	1160	1160	1160	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	8159	374	384	-56.0	42.3	362	362	585	585	267	267	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	9159	374	384	-96.4	68.8	624	624	624	624	434	434	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB42	1000	450	10159	374	384	-48.3	34.5	313	313	585	585	217	217	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	510.48	450	0	374	384	-38.8	27.7	251	492	299	585	175	342	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB43	1000	450	636	374	384	-83.6	59.7	541	541	585	585	376	376	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	1636	374	384	-36.3	36.7	235	235	585	585	231	231	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	2636	374	384	-229.7	321.9	1486	1486	1486	1486	2044	2044	2044	2044	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	3636	374	384	-58.1	41.5	376	376	585	585	261	261	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	4636	374	384	-118.0	84.2	764	764	764	764	531	531	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	5636	374	384	-134.8	96.2	872	872	872	872	606	606	606	606	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	6636	374	384	-23.0	26.5	149	149	585	585	167	167	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	7636	374	384	-248.1	347.6	1605	1605	1605	1605	2219	2219	2219	2219	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	8636	374	384	-33.5	44.8	217	217	585	585	282	282	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	9636	374	384	-102.5	73.2	664	664	664	664	461	461	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB43	1000	450	10636	374	384	-45.1	32.2	292	292	585	585	203	203	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	510.48	450	0	374	384	-18.6	13.3	120	236	299	585	84	164	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB44	727.62	450	114	374	384	-34.0	24.3	220	303	426	585	153	210	426	585	426	585	T32-125	-	T32-125	-	4681	6434	4681	6434	1.04	ok	
CSB44	1000	450	1114	374	384	-98.1	70.0	635	635	635	635	441	441	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	2114	374	384	-67.7	55.3	438	438	585	585	348	348	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm²

f_w = 500 N/mm²

f_{cu} = 45 N/mm²

Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm²/strip)	Top-As (mm²/m)	Top-As$_{req}$ (mm²/strip)	Top-As$_{req}$ (mm²/m)	Bottom-As$_{req}$ (mm²/strip)	Bottom-As$_{req}$ (mm²/m)	Bottom-As$_{req}$ (mm²/strip)	Bottom-As$_{req}$ (mm²/m)	min steel (mm²/strip)	min steel (mm²/m)	Top T1	Top T3	Bottom B2	Bottom B4	Top-As$_{prov}$ (mm²/strip)	Top-As$_{prov}$ (mm²/m)	Bottom-As$_{prov}$ (mm²/strip)	Bottom-As$_{prov}$ (mm²/m)	Steel ratio %	Check	Remark
CSB44	1000	450	3114	374	384	-113.3	158.7	733	733	733	733	1000	1000	1000	1000	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	4114	374	384	-80.4	57.3	520	520	585	585	361	361	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	5114	374	384	-130.4	93.0	844	844	844	844	586	586	586	586	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	6114	374	384	-129.3	92.3	837	837	837	837	582	582	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	7114	374	384	-60.2	42.9	389	389	585	585	271	271	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	8114	374	384	-120.2	168.5	778	778	778	778	1062	1062	1062	1062	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	9114	374	384	-79.8	69.3	516	516	585	585	437	437	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	10114	374	384	-105.1	75.0	680	680	680	680	473	473	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB44	1000	450	11114	374	384	-56.2	40.1	364	364	585	585	253	253	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	510.48	450	0	374	384	-3.9	5.4	25	49	299	585	34	67	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB45	1000	450	591	374	384	-60.5	43.1	391	391	585	585	272	272	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	1591	374	384	-94.5	67.4	611	611	611	611	425	425	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	2591	374	384	-57.5	41.0	372	372	585	585	258	258	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	3591	374	384	-42.7	30.5	277	277	585	585	192	192	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	4591	374	384	-74.1	52.8	479	479	585	585	333	333	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	5591	374	384	-114.5	81.7	741	741	741	741	515	515	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	6591	374	384	-110.3	78.7	714	714	714	714	496	496	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	7591	374	384	-79.1	56.4	512	512	585	585	356	356	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	8591	374	384	-46.0	32.8	298	298	585	585	207	207	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	9591	374	384	-81.8	58.4	529	529	585	585	368	368	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	10591	374	384	-106.4	75.9	688	688	688	688	478	478	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB45	1000	450	11591	374	384	-39.9	56.0	258	258	585	585	353	353	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	510.48	450	0	374	384	-28.2	39.6	183	358	299	585	249	488	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB46	632.38	450	68	374	384	-33.4	46.7	216	341	370	585	295	466	370	585	370	585	T32-125	-	T32-125	-	4069	6434	4069	6434	0.90	ok	
CSB46	1000	450	1068	374	384	-69.3	49.5	448	448	585	585	312	312	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	2068	374	384	-74.4	53.1	482	482	585	585	335	335	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	3068	374	384	-69.2	49.4	448	448	585	585	311	311	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	4068	374	384	-69.9	49.9	452	452	585	585	314	314	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	5068	374	384	-84.3	60.2	546	546	585	585	379	379	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	6068	374	384	-92.9	66.3	601	601	601	601	418	418	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	7068	374	384	-95.6	68.3	619	619	619	619	430	430	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	8068	374	384	-83.8	59.8	542	542	585	585	377	377	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	9068	374	384	-66.7	47.6	431	431	585	585	300	300	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	10068	374	384	-79.0	56.3	511	511	585	585	355	355	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	11068	374	384	-93.1	66.4	602	602	602	602	419	419	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB46	1000	450	12068	374	384	-35.9	50.4	233	233	585	585	317	317	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	510.48	450	0	374	384	-24.2	33.9	157	307	299	585	214	419	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB47	1000	450	545	374	384	-41.3	57.9	267	267	585	585	365	365	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	1545	374	384	-80.6	57.5	521	521	585	585	362	362	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	2545	374	384	-88.2	62.9	571	571	585	585	397	397	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	3545	374	384	-81.6	58.2	528	528	585	585	367	367	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	4545	374	384	-80.4	57.4	520	520	585	585	362	362	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	5545	374	384	-78.4	56.0	508	508	585	585	353	353	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	6545	374	384	-72.5	51.8	469	469	585	585	326	326	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	7545	374	384	-80.2	57.2	519	519	585	585	361	361	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	8545	374	384	-87.1	62.2	564	564	585	585	392	392	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	9545	374	384	-88.6	63.2	573	573	585	585	398	398	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	10545	374	384	-95.2	67.9	616	616	616	616	428	428	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	11545	374	384	-102.5	73.1	663	663	663	663	461	461	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB47	1000	450	12545	374	384	-42.6	59.7	276	276	585	585	377	377	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	510.48	450	0	374	384	-19.2	27.0	124	244	299	585	170	333	299	585	299	585	T32-125	-	T32-125	-	3284	6434	3284	6434	0.73	ok	
CSB48	537.14	450	23	374	384	-12.6	17.7	82	152	314	585	111	208	314	585	314	585	T32-125	-	T32-125	-	3456	6434	3456	6434	0.77	ok	
CSB48	1000	450	1023	374	384	-61.0	43.5	394	394	585	585	274	274	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	2023	374	384	-84.4	60.2	546	546	585	585	380	380	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	3023	374	384	-81.7	58.3	529	529	585	585	367	367	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	4023	374	384	-71.0	50.7	460	460	585	585	319	319	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	5023	374	384	-61.2	43.6	396	396	585	585	275	275	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	6023	374	384	-52.7	37.6	341	341	585	585	237	237	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	7023	374	384	-45.8	32.7	297	297	585	585	206	206	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	8023	374	384	-50.7	36.2	328	328	585	585	228	228	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	9023	374	384	-64.0	45.7	414	414	585	585	288	288	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	10023	374	384	-77.9	55.6	504	504	585	585	350	350	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	11023	374	384	-97.8	69.8	633	633	633	633	440	440	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	12023	374	384	-105.5	75.3	683	683	683	683	475	475	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB48	1000	450	13023	374	384	-79.8	57.9	516	516	585	585	365	365	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB49	10.48	450	0	374	384	-0.2	0.2	2	146	6	585	1	101	6	585	6	585	T32-125	-	T32-125	-	67	6434	67	6434	0.01	ok	
CSB49	500	450	500	374	384	-28.7	20.5	186	372	293	585	129	258	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	1500	374	384	-36.1	39.1	233	467	293	585	247	493	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	2500	374	384	-33.7	35.3	218	436	293	585	222	444	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	3500	374	384	-26.7	30.0	173	345	293	585	189	378	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	4500	374	384	-20.3	25.9	131	263	293	585	163	326	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	5500	374	384	-16.6	16.9	107	215	293	585	107	214	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_w = 500 N/mm²
f_{cu} = 45 N/mm²
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm²/strip)	Top-As (mm²/m)	Top-As$_{req}$ (mm²/strip)	Top-As$_{req}$ (mm²/m)	Bottom-As$_{req}$ (mm²/strip)	Bottom-As$_{req}$ (mm²/m)	Bottom-As$_{req}$ (mm²/strip)	Bottom-As$_{req}$ (mm²/m)	min steel (mm²/strip)	min steel (mm²/m)	Top T1	Top T3	Bottom B2	Bottom B4	Top-As$_{prov.}$ (mm²/strip)	Top-As$_{prov.}$ (mm²/m)	Bottom-As$_{prov.}$ (mm²/strip)	Bottom-As$_{prov.}$ (mm²/m)	Steel ratio %	Check	Remark
CSB49	500	450	6500	374	384	-10.4	14.6	67	134	293	585	92	183	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	7500	374	384	-9.4	13.1	61	121	293	585	83	165	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	8500	374	384	-8.7	12.1	56	112	293	585	76	153	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	9500	374	384	-14.7	19.3	95	190	293	585	122	243	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	10500	374	384	-26.6	24.3	172	345	293	585	153	306	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	11500	374	384	-42.8	32.7	277	554	293	585	206	412	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	12500	374	384	-57.2	44.8	370	741	370	741	283	565	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB49	500	450	13500	374	384	-60.5	43.2	391	783	391	783	272	544	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB14	1000	450	14000	374	384	-91.7	69.9	593	593	593	593	440	440	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB14	1000	450	14800	374	384	-69.6	53.0	450	450	585	585	334	334	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSB16	500	450	0	374	384	-46.7	35.6	302	605	302	605	224	449	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	1000	374	384	-42.3	32.2	273	547	293	585	203	406	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	2000	374	384	-25.4	19.3	164	328	293	585	122	244	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	3000	374	384	-11.5	8.8	74	149	293	585	55	110	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	4000	374	384	-4.4	3.3	28	56	293	585	21	42	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	5000	374	384	-4.2	3.2	27	54	293	585	20	40	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	6000	374	384	-4.0	3.0	26	52	293	585	19	38	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	7000	374	384	-3.5	2.6	22	45	293	585	17	33	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	8000	374	384	-3.1	2.4	20	40	293	585	15	30	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	9000	374	384	-2.0	2.2	13	26	293	585	14	28	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	10000	374	384	-3.7	4.8	24	48	293	585	31	61	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	11000	374	384	-4.4	3.6	29	57	293	585	23	46	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	12000	374	384	-14.5	11.1	94	188	293	585	70	139	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	13000	374	384	-28.9	22.0	187	374	293	585	139	278	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	14000	374	384	-45.0	34.3	291	583	293	585	216	432	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSB16	500	450	14800	374	384	-47.8	36.4	309	618	309	618	229	459	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB27	500	450	0	374	384	3217	6434	3217	6434	20.02	0.104	0.052	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB27	500	450	1000	374	384	3217	6434	3217	6434	20.02	0.104	0.052	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB27	500	450	2000	374	384	3217	6434	3217	6434	15.36	0.080	0.040	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB27	500	450	3000	374	384	3217	6434	3217	6434	15.36	0.080	0.040	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB28	510	450	0	374	384	3284	6434	3284	6434	57.11	0.291	0.149	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB28	1000	450	477	374	384	6434	6434	6434	6434	116.42	0.303	0.303	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB28	1000	450	1477	374	384	6434	6434	6434	6434	4.05	0.011	0.011	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB28	1000	450	2477	374	384	6434	6434	6434	6434	15.19	0.040	0.040	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB28	1000	450	3477	374	384	6434	6434	6434	6434	15.19	0.040	0.040	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB29	510	450	0	374	384	3284	6434	3284	6434	66.70	0.340	0.174	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB29	1000	450	955	374	384	6434	6434	6434	6434	99.43	0.259	0.259	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB29	1000	450	1955	374	384	6434	6434	6434	6434	31.80	0.083	0.083	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB29	1000	450	2955	374	384	6434	6434	6434	6434	80.04	0.208	0.208	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB29	1000	450	3955	374	384	6434	6434	6434	6434	80.04	0.208	0.208	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	510	450	0	374	384	3284	6434	3284	6434	74.74	0.381	0.195	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	1000	450	432	374	384	6434	6434	6434	6434	143.54	0.374	0.374	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	1000	450	1432	374	384	6434	6434	6434	6434	79.03	0.206	0.206	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	1000	450	2432	374	384	6434	6434	6434	6434	40.35	0.105	0.105	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	1000	450	3432	374	384	6434	6434	6434	6434	108.79	0.283	0.283	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB30	1000	450	4432	374	384	6434	6434	6434	6434	108.79	0.283	0.283	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	510	450	0	374	384	3284	6434	3284	6434	80.77	0.412	0.210	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	1000	450	909	374	384	6434	6434	6434	6434	131.32	0.342	0.342	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	1000	450	1909	374	384	6434	6434	6434	6434	62.38	0.162	0.162	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	1000	450	2909	374	384	6434	6434	6434	6434	55.80	0.145	0.145	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	1000	450	3909	374	384	6434	6434	6434	6434	126.15	0.329	0.329	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB31	1000	450	4909	374	384	6434	6434	6434	6434	126.15	0.329	0.329	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	510	450	0	374	384	3284	6434	3284	6434	89.56	0.457	0.233	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	386	374	384	6434	6434	6434	6434	184.37	0.480	0.480	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	1386	374	384	6434	6434	6434	6434	104.64	0.273	0.273	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	2386	374	384	6434	6434	6434	6434	44.52	0.116	0.116	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	3386	374	384	6434	6434	6434	6434	68.88	0.179	0.179	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	4386	374	384	6434	6434	6434	6434	139.16	0.362	0.362	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB32	1000	450	5386	374	384	6434	6434	6434	6434	139.16	0.362	0.362	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	510	450	0	374	384	3284	6434	3284	6434	79.42	0.405	0.207	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	864	374	384	6434	6434	6434	6434	146.36	0.381	0.381	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	1864	374	384	6434	6434	6434	6434	81.74	0.213	0.213	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	2864	374	384	6434	6434	6434	6434	27.68	0.072	0.072	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	3864	374	384	6434	6434	6434	6434	78.35	0.204	0.204	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	4864	374	384	6434	6434	6434	6434	147.49	0.384	0.384	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB33	1000	450	5864	374	384	6434	6434	6434	6434	147.49	0.384	0.384	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	510	450	0	374	384	3284	6434	3284	6434	62.98	0.321	0.164	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	341	374	384	6434	6434	6434	6434	131.36	0.342	0.342	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	1341	374	384	6434	6434	6434	6434	101.64	0.265	0.265	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm²)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB34	1000	450	2341	374	384	6434	6434	6434	6434	59.49	0.155	0.155	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	3341	374	384	6434	6434	6434	6434	22.33	0.058	0.058	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	4341	374	384	6434	6434	6434	6434	82.13	0.214	0.214	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	5341	374	384	6434	6434	6434	6434	149.53	0.389	0.389	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB34	1000	450	6341	374	384	6434	6434	6434	6434	149.53	0.389	0.389	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	510	450	0	374	384	3284	6434	3284	6434	35.04	0.179	0.091	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	818	374	384	6434	6434	6434	6434	87.75	0.229	0.229	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	1818	374	384	6434	6434	6434	6434	62.95	0.164	0.164	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	2818	374	384	6434	6434	6434	6434	43.66	0.114	0.114	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	3818	374	384	6434	6434	6434	6434	20.32	0.053	0.053	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	4818	374	384	6434	6434	6434	6434	78.02	0.203	0.203	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	5818	374	384	6434	6434	6434	6434	144.22	0.376	0.376	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB35	1000	450	6818	374	384	6434	6434	6434	6434	144.22	0.376	0.376	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	510	450	0	374	384	3284	6434	3284	6434	3.05	0.016	0.008	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	295	374	384	6434	6434	6434	6434	14.84	0.039	0.039	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	1295	374	384	6434	6434	6434	6434	18.85	0.049	0.049	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	2295	374	384	6434	6434	6434	6434	61.02	0.159	0.159	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	3295	374	384	6434	6434	6434	6434	50.02	0.130	0.130	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	4295	374	384	6434	6434	6434	6434	29.71	0.077	0.077	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	5295	374	384	6434	6434	6434	6434	64.90	0.169	0.169	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	6295	374	384	6434	6434	6434	6434	132.45	0.345	0.345	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB36	1000	450	7295	374	384	6434	6434	6434	6434	132.45	0.345	0.345	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	510	450	0	374	384	3284	6434	3284	6434	6.42	0.033	0.017	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	773	374	384	6434	6434	6434	6434	29.87	0.078	0.078	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	1773	374	384	6434	6434	6434	6434	106.62	0.278	0.278	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	2773	374	384	6434	6434	6434	6434	225.61	0.588	0.588	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	3773	374	384	6434	6434	6434	6434	176.99	0.461	0.461	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	4773	374	384	6434	6434	6434	6434	90.97	0.237	0.237	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	5773	374	384	6434	6434	6434	6434	46.37	0.121	0.121	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	6773	374	384	6434	6434	6434	6434	117.84	0.307	0.307	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB37	1000	450	7773	374	384	6434	6434	6434	6434	117.84	0.307	0.307	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	510	450	0	374	384	3284	6434	3284	6434	25.19	0.129	0.066	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	250	374	384	6434	6434	6434	6434	53.25	0.139	0.139	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	1250	374	384	6434	6434	6434	6434	65.52	0.171	0.171	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	2250	374	384	6434	6434	6434	6434	200.22	0.521	0.521	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	3250	374	384	6434	6434	6434	6434	335.49	0.874	0.874	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	4250	374	384	6434	6434	6434	6434	291.53	0.759	0.759	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	5250	374	384	6434	6434	6434	6434	134.61	0.351	0.351	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	6250	374	384	6434	6434	6434	6434	48.46	0.126	0.126	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	7250	374	384	6434	6434	6434	6434	104.79	0.273	0.273	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB38	1000	450	8250	374	384	6434	6434	6434	6434	104.79	0.273	0.273	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	510	450	0	374	384	3284	6434	3284	6434	32.04	0.163	0.083	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	727	374	384	6434	6434	6434	6434	43.93	0.114	0.114	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab (SHEAR LINKS IN X-DIRECTION)

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ Asv not required
For $v_c' < v < (v_c'+0.4)$ $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm²)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB39	1000	450	1727	374	384	6434	6434	6434	6434	38.94	0.101	0.101	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	2727	374	384	6434	6434	6434	6434	117.69	0.306	0.306	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	3727	374	384	6434	6434	6434	6434	216.20	0.563	0.563	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	4727	374	384	6434	6434	6434	6434	171.17	0.446	0.446	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	5727	374	384	6434	6434	6434	6434	94.81	0.247	0.247	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	6727	374	384	6434	6434	6434	6434	40.18	0.105	0.105	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	7727	374	384	6434	6434	6434	6434	92.94	0.242	0.242	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB39	1000	450	8727	374	384	6434	6434	6434	6434	92.94	0.242	0.242	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	510	450	0	374	384	3284	6434	3284	6434	15.98	0.082	0.042	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	918	450	205	374	384	5907	6434	5907	6434	43.31	0.123	0.113	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	1205	374	384	6434	6434	6434	6434	29.82	0.078	0.078	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	2205	374	384	6434	6434	6434	6434	1.78	0.005	0.005	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	3205	374	384	6434	6434	6434	6434	12.63	0.033	0.033	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	4205	374	384	6434	6434	6434	6434	30.18	0.079	0.079	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	5205	374	384	6434	6434	6434	6434	30.94	0.081	0.081	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	6205	374	384	6434	6434	6434	6434	33.38	0.087	0.087	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	7205	374	384	6434	6434	6434	6434	25.26	0.066	0.066	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	8205	374	384	6434	6434	6434	6434	75.60	0.197	0.197	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB40	1000	450	9205	374	384	6434	6434	6434	6434	75.60	0.197	0.197	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	510	450	0	374	384	3284	6434	3284	6434	21.39	0.109	0.056	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	682	374	384	6434	6434	6434	6434	6.68	0.017	0.017	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	1682	374	384	6434	6434	6434	6434	21.19	0.055	0.055	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	2682	374	384	6434	6434	6434	6434	30.93	0.081	0.081	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	3682	374	384	6434	6434	6434	6434	17.10	0.045	0.045	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	4682	374	384	6434	6434	6434	6434	13.53	0.035	0.035	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	5682	374	384	6434	6434	6434	6434	18.96	0.049	0.049	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	6682	374	384	6434	6434	6434	6434	34.24	0.089	0.089	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	7682	374	384	6434	6434	6434	6434	34.24	0.089	0.089	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	8682	374	384	6434	6434	6434	6434	45.97	0.120	0.120	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB41	1000	450	9682	374	384	6434	6434	6434	6434	45.97	0.120	0.120	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	510	450	0	374	384	3284	6434	3284	6434	36.57	0.187	0.095	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	823	450	159	374	384	5294	6434	5294	6434	54.40	0.172	0.142	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	1159	374	384	6434	6434	6434	6434	129.15	0.336	0.336	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	2159	374	384	6434	6434	6434	6434	198.51	0.517	0.517	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	3159	374	384	6434	6434	6434	6434	139.57	0.363	0.363	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	4159	374	384	6434	6434	6434	6434	49.86	0.130	0.130	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	5159	374	384	6434	6434	6434	6434	75.60	0.197	0.197	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	6159	374	384	6434	6434	6434	6434	126.75	0.330	0.330	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	7159	374	384	6434	6434	6434	6434	227.08	0.591	0.591	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	8159	374	384	6434	6434	6434	6434	159.15	0.414	0.414	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	9159	374	384	6434	6434	6434	6434	63.23	0.165	0.165	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB42	1000	450	10159	374	384	6434	6434	6434	6434	10.35	0.027	0.027	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	510	450	0	374	384	3284	6434	3284	6434	9.50	0.048	0.025	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,s trip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB43	1000	450	636	374	384	6434	6434	6434	6434	56.20	0.146	0.146	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	1636	374	384	6434	6434	6434	6434	207.74	0.541	0.541	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	2636	374	384	6434	6434	6434	6434	351.41	0.915	0.915	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	3636	374	384	6434	6434	6434	6434	234.17	0.610	0.610	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	4636	374	384	6434	6434	6434	6434	73.58	0.192	0.192	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	5636	374	384	6434	6434	6434	6434	115.63	0.301	0.301	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	6636	374	384	6434	6434	6434	6434	207.41	0.540	0.540	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	7636	374	384	6434	6434	6434	6434	321.47	0.837	0.837	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	8636	374	384	6434	6434	6434	6434	268.88	0.700	0.700	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	9636	374	384	6434	6434	6434	6434	97.04	0.253	0.253	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB43	1000	450	10636	374	384	6434	6434	6434	6434	2.92	0.008	0.008	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	510	450	0	374	384	3284	6434	3284	6434	52.75	0.269	0.137	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	728	450	114	374	384	4681	6434	4681	6434	74.96	0.268	0.195	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	1114	374	384	6434	6434	6434	6434	5.43	0.014	0.014	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	2114	374	384	6434	6434	6434	6434	104.43	0.272	0.272	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	3114	374	384	6434	6434	6434	6434	205.38	0.535	0.535	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	4114	374	384	6434	6434	6434	6434	144.18	0.375	0.375	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	5114	374	384	6434	6434	6434	6434	50.25	0.131	0.131	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	6114	374	384	6434	6434	6434	6434	81.27	0.212	0.212	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	7114	374	384	6434	6434	6434	6434	134.69	0.351	0.351	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	8114	374	384	6434	6434	6434	6434	237.46	0.618	0.618	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	9114	374	384	6434	6434	6434	6434	147.99	0.385	0.385	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	10114	374	384	6434	6434	6434	6434	51.57	0.134	0.134	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB44	1000	450	11114	374	384	6434	6434	6434	6434	25.41	0.066	0.066	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	510	450	0	374	384	3284	6434	3284	6434	69.91	0.357	0.182	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	591	374	384	6434	6434	6434	6434	90.72	0.236	0.236	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	1591	374	384	6434	6434	6434	6434	35.84	0.093	0.093	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	2591	374	384	6434	6434	6434	6434	6.36	0.017	0.017	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	3591	374	384	6434	6434	6434	6434	30.75	0.080	0.080	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	4591	374	384	6434	6434	6434	6434	33.53	0.087	0.087	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	5591	374	384	6434	6434	6434	6434	17.33	0.045	0.045	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	6591	374	384	6434	6434	6434	6434	28.72	0.075	0.075	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	7591	374	384	6434	6434	6434	6434	37.47	0.098	0.098	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	8591	374	384	6434	6434	6434	6434	11.02	0.029	0.029	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	9591	374	384	6434	6434	6434	6434	13.10	0.034	0.034	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	10591	374	384	6434	6434	6434	6434	72.28	0.188	0.188	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB45	1000	450	11591	374	384	6434	6434	6434	6434	72.28	0.188	0.188	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	510	450	0	374	384	3284	6434	3284	6434	24.96	0.127	0.065	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	632	450	68	374	384	4069	6434	4069	6434	47.19	0.194	0.123	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	1068	374	384	6434	6434	6434	6434	58.44	0.152	0.152	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	2068	374	384	6434	6434	6434	6434	32.56	0.085	0.085	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	3068	374	384	6434	6434	6434	6434	17.68	0.046	0.046	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	4068	374	384	6434	6434	6434	6434	19.96	0.052	0.052	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab (SHEAR LINKS IN X-DIRECTION)

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ Asv not required
For $v_c' < v < (v_c'+0.4)$ $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB46	1000	450	5068	374	384	6434	6434	6434	6434	12.20	0.032	0.032	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	6068	374	384	6434	6434	6434	6434	8.66	0.023	0.023	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	7068	374	384	6434	6434	6434	6434	7.90	0.021	0.021	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	8068	374	384	6434	6434	6434	6434	11.96	0.031	0.031	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	9068	374	384	6434	6434	6434	6434	14.89	0.039	0.039	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	10068	374	384	6434	6434	6434	6434	40.26	0.105	0.105	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	11068	374	384	6434	6434	6434	6434	102.36	0.267	0.267	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB46	1000	450	12068	374	384	6434	6434	6434	6434	102.36	0.267	0.267	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	510	450	0	374	384	3284	6434	3284	6434	25.01	0.128	0.065	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	545	374	384	6434	6434	6434	6434	49.88	0.130	0.130	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	1545	374	384	6434	6434	6434	6434	31.12	0.081	0.081	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	2545	374	384	6434	6434	6434	6434	19.43	0.051	0.051	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	3545	374	384	6434	6434	6434	6434	12.82	0.033	0.033	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	4545	374	384	6434	6434	6434	6434	8.65	0.023	0.023	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	5545	374	384	6434	6434	6434	6434	9.84	0.026	0.026	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	6545	374	384	6434	6434	6434	6434	7.77	0.020	0.020	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	7545	374	384	6434	6434	6434	6434	4.71	0.012	0.012	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	8545	374	384	6434	6434	6434	6434	7.70	0.020	0.020	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	9545	374	384	6434	6434	6434	6434	10.48	0.027	0.027	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	10545	374	384	6434	6434	6434	6434	32.73	0.085	0.085	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	11545	374	384	6434	6434	6434	6434	91.20	0.238	0.238	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB47	1000	450	12545	374	384	6434	6434	6434	6434	91.20	0.238	0.238	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	510	450	0	374	384	3284	6434	3284	6434	30.28	0.154	0.079	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	537	450	23	374	384	3456	6434	3456	6434	23.61	0.114	0.061	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	1023	374	384	6434	6434	6434	6434	26.90	0.070	0.070	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	2023	374	384	6434	6434	6434	6434	44.31	0.115	0.115	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	3023	374	384	6434	6434	6434	6434	48.44	0.126	0.126	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	4023	374	384	6434	6434	6434	6434	45.09	0.117	0.117	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	5023	374	384	6434	6434	6434	6434	20.92	0.054	0.054	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	6023	374	384	6434	6434	6434	6434	35.29	0.092	0.092	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	7023	374	384	6434	6434	6434	6434	37.85	0.099	0.099	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	8023	374	384	6434	6434	6434	6434	24.19	0.063	0.063	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	9023	374	384	6434	6434	6434	6434	31.09	0.081	0.081	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	10023	374	384	6434	6434	6434	6434	11.81	0.031	0.031	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	11023	374	384	6434	6434	6434	6434	11.81	0.031	0.031	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	12023	374	384	6434	6434	6434	6434	10.53	0.027	0.027	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB48	1000	450	13023	374	384	6434	6434	6434	6434	10.53	0.027	0.027	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	10	450	0	374	384	67	6434	67	6434	0.75	0.185	0.002	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	500	374	384	3217	6434	3217	6434	28.84	0.150	0.075	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	1500	374	384	3217	6434	3217	6434	52.60	0.274	0.137	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	2500	374	384	3217	6434	3217	6434	62.26	0.324	0.162	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	3500	374	384	3217	6434	3217	6434	61.51	0.320	0.160	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	4500	374	384	3217	6434	3217	6434	55.15	0.287	0.144	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.915 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,s trip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB49	500	450	5500	374	384	3217	6434	3217	6434	20.46	0.107	0.053	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	6500	374	384	3217	6434	3217	6434	44.91	0.234	0.117	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	7500	374	384	3217	6434	3217	6434	49.85	0.260	0.130	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	8500	374	384	3217	6434	3217	6434	30.28	0.158	0.079	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	9500	374	384	3217	6434	3217	6434	34.26	0.178	0.089	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	10500	374	384	3217	6434	3217	6434	13.43	0.070	0.035	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	11500	374	384	3217	6434	3217	6434	20.46	0.107	0.053	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	12500	374	384	3217	6434	3217	6434	25.68	0.134	0.067	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB49	500	450	13500	374	384	3217	6434	3217	6434	25.68	0.134	0.067	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB14	1000	450	14000	374	384	6434	6434	6434	6434	11.29	0.029	0.029	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB14	1000	450	14800	374	384	6434	6434	6434	6434	11.29	0.029	0.029	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	0	374	384	3217	6434	3217	6434	17.24	0.090	0.045	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	1000	374	384	3217	6434	3217	6434	17.24	0.090	0.045	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	2000	374	384	3217	6434	3217	6434	13.86	0.072	0.036	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	3000	374	384	3217	6434	3217	6434	6.83	0.036	0.018	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	4000	374	384	3217	6434	3217	6434	3.86	0.020	0.010	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	5000	374	384	3217	6434	3217	6434	2.10	0.011	0.005	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	6000	374	384	3217	6434	3217	6434	2.13	0.011	0.006	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	7000	374	384	3217	6434	3217	6434	2.13	0.011	0.006	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	8000	374	384	3217	6434	3217	6434	2.19	0.011	0.006	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	9000	374	384	3217	6434	3217	6434	5.32	0.028	0.014	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	10000	374	384	3217	6434	3217	6434	29.48	0.154	0.077	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	11000	374	384	3217	6434	3217	6434	5.17	0.027	0.013	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	12000	374	384	3217	6434	3217	6434	8.80	0.046	0.023	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	13000	374	384	3217	6434	3217	6434	16.18	0.084	0.042	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	14000	374	384	3217	6434	3217	6434	25.75	0.134	0.067	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok
CSB16	500	450	14800	374	384	3217	6434	3217	6434	25.75	0.134	0.067	1.676	1.010	0.922	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)** (strip A)

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As$_{req}$ (mm^2,strip)	Top-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	T4	Bottom Reinforcement provide B3	B4	Top-As$_{prov}$ (mm^2,strip)	Top-As$_{prov}$ (mm^2,m)	Bottom-As$_{prov}$ (mm^2,strip)	Bottom-As$_{prov}$ (mm^2,m)	Steel ratio %	Check	Remark
CSA15	500	450	0	374	374	-64.4	45.9	417	833	417	833	297	594	297	594	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	1000	374	374	-56.5	42.0	365	731	365	731	272	544	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	2000	374	374	-28.3	20.2	183	367	293	585	131	262	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	3000	374	374	-10.7	8.2	69	139	293	585	53	106	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	4000	374	374	-31.1	22.9	201	402	293	585	148	296	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	5000	374	374	-23.3	26.0	151	301	293	585	168	337	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	6000	374	374	-7.8	10.9	50	101	293	585	71	141	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	7000	374	374	-13.0	12.3	84	169	293	585	80	160	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	8000	374	374	-28.2	23.4	182	364	293	585	151	303	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	9000	374	374	-28.4	20.3	184	368	293	585	131	262	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	10000	374	374	-22.6	17.0	146	293	293	585	110	220	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	11000	374	374	-20.7	14.9	134	268	293	585	96	192	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	12000	374	374	-20.5	14.6	132	265	293	585	94	189	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	13000	374	374	-19.1	13.6	124	248	293	585	88	177	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	14000	374	374	-13.9	9.9	90	180	293	585	64	129	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	15000	374	374	-6.3	4.5	41	81	293	585	29	58	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	16000	374	374	-14.1	10.0	91	182	293	585	65	130	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	17000	374	374	-21.4	15.3	138	277	293	585	99	198	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	18000	374	374	-27.3	19.5	177	353	293	585	126	252	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	19000	374	374	-29.8	21.9	193	385	293	585	141	283	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	20000	374	374	-33.3	25.1	215	431	293	585	163	325	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	21000	374	374	-39.3	29.9	255	509	293	585	194	387	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA15	500	450	22000	374	374	-38.8	27.7	251	502	293	585	179	358	293	585	293	585	T32-125	-	T32-125	-	3217	6434	3217	6434	0.71	ok	
CSA16	1000	450	0	374	374	-103.7	74.0	671	671	671	671	479	479	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	1000	374	374	-133.1	95.0	861	861	861	861	615	615	615	615	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	2000	374	374	-105.7	75.4	684	684	684	684	488	488	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	3000	374	374	-74.6	53.2	482	482	585	585	344	344	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	4000	374	374	-97.6	69.6	632	632	632	632	451	451	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	5000	374	374	-53.4	71.2	346	346	585	585	460	460	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	6000	374	374	-50.5	70.8	327	327	585	585	458	458	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	7000	374	374	-37.8	53.0	245	245	585	585	343	343	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	8000	374	374	-60.2	43.0	390	390	585	585	278	278	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	9000	374	374	-57.9	41.3	375	375	585	585	267	267	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	10000	374	374	-48.3	34.4	312	312	585	585	223	223	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	11000	374	374	-46.0	32.9	298	298	585	585	213	213	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	12000	374	374	-55.1	39.3	357	357	585	585	254	254	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	13000	374	374	-63.3	45.2	410	410	585	585	292	292	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	14000	374	374	-59.1	42.1	382	382	585	585	273	273	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	15000	374	374	-47.0	33.6	304	304	585	585	217	217	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	16000	374	374	-60.3	43.0	390	390	585	585	278	278	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	17000	374	374	-70.9	50.6	459	459	585	585	327	327	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	18000	374	374	-72.6	51.8	470	470	585	585	335	335	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	19000	374	374	-71.9	51.3	465	465	585	585	332	332	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	20000	374	374	-65.8	47.0	426	426	585	585	304	304	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CS '16	1000	450	21000	374	374	-64.0	45.7	414	414	585	585	296	296	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA16	1000	450	22000	374	374	-42.5	37.0	275	275	585	585	239	239	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	0	374	374	-61.6	71.3	398	398	585	585	461	461	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	1000	374	374	-142.6	101.7	923	923	923	923	658	658	658	658	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	2000	374	374	-147.6	105.3	955	955	955	955	681	681	681	681	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	3000	374	374	-128.1	91.4	829	829	829	829	592	592	592	592	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	4000	374	374	-117.5	83.8	760	760	760	760	542	542	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	5000	374	374	-63.3	88.7	410	410	585	585	574	574	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	6000	374	374	-164.9	231.1	1067	1067	1067	1067	1496	1496	1496	1496	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	7000	374	374	-60.8	85.2	393	393	585	585	551	551	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	8000	374	374	-58.5	41.7	378	378	585	585	270	270	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	9000	374	374	-58.7	41.9	380	380	585	585	271	271	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	10000	374	374	-36.5	26.1	236	236	585	585	169	169	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	11000	374	374	-31.6	22.6	205	205	585	585	146	146	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	12000	374	374	-56.0	40.0	362	362	585	585	259	259	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	13000	374	374	-83.1	59.3	538	538	585	585	384	384	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	14000	374	374	-88.7	63.3	574	574	585	585	410	410	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	15000	374	374	-83.5	59.6	541	541	585	585	386	386	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	16000	374	374	-91.7	65.4	593	593	593	593	423	423	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	17000	374	374	-88.9	63.4	575	575	585	585	410	410	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	18000	374	374	-78.9	56.3	511	511	585	585	364	364	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	19000	374	374	-61.0	43.5	395	395	585	585	282	282	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	20000	374	374	-42.5	30.3	275	275	585	585	196	196	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	21000	374	374	-37.9	27.1	245	245	585	585	175	175	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA17	1000	450	22000	374	374	-19.9	27.9	129	129	585	585	181	181	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As$_{req}$ (mm^2,strip)	Top-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	Top Reinforcement provide T4	Bottom Reinforcement provide B2	Bottom Reinforcement provide B4	Top-As$_{prov.}$ (mm^2,strip)	Top-As$_{prov.}$ (mm^2,m)	Bottom-As$_{prov.}$ (mm^2,strip)	Bottom-As$_{prov.}$ (mm^2,m)	Steel ratio %	Check	Remark
CSA18	1000	450	0	374	374	-40.0	56.1	259	259	585	585	363	363	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	1000	374	374	-152.4	108.8	986	986	986	986	704	704	704	704	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	2000	374	374	-178.0	127.0	1152	1152	1152	1152	822	822	822	822	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	3000	374	374	-167.6	119.6	1084	1084	1084	1084	774	774	774	774	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	4000	374	374	-147.3	105.1	953	953	953	953	680	680	680	680	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	5000	374	374	-36.8	45.8	238	238	585	585	297	297	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	6000	374	374	-273.0	382.5	1768	1768	1768	1768	2536	2536	2536	2536	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	7000	374	374	-57.3	80.3	371	371	585	585	520	520	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	8000	374	374	-104.5	74.6	676	676	676	676	482	482	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	9000	374	374	-99.1	70.7	641	641	641	641	458	458	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	10000	374	374	-50.7	36.2	328	328	585	585	234	234	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	11000	374	374	-24.6	34.5	159	159	585	585	223	223	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	12000	374	374	-41.9	29.9	271	271	585	585	194	194	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	13000	374	374	-95.4	68.1	617	617	617	617	441	441	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	14000	374	374	-104.6	74.6	677	677	677	677	483	483	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	15000	374	374	-111.9	79.9	724	724	724	724	517	517	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	16000	374	374	-108.2	77.2	700	700	700	700	500	500	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	17000	374	374	-91.9	65.5	594	594	594	594	424	424	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	18000	374	374	-62.2	44.4	403	403	585	585	287	287	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	19000	374	374	-31.1	22.2	201	201	585	585	143	143	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	1000	450	20000	374	374	-9.5	10.7	62	62	585	585	69	69	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA18	974.89	450	21000	374	374	-32.8	46.0	212	218	570	585	297	305	570	585	570	585	T32-125	-	T32-125	-	6272	6434	6272	6434	1.39	ok	
CSA18	502.39	450	22000	374	374	-25.4	35.6	165	328	294	585	231	459	294	585	294	585	T32-125	-	T32-125	-	3232	6434	3232	6434	0.72	ok	
CSA20	1000	450	0	374	374	-31.6	44.2	204	204	585	585	286	286	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	1000	374	374	-152.8	109.1	989	989	989	989	706	706	706	706	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	2000	374	374	-194.4	138.7	1258	1258	1258	1258	898	898	898	898	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	3000	374	374	-183.7	131.1	1189	1189	1189	1189	848	848	848	848	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	4000	374	374	-133.2	95.0	862	862	862	862	615	615	615	615	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	5000	374	374	-34.7	48.6	224	224	585	585	315	315	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	6000	374	374	-131.6	184.4	851	851	851	851	1193	1193	1193	1193	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	7000	374	374	-85.1	119.2	550	550	585	585	771	771	771	771	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	8000	374	374	-98.6	70.4	638	638	638	638	455	455	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	9000	374	374	-114.1	81.4	738	738	738	738	527	527	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	10000	374	374	-67.2	94.2	435	435	585	585	610	610	610	610	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	11000	374	374	-116.4	163.2	753	753	753	753	1056	1056	1056	1056	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	12000	374	374	-31.8	39.6	205	205	585	585	256	256	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	13000	374	374	-97.1	69.3	628	628	628	628	448	448	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	14000	374	374	-127.8	91.2	827	827	827	827	590	590	590	590	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	15000	374	374	-128.8	91.9	834	834	834	834	595	595	595	595	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	16000	374	374	-109.0	77.8	705	705	705	705	503	503	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	17000	374	374	-71.7	51.1	464	464	585	585	331	331	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	1000	450	18000	374	374	-32.2	23.0	209	209	585	585	149	149	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA20	929.43	450	19000	374	374	-17.1	24.0	111	119	544	585	155	167	544	585	544	585	T32-125	-	T32-125	-	5980	6434	5980	6434	1.33	ok	
CSA20	497.61	450	19905	374	374	-17.1	24.0	111	222	291	585	155	312	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA20	452.16	450	20000	374	374	-16.5	23.1	107	236	265	585	150	331	265	585	265	585	T32-125	-	T32-125	-	2909	6434	2909	6434	0.65	ok	
CSA20	0	450	21000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA21	1000	450	0	374	374	-19.1	26.7	123	123	585	585	173	173	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	1000	374	374	-144.1	102.8	932	932	932	932	665	665	665	665	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	2000	374	374	-192.6	137.4	1246	1246	1246	1246	889	889	889	889	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	3000	374	374	-184.6	131.7	1194	1194	1194	1194	852	852	852	852	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	4000	374	374	-125.5	89.5	812	812	812	812	579	579	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	5000	374	374	-19.8	14.1	128	128	585	585	91	91	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	6000	374	374	-49.7	69.6	322	322	585	585	451	451	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	7000	374	374	-33.8	47.4	219	219	585	585	307	307	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	8000	374	374	-78.9	56.3	510	510	585	585	364	364	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	9000	374	374	-101.1	72.1	654	654	654	654	467	467	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	10000	374	374	-40.3	52.2	261	261	585	585	338	338	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	11000	374	374	-268.5	376.3	1737	1737	1737	1737	2491	2491	2491	2491	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	12000	374	374	-51.2	45.4	331	331	585	585	294	294	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	13000	374	374	-140.8	100.5	911	911	911	911	650	650	650	650	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	14000	374	374	-147.5	105.3	955	955	955	955	681	681	681	681	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	15000	374	374	-129.4	92.3	837	837	837	837	597	597	597	597	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	1000	450	16000	374	374	-84.6	60.4	548	548	585	585	391	391	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA21	883.98	450	17000	374	374	-26.5	18.9	172	194	517	585	122	138	517	585	517	585	T32-125	-	T32-125	-	5688	6434	5688	6434	1.26	ok	
CSA21	497.61	450	17810	374	374	-8.5	11.9	55	111	291	585	77	155	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA21	406.7	450	18000	374	374	-7.7	10.8	50	123	238	585	70	172	238	585	238	585	T32-125	-	T32-125	-	2617	6434	2617	6434	0.58	ok	
CSA21	0	450	19000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA22	1000	450	0	374	374	-11.9	16.7	77	77	585	585	108	108	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	1000	374	374	-136.7	97.6	885	885	885	885	631	631	631	631	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_w = 500 N/mm²
f_{cu} = 45 N/mm²
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As_{req} (mm^2,strip)	Top-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	T4	Bottom Reinforcement provide B3	B4	Top-$As_{prov.}$ (mm^2,strip)	Top-$As_{prov.}$ (mm^2,m)	Bottom-$As_{prov.}$ (mm^2,strip)	Bottom-$As_{prov.}$ (mm^2,m)	Steel ratio %	Check	Remark
CSA22	1000	450	2000	374	374	-190.3	135.8	1231	1231	1231	1231	879	879	879	879	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	3000	374	374	-188.8	134.7	1222	1222	1222	1222	872	872	872	872	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	4000	374	374	-137.2	97.9	888	888	888	888	634	634	634	634	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	5000	374	374	-35.0	25.0	227	227	585	585	162	162	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	6000	374	374	-46.3	64.9	299	299	585	585	420	420	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	7000	374	374	-24.4	34.2	158	158	585	585	221	221	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	8000	374	374	-61.4	43.8	397	397	585	585	283	283	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	9000	374	374	-71.1	50.7	460	460	585	585	328	328	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	10000	374	374	-43.9	61.6	284	284	585	585	398	398	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	11000	374	374	-127.6	178.9	826	826	826	826	1157	1157	1157	1157	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	12000	374	374	-73.4	100.9	475	475	585	585	653	653	653	653	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	13000	374	374	-145.2	103.6	939	939	939	939	670	670	670	670	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	1000	450	14000	374	374	-145.7	104.0	943	943	943	943	673	673	673	673	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA22	838.52	450	15000	374	374	-83.7	59.7	541	646	541	646	386	461	491	585	491	585	T32-125	-	T32-125	-	5395	6434	5395	6434	1.20	ok	
CSA22	497.61	450	15714	374	374	-25.3	18.0	164	329	291	585	117	234	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA22	361.25	450	16000	374	374	-15.6	11.1	101	279	211	585	72	199	211	585	211	585	T32-125	-	T32-125	-	2324	6434	2324	6434	0.52	ok	
CSA22	0	450	17000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA23	1000	450	0	374	374	-17.1	24.0	111	111	585	585	155	155	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	1000	374	374	-144.5	103.1	935	935	935	935	667	667	667	667	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	2000	374	374	-198.1	141.3	1282	1282	1282	1282	914	914	914	914	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	3000	374	374	-196.2	140.0	1269	1269	1269	1269	906	906	906	906	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	4000	374	374	-149.4	106.6	967	967	967	967	690	690	690	690	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	5000	374	374	-53.9	46.2	349	349	585	585	299	299	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	6000	374	374	-129.8	181.8	840	840	840	840	1177	1177	1177	1177	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	7000	374	374	-64.0	89.6	414	414	585	585	580	580	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	8000	374	374	-66.6	47.5	431	431	585	585	307	307	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	9000	374	374	-71.0	50.7	459	459	585	585	328	328	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	10000	374	374	-16.9	14.2	109	109	585	585	92	92	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	11000	374	374	-35.8	50.2	232	232	585	585	325	325	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	1000	450	12000	374	374	-52.3	48.1	338	338	585	585	311	311	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA23	793.07	450	13000	374	374	-87.0	62.1	563	710	563	710	402	507	464	585	464	585	T32-125	-	T32-125	-	5103	6434	5103	6434	1.13	ok	
CSA23	497.61	450	13619	374	374	-50.5	36.0	327	657	327	657	233	469	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA23	315.8	450	14000	374	374	-33.3	23.8	215	682	215	682	154	487	185	585	185	585	T32-125	-	T32-125	-	2032	6434	2032	6434	0.45	ok	
CSA23	0	450	15000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA24	1000	450	0	374	374	-27.3	38.3	177	177	585	585	248	248	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	1000	374	374	-151.4	108.0	980	980	980	980	699	699	699	699	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	2000	374	374	-195.1	139.2	1262	1262	1262	1262	901	901	901	901	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	3000	374	374	-188.2	134.3	1217	1217	1217	1217	869	869	869	869	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	4000	374	374	-166.2	118.6	1075	1075	1075	1075	767	767	767	767	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	5000	374	374	-42.4	30.3	275	275	585	585	196	196	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	6000	374	374	-259.7	364.0	1680	1680	1680	1680	2403	2403	2403	2403	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	7000	374	374	-47.7	66.9	309	309	585	585	433	433	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	8000	374	374	-81.7	58.3	529	529	585	585	377	377	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	9000	374	374	-49.4	35.2	320	320	585	585	228	228	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	1000	450	10000	374	374	-16.5	11.7	106	106	585	585	76	76	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA24	747.61	450	11000	374	374	-8.9	12.5	58	77	437	585	81	108	437	585	437	585	T32-125	-	T32-125	-	4810	6434	4810	6434	1.07	ok	
CSA24	497.61	450	11524	374	374	-4.1	5.8	27	53	291	585	37	75	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA24	270.34	450	12000	374	374	-5.8	4.1	37	139	158	585	27	99	158	585	158	585	T32-125	-	T32-125	-	1739	6434	1739	6434	0.39	ok	
CSA24	0	450	13000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA25	1000	450	0	374	374	-36.4	51.0	235	235	585	585	330	330	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	1000	374	374	-154.7	110.4	1001	1001	1001	1001	714	714	714	714	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	2000	374	374	-184.7	131.8	1195	1195	1195	1195	853	853	853	853	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	3000	374	374	-162.7	116.1	1053	1053	1053	1053	751	751	751	751	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	4000	374	374	-126.0	89.9	815	815	815	815	582	582	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	5000	374	374	-54.9	76.9	355	355	585	585	498	498	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	6000	374	374	-139.9	196.1	905	905	905	905	1269	1269	1269	1269	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	7000	374	374	-59.0	82.7	382	382	585	585	535	535	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	1000	450	8000	374	374	-46.7	33.3	302	302	585	585	216	216	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA25	702.16	450	9000	374	374	-27.4	19.6	177	253	411	585	127	180	411	585	411	585	T32-125	-	T32-125	-	4518	6434	4518	6434	1.00	ok	
CSA25	497.61	450	9429	374	374	-11.9	8.5	77	155	291	585	55	110	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA25	224.89	450	10000	374	374	-1.1	1.5	7	31	132	585	10	43	132	585	132	585	T32-125	-	T32-125	-	1447	6434	1447	6434	0.32	ok	
CSA25	0	450	11000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA26	1000	450	0	374	374	-49.6	59.6	321	321	585	585	386	386	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	1000	374	374	-149.8	106.9	969	969	969	969	692	692	692	692	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	2000	374	374	-170.3	121.5	1102	1102	1102	1102	786	786	786	786	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	3000	374	374	-123.9	88.4	801	801	801	801	572	572	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	4000	374	374	-89.8	64.1	581	581	585	585	415	415	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	5000	374	374	-39.2	54.9	253	253	585	585	355	355	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA26	1000	450	6000	374	374	-66.6	93.3	431	431	585	585	604	604	604	604	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z1 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_w = 500 N/mm²
f_{cu} = 45 N/mm²
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As_{req} (mm^2,strip)	Top-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	Top Reinforcement provide T4	Bottom Reinforcement provide B2	Bottom Reinforcement provide B4	Top-As_{prov} (mm^2,strip)	Top-As_{prov} (mm^2,m)	Bottom-As_{prov} (mm^2,strip)	Bottom-As_{prov} (mm^2,m)	Steel ratio %	Check	Remark
CSA26	656.7	450	7000	374	374	-20.7	29.0	134	204	384	585	188	286	384	585	384	585	T32-125	-	T32-125	-	4225	6434	4225	6434	0.94	ok	
CSA26	497.61	450	7333	374	374	-12.0	16.8	78	156	291	585	109	219	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA26	179.43	450	8000	374	374	-9.0	6.4	58	323	105	585	41	231	105	585	105	585	T32-125	-	T32-125	-	1154	6434	1154	6434	0.26	ok	
CSA26	0	450	9000	374	374	0.0	0.0	-	-	-	-	-	-	-	-	-	-	T32-125	-	T32-125	-	0	0	0	0	-	-	
CSA27	1000	450	0	374	374	-64.1	59.8	415	415	585	585	387	387	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA27	1000	450	1000	374	374	-144.8	103.3	937	937	937	937	669	669	669	669	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA27	1000	450	2000	374	374	-150.7	107.5	975	975	975	975	696	696	696	696	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA27	1000	450	3000	374	374	-98.5	70.3	637	637	637	637	455	455	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA27	1000	450	4000	374	374	-41.2	29.4	267	267	585	585	190	190	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA27	611.25	450	5000	374	374	-20.8	29.1	135	220	358	585	189	308	358	585	358	585	T32-125	-	T32-125	-	3933	6434	3933	6434	0.87	ok	
CSA27	497.61	450	5238	374	374	-20.9	29.3	135	272	291	585	190	381	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA27	138.75	450	6000	374	374	-8.6	12.0	56	400	81	585	78	561	81	585	81	585	T32-125	-	T32-125	-	893	6434	893	6434	0.20	ok	
CSA28	1000	450	0	374	374	-72.0	51.4	466	466	585	585	332	332	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA28	1000	450	1000	374	374	-141.2	100.7	913	913	913	913	652	652	652	652	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA28	1000	450	2000	374	374	-113.3	80.8	733	733	733	733	523	523	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA28	565.8	450	3000	374	374	-39.5	28.2	256	452	331	585	182	323	331	585	331	585	T32-125	-	T32-125	-	3640	6434	3640	6434	0.81	ok	
CSA28	497.61	450	3143	374	374	-30.5	21.8	197	397	291	585	141	283	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA28	93.3	450	4000	374	374	-1.0	1.3	6	66	55	585	9	93	55	585	55	585	T32-125	-	T32-125	-	600	6434	600	6434	0.13	ok	
CSA29	1000	450	0	374	374	-61.8	44.1	400	400	585	585	285	285	585	585	585	585	T32-125	-	T32-125	-	6434	6434	6434	6434	1.43	ok	
CSA29	520.34	450	1000	374	374	-44.0	31.4	285	547	304	585	203	390	304	585	304	585	T32-125	-	T32-125	-	3348	6434	3348	6434	0.74	ok	
CSA29	497.61	450	1048	374	374	-42.1	30.0	272	547	291	585	194	390	291	585	291	585	T32-125	-	T32-125	-	3202	6434	3202	6434	0.71	ok	
CSA29	47.84	450	2000	374	374	-2.2	1.5	14	293	28	585	10	209	28	585	28	585	T32-125	-	T32-125	-	308	6434	308	6434	0.07	ok	

R.C. DESIGN OF Bottom Slab (SHEAR LINKS IN Y-DIRECTION)

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2,strip)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA15	500	450	0	374	374	3217	6434	3217	6434	29.03	0.155	0.078	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	1000	374	374	3217	6434	3217	6434	29.03	0.155	0.078	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	2000	374	374	3217	6434	3217	6434	20.06	0.107	0.054	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	3000	374	374	3217	6434	3217	6434	5.23	0.028	0.014	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	4000	374	374	3217	6434	3217	6434	0.70	0.004	0.002	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	5000	374	374	3217	6434	3217	6434	3.59	0.019	0.010	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	6000	374	374	3217	6434	3217	6434	4.81	0.026	0.013	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	7000	374	374	3217	6434	3217	6434	4.81	0.026	0.013	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	8000	374	374	3217	6434	3217	6434	7.81	0.042	0.021	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	9000	374	374	3217	6434	3217	6434	9.61	0.051	0.026	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	10000	374	374	3217	6434	3217	6434	9.61	0.051	0.026	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	11000	374	374	3217	6434	3217	6434	7.55	0.040	0.020	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	12000	374	374	3217	6434	3217	6434	4.51	0.024	0.012	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	13000	374	374	3217	6434	3217	6434	3.05	0.016	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	14000	374	374	3217	6434	3217	6434	2.82	0.015	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	15000	374	374	3217	6434	3217	6434	2.15	0.012	0.006	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	16000	374	374	3217	6434	3217	6434	1.76	0.009	0.005	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	17000	374	374	3217	6434	3217	6434	3.81	0.020	0.010	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	18000	374	374	3217	6434	3217	6434	6.61	0.035	0.018	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	19000	374	374	3217	6434	3217	6434	8.51	0.045	0.023	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	20000	374	374	3217	6434	3217	6434	14.26	0.076	0.038	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	21000	374	374	3217	6434	3217	6434	14.26	0.076	0.038	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA15	500	450	22000	374	374	3217	6434	3217	6434	12.93	0.069	0.035	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	0	374	374	6434	6434	6434	6434	3.41	0.009	0.009	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	1000	374	374	6434	6434	6434	6434	11.79	0.032	0.032	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	2000	374	374	6434	6434	6434	6434	11.79	0.032	0.032	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	3000	374	374	6434	6434	6434	6434	14.20	0.038	0.038	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	4000	374	374	6434	6434	6434	6434	28.23	0.075	0.075	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	5000	374	374	6434	6434	6434	6434	37.10	0.099	0.099	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	6000	374	374	6434	6434	6434	6434	37.10	0.099	0.099	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	7000	374	374	6434	6434	6434	6434	33.22	0.089	0.089	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	8000	374	374	6434	6434	6434	6434	20.58	0.055	0.055	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	9000	374	374	6434	6434	6434	6434	12.25	0.033	0.033	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	10000	374	374	6434	6434	6434	6434	12.25	0.033	0.033	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	11000	374	374	6434	6434	6434	6434	10.42	0.028	0.028	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	12000	374	374	6434	6434	6434	6434	2.84	0.008	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	13000	374	374	6434	6434	6434	6434	2.84	0.008	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	14000	374	374	6434	6434	6434	6434	2.24	0.006	0.006	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	15000	374	374	6434	6434	6434	6434	2.94	0.008	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	16000	374	374	6434	6434	6434	6434	2.94	0.008	0.008	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	17000	374	374	6434	6434	6434	6434	1.46	0.004	0.004	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	18000	374	374	6434	6434	6434	6434	4.11	0.011	0.011	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm^2 <0.5N/mm^2 , so no links required.

										From SAFE Results											
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2,strip)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA16	1000	450	19000	374	374	6434	6434	6434	6434	6.61	0.018	0.018	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	20000	374	374	6434	6434	6434	6434	7.78	0.021	0.021	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	21000	374	374	6434	6434	6434	6434	14.79	0.040	0.040	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA16	1000	450	22000	374	374	6434	6434	6434	6434	14.79	0.040	0.040	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	0	374	374	6434	6434	6434	6434	92.16	0.246	0.246	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	1000	374	374	6434	6434	6434	6434	92.16	0.246	0.246	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	2000	374	374	6434	6434	6434	6434	32.57	0.087	0.087	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	3000	374	374	6434	6434	6434	6434	41.99	0.112	0.112	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	4000	374	374	6434	6434	6434	6434	89.35	0.239	0.239	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	5000	374	374	6434	6434	6434	6434	191.16	0.511	0.511	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	6000	374	374	6434	6434	6434	6434	191.16	0.511	0.511	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	7000	374	374	6434	6434	6434	6434	175.16	0.468	0.468	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	8000	374	374	6434	6434	6434	6434	71.78	0.192	0.192	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	9000	374	374	6434	6434	6434	6434	23.11	0.062	0.062	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	10000	374	374	6434	6434	6434	6434	9.01	0.024	0.024	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	11000	374	374	6434	6434	6434	6434	18.70	0.050	0.050	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	12000	374	374	6434	6434	6434	6434	25.21	0.067	0.067	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	13000	374	374	6434	6434	6434	6434	25.21	0.067	0.067	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	14000	374	374	6434	6434	6434	6434	13.87	0.037	0.037	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	15000	374	374	6434	6434	6434	6434	7.29	0.019	0.019	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	16000	374	374	6434	6434	6434	6434	11.70	0.031	0.031	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	17000	374	374	6434	6434	6434	6434	12.85	0.034	0.034	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	18000	374	374	6434	6434	6434	6434	12.85	0.034	0.034	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	19000	374	374	6434	6434	6434	6434	12.15	0.032	0.032	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	20000	374	374	6434	6434	6434	6434	13.86	0.037	0.037	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	21000	374	374	6434	6434	6434	6434	29.65	0.079	0.079	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA17	1000	450	22000	374	374	6434	6434	6434	6434	29.65	0.079	0.079	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	0	374	374	6434	6434	6434	6434	122.05	0.326	0.326	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	1000	374	374	6434	6434	6434	6434	122.05	0.326	0.326	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	2000	374	374	6434	6434	6434	6434	55.92	0.150	0.150	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	3000	374	374	6434	6434	6434	6434	58.62	0.157	0.157	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	4000	374	374	6434	6434	6434	6434	142.37	0.381	0.381	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	5000	374	374	6434	6434	6434	6434	300.96	0.805	0.805	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	6000	374	374	6434	6434	6434	6434	300.96	0.805	0.805	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	7000	374	374	6434	6434	6434	6434	325.29	0.870	0.870	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	8000	374	374	6434	6434	6434	6434	115.27	0.308	0.308	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	9000	374	374	6434	6434	6434	6434	30.77	0.082	0.082	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	10000	374	374	6434	6434	6434	6434	23.88	0.064	0.064	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	11000	374	374	6434	6434	6434	6434	44.97	0.120	0.120	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	12000	374	374	6434	6434	6434	6434	51.24	0.137	0.137	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	13000	374	374	6434	6434	6434	6434	51.24	0.137	0.137	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	14000	374	374	6434	6434	6434	6434	25.78	0.069	0.069	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab (SHEAR LINKS IN Y-DIRECTION)

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_t b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm²,strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm²,strip)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA18	1000	450	15000	374	374	6434	6434	6434	6434	12.82	0.034	0.034	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	16000	374	374	6434	6434	6434	6434	21.81	0.058	0.058	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	17000	374	374	6434	6434	6434	6434	24.95	0.067	0.067	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	18000	374	374	6434	6434	6434	6434	24.97	0.067	0.067	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	19000	374	374	6434	6434	6434	6434	24.97	0.067	0.067	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	1000	450	20000	374	374	6434	6434	6434	6434	21.53	0.058	0.058	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	975	450	21000	374	374	6272	6434	6272	6434	29.70	0.081	0.079	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA18	502	450	22000	374	374	3232	6434	3232	6434	1.77	0.009	0.005	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	0	374	374	6434	6434	6434	6434	138.90	0.371	0.371	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	1000	374	374	6434	6434	6434	6434	138.90	0.371	0.371	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	2000	374	374	6434	6434	6434	6434	67.60	0.181	0.181	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	3000	374	374	6434	6434	6434	6434	59.67	0.160	0.160	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	4000	374	374	6434	6434	6434	6434	131.19	0.351	0.351	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	5000	374	374	6434	6434	6434	6434	157.91	0.422	0.422	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	6000	374	374	6434	6434	6434	6434	157.91	0.422	0.422	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	7000	374	374	6434	6434	6434	6434	123.65	0.331	0.331	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	8000	374	374	6434	6434	6434	6434	94.03	0.251	0.251	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	9000	374	374	6434	6434	6434	6434	60.86	0.163	0.163	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	10000	374	374	6434	6434	6434	6434	125.92	0.337	0.337	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	11000	374	374	6434	6434	6434	6434	147.97	0.396	0.396	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	12000	374	374	6434	6434	6434	6434	147.97	0.396	0.396	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	13000	374	374	6434	6434	6434	6434	90.93	0.243	0.243	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	14000	374	374	6434	6434	6434	6434	35.42	0.095	0.095	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	15000	374	374	6434	6434	6434	6434	23.30	0.062	0.062	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	16000	374	374	6434	6434	6434	6434	34.76	0.093	0.093	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	17000	374	374	6434	6434	6434	6434	39.05	0.104	0.104	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	1000	450	18000	374	374	6434	6434	6434	6434	39.05	0.104	0.104	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	929	450	19000	374	374	5980	6434	5980	6434	35.55	0.102	0.095	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	498	450	19905	374	374	3202	6434	3202	6434	16.07	0.086	0.043	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	452	450	20000	374	374	2909	6434	2909	6434	15.28	0.090	0.041	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA20	0	450	21000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA21	1000	450	0	374	374	6434	6434	6434	6434	144.92	0.387	0.387	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	1000	374	374	6434	6434	6434	6434	144.92	0.387	0.387	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	2000	374	374	6434	6434	6434	6434	73.05	0.195	0.195	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	3000	374	374	6434	6434	6434	6434	49.56	0.133	0.133	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	4000	374	374	6434	6434	6434	6434	94.52	0.253	0.253	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	5000	374	374	6434	6434	6434	6434	94.52	0.253	0.253	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	6000	374	374	6434	6434	6434	6434	74.86	0.200	0.200	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	7000	374	374	6434	6434	6434	6434	51.43	0.138	0.138	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	8000	374	374	6434	6434	6434	6434	51.43	0.138	0.138	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	9000	374	374	6434	6434	6434	6434	88.92	0.238	0.238	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	10000	374	374	6434	6434	6434	6434	301.29	0.806	0.806	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm², strip)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA21	1000	450	11000	374	374	6434	6434	6434	6434	316.45	0.846	0.846	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	12000	374	374	6434	6434	6434	6434	316.45	0.846	0.846	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	13000	374	374	6434	6434	6434	6434	107.37	0.287	0.287	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	14000	374	374	6434	6434	6434	6434	29.36	0.079	0.079	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	15000	374	374	6434	6434	6434	6434	43.19	0.115	0.115	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	1000	450	16000	374	374	6434	6434	6434	6434	50.05	0.134	0.134	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	884	450	17000	374	374	5688	6434	5688	6434	45.30	0.137	0.121	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	498	450	17810	374	374	3202	6434	3202	6434	24.75	0.133	0.066	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	407	450	18000	374	374	2617	6434	2617	6434	20.74	0.136	0.055	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA21	0	450	19000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA22	1000	450	0	374	374	6434	6434	6434	6434	144.95	0.388	0.388	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	1000	374	374	6434	6434	6434	6434	144.95	0.388	0.388	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	2000	374	374	6434	6434	6434	6434	73.73	0.197	0.197	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	3000	374	374	6434	6434	6434	6434	47.79	0.128	0.128	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	4000	374	374	6434	6434	6434	6434	91.34	0.244	0.244	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	5000	374	374	6434	6434	6434	6434	91.34	0.244	0.244	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	6000	374	374	6434	6434	6434	6434	74.02	0.198	0.198	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	7000	374	374	6434	6434	6434	6434	47.15	0.126	0.126	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	8000	374	374	6434	6434	6434	6434	47.15	0.126	0.126	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	9000	374	374	6434	6434	6434	6434	77.65	0.208	0.208	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	10000	374	374	6434	6434	6434	6434	133.48	0.357	0.357	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	11000	374	374	6434	6434	6434	6434	140.02	0.374	0.374	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	12000	374	374	6434	6434	6434	6434	140.02	0.374	0.374	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	13000	374	374	6434	6434	6434	6434	83.02	0.222	0.222	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	1000	450	14000	374	374	6434	6434	6434	6434	44.55	0.119	0.119	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	839	450	15000	374	374	5395	6434	5395	6434	43.84	0.140	0.117	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	498	450	15714	374	374	3202	6434	3202	6434	28.02	0.151	0.075	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	361	450	16000	374	374	2324	6434	2324	6434	21.61	0.160	0.058	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA22	0	450	17000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA23	1000	450	0	374	374	6434	6434	6434	6434	142.20	0.380	0.380	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	1000	374	374	6434	6434	6434	6434	142.20	0.380	0.380	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	2000	374	374	6434	6434	6434	6434	70.21	0.188	0.188	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	3000	374	374	6434	6434	6434	6434	56.51	0.151	0.151	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	4000	374	374	6434	6434	6434	6434	118.94	0.318	0.318	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	5000	374	374	6434	6434	6434	6434	175.10	0.468	0.468	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	6000	374	374	6434	6434	6434	6434	175.10	0.468	0.468	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	7000	374	374	6434	6434	6434	6434	137.58	0.368	0.368	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	8000	374	374	6434	6434	6434	6434	76.34	0.204	0.204	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	9000	374	374	6434	6434	6434	6434	41.67	0.111	0.111	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	10000	374	374	6434	6434	6434	6434	41.67	0.111	0.111	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	11000	374	374	6434	6434	6434	6434	41.23	0.110	0.110	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	1000	450	12000	374	374	6434	6434	6434	6434	40.06	0.107	0.107	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab (SHEAR LINKS IN Y-DIRECTION)

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm², strip)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA23	793	450	13000	374	374	5103	6434	5103	6434	30.84	0.104	0.082	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	498	450	13619	374	374	3202	6434	3202	6434	9.59	0.052	0.026	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	316	450	14000	374	374	2032	6434	2032	6434	15.45	0.131	0.041	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA23	0	450	15000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA24	1000	450	0	374	374	6434	6434	6434	6434	135.85	0.363	0.363	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	1000	374	374	6434	6434	6434	6434	135.85	0.363	0.363	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	2000	374	374	6434	6434	6434	6434	63.93	0.171	0.171	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	3000	374	374	6434	6434	6434	6434	61.37	0.164	0.164	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	4000	374	374	6434	6434	6434	6434	141.41	0.378	0.378	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	5000	374	374	6434	6434	6434	6434	349.76	0.935	0.935	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	6000	374	374	6434	6434	6434	6434	349.76	0.935	0.935	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	7000	374	374	6434	6434	6434	6434	318.10	0.851	0.851	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	8000	374	374	6434	6434	6434	6434	99.53	0.266	0.266	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	9000	374	374	6434	6434	6434	6434	32.52	0.087	0.087	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	1000	450	10000	374	374	6434	6434	6434	6434	32.52	0.087	0.087	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	748	450	11000	374	374	4810	6434	4810	6434	20.34	0.073	0.054	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	498	450	11524	374	374	3202	6434	3202	6434	13.42	0.072	0.036	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	270	450	12000	374	374	1739	6434	1739	6434	5.28	0.052	0.014	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA24	0	450	13000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA25	1000	450	0	374	374	6434	6434	6434	6434	125.42	0.335	0.335	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	1000	374	374	6434	6434	6434	6434	125.42	0.335	0.335	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	2000	374	374	6434	6434	6434	6434	51.07	0.137	0.137	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	3000	374	374	6434	6434	6434	6434	58.52	0.156	0.156	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	4000	374	374	6434	6434	6434	6434	111.52	0.298	0.298	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	5000	374	374	6434	6434	6434	6434	167.64	0.448	0.448	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	6000	374	374	6434	6434	6434	6434	167.64	0.448	0.448	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	7000	374	374	6434	6434	6434	6434	146.90	0.393	0.393	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	1000	450	8000	374	374	6434	6434	6434	6434	68.34	0.183	0.183	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	702	450	9000	374	374	4518	6434	4518	6434	22.77	0.087	0.061	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	498	450	9429	374	374	3202	6434	3202	6434	16.70	0.090	0.045	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	225	450	10000	374	374	1447	6434	1447	6434	8.41	0.100	0.022	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA25	0	450	11000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA26	1000	450	0	374	374	6434	6434	6434	6434	106.90	0.286	0.286	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	1000	374	374	6434	6434	6434	6434	106.90	0.286	0.286	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	2000	374	374	6434	6434	6434	6434	35.24	0.094	0.094	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	3000	374	374	6434	6434	6434	6434	53.76	0.144	0.144	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	4000	374	374	6434	6434	6434	6434	76.24	0.204	0.204	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	5000	374	374	6434	6434	6434	6434	76.24	0.204	0.204	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	1000	450	6000	374	374	6434	6434	6434	6434	49.22	0.132	0.132	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	657	450	7000	374	374	4225	6434	4225	6434	34.21	0.139	0.091	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	498	450	7333	374	374	3202	6434	3202	6434	18.06	0.097	0.048	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA26	179	450	8000	374	374	1154	6434	1154	6434	8.97	0.134	0.024	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.935 N/mm² <0.5N/mm², so no links required.

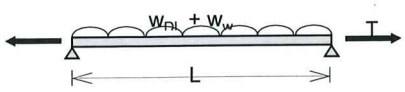
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2/strip)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/strip)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm², strip)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA26	0	450	9000	374	374	0	0	0	0	0.00	-	-	-	1.017	1.128	5.37	ok	-	-	-	-	ok
CSA27	1000	450	0	374	374	6434	6434	6434	6434	77.68	0.208	0.208	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	1000	450	1000	374	374	6434	6434	6434	6434	77.68	0.208	0.208	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	1000	450	2000	374	374	6434	6434	6434	6434	35.75	0.096	0.096	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	1000	450	3000	374	374	6434	6434	6434	6434	61.93	0.166	0.166	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	1000	450	4000	374	374	6434	6434	6434	6434	61.93	0.166	0.166	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	611	450	5000	374	374	3933	6434	3933	6434	40.34	0.176	0.108	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	498	450	5238	374	374	3202	6434	3202	6434	7.17	0.039	0.019	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA27	139	450	6000	374	374	893	6434	893	6434	4.77	0.092	0.013	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	1000	450	0	374	374	6434	6434	6434	6434	32.62	0.087	0.087	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	1000	450	1000	374	374	6434	6434	6434	6434	32.62	0.087	0.087	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	1000	450	2000	374	374	6434	6434	6434	6434	47.94	0.128	0.128	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	566	450	3000	374	374	3640	6434	3640	6434	30.05	0.142	0.080	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	498	450	3143	374	374	3202	6434	3202	6434	26.86	0.144	0.072	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA28	93	450	4000	374	374	600	6434	600	6434	6.30	0.180	0.017	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA29	1000	450	0	374	374	6434	6434	6434	6434	26.42	0.071	0.071	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA29	520	450	1000	374	374	3348	6434	3348	6434	26.64	0.137	0.071	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA29	498	450	1048	374	374	3202	6434	3202	6434	25.70	0.138	0.069	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok
CSA29	48	450	2000	374	374	308	6434	308	6434	2.04	0.114	0.005	1.720	1.017	0.937	5.37	ok	ok	-	-	-	ok

(Cont'd: Project: LPH - YPR Location: Zone 1 - Sediment Tank)

Design of Bottom Slab (Portion 1)

C.1. Calculation of Internal Forces

Thickness of Bottom Slab	T_b	=	450 mm
~~Finishes (SDL)~~	~~w_{SDL}~~	=	~~4.90 kPa~~
Dead Load (Total)	w_{DL}	=	15.93 kPa
Live Load	w_{LL}	=	7.50 kPa
Uplift Pressure (SLS)	w_{wS}	=	56.90 kPa
~~Total Pressure (ULS)~~	~~w_{wU}~~	=	~~79.66 kPa~~



C.1.1. Serviceablility Limit State

Total Service Moment $M_{TL} = M_{DL}+M_w$ = 273.2 kNm/m (From SAFE Strip Moment)

C.1.2. Ultimate Limit State

Ultimate Design Moment $M_U = 1.4M_{DL}+1.4M_w$ = 382.5 kNm/m (From SAFE Strip Moment)

C.2. Ultimate Limite State Design

	b	=	1000 mm			
Cover	c_{min}	=	50 mm			
Effective Depth	d	=	384 mm			
	K	= $M_U/(b*d^2*f_{cu})$	=	0.0576	<	0.156
	z/d	= $0.5+\sqrt{0.25 - K/0.9}$			=	0.931
Lever Arm	z	= 0.93d	=	357.6 mm		
Depth to Neutral Axis	x	= (d-z) / 0.45	=	58.7 mm		
Required Bending Reinforcement	$A_{s,M}$	= $M_U/0.87f_yz$	=	2673 mm^2/m		
Total Required Reinforcement	$A_{s,req}$	= $A_{s,M} + A_{s,T}/2$	=	2673 mm^2/m		
Min. Reinforcement		= 0.13% x T_bb	=	585 mm^2/m		

Bottom Reinforcement
Provide T 32 - 125
$A_{s,pro}$ = 6434 mm^2/m > 2673 mm^2/m (Steel Ratio = 1.43%) OK

Top Reinforcement / Distribution Bar
Provide T 32 - 125
$A_{s,pro}$ = 6434 mm^2/m > 585 mm^2/m (Steel Ratio = 1.43%) OK

C.3. Serviceability Limit State Design

C.3.1. Flexural Tension in Mature Concrete

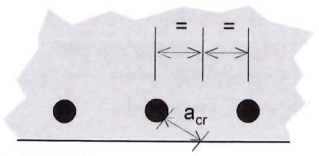
Design Service Moment	M	=	273.21 kNm/m		
	E_c	=	26400 MPa		
	E_s	=	205000 MPa		
Modular Ratio	α_e	= $E_s/(E_c/2)$	=	15.53	(Includes Allowance for Creep)
	x/d	= $-\alpha_eA_s+\sqrt{[(\alpha_eA_s)^2+2b\alpha_eA_sd]}/bd$		=	0.507
	x	=	195 mm		
Tensile Stress due to Bending		= M / A_s(d-x/3)	=	133.1 MPa	
Tensile Stress due to Tension		= T / A_s	=	0.0 MPa	
Total Tensile Stress	f_s	=	133.1 MPa		
Allowable Steel Stress		=	130 MPa	< 133.1 MPa	(Table 3.1 of BS8007:1987)

Calculation of actual crack width is required.

(Cont'd: Project: LPH - YPR Location: Zone 1 - Sediment Tank)

Calculation of Actual Crack Width

Distance from zero strain	a_{cr}	$=\sqrt{(s/2)^2+(c_{min}+\phi/2)^2}-\phi/2$ =	75	mm		
Flexural Strain		$=(T_b-x)f_s/(d-x)E_s$ =	0.000875			
Direct Tensile Strain		$=T/A_sE_s$ =	0.000000			
Total Strain	ε_1	=	0.000875			
	a'	=	450	mm		
Strain due to the stiffening of concrete	ε_2	= $1.0 \times b_t(T_b-x)(a'-x)/3E_sA_s(d-x)$ =	0.000087			
Average Strain	ε_m	= $\varepsilon_1-\varepsilon_2$ =	0.000788			
Design Surface Crack Width	w	$=3a_{cr}\varepsilon_m/[1+2(a_{cr}/c_{min})/(T_b-x)]$ =	0.175	mm		
			< 0.2	mm		



The crack width is acceptable. OK

C.3.2. Direct Tension in Immature Concrete

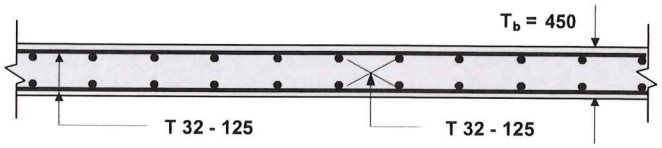
Critcial Steel Ratio	ρ_{crit}	=	0.0035			
Thickness of Surface Zone	h'	=	225	mm		
Required Steel Reinforcement		$=\rho_{crit}bh'$ =	788	mm^2/m		OK
	f_{ct}/f_b	=	0.67			
Coefficient of Thermal Expansion	α	=	0.00001			
Anticipated Fall in Temperature	T_1	=	25	°C		

Bottom Reinforcement

Maximum spacing of cracks	s_{max}	$=f_{ct}/f_b \times \phi/2\rho$ =	749.77	mm			
Estimated Maximum Crack Width	w_{max}	$=\alpha T_1 s_{max}/2$ =	0.09	mm	<	0.2 mm	OK

Top Reinforcement / Distribution Bar:

Maximum spacing of cracks	s_{max}	$=f_{ct}/f_b \times \phi/2\rho$ =	749.77	mm			
Estimated Maximum Crack Width	w_{max}	$=\alpha T_1 s_{max}/2$ =	0.09	mm	<	0.2 mm	OK



RC Details of Bottom Slab (Section)

Zone 1
RC Design - Beam

CONTINUOUS BEAMS :

Concrete : C45 fcu = 45

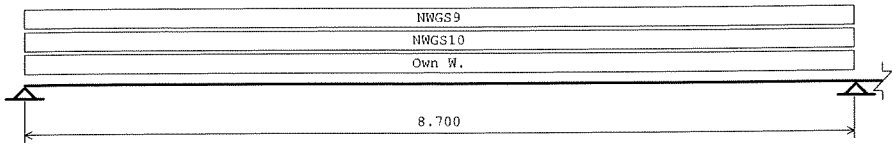
Main Bars: 500B fy = 500

Stirrup : 500B fyv = 500

Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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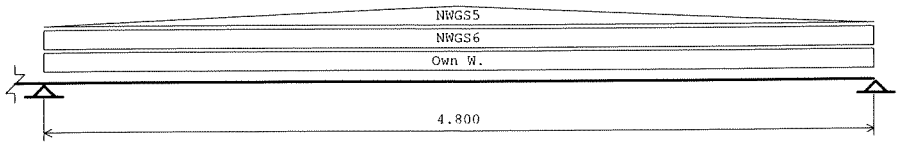
* NWGB7 * L = 8.700 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	8.700	
NWGS10	Uniform	7.229	2.688	0.000	0.000	8.700	
NWGS9	Uniform	27.741	10.313	0.000	0.000	8.700	

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* NWGB8 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
NWGS6	Uniform	7.229	2.688	0.000	0.000	4.800	
NWGS5	Triang.	27.741	10.313	0.000	0.000	4.800	

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
NWGB7	D.L.	266.933	266.933	150.676	217.508
	L.L.(N)	81.997	81.997	46.364	66.736
	L.L.(P)	0.000	0.000	0.000	0.000
NWGB8	D.L.	61.281	61.281	128.846	7.713
	L.L.(N)	17.535	17.535	37.287	0.363
	L.L.(P)	0.000	0.000	0.000	0.000

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* NWGB7 * L = 8.700 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

	<-Top Bars->						<-Bot.Bars->					
Dist.	-Mmax	Beta	+Mmax	Beta	At	Ac	Cr	d2	At	Ac	Cr	d2	Vmax	Av/s
0.000			0.000	1.000	0	0	0.000	82.5	300	0	0.000	82.5	288.352	800
0.435			117.859	1.000	0	0	0.000	82.5	427	0	0.138	82.5	253.531	800
0.870			220.572	1.000	0	0	0.000	82.5	800	0	0.300	82.5	218.710	800
1.305			308.137	1.000	0	0	0.000	82.5	1117	0	0.300	82.5	183.889	800
1.740			380.555	1.000	0	0	0.000	82.5	1388	0	0.300	82.5	149.068	800
2.175			437.827	1.000	0	0	0.000	82.5	1612	0	0.300	82.5	114.247	800
2.610			479.951	1.000	0	0	0.000	82.5	1780	0	0.300	82.5	79.427	800
3.045			506.928	1.000	0	0	0.000	82.5	1889	0	0.300	82.5	44.606	800
3.480			518.758	1.000	0	0	0.000	82.5	1938	0	0.300	82.5	9.785	800
3.915			515.440	1.000	0	0	0.000	82.5	1924	0	0.300	82.5	-28.259	800
4.350			496.976	1.000	0	0	0.000	82.5	1849	0	0.300	82.5	-63.080	800
4.785			463.365	1.000	0	0	0.000	82.5	1714	0	0.300	82.5	-97.900	800
5.220			414.606	1.000	0	0	0.000	82.5	1521	0	0.300	82.5	-132.721	800
5.655			350.701	1.000	0	0	0.000	82.5	1273	0	0.300	82.5	-167.542	800
6.090			271.648	1.000	0	0	0.000	82.5	985	0	0.300	82.5	-202.363	800
6.525			177.449	1.000	0	0	0.000	82.5	643	0	0.271	82.5	-237.184	800
6.960			38.987	1.000	0	0	0.000	82.5	300	0	0.000	82.5	-272.005	800
7.395	-55.503	1.000			300	0	0.000	82.5	0	0	0.000	82.5	-306.826	800
7.830	-221.266	1.000			802	0	0.300	82.5	0	0	0.000	82.5	-341.647	800
8.265	-377.455	1.000			1376	0	0.300	82.5	0	0	0.000	82.5	-376.467	800

8.700 -548.793 1.000 2061 0 0.300 82.5 : 0 0 0.000 82.5 -411.288 800

Span-Effective Depth Ratio : Actual = 13.034 < Allowable = 29.380 O.K.

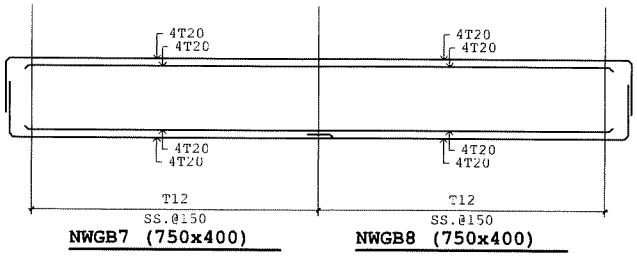
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* NWGB8 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.480	0.960	1.440	1.920	2.400	2.880	3.360	3.840	4.320	4.800
-Mmax	-548.79	-437.80	-359.48	-287.08	-221.87	-165.13	-117.71	-33.54	-16.87	-6.12	
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
+Mmax						18.04	41.12	9.62	13.31	9.52	0.00
Beta						1.000	1.000	1.000	1.000	1.000	1.000
Top : At	2061	1612	1307	1041	804	599	427	300	300	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.300	0.300	0.300	0.300	0.300	0.187	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	0	0	0	0	65	149	300	300	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	240.04	225.53	205.70	180.55	150.10	114.33	78.56	48.11	-24.96	-44.79	-59.30
Av/s	800	800	800	800	800	800	800	800	800	800	800

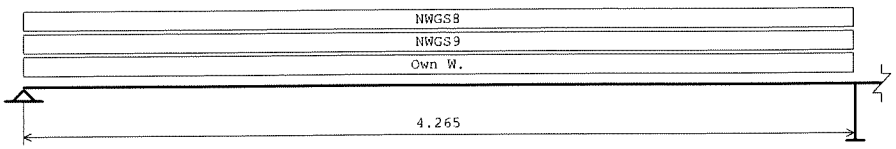
Span-Effective Depth Ratio : Actual = 7.191 < Allowable = 56.986 O.K.



CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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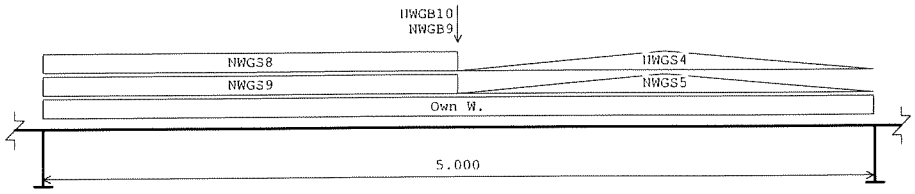
* NWGB5 * L = 4.265 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.265	
NWGS9	Uniform	27.741	10.313	0.000	0.000	4.265	
NWGS8	Uniform	32.952	12.250	0.000	0.000	4.265	

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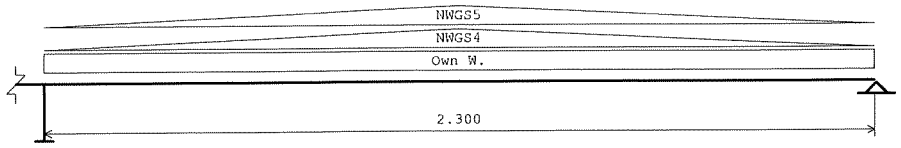
* NWGB5A * L = 5.000 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	5.000	
NWGB10	Concen.	73.105	18.732	0.000	2.500		
NWGB9	Concen.	160.585	44.500	0.000	2.500		
NWGS9	Uniform	27.741	10.313	0.000	0.000	2.500	
NWGS5	Triang.	27.741	10.313	0.000	2.500	2.500	
NWGS4	Triang.	32.280	12.000	0.000	2.500	2.500	
NWGS8	Uniform	32.952	12.250	0.000	0.000	2.500	

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* NWGB6 * L = 2.300 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	2.300	
NWGS4	Triang.	32.280	12.000	0.000	0.000	2.300	
NWGS5	Triang.	27.741	10.313	0.000	0.000	2.300	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	NWC2	Col.	0.0		None		500	500	6.300
3	NWC3	Col.	0.0		None		500	500	6.300

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
NWGB5	D.L.	103.143	103.143	94.054	196.150
	L.L.(N)	34.201	34.201	32.317	63.912
	L.L.(P)	0.000	0.000	0.000	0.000
NWGB5A	D.L.	266.860	248.750	276.051	221.148
	L.L.(N)	78.736	72.004	84.133	63.395

	L.L.(P)	0.000	0.000	0.000	0.000
NWGB6	D.L.	19.777	19.777	117.655	-31.726
	L.L.(N)	6.148	6.148	34.274	-8.614
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl (\)	Mrmax	Mlmax	Vcl (/)	Mrmin
NWC2	DL+LL	-215.679	0.000	-228.666	-277.631	0.000	-267.767
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-190.069	0.000	-196.268	-219.876	0.000	-216.289
	D+L(FLS)	-189.081	0.000	-192.147	-206.907	0.000	-207.977
	D ONLY(FLS)	-170.810	0.000	-171.899	-170.810	0.000	-171.899
NWC3	DL+LL	-275.231	0.000	-281.500	-131.916	0.000	-126.361
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-203.887	0.000	-206.914	-138.063	0.000	-135.663
	D+L(FLS)	-190.392	0.000	-189.357	-138.637	0.000	-137.558
	D ONLY(FLS)	-142.479	0.000	-142.740	-142.479	0.000	-142.740

* NWGB5 * L = 4.265 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.410	0.820	1.230	1.639	2.049	2.459	2.869	3.279	3.689	4.098
-Mmax						-4.65	-39.87	-86.52	-144.60	-218.88	-353.53
Beta						1.000	1.000	1.000	1.000	1.000	1.000
+Mmax	0.00	47.87	128.00	158.90	167.73	154.50	119.20	15.46			
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Top : At	300	0	0	0	0	17	145	314	524	793	1284
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.174	0.300	0.300
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	300	464	576	608	560	432	300	0	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.135	0.220	0.227	0.175	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	209.99	156.15	102.31	48.47	-32.42	-86.26	-140.10	-193.93	-247.77	-301.61	-355.45
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.390 < Allowable = 56.986 O.K.

* NWGB5A * L = 5.000 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.633	1.100	1.567	2.033	2.500	2.967	3.433	3.900	4.367	4.833
-Mmax	-253.58	-148.26	-20.37							-124.53	-213.81
Beta	1.000	1.000	1.000							1.000	1.000
+Mmax			87.03	154.74	244.23	313.98	233.38	144.48	40.66		
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	1778	537	74	0	0	0	0	0	0	451	1455
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.147	0.200
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	0	316	944	1703	2245	1616	850	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.200	0.200	0.200	0.200	0.200	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	501.40	440.10	378.79	317.48	256.18	-252.80	-268.04	-304.13	-358.93	-402.47	-425.15
Av/s	1034	823	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.491 < Allowable = 31.434 O.K.

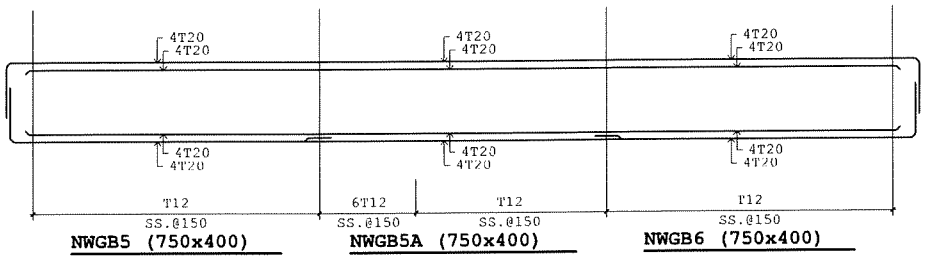
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* NWGB6 * L = 2.300 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.380	0.593	0.807	1.020	1.233	1.447	1.660	1.873	2.087	2.300
-Mmax	-300.92	-258.07	-220.63	-184.94	-151.49	-120.79	-92.92	-38.65	-24.59	-11.87	
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
+Mmax									1.76	1.62	0.00
Beta									1.000	1.000	1.000
Top : At	1091	936	800	670	549	438	337	300	300	300	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.300	0.300	0.300	0.277	0.205	0.085	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	0	0	0	0	0	0	0	6	6	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	224.76	216.49	203.49	185.75	163.27	136.77	113.25	94.47	80.43	71.12	66.56
Av/s	800	800	800	800	800	800	800	800	800	800	800

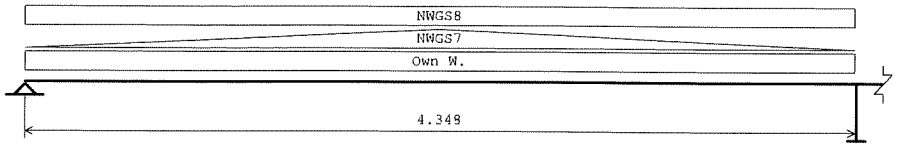
Span-Effective Depth Ratio : Actual = 3.446 < Allowable = 56.986 O.K.



CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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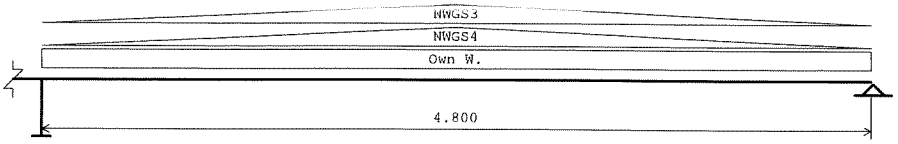
* NWGB3 * L = 4.348 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.348	
NWGS7	Triang.	29.254	10.875	0.000	0.000	4.348	
NWGS8	Uniform	32.952	12.250	0.000	0.000	4.348	

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* NWGB4 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
NWGS4	Triang.	32.280	12.000	0.000	0.000	4.800	
NWGS3	Triang.	32.280	12.000	0.000	0.000	4.800	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	NWC1	Col.	0.0		None		500	500	6.300

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
NWGB3	D.L.	92.298	92.298	87.685	151.148
	L.L.(N)	30.007	30.007	28.286	48.619
	L.L.(P)	0.000	0.000	0.000	0.000
NWGB4	D.L.	91.584	91.584	123.822	66.402
	L.L.(N)	28.800	28.800	37.952	19.648
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl (\)	Mrmax	Mlmax	Vcl (/)	Mrmin
NWC1	DL+LL	-141.932	0.000	-155.842	-153.527	0.000	-156.472
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-119.016	0.000	-128.317	-124.530	0.000	-128.848
	D+L(FLS)	-117.644	0.000	-124.355	-119.601	0.000	-125.852
	D ONLY(FLS)	-101.478	0.000	-107.152	-101.478	0.000	-107.152

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* NWGB3 * L = 4.348 Sec.= 750x400
Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.418	0.836	1.254	1.673	2.091	2.509	2.927	3.345	3.763	4.181

-Mmax								-7.49	-23.72	-108.58	-149.66
Beta								1.000	1.000	1.000	1.000
+Mmax	0.00	45.52	121.93	158.05	174.99	170.79	143.82	94.93	3.42		
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	300	0	0	0	0	0	0	27	300	394	897
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099	0.200
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	300	442	573	634	619	521	344	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.135	0.200	0.200	0.200	0.181	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	180.72	146.58	107.75	64.23	16.01	-49.60	-104.19	-154.27	-199.67	-240.36	-276.37
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.514 < Allowable = 56.986 O.K.

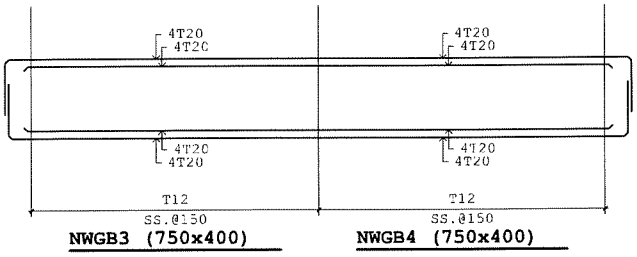
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* NWGB4 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.630	1.093	1.557	2.020	2.483	2.947	3.410	3.873	4.337	4.800
-Mmax	-154.93	-120.06	-26.71	-5.59							
Beta	1.000	1.000	1.000	1.000							
+Mmax			14.50	89.64	144.64	174.17	175.78	153.83	113.66	40.22	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	946	435	300	20	0	0	0	0	0	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.: At	0	0	53	325	524	631	637	558	412	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.188	0.200	0.200	0.200	0.101	0.000	0.000
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)	231.62	216.95	190.76	153.05	103.82	43.45	-23.87	-68.95	-102.52	-124.57	-135.10
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.191 < Allowable = 56.986 O.K.



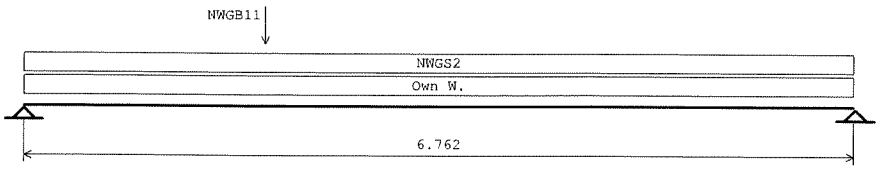
NWGB3 (750x400) **NWGB4 (750x400)**

SIMPLY SUPPORTED BEAM :

Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500

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* NWGB2 * L = 6.762 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	6.762	
NWGB11	Concen.	77.327	23.085	0.000	1.962		
NWGS2	Uniform	24.378	9.063	0.000	0.000	6.762	

SUPPORT OF BEAMS :

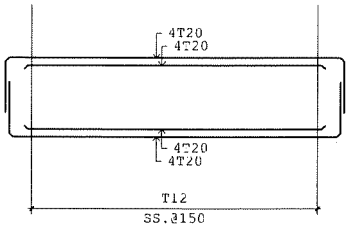
No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		

Load Type	TRANSFERRED SHEARS (LHS)	(RHS)
Dead Load	162.163	129.709
L.L.(N)	47.027	37.338
L.L.(P)	0.000	0.000

Crack Width Limit = 0.2 mm Both face contact with water.

Dist.	-Mmax	+Mmax	Top Bars At	Ac	Cr	d2	Bot.Bars At	Ac	Cr	d2	Vmax	Av/s
0.000		0.000	0	0.000	82.5	: 0	0.000	82.5			302.272	800
0.423		122.486	0	0.000	82.5	: 444	0.163	82.5			277.371	800
0.845		162.247	0	0.000	82.5	: 1012	0.200	0.0			252.470	800
1.268		232.442	0	0.000	82.5	: 1608	0.200	0.0			227.570	800
1.691		295.351	0	0.000	82.5	: 2103	0.200	0.0			202.669	800
2.113		335.800	0	0.000	82.5	: 2408	0.200	0.0			32.574	800
2.536		341.701	0	0.000	82.5	: 2452	0.200	0.0			7.674	800
2.958		340.316	0	0.000	82.5	: 2442	0.200	0.0			-17.227	800
3.381		331.646	0	0.000	82.5	: 2378	0.200	0.0			-42.128	800
3.804		315.690	0	0.000	82.5	: 2258	0.200	0.0			-67.029	800
4.226		292.449	0	0.000	82.5	: 2081	0.200	0.0			-91.930	800
4.649		261.922	0	0.000	82.5	: 1844	0.200	0.0			-116.830	800
5.071		224.109	0	0.000	82.5	: 1540	0.200	0.0			-141.731	800
5.494		179.010	0	0.000	82.5	: 1160	0.200	0.0			-166.632	800
5.917		126.626	0	0.000	82.5	: 680	0.200	0.0			-191.533	800
6.339		96.732	0	0.000	82.5	: 351	0.047	82.5			-216.434	800
6.762		0.000	0	0.000	82.5	: 0	0.000	82.5			-241.334	800

Span-Effective Depth Ratio : Actual = 10.130 < Allowable = 22.165 O.K.



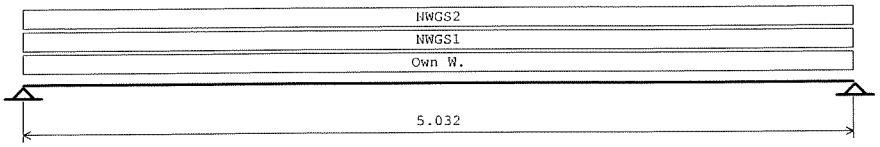
NWGB2 (750x400)

SIMPLY SUPPORTED BEAM :

Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500

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* NWGB1 * L = 5.032 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	5.032	
NWGS1	Uniform	24.042	8.938	0.000	0.000	5.032	
NWGS2	Uniform	24.378	9.063	0.000	0.000	5.032	

SUPPORT OF BEAMS :

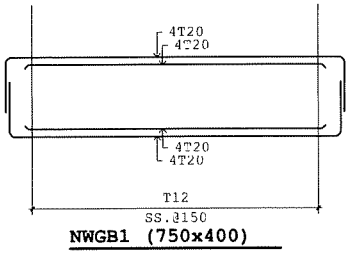
No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		

Load Type	TRANSFERRED SHEARS (LHS)	(RHS)
Dead Load	140.317	140.317
L.L.(N)	45.288	45.288
L.L.(P)	0.000	0.000

Crack Width Limit = 0.2 mm Both face contact with water.

Dist.(M)	0.000	0.419	0.839	1.258	1.677	2.097	2.516	2.935	3.355	3.774	4.193	4.613	5.032
+Mmax		103.36	129.72	175.12	207.55	227.01	233.49	227.01	207.55	175.12	129.72	103.36	0.00
Top : Ac	0	0	0	0	0	0	0	0	0	0	0	0	0
d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot : At	0	375	710	1126	1403	1564	1616	1564	1403	1126	710	375	0
Cr	0.000	0.076	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.076	0.000
d2	82.5	82.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.5	82.5
Vmax(kN)	268.91	224.09	179.27	134.45	89.64	44.82	-0.00	-44.82	-89.64	-134.45	-179.27	-224.09	-268.91
Av/s	800	800	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.539 < Allowable = 33.005 O.K.

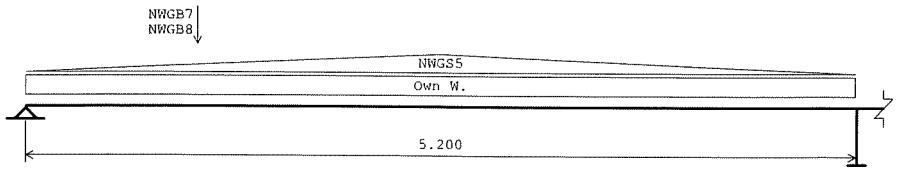


NWGB1 (750x400)

CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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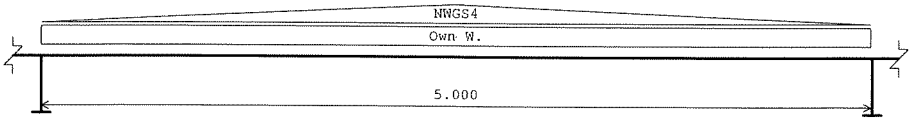
* NWGB9 * L = 5.200 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	5.200	
NWGS5	Triang.	27.741	10.313	0.000	0.000	5.200	
NWGB7	Concen.	217.508	66.736	0.000	1.075		
NWGB8	Concen.	128.846	37.287	0.000	1.075		

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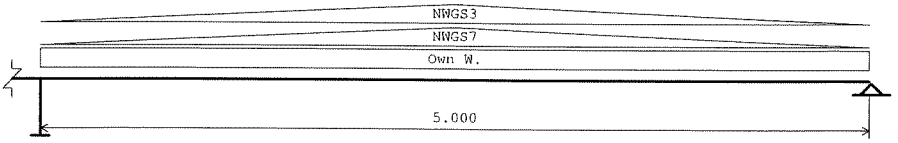
* NWGB10 * L = 5.000 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	5.000	
NWGS4	Triang.	32.280	12.000	0.000	0.000	5.000	

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* NWGB11 * L = 5.000 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	5.000	
NWGS7	Triang.	29.254	10.875	0.000	0.000	5.000	
NWGS3	Triang.	32.280	12.000	0.000	0.000	5.000	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	NWC2	Col.	0.0	None			500	500	6.300
3	NWC1	Col.	0.0	None			500	500	6.300

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
NWGB9	D.L.	289.928	116.690	296.114	160.585
	L.L.(N)	84.892	32.862	86.335	44.500
	L.L.(P)	0.000	0.000	0.000	0.000
NWGB10	D.L.	57.344	57.344	73.105	44.345
	L.L.(N)	15.625	15.625	18.732	11.268
	L.L.(P)	0.000	0.000	0.000	0.000
NWGB11	D.L.	95.435	95.435	113.258	77.327
	L.L.(N)	29.785	29.785	34.102	23.085
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl	Mrmax	Mlmax	Vcl	Mrmin
			(\)			(/)	
NWC2	DL+LL	-230.650	0.000	-207.369	-157.564	0.000	-143.090
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-179.941	0.000	-162.381	-146.279	0.000	-132.369
	D+L(FLS)	-150.491	0.000	-173.499	-142.978	0.000	-130.261
	D ONLY(FLS)	-135.925	0.000	-122.812	-135.925	0.000	-122.812
NWC1	DL+LL	-78.865	0.000	-84.011	-89.424	0.000	-94.791
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-67.892	0.000	-72.431	-71.559	0.000	-75.904
	D+L(FLS)	-65.710	0.000	-69.044	-63.807	0.000	-70.244
	D ONLY(FLS)	-58.105	0.000	-61.806	-58.105	0.000	-61.806

* NWGB9 * L = 5.200 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)		0.000	0.629	1.258	1.888	2.517	3.146	3.775	4.404	5.033
-Mmax									-105.59	-288.40
Beta									1.000	1.000
+Mmax		0.00	347.58	566.35	480.07	373.81	243.43	91.67		
Beta		1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top :	At	300	0	0	0	0	0	0	383	1046
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.300
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.:	At	0	1261	2134	1781	1362	882	332	0	0
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.300	0.300	0.300	0.300	0.300	0.000	0.000	0.000
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Vmax(kN)		557.07	546.38	-130.74	-158.28	-194.24	-232.29	-262.06	-283.40	-296.32
Av/s		1226	1189	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.790 < Allowable = 26.969 O.K.

* NWGB10 * L = 5.000 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)		0.167	0.750	1.333	1.917	2.500	3.083	3.667	4.250	4.833
-Mmax		-252.84	-171.37	-126.73	-94.20	-34.30	-30.03	-36.68	-84.62	-142.54
Beta		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
+Mmax					8.98	29.16	25.63	1.80		
Beta					1.000	1.000	1.000	1.000		
Top :	At	917	621	459	342	300	300	300	307	517
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.300	0.275	0.126	0.000	0.000	0.000	0.000	0.000	0.185
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.:	At	0	0	0	33	106	93	7	0	0
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5

Vmax(kN)	145.37	132.49	110.83	80.41	41.23	-40.04	-70.46	-92.11	-105.00
Av/s	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.491 < Allowable = 64.419 O.K.

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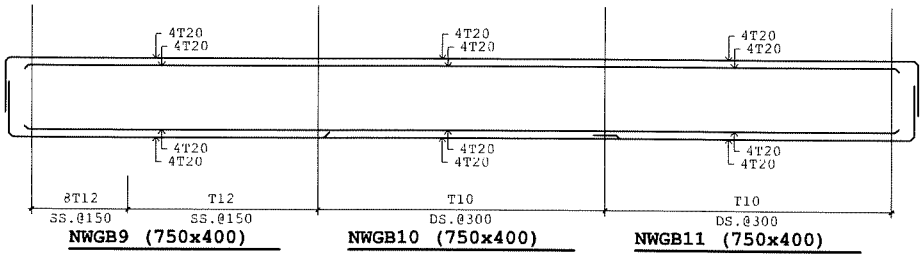
* NWGB11 * L = 5.000 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)		0.167	0.771	1.375	1.979	2.583	3.187	3.792	4.396	5.000
-Mmax		-155.62	-14.74							
Beta		1.000	1.000							
+Mmax			7.39	109.15	182.50	216.63	206.01	159.15	86.87	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top :	At	564	300	0	0	0	0	0	0	0
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Bot.:	At	0	27	396	662	785	747	577	315	300
	Ac	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.061	0.284	0.300	0.300	0.252	0.000	0.000
	d2	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5

Vmax(kN)	215.10	194.98	156.94	100.97	27.43	-50.56	-101.59	-134.69	-149.87
Av/s	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 7.491 < Allowable = 56.986 O.K.



Zone 1
RC Design - Column

* NWC1 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	NWGB3	1	4.348	400x750	180.0	92.298(30.007, 0.000)
	NWGB4	1	4.800	400x750	0.0	91.584(28.800, 0.000)
	NWGB10	1	5.000	400x750	270.0	57.344(15.625, 0.000)
	NWGB11	1	5.000	400x750	90.0	95.435(29.785, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		6.300	6.300	500x500		Footing	

Slender : Lex= 4.483 Lamx= 8.97 < 15 Ley= 4.487 Lamy= 8.97 < 15

Vert.Load: D.L.= 432.573(38.587) L.L.= 131.942[0.000]

Top :	+Mdx = 19.371	-Mdx = -19.522	+Mdy = 21.680	-Mdy = -13.027
	+Mlxn= 6.091	-Mlxn= -6.347	+Mlyn= 6.766	-Mlyn= -3.550
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 9.761	-Mdx = -9.685	+Mdy = 6.513	-Mdy = -10.840
	+Mlxn= 3.173	-Mlxn= -3.046	+Mlyn= 1.775	-Mlyn= -3.383
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 4.129	Vxmin= -4.313	Vymax= 6.703	Vymin= -0.533
D+L (W):	Vxmax= 2.627	Vxmin= -2.779	Vymax= 5.026	Vymin= 0.426
D ONLY:	Vxmax= 1.809	Vxmin= -1.895	Vymax= 4.125	Vymin= 0.820
D+L(FLS):	Vxmax= 1.124	Vxmin= -1.245	Vymax= 3.349	Vymin= 1.384
D ONLY(F):	Vxmax= 1.124	Vxmin= -1.245	Vymax= 3.349	Vymin= 1.384

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 870.732 O.K.

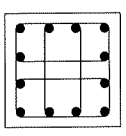
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	816.709	18.114	28.151	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-1.245	10.763	538.127	0.649	0.006	O.K.
D+L(Top)	Y-Y	6.703	28.151	816.709	0.739	0.030	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



* NWC2 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	NWGB5	1	4.265	400x750	180.0	103.143(34.201, 0.000)
	NWGB5A	1	5.000	400x750	0.0	266.860(78.736, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		6.300	6.300	500x500		Footing	

Slender : Lex= 4.484 Lamx= 8.97 < 15 Ley= 5.670 Lamy= 11.34 < 15

Vert.Load: D.L.= 474.983(38.587) L.L.= 149.080[0.000]

Top :	+Mdx = 56.837	-Mdx = -21.968	+Mdy = 0.000	-Mdy = 0.000
	+Mlxn= 16.770	-Mlxn= -7.284	+Mlyn= 0.000	-Mlyn= 0.000
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 10.984	-Mdx = -28.419	+Mdy = -0.000	-Mdy = -0.000
	+Mlxn= 3.642	-Mlxn= -8.385	+Mlyn= -0.000	-Mlyn= -0.000
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 20.104	Vxmin= 3.435	Vymax= 0.000	Vymin= 0.000
D+L (W):	Vxmax= 15.800	Vxmin= 5.175	Vymax= 0.000	Vymin= 0.000
D ONLY:	Vxmax= 13.715	Vxmin= 6.210	Vymax= 0.000	Vymin= 0.000
D+L(FLS):	Vxmax= 11.496	Vxmin= 6.915	Vymax= 0.000	Vymin= 0.000
D ONLY(F):	Vxmax= 11.496	Vxmin= 6.915	Vymax= 0.000	Vymin= 0.000

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 957.526 O.K.

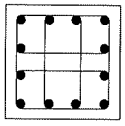
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	903.504	84.436	18.070	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	20.104	84.436	903.504	0.764	0.091	O.K.
D+L(Top)	Y-Y	0.000	18.070	903.504	0.505	0.000	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



* NWC3 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	NWGB5A	1	5.000	400x750	180.0	248.750(72.004, 0.000)
	NWGB6	1	2.300	400x750	0.0	71.861(25.510, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		6.300	6.300	500x500		Footing	

Slender : Lex= 4.471 Lamx= 8.94 < 15 Ley= 5.670 Lamy= 11.34 < 15

Vert.Load: D.L.= 290.598(38.587) L.L.= 79.749[0.000]

Top :	+Mdx = 11.230	-Mdx = -38.874	+Mdy = 0.000	-Mdy = 0.000
	+Mlxn= 3.987	-Mlxn= -11.253	+Mlyn= 0.000	-Mlyn= 0.000
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 19.437	-Mdx = -5.615	+Mdy = -0.000	-Mdy = -0.000
	+Mlxn= 5.626	-Mlxn= -1.993	+Mlyn= -0.000	-Mlyn= -0.000
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= -3.994	Vxmin= -14.571	Vymax= 0.000	Vymin= 0.000
D+L (W):	Vxmax= -4.908	Vxmin= -11.648	Vymax= 0.000	Vymin= 0.000
D ONLY:	Vxmax= -5.512	Vxmin= -10.284	Vymax= 0.000	Vymin= 0.000
D+L(FLS):	Vxmax= -5.823	Vxmin= -8.725	Vymax= 0.000	Vymin= 0.000
D ONLY(F):	Vxmax= -5.823	Vxmin= -8.725	Vymax= 0.000	Vymin= 0.000

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 588.457 O.K.

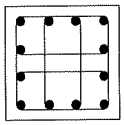
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	534.435	61.198	10.689	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-8.725	36.646	354.397	0.676	0.040	O.K.
D+L(Top)	Y-Y	0.000	10.689	534.435	0.505	0.000	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



Zone 1
RC Design - BCJ

* NWC1 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-141.932	-155.842	-153.527	-156.472
	Y-Y	-78.865	-84.011	-89.424	-94.791
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	0.000	0.000	0.000	0.000
DL ONLY	X-X	-119.016	-128.317	-124.530	-128.848
	Y-Y	-67.892	-72.431	-71.559	-75.904
D+L(FLS)	X-X	-117.644	-124.355	-119.601	-125.852
	Y-Y	-65.710	-69.044	-63.807	-70.244
D ONLY(FLS)	X-X	-88.474	-94.228	-88.474	-94.228
	Y-Y	-58.105	-53.273	-58.105	-53.273

ALONG X-X: D+L(\) Nc = 0.000

BEAM (LHS): NWGB3
b = 400
h = 750
M = -141.932
d = 692.0
K = M/bd^2f_{cu} = 0.016
z = 0.95d = 657.400
T = M/z = -215.900

BEAM (RHS): NWGB4
b = 400
h = 750
M = -155.842
d = 692.0
K = M/bd^2f_{cu} = 0.018
z = 0.95d = 657.400
T = M/z = 237.058

V_{jhx} = 237.058-215.900 = 21.158
V_{jvx} = $(h_b/b_c)V_{jhx}$ = 31.737
C_j = $V_{jhx}/(V_{jhx}+V_{jhy})$ = 0.730
b_j = $b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.085 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 24
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvx}-C_jN)/(0.87f_y)$ = 29
Provide: 2T10 2Legs

ALONG Y-Y: D+L(/) Nc = 0.000

BEAM (LHS): NWGB10
b = 400
h = 750
M = -63.807
d = 692.0
K = $M/bd^2k_cf_{cu}$ = 0.007
z = 0.95d = 657.400
T = M/z = -97.060

BEAM (RHS): NWGB11
b = 400
h = 750
M = -70.244
d = 692.0
K = $M/bd^2k_cf_{cu}$ = 0.008
z = 0.95d = 657.400
T = M/z = 106.852

V_{jhy} = 106.852-97.060 = 9.791
V_{jvy} = $(h_b/h_c)V_{jhy}$ = 14.687
C_j = $V_{jhy}/(V_{jhx}+V_{jhy})$ = 0.490
b_j = $b+0.5h_c$ = 650.0 Use 500.0
$V_{jhy}/b_j/h_c$ = 0.039 < $0.2k_cf_{cu}$ OK.
A_{jh} = $V_{jhy}/(k_sf_y)[0.5-C_jN/(0.8b_ch_ck_cf_{cu})]$ = 10
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvy}-C_jN)/(k_sf_y)$ = 12
Provide: 1T10 2Legs

---

* NWC2 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-219.475	-232.895	-279.534	-268.008
	Y-Y	N/A	N/A	N/A	N/A
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	N/A	N/A	N/A	N/A
DL ONLY	X-X	-192.733	-199.237	-221.778	-210.681
	Y-Y	N/A	N/A	N/A	N/A
D+L(FLS)	X-X	-189.016	-192.074	-208.810	-200.241
	Y-Y	N/A	N/A	N/A	N/A
D ONLY(FLS)	X-X	-170.446	-150.135	-170.446	-150.135
	Y-Y	N/A	N/A	N/A	N/A

ALONG X-X: D+L(\) Nc = 0.000

BEAM (LHS): NWGB5	BEAM (RHS): NWGB5A
b = 400	b = 400
h = 750	h = 750
M = -219.475	M = -232.895
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.025	K = M/bd^2f_{cu} = 0.027
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = -333.853	T = M/z = 354.267

V_{jhx} = 354.267-333.853 = 20.414
$V_{jvx} = (h_b/b_c)V_{jhx}$ = 30.621
C_j = 1.0
$b_j = b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.082 < $0.2f_{cu}$ OK.
$A_{jh} = V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 23
Provide: 3T10 2Legs
$A_{jv} = (0.4V_{jvx}-C_jN)/(0.87f_y)$ = 28
Provide: 2T10 2Legs

---

* NWC3 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-231.243	-281.123	-115.426	-125.609
	Y-Y	N/A	N/A	N/A	N/A
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	N/A	N/A	N/A	N/A
DL ONLY	X-X	-169.470	-206.536	-126.490	-135.135
	Y-Y	N/A	N/A	N/A	N/A
D+L(FLS)	X-X	-157.568	-188.980	-138.923	-142.472
	Y-Y	N/A	N/A	N/A	N/A
D ONLY(FLS)	X-X	-115.091	-142.363	-115.091	-142.363
	Y-Y	N/A	N/A	N/A	N/A

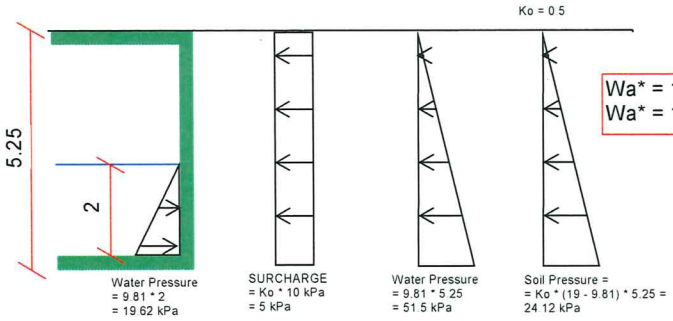
ALONG X-X: D+L(\) Nc = 0.000

BEAM (LHS): NWGB5A
b = 400
h = 750
M = -231.243
d = 692.0
$K = M/bd^2f_{cu}$ = 0.027
z = 0.95d = 657.400
T = M/z = -351.754

BEAM (RHS): NWGB6
b = 400
h = 750
M = -281.123
d = 692.0
$K = M/bd^2f_{cu}$ = 0.033
z = 0.95d = 657.400
T = M/z = 427.629

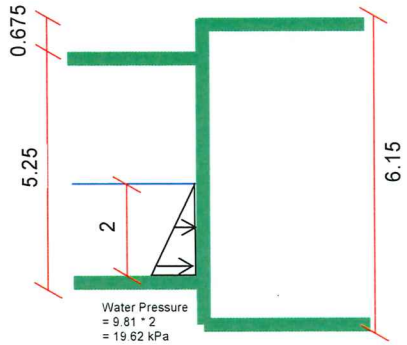
V_{jhx} = 427.629-351.754 = 75.875
$V_{jvx} = (h_b/b_c)V_{jhx}$ = 113.813
C_j = 1.0
$b_j = b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.304 < $0.2f_{cu}$ OK.
$A_{jh} = V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 87
Provide: 3T10 2Legs
$A_{jv} = (0.4V_{jvx}-C_jN)/(0.87f_y)$ = 105
Provide: 2T10 2Legs

Zone 1
RC Design – Side Wall



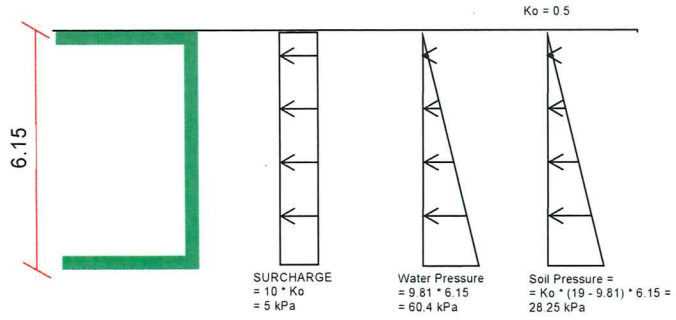
SECTION A-A

Wa* = 1.4 * 5 = 7 kPa (U.D.L.)
Wa* = 1.4 *(51.5+24.12) = 75.6 kPa (Triangular)



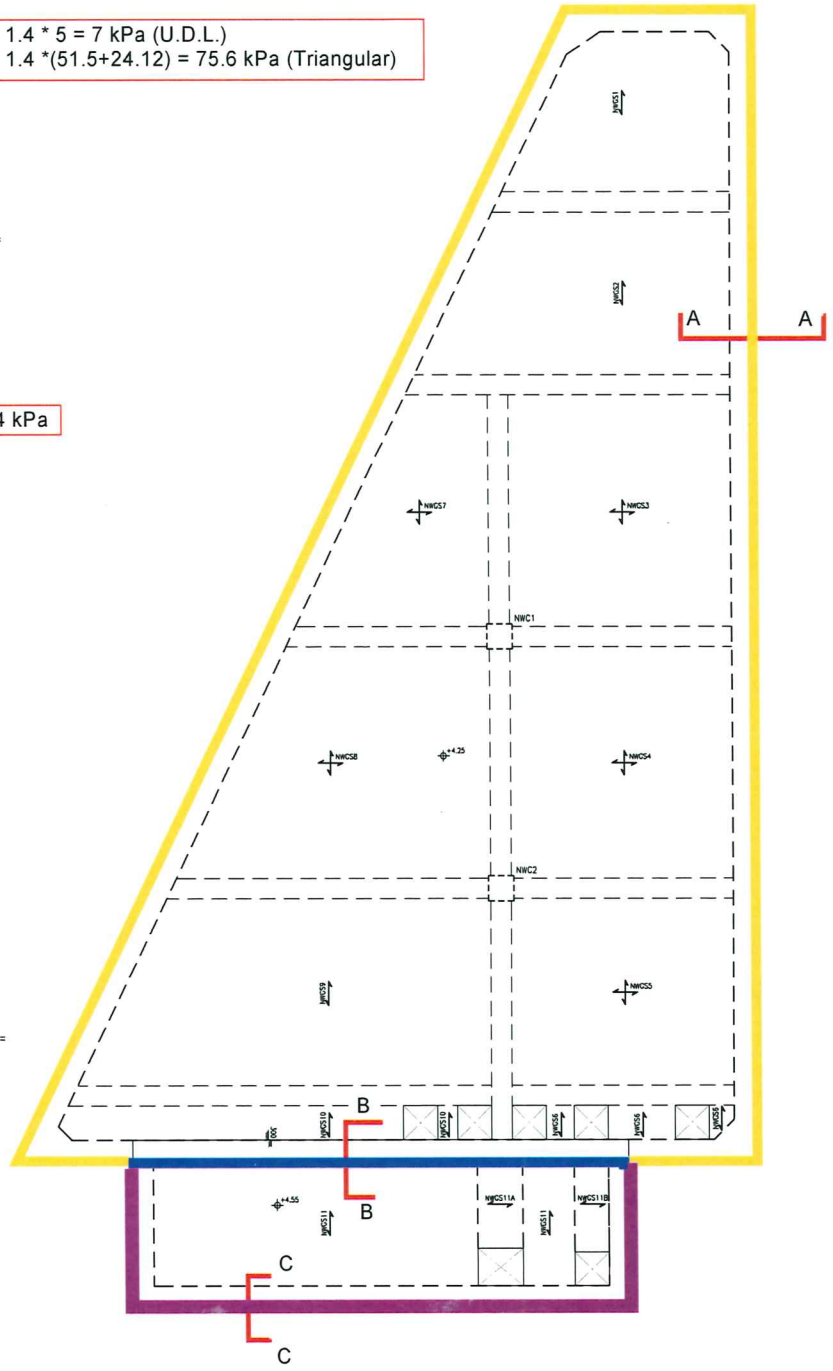
SECTION B-B

Wb* = 1.6 (2*9.81) = 31.4 kPa



SECTION C-C
(Critical Section)

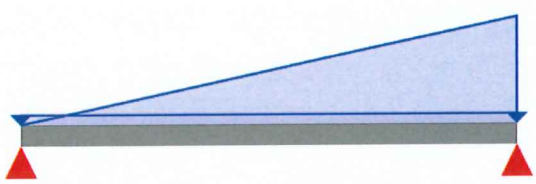
Wc* = 1.4 * 5 = 7 kPa (U.D.L.)
Wc* = 1.4 *(60.4+28.25) = 124.2 kPa (Triangular)



SDL = 0.45 * 19 = 8.55 kPa
Live Load = 20 kPa

For Section A-A (Side Wall)

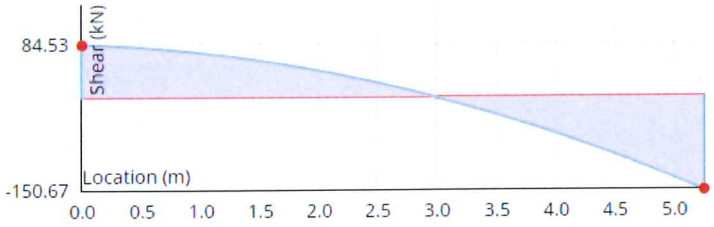
Wa* = 1.4 * 5 = 7 kPa (U.D.L.)
Wa* = 1.4 *(51.5+24.12) = 75.6 kPa (Triangular)

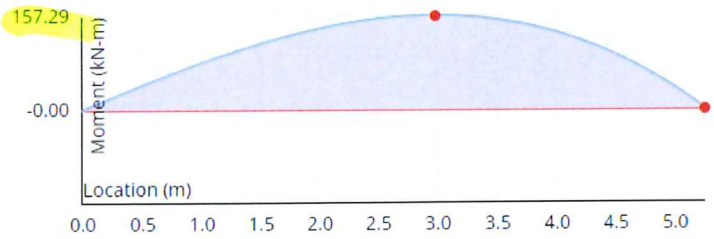


Model Name:

Model Options ▾ Run PDF Export

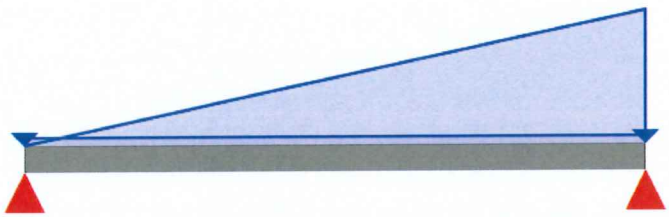
Type	Location (m)	Load (kN)|(kN-m)	Actions
Length	0 | 5.25		
Support-pinned	0		
Support-pinned	5.25		
Dt. Load	0 | 5.25	7 | 7	
Dt. Load	0 | 5.25	0 | 75.6	





For Section C-C (Side Wall)

Wc* = 1.4 * 5 = 7 kPa (U.D.L.)
Wc* = 1.4 *(60.4+28.25) = 124.2 kPa (Triangular)



Model Name:

Model Options ▾ | Run | PDF Export

Type	Location (m)	Load (kN)|(kN-m)	Actions
Length	0 | 6.15		
Support-pinned	0		
Support-pinned	6.15		
Dt. Load	0 | 6.15	7 | 7	
Dt. Load	0 | 6.15	0 | 124.2	

Reactions

Location: 0 (m), Force Reaction = -148.83 (kN)

Location: 6.15 (m), Force Reaction = -276.135 (kN)

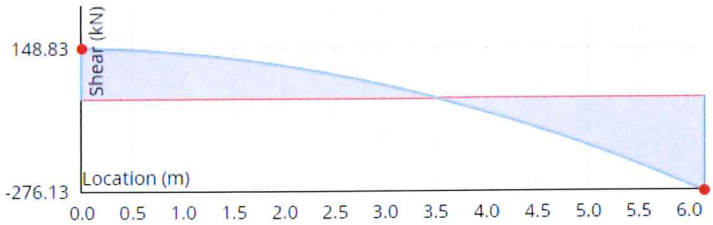
Shear Diagram

(Max +ve)Shear Load (kN): 148.830,

Location (m): 0.000

(Max -ve)Shear Load (kN): -276.135,

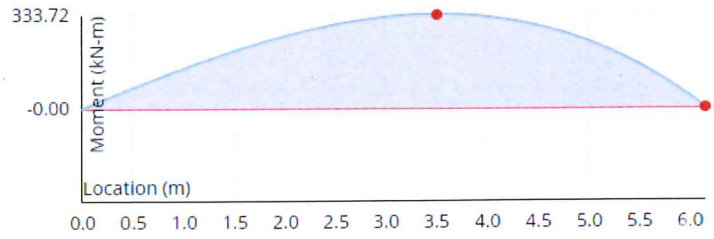
Location (m): 6.150



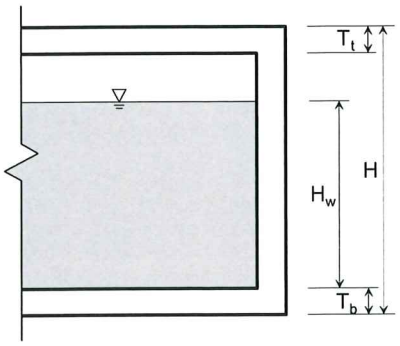
Moment Diagram (ULS moment)

(Max +ve)Moment Load (kN-m): 333.721,

Location (m): 3.505, 6.150



Project: LPH - YPR
Location: Zone 1 - Sediment Tank (Section C-C)



Design Data

Design Water Height	H_w	=	2.00	m
Height of Water Tank	H	=	6.15	m
Design Crack Width		=	0.2	mm
Concrete Grade		=	45	MPa

A. Design of Side Wall

A.1. Calculation of Internal Forces

A.2. Ultimate Limite State Design

Ultimate Design Moment M_U = 1.4M' = 333.00 kNm/m (ULS moment)

Thickness of Side Wall T_w = 400 mm
b = 1000 mm
Cover c_{min} = 50 mm

Effective Depth d = 338 mm

$K = M_U/(b*d^2*f_{cu})$ = 0.0650 < 0.156

$z/d = 0.5+\sqrt{0.25 - K/0.9}$ = 0.922

Lever Arm z = 0.92d = 311.1 mm
Depth to Neutral Axis x = (d-z) / 0.45 = 58.7 mm
Required Reinforcement $A_{s,req} = M_U/0.87f_yz$ = 2675 mm^2/m
Min. Vertical Reinforcement = 0.2% x T_wb = 800 mm^2/m
Min. Horizontal Reinforcement = 0.125% x T_wb = 500 mm^2/m

Vertical Bar:
Provide T 32 - 125
$A_{s,pro}$ = 6434 mm^2/m > 2675 mm^2/m (Steel Ratio = 1.61%) OK

Horizontal Bar:
Provide T 25 - 125
$A_{s,pro}$ = 3927 mm^2/m > 500 mm^2/m (Steel Ratio = 0.98%) OK

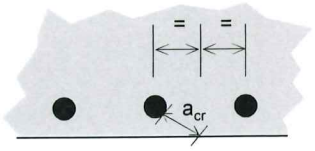
(Cont'd: **Project:** LPH - YPR **Location:** Zone 1 - Sediment Tank (Sectior)

A.3. Serviceability Limit State Design

A.3.1. Flexural Tension in Mature Concrete

Design Service Moment	M	= 237.86 kNm/m (SLS moment)		
	E_c	= 26400 MPa		
	E_s	= 205000 MPa		
Modular Ratio	α_e	= $E_s/(E_c/2)$ = 15.53		(Includes Allowance for Creep)
	x/d	= $-\alpha_e A_s + \sqrt{[(\alpha_e A_s)^2 + 2b\alpha_e A_s d]}$ /bd	= 0.528	
	x	= 178 mm		
Reinforcement Tensile Stress	f_s	= M / A_s(d-x/3)	= 133.0 MPa	
Allowable Steel Stress		= 130 MPa	< 133.0 MPa	(Table 3.1 of BS8007:1987)

Calculation of actual crack width is required.



Calculation of Actual Crack Width

Distance from zero strain	a_{cr}	= $\sqrt{(s/2)^2+(c_{min}+\phi/2)^2}-\phi/2$ =	75 mm
Flexural Strain	ε_1	= $(T_w-x)f_s / (d-x)E_s$ =	0.000903
	a'	= 400 mm	
Strain due to the stiffening of concrete	ε_2	= 1.0 x $b_t(T_w-x)(a'-x) / 3E_sA_s(d-x)$ =	0.000078
Average Strain	ε_m	= $\varepsilon_1-\varepsilon_2$ =	0.000825
Design Surface Crack Width	w	= $3a_{cr}\varepsilon_m / [1+2(a_{cr}/c_{min}) / (T_w-x)]$ =	0.18 mm
		<	0.2 mm

The crack width is acceptable. OK

A.3.2. Direct Tension in Immature Concrete

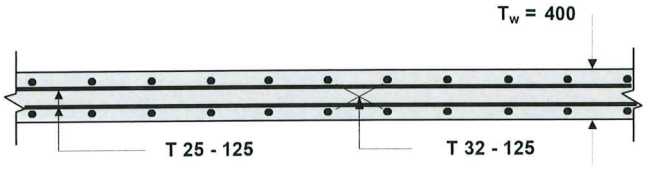
Critcial Steel Ratio	ρ_{crit}	= 0.0035		
Thickness of Surface Zone	h'	= 200 mm		
Required Steel Reinforcement		= ρ_{crit}bh' =	700 mm^2/m	OK
	f_{ct}/f_b	= 0.67		
Coefficient of Thermal Expansion	α	= 0.00001		
Anticipated Fall in Temperature	T_1	= 25 °C		

Vertical Direction:

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$ =	666.46 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$ =	0.08 mm	<	0.2 mm	OK

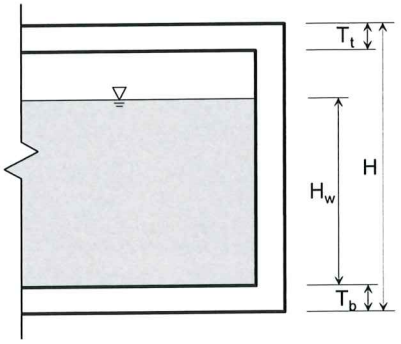
Horizontal Direction:

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$ =	853.07 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$ =	0.11 mm	<	0.2 mm	OK



RC Details of Side Wall (Plan View)

Project: LPH - YPR
Location: Zone 1 - Sediment Tank (SECTION A-A)



Design Data

Design Water Height	H_w	=	2.00 m
Height of Water Tank	H	=	5.25 m
Design Crack Width		=	0.2 mm
Concrete Grade		=	45 MPa

A. Design of Side Wall

A.1. Calculation of Internal Forces

A.2. Ultimate Limite State Design

ULS moment

Ultimate Design Moment	M_U	= 1.4M'	=	158.00 kNm/m		
Thickness of Side Wall	T_w	= 400 mm				
	b	= 1000 mm				
Cover	c_{min}	= 50 mm				
Effective Depth	d	= 340 mm				
	K	= $M_U/(b*d^2*f_{cu})$	=	0.0304	<	0.156
	z/d	= $0.5+\sqrt{0.25 - K/0.9}$			=	0.965
Lever Arm	z	= 0.95d	=	323.0 mm		
Depth to Neutral Axis	x	= (d-z) / 0.45	=	37.8 mm		
Required Reinforcement	$A_{s,req}$	= $M_U/0.87f_yz$	=	1222 mm^2/m		
Min. Vertical Reinforcement		= 0.2% x T_wb	=	800 mm^2/m		
Min. Horizontal Reinforcement		= 0.125% x T_wb	=	500 mm^2/m		

Vertical Bar:
Provide T 20 - 125

$A_{s,pro}$ = 2513 mm^2/m > 1222 mm^2/m (Steel Ratio = 0.63%) OK

Horizontal Bar:
Provide T 20 - 150

$A_{s,pro}$ = 2094 mm^2/m > 500 mm^2/m (Steel Ratio = 0.52%) OK

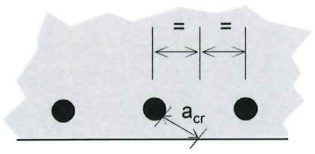
(Cont'd: Project: LPH - YPR Location: Zone 1 - Sediment Tank (SECTIC)

A.3. Serviceability Limit State Design

A.3.1. Flexural Tension in Mature Concrete

Design Service Moment	M	=	112.86 kNm/m	(SLS moment)	
	E_c	=	26400 MPa		
	E_s	=	205000 MPa		
Modular Ratio	α_e	=	$E_s/(E_c/2)$ = 15.53		(Includes Allowance for Creep)
	x/d	=	$-\alpha_e A_s + \sqrt{[(\alpha_e A_s)^2 + 2b\alpha_e A_s d]}/bd$	=	0.378
	x	=	128 mm		
Reinforcement Tensile Stress	f_s	=	$M / A_s(d-x/3)$ = 151.1 MPa		
Allowable Steel Stress		=	130 MPa < 151.1 MPa		(Table 3.1 of BS8007:1987)

Calculation of actual crack width is required.



Calculation of Actual Crack Width

Distance from zero strain	a_{cr}	= $\sqrt{(s/2)^2+(c_{min}+\phi/2)^2}-\phi/2$ =	77 mm	
Flexural Strain	ε_1	= $(T_w-x)f_s / (d-x)E_s$ =	0.000946	
	a'	= 400 mm		
Strain due to the stiffening of concrete	ε_2	= 1.0 x $b_t(T_w-x)(a'-x) / 3E_sA_s(d-x)$ =	0.000225	
Average Strain	ε_m	= $\varepsilon_1-\varepsilon_2$ =	0.000721	
Design Surface Crack Width	w	= $3a_{cr}\varepsilon_m / [1+2(a_{cr}/c_{min}) / (T_w-x)]$ =	0.16 mm	
		<	0.2 mm	

The crack width is acceptable. OK

A.3.2. Direct Tension in Immature Concrete

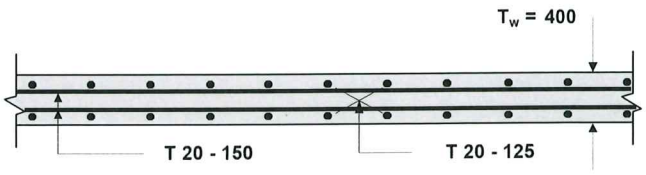
Critcial Steel Ratio	ρ_{crit}	=	0.0035		
Thickness of Surface Zone	h'	=	200 mm		
Required Steel Reinforcement		= $\rho_{crit}bh'$	=	700 mm^2/m	OK
	f_{ct}/f_b	=	0.67		
Coefficient of Thermal Expansion	α	=	0.00001		
Anticipated Fall in Temperature	T_1	=	25 °C		

Vertical Direction:

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$	=	1066.3 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$	=	0.13 mm	<	0.2 mm	OK

Horizontal Direction:

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$	=	1279.6 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$	=	0.16 mm	<	0.2 mm	OK



RC Details of Side Wall (Plan View)

Zone 2
Sewage Holding Tank

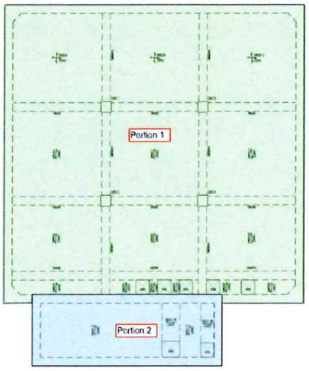
Zone 2
Overall Stability

(1) Bearing Pressure Check of Zone 2 Sediment Holding Tank

Portion 1

Area = 200 m2

No.	Load Type	Item	Density (kN/m3)	Thickness/Height (m)	Pressure (kPa)	Area (m2)	Total Load (kN)	
1	Dead	S.W. of Top Slab	24.5	0.2	4.9	196.9	964.7	*
2	Dead	450H Backfill (Top)	20	0.45	9	196.9	1771.9	*
3	Dead	RC Plinth	24.5	0.15	3.675	3.3	12.1	*
4	LL	L.L. of Top Slab	-	-	5	200.0	1000.0	
5	Dead	S.W. Bottom Slab	24.5	0.4	9.8	200.0	1960.0	*
6	Dead	S.W. of Column	24.5	4	98	1.0	98.0	*
7	Dead	S.W. of Beam	24.5	0.75	18	40.5	744.2	*
8	Dead	S.W. of Side Wall	24.5	0.4	10	193.6	1897.2	*
9	Dead	Finishes of Bottom Slab	-	-	1.25	181.0	226.3	
10	LL	Water Pressure	9.81	2	19.6	181.0	3551.2	
						Min DL Load	7448.1	kN
						Total	12226	kN



Portion 2

Area = 31.0 m2

No.	Load Type	Item	Density (kN/m3)	Thickness/Height (m)	Pressure (kPa)	Area (m2)	Total Load (kN)	
1	Dead	S.W. of Top Slab	24.5	0.2	4.9	29.2	143.0	*
2	Dead	150H Backfill (Top)	20	0.15	3	29.2	87.6	*
3	LL	L.L. of Top Slab	-	-	7.5	31.0	232.5	
4	Dead	S.W. of Middle Slab	24.5	0.2	4.9	2.0	9.8	*
5	SDL	S.D.L. of Middle Slab	-	-	1.25	2.0	2.5	
6	LL	L.L. of Middle Slab	-	-	7.5	2.0	15.0	
7	Dead	S.W. of Bottom Slab	24.5	0.4	9.8	31.0	303.8	*
8	Dead	Mass fill of Bottom Slab	24.5	0.2	4.9	6.4	31.4	*
9	LL	L.L. of Bottom Slab	-	-	7.5	21.5	161.3	
10	SDL	S.D.L. of Bottom Slab	-	-	1.25	21.5	26.9	
11	Dead	Side Wall Weight	24.5	0.4	10	118.11	1157.5	*
						Min DL Load	1733.1	kN
						Total	2171	kN

Total Bearing Pressure 62.3 kPa (w/o Wind)

(2) Uplift Check of Zone 2 Sediment Holding Tank

Uplift Pressure and Force

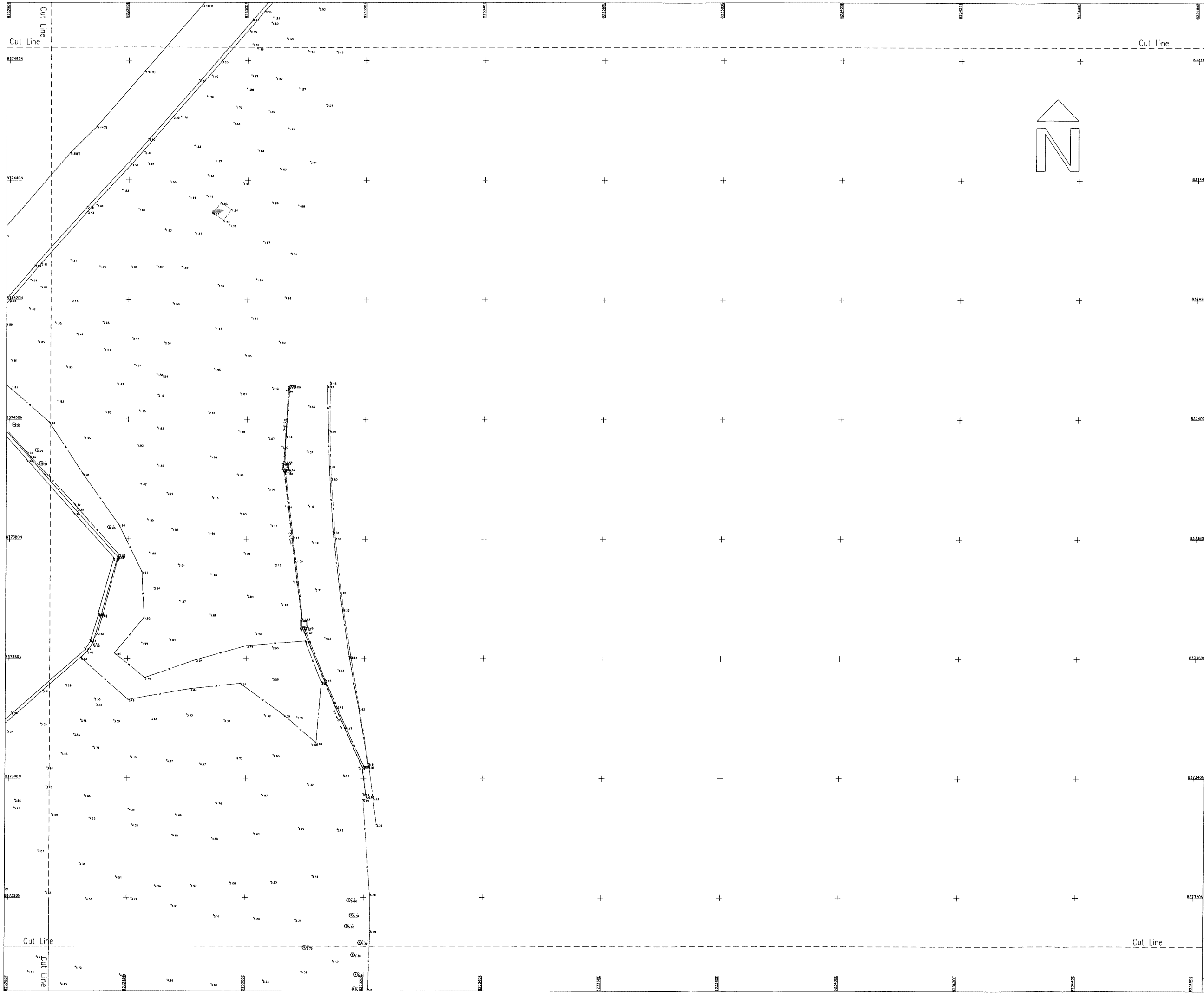
Portion	Area (m2)	Proposed Ground Level (mPD)	Top Level (mPD)	Water Level (mPD)	Bottom Level (mPD)	Water Depth (m)	Uplift (kPa)	Uplift (kN)	
Portion 1	200	4.7	4.25	2.1	-0.40	2.50	24.5	4905	
Portion 2	28.13	4.7	4.55	2.1	-0.70	2.80	27.5	773	
Portion 2	2.87	4.7	4.55	2.1	-1.00	3.10	30.4	87	(Sump Pit Area)
							Total	5765	

Total Min. DL (*) 9181 kN

$$FOS = \frac{9181}{5765} = 1.593 > 1.5 \text{ OK}$$

Zone 2 - Sewerage Holding Tank (Existing Topograpphy)

+1.99
+2.08
+2.01
+1.98
Track



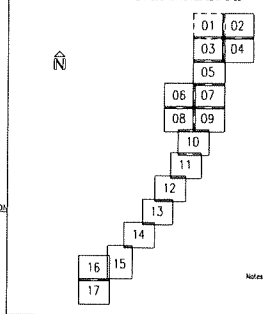
LEGEND:

- ARTIFICIAL SLOPE
- CHANNEL WITH FLOW DIRECTION (LBO: WIDTH OF CHANNEL)
- STEP CHANNEL WITH FLOW DIRECTION (LBO: WIDTH OF STEP CHANNEL)
- BOUNDARY LINE & BOUNDARY POINT
- GATE
- PERMANENT BUILDING AND CANOPY
- TREE WITH TREE NO.
- INCLINED WALL (BOTTOM)
- CRUVE
- CONTOURS
- TEMPORARY STRUCTURE
- PILLAR BOX
- HAND RAILING
- HOARDING
- KERB LINE (BOTTOM)
- SLOPE TOP
- SLOPE BOTTOM
- FENCE
- BARRIERS
- SIGN BOARD
- SIGN POLE
- LAMP POST
- TELEPHONE POLE
- TRAFFIC LIGHT
- FIRE HYDRANT
- ELECTRIC POLE
- PARKING METER
- BOLLARD AT ROAD
- GULLY
- GRATING
- BENCH
- VALVE FIRE
- VALVE GAS
- VALVE WATER WORKS
- MANHOLE
- MANHOLE, ATC
- MANHOLE, CABLE TV
- MANHOLE, ELECTRIC & MECHANICAL SERVICES DEPARTMENT
- MANHOLE, PCCW-HKT TELEPHONE LIMITED
- MANHOLE, DRAINAGE SERVICES DEPARTMENT
- MANHOLE, HUTCHISON COMMUNICATION LIMITED
- MANHOLE, HUTCHISON GLOBAL CROSSING LIMITED BROADBAND
- CATCH PIT
- MANHOLE, FOUL WATER/SEWER
- MANHOLE, STORM WATER
- MANHOLE, PACIFIC CENTURY CABLE & WIRELESS
- MANHOLE, NEW WORLD TELEPHONE
- MANHOLE, CLP POWER
- MANHOLE, WHAFF 1 & 1
- MANHOLE, TOWNGAS TELECOM
- MANHOLE, PUBLIC LIGHTING

ABBREVIATION:

BD	BOULDER
BE	BEAM
BS	BOUNDARY STONE
CA	CANOPY
CUL	CULVERT
CO	COLUMN
CONC	CONCRETE
EB	ELECTRIC BOX
END	END OF OBJECT
FB	FLOWER BED
FP	FOOTPATH
IL	INVERT LEVEL
KU	KERBLAN
PA	CATCHMENT
PL	PLATFORM
PO	POST
PZ	PIEZOMETER TUBE
RP	RAMP
RU	RUINS
SS	SHRINE
TS	TEMPORARY STRUCTURE
VB	VEHICLE BARRIER
WE	WELL
WP	WORK IN PROGRESS
WT	WATER TANK

PLAN OVERLAP TO ADJACENT SHEET



REVISION	DATE	DESCRIPTION
INITIAL	10/02/2023	---

SCALE 1 : 200 (A0 SIZE)

metres 0 4 8 12 16 20 metres

HONG KONG METRIC GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS IN METRES

NOTE
ALL SPOT LEVEL POSITIONS ARE THE DECIMAL POINT OR X CROSS

DATE OF SURVEY JANUARY 2023

ARCHITECTURAL SERVICES DEPARTMENT

Topographical Survey
Fairview Park
New Territories

SAM MAK & ASSOCIATES SURVEYORS (HK) LTD.

[redacted]

PRELIMINARY

(10/02/2023)

JESSICA PUI YET LEUNG MRICS MHKIS RPS(LS)
CHARTERED LAND SURVEYOR

PLAN NO. 9493/01 (Sheet 7 of 17)

Zone 2
RC Design – Top & Middle Slab & Bottom slab (Portion 2)

One Way Slab : SWBS2 Span L = 2.900 Thick.= 400
Simply Support Conc. : C45

(Blm Slab - portion 2)

Own Weight	9.800
Finish.	13.000
Total Dead Load	22.800
Live Load(N)	7.500
Up-lift	-56.000

Crack Width Limit = 0.2mm No Direct Tension.
-M^= $0.125*Q*L^2$ = 72.116
K = 0.0124
Z = 341.05
As= 600
Provided T12 @150 C/C

+M = $0.125*Q*L^2$ = 45.067
K = 0.0078
Z = 341.05
As= 600
Provided T12 @150 C/C
T12 @175 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 8.078 < Allowable = 39.239 O.K.
To Beam : 31.973 (10.875) {14.210, -81.200}

One Way Slab : SWGS1 Span L = 1.075 Thick.= 200
Continuous(End) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.
Near to End of Slab
-M = 0

Far from End of Slab
-M = $0.086*Q*L^2$ = 2.666
K = 0.0022
Z = 155.80
As= 300
Provided T12 @300 C/C

+M = $0.086*Q*L^2$ = 2.666
K = 0.0022
Z = 155.80
As= 300
Provided T12 @300 C/C
T10 @225 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 6.555 < Allowable = 46.000 O.K.
To Beam : 7.229 (2.688)

One Way Slab : SWGS2 Span L = 3.460 Thick.= 200
Continuous(2nd) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.000
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.
Near to End of Slab Far from End of Slab

-M = 0.086*Q*L^2 = 27.623
K = 0.0228
Z = 155.80
As= 408
Provided T12 @250 C/C

-M = 0.063*Q*L^2 = 20.235
K = 0.0167
Z = 155.80
As= 300
Provided T12 @300 C/C

+M = 0.063*Q*L^2 = 20.235
K = 0.0167
Z = 155.80
As= 300
Provided T12 @300 C/C
T10 @225 C/C (D.B.)

Span-Effective Depth Ratio : Actual = 21.098 < Allowable = 42.065 O.K.
To Beam : 23.269 (8.650)

One Way Slab : SWGS3 Span L = 4.335 Thick.= 200
Continuous(2nd) Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Near to End of Slab

-M = 0.086*Q*L^2 = 29.818
r = 0.426%
X/d= 0.299
Fs= 289.20 < 0.8Fy
Em= 0.00143
Acr= 66.13
Wcr= 0.1913 < 0.20 O.K.
As= 698
Provided T12 @125 C/C

+M = 0.063*Q*L^2 = 21.843
r = 0.293%
X/d= 0.256
Fs= 303.29 < 0.8Fy
Em= 0.00125
Acr= 100.28
Wcr= 0.1995 < 0.20 O.K.
As= 480
Provided T12 @200 C/C
T10 @225 C/C (D.B.)

Far from End of Slab

-M = 0.063*Q*L^2 = 21.843
r = 0.293%
X/d= 0.256
Fs= 303.29 < 0.8Fy
Em= 0.00125
Acr= 100.28
Wcr= 0.1995 < 0.20 O.K.
As= 480
Provided T12 @200 C/C

Span-Effective Depth Ratio : Actual = 26.433 < Allowable = 34.500 O.K.
To Beam : 29.153 (10.838)

Two Ways Slab : SWGS4 Short Span S = 4.530 Thick.= 200
2 A.E.Continue Long Span L = 4.800 L/S = 1.060 Conc. : C45

Own Weight	4.900
Finish.	9.000
Total Dead Load	13.900
Live Load(N)	5.000

Crack Width Limit = 0.2mm No Direct Tension.

Short Way Long Way

$-M = 0.052*Q*L^2 = 28.830$	$-M = 0.045*Q*L^2 = 17.037$
K = 0.0238	r = 0.293%
Z = 155.80	X/d= 0.256
As= 425	Fs= 275.39 < 0.8Fy
Provided T12 @225 C/C	Em= 0.00110
	Acr= 116.31
	Wcr= 0.1999 < 0.20 O.K.
	As= 445
	Provided T12 @225 C/C
$+M = 0.040*Q*L^2 = 21.790$	$+M = 0.034*Q*L^2 = 18.720$
K = 0.0180	K = 0.0180
Z = 155.80	Z = 144.40
As= 322	As= 300
Provided T12 @300 C/C	Provided T12 @300 C/C

Span-Effective Depth Ratio : Actual = 27.622 < Allowable = 34.250 O.K.
To Beam : 30.464 (11.325)

One Way Slab : SWGS13 Span L = 2.900 Thick.= 200
Simply Support Conc. : C45

Own Weight	4.900
Finish.	1.250
Total Dead Load	6.150
Live Load(N)	7.500

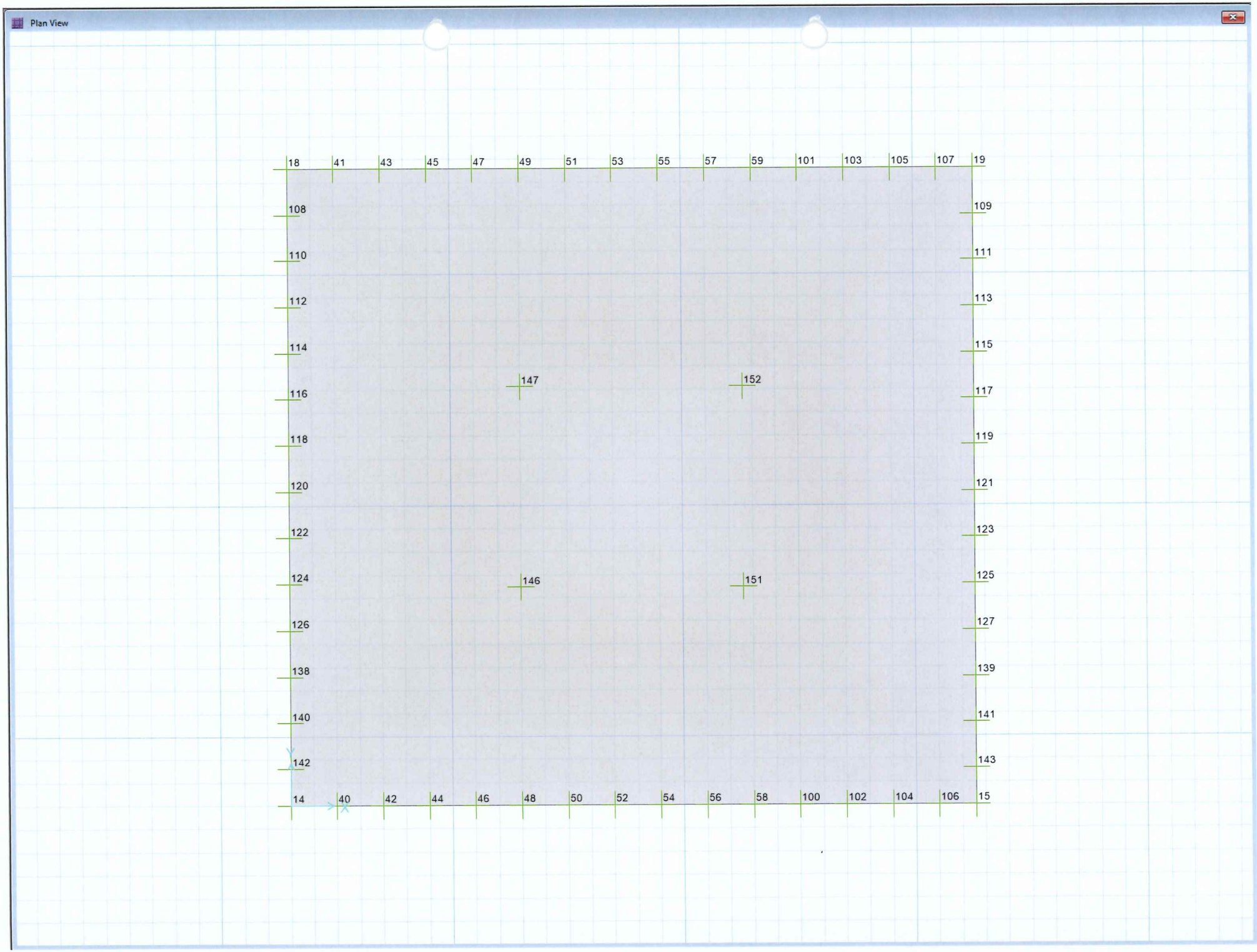
Crack Width Limit = 0.2mm No Direct Tension.
$+M = 0.125*Q*L^2 = 21.666$
K = 0.0179
Z = 155.80
As= 320
Provided T12 @300 C/C
T10 @225 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 17.683 < Allowable = 29.990 O.K.
To Beam : 8.918 (10.875)

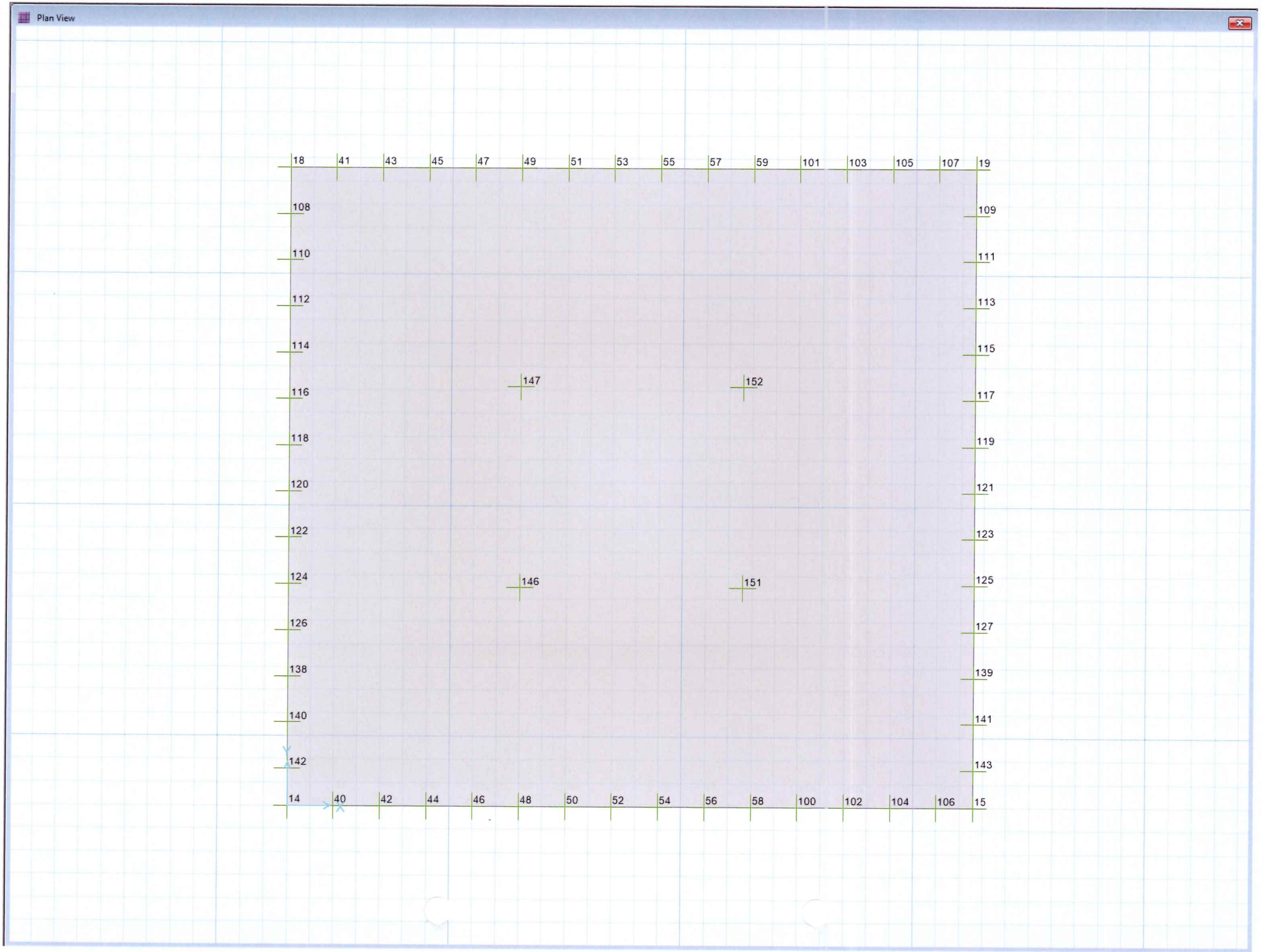
One Way Slab : SWMS1 Span L = 2.900 Thick.= 200
Simply Support Conc. : C45

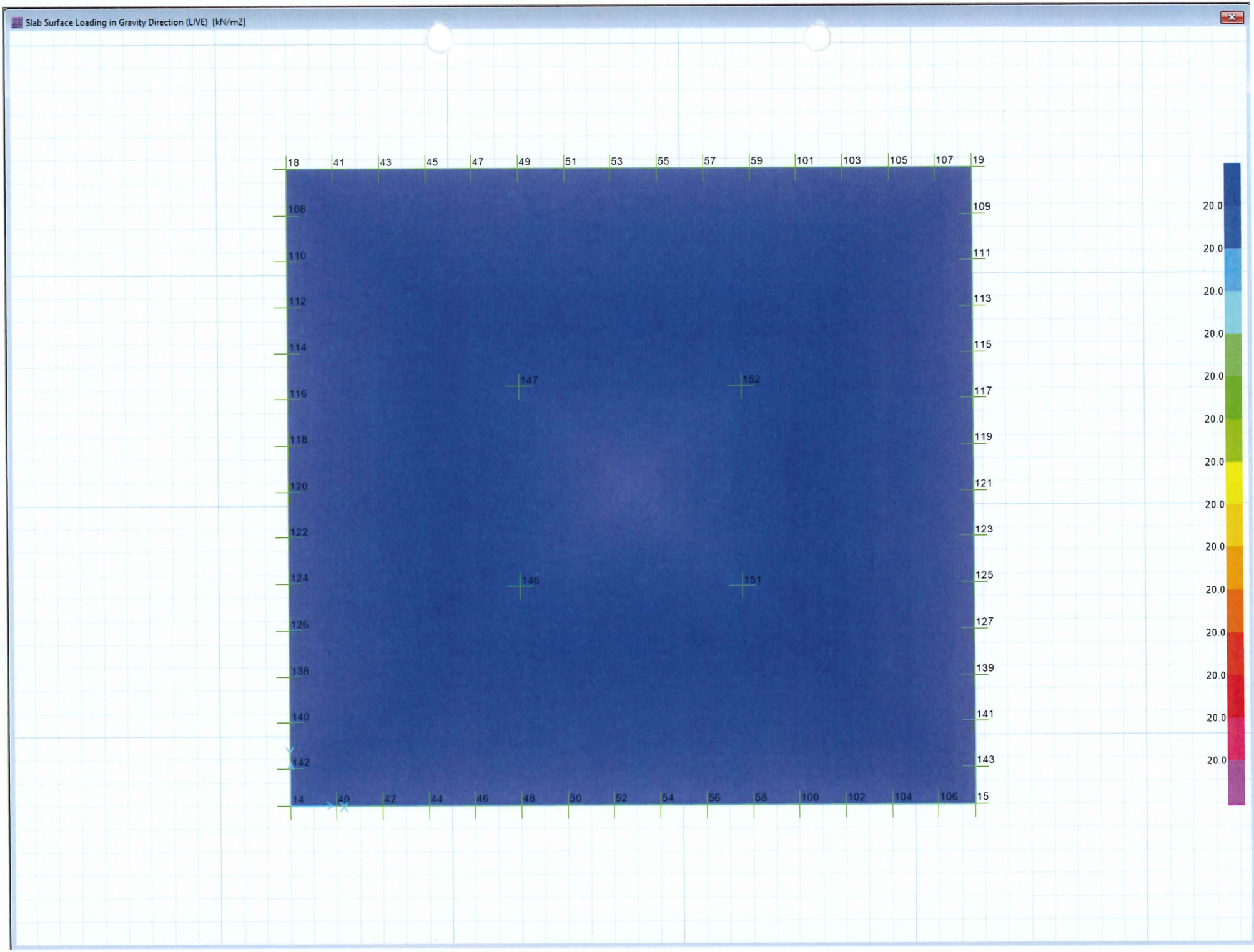
Own Weight	4.900
Finish.	1.250
Total Dead Load	6.150
Live Load(N)	7.500

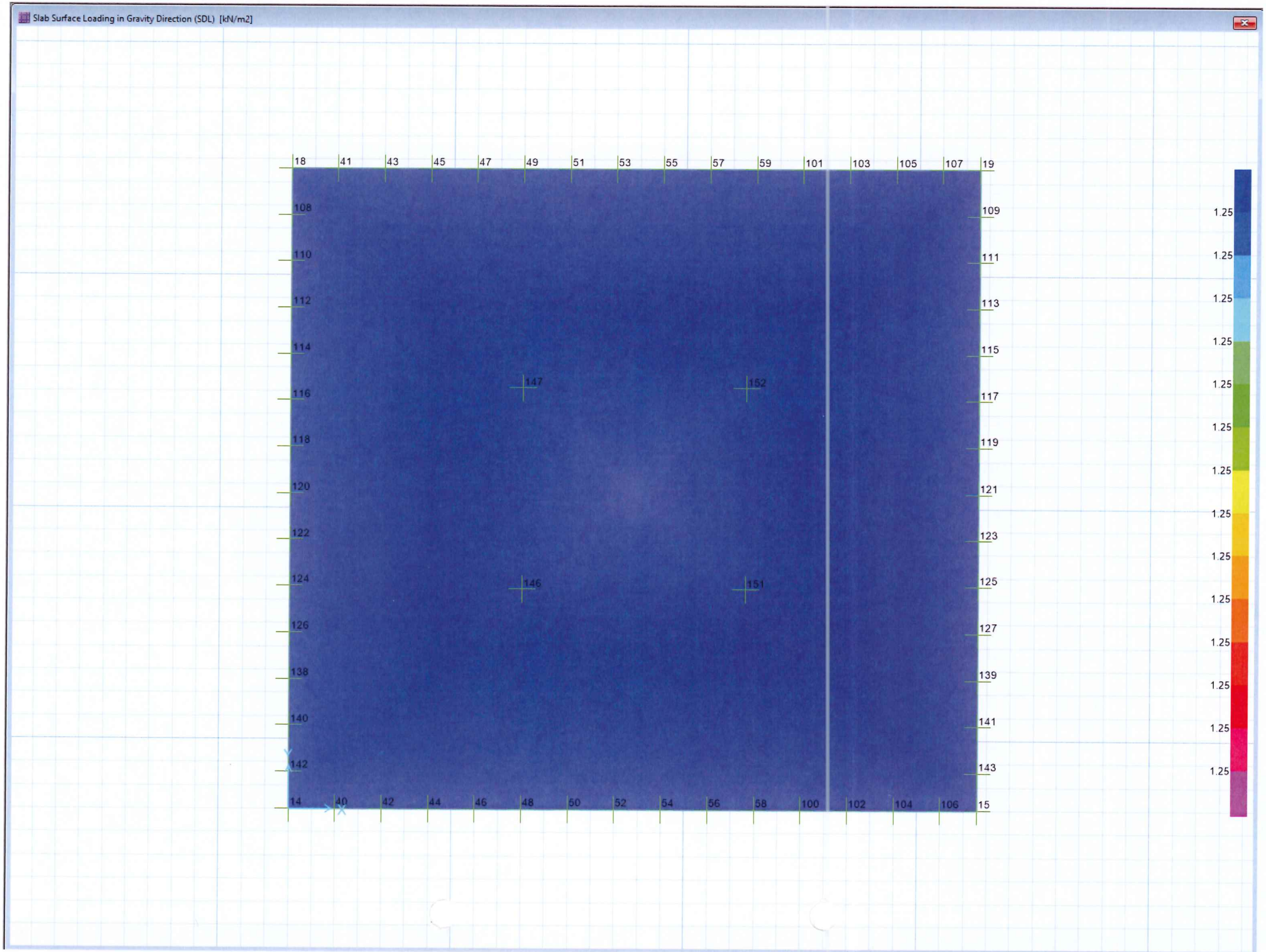
Crack Width Limit = 0.2mm No Direct Tension.
$+M = 0.125*Q*L^2 = 21.666$
K = 0.0190
Z = 151.05
As= 330
Provided T12 @300 C/C
T10 @225 C/C (D.B.)
Span-Effective Depth Ratio : Actual = 18.239 < Allowable = 28.591 O.K.
To Beam : 8.918 (10.875)

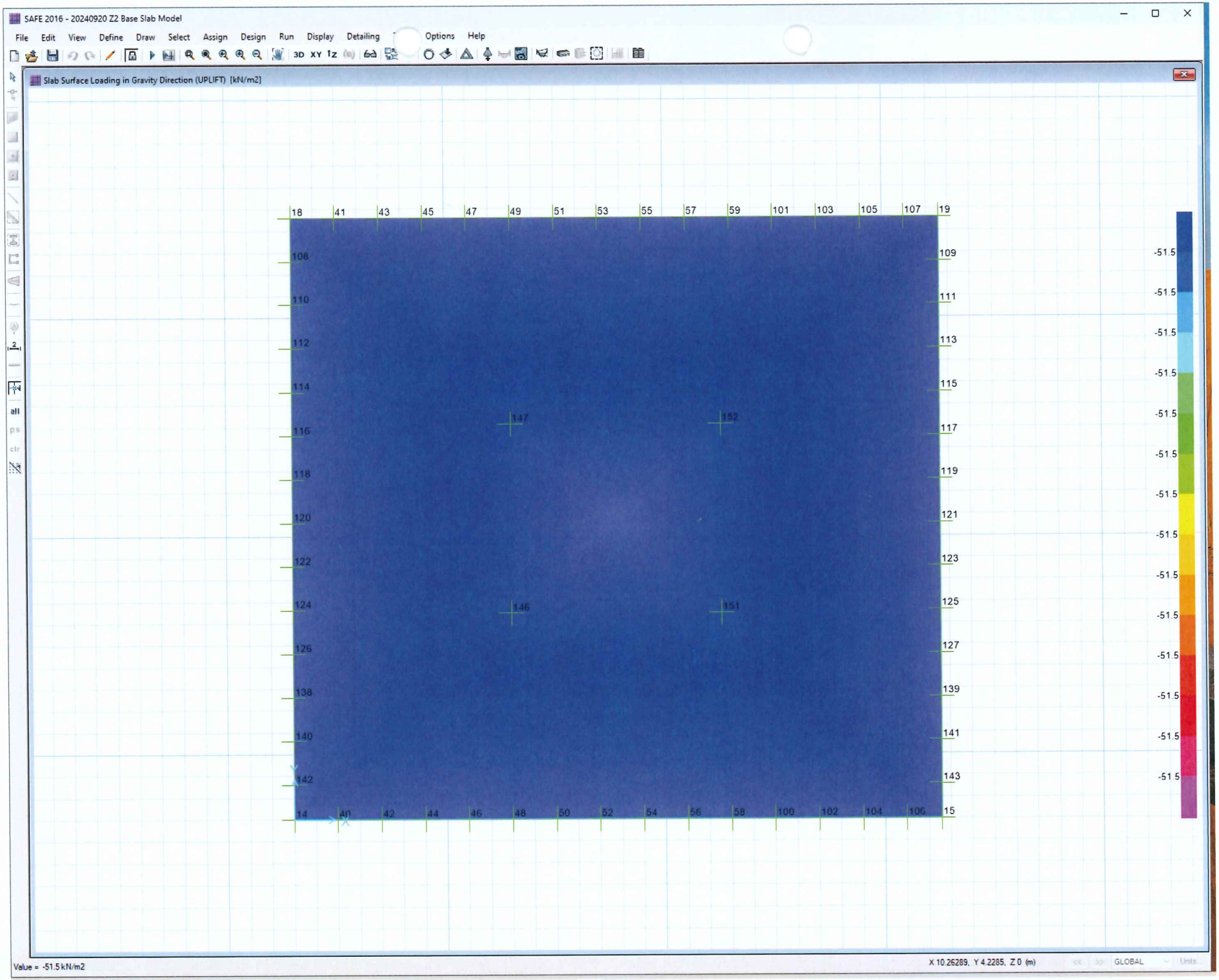
Zone 2
RC Design - Bottom Slab
(Portion 1)

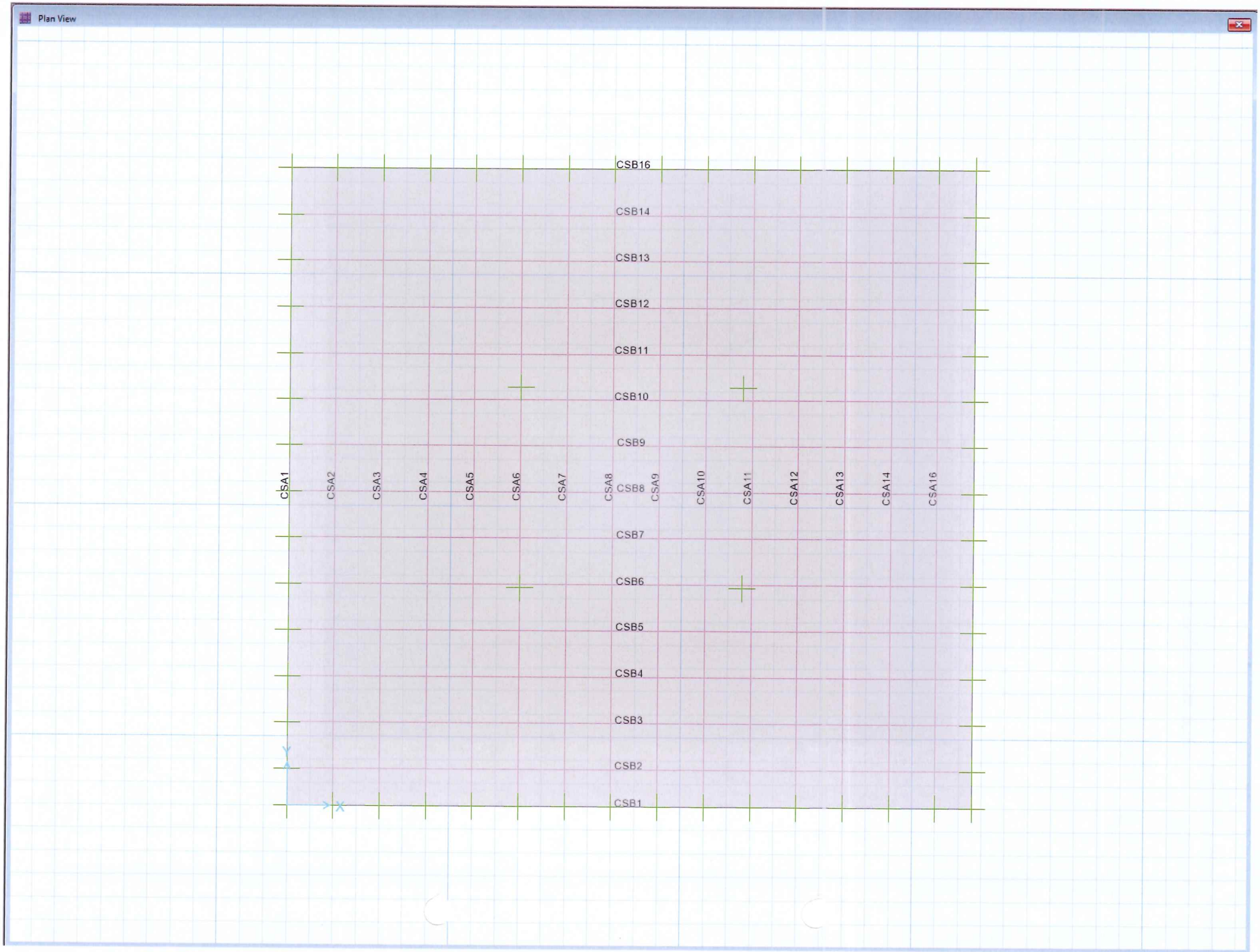

Plan View
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Plan View
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Slab Surface Loading in Gravity Direction (LIVE) [kN/m2]
18 41 43 45 47 49 51 53 55 57 59 101 103 105 107 19
108 109
110 111
112 113
114 115
147 152
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118 119
120 121
122 123
124 146 151 125
126 127
138 139
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142 143
14 40 42 44 46 48 50 52 54 56 58 100 102 104 106 15
20.0
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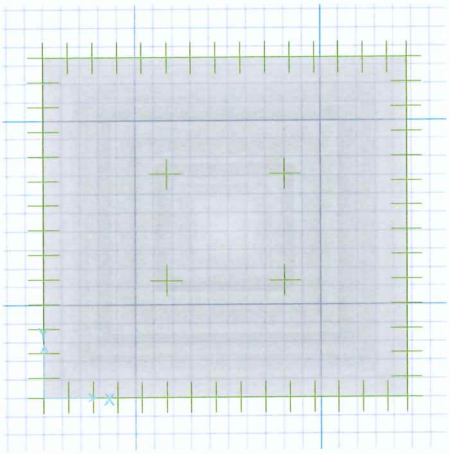

Slab Surface Loading in Gravity Direction (SDL) [kN/m2]
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SAFE 2016 - 20240920 Z2 Base Slab Model
File Edit View Define Draw Select Assign Design Run Display Detailing Options Help
Slab Surface Loading in Gravity Direction (UPLIFT) [kN/m2]
18 41 43 45 47 49 51 53 55 57 59 101 103 105 107 19
108 109
110 111
112 113
114 115
116 117
118 119
120 121
122 123
124 125
126 127
138 139
140 141
142 143
14 40 42 44 46 48 50 52 54 56 58 100 102 104 106 15
147 152 146 151
-51.5
Value = -51.5 kN/m2
X 10.26289, Y 4.2285, Z 0 (m)
GLOBAL


Plan View
CSB16
CSB14
CSB13
CSB12
CSB11
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CSA8
CSA9
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CSA16
Y
X

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SAFE Analysis & Design Report

Prepared by

HP Inc.

Model Name: 20240920 Z2 Base Slab Model.fdb

29 October 2024

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4. Design summary ..... Error! Bookmark not defined.
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    4.3. Slab design ..... Error! Bookmark not defined.
    4.4. Beam design ..... Error! Bookmark not defined.
    4.5. Punching check/design ..... Error! Bookmark not defined.

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Table 23: Slab Design Overwrites 01 - Strip Based ..... **Error! Bookmark not defined.**
Table 24: Slab Design Overwrites 02 - Finite Element Based, Part 1 of 2 ..... **Error! Bookmark not defined.**
Table 24: Slab Design Overwrites 02 - Finite Element Based, Part 2 of 2 ..... **Error! Bookmark not defined.**
Table 25: Punching Shear Design Overwrites 01 - General ..... **Error! Bookmark not defined.**

Model Definition

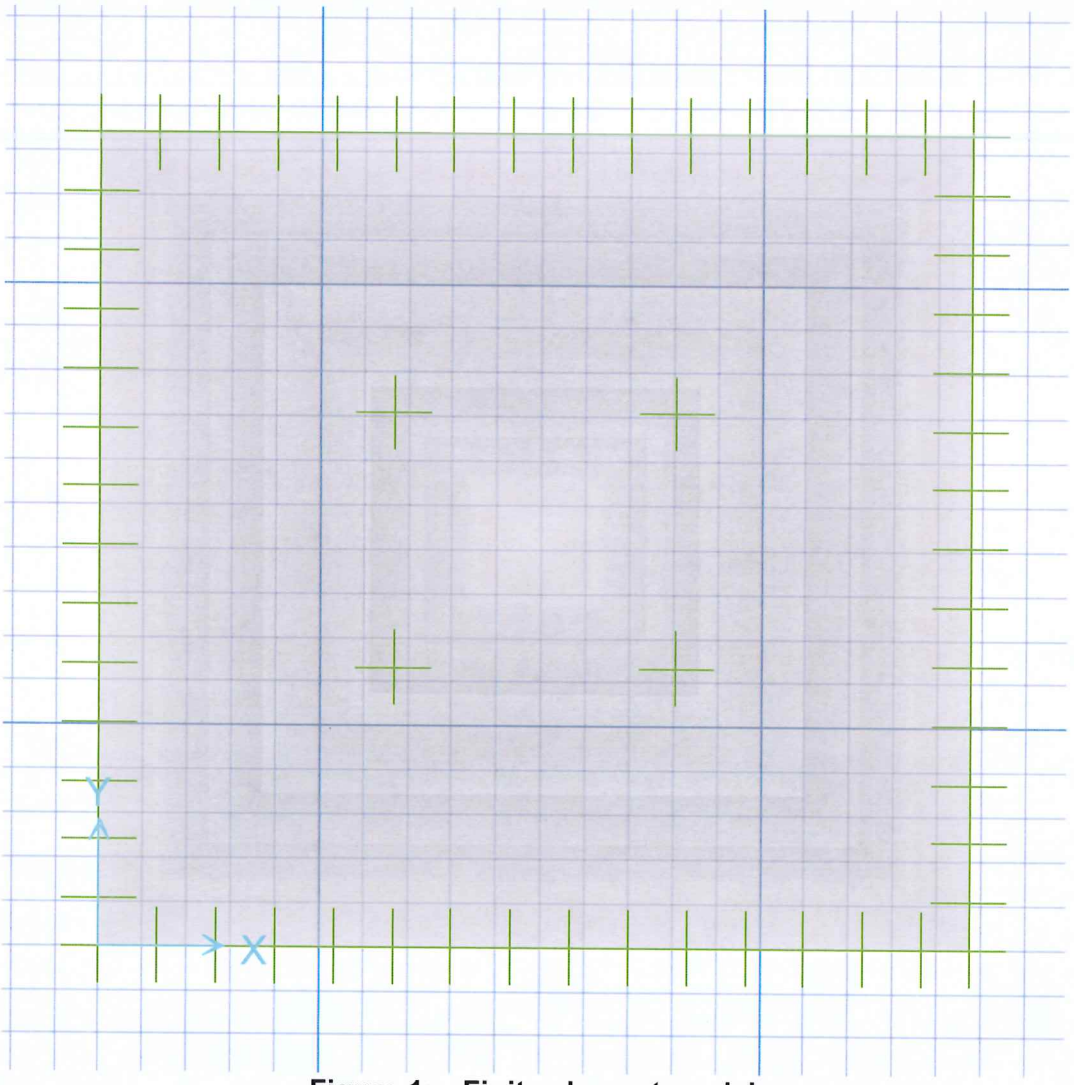


Figure 1: Finite element model

1. Model properties

This section provides model properties, including items such as material properties, section properties, and support properties.

1.1. Material properties

Table 1: Material Properties 03 - Concrete

Table 1: Material Properties 03 - Concrete

Material	E	U	A	UnitWt	Fc	LtWtConc	UserModRup
	N/mm2		1/C	kN/m3	N/mm2		
C45	26400.00000	0.200000	9.9000E-06	2.4500E+01	45.00000	No	No
CSAC30	26667.31234	0.200000	9.9000E-06	2.3563E+01	30.00000	No	No

Table 2: Material Properties 04 - Rebar

Table 2: Material Properties 04 - Rebar

Material	E	UnitWt	Fy	Fu
	N/mm2	kN/m3	N/mm2	N/mm2
CSA-G30.18Gr400	200000	7.6973E+01	400.00000	500.00000

Table 3: Material Properties 05 - Tendon

Table 3: Material Properties 05 - Tendon

Material	E	UnitWt	Fy	Fu
	N/mm2	kN/m3	N/mm2	N/mm2
A416MGr186	196501	7.6973E+01	1690.00000	1860.00000

1.2. Section properties

Table 4: Slab Properties 02 - Solid Slabs

Table 4: Slab Properties 02 - Solid Slabs

Slab	Type	MatProp	Thickness	Ortho
			mm	
400THK	Slab	C45	400.000	No
450THK	Slab	C45	450.000	No
500THK	Slab	C45	500.000	No
SLAB1	Slab	C45	500.000	No
STIFF	Stiff	C45	500.000	No

Table 5: Beam Properties 02 - Rectangular Beam

Table 5: Beam Properties 02 - Rectangular Beam

Beam	MatProp	Depth mm	WidthTop mm	WidthBot mm
BEAM1	CSAC30	600.000	300.000	300.000

Table 6: Beam Properties 06 - Design Data

Table 6: Beam Properties 06 - Design Data

Beam	MatRebarL	MatRebarS	FlngWOpt	CoverTop mm	CoverBot mm	NoDesign
BEAM1	CSA-G30.18Gr400	CSA-G30.18Gr400	Analysis Property	75.000	75.000	No

Table 7: Tendon Properties

Table 7: Tendon Properties

TendonProp	MatProp	StrandArea mm2
TENDON1	A416MGr186	98.71

Table 8: Column Properties 02 - Rectangular

Table 8: Column Properties 02 - Rectangular

Column	MatProp	SecDim2 mm	SecDim3 mm	AutoRigid	AutoDrop	IncludeCap
COL1	C45	500.000	500.000	Yes	No	No

1.3. Support properties

Table 9: Soil Properties

Table 9: Soil Properties

Soil	Subgrade kN/m3	NonlinOpt
SOIL1	2.0000E+04	Compression Only

Table 10: Spring Properties - Point

Table 10: Spring Properties - Point

Spring	Ux kN/mm	Uy kN/mm	Uz kN/mm	Rx kN-mm/rad	Ry kN-mm/rad	Rz kN-mm/rad	NonlinOpt
PSPR1	0.00000	0.00000	0.00100	0.00	0.00	0.00	None (Linear)

Table 11: Spring Properties - Line

Table 11: Spring Properties - Line

Spring	VertStiff kN/mm/mm	RotStiff kN/rad	NonlinOpt
LSPR1	0.001000	1.000E-003	None (Linear)

2. Model assignments

This section provides model assignments, including assignments to slabs, beams, and joints.

2.1. Slab assignments

Table 12: Slab Property Assignments

Table 12: Slab Property Assignments

Area	SlabProp
1	400THK

2.2. Support assignments

Table 13: Point Restraint Assignments

Table 13: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
14	Yes	Yes	Yes	No	No	No
15	Yes	Yes	Yes	No	No	No
18	Yes	Yes	Yes	No	No	No
19	Yes	Yes	Yes	No	No	No
40	Yes	Yes	Yes	No	No	No
41	Yes	Yes	Yes	No	No	No
42	Yes	Yes	Yes	No	No	No
43	Yes	Yes	Yes	No	No	No
44	Yes	Yes	Yes	No	No	No
45	Yes	Yes	Yes	No	No	No
46	Yes	Yes	Yes	No	No	No
47	Yes	Yes	Yes	No	No	No
48	Yes	Yes	Yes	No	No	No
49	Yes	Yes	Yes	No	No	No
50	Yes	Yes	Yes	No	No	No
51	Yes	Yes	Yes	No	No	No
52	Yes	Yes	Yes	No	No	No
53	Yes	Yes	Yes	No	No	No
54	Yes	Yes	Yes	No	No	No
55	Yes	Yes	Yes	No	No	No
56	Yes	Yes	Yes	No	No	No
57	Yes	Yes	Yes	No	No	No
58	Yes	Yes	Yes	No	No	No
59	Yes	Yes	Yes	No	No	No
100	Yes	Yes	Yes	No	No	No
101	Yes	Yes	Yes	No	No	No
102	Yes	Yes	Yes	No	No	No
103	Yes	Yes	Yes	No	No	No
104	Yes	Yes	Yes	No	No	No
105	Yes	Yes	Yes	No	No	No
106	Yes	Yes	Yes	No	No	No

Table 13: Point Restraint Assignments

Point	Ux	Uy	Uz	Rx	Ry	Rz
107	Yes	Yes	Yes	No	No	No
108	Yes	Yes	Yes	No	No	No
109	Yes	Yes	Yes	No	No	No
110	Yes	Yes	Yes	No	No	No
111	Yes	Yes	Yes	No	No	No
112	Yes	Yes	Yes	No	No	No
113	Yes	Yes	Yes	No	No	No
114	Yes	Yes	Yes	No	No	No
115	Yes	Yes	Yes	No	No	No
116	Yes	Yes	Yes	No	No	No
117	Yes	Yes	Yes	No	No	No
118	Yes	Yes	Yes	No	No	No
119	Yes	Yes	Yes	No	No	No
120	Yes	Yes	Yes	No	No	No
121	Yes	Yes	Yes	No	No	No
122	Yes	Yes	Yes	No	No	No
123	Yes	Yes	Yes	No	No	No
124	Yes	Yes	Yes	No	No	No
125	Yes	Yes	Yes	No	No	No
126	Yes	Yes	Yes	No	No	No
127	Yes	Yes	Yes	No	No	No
138	Yes	Yes	Yes	No	No	No
139	Yes	Yes	Yes	No	No	No
140	Yes	Yes	Yes	No	No	No
141	Yes	Yes	Yes	No	No	No
142	Yes	Yes	Yes	No	No	No
143	Yes	Yes	Yes	No	No	No
146	Yes	Yes	Yes	No	No	No
147	Yes	Yes	Yes	No	No	No
151	Yes	Yes	Yes	No	No	No
152	Yes	Yes	Yes	No	No	No

3. Model loading

This section provides model loading information, including load patterns, load cases, and load combinations.

3.1. Load patterns

Table 14: Load Patterns

Table 14: Load Patterns

LoadPat	Type	SelfWtMult
DEAD	DEAD	1.000000
LIVE	LIVE	0.000000
SDL	SUPER DEAD	0.000000
UPLIFT	OTHER	0.000000

Table 15: Load Assignments - Surface Loads

Table 15: Load Assignments - Surface Loads

Area	LoadPat	Dir	UnifLoad	A	B	C
			kN/m2	kN/m3	kN/m3	kN/m2
1	LIVE	Gravity	20.00	0.0000E+00	0.0000E+00	0.00
1	UPLIFT	Gravity	-51.50	0.0000E+00	0.0000E+00	0.00
1	SDL	Gravity	1.25	0.0000E+00	0.0000E+00	0.00

3.2. Load cases

Table 16: Load Cases 02 - Static

Table 16: Load Cases 02 - Static

LoadCase	InitialCond	AType
DEAD	Zero	Linear
LIVE	Zero	Linear
SDL	Zero	Linear
UPLIFT	Zero	Linear

Table 17: Load Cases 06 - Loads Applied

Table 17: Load Cases 06 - Loads Applied

LoadCase	LoadPat	SF
DEAD	DEAD	1.000000
LIVE	LIVE	1.000000
SDL	SDL	1.000000
UPLIFT	UPLIFT	1.000000

3.3. Load combinations

Table 18: Load Combinations

Table 18: Load Combinations

Combo	Load	SF	Type	DSStrength	DSServInit	DSServNorm	DSServLong
1.4DLSDL+1.4UP	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.4UP	UPLIFT	1.400000					
1.4DLSDL+1.4UP	SDL	1.400000					
1.4DLSDL+1.6LL	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.6LL	SDL	1.400000					
1.4DLSDL+1.6LL	LIVE	1.600000					
1.4DLSDL+1.6LL+1.4UP	DEAD	1.400000	Linear Add	Yes	No	No	No
1.4DLSDL+1.6LL+1.4UP	SDL	1.400000					
1.4DLSDL+1.6LL+1.4UP	LIVE	1.600000					
1.4DLSDL+1.6LL+1.4UP	UPLIFT	1.400000					
1DL+1.4UP	DEAD	1.000000	Linear Add	Yes	No	No	No
1DL+1.4UP	UPLIFT	1.400000					
COMB1	UPLIFT	1.000000	Linear Add	Yes	No	Yes	No
DCONU1	DEAD	1.400000	Linear Add	No	No	No	No
DCONU1	SDL	1.400000					
DCONU2	DEAD	1.400000	Linear Add	No	No	No	No
DCONU2	LIVE	1.600000					
DCONU2	SDL	1.400000					

TABLE: Concrete Slab Design 01 - Flexural And Shear Data

Strip	Station	ConcWidth	FTopCombo	FTopMoment	FTopArea	FTopAMin	FBotCombo	FBotMoment	FBotArea	FBotAMin	AxialForce	VCombo	VForce	VArea	Status	GlobalX	GlobalY	Layer	
Text	m	m	Text	kN-m	mm2	mm2	Text	kN-m	mm2	mm2	kN	Text	kN	mm2/m	Text	m	m	Text	
CSA1	0	0.5	1DL+1.4UP	-47.6527	438.529	322.857	1.4DLSDL+1.6LL	36.3094	332.184	0	-8.558E-18	1DL+1.4UP	25.279	0	OK	0	0	A	500
CSA1	0.8	0.5	1DL+1.4UP	-44.9469	413.046	322.857	1DL+1.4UP	34.4202	314.597	322.857	-4.246E-18	1DL+1.4UP	25.279	0	OK	0	0.8	A	500
CSA1	1.8	0.5	1DL+1.4UP	-29.5131	269.072	322.857	1.4DLSDL+1.6LL	22.4878	204.296	0	-1.709E-17	1DL+1.4UP	15.87	0	OK	0	1.8	A	500
CSA1	2.8	0.5	1DL+1.4UP	-15.5997	141.233	322.857	1.4DLSDL+1.6LL	11.8863	107.415	0	-3.683E-17	1DL+1.4UP	7.591	0	OK	0	2.8	A	500
CSA1	3.8	0.5	1DL+1.4UP	-5.0642	45.611	322.857	1DL+1.4UP	4.538	40.861	322.857	-9.909E-17	1DL+1.4UP	4.482	0	OK	0	3.8	A	500
CSA1	4.8	0.5	1DL+1.4UP	-4.3006	38.719	0	1DL+1.4UP	4.5693	41.144	322.857	-2.63E-16	1DL+1.4UP	37.216	0	OK	0	4.8	A	500
CSA1	5.8	0.5	1DL+1.4UP	-3.807	34.267	322.857	1.4DLSDL+1.6LL	2.9008	26.099	0	-3.353E-17	1DL+1.4UP	2.511	0	OK	0	5.8	A	500
CSA1	6.8	0.5	1DL+1.4UP	-4.0652	36.596	322.857	1.4DLSDL+1.6LL	3.0975	27.871	0	-1.337E-16	1DL+1.4UP	2.445	0	OK	0	6.8	A	500
CSA1	7.8	0.5	1DL+1.4UP	-2.2896	20.593	322.857	1DL+1.4UP	2.1753	19.564	0	-1.967E-16	1DL+1.4UP	10.364	0	OK	0	7.8	A	500
CSA1	8.8	0.5	1.4DLSDL+1.6LL	-4.4286	39.874	0	1DL+1.4UP	5.8121	52.367	322.857	-2.173E-16	1DL+1.4UP	32.123	0	OK	0	8.8	A	500
CSA1	9.8	0.5	1DL+1.4UP	-3.7425	33.686	0	1DL+1.4UP	4.5787	41.228	322.857	-7.241E-17	1DL+1.4UP	5.586	0	OK	0	9.8	A	500
CSA1	10.8	0.5	1DL+1.4UP	-13.6619	123.569	322.857	1.4DLSDL+1.6LL	10.4098	94.003	0	-4.451E-17	1DL+1.4UP	6.76	0	OK	0	10.8	A	500
CSA1	11.8	0.5	1DL+1.4UP	-26.5666	241.847	322.857	1.4DLSDL+1.6LL	20.2427	183.692	0	-1.929E-17	1DL+1.4UP	14.153	0	OK	0	11.8	A	500
CSA1	12.8	0.5	1DL+1.4UP	-42.3671	388.817	322.857	1.4DLSDL+1.6LL	32.2819	294.731	0	-8.447E-18	1DL+1.4UP	16.983	0	OK	0	12.8	A	500
CSA1	13.8	0.5	1DL+1.4UP	-46.4005	426.727	322.857	1.4DLSDL+1.6LL	35.3552	323.297	0	-8.086E-18	1DL+1.4UP	16.983	0	OK	0	13.8	A	500
CSA2	0	1	1DL+1.4UP	-67.6788	618.391	645.714	1.4DLSDL+1.6LL	51.5684	469.264	0	-2.458E-17	1DL+1.4UP	12.172	0	OK	1	0	A	1000
CSA2	0.8	1	1DL+1.4UP	-89.9134	826.276	645.714	1.4DLSDL+1.6LL	68.5103	626.122	0	-1.223E-17	1DL+1.4UP	12.172	0	OK	1	0.8	A	1000
CSA2	1.8	1	1DL+1.4UP	-75.5946	692.123	645.714	1.4DLSDL+1.6LL	57.5999	524.951	0	-2.129E-17	1DL+1.4UP	6.152	0	OK	1	1.8	A	1000
CSA2	2.8	1	1DL+1.4UP	-51.2586	466.408	645.714	1.4DLSDL+1.6LL	39.0569	354.296	0	-2.124E-17	1DL+1.4UP	8.188	0	OK	1	2.8	A	1000
CSA2	3.8	1	1DL+1.4UP	-31.0542	281.139	645.714	1.4DLSDL+1.6LL	23.662	213.824	0	-5.184E-18	1DL+1.4UP	8.188	0	OK	1	3.8	A	1000
CSA2	4.8	1	1DL+1.4UP	-28.6247	258.989	645.714	1.4DLSDL+1.6LL	21.8108	197.006	0	-8.331E-16	1DL+1.4UP	27.616	0	OK	1	4.8	A	1000
CSA2	5.8	1	1DL+1.4UP	-21.7777	196.706	645.714	1.4DLSDL+1.6LL	16.5937	149.69	0	-3.094E-16	1DL+1.4UP	5.619	0	OK	1	5.8	A	1000
CSA2	6.8	1	1DL+1.4UP	-19.1104	172.5	645.714	1.4DLSDL+1.6LL	14.5614	131.291	0	-3.918E-16	1DL+1.4UP	5.619	0	OK	1	6.8	A	1000
CSA2	7.8	1	1DL+1.4UP	-17.0999	154.275	645.714	1.4DLSDL+1.6LL	13.0294	117.434	0	-2.13E-16	1DL+1.4UP	10.941	0	OK	1	7.8	A	1000
CSA2	8.8	1	1DL+1.4UP	-20.1767	182.172	645.714	1.4DLSDL+1.6LL	15.3738	138.644	0	-2.45E-16	1DL+1.4UP	27.735	0	OK	1	8.8	A	1000
CSA2	9.8	1	1DL+1.4UP	-28.0444	253.701	645.714	1.4DLSDL+1.6LL	21.3686	192.991	0	-5.512E-17	1DL+1.4UP	10.354	0	OK	1	9.8	A	1000
CSA2	10.8	1	1DL+1.4UP	-46.9429	426.675	645.714	1.4DLSDL+1.6LL	35.7685	324.2	0	-3.72E-17	1DL+1.4UP	10.354	0	OK	1	10.8	A	1000
CSA2	11.8	1	1DL+1.4UP	-70.2276	642.099	645.714	1.4DLSDL+1.6LL	53.5105	487.176	0	-3.168E-17	1DL+1.4UP	7.071	0	OK	1	11.8	A	1000
CSA2	12.8	1	1DL+1.4UP	-89.6073	823.397	645.714	1.4DLSDL+1.6LL	68.277	623.953	0	-1.372E-17	1DL+1.4UP	13.585	0	OK	1	12.8	A	1000
CSA2	13.8	1	1DL+1.4UP	-67.5403	617.105	645.714	1.4DLSDL+1.6LL	51.4629	468.292	0	-2.417E-17	1DL+1.4UP	13.585	0	OK	1	13.8	A	1000
CSA3	0	1	1.4DLSDL+1.6LL	-36.121	327.424	0	1DL+1.4UP	47.4055	430.93	645.714	-3.641E-17	1DL+1.4UP	91.659	0	OK	2	0	A	1000
CSA3	0.8	1	1DL+1.4UP	-92.8858	854.253	645.714	1.4DLSDL+1.6LL	70.7751	647.196	0	-3.175E-17	1DL+1.4UP	91.659	0	OK	2	0.8	A	1000
CSA3	1.8	1	1DL+1.4UP	-94.023	864.967	645.714	1.4DLSDL+1.6LL	71.6416	655.265	0	-4.315E-17	1DL+1.4UP	36.427	0	OK	2	1.8	A	1000
CSA3	2.8	1	1DL+1.4UP	-79.2369	726.151	645.714	1.4DLSDL+1.6LL	60.3752	550.632	0	-2.924E-17	1DL+1.4UP	12.417	0	OK	2	2.8	A	1000
CSA3	3.8	1	1DL+1.4UP	-54.9882	500.816	645.714	1.4DLSDL+1.6LL	41.8987	380.345	0	-2.836E-17	1DL+1.4UP	12.417	0	OK	2	3.8	A	1000
CSA3	4.8	1	1DL+1.4UP	-29.4473	266.486	645.714	1.4DLSDL+1.6LL	22.4376	202.699	0	-2.791E-15	1DL+1.4UP	9.852	0	OK	2	4.8	A	1000
CSA3	5.8	1	1DL+1.4UP	-26.391	238.646	645.714	1.4DLSDL+1.6LL	20.1088	181.556	0	-2.045E-15	1DL+1.4UP	9.852	0	OK	2	5.8	A	1000
CSA3	6.8	1	1DL+1.4UP	-28.3921	256.87	645.714	1.4DLSDL+1.6LL	21.6336	195.397	0	-6.197E-16	1DL+1.4UP	8.124	0	OK	2	6.8	A	1000
CSA3	7.8	1	1DL+1.4UP	-24.5755	222.129	645.714	1.4DLSDL+1.6LL	18.7255	169.009	0	-1.553E-16	1DL+1.4UP	1.128	0	OK	2	7.8	A	1000
CSA3	8.8	1	1DL+1.4UP	-23.5445	212.756	645.714	1.4DLSDL+1.6LL	17.9399	161.887	0	-4.763E-16	1DL+1.4UP	7.111	0	OK	2	8.8	A	1000
CSA3	9.8	1	1DL+1.4UP	-47.9251	435.711	645.714	1.4DLSDL+1.6LL	36.517	331.045	0	-1.143E-16	1DL+1.4UP	14.981	0	OK	2	9.8	A	1000
CSA3	10.8	1	1DL+1.4UP	-75.7503	693.576	645.714	1.4DLSDL+1.6LL	57.7186	526.048	0	-4.686E-17	1DL+1.4UP	14.981	0	OK	2	10.8	A	1000
CSA3	11.8	1	1DL+1.4UP	-90.3479	830.363	645.714	1.4DLSDL+1.6LL	68.8413	629.201	0	-4.841E-17	1DL+1.4UP	28.161	0	OK	2	11.8	A	1000

CSA3	12.8	1	1DL+1.4UP	-96.0077	883.684	645.714	1.4DLSDL+1.6LL	73.1539	669.356	0	-3.076E-17	1DL+1.4UP	78.227	0	OK	2	12.8	A	1000
CSA3	13.8	1	1.4DLSDL+1.6LL	-34.6315	313.805	0	1DL+1.4UP	45.4507	412.957	645.714	-3.628E-17	1DL+1.4UP	78.227	0	OK	2	13.8	A	1000
CSA4	0	1	1.4DLSDL+1.6LL	-19.5673	176.644	0	1DL+1.4UP	25.6803	232.179	645.714	-6.375E-17	1DL+1.4UP	107.894	0	OK	3	0	A	1000
CSA4	0.8	1	1DL+1.4UP	-84.9837	779.974	645.714	1.4DLSDL+1.6LL	64.754	591.226	0	-5.631E-17	1DL+1.4UP	107.894	0	OK	3	0.8	A	1000
CSA4	1.8	1	1DL+1.4UP	-111.9082	1034.354	645.714	1.4DLSDL+1.6LL	85.2694	782.655	0	-4.885E-17	1DL+1.4UP	48.313	0	OK	3	1.8	A	1000
CSA4	2.8	1	1DL+1.4UP	-116.7441	1080.436	645.714	1.4DLSDL+1.6LL	88.9541	817.257	0	-8.51E-17	1DL+1.4UP	34.687	0	OK	3	2.8	A	1000
CSA4	3.8	1	1DL+1.4UP	-68.2814	623.993	645.714	1.4DLSDL+1.6LL	52.0275	473.497	0	-1.737E-16	1DL+1.4UP	41.824	0	OK	3	3.8	A	1000
CSA4	4.8	1	1.4DLSDL+1.6LL	-18.4779	166.764	0	1DL+1.4UP	24.2505	219.174	645.714	-5.338E-15	1DL+1.4UP	31.305	0	OK	3	4.8	A	1000
CSA4	5.8	1	1DL+1.4UP	-27.741	250.938	645.714	1.4DLSDL+1.6LL	21.1375	190.892	0	-3.101E-15	1DL+1.4UP	31.305	0	OK	3	5.8	A	1000
CSA4	6.8	1	1DL+1.4UP	-36.008	326.39	645.714	1.4DLSDL+1.6LL	27.4366	248.166	0	-4.821E-16	1DL+1.4UP	16	0	OK	3	6.8	A	1000
CSA4	7.8	1	1DL+1.4UP	-36.4091	330.058	645.714	1.4DLSDL+1.6LL	27.7422	250.949	0	-4.247E-16	1DL+1.4UP	15.325	0	OK	3	7.8	A	1000
CSA4	8.8	1	1DL+1.4UP	-18.4594	166.597	645.714	1.4DLSDL+1.6LL	14.0653	126.803	0	-8.002E-16	1DL+1.4UP	4.166	0	OK	3	8.8	A	1000
CSA4	9.8	1	1DL+1.4UP	-53.3326	485.534	645.714	1.4DLSDL+1.6LL	40.6372	368.777	0	-1.082E-16	1DL+1.4UP	39.06	0	OK	3	9.8	A	1000
CSA4	10.8	1	1DL+1.4UP	-111.2962	1028.53	645.714	1.4DLSDL+1.6LL	84.8031	778.28	0	-7.774E-17	1DL+1.4UP	39.06	0	OK	3	10.8	A	1000
CSA4	11.8	1	1DL+1.4UP	-114.5771	1059.772	645.714	1.4DLSDL+1.6LL	87.303	801.743	0	-4.19E-17	1DL+1.4UP	36.693	0	OK	3	11.8	A	1000
CSA4	12.8	1	1DL+1.4UP	-93.5343	860.362	645.714	1.4DLSDL+1.6LL	71.2693	651.797	0	-5.329E-17	1DL+1.4UP	96.797	0	OK	3	12.8	A	1000
CSA4	13.8	1	1.4DLSDL+1.6LL	-19.6603	177.488	0	1DL+1.4UP	25.8024	233.29	645.714	-6.171E-17	1DL+1.4UP	96.797	0	OK	3	13.8	A	1000
CSA5	0	1	1.4DLSDL+1.6LL	-5.5861	50.256	0	1DL+1.4UP	7.3313	65.985	645.714	-5.953E-17	1DL+1.4UP	103.382	0	OK	4	0	A	1000
CSA5	0.8	1	1DL+1.4UP	-81.0865	743.456	645.714	1.4DLSDL+1.6LL	61.7845	563.686	0	-5.365E-17	1DL+1.4UP	103.382	0	OK	4	0.8	A	1000
CSA5	1.8	1	1DL+1.4UP	-129.7513	1204.995	645.714	1.4DLSDL+1.6LL	98.8651	910.664	0	-6.377E-17	1DL+1.4UP	43.114	0	OK	4	1.8	A	1000
CSA5	2.8	1	1DL+1.4UP	-135.0827	1256.309	645.714	1.4DLSDL+1.6LL	102.9274	949.094	0	-1.033E-16	1DL+1.4UP	89.003	0	OK	4	2.8	A	1000
CSA5	3.8	1	1DL+1.4UP	-75.2091	688.525	645.714	1.4DLSDL+1.6LL	57.3062	522.234	0	-2.155E-16	1DL+1.4UP	170.761	1243.94	OK	4	3.8	A	1000
CSA5	4.8	1	1.4DLSDL+1.6LL	-99.5902	917.518	0	1DL+1.4UP	130.703	1214.144	645.714	-1.085E-15	1DL+1.4UP	127.922	0	OK	4	4.8	A	1000
CSA5	5.8	1	1DL+1.4UP	-42.4211	385.138	645.714	1DL+1.4UP	36.3534	329.549	0	-1.388E-15	1DL+1.4UP	127.922	0	OK	4	5.8	A	1000
CSA5	6.8	1	1DL+1.4UP	-59.6369	543.796	645.714	1.4DLSDL+1.6LL	45.4408	412.867	0	-2.155E-16	1DL+1.4UP	42.303	0	OK	4	6.8	A	1000
CSA5	7.8	1	1DL+1.4UP	-46.6776	424.235	645.714	1.4DLSDL+1.6LL	35.5663	322.351	0	-2.837E-16	1DL+1.4UP	103.004	0	OK	4	7.8	A	1000
CSA5	8.8	1	1.4DLSDL+1.6LL	-83.0056	761.43	0	1DL+1.4UP	108.9372	1006.102	645.714	-3.223E-16	1DL+1.4UP	159.243	0	OK	4	8.8	A	1000
CSA5	9.8	1	1DL+1.4UP	-51.6041	469.593	0	1DL+1.4UP	66.5725	608.111	645.714	-9.952E-17	1DL+1.4UP	181.029	1243.94	OK	4	9.8	A	1000
CSA5	10.8	1	1DL+1.4UP	-127.4342	1182.74	645.714	1.4DLSDL+1.6LL	97.0995	893.988	0	-4.442E-17	1DL+1.4UP	104.085	0	OK	4	10.8	A	1000
CSA5	11.8	1	1DL+1.4UP	-134.7496	1253.099	645.714	1.4DLSDL+1.6LL	102.6736	946.691	0	-4.181E-17	1DL+1.4UP	34.473	0	OK	4	11.8	A	1000
CSA5	12.8	1	1DL+1.4UP	-94.3585	868.13	645.714	1.4DLSDL+1.6LL	71.8972	657.646	0	-4.846E-17	1DL+1.4UP	95.185	0	OK	4	12.8	A	1000
CSA5	13.8	1	1.4DLSDL+1.6LL	-6.006	54.039	0	1DL+1.4UP	7.8823	70.954	645.714	-5.864E-17	1DL+1.4UP	95.185	0	OK	4	13.8	A	1000
CSA6	0	1	1.4DLSDL+1.6LL	-3.1761	28.558	0	1DL+1.4UP	4.1684	37.488	645.714	-7.428E-17	1DL+1.4UP	96.752	0	OK	5	0	A	1000
CSA6	0.8	1	1DL+1.4UP	-85.0868	780.942	645.714	1.4DLSDL+1.6LL	64.8326	591.955	0	-4.916E-17	1DL+1.4UP	96.752	0	OK	5	0.8	A	1000
CSA6	1.8	1	1DL+1.4UP	-137.2265	1276.986	645.714	1.4DLSDL+1.6LL	104.5608	964.571	0	-7.781E-17	1DL+1.4UP	36.26	0	OK	5	1.8	A	1000
CSA6	2.8	1	1DL+1.4UP	-143.9518	1342.014	645.714	1.4DLSDL+1.6LL	109.6853	1013.211	0	-5.553E-17	1DL+1.4UP	128.576	0	OK	5	2.8	A	1000
CSA6	3.8	1	1DL+1.4UP	-30.4734	275.841	645.714	1DL+1.4UP	28.0796	254.022	0	-1.789E-16	1DL+1.4UP	278.598	1261.261	OK	5	3.8	A	1000
CSA6	4.735	1	1.4DLSDL+1.6LL	-208.9856	1984.041	0	1DL+1.4UP	274.2744	2654.743	645.714	-1.252E-16	1DL+1.4UP	278.598	1243.94	OK	5	4.735	A	1000
CSA6	4.8	1	1.4DLSDL+1.6LL	-185.5241	1749.585	0	1DL+1.4UP	243.4833	2334.961	645.714	-3.189E-16	1DL+1.4UP	208.301	0	OK	5	4.8	A	1000
CSA6	5.8	1	1.4DLSDL+1.6LL	-33.0336	299.207	0	1DL+1.4UP	43.3536	393.696	645.714	-3.466E-16	1DL+1.4UP	208.301	1243.94	OK	5	5.8	A	1000
CSA6	6.8	1	1DL+1.4UP	-73.7612	675.018	645.714	1.4DLSDL+1.6LL	56.203	512.037	0	-1.128E-16	1DL+1.4UP	62.729	0	OK	5	6.8	A	1000
CSA6	7.8	1	1DL+1.4UP	-50.8635	462.767	645.714	1.4DLSDL+1.6LL	38.7558	351.538	0	-9.098E-17	1DL+1.4UP	176.566	1243.94	OK	5	7.8	A	1000
CSA6	8.8	1	1.4DLSDL+1.6LL	-163.3679	1531.149	0	1DL+1.4UP	214.4054	2038.677	645.714	-8.005E-17	1DL+1.4UP	318.606	1243.94	OK	5	8.8	A	1000
CSA6	9.07	1	1.4DLSDL+1.6LL	-224.6738	2142.692	0	1DL+1.4UP	294.8637	2872.227	645.714	-7.352E-17	1DL+1.4UP	327.175	1243.94	OK	5	9.07	A	1000
CSA6	9.8	1	1.4DLSDL+1.6LL	-45.2521	411.133	0	1DL+1.4UP	59.3893	541.504	645.714	-5.018E-17	1DL+1.4UP	327.175	1650.311	OK	5	9.8	A	1000
CSA6	10.8	1	1DL+1.4UP	-127.0727	1179.271	645.714	1.4DLSDL+1.6LL	96.8241	891.388	0	-4.604E-17	1DL+1.4UP	152.946	0	OK	5	10.8	A	1000

max. shear force.

CSA6	11.8	1	1DL+1.4UP	-141.5463	1318.726	645.714	1.4DLSDL+1.6LL	107.8524	995.798	0	-7.158E-17	1DL+1.4UP	52.822	0	OK	5	11.8 A	1000
CSA6	12.8	1	1DL+1.4UP	-99.7427	918.959	645.714	1.4DLSDL+1.6LL	75.9997	695.905	0	-4.338E-17	1DL+1.4UP	89.907	0	OK	5	12.8 A	1000
CSA6	13.8	1	1.4DLSDL+1.6LL	-2.9468	26.494	0	1DL+1.4UP	3.8673	34.778	645.714	-7.932E-17	1DL+1.4UP	89.907	0	OK	5	13.8 A	1000
CSA7	0	1	1DL+1.4UP	-4.4294	39.839	645.714	1.4DLSDL+1.6LL	3.375	30.348	0	-5.179E-17	1DL+1.4UP	94.348	0	OK	6	0 A	1000
CSA7	0.8	1	1DL+1.4UP	-80.8924	741.639	645.714	1.4DLSDL+1.6LL	61.6366	562.316	0	-7.214E-17	1DL+1.4UP	94.348	0	OK	6	0.8 A	1000
CSA7	1.8	1	1DL+1.4UP	-129.4145	1201.758	645.714	1.4DLSDL+1.6LL	98.6084	908.24	0	-4.338E-17	1DL+1.4UP	36.93	0	OK	6	1.8 A	1000
CSA7	2.8	1	1DL+1.4UP	-122.9797	1140.038	645.714	1.4DLSDL+1.6LL	93.7054	861.975	0	-1.039E-16	1DL+1.4UP	100.476	0	OK	6	2.8 A	1000
CSA7	3.8	1	1DL+1.4UP	-51.4962	468.599	645.714	1.4DLSDL+1.6LL	39.238	355.955	0	-9.35E-17	1DL+1.4UP	179.174	1243.94	OK	6	3.8 A	1000
CSA7	4.8	1	1.4DLSDL+1.6LL	-117.9794	1092.227	0	1DL+1.4UP	154.8371	1447.79	645.714	-1.286E-16	1DL+1.4UP	127.926	0	OK	6	4.8 A	1000
CSA7	5.8	1	1.4DLSDL+1.6LL	-37.3858	338.996	0	1DL+1.4UP	49.0655	446.206	645.714	-1.306E-16	1DL+1.4UP	127.926	0	OK	6	5.8 A	1000
CSA7	6.8	1	1DL+1.4UP	-44.8972	407.872	645.714	1.4DLSDL+1.6LL	34.2098	309.951	0	-4.191E-17	1DL+1.4UP	44.414	0	OK	6	6.8 A	1000
CSA7	7.8	1	1DL+1.4UP	-36.3121	329.171	645.714	1DL+1.4UP	31.4061	284.35	0	-3.899E-17	1DL+1.4UP	101.299	0	OK	6	7.8 A	1000
CSA7	8.8	1	1.4DLSDL+1.6LL	-102.5634	945.647	0	1DL+1.4UP	134.6049	1251.705	645.714	-5.096E-17	1DL+1.4UP	155.986	0	OK	6	8.8 A	1000
CSA7	9.8	1	1.4DLSDL+1.6LL	-44.9843	408.672	0	1DL+1.4UP	59.0378	538.251	645.714	-9.29E-17	1DL+1.4UP	188.471	1243.94	OK	6	9.8 A	1000
CSA7	10.8	1	1DL+1.4UP	-111.7297	1032.655	645.714	1.4DLSDL+1.6LL	85.1334	781.379	0	-1.103E-16	1DL+1.4UP	115.214	0	OK	6	10.8 A	1000
CSA7	11.8	1	1DL+1.4UP	-131.5678	1222.462	645.714	1.4DLSDL+1.6LL	100.2492	923.749	0	-5.306E-17	1DL+1.4UP	43.344	0	OK	6	11.8 A	1000
CSA7	12.8	1	1DL+1.4UP	-94.006	864.808	645.714	1.4DLSDL+1.6LL	71.6287	655.144	0	-8.619E-17	1DL+1.4UP	87.962	0	OK	6	12.8 A	1000
CSA7	13.8	1	1DL+1.4UP	-4.4463	39.991	645.714	1.4DLSDL+1.6LL	3.3879	30.463	0	-5.964E-17	1DL+1.4UP	87.962	0	OK	6	13.8 A	1000
CSA8	0	1	1DL+1.4UP	-1.8774	16.875	645.714	1.4DLSDL+1.6LL	1.4305	0	0	-6.304E-17	1DL+1.4UP	94.501	0	OK	7	0 A	1000
CSA8	0.8	1	1DL+1.4UP	-77.5546	710.426	645.714	1.4DLSDL+1.6LL	59.0934	538.766	0	-5.23E-17	1DL+1.4UP	94.501	0	OK	7	0.8 A	1000
CSA8	1.8	1	1DL+1.4UP	-117.4039	1086.733	645.714	1.4DLSDL+1.6LL	89.4568	821.983	0	-5.935E-17	1DL+1.4UP	40.301	0	OK	7	1.8 A	1000
CSA8	2.8	1	1DL+1.4UP	-104.2332	961.465	645.714	1.4DLSDL+1.6LL	79.4213	727.876	0	-8.316E-17	1DL+1.4UP	62.29	0	OK	7	2.8 A	1000
CSA8	3.8	1	1DL+1.4UP	-33.1581	300.344	645.714	1.4DLSDL+1.6LL	25.2651	228.402	0	-3.985E-17	1DL+1.4UP	64.979	0	OK	7	3.8 A	1000
CSA8	4.8	1	1.4DLSDL+1.6LL	-40.8233	370.483	0	1DL+1.4UP	53.5768	487.788	645.714	-8.114E-17	1DL+1.4UP	37.457	0	OK	7	4.8 A	1000
CSA8	5.8	1	1.4DLSDL+1.6LL	-22.7267	205.325	0	1DL+1.4UP	29.8267	269.945	645.714	-5.073E-17	1DL+1.4UP	37.457	0	OK	7	5.8 A	1000
CSA8	6.8	1	1DL+1.4UP	-17.5165	158.05	645.714	1.4DLSDL+1.6LL	13.3468	120.304	0	-1.559E-17	1DL+1.4UP	22.541	0	OK	7	6.8 A	1000
CSA8	7.8	1	1.4DLSDL+1.6LL	-21.602	195.11	0	1DL+1.4UP	28.3506	256.491	645.714	-2.73E-17	1DL+1.4UP	15.718	0	OK	7	7.8 A	1000
CSA8	8.8	1	1.4DLSDL+1.6LL	-31.1609	282.113	0	1DL+1.4UP	40.8958	371.148	645.714	-5.141E-17	1DL+1.4UP	7.535	0	OK	7	8.8 A	1000
CSA8	9.8	1	1DL+1.4UP	-14.764	133.124	645.714	1DL+1.4UP	15.1455	136.577	645.714	-1.285E-16	1DL+1.4UP	66.249	0	OK	7	9.8 A	1000
CSA8	10.8	1	1DL+1.4UP	-94.1156	865.84	645.714	1.4DLSDL+1.6LL	71.7121	655.922	0	-1.343E-16	1DL+1.4UP	66.249	0	OK	7	10.8 A	1000
CSA8	11.8	1	1DL+1.4UP	-118.1606	1093.957	645.714	1.4DLSDL+1.6LL	90.0334	827.405	0	-8.354E-17	1DL+1.4UP	28.607	0	OK	7	11.8 A	1000
CSA8	12.8	1	1DL+1.4UP	-89.353	821.006	645.714	1.4DLSDL+1.6LL	68.0832	622.151	0	-6.391E-17	1DL+1.4UP	88.299	0	OK	7	12.8 A	1000
CSA8	13.8	1	1DL+1.4UP	-1.9244	17.297	645.714	1.4DLSDL+1.6LL	1.4663	0	0	-7.913E-17	1DL+1.4UP	88.299	0	OK	7	13.8 A	1000
CSA9	0	1	1DL+1.4UP	-1.863	16.745	645.714	1.4DLSDL+1.6LL	1.4195	0	0	-1.272E-16	1DL+1.4UP	95.494	0	OK	8	0 A	1000
CSA9	0.8	1	1DL+1.4UP	-77.9158	713.802	645.714	1.4DLSDL+1.6LL	59.3686	541.313	0	-1.055E-16	1DL+1.4UP	95.494	0	OK	8	0.8 A	1000
CSA9	1.8	1	1DL+1.4UP	-117.8817	1091.295	645.714	1.4DLSDL+1.6LL	89.821	825.407	0	-1.202E-16	1DL+1.4UP	39.824	0	OK	8	1.8 A	1000
CSA9	2.8	1	1DL+1.4UP	-105.4986	973.462	645.714	1.4DLSDL+1.6LL	80.3855	736.896	0	-1.101E-16	1DL+1.4UP	69.761	0	OK	8	2.8 A	1000
CSA9	3.8	1	1DL+1.4UP	-33.8497	306.662	645.714	1.4DLSDL+1.6LL	25.7921	233.196	0	-5.219E-17	1DL+1.4UP	74.81	0	OK	8	3.8 A	1000
CSA9	4.8	1	1.4DLSDL+1.6LL	-46.8927	426.214	0	1DL+1.4UP	61.5424	561.443	645.714	-7.325E-17	1DL+1.4UP	44.665	0	OK	8	4.8 A	1000
CSA9	5.8	1	1.4DLSDL+1.6LL	-27.0792	244.912	0	1DL+1.4UP	35.539	322.101	645.714	-8.145E-18	1DL+1.4UP	44.665	0	OK	8	5.8 A	1000
CSA9	6.8	1	1DL+1.4UP	-20.562	185.668	645.714	1.4DLSDL+1.6LL	15.6674	141.301	0	-2.004E-17	1DL+1.4UP	27.078	0	OK	8	6.8 A	1000
CSA9	7.8	1	1.4DLSDL+1.6LL	-21.9762	198.508	0	1DL+1.4UP	28.8418	260.967	645.714	-2.053E-17	1DL+1.4UP	27.639	0	OK	8	7.8 A	1000
CSA9	8.8	1	1.4DLSDL+1.6LL	-36.7273	332.97	0	1DL+1.4UP	48.2012	438.251	645.714	-7.182E-17	1DL+1.4UP	3.602	0	OK	8	8.8 A	1000
CSA9	9.8	1	1.4DLSDL+1.6LL	-14.9842	135.117	0	1DL+1.4UP	19.6654	177.533	645.714	-1.465E-16	1DL+1.4UP	74.508	0	OK	8	9.8 A	1000
CSA9	10.8	1	1DL+1.4UP	-95.6552	880.358	645.714	1.4DLSDL+1.6LL	72.8853	666.853	0	-1.932E-16	1DL+1.4UP	74.508	0	OK	8	10.8 A	1000
CSA9	11.8	1	1DL+1.4UP	-118.2276	1094.597	645.714	1.4DLSDL+1.6LL	90.0845	827.885	0	-2.186E-16	1DL+1.4UP	29.795	0	OK	8	11.8 A	1000

CSA9	12.8	1	1DL+1.4UP	-89.8759	825.923	645.714	1.4DLSDL+1.6LL	68.4816	625.856	0	-1.666E-16	1DL+1.4UP	88.832	0 OK	8	12.8 A	1000
CSA9	13.8	1	1DL+1.4UP	-1.9153	17.216	645.714	1.4DLSDL+1.6LL	1.4594	0	0	-1.42E-16	1DL+1.4UP	88.832	0 OK	8	13.8 A	1000
CSB1	0	0.5	1DL+1.4UP	-49.3892	426.905	322.857	1.4DLSDL+1.6LL	37.6325	323.544	0	-7.48E-18	1DL+1.4UP	22.404	0 OK	0	0 B	500
CSB1	1	0.5	1DL+1.4UP	-43.9709	379.129	322.857	1DL+1.4UP	33.7789	289.908	322.857	-6.662E-18	1DL+1.4UP	22.404	0 OK	1	0 B	500
CSB1	2	0.5	1DL+1.4UP	-26.0616	222.902	322.857	1.4DLSDL+1.6LL	19.8578	169.376	0	-2.123E-17	1DL+1.4UP	15.877	0 OK	2	0 B	500
CSB1	3	0.5	1DL+1.4UP	-11.7968	100.264	322.857	1.4DLSDL+1.6LL	8.9886	76.303	0	-2.714E-17	1DL+1.4UP	6.8	0 OK	3	0 B	500
CSB1	4	0.5	1DL+1.4UP	-4.3541	36.887	322.857	1.4DLSDL+1.6LL	3.3176	28.093	0	-2.444E-17	1DL+1.4UP	3.704	0 OK	4	0 B	500
CSB1	5	0.5	1DL+1.4UP	-4.4582	37.771	322.857	1.4DLSDL+1.6LL	3.397	28.767	0	-3.321E-17	1DL+1.4UP	1.919	0 OK	5	0 B	500
CSB1	6	0.5	1DL+1.4UP	-4.2465	35.974	322.857	1.4DLSDL+1.6LL	3.2357	27.399	0	-3.293E-17	1DL+1.4UP	1.919	0 OK	6	0 B	500
CSB1	7	0.5	1DL+1.4UP	-3.4227	28.984	322.857	1.4DLSDL+1.6LL	2.6079	22.077	0	-2.785E-17	1DL+1.4UP	1.906	0 OK	7	0 B	500
CSB1	8	0.5	1DL+1.4UP	-3.4363	29.1	322.857	1.4DLSDL+1.6LL	2.6183	22.165	0	-3.533E-17	1DL+1.4UP	1.889	0 OK	8	0 B	500
CSB1	9	0.5	1DL+1.4UP	-1.8364	15.541	0	1DL+1.4UP	1.868	15.808	322.857	-2.003E-16	1DL+1.4UP	6.699	0 OK	9	0 B	500
CSB1	10	0.5	1DL+1.4UP	-3.8122	32.288	322.857	1DL+1.4UP	4.677	39.628	322.857	9.353E-17	1DL+1.4UP	36.473	0 OK	10	0 B	500
CSB1	11	0.5	1DL+1.4UP	-5.0113	42.467	322.857	1.4DLSDL+1.6LL	3.8184	32.341	0	-6.945E-17	1DL+1.4UP	5.285	0 OK	11	0 B	500
CSB1	12	0.5	1DL+1.4UP	-14.812	126.058	322.857	1.4DLSDL+1.6LL	11.2862	95.902	0	-5.243E-17	1DL+1.4UP	9.131	0 OK	12	0 B	500
CSB1	13	0.5	1DL+1.4UP	-29.9211	256.354	322.857	1.4DLSDL+1.6LL	22.7986	194.712	0	-2.13E-17	1DL+1.4UP	18.899	0 OK	13	0 B	500
CSB1	14	0.5	1DL+1.4UP	-46.9223	405.122	322.857	1DL+1.4UP	36.9452	317.536	322.857	-1.983E-17	1DL+1.4UP	32.869	0 OK	14	0 B	500
CSB1	14.8	0.5	1DL+1.4UP	-50.6953	438.458	322.857	1.4DLSDL+1.6LL	38.6277	332.25	0	-2.29E-17	1DL+1.4UP	32.869	0 OK	14.8	0 B	500
CSB2	0	1	1DL+1.4UP	-76.0094	653.598	645.714	1.4DLSDL+1.6LL	57.916	495.992	0	-1.776E-17	1DL+1.4UP	1.465	0 OK	0	0.8 B	1000
CSB2	1	1	1DL+1.4UP	-92.089	794.768	645.714	1.4DLSDL+1.6LL	70.168	602.572	0	-2.248E-17	1DL+1.4UP	11.69	0 OK	1	0.8 B	1000
CSB2	2	1	1DL+1.4UP	-67.4129	578.554	645.714	1.4DLSDL+1.6LL	51.3658	439.253	0	-3.97E-17	1DL+1.4UP	11.69	0 OK	2	0.8 B	1000
CSB2	3	1	1DL+1.4UP	-38.8161	331.013	645.714	1.4DLSDL+1.6LL	29.5762	251.705	0	-3.758E-17	1DL+1.4UP	9.419	0 OK	3	0.8 B	1000
CSB2	4	1	1DL+1.4UP	-24.8412	211.189	645.714	1.4DLSDL+1.6LL	18.9279	160.71	0	-4.893E-17	1DL+1.4UP	9.419	0 OK	4	0.8 B	1000
CSB2	5	1	1DL+1.4UP	-17.6621	149.921	645.714	1.4DLSDL+1.6LL	13.4578	114.129	0	-6.251E-17	1DL+1.4UP	4.817	0 OK	5	0.8 B	1000
CSB2	6	1	1DL+1.4UP	-16.3598	138.827	645.714	1.4DLSDL+1.6LL	12.4655	105.691	0	-7.465E-17	1DL+1.4UP	5.497	0 OK	6	0.8 B	1000
CSB2	7	1	1DL+1.4UP	-15.5046	131.545	645.714	1.4DLSDL+1.6LL	11.8138	100.152	0	-5.135E-17	1DL+1.4UP	5.497	0 OK	7	0.8 B	1000
CSB2	8	1	1DL+1.4UP	-14.61	123.931	645.714	1.4DLSDL+1.6LL	10.7648	95.816	0	1.629E-17	1DL+1.4UP	3.91	0 OK	8	0.8 B	1000
CSB2	9	1	1DL+1.4UP	-10.8765	92.186	645.714	1.4DLSDL+1.6LL	8.2874	70.203	0	-5.017E-16	1DL+1.4UP	8.672	0 OK	9	0.8 B	1000
CSB2	10	1	1DL+1.4UP	-23.8086	202.365	645.714	1.4DLSDL+1.6LL	18.1412	154.003	0	-1.065E-15	1DL+1.4UP	26.057	0 OK	10	0.8 B	1000
CSB2	11	1	1DL+1.4UP	-25.8432	219.756	645.714	1.4DLSDL+1.6LL	19.6915	167.22	0	-1.755E-16	1DL+1.4UP	12.231	0 OK	11	0.8 B	1000
CSB2	12	1	1DL+1.4UP	-43.0655	367.595	645.714	1.4DLSDL+1.6LL	32.8141	279.459	0	-2.289E-16	1DL+1.4UP	12.231	0 OK	12	0.8 B	1000
CSB2	13	1	1DL+1.4UP	-74.4344	639.827	645.714	1.4DLSDL+1.6LL	56.7159	485.584	0	-7.916E-17	1DL+1.4UP	13.039	0 OK	13	0.8 B	1000
CSB2	14	1	1DL+1.4UP	-93.6112	808.187	645.714	1.4DLSDL+1.6LL	71.3278	612.693	0	-7.235E-17	1DL+1.4UP	13.039	0 OK	14	0.8 B	1000
CSB2	14.8	1	1DL+1.4UP	-76.2086	655.34	645.714	1.4DLSDL+1.6LL	58.0678	497.308	0	-5.703E-17	1DL+1.4UP	3.631	0 OK	14.8	0.8 B	1000
CSB3	0	1	1.4DLSDL+1.6LL	-37.0716	316.014	0	1DL+1.4UP	48.653	415.804	645.714	-2.23E-17	1DL+1.4UP	69.686	0 OK	0	1.8 B	1000
CSB3	1	1	1DL+1.4UP	-97.051	838.546	645.714	1.4DLSDL+1.6LL	73.9488	635.583	0	-1.142E-17	1DL+1.4UP	69.686	0 OK	1	1.8 B	1000
CSB3	2	1	1DL+1.4UP	-89.0046	767.607	645.714	1.4DLSDL+1.6LL	67.8178	582.081	0	-2.737E-17	1DL+1.4UP	21.32	0 OK	2	1.8 B	1000
CSB3	3	1	1DL+1.4UP	-73.5824	632.381	645.714	1.4DLSDL+1.6LL	56.0667	479.956	0	-2.384E-17	1DL+1.4UP	17.601	0 OK	3	1.8 B	1000
CSB3	4	1	1DL+1.4UP	-48.7345	416.508	645.714	1.4DLSDL+1.6LL	37.1336	316.548	0	-6.589E-17	1DL+1.4UP	17.601	0 OK	4	1.8 B	1000
CSB3	5	1	1DL+1.4UP	-19.8399	168.486	645.714	1.4DLSDL+1.6LL	15.1172	128.248	0	-7.471E-17	1DL+1.4UP	16.482	0 OK	5	1.8 B	1000
CSB3	6	1	1DL+1.4UP	-21.8511	185.647	645.714	1.4DLSDL+1.6LL	16.6496	141.295	0	-7.737E-17	1DL+1.4UP	10.807	0 OK	6	1.8 B	1000
CSB3	7	1	1DL+1.4UP	-27.5575	234.422	645.714	1.4DLSDL+1.6LL	20.9977	178.363	0	-9.778E-17	1DL+1.4UP	10.807	0 OK	7	1.8 B	1000
CSB3	8	1	1DL+1.4UP	-27.5406	234.277	645.714	1.4DLSDL+1.6LL	20.9848	178.253	0	-6.864E-17	1DL+1.4UP	8.381	0 OK	8	1.8 B	1000
CSB3	9	1	1DL+1.4UP	-17.0826	144.983	645.714	1.4DLSDL+1.6LL	13.0162	110.374	0	-1.797E-16	1DL+1.4UP	8.381	0 OK	9	1.8 B	1000
CSB3	10	1	1DL+1.4UP	-24.4059	207.469	645.714	1.4DLSDL+1.6LL	18.5963	157.882	0	-1.503E-15	1DL+1.4UP	23.988	0 OK	10	1.8 B	1000
CSB3	11	1	1DL+1.4UP	-52.139	445.942	645.714	1.4DLSDL+1.6LL	39.7278	338.855	0	-2.498E-16	1DL+1.4UP	23.988	0 OK	11	1.8 B	1000

CSB3	12	1	1DL+1.4UP	-74.2953	638.611	645.714	1.4DLSDL+1.6LL	56.6099	484.665	0	-1.6E-16	1DL+1.4UP	18.523	0	OK	12	1.8 B	1000
CSB3	13	1	1DL+1.4UP	-91.6987	791.329	645.714	1.4DLSDL+1.6LL	69.8706	599.978	0	-1.193E-16	1DL+1.4UP	27.72	0	OK	13	1.8 B	1000
CSB3	14	1	1DL+1.4UP	-93.873	810.496	645.714	1.4DLSDL+1.6LL	71.5273	614.434	0	-6.212E-17	1DL+1.4UP	81.53	0	OK	14	1.8 B	1000
CSB3	14.8	1	1.4DLSDL+1.6LL	-38.8068	330.933	0	1DL+1.4UP	50.9303	435.487	645.714	-8.564E-17	1DL+1.4UP	81.53	0	OK	14.8	1.8 B	1000
CSB4	0	1	1.4DLSDL+1.6LL	-24.7561	210.462	0	1DL+1.4UP	32.4901	276.681	645.714	-4.968E-17	1DL+1.4UP	96.5	0	OK	0	2.8 B	1000
CSB4	1	1	1DL+1.4UP	-99.4815	860.026	645.714	1.4DLSDL+1.6LL	75.8008	651.773	0	-1.707E-17	1DL+1.4UP	96.5	0	OK	1	2.8 B	1000
CSB4	2	1	1DL+1.4UP	-110.627	958.846	645.714	1.4DLSDL+1.6LL	84.2932	726.193	0	-1.625E-17	1DL+1.4UP	36.022	0	OK	2	2.8 B	1000
CSB4	3	1	1DL+1.4UP	-113.107	980.905	645.714	1.4DLSDL+1.6LL	86.1828	742.793	0	-7.577E-17	1DL+1.4UP	41.574	0	OK	3	2.8 B	1000
CSB4	4	1	1DL+1.4UP	-63.434	543.919	645.714	1.4DLSDL+1.6LL	48.3341	413.049	0	-7.769E-17	1DL+1.4UP	50.068	0	OK	4	2.8 B	1000
CSB4	5	1	1.4DLSDL+1.6LL	-23.8221	202.481	0	1DL+1.4UP	31.2644	266.171	645.714	-1.027E-16	1DL+1.4UP	50.068	0	OK	5	2.8 B	1000
CSB4	6	1	1DL+1.4UP	-23.4593	199.381	645.714	1.4DLSDL+1.6LL	17.875	151.735	0	-5.008E-17	1DL+1.4UP	34.085	0	OK	6	2.8 B	1000
CSB4	7	1	1DL+1.4UP	-48.5176	414.634	645.714	1.4DLSDL+1.6LL	36.9684	315.127	0	-1.123E-16	1DL+1.4UP	26.086	0	OK	7	2.8 B	1000
CSB4	8	1	1DL+1.4UP	-49.5263	423.349	645.714	1.4DLSDL+1.6LL	37.737	321.734	0	-1.104E-16	1DL+1.4UP	28.943	0	OK	8	2.8 B	1000
CSB4	9	1	1DL+1.4UP	-14.8782	126.214	0	1DL+1.4UP	18.2637	155.048	645.714	-2.545E-16	1DL+1.4UP	28.943	0	OK	9	2.8 B	1000
CSB4	10	1	1.4DLSDL+1.6LL	-30.3827	258.615	0	1DL+1.4UP	39.8745	340.118	645.714	-4.29E-15	1DL+1.4UP	59.308	0	OK	10	2.8 B	1000
CSB4	11	1	1DL+1.4UP	-75.4947	649.096	645.714	1.4DLSDL+1.6LL	57.5238	492.589	0	-2.401E-15	1DL+1.4UP	59.308	0	OK	11	2.8 B	1000
CSB4	12	1	1DL+1.4UP	-116.3672	1009.944	645.714	1.4DLSDL+1.6LL	88.667	764.636	0	-4.198E-16	1DL+1.4UP	37.347	0	OK	12	2.8 B	1000
CSB4	13	1	1DL+1.4UP	-108.6835	941.576	645.714	1.4DLSDL+1.6LL	82.8123	713.195	0	-1.166E-16	1DL+1.4UP	46.974	0	OK	13	2.8 B	1000
CSB4	14	1	1DL+1.4UP	-91.5681	790.179	645.714	1.4DLSDL+1.6LL	69.7711	599.11	0	-1.072E-16	1DL+1.4UP	107.856	0	OK	14	2.8 B	1000
CSB4	14.8	1	1.4DLSDL+1.6LL	-24.6936	209.928	0	1DL+1.4UP	32.4081	275.977	645.714	-1.714E-16	1DL+1.4UP	107.856	0	OK	14.8	2.8 B	1000
CSB5	0	1	1.4DLSDL+1.6LL	-9.7213	86.529	0	1DL+1.4UP	12.7584	108.181	645.714	3.373E-17	1DL+1.4UP	99.268	0	OK	0	3.8 B	1000
CSB5	1	1	1DL+1.4UP	-95.4387	824.31	645.714	1.4DLSDL+1.6LL	72.7203	647.278	0	5.213E-17	1DL+1.4UP	99.268	0	OK	1	3.8 B	1000
CSB5	2	1	1DL+1.4UP	-133.342	1161.878	645.714	1.4DLSDL+1.6LL	101.601	878.779	0	-1.096E-16	1DL+1.4UP	34.798	0	OK	2	3.8 B	1000
CSB5	3	1	1DL+1.4UP	-135.0317	1177.07	645.714	1.4DLSDL+1.6LL	102.8885	890.179	0	-5.088E-16	1DL+1.4UP	92.764	0	OK	3	3.8 B	1000
CSB5	4	1	1DL+1.4UP	-71.2911	612.372	645.714	1.4DLSDL+1.6LL	54.3208	464.829	0	-1.424E-16	1DL+1.4UP	169.912	1243.94	OK	4	3.8 B	1000
CSB5	5	1	1.4DLSDL+1.6LL	-130.7043	1138.187	0	1DL+1.4UP	171.5373	1508.401	645.714	-2.121E-16	1DL+1.4UP	169.912	0	OK	5	3.8 B	1000
CSB5	6	1	1DL+1.4UP	-37.4389	319.171	0	1DL+1.4UP	44.9258	383.633	645.714	-1.986E-16	1DL+1.4UP	144.2	0	OK	6	3.8 B	1000
CSB5	7	1	1DL+1.4UP	-70.9027	608.983	645.714	1.4DLSDL+1.6LL	54.0249	462.266	0	-7.077E-17	1DL+1.4UP	64.258	0	OK	7	3.8 B	1000
CSB5	8	1	1DL+1.4UP	-68.8915	591.441	645.714	1.4DLSDL+1.6LL	52.4925	467.232	0	3.997E-17	1DL+1.4UP	81.432	0	OK	8	3.8 B	1000
CSB5	9	1	1.4DLSDL+1.6LL	-49.1406	420.016	0	1DL+1.4UP	64.4925	553.127	645.714	-5.489E-17	1DL+1.4UP	161.021	1243.94	OK	9	3.8 B	1000
CSB5	10	1	1.4DLSDL+1.6LL	-109.6087	949.795	0	1DL+1.4UP	143.8513	1256.572	645.714	-4.772E-16	1DL+1.4UP	154.011	0	OK	10	3.8 B	1000
CSB5	11	1	1DL+1.4UP	-90.6193	781.821	645.714	1.4DLSDL+1.6LL	69.0481	592.806	0	-6.008E-16	1DL+1.4UP	154.011	0	OK	11	3.8 B	1000
CSB5	12	1	1DL+1.4UP	-140.0424	1222.195	645.714	1.4DLSDL+1.6LL	106.7064	924.025	0	-7.602E-16	1DL+1.4UP	77.569	0	OK	12	3.8 B	1000
CSB5	13	1	1DL+1.4UP	-126.5711	1101.126	645.714	1.4DLSDL+1.6LL	96.4419	833.167	0	-1.608E-16	1DL+1.4UP	48.09	0	OK	13	3.8 B	1000
CSB5	14	1	1DL+1.4UP	-83.7365	721.307	645.714	1.4DLSDL+1.6LL	63.8037	567.913	0	3.82E-19	1DL+1.4UP	107.372	0	OK	14	3.8 B	1000
CSB5	14.8	1	1.4DLSDL+1.6LL	-9.4001	79.648	0	1DL+1.4UP	12.3368	104.597	645.714	-2.664E-17	1DL+1.4UP	107.372	0	OK	14.8	3.8 B	1000
CSB6	0	1	1.4DLSDL+1.6LL	-3.075	26.019	0	1DL+1.4UP	4.0356	34.154	645.714	-1.616E-16	1DL+1.4UP	96.705	0	OK	0	4.8 B	1000
CSB6	1	1	1DL+1.4UP	-98.7671	853.71	645.714	1.4DLSDL+1.6LL	75.2564	647.012	0	-3.835E-16	1DL+1.4UP	96.705	0	OK	1	4.8 B	1000
CSB6	2	1	1DL+1.4UP	-141.2496	1233.084	645.714	1.4DLSDL+1.6LL	107.6263	932.189	0	-1.799E-15	1DL+1.4UP	39.7	0	OK	2	4.8 B	1000
CSB6	3	1	1DL+1.4UP	-145.6592	1272.911	645.714	1.4DLSDL+1.6LL	110.9862	962.039	0	-1.226E-15	1DL+1.4UP	125.755	0	OK	3	4.8 B	1000
CSB6	4	1	1DL+1.4UP	-27.9707	237.958	645.714	1DL+1.4UP	26.8835	228.654	0	-7.555E-16	1DL+1.4UP	262.976	1243.94	OK	4	4.8 B	1000
CSB6	5	1	1.4DLSDL+1.6LL	-212.1581	1884.345	0	1DL+1.4UP	278.438	2515.464	645.714	-7.776E-17	1DL+1.4UP	262.976	1243.94	OK	5	4.8 B	1000
CSB6	6	1	1.4DLSDL+1.6LL	-40.4484	345.057	0	1DL+1.4UP	53.0848	454.127	645.714	-1.39E-16	1DL+1.4UP	230.468	1243.94	OK	6	4.8 B	1000
CSB6	7	1	1DL+1.4UP	-83.4844	719.093	645.714	1.4DLSDL+1.6LL	63.6116	545.464	0	-3.371E-17	1DL+1.4UP	88.434	0	OK	7	4.8 B	1000
CSB6	8	1	1DL+1.4UP	-76.523	658.091	645.714	1.4DLSDL+1.6LL	58.3074	499.387	0	-3.196E-17	1DL+1.4UP	115.092	0	OK	8	4.8 B	1000
CSB6	9	1	1.4DLSDL+1.6LL	-58.5967	501.897	0	1DL+1.4UP	76.9028	661.414	645.714	-1.642E-16	1DL+1.4UP	277.622	1243.94	OK	9	4.8 B	1000

CSB6	9.8	1	1.4DLSDL+1.6LL	-220.5873	1963.357	0	1DL+1.4UP	289.5005	2623.08	645.714	-9.277E-17	1DL+1.4UP	277.622	1243.94	OK	9.8	4.8 B	1000
CSB6	10	1	1.4DLSDL+1.6LL	-168.2239	1478.079	0	1DL+1.4UP	220.7784	1965.152	645.714	-9.841E-17	1DL+1.4UP	223.881	0	OK	10	4.8 B	1000
CSB6	11	1	1DL+1.4UP	-52.9199	452.7	645.714	1.4DLSDL+1.6LL	40.3228	343.976	0	-7.627E-16	1DL+1.4UP	223.881	1243.94	OK	11	4.8 B	1000
CSB6	12	1	1DL+1.4UP	-156.077	1367.347	645.714	1.4DLSDL+1.6LL	118.9241	1032.751	0	-6.458E-16	1DL+1.4UP	103.194	0	OK	12	4.8 B	1000
CSB6	13	1	1DL+1.4UP	-135.4192	1180.557	645.714	1.4DLSDL+1.6LL	103.1838	892.794	0	-1.582E-15	1DL+1.4UP	44.341	0	OK	13	4.8 B	1000
CSB6	14	1	1DL+1.4UP	-83.4376	718.682	645.714	1.4DLSDL+1.6LL	63.5759	545.154	0	-3.53E-16	1DL+1.4UP	103.655	0	OK	14	4.8 B	1000
CSB6	14.8	1	1.4DLSDL+1.6LL	-3.0175	25.532	0	1DL+1.4UP	3.9602	33.516	645.714	-1.948E-16	1DL+1.4UP	103.655	0	OK	14.8	4.8 B	1000
CSB7	0	1	1DL+1.4UP	-2.9661	25.097	645.714	1.4DLSDL+1.6LL	2.2601	19.12	0	-9.631E-17	1DL+1.4UP	94.998	0	OK	0	5.8 B	1000
CSB7	1	1	1DL+1.4UP	-97.9525	846.511	645.714	1.4DLSDL+1.6LL	74.6357	641.586	0	-1.898E-16	1DL+1.4UP	94.998	0	OK	1	5.8 B	1000
CSB7	2	1	1DL+1.4UP	-135.5754	1181.962	645.714	1.4DLSDL+1.6LL	103.3028	893.849	0	-1.303E-15	1DL+1.4UP	33.141	0	OK	2	5.8 B	1000
CSB7	3	1	1DL+1.4UP	-118.4708	1028.706	645.714	1.4DLSDL+1.6LL	90.2698	778.744	0	-1.304E-15	1DL+1.4UP	99.777	0	OK	3	5.8 B	1000
CSB7	4	1	1DL+1.4UP	-45.3478	387.273	645.714	1.4DLSDL+1.6LL	34.5532	294.383	0	-4.02E-16	1DL+1.4UP	172.635	1243.94	OK	4	5.8 B	1000
CSB7	5	1	1.4DLSDL+1.6LL	-131.568	1145.942	0	1DL+1.4UP	172.6709	1518.786	645.714	-7.753E-17	1DL+1.4UP	172.635	0	OK	5	5.8 B	1000
CSB7	6	1	1.4DLSDL+1.6LL	-45.2404	386.346	0	1DL+1.4UP	59.3739	508.643	645.714	-7.712E-17	1DL+1.4UP	138.666	0	OK	6	5.8 B	1000
CSB7	7	1	1DL+1.4UP	-57.2736	490.419	645.714	1.4DLSDL+1.6LL	43.6401	372.547	0	-5.78E-17	1DL+1.4UP	63.375	0	OK	7	5.8 B	1000
CSB7	8	1	1DL+1.4UP	-55.0941	471.527	645.714	1.4DLSDL+1.6LL	41.9794	358.239	0	-9.147E-17	1DL+1.4UP	80.861	0	OK	8	5.8 B	1000
CSB7	9	1	1.4DLSDL+1.6LL	-63.4491	544.051	0	1DL+1.4UP	83.2711	717.222	645.714	-6.688E-17	1DL+1.4UP	150.508	0	OK	9	5.8 B	1000
CSB7	10	1	1.4DLSDL+1.6LL	-110.7402	959.852	0	1DL+1.4UP	145.3363	1269.991	645.714	-1.676E-16	1DL+1.4UP	160.46	0	OK	10	5.8 B	1000
CSB7	11	1	1DL+1.4UP	-65.261	559.815	645.714	1.4DLSDL+1.6LL	49.7262	425.077	0	-1.827E-16	1DL+1.4UP	160.46	1243.94	OK	11	5.8 B	1000
CSB7	12	1	1DL+1.4UP	-125.9177	1095.274	645.714	1.4DLSDL+1.6LL	95.9441	828.771	0	-9.585E-16	1DL+1.4UP	83.728	0	OK	12	5.8 B	1000
CSB7	13	1	1DL+1.4UP	-132.9135	1158.028	645.714	1.4DLSDL+1.6LL	101.2745	875.889	0	-9.125E-16	1DL+1.4UP	44.6	0	OK	13	5.8 B	1000
CSB7	14	1	1DL+1.4UP	-84.0972	724.473	645.714	1.4DLSDL+1.6LL	64.0786	549.526	0	-1.379E-16	1DL+1.4UP	101.64	0	OK	14	5.8 B	1000
CSB7	14.8	1	1DL+1.4UP	-3.1848	26.948	645.714	1.4DLSDL+1.6LL	2.4267	20.53	0	-5.159E-17	1DL+1.4UP	101.64	0	OK	14.8	5.8 B	1000
CSB8	0	1	1DL+1.4UP	-1.4821	0	0	1DL+1.4UP	1.4472	0	645.714	-3.796E-16	1DL+1.4UP	95.283	0	OK	0	6.8 B	1000
CSB8	1	1	1DL+1.4UP	-96.9422	837.585	645.714	1.4DLSDL+1.6LL	73.8659	634.858	0	-1.839E-16	1DL+1.4UP	95.283	0	OK	1	6.8 B	1000
CSB8	2	1	1DL+1.4UP	-130.4922	1136.283	645.714	1.4DLSDL+1.6LL	99.4296	859.567	0	-2.97E-16	1DL+1.4UP	33.116	0	OK	2	6.8 B	1000
CSB8	3	1	1DL+1.4UP	-101.7266	879.89	645.714	1.4DLSDL+1.6LL	77.5114	666.74	0	-4.824E-16	1DL+1.4UP	74.977	0	OK	3	6.8 B	1000
CSB8	4	1	1DL+1.4UP	-21.2616	180.616	645.714	1.4DLSDL+1.6LL	16.2004	137.47	0	-1.571E-16	1DL+1.4UP	82.379	0	OK	4	6.8 B	1000
CSB8	5	1	1.4DLSDL+1.6LL	-59.968	513.8	0	1DL+1.4UP	78.7024	677.168	645.714	-2.398E-16	1DL+1.4UP	82.379	0	OK	5	6.8 B	1000
CSB8	6	1	1.4DLSDL+1.6LL	-27.6425	235.148	0	1DL+1.4UP	36.2782	309.197	645.714	-5.457E-18	1DL+1.4UP	49.162	0	OK	6	6.8 B	1000
CSB8	7	1	1DL+1.4UP	-37.0898	316.171	645.714	1.4DLSDL+1.6LL	28.2609	240.442	0	-5.122E-17	1DL+1.4UP	41.236	0	OK	7	6.8 B	1000
CSB8	8	1	1DL+1.4UP	-33.2399	283.112	645.714	1.4DLSDL+1.6LL	25.3274	215.346	0	-3.473E-17	1DL+1.4UP	48.617	0	OK	8	6.8 B	1000
CSB8	9	1	1.4DLSDL+1.6LL	-38.1876	325.608	0	1DL+1.4UP	50.1177	428.461	645.714	-1.107E-16	1DL+1.4UP	48.617	0	OK	9	6.8 B	1000
CSB8	10	1	1.4DLSDL+1.6LL	-57.88	495.679	0	1DL+1.4UP	75.9621	653.184	645.714	-1.3E-16	1DL+1.4UP	96.496	0	OK	10	6.8 B	1000
CSB8	11	1	1DL+1.4UP	-43.7122	373.169	645.714	1.4DLSDL+1.6LL	33.3068	283.687	0	-9.548E-17	1DL+1.4UP	96.496	0	OK	11	6.8 B	1000
CSB8	12	1	1DL+1.4UP	-112.4152	974.749	645.714	1.4DLSDL+1.6LL	85.6557	738.161	0	-2.932E-16	1DL+1.4UP	66.115	0	OK	12	6.8 B	1000
CSB8	13	1	1DL+1.4UP	-129.5863	1128.156	645.714	1.4DLSDL+1.6LL	98.7394	853.465	0	-2.104E-16	1DL+1.4UP	46.05	0	OK	13	6.8 B	1000
CSB8	14	1	1DL+1.4UP	-83.0751	715.501	645.714	1.4DLSDL+1.6LL	63.2997	542.752	0	-1.38E-16	1DL+1.4UP	102.001	0	OK	14	6.8 B	1000
CSB8	14.8	1	1DL+1.4UP	-1.6876	0	0	1DL+1.4UP	1.8121	0	645.714	-4.207E-16	1DL+1.4UP	102.001	0	OK	14.8	6.8 B	1000
CSB9	0	1	1DL+1.4UP	-2.2602	19.122	645.714	1.4DLSDL+1.6LL	1.7222	0	0	-1.429E-16	1DL+1.4UP	94.255	0	OK	0	7.8 B	1000
CSB9	1	1	1DL+1.4UP	-96.087	830.033	645.714	1.4DLSDL+1.6LL	73.2143	629.165	0	-2.814E-16	1DL+1.4UP	94.255	0	OK	1	7.8 B	1000
CSB9	2	1	1DL+1.4UP	-132.0741	1150.486	645.714	1.4DLSDL+1.6LL	100.6349	870.229	0	-5.058E-16	1DL+1.4UP	33.217	0	OK	2	7.8 B	1000
CSB9	3	1	1DL+1.4UP	-106.8687	925.465	645.714	1.4DLSDL+1.6LL	81.4295	701.066	0	-4.547E-16	1DL+1.4UP	88.42	0	OK	3	7.8 B	1000
CSB9	4	1	1DL+1.4UP	-30.9754	263.694	645.714	1DL+1.4UP	27.42	233.244	645.714	-1.295E-16	1DL+1.4UP	109.53	0	OK	4	7.8 B	1000
CSB9	5	1	1.4DLSDL+1.6LL	-88.0113	758.868	0	1DL+1.4UP	115.5067	1002.275	645.714	-5.181E-17	1DL+1.4UP	109.53	0	OK	5	7.8 B	1000
CSB9	6	1	1.4DLSDL+1.6LL	-47.9731	409.931	0	1DL+1.4UP	62.9602	539.799	645.714	-5.922E-17	1DL+1.4UP	76.835	0	OK	6	7.8 B	1000

CSB9	7	1	1DL+1.4UP	-45.4524	388.175	645.714	1.4DLSDL+1.6LL	34.6329	295.067	0	-1.566E-17	1DL+1.4UP	54.512	0	OK	7	7.8 B 1000
CSB9	8	1	1DL+1.4UP	-43.507	371.4	645.714	1.4DLSDL+1.6LL	33.1505	295.07	0	7.837E-18	1DL+1.4UP	65.547	0	OK	8	7.8 B 1000
CSB9	9	1	1.4DLSDL+1.6LL	-62.0961	532.288	0	1DL+1.4UP	81.4954	701.644	645.714	-8.79E-17	1DL+1.4UP	65.547	0	OK	9	7.8 B 1000
CSB9	10	1	1.4DLSDL+1.6LL	-78.0989	671.883	0	1DL+1.4UP	102.4976	886.716	645.714	-1.11E-16	1DL+1.4UP	116.072	0	OK	10	7.8 B 1000
CSB9	11	1	1DL+1.4UP	-52.9739	453.167	645.714	1.4DLSDL+1.6LL	40.3639	344.33	0	-1.862E-16	1DL+1.4UP	116.072	0	OK	11	7.8 B 1000
CSB9	12	1	1DL+1.4UP	-115.9601	1006.316	645.714	1.4DLSDL+1.6LL	88.3568	761.907	0	-1.95E-16	1DL+1.4UP	77.056	0	OK	12	7.8 B 1000
CSB9	13	1	1DL+1.4UP	-129.4439	1126.878	645.714	1.4DLSDL+1.6LL	98.6308	852.506	0	-1.83E-16	1DL+1.4UP	46.363	0	OK	13	7.8 B 1000
CSB9	14	1	1DL+1.4UP	-81.8768	704.989	645.714	1.4DLSDL+1.6LL	62.3867	534.814	0	-1.68E-16	1DL+1.4UP	100.029	0	OK	14	7.8 B 1000
CSB9	14.8	1	1DL+1.4UP	-2.7203	23.016	645.714	1.4DLSDL+1.6LL	2.0727	17.535	0	-1.591E-16	1DL+1.4UP	100.029	0	OK	14.8	7.8 B 1000
CSA10	0	1	1DL+1.4UP	-3.6946	33.224	645.714	1.4DLSDL+1.6LL	2.8152	26.624	0	9.518E-17	1DL+1.4UP	92.726	0	OK	9	0 A 1000
CSA10	0.8	1	1DL+1.4UP	-81.065	743.256	645.714	1.4DLSDL+1.6LL	61.7682	563.535	0	-3.801E-16	1DL+1.4UP	92.726	0	OK	9	0.8 A 1000
CSA10	1.8	1	1DL+1.4UP	-133.0712	1258.485	645.714	1.4DLSDL+1.6LL	101.3947	934.585	0	-5.489E-16	1DL+1.4UP	36.938	0	OK	9	1.8 A 1000
CSA10	2.8	1	1DL+1.4UP	-130.456	1211.769	645.714	1.4DLSDL+1.6LL	99.4021	915.74	0	-3.626E-16	1DL+1.4UP	113.589	0	OK	9	2.8 A 1000
CSA10	3.8	1	1DL+1.4UP	-42.9238	389.751	645.714	1DL+1.4UP	34.3766	311.475	0	-3.046E-16	1DL+1.4UP	196.818	1243.94	OK	9	3.8 A 1000
CSA10	4.8	1	1.4DLSDL+1.6LL	-131.6121	1244.687	0	1DL+1.4UP	172.7287	1623.091	645.714	1.261E-17	1DL+1.4UP	140.859	0	OK	9	4.8 A 1000
CSA10	5.8	1	1.4DLSDL+1.6LL	-41.6781	394.16	0	1DL+1.4UP	54.6986	498.143	645.714	1.056E-17	1DL+1.4UP	140.859	1243.94	OK	9	5.8 A 1000
CSA10	6.8	1	1DL+1.4UP	-49.8894	453.793	645.714	1.4DLSDL+1.6LL	38.0137	344.742	0	-1.824E-17	1DL+1.4UP	52.474	0	OK	9	6.8 A 1000
CSA10	7.8	1	1DL+1.4UP	-37.7928	342.72	645.714	1.4DLSDL+1.6LL	28.7965	260.554	0	-4.996E-17	1DL+1.4UP	122.427	0	OK	9	7.8 A 1000
CSA10	8.8	1	1.4DLSDL+1.6LL	-117.1021	1107.462	0	1DL+1.4UP	153.6857	1436.571	645.714	8.661E-18	1DL+1.4UP	176.431	0	OK	9	8.8 A 1000
CSA10	9.8	1	1.4DLSDL+1.6LL	-49.372	449.028	0	1DL+1.4UP	64.7962	591.617	645.714	-2.138E-16	1DL+1.4UP	209.107	1243.94	OK	9	9.8 A 1000
CSA10	10.8	1	1DL+1.4UP	-117.8347	1090.846	645.714	1.4DLSDL+1.6LL	89.7851	825.07	0	-6.036E-16	1DL+1.4UP	129.735	0	OK	9	10.8 A 1000
CSA10	11.8	1	1DL+1.4UP	-134.3887	1249.621	645.714	1.4DLSDL+1.6LL	102.3986	944.087	0	-8.617E-16	1DL+1.4UP	47.279	0	OK	9	11.8 A 1000
CSA10	12.8	1	1DL+1.4UP	-94.4748	869.227	645.714	1.4DLSDL+1.6LL	71.9859	658.472	0	-5.668E-16	1DL+1.4UP	87.019	0	OK	9	12.8 A 1000
CSA10	13.8	1	1DL+1.4UP	-3.8613	34.724	645.714	1.4DLSDL+1.6LL	2.9421	27.825	0	1.343E-16	1DL+1.4UP	87.019	0	OK	9	13.8 A 1000
CSA11	0	1	1.4DLSDL+1.6LL	-4.2412	38.144	0	1DL+1.4UP	5.5662	50.077	645.714	-5.836E-17	1DL+1.4UP	97.577	0	OK	10	0 A 1000
CSA11	0.8	1	1DL+1.4UP	-85.0605	780.695	645.714	1.4DLSDL+1.6LL	64.8125	591.769	0	-8.766E-17	1DL+1.4UP	97.577	0	OK	10	0.8 A 1000
CSA11	1.8	1	1DL+1.4UP	-135.4686	1260.029	645.714	1.4DLSDL+1.6LL	103.2214	976.189	0	3.004E-16	1DL+1.4UP	37.236	0	OK	10	1.8 A 1000
CSA11	2.8	1	1DL+1.4UP	-141.5671	1318.927	645.714	1.4DLSDL+1.6LL	107.8682	995.948	0	-4.032E-16	1DL+1.4UP	121.732	0	OK	10	2.8 A 1000
CSA11	3.8	1	1DL+1.4UP	-34.3951	311.645	645.714	1DL+1.4UP	31.7285	287.292	0	-7.676E-16	1DL+1.4UP	270.625	1243.94	OK	10	3.8 A 1000
CSA11	4.735	1	1.4DLSDL+1.6LL	-201.8475	1911.541	0	1DL+1.4UP	264.9063	2556.772	645.714	3.542E-16	1DL+1.4UP	270.625	1243.94	OK	10	4.735 A 1000
CSA11	4.8	1	1.4DLSDL+1.6LL	-180.5991	1700.784	0	1DL+1.4UP	237.0196	2268.633	645.714	-1.94E-16	1DL+1.4UP	203.778	0	OK	10	4.8 A 1000
CSA11	5.8	1	1.4DLSDL+1.6LL	-32.3701	293.148	0	1DL+1.4UP	42.4827	385.703	645.714	-1.89E-16	1DL+1.4UP	203.778	1243.94	OK	10	5.8 A 1000
CSA11	6.8	1	1DL+1.4UP	-72.595	664.148	645.714	1.4DLSDL+1.6LL	55.3144	503.829	0	-2.694E-17	1DL+1.4UP	59.568	0	OK	10	6.8 A 1000
CSA11	7.8	1	1DL+1.4UP	-49.8709	453.623	645.714	1.4DLSDL+1.6LL	37.9995	344.613	0	-2.347E-17	1DL+1.4UP	169.079	1243.94	OK	10	7.8 A 1000
CSA11	8.8	1	1.4DLSDL+1.6LL	-158.2181	1480.779	0	1DL+1.4UP	207.6467	1970.571	645.714	-1.923E-16	1DL+1.4UP	311.965	1243.94	OK	10	8.8 A 1000
CSA11	9.07	1	1.4DLSDL+1.6LL	-218.6409	2081.501	0	1DL+1.4UP	286.946	2788.236	645.714	-2.108E-16	1DL+1.4UP	318.555	1243.94	OK	10	9.07 A 1000
CSA11	9.8	1	1.4DLSDL+1.6LL	-46.4201	439.005	0	1DL+1.4UP	60.9221	555.696	645.714	2.242E-16	1DL+1.4UP	318.555	1558.14	OK	10	9.8 A 1000
CSA11	10.8	1	1DL+1.4UP	-125.9381	1168.386	645.714	1.4DLSDL+1.6LL	95.9596	883.23	0	-7.488E-16	1DL+1.4UP	145.67	0	OK	10	10.8 A 1000
CSA11	11.8	1	1DL+1.4UP	-140.2098	1305.801	645.714	1.4DLSDL+1.6LL	106.834	1010.354	0	4.191E-16	1DL+1.4UP	50.396	0	OK	10	11.8 A 1000
CSA11	12.8	1	1DL+1.4UP	-99.9536	920.954	645.714	1.4DLSDL+1.6LL	76.1605	697.405	0	-1.218E-16	1DL+1.4UP	90.768	0	OK	10	12.8 A 1000
CSA11	13.8	1	1.4DLSDL+1.6LL	-4.0993	36.866	0	1DL+1.4UP	5.3799	48.398	645.714	-1.272E-16	1DL+1.4UP	90.768	0	OK	10	13.8 A 1000
CSA12	0	1	1.4DLSDL+1.6LL	-7.7579	73.368	0	1DL+1.4UP	10.1815	91.702	645.714	9.248E-17	1DL+1.4UP	106.475	0	OK	11	0 A 1000
CSA12	0.8	1	1DL+1.4UP	-82.5302	756.976	645.714	1.4DLSDL+1.6LL	62.8846	594.714	0	1.205E-16	1DL+1.4UP	106.475	0	OK	11	0.8 A 1000
CSA12	1.8	1	1DL+1.4UP	-124.0807	1150.582	645.714	1.4DLSDL+1.6LL	94.5443	869.881	0	-1.998E-16	1DL+1.4UP	45.083	0	OK	11	1.8 A 1000
CSA12	2.8	1	1DL+1.4UP	-129.1158	1198.888	645.714	1.4DLSDL+1.6LL	98.3808	906.089	0	-5.84E-16	1DL+1.4UP	73.889	0	OK	11	2.8 A 1000
CSA12	3.8	1	1DL+1.4UP	-81.2802	745.27	645.714	1.4DLSDL+1.6LL	61.9321	585.707	0	2.186E-17	1DL+1.4UP	152.815	0	OK	11	3.8 A 1000

CSA12	4.8	1	1.4DLSDL+1.6LL	-84.4511	774.979	0	1DL+1.4UP	110.8343	1024.136	645.714	-5.963E-16	1DL+1.4UP	117.164	0	OK	11	4.8 A	1000
CSA12	5.8	1	1DL+1.4UP	-48.7209	443.034	645.714	1.4DLSDL+1.6LL	37.1233	336.593	0	-5.566E-16	1DL+1.4UP	117.164	0	OK	11	5.8 A	1000
CSA12	6.8	1	1DL+1.4UP	-56.2418	512.396	645.714	1.4DLSDL+1.6LL	42.8539	389.109	0	-1.952E-17	1DL+1.4UP	35.015	0	OK	11	6.8 A	1000
CSA12	7.8	1	1DL+1.4UP	-44.2211	401.661	645.714	1.4DLSDL+1.6LL	33.6946	318.658	0	4.796E-17	1DL+1.4UP	85.406	0	OK	11	7.8 A	1000
CSA12	8.8	1	1.4DLSDL+1.6LL	-69.0029	630.704	0	1DL+1.4UP	90.5599	832.357	645.714	-3.743E-17	1DL+1.4UP	143.946	0	OK	11	8.8 A	1000
CSA12	9.8	1	1DL+1.4UP	-59.7317	544.674	645.714	1DL+1.4UP	59.3367	541.017	645.714	-1.932E-15	1DL+1.4UP	161.7	1243.94	OK	11	9.8 A	1000
CSA12	10.8	1	1DL+1.4UP	-123.0382	1140.597	645.714	1.4DLSDL+1.6LL	93.7499	862.394	0	-8.347E-16	1DL+1.4UP	88.013	0	OK	11	10.8 A	1000
CSA12	11.8	1	1DL+1.4UP	-128.2623	1190.69	645.714	1.4DLSDL+1.6LL	97.7305	899.946	0	-1.691E-15	1DL+1.4UP	31.981	0	OK	11	11.8 A	1000
CSA12	12.8	1	1DL+1.4UP	-94.4253	868.76	645.714	1.4DLSDL+1.6LL	71.9482	680.431	0	1.635E-16	1DL+1.4UP	97.152	0	OK	11	12.8 A	1000
CSA12	13.8	1	1.4DLSDL+1.6LL	-8.0063	75.717	0	1DL+1.4UP	10.5075	94.645	645.714	1.225E-16	1DL+1.4UP	97.152	0	OK	11	13.8 A	1000
CSA13	0	1	1.4DLSDL+1.6LL	-23.2918	220.276	0	1DL+1.4UP	30.5684	276.708	645.714	4.934E-17	1DL+1.4UP	106.912	0	OK	12	0 A	1000
CSA13	0.8	1	1DL+1.4UP	-85.7928	787.565	645.714	1.4DLSDL+1.6LL	65.3705	596.948	0	-1.787E-17	1DL+1.4UP	106.912	0	OK	12	0.8 A	1000
CSA13	1.8	1	1DL+1.4UP	-106.7288	985.132	645.714	1.4DLSDL+1.6LL	81.3229	745.669	0	-4.06E-16	1DL+1.4UP	48.156	0	OK	12	1.8 A	1000
CSA13	2.8	1	1DL+1.4UP	-112.6626	1041.534	645.714	1.4DLSDL+1.6LL	85.8442	788.048	0	-6.036E-16	1DL+1.4UP	22.887	0	OK	12	2.8 A	1000
CSA13	3.8	1	1DL+1.4UP	-68.8464	629.247	645.714	1.4DLSDL+1.6LL	52.458	477.467	0	-4.815E-16	1DL+1.4UP	29.153	0	OK	12	3.8 A	1000
CSA13	4.8	1	1DL+1.4UP	-14.7313	132.829	645.714	1DL+1.4UP	14.1546	127.611	645.714	-5.885E-15	1DL+1.4UP	25.671	0	OK	12	4.8 A	1000
CSA13	5.8	1	1DL+1.4UP	-29.7824	269.541	645.714	1.4DLSDL+1.6LL	22.693	205.019	0	-2.181E-15	1DL+1.4UP	25.671	0	OK	12	5.8 A	1000
CSA13	6.8	1	1DL+1.4UP	-32.8393	297.433	645.714	1.4DLSDL+1.6LL	25.0222	226.192	0	-1.916E-16	1DL+1.4UP	11.7	0	OK	12	6.8 A	1000
CSA13	7.8	1	1DL+1.4UP	-34.6243	313.74	645.714	1.4DLSDL+1.6LL	26.3823	238.567	0	-9.875E-17	1DL+1.4UP	6.593	0	OK	12	7.8 A	1000
CSA13	8.8	1	1DL+1.4UP	-24.5692	222.072	645.714	1.4DLSDL+1.6LL	18.7207	168.965	0	-6.866E-17	1DL+1.4UP	9.922	0	OK	12	8.8 A	1000
CSA13	9.8	1	1DL+1.4UP	-55.3171	503.854	645.714	1.4DLSDL+1.6LL	42.1493	382.644	0	-5.733E-16	1DL+1.4UP	27.009	0	OK	12	9.8 A	1000
CSA13	10.8	1	1DL+1.4UP	-107.6549	993.923	645.714	1.4DLSDL+1.6LL	82.0285	752.277	0	-8.085E-16	1DL+1.4UP	27.009	0	OK	12	10.8 A	1000
CSA13	11.8	1	1DL+1.4UP	-108.9446	1006.172	645.714	1.4DLSDL+1.6LL	83.0112	761.482	0	-5.334E-16	1DL+1.4UP	36.983	0	OK	12	11.8 A	1000
CSA13	12.8	1	1DL+1.4UP	-93.6979	861.904	645.714	1.4DLSDL+1.6LL	71.3939	675.189	0	3.341E-18	1DL+1.4UP	95.37	0	OK	12	12.8 A	1000
CSA13	13.8	1	1.4DLSDL+1.6LL	-23.3234	220.575	0	1DL+1.4UP	30.6098	277.086	645.714	1.007E-16	1DL+1.4UP	95.37	0	OK	12	13.8 A	1000
CSA14	0	1	1.4DLSDL+1.6LL	-37.9452	344.115	0	1DL+1.4UP	49.7995	452.965	645.714	-6.598E-17	1DL+1.4UP	82.832	0	OK	13	0 A	1000
CSA14	0.8	1	1DL+1.4UP	-92.7365	852.846	645.714	1.4DLSDL+1.6LL	70.6613	646.136	0	-1.12E-16	1DL+1.4UP	82.832	0	OK	13	0.8 A	1000
CSA14	1.8	1	1DL+1.4UP	-89.7228	824.484	645.714	1.4DLSDL+1.6LL	68.365	624.771	0	-2.223E-16	1DL+1.4UP	30.404	0	OK	13	1.8 A	1000
CSA14	2.8	1	1DL+1.4UP	-70.822	647.632	645.714	1.4DLSDL+1.6LL	53.9634	491.355	0	-1.237E-16	1DL+1.4UP	7.967	0	OK	13	2.8 A	1000
CSA14	3.8	1	1DL+1.4UP	-52.1466	474.595	645.714	1.4DLSDL+1.6LL	39.7335	360.495	0	-2.396E-16	1DL+1.4UP	7.967	0	OK	13	3.8 A	1000
CSA14	4.8	1	1DL+1.4UP	-29.1524	263.798	645.714	1.4DLSDL+1.6LL	22.2129	200.658	0	-2.041E-15	1DL+1.4UP	9.64	0	OK	13	4.8 A	1000
CSA14	5.8	1	1DL+1.4UP	-27.0884	244.995	645.714	1.4DLSDL+1.6LL	20.6402	186.378	0	-1.431E-15	1DL+1.4UP	9.64	0	OK	13	5.8 A	1000
CSA14	6.8	1	1DL+1.4UP	-27.1912	245.931	645.714	1.4DLSDL+1.6LL	20.7186	187.09	0	-4.184E-16	1DL+1.4UP	7.389	0	OK	13	6.8 A	1000
CSA14	7.8	1	1DL+1.4UP	-24.2193	218.891	645.714	1.4DLSDL+1.6LL	18.4541	166.548	0	-3.133E-17	1DL+1.4UP	0.763	0	OK	13	7.8 A	1000
CSA14	8.8	1	1DL+1.4UP	-25.2054	227.859	645.714	1.4DLSDL+1.6LL	19.2055	173.362	0	-5.764E-16	1DL+1.4UP	5.976	0	OK	13	8.8 A	1000
CSA14	9.8	1	1DL+1.4UP	-46.0247	418.232	645.714	1.4DLSDL+1.6LL	35.0689	317.803	0	-3.067E-16	1DL+1.4UP	10.69	0	OK	13	9.8 A	1000
CSA14	10.8	1	1DL+1.4UP	-67.8255	619.755	645.714	1.4DLSDL+1.6LL	51.6802	470.295	0	-1.872E-16	1DL+1.4UP	10.69	0	OK	13	10.8 A	1000
CSA14	11.8	1	1DL+1.4UP	-86.041	789.895	645.714	1.4DLSDL+1.6LL	65.5596	598.704	0	-2.897E-16	1DL+1.4UP	23.023	0	OK	13	11.8 A	1000
CSA14	12.8	1	1DL+1.4UP	-95.107	875.187	645.714	1.4DLSDL+1.6LL	72.4676	662.96	0	-1.155E-16	1DL+1.4UP	70.325	0	OK	13	12.8 A	1000
CSA14	13.8	1	1.4DLSDL+1.6LL	-36.2541	328.641	0	1DL+1.4UP	47.5802	432.537	645.714	-6.005E-17	1DL+1.4UP	70.325	0	OK	13	13.8 A	1000
CSA16	0	1.3	1DL+1.4UP	-104.7285	960.092	839.429	1.4DLSDL+1.6LL	79.7987	727.964	0	-1.021E-16	1DL+1.4UP	21.179	0	OK	14	0 A	1300
CSA16	0.8	1.3	1DL+1.4UP	-118.7036	1091.246	839.429	1.4DLSDL+1.6LL	90.4472	826.831	0	-9.355E-17	1DL+1.4UP	21.188	0	OK	14	0.8 A	1300
CSA16	1.8	1.3	1DL+1.4UP	-88.5386	809.079	839.429	1.4DLSDL+1.6LL	67.4627	613.95	0	-1.856E-16	1DL+1.4UP	21.188	0	OK	14	1.8 A	1300
CSA16	2.8	1.3	1DL+1.4UP	-52.3577	475.096	839.429	1.4DLSDL+1.6LL	39.8944	361.138	0	-1.509E-16	1DL+1.4UP	10.526	0	OK	14	2.8 A	1300
CSA16	3.8	1.3	1DL+1.4UP	-29.2828	264.543	839.429	1.4DLSDL+1.6LL	22.3123	201.305	0	-1.27E-16	1DL+1.4UP	8.104	0	OK	14	3.8 A	1300
CSA16	4.8	1.3	1DL+1.4UP	-26.4645	238.954	839.429	1.4DLSDL+1.6LL	20.1648	181.856	0	-1.019E-15	1DL+1.4UP	63.204	0	OK	14	4.8 A	1300

CSA16	5.8	1.3 1DL+1.4UP	-21.5695	194.576	839.429	1.4DLSDL+1.6LL	16.435	148.115	0	-2.309E-16	1DL+1.4UP	7.636	0 OK	14	5.8 A	1300
CSA16	6.8	1.3 1DL+1.4UP	-19.1511	172.681	839.429	1.4DLSDL+1.6LL	14.5924	131.463	0	-3.874E-16	1DL+1.4UP	7.454	0 OK	14	6.8 A	1300
CSA16	7.8	1.3 1DL+1.4UP	-15.4564	139.269	839.429	1.4DLSDL+1.6LL	11.7771	106.044	0	-2.416E-16	1DL+1.4UP	20.432	0 OK	14	7.8 A	1300
CSA16	8.8	1.3 1DL+1.4UP	-17.6832	159.401	839.429	1.4DLSDL+1.6LL	13.4739	121.361	0	-8.451E-16	1DL+1.4UP	57.426	0 OK	14	8.8 A	1300
CSA16	9.8	1.3 1DL+1.4UP	-24.7112	223.049	839.429	1.4DLSDL+1.6LL	18.8289	169.765	0	-1.848E-16	1DL+1.4UP	11.571	0 OK	14	9.8 A	1300
CSA16	10.8	1.3 1DL+1.4UP	-47.4242	429.921	839.429	1.4DLSDL+1.6LL	36.1353	326.875	0	-2.648E-16	1DL+1.4UP	11.571	0 OK	14	10.8 A	1300
CSA16	11.8	1.3 1DL+1.4UP	-81.0785	739.824	839.429	1.4DLSDL+1.6LL	61.7785	561.601	0	-2.428E-16	1DL+1.4UP	19.819	0 OK	14	11.8 A	1300
CSA16	12.8	1.3 1DL+1.4UP	-115.4278	1060.435	839.429	1.4DLSDL+1.6LL	87.9511	803.618	0	-1.084E-16	1DL+1.4UP	19.819	0 OK	14	12.8 A	1300
CSA16	13.8	1.3 1DL+1.4UP	-103.3201	946.916	839.429	1.4DLSDL+1.6LL	78.7256	718.023	0	-1.155E-16	1DL+1.4UP	10.513	0 OK	14	13.8 A	1300
CSB10	0	1 1.4DLSDL+1.6LL	-1.9942	0	0	1DL+1.4UP	2.6172	22.143	645.714	-4.605E-16	1DL+1.4UP	96.831	0 OK	0	8.8 B	1000
CSB10	1	1 1DL+1.4UP	-98.0915	847.739	645.714	1.4DLSDL+1.6LL	74.7416	642.512	0	-1.486E-16	1DL+1.4UP	96.831	0 OK	1	8.8 B	1000
CSB10	2	1 1DL+1.4UP	-138.6644	1209.775	645.714	1.4DLSDL+1.6LL	105.6565	940.441	0	4.917E-17	1DL+1.4UP	34.703	0 OK	2	8.8 B	1000
CSB10	3	1 1DL+1.4UP	-140.7109	1228.225	645.714	1.4DLSDL+1.6LL	107.2159	928.546	0	-1.853E-16	1DL+1.4UP	119.008	0 OK	3	8.8 B	1000
CSB10	4	1 1DL+1.4UP	-36.4104	310.333	645.714	1.4DLSDL+1.6LL	27.7432	236.011	0	-7.343E-17	1DL+1.4UP	284.999	1243.94 OK	4	8.8 B	1000
CSB10	5	1 1.4DLSDL+1.6LL	-216.6876	1926.759	0	1DL+1.4UP	284.3825	2573.208	645.714	-3.246E-17	1DL+1.4UP	284.999	1243.94 OK	5	8.8 B	1000
CSB10	6	1 1.4DLSDL+1.6LL	-37.2618	317.649	0	1DL+1.4UP	48.9027	417.961	645.714	-4.612E-17	1DL+1.4UP	253.977	1243.94 OK	6	8.8 B	1000
CSB10	7	1 1DL+1.4UP	-80.6849	694.538	645.714	1.4DLSDL+1.6LL	61.4785	526.921	0	-2.039E-17	1DL+1.4UP	84.031	0 OK	7	8.8 B	1000
CSB10	8	1 1DL+1.4UP	-75.3989	648.259	645.714	1.4DLSDL+1.6LL	57.4508	491.956	0	-7.564E-17	1DL+1.4UP	113.335	0 OK	8	8.8 B	1000
CSB10	9	1 1.4DLSDL+1.6LL	-60.5903	519.204	0	1DL+1.4UP	79.5192	684.322	645.714	-2.554E-17	1DL+1.4UP	310.528	1313.312 OK	9	8.8 B	1000
CSB10	9.8	1 1.4DLSDL+1.6LL	-229.5857	2048.097	0	1DL+1.4UP	301.3101	2738.719	645.714	-2.337E-16	1DL+1.4UP	310.528	1243.94 OK	9.8	8.8 B	1000
CSB10	10	1 1.4DLSDL+1.6LL	-171.2542	1505.808	0	1DL+1.4UP	224.7553	2002.558	645.714	-1.584E-16	1DL+1.4UP	239.48	1243.94 OK	10	8.8 B	1000
CSB10	11	1 1DL+1.4UP	-57.6407	493.603	645.714	1.4DLSDL+1.6LL	43.9198	374.959	0	-1.391E-16	1DL+1.4UP	239.48	1243.94 OK	11	8.8 B	1000
CSB10	12	1 1DL+1.4UP	-148.309	1296.885	645.714	1.4DLSDL+1.6LL	113.0053	1005.852	0	6.758E-18	1DL+1.4UP	94.692	0 OK	12	8.8 B	1000
CSB10	13	1 1DL+1.4UP	-133.5771	1163.991	645.714	1.4DLSDL+1.6LL	101.7802	880.365	0	-1.186E-16	1DL+1.4UP	45.304	0 OK	13	8.8 B	1000
CSB10	14	1 1DL+1.4UP	-83.3454	717.874	645.714	1.4DLSDL+1.6LL	63.5057	544.543	0	-5.455E-16	1DL+1.4UP	103.653	0 OK	14	8.8 B	1000
CSB10	14.8	1 1.4DLSDL+1.6LL	-2.0862	17.649	0	1DL+1.4UP	2.7379	23.165	645.714	-7.065E-16	1DL+1.4UP	103.653	0 OK	14.8	8.8 B	1000
CSB11	0	1 1.4DLSDL+1.6LL	-7.7249	65.43	0	1DL+1.4UP	10.1382	85.915	645.714	-5.732E-18	1DL+1.4UP	99.858	0 OK	0	9.8 B	1000
CSB11	1	1 1DL+1.4UP	-95.809	827.578	645.714	1.4DLSDL+1.6LL	73.0024	627.314	0	-2.787E-17	1DL+1.4UP	99.858	0 OK	1	9.8 B	1000
CSB11	2	1 1DL+1.4UP	-134.8074	1199.911	645.714	1.4DLSDL+1.6LL	102.7176	888.665	0	-1.914E-16	1DL+1.4UP	36.573	0 OK	2	9.8 B	1000
CSB11	3	1 1DL+1.4UP	-134.7436	1174.479	645.714	1.4DLSDL+1.6LL	102.669	888.235	0	-1.943E-16	1DL+1.4UP	93.406	0 OK	3	9.8 B	1000
CSB11	4	1 1DL+1.4UP	-65.0106	557.635	645.714	1.4DLSDL+1.6LL	49.5353	423.428	0	-7.119E-17	1DL+1.4UP	197.467	1243.94 OK	4	9.8 B	1000
CSB11	5	1 1.4DLSDL+1.6LL	-153.3688	1342.752	0	1DL+1.4UP	201.2825	1782.915	645.714	-8.564E-17	1DL+1.4UP	197.467	0 OK	5	9.8 B	1000
CSB11	6	1 1.4DLSDL+1.6LL	-37.2486	317.536	0	1DL+1.4UP	48.8854	417.812	645.714	-5.678E-17	1DL+1.4UP	172.334	1243.94 OK	6	9.8 B	1000
CSB11	7	1 1DL+1.4UP	-72.4348	622.357	645.714	1.4DLSDL+1.6LL	55.1923	472.378	0	-8.754E-17	1DL+1.4UP	65.666	0 OK	7	9.8 B	1000
CSB11	8	1 1DL+1.4UP	-69.5084	596.819	645.714	1.4DLSDL+1.6LL	52.9625	453.068	0	-1.813E-17	1DL+1.4UP	86.15	0 OK	8	9.8 B	1000
CSB11	9	1 1.4DLSDL+1.6LL	-52.0717	445.359	0	1DL+1.4UP	68.3393	586.626	645.714	-2.861E-16	1DL+1.4UP	198.638	1243.94 OK	9	9.8 B	1000
CSB11	10	1 1.4DLSDL+1.6LL	-126.1834	1097.653	0	1DL+1.4UP	165.6041	1454.14	645.714	-8.357E-16	1DL+1.4UP	174.226	0 OK	10	9.8 B	1000
CSB11	11	1 1DL+1.4UP	-92.1771	795.545	645.714	1.4DLSDL+1.6LL	70.2351	603.158	0	-7.823E-16	1DL+1.4UP	174.226	1243.94 OK	11	9.8 B	1000
CSB11	12	1 1DL+1.4UP	-140.0932	1222.654	645.714	1.4DLSDL+1.6LL	106.7452	924.369	0	-5.695E-16	1DL+1.4UP	75.875	0 OK	12	9.8 B	1000
CSB11	13	1 1DL+1.4UP	-129.359	1126.116	645.714	1.4DLSDL+1.6LL	98.5662	851.934	0	-2.686E-16	1DL+1.4UP	49.91	0 OK	13	9.8 B	1000
CSB11	14	1 1DL+1.4UP	-82.1639	707.507	645.714	1.4DLSDL+1.6LL	62.6055	536.715	0	-1.689E-16	1DL+1.4UP	107.55	0 OK	14	9.8 B	1000
CSB11	14.8	1 1.4DLSDL+1.6LL	-7.303	61.851	0	1DL+1.4UP	9.5845	81.214	645.714	-1.626E-16	1DL+1.4UP	107.55	0 OK	14.8	9.8 B	1000
CSB12	0	1 1.4DLSDL+1.6LL	-22.1483	188.184	0	1DL+1.4UP	29.0675	247.349	645.714	-4.076E-17	1DL+1.4UP	99.408	0 OK	0	10.8 B	1000
CSB12	1	1 1DL+1.4UP	-100.0805	865.324	645.714	1.4DLSDL+1.6LL	76.2572	655.765	0	-7.585E-18	1DL+1.4UP	99.408	0 OK	1	10.8 B	1000
CSB12	2	1 1DL+1.4UP	-116.7122	1013.02	645.714	1.4DLSDL+1.6LL	88.9298	766.949	0	-4.832E-17	1DL+1.4UP	38.369	0 OK	2	10.8 B	1000
CSB12	3	1 1DL+1.4UP	-119.1436	1034.71	645.714	1.4DLSDL+1.6LL	90.7824	783.258	0	-8.018E-17	1DL+1.4UP	48.796	0 OK	3	10.8 B	1000

CSB12	4	1	1DL+1.4UP	-65.3702	560.765	645.714	1.4DLSDL+1.6LL	49.8093	425.796	0	-7.078E-17	1DL+1.4UP	65.434	0	OK	4	10.8	B	1000
CSB12	5	1	1.4DLSDL+1.6LL	-36.6756	312.612	0	1DL+1.4UP	48.1334	411.316	645.714	-9.942E-17	1DL+1.4UP	65.434	0	OK	5	10.8	B	1000
CSB12	6	1	1DL+1.4UP	-24.7989	210.827	645.714	1.4DLSDL+1.6LL	18.8957	160.435	0	-1E-16	1DL+1.4UP	49.033	0	OK	6	10.8	B	1000
CSB12	7	1	1DL+1.4UP	-52.5023	449.086	645.714	1.4DLSDL+1.6LL	40.0046	341.237	0	-1.9E-16	1DL+1.4UP	32.683	0	OK	7	10.8	B	1000
CSB12	8	1	1DL+1.4UP	-53.0134	453.509	645.714	1.4DLSDL+1.6LL	40.394	344.589	0	-1.723E-16	1DL+1.4UP	38.052	0	OK	8	10.8	B	1000
CSB12	9	1	1.4DLSDL+1.6LL	-17.9384	152.275	0	1DL+1.4UP	23.5425	200.092	645.714	-6.367E-16	1DL+1.4UP	38.052	0	OK	9	10.8	B	1000
CSB12	10	1	1.4DLSDL+1.6LL	-42.7038	364.479	0	1DL+1.4UP	56.0448	479.766	645.714	-5.638E-15	1DL+1.4UP	71.486	0	OK	10	10.8	B	1000
CSB12	11	1	1DL+1.4UP	-78.7609	677.68	645.714	1.4DLSDL+1.6LL	60.0125	514.187	0	-3.285E-15	1DL+1.4UP	71.486	0	OK	11	10.8	B	1000
CSB12	12	1	1DL+1.4UP	-123.1264	1070.294	645.714	1.4DLSDL+1.6LL	93.8172	810.004	0	-4.506E-16	1DL+1.4UP	42.588	0	OK	12	10.8	B	1000
CSB12	13	1	1DL+1.4UP	-112.9871	979.838	645.714	1.4DLSDL+1.6LL	86.0914	741.989	0	-1.455E-16	1DL+1.4UP	49.886	0	OK	13	10.8	B	1000
CSB12	14	1	1DL+1.4UP	-91.1093	786.137	645.714	1.4DLSDL+1.6LL	69.4215	596.061	0	-1.516E-16	1DL+1.4UP	110.468	0	OK	14	10.8	B	1000
CSB12	14.8	1	1.4DLSDL+1.6LL	-21.9182	186.22	0	1DL+1.4UP	28.7656	244.763	645.714	-2.162E-16	1DL+1.4UP	110.468	0	OK	14.8	10.8	B	1000
CSB13	0	1	1.4DLSDL+1.6LL	-35.6304	303.633	0	1DL+1.4UP	46.7616	399.472	645.714	-2.009E-17	1DL+1.4UP	78.259	0	OK	0	11.8	B	1000
CSB13	1	1	1DL+1.4UP	-99.035	856.079	645.714	1.4DLSDL+1.6LL	75.4606	648.798	0	-1.281E-17	1DL+1.4UP	78.259	0	OK	1	11.8	B	1000
CSB13	2	1	1DL+1.4UP	-94.4307	815.415	645.714	1.4DLSDL+1.6LL	71.9522	618.143	0	-3.457E-17	1DL+1.4UP	28.129	0	OK	2	11.8	B	1000
CSB13	3	1	1DL+1.4UP	-83.1019	715.736	645.714	1.4DLSDL+1.6LL	63.3202	542.929	0	-4.121E-17	1DL+1.4UP	19.947	0	OK	3	11.8	B	1000
CSB13	4	1	1DL+1.4UP	-52.9065	452.584	645.714	1.4DLSDL+1.6LL	40.3125	343.888	0	-5.885E-17	1DL+1.4UP	20.428	0	OK	4	11.8	B	1000
CSB13	5	1	1DL+1.4UP	-17.366	147.398	645.714	1.4DLSDL+1.6LL	13.2322	112.21	0	-7.133E-17	1DL+1.4UP	20.428	0	OK	5	11.8	B	1000
CSB13	6	1	1DL+1.4UP	-22.3768	190.135	645.714	1.4DLSDL+1.6LL	17.0502	144.707	0	-7.566E-17	1DL+1.4UP	13.14	0	OK	6	11.8	B	1000
CSB13	7	1	1DL+1.4UP	-29.7884	253.523	645.714	1.4DLSDL+1.6LL	22.6975	192.874	0	-1.165E-16	1DL+1.4UP	13.14	0	OK	7	11.8	B	1000
CSB13	8	1	1DL+1.4UP	-30.5652	260.178	645.714	1.4DLSDL+1.6LL	23.2894	197.929	0	-1.166E-16	1DL+1.4UP	11.792	0	OK	8	11.8	B	1000
CSB13	9	1	1DL+1.4UP	-16.7726	142.343	645.714	1.4DLSDL+1.6LL	12.78	108.365	0	-1.06E-16	1DL+1.4UP	11.792	0	OK	9	11.8	B	1000
CSB13	10	1	1DL+1.4UP	-22.6296	192.294	645.714	1.4DLSDL+1.6LL	17.2428	146.348	0	-1.988E-15	1DL+1.4UP	27.091	0	OK	10	11.8	B	1000
CSB13	11	1	1DL+1.4UP	-58.0464	497.123	645.714	1.4DLSDL+1.6LL	44.229	377.624	0	-3.111E-16	1DL+1.4UP	27.091	0	OK	11	11.8	B	1000
CSB13	12	1	1DL+1.4UP	-84.6121	728.994	645.714	1.4DLSDL+1.6LL	64.4709	552.939	0	-2.319E-16	1DL+1.4UP	19.647	0	OK	12	11.8	B	1000
CSB13	13	1	1DL+1.4UP	-97.3095	840.83	645.714	1.4DLSDL+1.6LL	74.1458	637.304	0	-1.239E-16	1DL+1.4UP	35.62	0	OK	13	11.8	B	1000
CSB13	14	1	1DL+1.4UP	-94.8355	818.987	645.714	1.4DLSDL+1.6LL	72.2607	620.837	0	-7.276E-17	1DL+1.4UP	90.889	0	OK	14	11.8	B	1000
CSB13	14.8	1	1.4DLSDL+1.6LL	-37.152	316.706	0	1DL+1.4UP	48.7586	416.716	645.714	-1.02E-16	1DL+1.4UP	90.889	0	OK	14.8	11.8	B	1000
CSB14	0	1	1DL+1.4UP	-69.5747	597.398	645.714	1.4DLSDL+1.6LL	53.013	453.506	0	-1.574E-17	1DL+1.4UP	13.231	0	OK	0	12.8	B	1000
CSB14	1	1	1DL+1.4UP	-91.4609	789.234	645.714	1.4DLSDL+1.6LL	69.6894	598.398	0	-2.551E-17	1DL+1.4UP	13.231	0	OK	1	12.8	B	1000
CSB14	2	1	1DL+1.4UP	-70.7964	608.055	645.714	1.4DLSDL+1.6LL	53.9439	461.564	0	-3.907E-17	1DL+1.4UP	7.519	0	OK	2	12.8	B	1000
CSB14	3	1	1DL+1.4UP	-45.4807	388.419	645.714	1.4DLSDL+1.6LL	34.6544	295.252	0	-3.828E-17	1DL+1.4UP	9.984	0	OK	3	12.8	B	1000
CSB14	4	1	1DL+1.4UP	-31.1799	265.447	645.714	1.4DLSDL+1.6LL	23.7578	201.931	0	-5.202E-17	1DL+1.4UP	9.984	0	OK	4	12.8	B	1000
CSB14	5	1	1DL+1.4UP	-19.9037	169.031	645.714	1.4DLSDL+1.6LL	15.1658	128.662	0	-5.886E-17	1DL+1.4UP	5.852	0	OK	5	12.8	B	1000
CSB14	6	1	1DL+1.4UP	-18.0331	153.082	645.714	1.4DLSDL+1.6LL	13.7405	116.534	0	-7.844E-17	1DL+1.4UP	6.327	0	OK	6	12.8	B	1000
CSB14	7	1	1DL+1.4UP	-18.1001	153.653	645.714	1.4DLSDL+1.6LL	13.7915	116.968	0	-5.651E-17	1DL+1.4UP	6.327	0	OK	7	12.8	B	1000
CSB14	8	1	1DL+1.4UP	-16.9286	143.671	645.714	1.4DLSDL+1.6LL	12.8023	113.952	0	4.368E-18	1DL+1.4UP	5.118	0	OK	8	12.8	B	1000
CSB14	9	1	1DL+1.4UP	-12.5876	106.729	645.714	1.4DLSDL+1.6LL	9.5912	81.27	0	-6.926E-16	1DL+1.4UP	6.429	0	OK	9	12.8	B	1000
CSB14	10	1	1DL+1.4UP	-27.5351	234.23	645.714	1.4DLSDL+1.6LL	20.9806	178.218	0	-1.421E-15	1DL+1.4UP	18.616	0	OK	10	12.8	B	1000
CSB14	11	1	1DL+1.4UP	-32.3039	275.084	645.714	1.4DLSDL+1.6LL	24.6143	209.25	0	-1.951E-16	1DL+1.4UP	11.986	0	OK	11	12.8	B	1000
CSB14	12	1	1DL+1.4UP	-49.3143	421.518	645.714	1.4DLSDL+1.6LL	37.5755	320.345	0	-1.055E-16	1DL+1.4UP	11.986	0	OK	12	12.8	B	1000
CSB14	13	1	1DL+1.4UP	-77.4193	665.934	645.714	1.4DLSDL+1.6LL	58.9903	505.313	0	-8.11E-17	1DL+1.4UP	8.6	0	OK	13	12.8	B	1000
CSB14	14	1	1DL+1.4UP	-91.6999	791.34	645.714	1.4DLSDL+1.6LL	69.8715	599.986	0	-7.705E-17	1DL+1.4UP	11.291	0	OK	14	12.8	B	1000
CSB14	14.8	1	1DL+1.4UP	-69.5647	597.31	645.714	1.4DLSDL+1.6LL	53.0054	453.44	0	-5.793E-17	1DL+1.4UP	11.291	0	OK	14.8	12.8	B	1000
CSB16	0	0.5	1DL+1.4UP	-46.7213	403.35	322.857	1.4DLSDL+1.6LL	35.5997	305.786	0	-7.256E-18	1DL+1.4UP	17.24	0	OK	0	13.8	B	500
CSB16	1	0.5	1DL+1.4UP	-42.2618	364.108	322.857	1.4DLSDL+1.6LL	32.2017	276.176	0	-1.415E-17	1DL+1.4UP	17.24	0	OK	1	13.8	B	500

CSB16	2	0.5	1DL+1.4UP	-25.3775	216.986	322.857	1.4DLSDL+1.6LL	19.3366	164.892	0	-2.104E-17	1DL+1.4UP	13.855	0	OK	2	13.8	B	500
CSB16	3	0.5	1DL+1.4UP	-11.5026	97.751	322.857	1.4DLSDL+1.6LL	8.7645	74.393	0	-2.771E-17	1DL+1.4UP	6.827	0	OK	3	13.8	B	500
CSB16	4	0.5	1DL+1.4UP	-4.3604	36.941	322.857	1.4DLSDL+1.6LL	3.3225	28.135	0	-2.536E-17	1DL+1.4UP	3.855	0	OK	4	13.8	B	500
CSB16	5	0.5	1DL+1.4UP	-4.1695	35.321	322.857	1.4DLSDL+1.6LL	3.177	26.901	0	-3.495E-17	1DL+1.4UP	2.103	0	OK	5	13.8	B	500
CSB16	6	0.5	1DL+1.4UP	-3.989	33.789	322.857	1.4DLSDL+1.6LL	3.0395	25.735	0	-3.521E-17	1DL+1.4UP	2.134	0	OK	6	13.8	B	500
CSB16	7	0.5	1DL+1.4UP	-3.4563	29.27	322.857	1.4DLSDL+1.6LL	2.6336	22.294	0	-3.63E-17	1DL+1.4UP	2.134	0	OK	7	13.8	B	500
CSB16	8	0.5	1DL+1.4UP	-3.1062	26.301	322.857	1.4DLSDL+1.6LL	2.3668	20.034	0	-4.93E-17	1DL+1.4UP	2.186	0	OK	8	13.8	B	500
CSB16	9	0.5	1DL+1.4UP	-2.0141	17.046	322.857	1DL+1.4UP	2.1843	18.487	322.857	9.378E-18	1DL+1.4UP	5.317	0	OK	9	13.8	B	500
CSB16	10	0.5	1.4DLSDL+1.6LL	-3.6954	32.892	0	1DL+1.4UP	4.8499	41.096	322.857	9.281E-17	1DL+1.4UP	29.481	0	OK	10	13.8	B	500
CSB16	11	0.5	1DL+1.4UP	-4.4084	37.348	322.857	1DL+1.4UP	3.6308	30.75	0	-7.694E-17	1DL+1.4UP	5.165	0	OK	11	13.8	B	500
CSB16	12	0.5	1DL+1.4UP	-14.5183	123.541	322.857	1.4DLSDL+1.6LL	11.0623	93.991	0	-4.048E-17	1DL+1.4UP	8.796	0	OK	12	13.8	B	500
CSB16	13	0.5	1DL+1.4UP	-28.9147	247.62	322.857	1.4DLSDL+1.6LL	22.0318	188.099	0	-1.224E-17	1DL+1.4UP	16.178	0	OK	13	13.8	B	500
CSB16	14	0.5	1DL+1.4UP	-45.0144	388.311	322.857	1.4DLSDL+1.6LL	34.2991	294.442	0	-4.312E-17	1DL+1.4UP	25.748	0	OK	14	13.8	B	500
CSB16	14.8	0.5	1DL+1.4UP	-47.785	412.734	322.857	1.4DLSDL+1.6LL	36.4101	312.862	0	-2.634E-17	1DL+1.4UP	25.748	0	OK	14.8	13.8	B	500

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_w = 500 N/mm²
f_{cu} = 45 N/mm²
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm²,strip)	Top-As (mm²,m)	Top-As$_{req}$ (mm²,strip)	Top-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	min steel (mm²/strip)	min steel (mm²/m)	Top		Bottom		Top-As$_{prov}$ (mm²,strip)	Top-As$_{prov}$ (mm²,m)	Bottom-As$_{prov}$ (mm²,strip)	Bottom-As$_{prov}$ (mm²,m)	Steel ratio %	Check	Remark
																		T1	T3	B2	B4							
CSB1	500	400	0	324	334	-49.4	37.6	369	738	369	738	273	545	273	545	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	1000	324	334	-44.0	33.8	328	657	328	657	245	489	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	2000	324	334	-26.1	19.9	195	389	260	520	144	288	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	3000	324	334	-11.8	9.0	88	176	260	520	65	130	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	4000	324	334	-4.4	3.3	33	65	260	520	24	48	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	5000	324	334	-4.5	3.4	33	67	260	520	25	49	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	6000	324	334	-4.2	3.2	32	63	260	520	23	47	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	7000	324	334	-3.4	2.6	26	51	260	520	19	38	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	8000	324	334	-3.4	2.6	26	51	260	520	19	38	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	9000	324	334	-1.8	1.9	14	27	260	520	14	27	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	10000	324	334	-3.8	4.7	28	57	260	520	34	68	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	11000	324	334	-5.0	3.8	37	75	260	520	28	55	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	12000	324	334	-14.8	11.3	111	221	260	520	82	164	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	13000	324	334	-29.9	22.8	223	447	260	520	165	330	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	14000	324	334	-46.9	36.9	350	701	350	701	268	535	268	535	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB1	500	400	14800	324	334	-50.7	38.6	379	757	379	757	280	560	280	560	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB2	1000	400	0	324	334	-76.0	57.9	568	568	568	568	420	420	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	1000	324	334	-92.1	70.2	688	688	688	688	508	508	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	2000	324	334	-67.4	51.4	503	503	520	520	372	372	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	3000	324	334	-38.8	29.6	290	290	520	520	214	214	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	4000	324	334	-24.8	18.9	186	186	520	520	137	137	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	5000	324	334	-17.7	13.5	132	132	520	520	98	98	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	6000	324	334	-16.4	12.5	122	122	520	520	90	90	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	7000	324	334	-15.5	11.8	116	116	520	520	86	86	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	8000	324	334	-14.6	10.8	109	109	520	520	78	78	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	9000	324	334	-10.9	8.3	81	81	520	520	60	60	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	10000	324	334	-23.8	18.1	178	178	520	520	131	131	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	11000	324	334	-25.8	19.7	193	193	520	520	143	143	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	12000	324	334	-43.1	32.8	322	322	520	520	238	238	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	13000	324	334	-74.4	56.7	556	556	556	556	411	411	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	14000	324	334	-93.6	71.3	699	699	699	699	517	517	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB2	1000	400	14800	324	334	-76.2	58.1	569	569	569	569	421	421	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	0	324	334	-37.1	48.7	277	277	520	520	352	352	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	1000	324	334	-97.1	73.9	725	725	725	725	536	536	536	536	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	2000	324	334	-89.0	67.8	665	665	665	665	491	491	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	3000	324	334	-73.6	56.1	550	550	550	550	406	406	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	4000	324	334	-48.7	37.1	364	364	520	520	269	269	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	5000	324	334	-19.8	15.1	148	148	520	520	110	110	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	6000	324	334	-21.9	16.6	163	163	520	520	121	121	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	7000	324	334	-27.6	21.0	206	206	520	520	152	152	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	8000	324	334	-27.5	21.0	206	206	520	520	152	152	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	9000	324	334	-17.1	13.0	128	128	520	520	94	94	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	10000	324	334	-24.4	18.6	182	182	520	520	135	135	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	11000	324	334	-52.1	39.7	389	389	520	520	288	288	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	12000	324	334	-74.3	56.6	555	555	555	555	410	410	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	13000	324	334	-91.7	69.9	685	685	685	685	506	506	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	14000	324	334	-93.9	71.5	701	701	701	701	518	518	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB3	1000	400	14800	324	334	-38.8	50.9	290	290	520	520	369	369	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	0	324	334	-24.8	32.5	185	185	520	520	235	235	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	1000	324	334	-99.5	75.8	743	743	743	743	549	549	549	549	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	2000	324	334	-110.6	84.3	826	826	826	826	611	611	611	611	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	3000	324	334	-113.1	86.2	845	845	845	845	624	624	624	624	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	4000	324	334	-63.4	48.3	474	474	520	520	350	350	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	5000	324	334	-23.8	31.3	178	178	520	520	227	227	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	6000	324	334	-23.5	17.9	175	175	520	520	130	130	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	7000	324	334	-48.5	37.0	362	362	520	520	268	268	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	8000	324	334	-49.5	37.7	370	370	520	520	273	273	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	9000	324	334	-14.9	18.3	111	111	520	520	132	132	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	10000	324	334	-30.4	39.9	227	227	520	520	289	289	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	11000	324	334	-75.5	57.5	564	564	564	564	417	417	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	12000	324	334	-116.4	88.7	869	869	869	869	642	642	642	642	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	13000	324	334	-108.7	82.8	812	812	812	812	600	600	600	600	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	14000	324	334	-91.6	69.8	684	684	684	684	505	505	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB4	1000	400	14800	324	334	-24.7	32.4	184	184	520	520	235	235	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	0	324	334	-9.7	12.8	73	73	520	520	92	92	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	1000	324	334	-95.4	72.7	713	713	713	713	527	527	527	527	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	2000	324	334	-133.3	101.6	996	996	996	996	736	736	736	736	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	3000	324	334	-135.0	102.9	1009	1009	1009	1009	745	745	745	745	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	4000	324	334	-71.3	54.3	532	532	532	532	394	394	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	5000	324	334	-130.7	171.5	976	976	976	976	1243	1243	1243	1243	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	6000	324	334	-37.4	44.9	280	280	520	520	325	325	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	7000	324	334	-70.9	54.0	530	530	530	530	391	391	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2/strip)	Top-As (mm^2/m)	Top-As$_{req}$ (mm^2/strip)	Top-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top T1	Top T3	Bottom B2	Bottom B4	Top-As$_{prov.}$ (mm^2/strip)	Top-As$_{prov.}$ (mm^2/m)	Bottom-As$_{prov.}$ (mm^2/strip)	Bottom-As$_{prov.}$ (mm^2/m)	Steel ratio %	Check	Remark
CSB5	1000	400	8000	324	334	-68.9	52.5	515	515	520	520	380	380	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	9000	324	334	-49.1	64.5	367	367	520	520	467	467	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	10000	324	334	-109.6	143.9	819	819	819	819	1042	1042	1042	1042	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	11000	324	334	-90.6	69.0	677	677	677	677	500	500	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	12000	324	334	-140.0	106.7	1046	1046	1046	1046	773	773	773	773	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	13000	324	334	-126.6	96.4	945	945	945	945	699	699	699	699	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	14000	324	334	-83.7	63.8	625	625	625	625	462	462	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB5	1000	400	14800	324	334	-9.4	12.3	70	70	520	520	89	89	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	0	324	334	-3.1	4.0	23	23	520	520	29	29	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	1000	324	334	-98.8	75.3	738	738	738	738	545	545	545	545	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	2000	324	334	-141.2	107.6	1055	1055	1055	1055	780	780	780	780	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	3000	324	334	-145.7	111.0	1088	1088	1088	1088	804	804	804	804	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	4000	324	334	-28.0	26.9	209	209	520	520	195	195	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	5000	324	334	-212.2	278.4	1589	1589	1589	1589	2052	2052	2052	2052	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	6000	324	334	-40.4	53.1	302	302	520	520	385	385	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	7000	324	334	-83.5	63.6	624	624	624	624	461	461	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	8000	324	334	-76.5	58.3	572	572	572	572	422	422	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	9000	324	334	-58.6	76.9	438	438	520	520	557	557	557	557	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	9800	324	334	-220.6	289.5	1656	1656	1656	1656	2140	2140	2140	2140	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	10000	324	334	-168.2	220.8	1256	1256	1256	1256	1602	1602	1602	1602	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	11000	324	334	-52.9	40.3	395	395	520	520	292	292	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	12000	324	334	-156.1	118.9	1166	1166	1166	1166	862	862	862	862	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	13000	324	334	-135.4	103.2	1011	1011	1011	1011	748	748	748	748	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	14000	324	334	-83.4	63.6	623	623	623	623	461	461	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB6	1000	400	14800	324	334	-3.0	4.0	23	23	520	520	29	29	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	0	324	334	-3.0	2.3	22	22	520	520	16	16	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	1000	324	334	-98.0	74.6	732	732	732	732	541	541	541	541	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	2000	324	334	-135.6	103.3	1013	1013	1013	1013	748	748	748	748	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	3000	324	334	-118.5	90.3	885	885	885	885	654	654	654	654	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	4000	324	334	-45.3	34.6	339	339	520	520	250	250	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	5000	324	334	-131.6	172.7	983	983	983	983	1251	1251	1251	1251	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	6000	324	334	-45.2	59.4	338	338	520	520	430	430	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	7000	324	334	-57.3	43.6	428	428	520	520	316	316	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	8000	324	334	-55.1	42.0	411	411	520	520	304	304	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	9000	324	334	-63.4	83.3	474	474	520	520	603	603	603	603	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	10000	324	334	-110.7	145.3	827	827	827	827	1053	1053	1053	1053	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	11000	324	334	-65.3	49.7	487	487	520	520	360	360	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	12000	324	334	-125.9	95.9	940	940	940	940	695	695	695	695	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	13000	324	334	-132.9	101.3	993	993	993	993	734	734	734	734	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	14000	324	334	-84.1	64.1	628	628	628	628	464	464	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB7	1000	400	14800	324	334	-3.2	2.4	24	24	520	520	18	18	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	0	324	334	-1.5	1.4	11	11	520	520	10	10	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	1000	324	334	-96.9	73.9	724	724	724	724	535	535	535	535	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	2000	324	334	-130.5	99.4	975	975	975	975	720	720	720	720	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	3000	324	334	-101.7	77.5	760	760	760	760	562	562	562	562	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	4000	324	334	-21.3	16.2	159	159	520	520	117	117	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	5000	324	334	-60.0	78.7	448	448	520	520	570	570	570	570	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	6000	324	334	-27.6	36.3	206	206	520	520	263	263	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	7000	324	334	-37.1	28.3	277	277	520	520	205	205	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	8000	324	334	-33.2	25.3	248	248	520	520	183	183	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	9000	324	334	-38.2	50.1	285	285	520	520	363	363	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	10000	324	334	-57.9	76.0	432	432	520	520	550	550	550	550	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	11000	324	334	-43.7	33.3	326	326	520	520	241	241	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	12000	324	334	-112.4	85.7	840	840	840	840	621	621	621	621	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	13000	324	334	-129.6	98.7	968	968	968	968	715	715	715	715	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	14000	324	334	-83.1	63.3	620	620	620	620	459	459	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB8	1000	400	14800	324	334	-1.7	1.8	13	13	520	520	13	13	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	0	324	334	-2.3	1.7	17	17	520	520	12	12	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	1000	324	334	-96.1	73.2	718	718	718	718	530	530	530	530	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	2000	324	334	-132.1	100.6	986	986	986	986	729	729	729	729	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	3000	324	334	-106.9	81.4	798	798	798	798	590	590	590	590	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	4000	324	334	-31.0	27.4	231	231	520	520	199	199	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	5000	324	334	-88.0	115.5	657	657	657	657	837	837	837	837	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	6000	324	334	-48.0	63.0	358	358	520	520	456	456	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	7000	324	334	-45.5	34.6	339	339	520	520	251	251	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	8000	324	334	-43.5	33.2	325	325	520	520	240	240	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	9000	324	334	-62.1	81.5	464	464	520	520	590	590	590	590	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	10000	324	334	-78.1	102.5	583	583	583	583	743	743	743	743	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	11000	324	334	-53.0	40.4	396	396	520	520	292	292	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	12000	324	334	-116.0	88.4	866	866	866	866	640	640	640	640	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	13000	324	334	-129.4	98.6	967	967	967	967	715	715	715	715	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB9	1000	400	14000	324	334	-81.9	62.4	612	612	612	612	452	452	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm^2

f_w = 500 N/mm^2

f_{cu} = 45 N/mm^2

Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2/strip)	Top-As (mm^2/m)	Top-As$_{req}$ (mm^2/strip)	Top-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top T1	Top T3	Bottom B2	Bottom B4	Top-As$_{prov.}$ (mm^2/strip)	Top-As$_{prov.}$ (mm^2/m)	Bottom-As$_{prov.}$ (mm^2/strip)	Bottom-As$_{prov.}$ (mm^2/m)	Steel ratio %	Check	Remark
CSB9	1000	400	14800	324	334	-2.7	2.1	20	20	520	520	15	15	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	0	324	334	-2.0	2.6	15	15	520	520	19	19	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	1000	324	334	-98.1	74.7	733	733	733	733	542	542	542	542	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	2000	324	334	-138.7	105.7	1036	1036	1036	1036	765	765	765	765	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	3000	324	334	-140.7	107.2	1051	1051	1051	1051	777	777	777	777	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	4000	324	334	-36.4	27.7	272	272	520	520	201	201	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	5000	324	334	-216.7	284.4	1625	1625	1625	1625	2099	2099	2099	2099	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	6000	324	334	-37.3	48.9	278	278	520	520	354	354	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	7000	324	334	-80.7	61.5	603	603	603	603	445	445	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	8000	324	334	-75.4	57.5	563	563	563	563	416	416	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	9000	324	334	-60.6	79.5	453	453	520	520	576	576	576	576	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	9800	324	334	-229.6	301.3	1728	1728	1728	1728	2234	2234	2234	2234	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	10000	324	334	-171.3	224.8	1279	1279	1279	1279	1633	1633	1633	1633	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	11000	324	334	-57.6	43.9	430	430	520	520	318	318	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	12000	324	334	-148.3	113.0	1108	1108	1108	1108	819	819	819	819	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	13000	324	334	-133.6	101.8	998	998	998	998	737	737	737	737	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	14000	324	334	-83.3	63.5	622	622	622	622	460	460	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB10	1000	400	14800	324	334	-2.1	2.7	16	16	520	520	20	20	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	0	324	334	-7.7	10.1	58	58	520	520	73	73	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	1000	324	334	-95.8	73.0	716	716	716	716	529	529	529	529	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	2000	324	334	-134.8	102.7	1007	1007	1007	1007	744	744	744	744	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	3000	324	334	-134.7	102.7	1006	1006	1006	1006	744	744	744	744	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	4000	324	334	-65.0	49.5	486	486	520	520	359	359	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	5000	324	334	-153.4	201.3	1145	1145	1145	1145	1458	1458	1458	1458	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	6000	324	334	-37.2	48.9	278	278	520	520	354	354	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	7000	324	334	-72.4	55.2	541	541	541	541	400	400	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	8000	324	334	-69.5	53.0	519	519	520	520	384	384	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	9000	324	334	-52.1	68.3	389	389	520	520	495	495	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	10000	324	334	-126.2	165.6	942	942	942	942	1200	1200	1200	1200	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	11000	324	334	-92.2	70.2	688	688	688	688	509	509	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	12000	324	334	-140.1	106.7	1046	1046	1046	1046	773	773	773	773	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	13000	324	334	-129.4	98.6	966	966	966	966	714	714	714	714	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	14000	324	334	-82.2	62.6	614	614	614	614	454	454	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB11	1000	400	14800	324	334	-7.3	9.6	55	55	520	520	69	69	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	0	324	334	-22.1	29.1	165	165	520	520	211	211	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	1000	324	334	-100.1	76.3	747	747	747	747	552	552	552	552	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	2000	324	334	-116.7	88.9	872	872	872	872	644	644	644	644	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	3000	324	334	-119.1	90.8	890	890	890	890	658	658	658	658	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	4000	324	334	-65.4	49.8	488	488	520	520	361	361	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	5000	324	334	-36.7	48.1	274	274	520	520	349	349	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	6000	324	334	-24.8	18.9	185	185	520	520	137	137	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	7000	324	334	-52.5	40.0	392	392	520	520	290	290	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	8000	324	334	-53.0	40.4	396	396	520	520	293	293	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	9000	324	334	-17.9	23.5	134	134	520	520	171	171	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	10000	324	334	-42.7	56.0	319	319	520	520	406	406	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	11000	324	334	-78.8	60.0	588	588	588	588	435	435	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	12000	324	334	-123.1	93.8	920	920	920	920	680	680	680	680	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	13000	324	334	-113.0	86.1	844	844	844	844	624	624	624	624	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	14000	324	334	-91.1	69.4	680	680	680	680	503	503	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB12	1000	400	14800	324	334	-21.9	28.8	164	164	520	520	208	208	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	0	324	334	-35.6	46.8	266	266	520	520	339	339	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	1000	324	334	-99.0	75.5	740	740	740	740	547	547	547	547	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	2000	324	334	-94.4	72.0	705	705	705	705	521	521	521	521	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	3000	324	334	-83.1	63.3	621	621	621	621	459	459	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	4000	324	334	-52.9	40.3	395	395	520	520	292	292	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	5000	324	334	-17.4	13.2	130	130	520	520	96	96	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	6000	324	334	-22.4	17.1	167	167	520	520	124	124	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	7000	324	334	-29.8	22.7	222	222	520	520	164	164	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	8000	324	334	-30.6	23.3	228	228	520	520	169	169	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	9000	324	334	-16.8	12.8	125	125	520	520	93	93	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	10000	324	334	-22.6	17.2	169	169	520	520	125	125	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	11000	324	334	-58.0	44.2	434	434	520	520	320	320	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	12000	324	334	-84.6	64.5	632	632	632	632	467	467	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	13000	324	334	-97.3	74.1	727	727	727	727	537	537	537	537	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	14000	324	334	-94.8	72.3	708	708	708	708	524	524	524	524	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB13	1000	400	14800	324	334	-37.2	48.8	277	277	520	520	353	353	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	0	324	334	-69.6	53.0	520	520	520	520	384	384	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	1000	324	334	-91.5	69.7	683	683	683	683	505	505	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	2000	324	334	-70.8	53.9	529	529	529	529	391	391	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	3000	324	334	-45.5	34.7	340	340	520	520	251	251	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	4000	324	334	-31.2	23.8	233	233	520	520	172	172	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	5000	324	334	-19.9	15.2	149	149	520	520	110	110	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN X-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
Concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2/strip)	Top-As (mm^2/m)	Top-As$_{req}$ (mm^2/strip)	Top-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	Bottom-As$_{req}$ (mm^2/strip)	Bottom-As$_{req}$ (mm^2/m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top		Bottom		Top-As$_{prov.}$ (mm^2/strip)	Top-As$_{prov.}$ (mm^2/m)	Bottom-As$_{prov.}$ (mm^2/strip)	Bottom-As$_{prov.}$ (mm^2/m)	Steel ratio %	Check	Remark
																		T1	T3	B2	B4						
CSB14	1000	400	6000	324	334	-18.0	13.7	135	135	520	520	100	100	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	7000	324	334	-18.1	13.8	135	135	520	520	100	100	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	8000	324	334	-16.9	12.8	126	126	520	520	93	93	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	9000	324	334	-12.6	9.6	94	94	520	520	69	69	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	10000	324	334	-27.5	21.0	206	206	520	520	152	152	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	11000	324	334	-32.3	24.6	241	241	520	520	178	178	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	12000	324	334	-49.3	37.6	368	368	520	520	272	272	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	13000	324	334	-77.4	59.0	578	578	578	578	427	427	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	14000	324	334	-91.7	69.9	685	685	685	685	506	506	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB14	1000	400	14800	324	334	-69.6	53.0	520	520	520	520	384	384	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSB16	500	400	0	324	334	-46.7	35.6	349	698	349	698	258	516	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	1000	324	334	-42.3	32.2	316	631	316	631	233	467	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	2000	324	334	-25.4	19.3	190	379	260	520	140	280	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	3000	324	334	-11.5	8.8	86	172	260	520	63	127	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	4000	324	334	-4.4	3.3	33	65	260	520	24	48	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	5000	324	334	-4.2	3.2	31	62	260	520	23	46	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	6000	324	334	-4.0	3.0	30	60	260	520	22	44	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	7000	324	334	-3.5	2.6	26	52	260	520	19	38	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	8000	324	334	-3.1	2.4	23	46	260	520	17	34	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	9000	324	334	-2.0	2.2	15	30	260	520	16	32	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	10000	324	334	-3.7	4.8	28	55	260	520	35	70	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	11000	324	334	-4.4	3.6	33	66	260	520	26	53	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	12000	324	334	-14.5	11.1	108	217	260	520	80	160	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	13000	324	334	-28.9	22.0	216	432	260	520	160	319	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	14000	324	334	-45.0	34.3	336	672	336	672	248	497	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSB16	500	400	14800	324	334	-47.8	36.4	357	714	357	714	264	528	264	528	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ Asv not required
For $v_c' < v < (v_c'+0.4)$ $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm² <0.5N/mm² , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm²)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB1	500	400	0	324	334	3217	6434	3217	6434	22.40	0.134	0.067	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	1000	324	334	3217	6434	3217	6434	22.40	0.134	0.067	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	2000	324	334	3217	6434	3217	6434	15.88	0.095	0.048	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	3000	324	334	3217	6434	3217	6434	6.80	0.041	0.020	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	4000	324	334	3217	6434	3217	6434	3.70	0.022	0.011	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	5000	324	334	3217	6434	3217	6434	1.92	0.011	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	6000	324	334	3217	6434	3217	6434	1.92	0.011	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	7000	324	334	3217	6434	3217	6434	1.91	0.011	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	8000	324	334	3217	6434	3217	6434	1.89	0.011	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	9000	324	334	3217	6434	3217	6434	6.70	0.040	0.020	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	10000	324	334	3217	6434	3217	6434	36.47	0.218	0.109	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	11000	324	334	3217	6434	3217	6434	5.29	0.032	0.016	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	12000	324	334	3217	6434	3217	6434	9.13	0.055	0.027	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	13000	324	334	3217	6434	3217	6434	18.90	0.113	0.057	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	14000	324	334	3217	6434	3217	6434	32.87	0.197	0.098	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB1	500	400	14800	324	334	3217	6434	3217	6434	32.87	0.197	0.098	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	0	324	334	6434	6434	6434	6434	1.47	0.004	0.004	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	1000	324	334	6434	6434	6434	6434	11.69	0.035	0.035	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	2000	324	334	6434	6434	6434	6434	11.69	0.035	0.035	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	3000	324	334	6434	6434	6434	6434	9.42	0.028	0.028	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	4000	324	334	6434	6434	6434	6434	9.42	0.028	0.028	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	5000	324	334	6434	6434	6434	6434	4.82	0.014	0.014	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	6000	324	334	6434	6434	6434	6434	5.50	0.016	0.016	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	7000	324	334	6434	6434	6434	6434	5.50	0.016	0.016	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	8000	324	334	6434	6434	6434	6434	3.91	0.012	0.012	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	9000	324	334	6434	6434	6434	6434	8.67	0.026	0.026	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	10000	324	334	6434	6434	6434	6434	26.06	0.078	0.078	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	11000	324	334	6434	6434	6434	6434	12.23	0.037	0.037	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	12000	324	334	6434	6434	6434	6434	12.23	0.037	0.037	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	13000	324	334	6434	6434	6434	6434	13.04	0.039	0.039	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	14000	324	334	6434	6434	6434	6434	13.04	0.039	0.039	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB2	1000	400	14800	324	334	6434	6434	6434	6434	3.63	0.011	0.011	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	0	324	334	6434	6434	6434	6434	69.69	0.209	0.209	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	1000	324	334	6434	6434	6434	6434	69.69	0.209	0.209	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	2000	324	334	6434	6434	6434	6434	21.32	0.064	0.064	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	3000	324	334	6434	6434	6434	6434	17.60	0.053	0.053	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	4000	324	334	6434	6434	6434	6434	17.60	0.053	0.053	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	5000	324	334	6434	6434	6434	6434	16.48	0.049	0.049	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	6000	324	334	6434	6434	6434	6434	10.81	0.032	0.032	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	7000	324	334	6434	6434	6434	6434	10.81	0.032	0.032	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	8000	324	334	6434	6434	6434	6434	8.38	0.025	0.025	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	9000	324	334	6434	6434	6434	6434	8.38	0.025	0.025	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ — $Asv/s > b_v(v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB3	1000	400	10000	324	334	6434	6434	6434	6434	23.99	0.072	0.072	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	11000	324	334	6434	6434	6434	6434	23.99	0.072	0.072	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	12000	324	334	6434	6434	6434	6434	18.52	0.055	0.055	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	13000	324	334	6434	6434	6434	6434	27.72	0.083	0.083	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	14000	324	334	6434	6434	6434	6434	81.53	0.244	0.244	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB3	1000	400	14800	324	334	6434	6434	6434	6434	81.53	0.244	0.244	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	0	324	334	6434	6434	6434	6434	96.50	0.289	0.289	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	1000	324	334	6434	6434	6434	6434	96.50	0.289	0.289	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	2000	324	334	6434	6434	6434	6434	36.02	0.108	0.108	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	3000	324	334	6434	6434	6434	6434	41.57	0.124	0.124	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	4000	324	334	6434	6434	6434	6434	50.07	0.150	0.150	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	5000	324	334	6434	6434	6434	6434	50.07	0.150	0.150	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	6000	324	334	6434	6434	6434	6434	34.09	0.102	0.102	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	7000	324	334	6434	6434	6434	6434	26.09	0.078	0.078	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	8000	324	334	6434	6434	6434	6434	28.94	0.087	0.087	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	9000	324	334	6434	6434	6434	6434	28.94	0.087	0.087	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	10000	324	334	6434	6434	6434	6434	59.31	0.178	0.178	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	11000	324	334	6434	6434	6434	6434	59.31	0.178	0.178	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	12000	324	334	6434	6434	6434	6434	37.35	0.112	0.112	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	13000	324	334	6434	6434	6434	6434	46.97	0.141	0.141	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	14000	324	334	6434	6434	6434	6434	107.86	0.323	0.323	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB4	1000	400	14800	324	334	6434	6434	6434	6434	107.86	0.323	0.323	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	0	324	334	6434	6434	6434	6434	99.27	0.297	0.297	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	1000	324	334	6434	6434	6434	6434	99.27	0.297	0.297	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	2000	324	334	6434	6434	6434	6434	34.80	0.104	0.104	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	3000	324	334	6434	6434	6434	6434	92.76	0.278	0.278	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	4000	324	334	6434	6434	6434	6434	169.91	0.509	0.509	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	5000	324	334	6434	6434	6434	6434	169.91	0.509	0.509	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	6000	324	334	6434	6434	6434	6434	144.20	0.432	0.432	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	7000	324	334	6434	6434	6434	6434	64.26	0.192	0.192	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	8000	324	334	6434	6434	6434	6434	81.43	0.244	0.244	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	9000	324	334	6434	6434	6434	6434	161.02	0.482	0.482	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	10000	324	334	6434	6434	6434	6434	154.01	0.461	0.461	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	11000	324	334	6434	6434	6434	6434	154.01	0.461	0.461	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	12000	324	334	6434	6434	6434	6434	77.57	0.232	0.232	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	13000	324	334	6434	6434	6434	6434	48.09	0.144	0.144	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	14000	324	334	6434	6434	6434	6434	107.37	0.321	0.321	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB5	1000	400	14800	324	334	6434	6434	6434	6434	107.37	0.321	0.321	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	0	324	334	6434	6434	6434	6434	96.71	0.290	0.290	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	1000	324	334	6434	6434	6434	6434	96.71	0.290	0.290	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	2000	324	334	6434	6434	6434	6434	39.70	0.119	0.119	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	3000	324	334	6434	6434	6434	6434	125.76	0.377	0.377	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB6	1000	400	4000	324	334	6434	6434	6434	6434	262.98	0.787	0.787	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	5000	324	334	6434	6434	6434	6434	262.98	0.787	0.787	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	6000	324	334	6434	6434	6434	6434	230.47	0.690	0.690	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	7000	324	334	6434	6434	6434	6434	88.43	0.265	0.265	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	8000	324	334	6434	6434	6434	6434	115.09	0.345	0.345	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	9000	324	334	6434	6434	6434	6434	277.62	0.831	0.831	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	9800	324	334	6434	6434	6434	6434	277.62	0.831	0.831	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	10000	324	334	6434	6434	6434	6434	223.88	0.670	0.670	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	11000	324	334	6434	6434	6434	6434	223.88	0.670	0.670	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	12000	324	334	6434	6434	6434	6434	103.19	0.309	0.309	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	13000	324	334	6434	6434	6434	6434	44.34	0.133	0.133	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	14000	324	334	6434	6434	6434	6434	103.66	0.310	0.310	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB6	1000	400	14800	324	334	6434	6434	6434	6434	103.66	0.310	0.310	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	0	324	334	6434	6434	6434	6434	95.00	0.284	0.284	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	1000	324	334	6434	6434	6434	6434	95.00	0.284	0.284	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	2000	324	334	6434	6434	6434	6434	33.14	0.099	0.099	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	3000	324	334	6434	6434	6434	6434	99.78	0.299	0.299	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	4000	324	334	6434	6434	6434	6434	172.64	0.517	0.517	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	5000	324	334	6434	6434	6434	6434	172.64	0.517	0.517	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	6000	324	334	6434	6434	6434	6434	138.67	0.415	0.415	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	7000	324	334	6434	6434	6434	6434	63.38	0.190	0.190	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	8000	324	334	6434	6434	6434	6434	80.86	0.242	0.242	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	9000	324	334	6434	6434	6434	6434	150.51	0.451	0.451	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	10000	324	334	6434	6434	6434	6434	160.46	0.480	0.480	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	11000	324	334	6434	6434	6434	6434	160.46	0.480	0.480	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	12000	324	334	6434	6434	6434	6434	83.73	0.251	0.251	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	13000	324	334	6434	6434	6434	6434	44.60	0.134	0.134	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	14000	324	334	6434	6434	6434	6434	101.64	0.304	0.304	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB7	1000	400	14800	324	334	6434	6434	6434	6434	101.64	0.304	0.304	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	0	324	334	6434	6434	6434	6434	95.28	0.285	0.285	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	1000	324	334	6434	6434	6434	6434	95.28	0.285	0.285	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	2000	324	334	6434	6434	6434	6434	33.12	0.099	0.099	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	3000	324	334	6434	6434	6434	6434	74.98	0.224	0.224	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	4000	324	334	6434	6434	6434	6434	82.38	0.247	0.247	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	5000	324	334	6434	6434	6434	6434	82.38	0.247	0.247	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	6000	324	334	6434	6434	6434	6434	49.16	0.147	0.147	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	7000	324	334	6434	6434	6434	6434	41.24	0.123	0.123	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	8000	324	334	6434	6434	6434	6434	48.62	0.146	0.146	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	9000	324	334	6434	6434	6434	6434	48.62	0.146	0.146	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	10000	324	334	6434	6434	6434	6434	96.50	0.289	0.289	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	11000	324	334	6434	6434	6434	6434	96.50	0.289	0.289	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	12000	324	334	6434	6434	6434	6434	66.12	0.198	0.198	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm² <0.5N/mm², so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm², strip)	v = V/bd (N/mm², m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm²)	$0.8f_{cu}^{1/2}$ (N/mm²)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB8	1000	400	13000	324	334	6434	6434	6434	6434	46.05	0.138	0.138	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	14000	324	334	6434	6434	6434	6434	102.00	0.305	0.305	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB8	1000	400	14800	324	334	6434	6434	6434	6434	102.00	0.305	0.305	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	0	324	334	6434	6434	6434	6434	94.26	0.282	0.282	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	1000	324	334	6434	6434	6434	6434	94.26	0.282	0.282	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	2000	324	334	6434	6434	6434	6434	33.22	0.099	0.099	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	3000	324	334	6434	6434	6434	6434	88.42	0.265	0.265	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	4000	324	334	6434	6434	6434	6434	109.53	0.328	0.328	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	5000	324	334	6434	6434	6434	6434	109.53	0.328	0.328	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	6000	324	334	6434	6434	6434	6434	76.84	0.230	0.230	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	7000	324	334	6434	6434	6434	6434	54.51	0.163	0.163	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	8000	324	334	6434	6434	6434	6434	65.55	0.196	0.196	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	9000	324	334	6434	6434	6434	6434	65.55	0.196	0.196	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	10000	324	334	6434	6434	6434	6434	116.07	0.348	0.348	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	11000	324	334	6434	6434	6434	6434	116.07	0.348	0.348	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	12000	324	334	6434	6434	6434	6434	77.06	0.231	0.231	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	13000	324	334	6434	6434	6434	6434	46.36	0.139	0.139	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	14000	324	334	6434	6434	6434	6434	100.03	0.299	0.299	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB9	1000	400	14800	324	334	6434	6434	6434	6434	100.03	0.299	0.299	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	0	324	334	6434	6434	6434	6434	96.83	0.290	0.290	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	1000	324	334	6434	6434	6434	6434	96.83	0.290	0.290	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	2000	324	334	6434	6434	6434	6434	34.70	0.104	0.104	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	3000	324	334	6434	6434	6434	6434	119.01	0.356	0.356	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	4000	324	334	6434	6434	6434	6434	285.00	0.853	0.853	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	5000	324	334	6434	6434	6434	6434	285.00	0.853	0.853	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	6000	324	334	6434	6434	6434	6434	253.98	0.760	0.760	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	7000	324	334	6434	6434	6434	6434	84.03	0.252	0.252	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	8000	324	334	6434	6434	6434	6434	113.34	0.339	0.339	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	9000	324	334	6434	6434	6434	6434	310.53	0.930	0.930	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	9800	324	334	6434	6434	6434	6434	310.53	0.930	0.930	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	10000	324	334	6434	6434	6434	6434	239.48	0.717	0.717	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	11000	324	334	6434	6434	6434	6434	239.48	0.717	0.717	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	12000	324	334	6434	6434	6434	6434	94.69	0.284	0.284	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	13000	324	334	6434	6434	6434	6434	45.30	0.136	0.136	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	14000	324	334	6434	6434	6434	6434	103.65	0.310	0.310	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB10	1000	400	14800	324	334	6434	6434	6434	6434	103.65	0.310	0.310	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	0	324	334	6434	6434	6434	6434	99.86	0.299	0.299	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	1000	324	334	6434	6434	6434	6434	99.86	0.299	0.299	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	2000	324	334	6434	6434	6434	6434	36.57	0.110	0.110	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	3000	324	334	6434	6434	6434	6434	93.41	0.280	0.280	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	4000	324	334	6434	6434	6434	6434	197.47	0.591	0.591	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	5000	324	334	6434	6434	6434	6434	197.47	0.591	0.591	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ Asv not required
For $v_c' < v < (v_c'+0.4)$ $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB11	1000	400	6000	324	334	6434	6434	6434	6434	172.33	0.516	0.516	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	7000	324	334	6434	6434	6434	6434	65.67	0.197	0.197	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	8000	324	334	6434	6434	6434	6434	86.15	0.258	0.258	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	9000	324	334	6434	6434	6434	6434	198.64	0.595	0.595	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	10000	324	334	6434	6434	6434	6434	174.23	0.522	0.522	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	11000	324	334	6434	6434	6434	6434	174.23	0.522	0.522	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	12000	324	334	6434	6434	6434	6434	75.88	0.227	0.227	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	13000	324	334	6434	6434	6434	6434	49.91	0.149	0.149	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	14000	324	334	6434	6434	6434	6434	107.55	0.322	0.322	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB11	1000	400	14800	324	334	6434	6434	6434	6434	107.55	0.322	0.322	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	0	324	334	6434	6434	6434	6434	99.41	0.298	0.298	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	1000	324	334	6434	6434	6434	6434	99.41	0.298	0.298	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	2000	324	334	6434	6434	6434	6434	38.37	0.115	0.115	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	3000	324	334	6434	6434	6434	6434	48.80	0.146	0.146	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	4000	324	334	6434	6434	6434	6434	65.43	0.196	0.196	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	5000	324	334	6434	6434	6434	6434	65.43	0.196	0.196	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	6000	324	334	6434	6434	6434	6434	49.03	0.147	0.147	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	7000	324	334	6434	6434	6434	6434	32.68	0.098	0.098	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	8000	324	334	6434	6434	6434	6434	38.05	0.114	0.114	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	9000	324	334	6434	6434	6434	6434	38.05	0.114	0.114	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	10000	324	334	6434	6434	6434	6434	71.49	0.214	0.214	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	11000	324	334	6434	6434	6434	6434	71.49	0.214	0.214	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	12000	324	334	6434	6434	6434	6434	42.59	0.128	0.128	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	13000	324	334	6434	6434	6434	6434	49.89	0.149	0.149	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	14000	324	334	6434	6434	6434	6434	110.47	0.331	0.331	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB12	1000	400	14800	324	334	6434	6434	6434	6434	110.47	0.331	0.331	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	0	324	334	6434	6434	6434	6434	78.26	0.234	0.234	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	1000	324	334	6434	6434	6434	6434	78.26	0.234	0.234	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	2000	324	334	6434	6434	6434	6434	28.13	0.084	0.084	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	3000	324	334	6434	6434	6434	6434	19.95	0.060	0.060	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	4000	324	334	6434	6434	6434	6434	20.43	0.061	0.061	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	5000	324	334	6434	6434	6434	6434	20.43	0.061	0.061	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	6000	324	334	6434	6434	6434	6434	13.14	0.039	0.039	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	7000	324	334	6434	6434	6434	6434	13.14	0.039	0.039	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	8000	324	334	6434	6434	6434	6434	11.79	0.035	0.035	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	9000	324	334	6434	6434	6434	6434	11.79	0.035	0.035	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	10000	324	334	6434	6434	6434	6434	27.09	0.081	0.081	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	11000	324	334	6434	6434	6434	6434	27.09	0.081	0.081	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	12000	324	334	6434	6434	6434	6434	19.65	0.059	0.059	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	13000	324	334	6434	6434	6434	6434	35.62	0.107	0.107	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	14000	324	334	6434	6434	6434	6434	90.89	0.272	0.272	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB13	1000	400	14800	324	334	6434	6434	6434	6434	90.89	0.272	0.272	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN X-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ Asv not required
For $v_c' < v < (v_c'+0.4)$ $A_{sv}/s > v_r b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8f_{cu}^{0.5}$ $Asv/s > b_v (v-v_c) / 0.87 f_{yv}$

max. v= 0.930 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (m)	Strip Depth (m)	Station ordinate (m)	Top Effective Depth D	Bottom Effective Depth D	Top-$As_{prov.}$ (mm^2/m)	Top-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	Bottom-$As_{prov.}$ (mm^2/m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	$v<v_c$ Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSB14	1000	400	0	324	334	6434	6434	6434	6434	13.23	0.040	0.040	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	1000	324	334	6434	6434	6434	6434	13.23	0.040	0.040	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	2000	324	334	6434	6434	6434	6434	7.52	0.023	0.023	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	3000	324	334	6434	6434	6434	6434	9.98	0.030	0.030	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	4000	324	334	6434	6434	6434	6434	9.98	0.030	0.030	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	5000	324	334	6434	6434	6434	6434	5.85	0.018	0.018	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	6000	324	334	6434	6434	6434	6434	6.33	0.019	0.019	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	7000	324	334	6434	6434	6434	6434	6.33	0.019	0.019	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	8000	324	334	6434	6434	6434	6434	5.12	0.015	0.015	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	9000	324	334	6434	6434	6434	6434	6.43	0.019	0.019	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	10000	324	334	6434	6434	6434	6434	18.62	0.056	0.056	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	11000	324	334	6434	6434	6434	6434	11.99	0.036	0.036	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	12000	324	334	6434	6434	6434	6434	11.99	0.036	0.036	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	13000	324	334	6434	6434	6434	6434	8.60	0.026	0.026	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	14000	324	334	6434	6434	6434	6434	11.29	0.034	0.034	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB14	1000	400	14800	324	334	6434	6434	6434	6434	11.29	0.034	0.034	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	0	324	334	3217	6434	3217	6434	17.24	0.103	0.052	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	1000	324	334	3217	6434	3217	6434	17.24	0.103	0.052	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	2000	324	334	3217	6434	3217	6434	13.86	0.083	0.041	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	3000	324	334	3217	6434	3217	6434	6.83	0.041	0.020	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	4000	324	334	3217	6434	3217	6434	3.86	0.023	0.012	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	5000	324	334	3217	6434	3217	6434	2.10	0.013	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	6000	324	334	3217	6434	3217	6434	2.13	0.013	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	7000	324	334	3217	6434	3217	6434	2.13	0.013	0.006	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	8000	324	334	3217	6434	3217	6434	2.19	0.013	0.007	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	9000	324	334	3217	6434	3217	6434	5.32	0.032	0.016	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	10000	324	334	3217	6434	3217	6434	29.48	0.177	0.088	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	11000	324	334	3217	6434	3217	6434	5.17	0.031	0.015	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	12000	324	334	3217	6434	3217	6434	8.80	0.053	0.026	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	13000	324	334	3217	6434	3217	6434	16.18	0.097	0.048	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	14000	324	334	3217	6434	3217	6434	25.75	0.154	0.077	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok
CSB16	500	400	14800	324	334	3217	6434	3217	6434	25.75	0.154	0.077	1.926	1.046	1.001	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_{yw} = 500 N/mm²
f_{cu} = 45 N/mm²
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

	From SAFE Results																											
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As_{req} (mm^2,strip)	Top-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	Bottom-As_{req} (mm^2,strip)	Bottom-As_{req} (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	Top Reinforcement provide T4	Bottom Reinforcement provide B2	Bottom Reinforcement provide B4	Top-As_{prov} (mm^2,strip)	Top-As_{prov} (mm^2,m)	Bottom-As_{prov} (mm^2,strip)	Bottom-As_{prov} (mm^2,m)	Steel ratio %	Check	Remark
CSA1	500	400	0	324	324	-47.7	36.3	356	712	356	712	271	542	271	542	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	800	324	324	-44.9	34.4	336	671	336	671	257	514	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	1800	324	324	-29.5	22.5	220	441	260	520	168	336	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	2800	324	324	-15.6	11.9	117	233	260	520	89	178	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	3800	324	324	-5.1	4.5	38	76	260	520	34	68	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	4800	324	324	-4.3	4.6	32	64	260	520	34	68	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	5800	324	324	-3.8	2.9	28	57	260	520	22	43	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	6800	324	324	-4.1	3.1	30	61	260	520	23	46	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	7800	324	324	-2.3	2.2	17	34	260	520	16	32	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	8800	324	324	-4.4	5.8	33	66	260	520	43	87	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	9800	324	324	-3.7	4.6	28	56	260	520	34	68	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	10800	324	324	-13.7	10.4	102	204	260	520	78	155	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	11800	324	324	-26.6	20.2	198	397	260	520	151	302	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	12800	324	324	-42.4	32.3	316	633	316	633	241	482	260	520	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA1	500	400	13800	324	324	-46.4	35.4	347	693	347	693	264	528	264	528	260	520	T32-125	-	T32-125	-	3217	6434	3217	6434	0.80	ok	
CSA2	1000	400	0	324	324	-67.7	51.6	505	505	520	520	385	385	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	800	324	324	-89.9	68.5	672	672	672	672	512	512	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	1800	324	324	-75.6	57.6	565	565	565	565	430	430	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	2800	324	324	-51.3	39.1	383	383	520	520	292	292	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	3800	324	324	-31.1	23.7	232	232	520	520	177	177	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	4800	324	324	-28.6	21.8	214	214	520	520	163	163	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	5800	324	324	-21.8	16.6	163	163	520	520	124	124	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	6800	324	324	-19.1	14.6	143	143	520	520	109	109	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	7800	324	324	-17.1	13.0	128	128	520	520	97	97	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	8800	324	324	-20.2	15.4	151	151	520	520	115	115	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	9800	324	324	-28.0	21.4	209	209	520	520	160	160	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	10800	324	324	-46.9	35.8	351	351	520	520	267	267	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	11800	324	324	-70.2	53.5	525	525	525	525	400	400	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	12800	324	324	-89.6	68.3	669	669	669	669	510	510	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA2	1000	400	13800	324	324	-67.5	51.5	504	504	520	520	384	384	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	0	324	324	-36.1	47.4	270	270	520	520	354	354	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	800	324	324	-92.9	70.8	694	694	694	694	529	529	529	529	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	1800	324	324	-94.0	71.6	702	702	702	702	535	535	535	535	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	2800	324	324	-79.2	60.4	592	592	592	592	451	451	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	3800	324	324	-55.0	41.9	411	411	520	520	313	313	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	4800	324	324	-29.4	22.4	220	220	520	520	168	168	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	5800	324	324	-26.4	20.1	197	197	520	520	150	150	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	6800	324	324	-28.4	21.6	212	212	520	520	162	162	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	7800	324	324	-24.6	18.7	184	184	520	520	140	140	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	8800	324	324	-23.5	17.9	176	176	520	520	134	134	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	9800	324	324	-47.9	36.5	358	358	520	520	273	273	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	10800	324	324	-75.8	57.7	566	566	566	566	431	431	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	11800	324	324	-90.3	68.8	675	675	675	675	514	514	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	12800	324	324	-96.0	73.2	717	717	717	717	546	546	546	546	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA3	1000	400	13800	324	324	-34.6	45.5	259	259	520	520	339	339	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	0	324	324	-19.6	25.7	146	146	520	520	192	192	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	800	324	324	-85.0	64.8	635	635	635	635	484	484	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	1800	324	324	-111.9	85.3	836	836	836	836	637	637	637	637	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	2800	324	324	-116.7	89.0	872	872	872	872	664	664	664	664	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	3800	324	324	-68.3	52.0	510	510	520	520	389	389	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	4800	324	324	-18.5	24.3	138	138	520	520	181	181	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	5800	324	324	-27.7	21.1	207	207	520	520	158	158	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	6800	324	324	-36.0	27.4	269	269	520	520	205	205	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	7800	324	324	-36.4	27.7	272	272	520	520	207	207	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	8800	324	324	-18.5	14.1	138	138	520	520	105	105	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	9800	324	324	-53.3	40.6	398	398	520	520	304	304	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	10800	324	324	-111.3	84.8	831	831	831	831	633	633	633	633	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	11800	324	324	-114.6	87.3	856	856	856	856	652	652	652	652	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	12800	324	324	-93.5	71.3	699	699	699	699	532	532	532	532	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA4	1000	400	13800	324	324	-19.7	25.8	147	147	520	520	193	193	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	0	324	324	-5.6	7.3	42	42	520	520	55	55	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	800	324	324	-81.1	61.8	606	606	606	606	461	461	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	1800	324	324	-129.8	98.9	969	969	969	969	738	738	738	738	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	2800	324	324	-135.1	102.9	1009	1009	1009	1009	769	769	769	769	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	3800	324	324	-75.2	57.3	562	562	562	562	428	428	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	4800	324	324	-99.6	130.7	744	744	744	744	976	976	976	976	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	5800	324	324	-42.4	36.4	317	317	520	520	272	272	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	6800	324	324	-59.6	45.4	445	445	520	520	339	339	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	7800	324	324	-46.7	35.6	349	349	520	520	266	266	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_{yw} = 500 N/mm²
f_{cu} = 45 N/mm²
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results																														
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm²,strip)	Top-As (mm²,m)	Top-As$_{req}$ (mm²,strip)	Top-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	min steel (mm²/strip)	min steel (mm²/m)	Top Reinforcement provide T2	T4	Bottom Reinforcement provide B2	B4	Top-As$_{prov}$ (mm²,strip)	Top-As$_{prov}$ (mm²,m)	Bottom-As$_{prov}$ (mm²,strip)	Bottom-As$_{prov}$ (mm²,m)	Steel ratio %	Check	Remark
CSA5	1000	400	8800	324	324	-83.0	108.9	620	620	620	620	814	814	814	814	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	9800	324	324	-51.6	66.6	385	385	520	520	497	497	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	10800	324	324	-127.4	97.1	952	952	952	952	725	725	725	725	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	11800	324	324	-134.7	102.7	1006	1006	1006	1006	767	767	767	767	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	12800	324	324	-94.4	71.9	705	705	705	705	537	537	537	537	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA5	1000	400	13800	324	324	-6.0	7.9	45	45	520	520	59	59	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	0	324	324	-3.2	4.2	24	24	520	520	31	31	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	800	324	324	-85.1	64.8	635	635	635	635	484	484	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	1800	324	324	-137.2	104.6	1025	1025	1025	1025	781	781	781	781	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	2800	324	324	-144.0	109.7	1075	1075	1075	1075	819	819	819	819	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	3800	324	324	-30.5	28.1	228	228	520	520	210	210	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	4735	324	324	-209.0	274.3	1564	1564	1564	1564	2091	2091	2091	2091	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	4800	324	324	-185.5	243.5	1386	1386	1386	1386	1840	1840	1840	1840	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	5800	324	324	-33.0	43.4	247	247	520	520	324	324	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	6800	324	324	-73.8	56.2	551	551	551	551	420	420	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	7800	324	324	-50.9	38.8	380	380	520	520	289	289	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	8800	324	324	-163.4	214.4	1220	1220	1220	1220	1607	1607	1607	1607	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	9070	324	324	-224.7	294.9	1689	1689	1689	1689	2262	2262	2262	2262	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	9800	324	324	-45.3	59.4	338	338	520	520	444	444	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	10800	324	324	-127.1	96.8	949	949	949	949	723	723	723	723	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	11800	324	324	-141.5	107.9	1057	1057	1057	1057	806	806	806	806	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	12800	324	324	-99.7	76.0	745	745	745	745	568	568	568	568	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA6	1000	400	13800	324	324	-2.9	3.9	22	22	520	520	29	29	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	0	324	324	-4.4	3.4	33	33	520	520	25	25	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	800	324	324	-80.9	61.6	604	604	604	604	460	460	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	1800	324	324	-129.4	98.6	967	967	967	967	736	736	736	736	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	2800	324	324	-123.0	93.7	918	918	918	918	700	700	700	700	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	3800	324	324	-51.5	39.2	385	385	520	520	293	293	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	4800	324	324	-118.0	154.8	881	881	881	881	1156	1156	1156	1156	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	5800	324	324	-37.4	49.1	279	279	520	520	366	366	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	6800	324	324	-44.9	34.2	335	335	520	520	256	256	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	7800	324	324	-36.3	31.4	271	271	520	520	235	235	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	8800	324	324	-102.6	134.6	766	766	766	766	1005	1005	1005	1005	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	9800	324	324	-45.0	59.0	336	336	520	520	441	441	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	10800	324	324	-111.7	85.1	834	834	834	834	636	636	636	636	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	11800	324	324	-131.6	100.2	983	983	983	983	749	749	749	749	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	12800	324	324	-94.0	71.6	702	702	702	702	535	535	535	535	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA7	1000	400	13800	324	324	-4.4	3.4	33	33	520	520	25	25	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	0	324	324	-1.9	1.4	14	14	520	520	11	11	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	800	324	324	-77.6	59.1	579	579	579	579	441	441	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	1800	324	324	-117.4	89.5	877	877	877	877	668	668	668	668	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	2800	324	324	-104.2	79.4	778	778	778	778	593	593	593	593	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	3800	324	324	-33.2	25.3	248	248	520	520	189	189	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	4800	324	324	-40.8	53.6	305	305	520	520	400	400	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	5800	324	324	-22.7	29.8	170	170	520	520	223	223	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	6800	324	324	-17.5	13.3	131	131	520	520	100	100	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	7800	324	324	-21.6	28.4	161	161	520	520	212	212	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	8800	324	324	-31.2	40.9	233	233	520	520	305	305	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	9800	324	324	-14.8	15.1	110	110	520	520	113	113	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	10800	324	324	-94.1	71.7	703	703	703	703	536	536	536	536	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	11800	324	324	-118.2	90.0	883	883	883	883	672	672	672	672	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	12800	324	324	-89.4	68.1	667	667	667	667	508	508	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA8	1000	400	13800	324	324	-1.9	1.5	14	14	520	520	11	11	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	0	324	324	-1.9	1.4	14	14	520	520	11	11	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	800	324	324	-77.9	59.4	582	582	582	582	443	443	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	1800	324	324	-117.9	89.8	880	880	880	880	671	671	671	671	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	2800	324	324	-105.5	80.4	788	788	788	788	600	600	600	600	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	3800	324	324	-33.8	25.8	253	253	520	520	193	193	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	4800	324	324	-46.9	61.5	350	350	520	520	460	460	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	5800	324	324	-27.1	35.5	202	202	520	520	265	265	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	6800	324	324	-20.6	15.7	154	154	520	520	117	117	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	7800	324	324	-22.0	28.8	164	164	520	520	215	215	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	8800	324	324	-36.7	48.2	274	274	520	520	360	360	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	9800	324	324	-15.0	19.7	112	112	520	520	147	147	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	10800	324	324	-95.7	72.9	714	714	714	714	544	544	544	544	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	11800	324	324	-118.2	90.1	883	883	883	883	673	673	673	673	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	12800	324	324	-89.9	68.5	671	671	671	671	511	511	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA9	1000	400	13800	324	324	-1.9	1.5	14	14	520	520	11	11	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	0	324	324	-3.7	2.8	28	28	520	520	21	21	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm²
f_w = 500 N/mm²
f_{cu} = 45 N/mm²
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm²,strip)	Top-As (mm²,m)	Top-As$_{req}$ (mm²,strip)	Top-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	Bottom-As$_{req}$ (mm²,strip)	Bottom-As$_{req}$ (mm²,m)	min steel (mm²/strip)	min steel (mm²/m)	Top Reinforcement provide T2	Top Reinforcement provide T4	Bottom Reinforcement provide B2	Bottom Reinforcement provide B4	Top-As$_{prov.}$ (mm²,strip)	Top-As$_{prov.}$ (mm²,m)	Bottom-As$_{prov.}$ (mm²,strip)	Bottom-As$_{prov.}$ (mm²,m)	Steel ratio %	Check	Remark
CSA10	1000	400	800	324	324	-81.1	61.8	605	605	605	605	461	461	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	1800	324	324	-133.1	101.4	994	994	994	994	757	757	757	757	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	2800	324	324	-130.5	99.4	974	974	974	974	742	742	742	742	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	3800	324	324	-42.9	34.4	321	321	520	520	257	257	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	4800	324	324	-131.6	172.7	983	983	983	983	1290	1290	1290	1290	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	5800	324	324	-41.7	54.7	311	311	520	520	409	409	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	6800	324	324	-49.9	38.0	373	373	520	520	284	284	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	7800	324	324	-37.8	28.8	282	282	520	520	215	215	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	8800	324	324	-117.1	153.7	875	875	875	875	1148	1148	1148	1148	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	9800	324	324	-49.4	64.8	369	369	520	520	484	484	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	10800	324	324	-117.8	89.8	880	880	880	880	671	671	671	671	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	11800	324	324	-134.4	102.4	1004	1004	1004	1004	765	765	765	765	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	12800	324	324	-94.5	72.0	706	706	706	706	538	538	538	538	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA10	1000	400	13800	324	324	-3.9	2.9	29	29	520	520	22	22	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	0	324	324	-4.2	5.6	32	32	520	520	42	42	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	800	324	324	-85.1	64.8	635	635	635	635	484	484	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	1800	324	324	-135.5	103.2	1012	1012	1012	1012	771	771	771	771	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	2800	324	324	-141.6	107.9	1057	1057	1057	1057	806	806	806	806	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	3800	324	324	-34.4	31.7	257	257	520	520	237	237	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	4735	324	324	-201.8	264.9	1508	1508	1508	1508	2014	2014	2014	2014	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	4800	324	324	-180.6	237.0	1349	1349	1349	1349	1788	1788	1788	1788	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	5800	324	324	-32.4	42.5	242	242	520	520	317	317	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	6800	324	324	-72.6	55.3	542	542	542	542	413	413	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	7800	324	324	-49.9	38.0	372	372	520	520	284	284	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	8800	324	324	-158.2	207.6	1182	1182	1182	1182	1553	1553	1553	1553	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	9070	324	324	-218.6	286.9	1641	1641	1641	1641	2196	2196	2196	2196	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	9800	324	324	-46.4	60.9	347	347	520	520	455	455	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	10800	324	324	-125.9	96.0	941	941	941	941	717	717	717	717	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	11800	324	324	-140.2	106.8	1047	1047	1047	1047	798	798	798	798	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	12800	324	324	-100.0	76.2	747	747	747	747	569	569	569	569	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA11	1000	400	13800	324	324	-4.1	5.4	31	31	520	520	40	40	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	0	324	324	-7.8	10.2	58	58	520	520	76	76	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	800	324	324	-82.5	62.9	616	616	616	616	470	470	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	1800	324	324	-124.1	94.5	927	927	927	927	706	706	706	706	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	2800	324	324	-129.1	98.4	964	964	964	964	735	735	735	735	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	3800	324	324	-81.3	61.9	607	607	607	607	463	463	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	4800	324	324	-84.5	110.8	631	631	631	631	828	828	828	828	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	5800	324	324	-48.7	37.1	364	364	520	520	277	277	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	6800	324	324	-56.2	42.9	420	420	520	520	320	320	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	7800	324	324	-44.2	33.7	330	330	520	520	252	252	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	8800	324	324	-69.0	90.6	515	515	520	520	676	676	676	676	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	9800	324	324	-59.7	59.3	446	446	520	520	443	443	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	10800	324	324	-123.0	93.7	919	919	919	919	700	700	700	700	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	11800	324	324	-128.3	97.7	958	958	958	958	730	730	730	730	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	12800	324	324	-94.4	71.9	705	705	705	705	537	537	537	537	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA12	1000	400	13800	324	324	-8.0	10.5	60	60	520	520	78	78	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	0	324	324	-23.3	30.6	174	174	520	520	228	228	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	800	324	324	-85.8	65.4	641	641	641	641	488	488	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	1800	324	324	-106.7	81.3	797	797	797	797	607	607	607	607	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	2800	324	324	-112.7	85.8	841	841	841	841	641	641	641	641	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	3800	324	324	-68.8	52.5	514	514	520	520	392	392	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	4800	324	324	-14.7	14.2	110	110	520	520	106	106	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	5800	324	324	-29.8	22.7	222	222	520	520	169	169	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	6800	324	324	-32.8	25.0	245	245	520	520	187	187	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	7800	324	324	-34.6	26.4	259	259	520	520	197	197	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	8800	324	324	-24.6	18.7	183	183	520	520	140	140	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	9800	324	324	-55.3	42.1	413	413	520	520	315	315	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	10800	324	324	-107.7	82.0	804	804	804	804	613	613	613	613	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	11800	324	324	-108.9	83.0	814	814	814	814	620	620	620	620	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	12800	324	324	-93.7	71.4	700	700	700	700	533	533	533	533	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA13	1000	400	13800	324	324	-23.3	30.6	174	174	520	520	229	229	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	0	324	324	-37.9	49.8	283	283	520	520	372	372	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	800	324	324	-92.7	70.7	693	693	693	693	528	528	528	528	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	1800	324	324	-89.7	68.4	670	670	670	670	511	511	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	2800	324	324	-70.8	54.0	529	529	529	529	403	403	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	3800	324	324	-52.1	39.7	389	389	520	520	297	297	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	4800	324	324	-29.2	22.2	218	218	520	520	166	166	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	5800	324	324	-27.1	20.6	202	202	520	520	154	154	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	6800	324	324	-27.2	20.7	203	203	520	520	155	155	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	

R.C. DESIGN OF Bottom Slab **(MAIN REINFORCEMENT IN Y-DIRECTION)**

DESIGN MOMENT USED INTERNAL MOMENT (BY WOOD ARMER METHOD) (Z2 Sediment Tank Base Slab)

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
top concrete Cover = 50 mm
bot concrete Cover = 50 mm

From SAFE Results																												
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (mm)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-moment per width (kNm)	Bottom-moment per width (kNm)	Top-As (mm^2,strip)	Top-As (mm^2,m)	Top-As$_{req}$ (mm^2,strip)	Top-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	Bottom-As$_{req}$ (mm^2,strip)	Bottom-As$_{req}$ (mm^2,m)	min steel (mm^2/strip)	min steel (mm^2/m)	Top Reinforcement provide T2	Top Reinforcement provide T4	Bottom Reinforcement provide B2	Bottom Reinforcement provide B4	Top-As$_{prov.}$ (mm^2,strip)	Top-As$_{prov.}$ (mm^2,m)	Bottom-As$_{prov.}$ (mm^2,strip)	Bottom-As$_{prov.}$ (mm^2,m)	Steel ratio %	Check	Remark
CSA14	1000	400	7800	324	324	-24.2	18.5	181	181	520	520	138	138	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	8800	324	324	-25.2	19.2	188	188	520	520	143	143	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	9800	324	324	-46.0	35.1	344	344	520	520	262	262	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	10800	324	324	-67.8	51.7	507	507	520	520	386	386	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	11800	324	324	-86.0	65.6	643	643	643	643	490	490	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	12800	324	324	-95.1	72.5	710	710	710	710	541	541	541	541	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA14	1000	400	13800	324	324	-36.3	47.6	271	271	520	520	355	355	520	520	520	520	T32-125	-	T32-125	-	6434	6434	6434	6434	1.61	ok	
CSA16	1300	400	0	324	324	-104.7	79.8	782	602	782	602	596	458	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	800	324	324	-118.7	90.4	887	682	887	682	676	520	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	1800	324	324	-88.5	67.5	661	509	676	520	504	388	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	2800	324	324	-52.4	39.9	391	301	676	520	298	229	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	3800	324	324	-29.3	22.3	219	168	676	520	167	128	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	4800	324	324	-26.5	20.2	198	152	676	520	151	116	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	5800	324	324	-21.6	16.4	161	124	676	520	123	94	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	6800	324	324	-19.2	14.6	143	110	676	520	109	84	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	7800	324	324	-15.5	11.8	115	89	676	520	88	68	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	8800	324	324	-17.7	13.5	132	102	676	520	101	77	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	9800	324	324	-24.7	18.8	185	142	676	520	141	108	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	10800	324	324	-47.4	36.1	354	272	676	520	270	208	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	11800	324	324	-81.1	61.8	606	466	676	520	461	355	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	12800	324	324	-115.4	88.0	862	663	862	663	657	505	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	
CSA16	1300	400	13800	324	324	-103.3	78.7	772	594	772	594	588	452	676	520	676	520	T32-125	-	T32-125	-	8364	6434	8364	6434	2.09	ok	

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$: Asv not required
For $v_c' < v < (v_c'+0.4)$: $A_{sv}/s > v_t b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$: $Asv/s > b_v(v-v_c) / 0.87 f_{yv}$

max. v= 1.010 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2,strip)	Top-$As_{prov.}$ (mm^2,m)	Bottom-$As_{prov.}$ (mm^2,strip)	Bottom-$As_{prov.}$ (mm^2,m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2, strip)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA1	500	400	0	324	324	3217	6434	3217	6434	25.28	0.156	0.078	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	800	324	324	3217	6434	3217	6434	25.28	0.156	0.078	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	1800	324	324	3217	6434	3217	6434	15.87	0.098	0.049	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	2800	324	324	3217	6434	3217	6434	7.59	0.047	0.023	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	3800	324	324	3217	6434	3217	6434	4.48	0.028	0.014	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	4800	324	324	3217	6434	3217	6434	37.22	0.230	0.115	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	5800	324	324	3217	6434	3217	6434	2.51	0.016	0.008	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	6800	324	324	3217	6434	3217	6434	2.45	0.015	0.008	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	7800	324	324	3217	6434	3217	6434	10.36	0.064	0.032	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	8800	324	324	3217	6434	3217	6434	32.12	0.198	0.099	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	9800	324	324	3217	6434	3217	6434	5.59	0.034	0.017	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	10800	324	324	3217	6434	3217	6434	6.76	0.042	0.021	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	11800	324	324	3217	6434	3217	6434	14.15	0.087	0.044	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	12800	324	324	3217	6434	3217	6434	16.98	0.105	0.052	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA1	500	400	13800	324	324	3217	6434	3217	6434	16.98	0.105	0.052	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	0	324	324	6434	6434	6434	6434	12.17	0.038	0.038	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	800	324	324	6434	6434	6434	6434	12.17	0.038	0.038	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	1800	324	324	6434	6434	6434	6434	6.15	0.019	0.019	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	2800	324	324	6434	6434	6434	6434	8.19	0.025	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	3800	324	324	6434	6434	6434	6434	8.19	0.025	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	4800	324	324	6434	6434	6434	6434	27.62	0.085	0.085	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	5800	324	324	6434	6434	6434	6434	5.62	0.017	0.017	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	6800	324	324	6434	6434	6434	6434	5.62	0.017	0.017	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	7800	324	324	6434	6434	6434	6434	10.94	0.034	0.034	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	8800	324	324	6434	6434	6434	6434	27.74	0.086	0.086	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	9800	324	324	6434	6434	6434	6434	10.35	0.032	0.032	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	10800	324	324	6434	6434	6434	6434	10.35	0.032	0.032	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	11800	324	324	6434	6434	6434	6434	7.07	0.022	0.022	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	12800	324	324	6434	6434	6434	6434	13.59	0.042	0.042	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA2	1000	400	13800	324	324	6434	6434	6434	6434	13.59	0.042	0.042	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	0	324	324	6434	6434	6434	6434	91.66	0.283	0.283	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	800	324	324	6434	6434	6434	6434	91.66	0.283	0.283	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	1800	324	324	6434	6434	6434	6434	36.43	0.112	0.112	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	2800	324	324	6434	6434	6434	6434	12.42	0.038	0.038	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	3800	324	324	6434	6434	6434	6434	12.42	0.038	0.038	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	4800	324	324	6434	6434	6434	6434	9.85	0.030	0.030	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	5800	324	324	6434	6434	6434	6434	9.85	0.030	0.030	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	6800	324	324	6434	6434	6434	6434	8.12	0.025	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	7800	324	324	6434	6434	6434	6434	1.13	0.003	0.003	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	8800	324	324	6434	6434	6434	6434	7.11	0.022	0.022	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	9800	324	324	6434	6434	6434	6434	14.98	0.046	0.046	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	10800	324	324	6434	6434	6434	6434	14.98	0.046	0.046	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	11800	324	324	6434	6434	6434	6434	28.16	0.087	0.087	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	12800	324	324	6434	6434	6434	6434	78.23	0.241	0.241	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA3	1000	400	13800	324	324	6434	6434	6434	6434	78.23	0.241	0.241	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	0	324	324	6434	6434	6434	6434	107.89	0.333	0.333	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	800	324	324	6434	6434	6434	6434	107.89	0.333	0.333	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	1800	324	324	6434	6434	6434	6434	48.31	0.149	0.149	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	2800	324	324	6434	6434	6434	6434	34.69	0.107	0.107	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	3800	324	324	6434	6434	6434	6434	41.82	0.129	0.129	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	4800	324	324	6434	6434	6434	6434	31.31	0.097	0.097	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	5800	324	324	6434	6434	6434	6434	31.31	0.097	0.097	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	6800	324	324	6434	6434	6434	6434	16.00	0.049	0.049	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	7800	324	324	6434	6434	6434	6434	15.33	0.047	0.047	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	8800	324	324	6434	6434	6434	6434	4.17	0.013	0.013	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	9800	324	324	6434	6434	6434	6434	39.06	0.121	0.121	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	10800	324	324	6434	6434	6434	6434	39.06	0.121	0.121	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	11800	324	324	6434	6434	6434	6434	36.69	0.113	0.113	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	12800	324	324	6434	6434	6434	6434	96.80	0.299	0.299	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA4	1000	400	13800	324	324	6434	6434	6434	6434	96.80	0.299	0.299	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	0	324	324	6434	6434	6434	6434	103.38	0.319	0.319	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	800	324	324	6434	6434	6434	6434	103.38	0.319	0.319	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	1800	324	324	6434	6434	6434	6434	43.11	0.133	0.133	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	2800	324	324	6434	6434	6434	6434	89.00	0.275	0.275	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	3800	324	324	6434	6434	6434	6434	170.76	0.527	0.527	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	4800	324	324	6434	6434	6434	6434	127.92	0.395	0.395	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	5800	324	324	6434	6434	6434	6434	127.92	0.395	0.395	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	6800	324	324	6434	6434	6434	6434	42.30	0.131	0.131	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	7800	324	324	6434	6434	6434	6434	103.00	0.318	0.318	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm^2
f_w = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$: Asv not required
For $v_c' < v < (v_c'+0.4)$: $A_{sv}/s > v_t b_v / 0.87 f_w$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$: $Asv/s > b_v (v-v_c) / 0.87 f_w$

max. v= 1.010 N/mm^2 <0.5N/mm^2 , so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-As$_{prov.}$ (mm^2,strip)	Top-As$_{prov.}$ (mm^2,m)	Bottom-As$_{prov.}$ (mm^2,strip)	Bottom-As$_{prov.}$ (mm^2,m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	100A_s/bd	(400/d)$^{1/4}$	v_c (N/mm^2, strip)	0.8$f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA5	1000	400	8800	324	324	6434	6434	6434	6434	159.24	0.491	0.491	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	9800	324	324	6434	6434	6434	6434	181.03	0.559	0.559	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	10800	324	324	6434	6434	6434	6434	104.09	0.321	0.321	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	11800	324	324	6434	6434	6434	6434	34.47	0.106	0.106	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	12800	324	324	6434	6434	6434	6434	95.19	0.294	0.294	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA5	1000	400	13800	324	324	6434	6434	6434	6434	95.19	0.294	0.294	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	0	324	324	6434	6434	6434	6434	96.75	0.299	0.299	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	800	324	324	6434	6434	6434	6434	96.75	0.299	0.299	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	1800	324	324	6434	6434	6434	6434	36.26	0.112	0.112	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	2800	324	324	6434	6434	6434	6434	128.58	0.397	0.397	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	3800	324	324	6434	6434	6434	6434	278.60	0.860	0.860	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	4735	324	324	6434	6434	6434	6434	278.60	0.860	0.860	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	4800	324	324	6434	6434	6434	6434	208.30	0.643	0.643	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	5800	324	324	6434	6434	6434	6434	208.30	0.643	0.643	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	6800	324	324	6434	6434	6434	6434	62.73	0.194	0.194	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	7800	324	324	6434	6434	6434	6434	176.57	0.545	0.545	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	8800	324	324	6434	6434	6434	6434	318.61	0.983	0.983	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	9070	324	324	6434	6434	6434	6434	327.18	1.010	1.010	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	9800	324	324	6434	6434	6434	6434	327.18	1.010	1.010	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	10800	324	324	6434	6434	6434	6434	152.95	0.472	0.472	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	11800	324	324	6434	6434	6434	6434	52.82	0.163	0.163	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	12800	324	324	6434	6434	6434	6434	89.91	0.277	0.277	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA6	1000	400	13800	324	324	6434	6434	6434	6434	89.91	0.277	0.277	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	0	324	324	6434	6434	6434	6434	94.35	0.291	0.291	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	800	324	324	6434	6434	6434	6434	94.35	0.291	0.291	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	1800	324	324	6434	6434	6434	6434	36.93	0.114	0.114	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	2800	324	324	6434	6434	6434	6434	100.48	0.310	0.310	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	3800	324	324	6434	6434	6434	6434	179.17	0.553	0.553	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	4800	324	324	6434	6434	6434	6434	127.93	0.395	0.395	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	5800	324	324	6434	6434	6434	6434	127.93	0.395	0.395	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	6800	324	324	6434	6434	6434	6434	44.41	0.137	0.137	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	7800	324	324	6434	6434	6434	6434	101.30	0.313	0.313	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	8800	324	324	6434	6434	6434	6434	155.99	0.481	0.481	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	9800	324	324	6434	6434	6434	6434	188.47	0.582	0.582	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	10800	324	324	6434	6434	6434	6434	115.21	0.356	0.356	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	11800	324	324	6434	6434	6434	6434	43.34	0.134	0.134	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	12800	324	324	6434	6434	6434	6434	87.96	0.271	0.271	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA7	1000	400	13800	324	324	6434	6434	6434	6434	87.96	0.271	0.271	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	0	324	324	6434	6434	6434	6434	94.50	0.292	0.292	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	800	324	324	6434	6434	6434	6434	94.50	0.292	0.292	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	1800	324	324	6434	6434	6434	6434	40.30	0.124	0.124	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	2800	324	324	6434	6434	6434	6434	62.29	0.192	0.192	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	3800	324	324	6434	6434	6434	6434	64.98	0.201	0.201	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	4800	324	324	6434	6434	6434	6434	37.46	0.116	0.116	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	5800	324	324	6434	6434	6434	6434	37.46	0.116	0.116	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	6800	324	324	6434	6434	6434	6434	22.54	0.070	0.070	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	7800	324	324	6434	6434	6434	6434	15.72	0.049	0.049	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	8800	324	324	6434	6434	6434	6434	7.54	0.023	0.023	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	9800	324	324	6434	6434	6434	6434	66.25	0.204	0.204	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	10800	324	324	6434	6434	6434	6434	66.25	0.204	0.204	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	11800	324	324	6434	6434	6434	6434	28.61	0.088	0.088	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	12800	324	324	6434	6434	6434	6434	88.30	0.273	0.273	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA8	1000	400	13800	324	324	6434	6434	6434	6434	88.30	0.273	0.273	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	0	324	324	6434	6434	6434	6434	95.49	0.295	0.295	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	800	324	324	6434	6434	6434	6434	95.49	0.295	0.295	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	1800	324	324	6434	6434	6434	6434	39.82	0.123	0.123	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	2800	324	324	6434	6434	6434	6434	69.76	0.215	0.215	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	3800	324	324	6434	6434	6434	6434	74.81	0.231	0.231	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	4800	324	324	6434	6434	6434	6434	44.67	0.138	0.138	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	5800	324	324	6434	6434	6434	6434	44.67	0.138	0.138	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	6800	324	324	6434	6434	6434	6434	27.08	0.084	0.084	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	7800	324	324	6434	6434	6434	6434	27.64	0.085	0.085	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	8800	324	324	6434	6434	6434	6434	3.60	0.011	0.011	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	9800	324	324	6434	6434	6434	6434	74.51	0.230	0.230	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	10800	324	324	6434	6434	6434	6434	74.51	0.230	0.230	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	11800	324	324	6434	6434	6434	6434	29.80	0.092	0.092	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	12800	324	324	6434	6434	6434	6434	88.83	0.274	0.274	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA9	1000	400	13800	324	324	6434	6434	6434	6434	88.83	0.274	0.274	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	0	324	324	6434	6434	6434	6434	92.73	0.286	0.286	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm²
f_{yv} = 500 N/mm²
f_{cu} = 45 N/mm²
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_t b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v(v-v_c) / 0.87 f_{yv}$

max. v= 1.010 N/mm² <0.5N/mm² , so no links required.

STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effectiv e Depth D (mm)	Bottom Effectiv e Depth D (mm)	Top-$As_{prov.}$ (mm^2,strip)	Top-$As_{prov.}$ (mm^2,m)	Bottom-$As_{prov.}$ (mm^2,strip)	Bottom-$As_{prov.}$ (mm^2,m)	From SAFE Results Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2, strip)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA10	1000	400	800	324	324	6434	6434	6434	6434	92.73	0.286	0.286	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	1800	324	324	6434	6434	6434	6434	36.94	0.114	0.114	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	2800	324	324	6434	6434	6434	6434	113.59	0.351	0.351	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	3800	324	324	6434	6434	6434	6434	196.82	0.607	0.607	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	4800	324	324	6434	6434	6434	6434	140.86	0.435	0.435	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	5800	324	324	6434	6434	6434	6434	140.86	0.435	0.435	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	6800	324	324	6434	6434	6434	6434	52.47	0.162	0.162	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	7800	324	324	6434	6434	6434	6434	122.43	0.378	0.378	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	8800	324	324	6434	6434	6434	6434	176.43	0.545	0.545	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	9800	324	324	6434	6434	6434	6434	209.11	0.645	0.645	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	10800	324	324	6434	6434	6434	6434	129.74	0.400	0.400	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	11800	324	324	6434	6434	6434	6434	47.28	0.146	0.146	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	12800	324	324	6434	6434	6434	6434	87.02	0.269	0.269	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA10	1000	400	13800	324	324	6434	6434	6434	6434	87.02	0.269	0.269	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	0	324	324	6434	6434	6434	6434	97.58	0.301	0.301	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	800	324	324	6434	6434	6434	6434	97.58	0.301	0.301	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	1800	324	324	6434	6434	6434	6434	37.24	0.115	0.115	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	2800	324	324	6434	6434	6434	6434	121.73	0.376	0.376	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	3800	324	324	6434	6434	6434	6434	270.63	0.835	0.835	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	4735	324	324	6434	6434	6434	6434	270.63	0.835	0.835	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	4800	324	324	6434	6434	6434	6434	203.78	0.629	0.629	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	5800	324	324	6434	6434	6434	6434	203.78	0.629	0.629	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	6800	324	324	6434	6434	6434	6434	59.57	0.184	0.184	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	7800	324	324	6434	6434	6434	6434	169.08	0.522	0.522	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	8800	324	324	6434	6434	6434	6434	311.97	0.963	0.963	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	9070	324	324	6434	6434	6434	6434	318.56	0.983	0.983	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	9800	324	324	6434	6434	6434	6434	318.56	0.983	0.983	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	10800	324	324	6434	6434	6434	6434	145.67	0.450	0.450	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	11800	324	324	6434	6434	6434	6434	50.40	0.156	0.156	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	12800	324	324	6434	6434	6434	6434	90.77	0.280	0.280	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA11	1000	400	13800	324	324	6434	6434	6434	6434	90.77	0.280	0.280	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	0	324	324	6434	6434	6434	6434	106.48	0.329	0.329	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	800	324	324	6434	6434	6434	6434	106.48	0.329	0.329	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	1800	324	324	6434	6434	6434	6434	45.08	0.139	0.139	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	2800	324	324	6434	6434	6434	6434	73.89	0.228	0.228	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	3800	324	324	6434	6434	6434	6434	152.82	0.472	0.472	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	4800	324	324	6434	6434	6434	6434	117.16	0.362	0.362	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	5800	324	324	6434	6434	6434	6434	117.16	0.362	0.362	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	6800	324	324	6434	6434	6434	6434	35.02	0.108	0.108	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	7800	324	324	6434	6434	6434	6434	85.41	0.264	0.264	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	8800	324	324	6434	6434	6434	6434	143.95	0.444	0.444	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	9800	324	324	6434	6434	6434	6434	161.70	0.499	0.499	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	10800	324	324	6434	6434	6434	6434	88.01	0.272	0.272	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	11800	324	324	6434	6434	6434	6434	31.98	0.099	0.099	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	12800	324	324	6434	6434	6434	6434	97.15	0.300	0.300	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA12	1000	400	13800	324	324	6434	6434	6434	6434	97.15	0.300	0.300	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	0	324	324	6434	6434	6434	6434	106.91	0.330	0.330	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	800	324	324	6434	6434	6434	6434	106.91	0.330	0.330	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	1800	324	324	6434	6434	6434	6434	48.16	0.149	0.149	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	2800	324	324	6434	6434	6434	6434	22.89	0.071	0.071	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	3800	324	324	6434	6434	6434	6434	29.15	0.090	0.090	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	4800	324	324	6434	6434	6434	6434	25.67	0.079	0.079	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	5800	324	324	6434	6434	6434	6434	25.67	0.079	0.079	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	6800	324	324	6434	6434	6434	6434	11.70	0.036	0.036	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	7800	324	324	6434	6434	6434	6434	6.59	0.020	0.020	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	8800	324	324	6434	6434	6434	6434	9.92	0.031	0.031	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	9800	324	324	6434	6434	6434	6434	27.01	0.083	0.083	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	10800	324	324	6434	6434	6434	6434	27.01	0.083	0.083	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	11800	324	324	6434	6434	6434	6434	36.98	0.114	0.114	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	12800	324	324	6434	6434	6434	6434	95.37	0.294	0.294	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA13	1000	400	13800	324	324	6434	6434	6434	6434	95.37	0.294	0.294	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	0	324	324	6434	6434	6434	6434	82.83	0.256	0.256	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	800	324	324	6434	6434	6434	6434	82.83	0.256	0.256	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	1800	324	324	6434	6434	6434	6434	30.40	0.094	0.094	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	2800	324	324	6434	6434	6434	6434	7.97	0.025	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	3800	324	324	6434	6434	6434	6434	7.97	0.025	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	4800	324	324	6434	6434	6434	6434	9.64	0.030	0.030	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	5800	324	324	6434	6434	6434	6434	9.64	0.030	0.030	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	6800	324	324	6434	6434	6434	6434	7.39	0.023	0.023	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok

R.C. DESIGN OF Bottom Slab **(SHEAR LINKS IN Y-DIRECTION)**

f_y = 500 N/mm^2
f_{yv} = 500 N/mm^2
f_{cu} = 45 N/mm^2
concrete Cover = 50 mm

For $v < v_c'$ — Asv not required
For $v_c' < v < (v_c'+0.4)$ — $A_{sv}/s > v_t b_v / 0.87 f_{yv}$
For $(v_c'+0.4) < v < 0.8 f_{cu}^{0.5}$ — $Asv/s > b_v(v-v_c) / 0.87 f_{yv}$

max. v= 1.010 N/mm^2 <0.5N/mm^2 , so no links required.

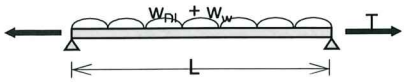
STRIP	Strip Width (mm)	Strip Depth (mm)	Station ordinate (m)	Top Effective Depth D (mm)	Bottom Effective Depth D (mm)	Top-$As_{prov.}$ (mm^2,strip)	Top-$As_{prov.}$ (mm^2,m)	Bottom-$As_{prov.}$ (mm^2,strip)	Bottom-$As_{prov.}$ (mm^2,m)	From SAFE Results: Shear per width (kN)	v = V/bd (N/mm^2,strip)	v = V/bd (N/mm^2, m)	$100A_s/bd$	$(400/d)^{1/4}$	v_c (N/mm^2, strip)	$0.8f_{cu}^{1/2}$ (N/mm^2)	Check	v<v_c Check	Asv/s req. (mm^2/m/m)	Shear Links provide	Asv/s prov. (mm^2/m/m)	Check
CSA14	1000	400	7800	324	324	6434	6434	6434	6434	0.76	0.002	0.002	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	8800	324	324	6434	6434	6434	6434	5.98	0.018	0.018	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	9800	324	324	6434	6434	6434	6434	10.69	0.033	0.033	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	10800	324	324	6434	6434	6434	6434	10.69	0.033	0.033	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	11800	324	324	6434	6434	6434	6434	23.02	0.071	0.071	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	12800	324	324	6434	6434	6434	6434	70.33	0.217	0.217	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA14	1000	400	13800	324	324	6434	6434	6434	6434	70.33	0.217	0.217	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	0	324	324	8364	6434	8364	6434	21.18	0.050	0.065	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	800	324	324	8364	6434	8364	6434	21.19	0.050	0.065	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	1800	324	324	8364	6434	8364	6434	21.19	0.050	0.065	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	2800	324	324	8364	6434	8364	6434	10.53	0.025	0.032	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	3800	324	324	8364	6434	8364	6434	8.10	0.019	0.025	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	4800	324	324	8364	6434	8364	6434	63.20	0.150	0.195	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	5800	324	324	8364	6434	8364	6434	7.64	0.018	0.024	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	6800	324	324	8364	6434	8364	6434	7.45	0.018	0.023	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	7800	324	324	8364	6434	8364	6434	20.43	0.049	0.063	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	8800	324	324	8364	6434	8364	6434	57.43	0.136	0.177	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	9800	324	324	8364	6434	8364	6434	11.57	0.027	0.036	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	10800	324	324	8364	6434	8364	6434	11.57	0.027	0.036	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	11800	324	324	8364	6434	8364	6434	19.82	0.047	0.061	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	12800	324	324	8364	6434	8364	6434	19.82	0.047	0.061	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok
CSA16	1300	400	13800	324	324	8364	6434	8364	6434	10.51	0.025	0.032	1.986	1.054	1.019	5.37	ok	ok	-	-	-	ok

(Cont'd: Project: LPH - YPR Location: Zone 1 - Sediment Tank)

Design of Bottom Slab (Portion 1)

C.1. Calculation of Internal Forces

Thickness of Bottom Slab	T_b	=	400 mm
~~Finishes (SDL)~~	~~w_{SDL}~~	=	~~4.00 kPa~~
Dead Load (Total)	w_{DL}	=	14.70 kPa
Live Load	w_{LL}	=	7.50 kPa
Uplift Pressure (SLS)	w_{wS}	=	56.90 kPa
~~Total Pressure (ULS)~~	~~w_{wU}~~	=	~~79.66 kPa~~



C.1.1. Serviceablility Limit State

Total Service Moment $M_{TL} = M_{DL}+M_w$ = 215.2 kNm/m (From SAFE Strip Moment)

C.1.2. Ultimate Limit State

Ultimate Design Moment $M_U = 1.4M_{DL}+1.4M_w$ = 301.3 kNm/m (From SAFE Strip Moment)

C.2. Ultimate Limite State Design

	b	=	1000 mm			
Cover	c_{min}	=	50 mm			
Effective Depth	d	=	334 mm			
	K	=	$M_U/(b*d^2*f_{cu})$	=	0.0600	< 0.156
	z/d	=	$0.5+\sqrt{0.25 - K/0.9}$			= 0.928
Lever Arm	z	=	0.93d	=	310.0 mm	
Depth to Neutral Axis	x	=	(d-z) / 0.45	=	53.3 mm	
Required Bending Reinforcement	$A_{s,M}$	=	$M_U/0.87f_yz$	=	2429 mm^2/m	
Total Required Reinforcement	$A_{s,req}$	=	$A_{s,M} + A_{s,T}/2$	=	2429 mm^2/m	
Min. Reinforcement		=	0.13% x T_bb	=	520 mm^2/m	

Bottom Reinforcement
Provide T 32 - 125
$A_{s,pro}$ = 6434 mm^2/m > 2429 mm^2/m (Steel Ratio = 1.61%) OK

Top Reinforcement / Distribution Bar
Provide T 32 - 125
$A_{s,pro}$ = 6434 mm^2/m > 520 mm^2/m (Steel Ratio = 1.61%) OK

C.3. Serviceability Limit State Design

C.3.1. Flexural Tension in Mature Concrete

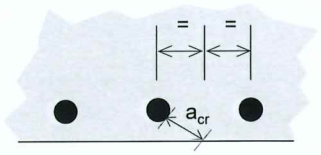
Design Service Moment	M	=	215.21 kNm/m		
	E_c	=	26400 MPa		
	E_s	=	205000 MPa		
Modular Ratio	α_e	=	$E_s/(E_c/2)$	= 15.53	(Includes Allowance for Creep)
	x/d	=	$-\alpha_eA_s+\sqrt{[(\alpha_eA_s)^2+2b\alpha_eA_sd]}/bd$		= 0.530
	x	=	177 mm		
Tensile Stress due to Bending		=	$M / A_s(d-x/3)$	= 121.6 MPa	
Tensile Stress due to Tension		=	T / A_s	= 0.0 MPa	
Total Tensile Stress	f_s	=	121.6 MPa		
Allowable Steel Stress		=	130 MPa	> 121.6 MPa	(Table 3.1 of BS8007:1987)

The crack width is deemed to be satisfactory.

(Cont'd: **Project:** LPH - YPR **Location:** Zone 1 - Sediment Tank)

Calculation of Actual Crack Width

Distance from zero strain	a_{cr}	$= \sqrt{(s/2)^2+(c_{min}+\phi/2)^2}-\phi/2 =$	75	mm		
Flexural Strain		$= (T_b-x)f_s / (d-x)E_s =$	0.000843			
Direct Tensile Strain		$= T / A_sE_s =$	0.000000			
Total Strain	ε_1	=	0.000843			
	a'	=	400	mm		
Strain due to the stiffening of concrete	ε_2	= 1.0 x $b_t(T_b-x)(a'-x) / 3E_sA_s(d-x) =$	0.000080			
Average Strain	ε_m	= $\varepsilon_1-\varepsilon_2$ =	0.000763			
Design Surface Crack Width	w	= $3a_{cr}\varepsilon_m / [1+2(a_{cr}/c_{min}) / (T_b-x)]$ =	0.169	mm		
			< 0.2	mm		



The crack width is acceptable. OK

C.3.2. Direct Tension in Immature Concrete

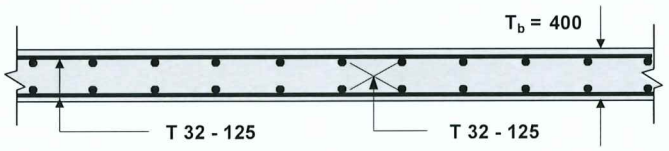
Critcial Steel Ratio	ρ_{crit}	=	0.0035		
Thickness of Surface Zone	h'	=	200	mm	
Required Steel Reinforcement		= $\rho_{crit}bh'$ =	700	mm^2/m	OK
	f_{ct}/f_b	=	0.67		
Coefficient of Thermal Expansion	α	=	0.00001		
Anticipated Fall in Temperature	T_1	=	25	°C	

Bottom Reinforcement

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$ =	666.46	mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$ =	0.08	mm	<	0.2	mm OK

Top Reinforcement / Distribution Bar:

Maximum spacing of cracks	s_{max}	= f_{ct}/f_b x $\phi/2\rho$ =	666.46	mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$ =	0.08	mm	<	0.2	mm OK



RC Details of Bottom Slab (Section)

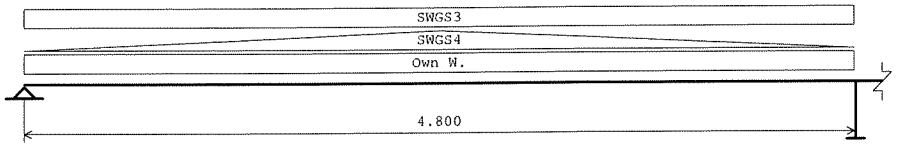
Zone 2
RC Design - Beam

CONTINUOUS BEAMS :

Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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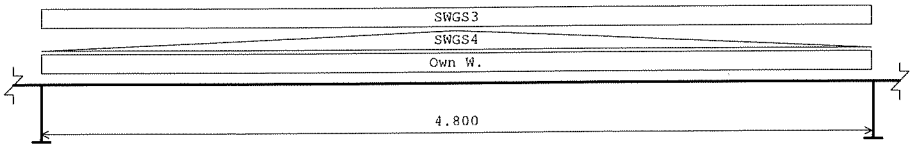
* SWGB1 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	

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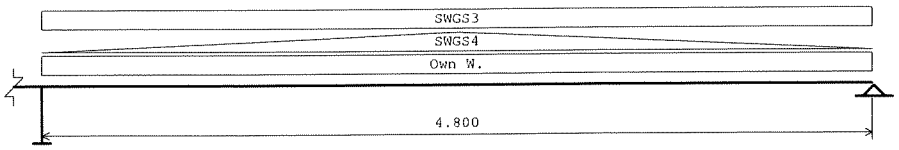
* SWGB2 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	

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* SWGB3 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	SWC1	Col.	0.0		None		500	500	5.100
3	SWC2	Col.	0.0		None		500	500	5.100

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
SWGB1	D.L.	106.643	106.643	96.050	152.278
	L.L.(N)	34.398	34.398	30.532	48.668
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB2	D.L.	106.643	106.643	124.164	124.164
	L.L.(N)	34.398	34.398	39.600	39.600
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB3	D.L.	106.643	106.643	152.278	96.050
	L.L.(N)	34.398	34.398	48.668	30.532
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl	Mrmax	Mlmax	Vcl	Mrmin
			(\)			(/)	
SWC1	DL+LL	-144.564	0.000	-139.288	-141.499	0.000	-133.365
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-118.302	0.000	-113.466	-117.023	0.000	-110.821
	D+L(FLS)	-116.375	0.000	-109.591	-113.350	0.000	-109.453
	D ONLY(FLS)	-98.052	0.000	-93.453	-98.052	0.000	-93.453
SWC2	DL+LL	-133.365	0.000	-141.499	-139.288	0.000	-144.564
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-110.821	0.000	-117.023	-113.466	0.000	-118.302
	D+L(FLS)	-109.453	0.000	-113.350	-109.591	0.000	-116.375
	D ONLY(FLS)	-93.453	0.000	-98.052	-93.453	0.000	-98.052

* SWGB1 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)		0.000	0.463	0.927	1.390	1.853	2.317	2.780	3.243	3.707	4.170	4.634
-Mmax										-5.52	-101.37	-150.18
Beta										1.000	1.000	1.000
+Mmax		0.00	54.84	145.98	127.10	141.05	137.92	181.48	126.62	21.58		
Beta		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top :	At	300	0	0	0	0	0	0	0	300	356	902
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.200
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.:	At	0	300	512	685	818	788	636	444	300	0	0
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.200	0.200	0.200	0.200	0.200	0.112	0.000	0.000	0.000
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)		192.87	158.44	118.57	73.27	22.53	-45.96	-103.91	-156.60	-203.86	-245.68	-282.07
Av/s		800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 42.265 O.K.

* SWGB2 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)		0.167	0.613	1.060	1.507	1.953	2.400	2.847	3.293	3.740	4.187	4.634
-Mmax		-142.29	-113.26	-30.88	-1.06	-12.03	-5.54	-12.03	-1.06	-30.88	-113.26	-142.29
Beta		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
+Mmax				17.47	36.12	110.82	123.34	110.82	36.12	17.47		
Beta				1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top :	At	829	397	300	300	42	19	42	300	300	397	829
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.200	0.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.101	0.200
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.:	At	0	0	61	300	389	433	389	300	61	0	0
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.000	0.000	0.008	0.064	0.008	0.000	0.000	0.000	0.000
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)		243.07	208.08	168.05	122.96	72.82	17.62	-72.82	-122.96	-168.05	-208.08	-243.07
Av/s		800	800	800	800	800	800	800	800	800	800	800

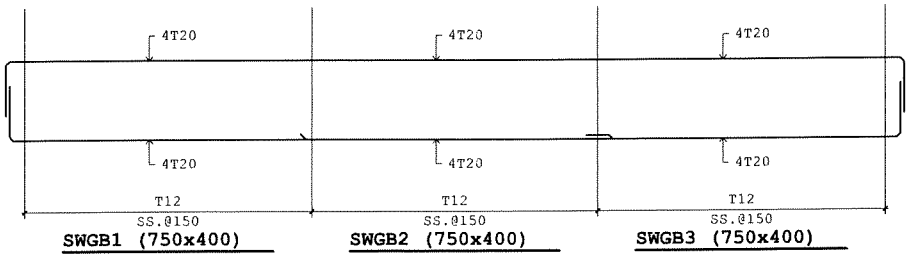
Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 58.852 O.K.

* SWGB3 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.630	1.093	1.557	2.020	2.483	2.947	3.410	3.873	4.337	4.800
-Mmax	-150.18	-101.37	-5.52								
Beta	1.000	1.000	1.000								
+Mmax			21.58	126.62	181.48	137.92	141.05	127.10	145.98	54.84	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	902	356	300	0	0	0	0	0	0	0	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	300	444	636	788	818	685	512	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.112	0.200	0.200	0.200	0.200	0.200	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	282.07	245.68	203.86	156.60	103.91	45.96	-22.53	-73.27	-118.57	-158.44	-192.87
Av/s	800	800	800	800	800	800	800	800	800	800	800

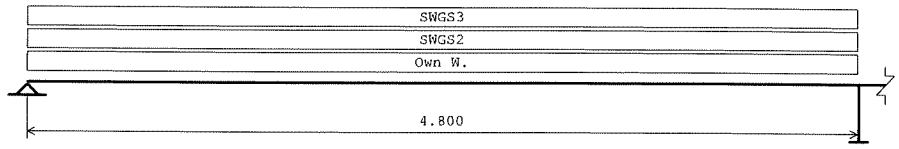
Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 42.265 O.K.



CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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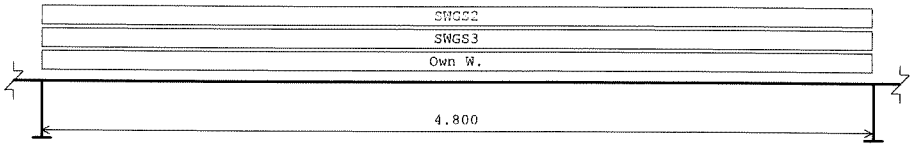
* SWGB4 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	

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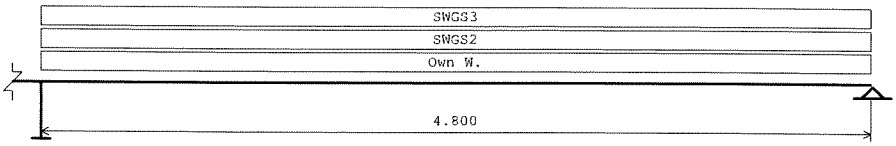
* SWGB5 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	

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* SWGB6 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	
SWGS3	Uniform	29.153	10.837	0.000	0.000	4.800	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	SWC3	Col.	0.0	None			500	500	5.100
3	SWC4	Col.	0.0	None			500	500	5.100

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
SWGB4	D.L.	114.761	114.761	113.197	173.706
	L.L.(N)	37.416	37.416	36.906	56.634
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB5	D.L.	114.761	114.761	143.451	143.451
	L.L.(N)	37.416	37.416	46.770	46.770
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB6	D.L.	114.761	114.761	173.706	113.197
	L.L.(N)	37.416	37.416	56.634	36.906
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl (\)	Mrmax	Mlmax	Vcl (/)	Mrmin
SWC3	DL+LL	-152.164	0.000	-148.337	-150.701	0.000	-140.069
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-124.712	0.000	-120.250	-124.077	0.000	-116.662
	D+L(FLS)	-123.036	0.000	-116.268	-120.302	0.000	-115.560
	D ONLY(FLS)	-103.662	0.000	-98.713	-103.662	0.000	-98.713
SWC4	DL+LL	-140.069	0.000	-150.701	-148.337	0.000	-152.164
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-116.662	0.000	-124.077	-120.250	0.000	-124.712
	D+L(FLS)	-115.560	0.000	-120.302	-116.268	0.000	-123.036
	D ONLY(FLS)	-98.713	0.000	-103.662	-98.713	0.000	-103.662

* SWGB4 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.463	0.927	1.390	1.853	2.317	2.780	3.243	3.707	4.170	4.634
-Mmax									-4.60	-104.04	-160.21
Beta									1.000	1.000	1.000
+Mmax	0.00	93.25	161.84	137.16	148.85	143.52	189.61	134.90	25.44		
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	300	0	0	0	0	0	0	0	300	365	993
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.051	0.200
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	327	568	781	890	841	665	473	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.019	0.200	0.200	0.200	0.200	0.200	0.144	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	227.86	174.64	121.42	68.20	14.98	-51.56	-104.78	-158.00	-211.22	-264.44	-317.66
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 39.420 O.K.

* SWGB5 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.613	1.060	1.507	1.953	2.400	2.847	3.293	3.740	4.187	4.634
-Mmax	-151.70	-116.86	-31.79	-1.97	-16.15	-10.19	-16.15	-1.97	-31.79	-116.86	-151.70
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
+Mmax			22.26	38.21	113.94	125.40	113.94	38.21	22.26		
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	916	410	300	300	57	36	57	300	300	410	916
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116	0.200
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	78	300	400	440	400	300	78	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.014	0.066	0.014	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	275.62	224.31	173.00	121.70	70.39	19.08	-70.39	-121.70	-173.00	-224.31	-275.62
Av/s	800	800	800	800	800	800	800	800	800	800	800

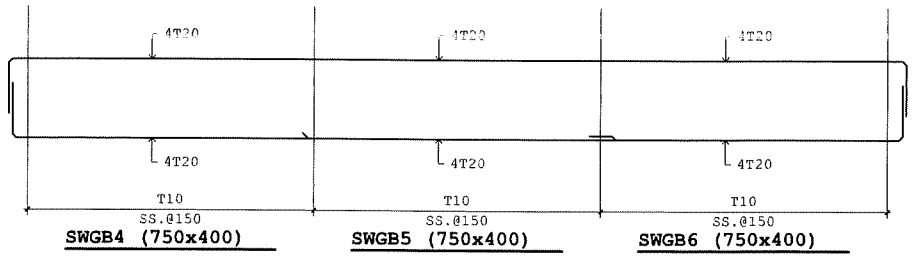
Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 58.852 O.K.

* SWGB6 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.630	1.093	1.557	2.020	2.483	2.947	3.410	3.873	4.337	4.800
-Mmax	-160.21	-104.04	-4.60								
Beta	1.000	1.000	1.000								
+Mmax			25.44	134.90	189.61	143.52	148.85	137.16	161.84	93.25	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	993	365	300	0	0	0	0	0	0	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	300	473	665	841	890	781	568	327	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.144	0.200	0.200	0.200	0.200	0.200	0.019	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	317.66	264.44	211.22	158.00	104.78	51.56	-14.98	-68.20	-121.42	-174.64	-227.86
Av/s	800	800	800	800	800	800	800	800	800	800	800

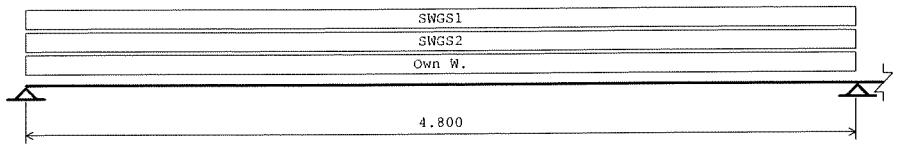
Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 39.420 O.K.



CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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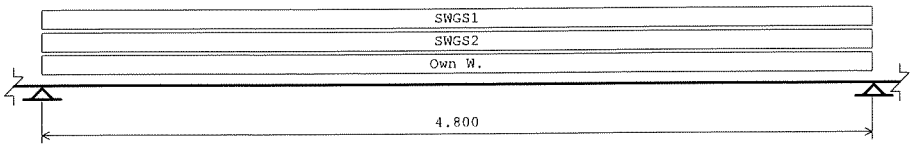
* SWGB8 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	
SWGS1	Uniform	7.229	2.688	0.000	0.000	4.800	

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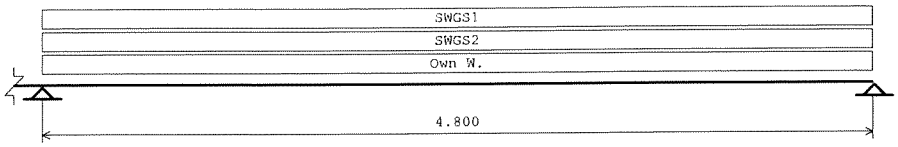
* SWGB9 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	
SWGS1	Uniform	7.229	2.688	0.000	0.000	4.800	

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* SWGB10 * L = 4.800 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.800	
SWGS2	Uniform	23.269	8.650	0.000	0.000	4.800	
SWGS1	Uniform	7.229	2.688	0.000	0.000	4.800	

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
SWGB8	D.L.	72.668	72.668	72.668	109.002
	L.L.(N)	21.768	21.768	21.768	32.652
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB9	D.L.	72.668	72.668	90.835	90.835
	L.L.(N)	21.768	21.768	27.210	27.210
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB10	D.L.	72.668	72.668	109.002	72.668
	L.L.(N)	21.768	21.768	32.652	21.768
	L.L.(P)	0.000	0.000	0.000	0.000

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* SWGB8 * L = 4.800 Sec.= 750x400
Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.480	0.960	1.440	1.920	2.400	2.880	3.360	3.840	4.320	4.800
-Mmax									-10.45	-54.91	-176.66
Beta									1.000	1.000	1.000

+Mmax	0.00	40.97	105.99	134.41	146.44	142.08	121.33	48.81	10.45		
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	300	0	0	0	0	0	0	0	300	300	620
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	300	372	471	514	498	426	300	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.071	0.183	0.200	0.195	0.105	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	144.55	110.41	76.27	42.13	7.99	-36.80	-70.94	-105.09	-139.23	-173.37	-207.51
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 52.061 O.K.

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* SWGB9 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.480	0.960	1.440	1.920	2.400	2.880	3.360	3.840	4.320	4.800
-Mmax	-176.66	-96.52	-30.50	-8.70	-20.90	-16.54	-20.90	-8.70	-30.50	-96.52	-176.66
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
+Mmax			5.56	18.73	35.73	41.39	35.73	18.73	5.56		
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	620	339	300	300	73	58	73	300	300	339	620
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031	0.200
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	20	300	300	300	300	300	20	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	184.02	149.88	115.73	81.59	47.45	13.31	-47.45	-81.59	-115.73	-149.88	-184.02
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 58.852 O.K.

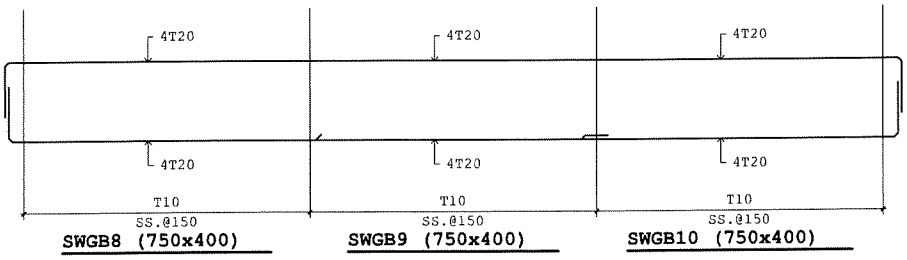
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* SWGB10 * L = 4.800 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.480	0.960	1.440	1.920	2.400	2.880	3.360	3.840	4.320	4.800
-Mmax	-176.66	-54.91	-10.45								
Beta	1.000	1.000	1.000								
+Mmax			10.45	48.81	121.33	142.08	146.44	134.41	105.99	40.97	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	620	300	300	0	0	0	0	0	0	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	300	300	426	498	514	471	372	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.105	0.195	0.200	0.183	0.071	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	207.51	173.37	139.23	105.09	70.94	36.80	-7.99	-42.13	-76.27	-110.41	-144.55
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.957 < Allowable = 52.061 O.K.

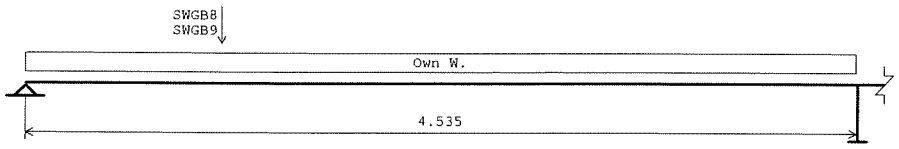


SWGB8 (750x400) **SWGB9 (750x400)** **SWGB10 (750x400)**

CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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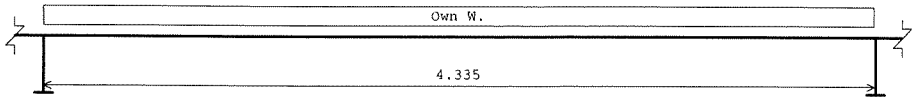
* SWGB11 * L = 4.535 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.535	
SWGB8	Concen.	109.002	32.652	0.000	1.075		
SWGB9	Concen.	90.835	27.210	0.000	1.075		

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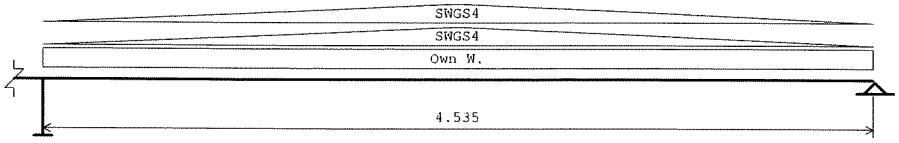
* SWGB12 * L = 4.335 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.335	

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* SWGB13 * L = 4.535 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.535	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.535	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.535	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B	D	H	B	D	H
				(Upper)			(Lower)		
2	SWC3	Col.	0.0		None		500	500	5.100
3	SWC1	Col.	0.0		None		500	500	5.100

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
SWGB11	D.L.	137.646	51.449	153.766	79.403
	L.L.(N)	37.459	11.638	42.233	17.629
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB12	D.L.	11.510	11.510	16.407	15.455
	L.L.(N)	0.000	0.000	-0.823	0.823
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB13	D.L.	77.861	77.861	100.560	70.927
	L.L.(N)	24.262	24.262	30.071	21.288
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl (\)	Mrmax	Mlmax	Vcl (/)	Mrmin

SWC3	DL+LL	-85.962	0.000	-74.353	-52.103	0.000	-45.204
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-68.058	0.000	-59.446	-52.103	0.000	-45.204
	D+L(FLS)	-52.803	0.000	-63.902	-50.067	0.000	-43.604
	D ONLY(FLS)	-50.067	0.000	-43.604	-50.067	0.000	-43.604
SWC1	DL+LL	-43.380	0.000	-44.389	-76.852	0.000	-77.137
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-43.380	0.000	-44.389	-56.891	0.000	-57.258
	D+L(FLS)	-41.780	0.000	-42.353	-51.702	0.000	-53.801
	D ONLY(FLS)	-41.780	0.000	-42.353	-41.780	0.000	-42.353

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* SWGB11 * L = 4.535 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.437	0.874	1.311	1.747	2.184	2.621	3.058	3.495	3.932	4.368
-Mmax										-31.00	-108.80
Beta										1.000	1.000
+Mmax	0.00	122.79	168.44	189.38	156.65	122.51	126.62	50.02	11.67		
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	0	0	0	0	0	0	0	0	0	300	382
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.083
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	300	431	1067	1249	961	640	444	300	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.164	0.200	0.200	0.200	0.200	0.174	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	283.32	278.82	274.33	-108.33	-112.83	-117.32	-121.82	-126.31	-130.81	-135.30	-139.80
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.572 < Allowable = 27.826 O.K.

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* SWGB12 * L = 4.335 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.567	0.967	1.367	1.767	2.168	2.568	2.968	3.368	3.768	4.168
-Mmax	-89.15	-50.96	-44.99	-42.15	-40.53	-40.08	-40.80	-42.71	-45.82	-51.74	-90.85
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	313	300	300	300	300	300	300	300	300	300	319
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0
Bot : Ac	0	0	0	0	0	0	0	0	0	0	0
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	34.28	30.16	26.05	21.93	17.81	-13.87	-17.99	-22.10	-26.22	-30.34	-34.46
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.283 < Allowable = 58.852 O.K.

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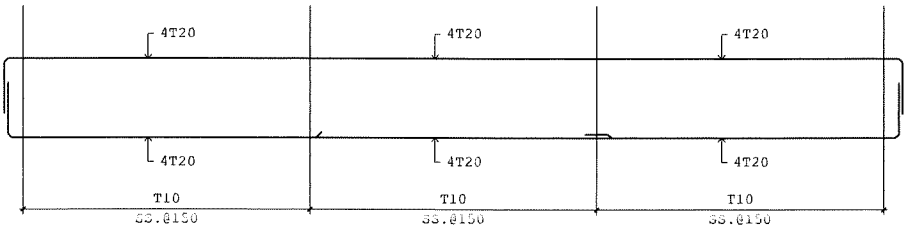
* SWGB13 * L = 4.535 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.603	1.040	1.477	1.914	2.351	2.788	3.224	3.661	4.098	4.535
-Mmax	-103.28	-13.41									
Beta	1.000	1.000									
+Mmax			37.88	114.52	155.37	119.87	170.49	146.45	107.05	39.07	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Top : At	362	300	0	0	0	0	0	0	0	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	0	0	300	402	545	614	598	514	375	300	300
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.119	0.200	0.200	0.200	0.200	0.091	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	188.41	174.90	151.17	117.20	73.00	18.95	-34.02	-74.32	-104.39	-124.22	-133.83
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.572 < Allowable = 51.823 O.K.

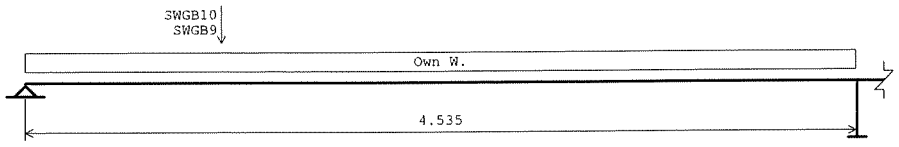


SWGB11 (750x400) **SWGB12 (750x400)** **SWGB13 (750x400)**

CONTINUOUS BEAMS :
Concrete : C45 fcu = 45
Main Bars: 500B fy = 500
Stirrup : 500B fyv = 500
Maximum Redistribution Factors: Hogging Moment = 0%, Sagging Moment = 0%

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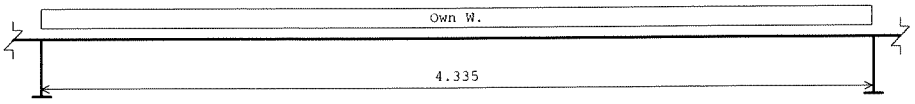
* SWGB14 * L = 4.535 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.535	
SWGB10	Concen.	109.002	32.652	0.000	1.075		
SWGB9	Concen.	90.835	27.210	0.000	1.075		

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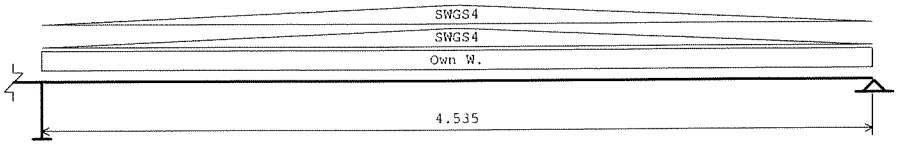
* SWGB15 * L = 4.335 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.335	

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* SWGB16 * L = 4.535 Sec.= 750x400



	Type	D.L.	LL(N)	LL(P)	a	b	c
Own W.	Uniform	7.350	0.000	0.000	0.000	4.535	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.535	
SWGS4	Triang.	30.464	11.325	0.000	0.000	4.535	

SUPPORT OF BEAMS :

No.	Mark	Type	Angle	B (Upper)	D (Upper)	H (Upper)	B (Lower)	D (Lower)	H (Lower)
2	SWC4	Col.	0.0		None		500	500	5.100
3	SWC2	Col.	0.0		None		500	500	5.100

TRANSFERRED SHEARS AND MOMENTS OF BEAMS :

Mark	Type	FIXED END MOMENTS (LHS)	FIXED END MOMENTS (RHS)	TRANSFERRED SHEARS (LHS)	TRANSFERRED SHEARS (RHS)
SWGB14	D.L.	137.646	51.449	153.766	79.403
	L.L.(N)	37.459	11.638	42.233	17.629
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB15	D.L.	11.510	11.510	16.407	15.455
	L.L.(N)	0.000	0.000	-0.823	0.823
	L.L.(P)	0.000	0.000	0.000	0.000
SWGB16	D.L.	77.861	77.861	100.560	70.927
	L.L.(N)	24.262	24.262	30.071	21.288
	L.L.(P)	0.000	0.000	0.000	0.000

TO BEAM-COLUMN JOINT :

Mark	Load Case	Mlmin	Vcl (\)	Mrmax	Mlmax	Vcl (/)	Mrmin

SWC4	DL+LL	-85.962	0.000	-74.353	-52.103	0.000	-45.204
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-68.058	0.000	-59.446	-52.103	0.000	-45.204
	D+L(FLS)	-52.803	0.000	-63.902	-50.067	0.000	-43.604
	D ONLY(FLS)	-50.067	0.000	-43.604	-50.067	0.000	-43.604
SWC2	DL+LL	-43.380	0.000	-44.389	-76.852	0.000	-77.137
	D+L(W)	0.000	0.000	0.000	0.000	0.000	0.000
	DL ONLY	-43.380	0.000	-44.389	-56.891	0.000	-57.258
	D+L(FLS)	-41.780	0.000	-42.353	-51.702	0.000	-53.801
	D ONLY(FLS)	-41.780	0.000	-42.353	-41.780	0.000	-42.353

* SWGB14 * L = 4.535 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.000	0.437	0.874	1.311	1.747	2.184	2.621	3.058	3.495	3.932	4.368
-Mmax										-31.00	-108.80
Beta										1.000	1.000
+Mmax	0.00	122.79	168.44	189.38	156.65	122.51	126.62	50.02	11.67		
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Top : At	0	0	0	0	0	0	0	0	0	300	382
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.083
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.: At	300	431	1067	1249	961	640	444	300	300	0	0
Ac	0	0	0	0	0	0	0	0	0	0	0
Cr	0.000	0.164	0.200	0.200	0.200	0.200	0.174	0.000	0.000	0.000	0.000
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	283.32	278.82	274.33	-108.33	-112.83	-117.32	-121.82	-126.31	-130.81	-135.30	-139.80
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.572 < Allowable = 27.826 O.K.

* SWGB15 * L = 4.335 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.567	0.967	1.367	1.767	2.168	2.568	2.968	3.368	3.768	4.168
-Mmax	-89.15	-50.96	-44.99	-42.15	-40.53	-40.08	-40.80	-42.71	-45.82	-51.74	-90.85
Beta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Top : At	313	300	300	300	300	300	300	300	300	300	319
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d2	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0
Bot : Ac	0	0	0	0	0	0	0	0	0	0	0
d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)	34.28	30.16	26.05	21.93	17.81	-13.87	-17.99	-22.10	-26.22	-30.34	-34.46
Av/s	800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.283 < Allowable = 58.852 O.K.

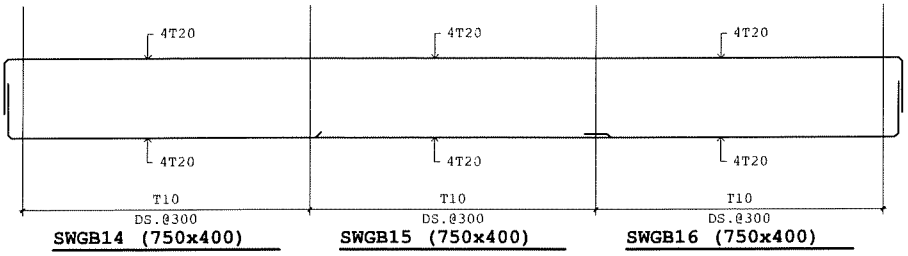
* SWGB16 * L = 4.535 Sec.= 750x400

Crack Width Limit = 0.2 mm Both faces contact with water.

Dist.(M)	0.167	0.603	1.040	1.477	1.914	2.351	2.788	3.224	3.661	4.098	4.535
-Mmax	-103.28	-13.41									
Beta	1.000	1.000									
+Mmax			37.88	114.52	155.37	119.87	170.49	146.45	107.05	39.07	0.00
Beta			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Top :	At	362	300	0	0	0	0	0	0	0	0	0
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bot.:	At	0	0	300	402	545	614	598	514	375	300	300
	Ac	0	0	0	0	0	0	0	0	0	0	0
	Cr	0.000	0.000	0.000	0.119	0.200	0.200	0.200	0.200	0.091	0.000	0.000
	d2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Vmax(kN)		188.41	174.90	151.17	117.20	73.00	18.95	-34.02	-74.32	-104.39	-124.22	-133.83
Av/s		800	800	800	800	800	800	800	800	800	800	800

Span-Effective Depth Ratio : Actual = 6.572 < Allowable = 51.823 O.K.



SWGB14 (750x400) **SWGB15 (750x400)** **SWGB16 (750x400)**

Zone 2
RC Design - Column

* SWC1 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	SWGB1	1	4.800	400x750	180.0	106.643(34.398, 0.000)
	SWGB2	1	4.800	400x750	0.0	106.643(34.398, 0.000)
	SWGB12	1	4.335	400x750	270.0	11.510(0.000, 0.000)
	SWGB13	1	4.535	400x750	90.0	77.861(24.262, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		5.100	5.100	500x500		Footing	

Slender : Lex= 3.585 Lamx= 7.17 < 15 Ley= 3.582 Lamy= 7.16 < 15

Vert.Load: D.L.= 392.458(31.237) L.L.= 119.163[0.000]

Top :	+Mdx = 27.565	-Mdx = -27.565	+Mdy = 18.961	-Mdy = -2.803
	+Mlxn= 8.891	-Mlxn= -8.891	+Mlyn= 5.908	-Mlyn= 0.000
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 13.783	-Mdx = -13.783	+Mdy = 1.401	-Mdy = -9.480
	+Mlxn= 4.446	-Mlxn= -4.446	+Mlyn= -0.000	-Mlyn= -2.954
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 7.427	Vxmin= -7.427	Vymax= 9.763	Vymin= 4.423
D+L (W):	Vxmax= 4.760	Vxmin= -4.760	Vymax= 7.953	Vymin= 4.587
D ONLY:	Vxmax= 3.243	Vxmin= -3.243	Vymax= 6.983	Vymin= 4.423
D+L(FLS):	Vxmax= 2.092	Vxmin= -2.092	Vymax= 6.142	Vymin= 4.752
D ONLY(F):	Vxmax= 2.092	Vxmin= -2.092	Vymax= 6.142	Vymin= 4.752

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 783.834 O.K.

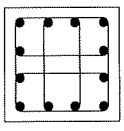
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	740.101	25.252	33.195	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-2.092	9.756	487.788	0.700	0.010	O.K.
D+L(Top)	Y-Y	9.763	33.195	740.101	0.767	0.044	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



* SWC2 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear		
Top Beam:	SWGB2	1	4.800	400x750	180.0	106.643(	34.398,	0.000)
	SWGB3	1	4.800	400x750	0.0	106.643(	34.398,	0.000)
	SWGB15	1	4.335	400x750	270.0	11.510(	0.000,	0.000)
	SWGB16	1	4.535	400x750	90.0	77.861(	24.262,	0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		5.100	5.100	500x500		Footing	

Slender : Lex= 3.585 Lamx= 7.17 < 15 Ley= 3.582 Lamy= 7.16 < 15

Vert.Load: D.L.= 392.458(31.237) L.L.= 119.163[0.000]

Top :	+Mdx = 27.565	-Mdx = -27.565	+Mdy = 18.961	-Mdy = -2.803
	+Mlxn= 8.891	-Mlxn= -8.891	+Mlyn= 5.908	-Mlyn= 0.000
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 13.783	-Mdx = -13.783	+Mdy = 1.401	-Mdy = -9.480
	+Mlxn= 4.446	-Mlxn= -4.446	+Mlyn= -0.000	-Mlyn= -2.954
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 7.427	Vxmin= -7.427	Vymax= 9.763	Vymin= 4.423
D+L (W):	Vxmax= 4.760	Vxmin= -4.760	Vymax= 7.953	Vymin= 4.587
D ONLY:	Vxmax= 3.243	Vxmin= -3.243	Vymax= 6.983	Vymin= 4.423
D+L(FLS):	Vxmax= 2.092	Vxmin= -2.092	Vymax= 6.142	Vymin= 4.752
D ONLY(F):	Vxmax= 2.092	Vxmin= -2.092	Vymax= 6.142	Vymin= 4.752

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 783.834 O.K.

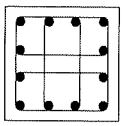
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	740.101	25.252	33.195	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-2.092	9.756	487.788	0.700	0.010	O.K.
D+L(Top)	Y-Y	9.763	33.195	740.101	0.767	0.044	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



* SWC3 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	SWGB4	1	4.800	400x750	180.0	114.761(37.416, 0.000)
	SWGB5	1	4.800	400x750	0.0	114.761(37.416, 0.000)
	SWGB11	1	4.535	400x750	270.0	51.449(11.638, 0.000)
	SWGB12	1	4.335	400x750	90.0	11.510(0.000, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		5.100	5.100	500x500		Footing	

Slender : Lex= 3.585 Lamx= 7.17 < 15 Ley= 3.582 Lamy= 7.16 < 15

Vert.Load: D.L.= 412.967(31.237) L.L.= 120.210[0.000]

Top :	+Mdx = 29.664	-Mdx = -29.664	+Mdy = 2.803	-Mdy = -12.529
	+Mlxn= 9.671	-Mlxn= -9.671	+Mlyn= 0.000	-Mlyn= -2.834
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 14.832	-Mdx = -14.832	+Mdy = 6.264	-Mdy = -1.401
	+Mlxn= 4.836	-Mlxn= -4.836	+Mlyn= 1.417	-Mlyn= -0.000
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 8.041	Vxmin= -8.041	Vymax= -2.531	Vymin= -5.668
D+L (W):	Vxmax= 5.158	Vxmin= -5.158	Vymax= -2.696	Vymin= -4.598
D ONLY:	Vxmax= 3.490	Vxmin= -3.490	Vymax= -2.531	Vymin= -4.335
D+L(FLS):	Vxmax= 2.276	Vxmin= -2.276	Vymax= -2.861	Vymin= -3.527
D ONLY(F):	Vxmax= 2.276	Vxmin= -2.276	Vymax= -2.861	Vymin= -3.527

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 814.222 O.K.

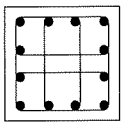
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	770.490	27.340	19.272	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-2.276	10.183	509.135	0.711	0.010	O.K.
D+L(Top)	Y-Y	-3.527	11.993	509.135	0.754	0.016	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



* SWC4 * +4.7 TO FOOTING X-X : Braced
Y-Y : Braced

	Mark	Type	Span	Section	Ang	F.E.M. / Shear
Top Beam:	SWGB5	1	4.800	400x750	180.0	114.761(37.416, 0.000)
	SWGB6	1	4.800	400x750	0.0	114.761(37.416, 0.000)
	SWGB14	1	4.535	400x750	270.0	51.449(11.638, 0.000)
	SWGB15	1	4.335	400x750	90.0	11.510(0.000, 0.000)

Colm.Pro.:	Hux	Huy	Section	Hcx	Hcy	Section	Hlx	Hly	Section
		None		5.100	5.100	500x500		Footing	

Slender : Lex= 3.585 Lamx= 7.17 < 15 Ley= 3.582 Lamy= 7.16 < 15

Vert.Load: D.L.= 412.967(31.237) L.L.= 120.210[0.000]

Top :	+Mdx = 29.664	-Mdx = -29.664	+Mdy = 2.803	-Mdy = -12.529
	+Mlxn= 9.671	-Mlxn= -9.671	+Mlyn= 0.000	-Mlyn= -2.834
	+Mlxp= 0.000	-Mlxp= 0.000	+Mlyp= 0.000	-Mlyp= 0.000
Bot.:	+Mdx = 14.832	-Mdx = -14.832	+Mdy = 6.264	-Mdy = -1.401
	+Mlxn= 4.836	-Mlxn= -4.836	+Mlyn= 1.417	-Mlyn= -0.000
	+Mlxp= -0.000	-Mlxp= -0.000	+Mlyp= -0.000	-Mlyp= -0.000

Vert.Shears:

D+L:	Vxmax= 8.041	Vxmin= -8.041	Vymax= -2.531	Vymin= -5.668
D+L (W):	Vxmax= 5.158	Vxmin= -5.158	Vymax= -2.696	Vymin= -4.598
D ONLY:	Vxmax= 3.490	Vxmin= -3.490	Vymax= -2.531	Vymin= -4.335
D+L(FLS):	Vxmax= 2.276	Vxmin= -2.276	Vymax= -2.861	Vymin= -3.527
D ONLY(F):	Vxmax= 2.276	Vxmin= -2.276	Vymax= -2.861	Vymin= -3.527

Concrete : C45 Fcu= 45 Ec = 26400 Cover = 50
Steel : 500B Fy = 500.0 Es = 200000

Assume : Asx= 1250 Asy= 1250 r = 1.000%
Nu = 0.35*Fcu*(Ac-Asc)+0.67*Fy*Asc = 4735.625 > 814.222 O.K.

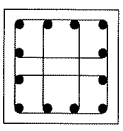
FIRE LIMIT STATE CHECKING:
Design Temperature = 0.0°C Reduction: Concrete = 1.000 Steel = 1.000

SERVICEABILITY LIMIT STSTE CHECKING:
In All Cases: Pmin/fcu/Ac > 0.000 The calculation is not required.

Load Case	P(kN)	Mx(kN-M)	My(kN-M)	Load Fraction
D+L(Top)	770.490	27.340	19.272	3.00000000000

Load Case	Dir.	Vmax	Mmax	Pmax	Vc	Vs	Ast/s
D+L(Top)	X-X	-2.276	10.183	509.135	0.711	0.010	O.K.
D+L(Top)	Y-Y	-3.527	11.993	509.135	0.754	0.016	O.K.

Reinforcement : Vert.Bar: 12T20 Link: T10 @240 Sec. = 500x500



Zone 2
RC Design - BCJ

* SWC1 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-144.564	-139.288	-141.499	-133.365
	Y-Y	-43.380	-44.389	-76.852	-74.874
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	0.000	0.000	0.000	0.000
DL ONLY	X-X	-118.302	-113.466	-117.023	-110.821
	Y-Y	-43.380	-44.389	-56.891	-54.187
D+L(FLS)	X-X	-116.375	-109.591	-113.350	-109.453
	Y-Y	-41.780	-42.353	-51.702	-50.212
D ONLY(FLS)	X-X	-85.260	-91.585	-85.260	-91.585
	Y-Y	-41.780	-36.004	-41.780	-36.004

ALONG X-X: D+L(/) Nc = 0.000

BEAM (LHS): SWGB1	BEAM (RHS): SWGB2
b = 400	b = 400
h = 750	h = 750
M = -141.499	M = -133.365
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.016	K = M/bd^2f_{cu} = 0.015
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 215.240	T = M/z = -202.868

V_{jhx} = 215.240-202.868 = 12.373
V_{jvx} = $(h_b/b_c)V_{jhx}$ = 18.559
C_j = $V_{jhx}/(V_{jhx}+V_{jhy})$ = 0.890
b_j = $b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.049 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 14
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvx}-C_jN)/(0.87f_y)$ = 17
Provide: 2T10 2Legs

ALONG Y-Y: D+L(/) Nc = 0.000

BEAM (LHS): SWGB12	BEAM (RHS): SWGB13
b = 400	b = 400
h = 750	h = 750
M = -76.852	M = -74.874
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.009	K = M/bd^2f_{cu} = 0.009
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 116.902	T = M/z = -113.895

V_{jhy} = 116.902-113.895 = 3.008
V_{jvy} = $(h_b/h_c)V_{jhy}$ = 4.511
C_j = $V_{jhy}/(V_{jhx}+V_{jhy})$ = 0.273
b_j = $b+0.5h_c$ = 650.0 Use 500.0
$V_{jhy}/b_j/h_c$ = 0.012 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhy}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 3
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvy}-C_jN)/(0.87f_y)$ = 4
Provide: 1T10 2Legs

---

* SWC2 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-133.365	-141.499	-139.288	-144.564
	Y-Y	-43.380	-44.389	-76.852	-74.874
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	0.000	0.000	0.000	0.000
DL ONLY	X-X	-110.821	-117.023	-113.466	-118.302
	Y-Y	-43.380	-44.389	-56.891	-54.187
D+L(FLS)	X-X	-109.453	-113.350	-109.591	-116.375
	Y-Y	-41.780	-42.353	-51.702	-50.212
D ONLY(FLS)	X-X	-91.585	-85.260	-91.585	-85.260
	Y-Y	-41.780	-36.004	-41.780	-36.004

ALONG X-X: D+L(\) Nc = 0.000

BEAM (LHS): SWGB2	BEAM (RHS): SWGB3
b = 400	b = 400
h = 750	h = 750
M = -133.365	M = -141.499
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.015	K = M/bd^2f_{cu} = 0.016
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = -202.868	T = M/z = 215.240

V_{jhx} = 215.240-202.868 = 12.373
V_{jvx} = $(h_b/b_c)V_{jhx}$ = 18.559
C_j = $V_{jhx}/(V_{jhx}+V_{jhy})$ = 0.890
b_j = $b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.049 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 14
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvx}-C_jN)/(0.87f_y)$ = 17
Provide: 2T10 2Legs

ALONG Y-Y: D+L(/) Nc = 0.000

BEAM (LHS): SWGB15	BEAM (RHS): SWGB16
b = 400	b = 400
h = 750	h = 750
M = -76.852	M = -74.874
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.009	K = M/bd^2f_{cu} = 0.009
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 116.902	T = M/z = -113.895

V_{jhy} = 116.902-113.895 = 3.008
V_{jvy} = $(h_b/h_c)V_{jhy}$ = 4.511
C_j = $V_{jhy}/(V_{jhx}+V_{jhy})$ = 0.196
b_j = $b+0.5h_c$ = 650.0 Use 500.0
$V_{jhy}/b_j/h_c$ = 0.012 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhy}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 3
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvy}-C_jN)/(0.87f_y)$ = 4
Provide: 1T10 2Legs

---

* SWC3 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax	Mlmax (/)	Mrmin
DL+LL	X-X	-152.164	-148.337	-150.701	-140.069
	Y-Y	-84.671	-74.353	-52.103	-45.204
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	0.000	0.000	0.000	0.000
DL ONLY	X-X	-124.712	-120.250	-124.077	-116.662
	Y-Y	-64.548	-59.446	-52.103	-45.204
D+L(FLS)	X-X	-123.036	-116.268	-120.302	-115.560
	Y-Y	-52.803	-63.902	-50.067	-43.604
D ONLY(FLS)	X-X	-89.896	-96.704	-89.896	-96.704
	Y-Y	-43.482	-43.604	-43.482	-43.604

ALONG X-X: D+L(/) Nc = 0.000

BEAM (LHS): SWGB4	BEAM (RHS): SWGB5
b = 400	b = 400
h = 750	h = 750
M = -150.701	M = -140.069
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.017	K = M/bd^2f_{cu} = 0.016
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 229.238	T = M/z = -213.066

V_{jhx} = 229.238-213.066 = 16.172
V_{jvx} = $(h_b/b_c)V_{jhx}$ = 24.259
C_j = $V_{jhx}/(V_{jhx}+V_{jhy})$ = 0.507
b_j = $b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.065 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 19
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvx}-C_jN)/(0.87f_y)$ = 22
Provide: 2T10 2Legs

ALONG Y-Y: D+L(\) Nc = 0.000

BEAM (LHS): SWGB11	BEAM (RHS): SWGB12
b = 400	b = 400
h = 750	h = 750
M = -84.671	M = -74.353
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.010	K = M/bd^2f_{cu} = 0.009
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 128.797	T = M/z = -113.102

V_{jhy} = 128.797-113.102 = 15.695
V_{jvy} = $(h_b/h_c)V_{jhy}$ = 23.542
C_j = $V_{jhy}/(V_{jhx}+V_{jhy})$ = 0.729
b_j = $b+0.5h_c$ = 650.0 Use 500.0
$V_{jhy}/b_j/h_c$ = 0.063 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhy}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 18
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvy}-C_jN)/(0.87f_y)$ = 22
Provide: 1T10 2Legs

---

* SWC4 * +4.7

b_c = 500
h_c = 500
Column: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Beam: Concrete: C45 f_{cu} = 45.0 Steel: 500B f_y = 500.0
Design Temperature: 0.0°C, Stress Reduction: k_c = 1.000, k_s = 1.000

Vertical Load: DL = 0.000 LL = 0.000

Load Case	Dir	Mlmin (\)	Mrmax (\)	Mlmax (/)	Mrmin (/)
DL+LL	X-X	-140.069	-150.701	-148.337	-152.164
	Y-Y	-84.671	-74.353	-52.103	-45.204
D+L(WIND)	X-X	0.000	0.000	0.000	0.000
	Y-Y	0.000	0.000	0.000	0.000
DL ONLY	X-X	-116.662	-124.077	-120.250	-124.712
	Y-Y	-64.548	-59.446	-52.103	-45.204
D+L(FLS)	X-X	-115.560	-120.302	-116.268	-123.036
	Y-Y	-52.803	-63.902	-50.067	-43.604
D ONLY(FLS)	X-X	-96.704	-89.896	-96.704	-89.896
	Y-Y	-43.482	-43.604	-43.482	-43.604

ALONG X-X: D+L(\) Nc = 0.000

BEAM (LHS): SWGB5	BEAM (RHS): SWGB6
b = 400	b = 400
h = 750	h = 750
M = -140.069	M = -150.701
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.016	K = M/bd^2f_{cu} = 0.017
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = -213.066	T = M/z = 229.238

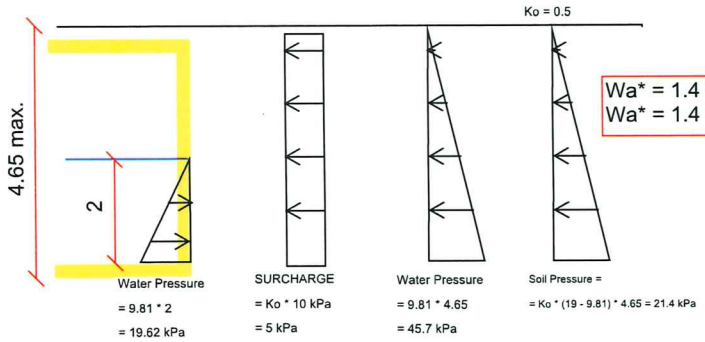
V_{jhx} = 229.238-213.066 = 16.172
V_{jvx} = $(h_b/b_c)V_{jhx}$ = 24.259
C_j = $V_{jhx}/(V_{jhx}+V_{jhy})$ = 0.507
b_j = $b+0.5b_c$ = 650.0 Use 500.0
$V_{jhx}/b_j/b_c$ = 0.065 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhx}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 19
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvx}-C_jN)/(0.87f_y)$ = 22
Provide: 2T10 2Legs

ALONG Y-Y: D+L(\) Nc = 0.000

BEAM (LHS): SWGB14	BEAM (RHS): SWGB15
b = 400	b = 400
h = 750	h = 750
M = -84.671	M = -74.353
d = 692.0	d = 692.0
K = M/bd^2f_{cu} = 0.010	K = M/bd^2f_{cu} = 0.009
z = 0.95d = 657.400	z = 0.95d = 657.400
T = M/z = 128.797	T = M/z = -113.102

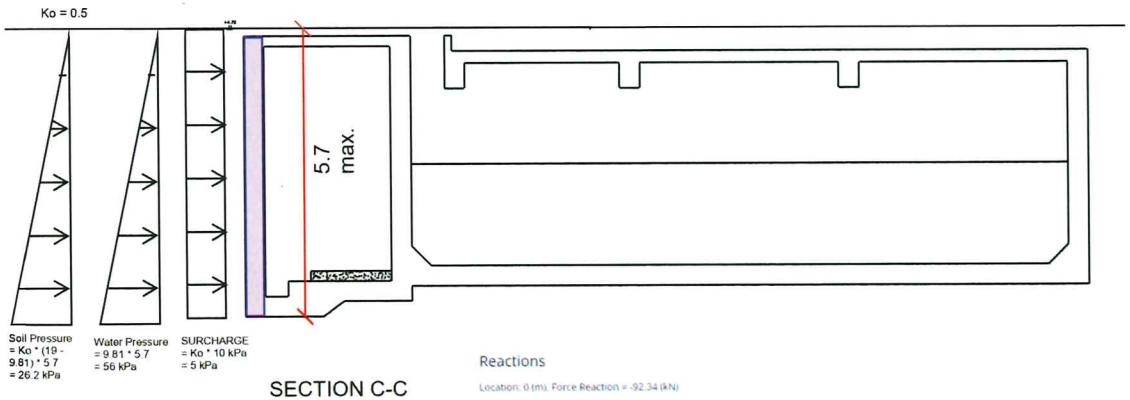
V_{jhy} = 128.797-113.102 = 15.695
V_{jvy} = $(h_b/h_c)V_{jhy}$ = 23.542
C_j = $V_{jhy}/(V_{jhx}+V_{jhy})$ = 0.493
b_j = $b+0.5h_c$ = 650.0 Use 500.0
$V_{jhy}/b_j/h_c$ = 0.063 < $0.2f_{cu}$ OK.
A_{jh} = $V_{jhy}/(0.87f_y)[0.5-C_jN/(0.8b_ch_cf_{cu})]$ = 18
Provide: 3T10 2Legs
A_{jv} = $(0.4V_{jvy}-C_jN)/(0.87f_y)$ = 22
Provide: 1T10 2Legs

Zone 2
RC Design – Side Wall

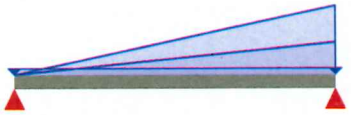


Wa* = 1.4 * 5 = 7 kPa (U.D.L.)
Wa* = 1.4 *(45.7+21.4) = 67.1 kPa (Triangular)

SECTION A-A



SECTION C-C
(Critical Section)



Reactions

Location: 0 (m), Force Reaction = -92.34 (kN)

Location: 5.7 (m), Force Reaction = -170.43 (kN)

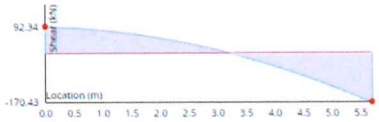
Shear Diagram

(Max +ve)Shear Load (kN): 92.340,

Location (m): 0.000

(Max -ve)Shear Load (kN): -170.430,

Location (m): 5.700



Model Name:

Model Options | Run | PDF Export

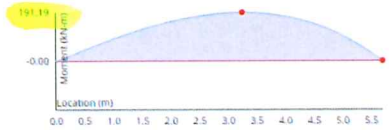
Type	Location (m)	Load (kN)|(kN-m)	Actions
Length	0 | 5.7		
Support-pinned	0		
Support-pinned	5.7		
Dt. Load	0 | 5.7	5 | 5	
Dt. Load	0 | 5.7	0 | 56	
Dt. Load	0 | 5.7	0 | 26.2	

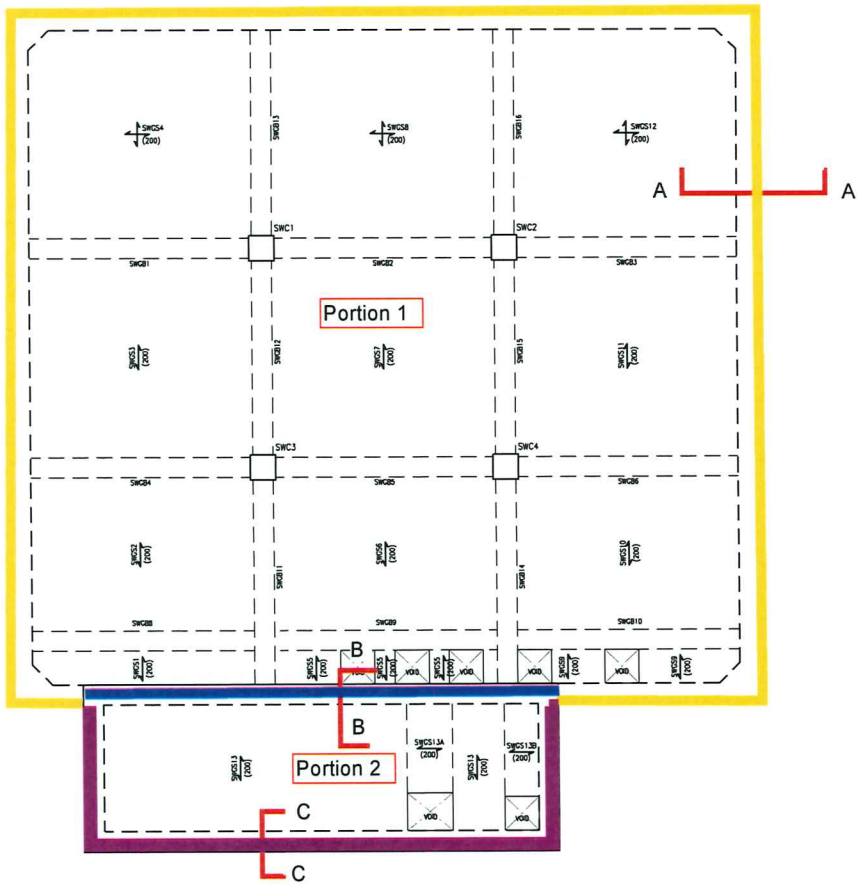
Moment Diagram

(Max +ve)Moment Load (kN-m): 191.191,

Location (m): 3.249, 5.700

(unfactored)





SECTION A-A

Free Beam Calculator for Statically Indeterminate Beams

- ✔ Support Reactions
- ✔ Shear Diagram
- ✔ Moment Diagram
- ✔ Indeterminate / Continuous Beams
- ✔ **Premium: (pricing.php)** Deflection and Stress Diagrams
- ✔ **Premium: (pricing.php)** Custom and Standard Sections or Materials
- ✔ **Premium: (pricing.php)** Save Unlimited Models and Sections
- ✔ **Premium: (pricing.php)** PDF Reports and Custom Logo

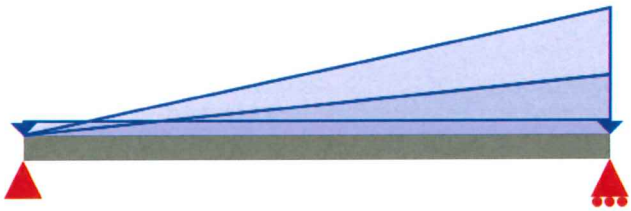
Upgrade (pricing.php) | How to use Beam Calculator (documentation.php)

Model Setup

Metric | m | kN

Length: 4.65 (m)

Section: Select



Support Types

Pinned | Roller | Fixed



Applied Loads

Point | Distributed | Moment



AI Beam

AI generated. Transform your text instructions into a beam model. Example: Simply supported beam that is 5m long with a 10kN load at center.

Generate

Model Name:

Model Options | Run | PDF Export

Type	Location (m)	Load (kN)|(kN-m)	Actions
Length	0 | 4.65		
Support-pinned	0		🗑 () ✎ ()
Dt. Load	0 | 4.65	5 | 5	🗑 () ✎ ()
Support-roller	4.65		🗑 () ✎ ()
Dt. Load	0 | 4.65	0 | 45.7	🗑 () ✎ ()
Dt. Load	0 | 4.65	0 | 21.4	🗑 () ✎ ()

Beam Section	Location (m)	Properties	Actions

Reactions

Location: 0 (m), Force Reaction = -63.6275 (kN)

Location: 4.65 (m), Force Reaction = -115.63 (kN)

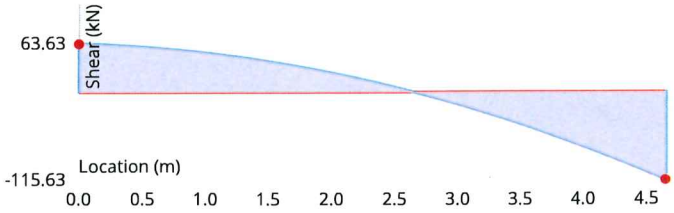
Shear Diagram

(Max +ve)Shear Load (kN): 63.628,

Location (m): 0.000

(Max -ve)Shear Load (kN): -115.630,

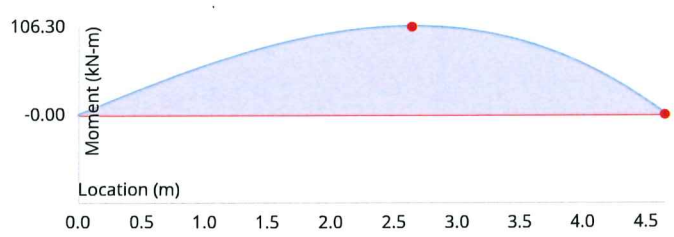
Location (m): 4.650



Moment Diagram

(Max +ve)Moment Load (kN-m): 106.301,

Location (m): 2.641, 4.650



Slope Diagram

Deflection Diagram

Average Shear Stress Diagram

Bending Stress Diagram

Optimal Beam Inc.

A platform dedicated to engineering beams. Find useful calculators such as a beam analysis calculator, section properties calculator, and unit conversions.

USEFUL LINKS

Home (/index.php)

Beam Calculator (/beam-calculator.php)

Section Properties (/section-properties.php)

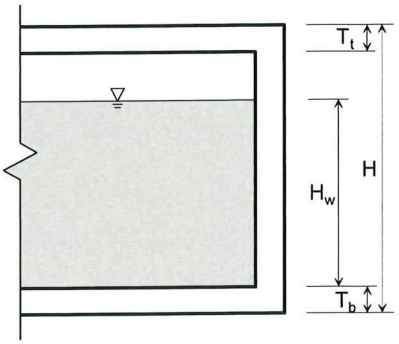
Unit Conversion (/conversion.php)

Pricing (/pricing.php)

Documentation (/documentation.php)

Blog (/blog-overview.php)

Project: LPH - YPR
Location: Zone 2 - Sediment Tank (Section A-A)



Design Data

Design Water Height	H_w	=	2.00 m
Height of Water Tank	H	=	4.65 m
Design Crack Width		=	0.2 mm
Concrete Grade		=	45 MPa

A. Design of Side Wall

A.1. Calculation of Internal Forces

A.2. Ultimate Limite State Design

Ultimate Design Moment	M_U	= 1.4M'		=	148.40 kNm/m	
Thickness of Side Wall	T_w	=	400 mm			
	b	=	1000 mm			
Cover	c_{min}	=	50 mm			
Effective Depth	d	=	340 mm			
	K	= $M_U/(b*d^2*f_{cu})$		=	0.0285	< 0.156
	z/d	= $0.5+\sqrt{0.25 - K/0.9}$				= 0.967
Lever Arm	z	=	0.95d	=	323.0 mm	
Depth to Neutral Axis	x	= (d-z) / 0.45		=	37.8 mm	
Required Reinforcement	$A_{s,req}$	= $M_U/0.87f_yz$		=	1148 mm^2/m	
Min. Vertical Reinforcement		= 0.2% x T_wb		=	800 mm^2/m	
Min. Horizontal Reinforcement		= 0.125% x T_wb		=	500 mm^2/m	

Vertical Bar:
Provide T 20 - 150

$A_{s,pro}$ = 2094 mm^2/m > 1148 mm^2/m (Steel Ratio = 0.52%) OK

Horizontal Bar:
Provide T 20 - 150

$A_{s,pro}$ = 2094 mm^2/m > 500 mm^2/m (Steel Ratio = 0.52%) OK

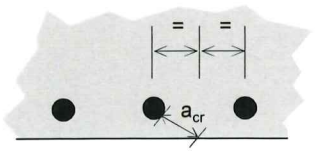
(Cont'd: Project: LPH - YPR Location: Zone 2 - Sediment Tank (Sectior)

A.3. Serviceability Limit State Design

A.3.1. Flexural Tension in Mature Concrete

Design Service Moment M = 106.00 kNm/m
E_c = 26400 MPa
E_s = 205000 MPa
Modular Ratio $\alpha_e = E_s/(E_c/2)$ = 15.53 (Includes Allowance for Creep)
$x/d = -\alpha_e A_s + \sqrt{[(\alpha_e A_s)^2 + 2b\alpha_e A_s d]}/bd$ = 0.352
x = 120 mm
Reinforcement Tensile Stress $f_s = M / A_s(d-x/3)$ = 168.6 MPa
Allowable Steel Stress = 130 MPa < 168.6 MPa (Table 3.1 of BS8007:1987)

Calculation of actual crack width is required.



Calculation of Actual Crack Width

Distance from zero strain $a_{cr} = \sqrt{(s/2)^2 + (c_{min} + \phi/2)^2} - \phi/2$ = 86 mm
Flexural Strain $\varepsilon_1 = (T_w - x)f_s / (d-x)E_s$ = 0.001047
a' = 400 mm
Strain due to the stiffening of concrete $\varepsilon_2 = 1.0 \times b_t(T_w - x)(a' - x) / 3E_sA_s(d-x)$ = 0.000277
Average Strain $\varepsilon_m = \varepsilon_1 - \varepsilon_2$ = 0.000770
Design Surface Crack Width $w = 3a_{cr}\varepsilon_m / [1 + 2(a_{cr}/c_{min}) / (T_w - x)]$ = 0.19 mm
< 0.2 mm

The crack width is acceptable. OK

A.3.2. Direct Tension in Immature Concrete

Critcial Steel Ratio ρ_{crit} = 0.0035
Thickness of Surface Zone h' = 200 mm
Required Steel Reinforcement $= \rho_{crit} bh'$ = 700 mm²/m OK

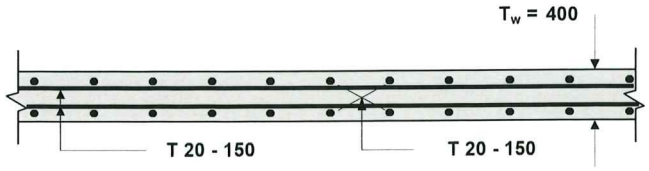
f_{ct}/f_b = 0.67
Coefficient of Thermal Expansion α = 0.00001
Anticipated Fall in Temperature T_1 = 25 °C

Vertical Direction:

Maximum spacing of cracks $s_{max} = f_{ct}/f_b \times \phi/2\rho$ = 1279.6 mm
Estimated Maximum Crack Width $w_{max} = \alpha T_1 s_{max}/2$ = 0.16 mm < 0.2 mm OK

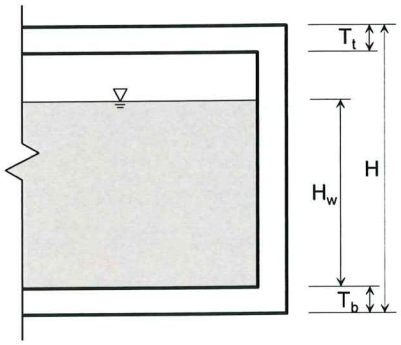
Horizontal Direction:

Maximum spacing of cracks $s_{max} = f_{ct}/f_b \times \phi/2\rho$ = 1279.6 mm
Estimated Maximum Crack Width $w_{max} = \alpha T_1 s_{max}/2$ = 0.16 mm < 0.2 mm OK



RC Details of Side Wall (Plan View)

Project: LPH - YPR
Location: Zone 2 - Sediment Tank (Section C-C)



Design Data

Design Water Height	H_w	=	2.00 m
Height of Water Tank	H	=	5.70 m
Design Crack Width		=	0.2 mm
Concrete Grade		=	45 MPa

A. Design of Side Wall

A.1. Calculation of Internal Forces

A.2. Ultimate Limite State Design

Ultimate Design Moment $M_U = 1.4M' = 268.80$ kNm/m

Thickness of Side Wall $T_w = 400$ mm

$b = 1000$ mm

Cover $c_{min} = 50$ mm

Effective Depth $d = 338$ mm

$K = M_U/(b*d^2*f_{cu}) = 0.0524 < 0.156$

$z/d = 0.5+\sqrt{0.25 - K/0.9} = 0.938$

Lever Arm $z = 0.94d = 316.5$ mm

Depth to Neutral Axis $x = (d-z) / 0.45 = 46.6$ mm

Required Reinforcement $A_{s,req} = M_U/0.87f_yz = 2122$ mm²/m

Min. Vertical Reinforcement $= 0.2\% \times T_wb = 800$ mm²/m

Min. Horizontal Reinforcement $= 0.125\% \times T_wb = 500$ mm²/m

Vertical Bar:
Provide T 32 - 125

$A_{s,pro} = 6434$ mm²/m > 2122 mm²/m (Steel Ratio = 1.61%) OK

Horizontal Bar:
Provide T 25 - 125

$A_{s,pro} = 3927$ mm²/m > 500 mm²/m (Steel Ratio = 0.98%) OK

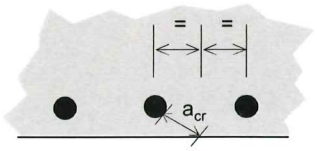
(Cont'd: Project: LPH - YPR Location: Zone 2 - Sediment Tank (Sectior)

A.3. Serviceability Limit State Design

A.3.1. Flexural Tension in Mature Concrete

Design Service Moment	M	=	192.00 kNm/m		
	E_c	=	26400 MPa		
	E_s	=	205000 MPa		
Modular Ratio	α_e	= $E_s/(E_c/2)$	=	15.53	(Includes Allowance for Creep)
	x/d	= $-\alpha_e A_s + \sqrt{[(\alpha_e A_s)^2 + 2b\alpha_e A_s d]}/bd$	=	0.528	
	x	=	178 mm		
Reinforcement Tensile Stress	f_s	= $M / A_s(d-x/3)$	=	107.3 MPa	
Allowable Steel Stress		=	130 MPa	> 107.3 MPa	(Table 3.1 of BS8007:1987)

The crack width is deemed to be satisfactory.



Calculation of Actual Crack Width

Distance from zero strain	a_{cr}	= $\sqrt{(s/2)^2+(c_{min}+\phi/2)^2}-\phi/2$ =	75 mm	
Flexural Strain	ε_1	= $(T_w-x)f_s / (d-x)E_s$ =	0.000729	
	a'	=	400 mm	
Strain due to the stiffening of concrete	ε_2	= $1.0 \times b_t(T_w-x)(a'-x) / 3E_sA_s(d-x)$ =	0.000078	
Average Strain	ε_m	= $\varepsilon_1-\varepsilon_2$ =	0.000651	
Design Surface Crack Width	w	= $3a_{cr}\varepsilon_m / [1+2(a_{cr}/c_{min}) / (T_w-x)]$ =	0.14 mm	
		<	0.2 mm	

The crack width is acceptable. OK

A.3.2. Direct Tension in Immature Concrete

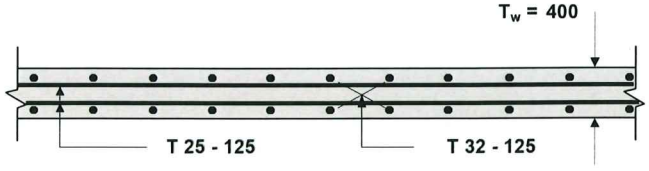
Critcial Steel Ratio	ρ_{crit}	=	0.0035		
Thickness of Surface Zone	h'	=	200 mm		
Required Steel Reinforcement		= $\rho_{crit}bh'$	=	700 mm^2/m	OK
	f_{ct}/f_b	=	0.67		
Coefficient of Thermal Expansion	α	=	0.00001		
Anticipated Fall in Temperature	T_1	=	25 °C		

Vertical Direction:

Maximum spacing of cracks	s_{max}	= $f_{ct}/f_b \times \phi/2\rho$	=	666.46 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$	=	0.08 mm	<	0.2 mm	OK

Horizontal Direction:

Maximum spacing of cracks	s_{max}	= $f_{ct}/f_b \times \phi/2\rho$	=	853.07 mm			
Estimated Maximum Crack Width	w_{max}	= $\alpha T_1 s_{max}/2$	=	0.11 mm	<	0.2 mm	OK



RC Details of Side Wall (Plan View)

GENERAL NOTES

G1. ALL WORKS SHALL COMPLY WITH GENERAL SPECIFICATION FOR BUILDING 2022 EDITION (G.S.)
ALL RC WORKS SHALL BE TO SECTION 6 AND 8 OF G.S..

G2. ALL STRUCTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE RELEVANT DRAWINGS. INFORM THE SUPERVISING OFFICER ANY DISCREPANCIES WHICH MAY BE FOUND AMONG THESE DRAWINGS.

G3. ALL LEVELS SHOWN ARE IN METERS AND OTHER DIMENSIONS SHOWN ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

G4. IN LIEU OF THE TYPES OF BEAM STIRRUPS AND COLUMN BINDERS SHOWN ON THE R.C. DRAWINGS, THE CONTRACTOR MAY PROPOSE FOR DESIGNER'S APPROVAL ALTERNATIVE TYPES OF BEAM STIRRUPS AND COLUMN BINDERS.

G5. NOT WITHSTANDING INDEX 3 OF THE G.S., THE CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE SHALL BE THE CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE 2013 (2020 EDITION) (CoP 2013).

G6. SUBSOIL UNDERNEATH ALL FOUNDATIONS SHALL BE INSPECTED BY THE SUPERVISING OFFICER BEFORE CASTING OF BLINDING LAYERS.

G7. FOLLOW THE COMPACTION TESTS IN ACCORDANCE WITH G.S. CLAUSE 3.21:
(a) GEO GEOSPEC 3 (OPTIMUM MOISTURE CONTENT AND MAXIMUM DRY DENSITY)
(b) GEO GEOSPEC 3 (RELATIVE COMPACTION).

G8. ALL SETTING OUT DIMENSIONS MUST BE VERIFIED AGAINST THE LATEST RELEVANT DRAWINGS BEFORE WORK COMMENCES. THE SUPERVISING OFFICER AND STRUCTURAL DESIGNER MUST BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES DISCOVERED.

G9. OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS,
(a) NO PENETRATION SHALL BE ALLOWED THROUGH BEAMS & COLUMNS.
(b) NO OPENINGS EXCEEDING 150mm DA. SHALL BE ALLOWED THROUGH STRUCTURAL WALLS.
(c) NO OPENINGS EXCEEDING 300x300mm SHALL BE ALLOWED THROUGH SLABS.
(d) DETAILS REFERRED TO STRUCTURAL DESIGNER / DESIGN CHECKER APPROVED CBWD.

G10. NO TEMPORARY OPENINGS SHALL BE ALLOWED IN STRUCTURAL MEMBERS WITHOUT WRITTEN APPROVAL OF THE SUPERVISING OFFICER.

G11. NOTWITHSTANDING TO G.S. CLAUSE 6.33 AND 6.34, AGGREGATES FOR CONCRETE SHALL BE CLEAN, HARD AND DURABLE CRUSHED ROCK TO CONSTRUCTION STANDARD CS3 (CS3). SUB-SECTION 4.2.1 OF CS3 ON LOS ANGELES VALUE IS NOT REQUIRED FOR AGGREGATES UNLESS OTHERWISE SPECIFIED IN THE CONTRACT.

G12. NOTWITHSTANDING G.S. CLAUSE 3.01 (vi), GRADE 200 RECYCLED ROCKFILL SHALL BE USED FOR HARDCORE LAYER FOR THIS PROJECT. THE THICKNESS OF HARDCORE LAYER SHALL NOT BE LESS THAN 200mm. THE PARTICULAR SPECIFICATION FOR USE OF GRADE 200 RECYCLED ROCKFILL FOR HARDCORE LAYER SHALL APPLY.

G13. DESIGN GROUND WATER LEVEL (D.G.W.L.) IS TAKEN AS HIGHEST ANTICIPATED GROUNDWATER LEVEL.

G14. STEEL REINFORCEMENT OF THE FOLLOWING STRUCTURAL ELEMENTS SHALL BE GRADE 500B RIBBED STEEL REINFORCING BARS TO CS2 AND HOT-DIP GALVANIZED TO BS EN ISO 1461
1. EXTERNAL CANTILEVERED SLABS WITH A SPAN EXCEEDING 750 MM
2. FLOOR SLABS OF WATER TANKS, TOILETS AND REFUSE COLLECTION POINTS.

HOT-DIP GALVANIZING TO STEEL REINFORCING BARS SHALL BE APPLIED AFTER CUTTING AND BENDING OF THE REINFORCEMENT. SMALL AREAS OF GALVANIZED COATING DAMAGED BY ROUGH TREATMENT DURING TRANSIT OR ERECTION SHALL BE MADE GOOD BY THE USE OF AT LEAST ONE COAT OF ZINC RICH PRIMER TO BS 4652. THE NAME AND LOCATION OF THE GALVANIZING FACTORY SHALL BE SUBMITTED TO THE SUPERVISING OFFICER FOR APPROVAL.

BEARING PRESSURE SCHEDULE (SEWERAGE HOLDING TANK)

Tank Location	FOUNDING MATERIAL	MAXIMUM BEARING PRESSURE WITHOUT WIND (kPa)	*ALLOWABLE BEARING PRESSURE WITHOUT WIND (kPa)
North Site (Zone 1)	SUBMERGED FILL	62.4	65
South Site (Zone 2)	SUBMERGED FILL	62.3	65

NOTES: * PROBE TESTS AT FOUNDING LEVEL SHALL BE CONDUCTED TO VERIFY THE ALLOWABLE BEARING PRESSURE OF THE FOUNDING MATERIAL.

CONCRETE

C1. STRUCTURAL CONCRETE SHALL BE OBTAINED FROM A SUPPLIER REGISTERED UNDER THE QUALITY SCHEME FOR THE PRODUCTION AND SUPPLY OF CONCRETE.

C2. TESTING OF STRUCTURAL CONCRETE SHALL COMPLY WITH CONSTRUCTION STANDARD CS1:2010 OF HONG KONG.

C3. CONCRETE MIX WITH A NOMINAL SLUMP LESS THAN 75mm SHALL NOT BE USED UNLESS THE CONTRACTOR CAN DEMONSTRATE THAT PROPER COMPACTION CAN BE ACHIEVED WITH A LOWER SLUMP WHICH SHALL IN NO CASE BE LESS THAN 50mm.

C4. HOLES AND POCKETS IN STRUCTURAL ELEMENTS SHALL NOT BE ALLOWED UNLESS AGREED BY THE SUPERVISING OFFICER.

C5. NO TROPICAL HARDWOOD PROPPING SHALL BE USED TO SUPPORT FORMWORK FOR CONCRETE WORK UNLESS AGREED OTHERWISE BY THE SUPERVISING OFFICER.

C6. THE DESIGN OF FORMWORK OR FALSEWORK INCLUDING SUPPORTS AND FOUNDATIONS SHALL BE SUBMITTED TO THE SUPERVISING OFFICER FOR APPROVAL PRIOR TO COMMENCEMENT OF ANY SUCH CONSTRUCTION ACTIVITY.

C7. THE POSITION AND METHOD OF FORMING CONSTRUCTION JOINTS INCLUDING SAMPLE TREATMENT SHALL BE SUBMITTED AND APPROVED PRIOR TO WORK ON SITE.

C8. THE PARTICULAR SPECIFICATION FOR REINFORCED MASSIVE CONCRETE STRUCTURES SHALL BE ADOPTED IF APPLICABLE. (WHERE STRUCTURAL CONCRETE MEMBERS HAVE A LEAST DIMENSION EXCEEDING 1500mm)

C9. NON STRUCTURAL CONCRETE WALLS ARE NOT SHOWN ON STRUCTURAL FRAMING PLANS. REFER TO RELEVANT DRAWING FOR LOCATIONS.

C10. CONCRETE GRADES SHALL BE AS FOLLOWING:

CONCRETE GRADES	ELEMENTS
45D/20	SEWERAGE HOLDING TANK
20D/20	MASS CONCRETE FILL
	75mm BLINDING LAYER

C11. 20x20 CHAMFER, UNLESS SHOWN OTHERWISE, IS PROVIDED ON INTERNAL CORNERS OF CONCRETE SURFACE LESS THAN 120 DEGREES FOR WATER TANK.

C12. ALLOWANCE IS TO BE MADE BY THE CONTRACTOR FOR CAMBER IN THE FORMWORK SUCH THAT THE ALIGNMENT OF THE COMPLETED STRUCTURE CONFORMS TO THE ALIGNMENT SHOWN ON THE DRAWING.

C13. THE CONTROL OF ALKALI-AGGREGATE REACTION IN CONCRETE SHALL BE IN ACCORDANCE WITH G.S. CLAUSE 6.47.1 TO 6.47.3.

C14. WHERE MASS CONCRETE FILL IS USED TO FORM TO THE REQUIRED FORM AND LEVEL, WIRE MESH A193 SHALL BE INSTALLED FROM TOP OF CONCRETE FACE 25mm IF CONCRETE THICKNESS IS GREATER THAN 100mm, UNLESS NOTED OTHERWISE.

C15. UNLESS OTHERWISE STATED FORM WORK TO BEAM SHALL BE PRE CAMBERED AS:-
(a) BEAM EXCEEDING 8m LONG SPANNING BETWEEN SUPPORTS: 0.2% OF SPAN LENGTH AT MID-SPAN.
(b) CANTILEVERS : 0.4% OF THE SPAN LENGTH AT FREE END.

C16. LEGENDS:

B1 (600x400) — BEAM MARK (DxB in mm)
1S1 (150) — SLAB MARK (THICKNESS IN mm)
1C1 — COLUMN MARK (SIZE IN mm)
1SW1A — WALL MARK (THICKNESS IN mm)
+13.00 — STRUCTURAL TOP LEVEL



C17. NOT WITHSTANDING G.S. CLAUSE 6.25, NOMINAL CONCRETE COVER TO ALL REINFORCEMENT, INCLUDING LINKS AND STIRRUPS, OF ALL STRUCTURAL MEMBERS SHALL BE STATED BELOW. WHICHEVER IS THE GREATER.

ELEMENT (NOT IN CONTACT WITH SOIL*)		NOMINAL CONCRETE COVER (mm) WITH MODERATE EXPOSURE CONDITION CONSIDERED
COLUMN		50
WALL		50
BEAM	CONTINUOUS	50
	SIMPLY SUPPORTED	50
SLABS	CONTINUOUS	35
	SIMPLY SUPPORTED	35

NOTES:
a. MINIMUM COVER TO REINFORCEMENT OF ELEMENT CAST DIRECT AGAINST SOIL TO BE 75mm.
b. MINIMUM COVER TO REINFORCEMENT OF ELEMENT CAST AGAINST ADEQUATE BLINDING TO BE 50mm (EXCLUDING BLINDING).

C18. GROUND GRANULATED BLAST-FURNACE SLAB (GGBS) CONCRETE SHALL BE ADOPTED.

REINFORCEMENT

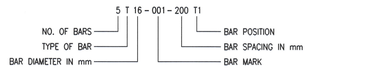
R1. STEEL REINFORCEMENT SHALL COMPLY WITH CONSTRUCTION STANDARD CS2:2012 OF HONG KONG.

SYMBOL	TYPE
T	HIGH YIELD DEFORMED BAR OF GRADE 500B
GT	HIGH YIELD DEFORMED BAR OF GRADE 500B AND HOT-DIP GALVANIZED TO BS EN ISO 1461:2009

R2. ALL REINFORCEMENT SHALL BE CUT OR BENT TO COMPLY WITH BS 8666:2005.

R3. ALLOW SUFFICIENT STEEL CHAIRS TO SUPPORT TOP REINFORCEMENT IN SLABS AND RAFTING EXCEEDING 150 THICK AND U-BARS TO KEEP VERTICAL WALL REINFORCEMENT IN THEIR CORRECT ALIGNMENT.

R4. NOTATION OF BAR REINFORCEMENT IS AS FOLLOWS :



SUFFIX:

T	–	TOP	SS	–	SINGLE STIRRUP
B	–	BOTTOM	DS	–	DOUBLE STIRRUP
NF	–	NEAR FACE	TS	–	TRIPLE STIRRUP
FF	–	FAR FACE	ABR	–	ALTERNATE BAR REVERSED
EF	–	EACH FACE	ABS	–	ALTERNATE BAR STAGGERED
BF	–	BOTH FACE	AP	–	ALTERNATELY PLACED
T1	–	TOP BAR TOP LAYER	RL	–	RANDOM LENGTH
T2	–	TOP BAR 2ND LAYER	LV	–	LENGTH VARIES
B1	–	BOTTOM BAR BOTTOM LAYER	UNO	–	UNLESS NOTED OTHERWISE
B2	–	BOTTOM BAR 2ND LAYER			

R5. NOMINAL COVER IS THE DESIGN DEPTH OF CONCRETE COVER TO ALL REINFORCEMENT, INCLUDING LINKS. IT IS THE DIMENSION USED IN DESIGN AND INDICATED ON THE DRAWINGS. THE ACTUAL COVER TO ALL REINFORCEMENT SHOULD NOT BE LESS THAN THE NOMINAL COVER MINUS 5mm.

R6. THE NOMINAL COVER TO ALL STEEL SHOULD BE SUCH THAT THE RESULTING COVER TO A MAIN BAR SHOULD NOT BE LESS THAN THE DIAMETER OF THE MAIN BAR OR, WHERE BARS ARE IN PAIRS OF BUNDLES, THE DIAMETER OF A SINGLE BAR OF CROSS-SECTIONAL AREA EQUAL TO THE SUM OF THEIR CROSS-SECTIONAL AREAS. AT THE SAME TIME THE NOMINAL COVER TO ANY LINKS SHOULD BE PRESERVED.

R7. LAPS OTHER THAN THOSE INDICATED ON THE DRAWINGS SHALL BE MADE ONLY WITH THE CONSENT OF THE SUPERVISING OFFICER.

R8. STEEL SPACERS OF SIMILAR DIAMETER TO BARS BUT NOT LESS THAN 25mm DIAMETER SHALL BE PROVIDED BETWEEN ADJACENT LAYERS OF PARALLEL REINFORCEMENT AND SPACED AT NOT MORE THAN 60 x SMALLER BAR DIAMETER OR 1.5m. WHICHEVER IS SMALLER.

R9. LAP SHALL BE STAGGERED WHEREVER POSSIBLE.

R10. NOTWITHSTANDING TO G.S. CLAUSE 6.15, THE TEST CERTIFICATES FOR EACH BATCH OF STEEL REINFORCING BARS DELIVERED TO SITE SHALL BE IN ACCORDANCE WITH SECTION 4 OF CS2:2012.

R11. NOTWITHSTANDING TO G.S. CLAUSE 6.17 (v), DETERMINATION OF MASS PER METER, TENSILE TEST, REBEND TEST, CHEMICAL ANALYSIS AND TEST ON BOND PROPERTY BASED ON SURFACE GEOMETRY SHALL BE CARRIED OUT ON TEST SPECIMENS FROM EACH BATCH OF STEEL REINFORCING BARS DELIVERED TO SITE IN ACCORDANCE WITH CS2:2012. THE CONTRACTOR SHALL ALLOW IN HIS PROGRAMME OF WORKS SUFFICIENT TIME FOR THE TESTING ON STEEL REINFORCING BARS TO BE CARRIED OUT BY THE PUBLIC WORKS LABORATORIES, INCLUDING 14 WORKING DAYS FOR THE CHEMICAL COMPOSITION TEST.

LAP LENGTH

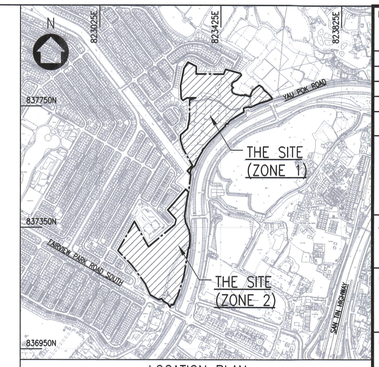
L1. ALL LAPS (GRADE C45) ARE BASED ON THE SMALLER BAR DIAMETER. LAP LENGTH ARE AS FOLLOW:

ANCHORAGE LENGTH AND LAP LENGTH	CONCRETE GRADE	BAR DIAMETER (mm)						
		10	12	16	20	25	32	40
TAL/TLL/CLL*	45	350	400	550	650	850	1050	1300
CAL*	45	300	350	450	550	650	850	1050
1.4 TLL*	45	500	550	750	950	1150	1450	1850
2.0 TLL*	45	650	800	1050	1300	1650	2100	2600

* THE ANCHORAGE / LAP LENGTH TABULATED IS FOR BARS IN FULL TENSION. IF THE DESIGN TENSION IN BARS IS LESS, THE ANCHORAGE / LAP LENGTH MAY BE REDUCED ACCORDINGLY.

L2. THE FOLLOWING PROVISION ALSO APPLY:
(A) HERE A LAP OCCURS AT THE TOP OF A SECTION AS CAST AND THE MINIMUM COVER IS LESS THAN TWICE THE SIZE OF THE LAPPED REINFORCEMENT, THE LAP LENGTH SHOULD BE INCREASED BY A FACTOR OF 1.4;
(B) HERE A LAP OCCURS AT THE CORNER OF SECTION AND THE MINIMUM COVER TO EITHER FACE IS LESS THAN TWICE THE SIZE OF THE LAPPED REINFORCEMENT OR, WHERE THE CLEAR DISTANCE BETWEEN ADJACENT LAPS IS LESS THAN 75MM OR SIX TIMES THE SIZE OF THE LAPPED REINFORCEMENT, WHICHEVER IS THE GREATER, THE LAP LENGTH SHOULD BE INCREASED BY A FACTOR OF 1.4;
(C) IN CASES WHERE BOTH CONDITIONS (A) AND (B) APPLY, THE LAP LENGTH SHOULD BE INCREASED BY A FACTOR OF 2.0.

L3. LAPPING OF BAR SHALL COMPLY WITH THE HONG KONG CODE OF PRACTICE FOR THE STRUCTURAL USE OF CONCRETE (2013). LAP IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN OR AS OTHER CONSENTED BY THE ENGINEER. LAPS NOT SPECIFICALLY DETAILED ON THE DRAWING SHALL BE STAGGERED SO THAT NOT MORE 50% OF LAPS OCCURS IN A BEND.



LOCATION PLAN
(1:5000)

0 100 200 300 400 500m
1 : 5000 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ALKF+ ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 建信 J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL H.K. LTD.

PLANNING CONSULTANT : KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-12

STRUCTURAL DESIGN CHECKER:

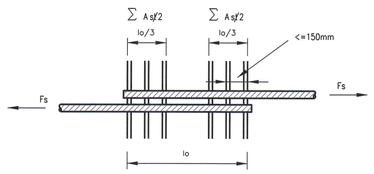
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date:

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – GENERAL NOTES

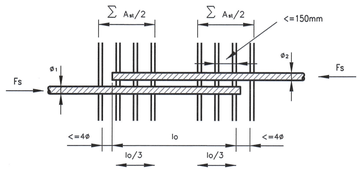
Drawing No.	Scale	Rev.
SE/8800/DS101/GN001	1:5000 (A1)	–

Date: 11/2024

建築署 Architectural Services Department



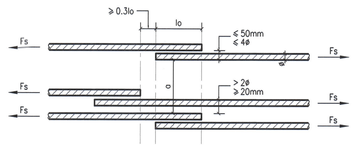
A) BARS IN TENSION



B) BARS IN COMPRESSION

LEGEND
Ast: SUM OF ALL LEGS PARALLEL TO THE LAYER OF THE SPLICED REINFORCEMENT
As: AREA OF ONE SPLICED BAR

TRANSVERSE REINFORCEMENT FOR LAPPED SPLICES



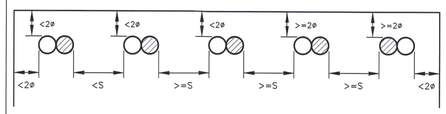
TYPICAL DETAIL OF ADJACENT LAPS

MINIMUM TRANSVERSE REINFORCEMENT FOR LAPPED BARS WITH LAP LENGTH

TRANSVERSE REINFORCEMENT FOR TENSION/COMPRESSION ZONE*			
LAPPED BAR	GRADE 45 CONCRETE		
DIAMETER (mm)	TLL OR CLL	1.4 TLL	2.0 TLL
20	T10 - 100	T10 - 150	T10 - 150
25	T16 - 125	T12 - 100	T10 - 125
32	T16 - 150	T12 - 100	T12 - 150
40	T16 - 100	T12 - 100	T10 - 100

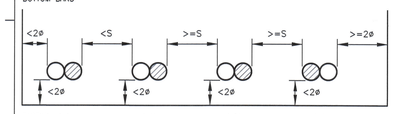
NOTE:
* THE TRANSVERSE REINFORCEMENT TABULATED ARE FOR BAS UNDER FULL TENSION/COMPRESSION. IF THE DESIGN FORCE IS LESS, THE AMOUNT OF TRANSVERSE REINFORCEMENT MAY BE REDUCED ACCORDINGLY.

TOP BARS



FACTOR	2	2	1.4	1.0	1.4

BOTTOM BARS

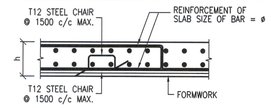


FACTOR	1.4	1.4*	1.0*	1.4

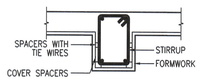
ø = DIAMETER OF THE LAPPED REINFORCEMENT
S = 75mm OR 6ø, WHICHEVER IS THE GREATER

* NOTE: FOR LAPS IN BOTTOM OF SECTION AS CAST MINIMUM COVER CRITERIA APPLIES TO CORNER BARS ONLY

FACTORS FOR LAPPING BARS

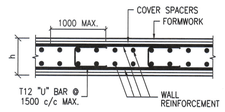


SECTION OF SLAB



SECTION OF BEAM

NOTES
THE DIAMETER AND SPACING OF CHAIRS ARE GIVEN AS MINIMUM REQUIREMENT, THE CONTRACTOR HAS TO PUT IN ADDITIONAL CHAIRS WHERE NECESSARY TO SUPPORT THE REINFORCEMENT FROM SAGGING OR DISPLACEMENT.

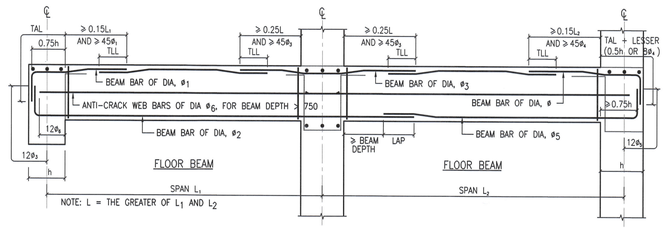


WALL PLAN



T12 "U" BAR
MAX. SPACING : 1500 c/c B.W.

TYPICAL DETAILS REQUIREMENT OF SPACER BLOCK, "U" BARS AND STEEL CHAIRS FOR STRUCTURAL ELEMENTS



NOTES
1. FOR ARRANGEMENT OF REINFORCEMENT IN EXTERIOR COLUMN AND BEAM JUNCTION AT ROOF LEVEL REFER TO DRG No. SD/018.

TYPICAL DETAIL CURTAILMENT OF LONGITUDINAL BARS IN BEAM

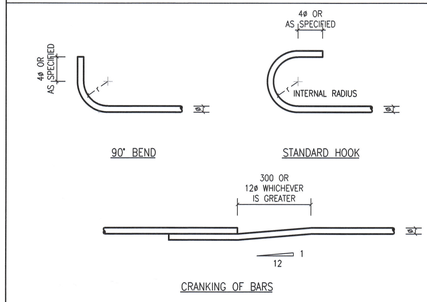
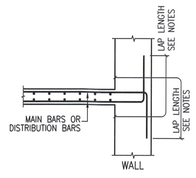


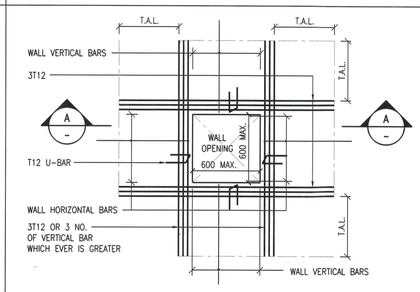
TABLE FOR STANDARD HOOKS AND BENDS REQUIREMENT

BAR SIZE (mm)	MINIMUM INTERNAL RADIUS (r) OF BEND (mm)
	REBARS TO CS2 : 2012
10	20
12	24
16	48
20	80
25	100
32	128
40	160

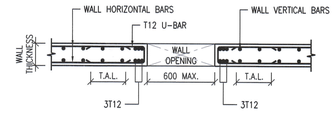
TYPICAL DETAILS FOR CRANKING OF BARS, STANDARD HOOKS AND BENDS



TYPICAL JOINT DETAILS FOR SLAB IN WALL

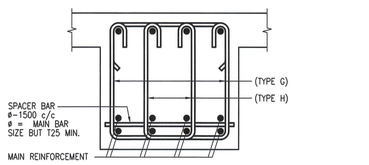


PLAN

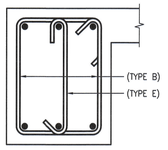


SECTION A-A

TYPICAL DETAILS OF WALL OPENINGS



SCENARIO 1

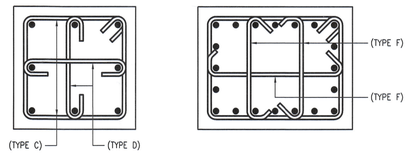


SCENARIO 2 SCENARIO 3

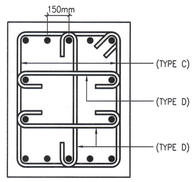
NOTES
IN LIEU OF THE TYPES OF BEAM STIRRUPS SHOWN ON THE R.C. DRAWINGS, THE CONTRACTOR MAY PROPOSE FOR THE SUPERVISING OFFICER APPROVAL ALTERNATIVE TYPES OF BEAM STIRRUPS.

SPACER BARS

TYPICAL DETAILS OF SPACER BARS AND STIRRUPS AT BEAMS



SCENARIO 1 SCENARIO 2



SCENARIO 3

NOTES
1. IN LIEU OF THE TYPES OF COLUMN BINDERS SHOWN ON THE R.C. DRAWINGS, THE CONTRACTOR MAY PROPOSE FOR THE SUPERVISING OFFICER APPROVAL ALTERNATIVE TYPES OF COLUMN BINDERS.
2. TYPE F CROSSTIES ENGAGING THE SAME LONGITUDINAL BAR SHALL HAVE THEIR 90-DEG HOOKS ALTERNATIVELY FIXED ON OPPOSITE SIDES OF COLUMN.

TYPICAL DETAILS OF COLUMN BINDERS

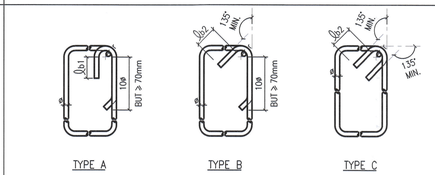
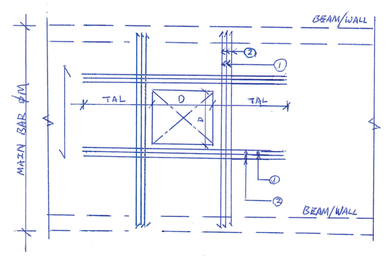


TABLE FOR BOND LENGTH FOR HOOKS AND BENDS REQUIREMENT FOR BEAM STIRRUPS AND COLUMN BINDERS

BOND LENGTH FOR REBARS TO	CS2:2012
lb1	5ø BUT ≥ 50mm
lb2	10ø BUT ≥ 70mm

TYPICAL DETAILS OF SHEAR LINKS

TYPICAL DETAILS OF ADDITIONAL REBARS FOR PERMANANT SLAB OPENINGS



PLAN

DIAMETER OF ADDITIONAL REBAR
DIA. = ø1M + 1 SIZE

ø1M	ADDITIONAL
T12	T16

VOID SIZE (DXD)	ADDITIONAL
>300 AND ≤ 750	①4T TOP AND BTM
>750 AND ≤ 1000	①6T TOP AND BTM

Notes :

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 潔信 J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL H.K. LTD.

PLANNING CONSULTANT : KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( ) CONSENT IS GIVEN WITHOUT CONDITIONS
(✓) CONSENT IS GIVEN WITH CONDITIONS
( ) CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT
LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: - 6 DEC 2024

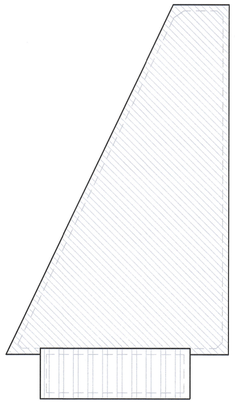
STRUCTURAL DESIGNER:
CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-12

STRUCTURAL DESIGN CHECKER:
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date:

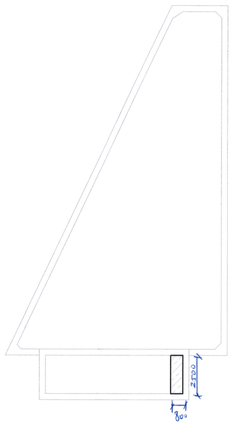
Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK - TYPICAL DETAILS

Drawing No.	Scale	Rev.
SE/8800/DS101/TD001	N.T.S. (A1)	-
Date: 11/2024		

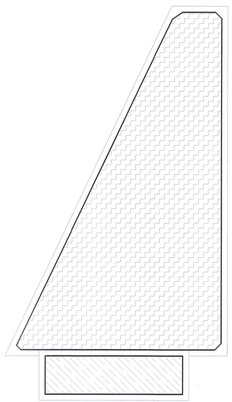
建築署 Architectural Services Department



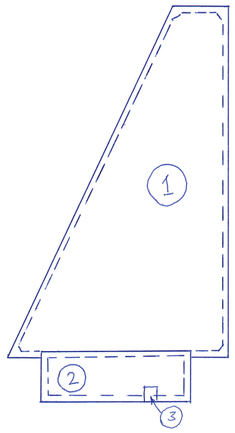
G/F LOADING KEY PLAN



+2.50 LOADING KEY PLAN

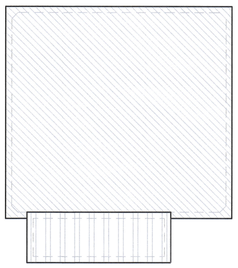


BOTTOM SLAB LOADING KEY PLAN

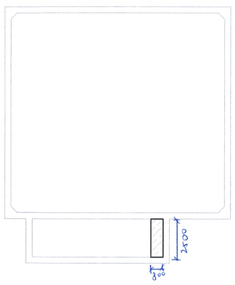


BOTTOM SLAB UPLIFT PRESSURE

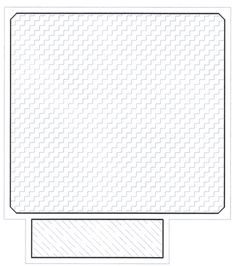
ZONE 1



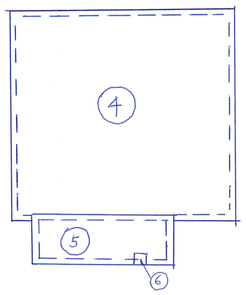
G/F LOADING KEY PLAN



+2.50 LOADING KEY PLAN



BOTTOM SLAB LOADING KEY PLAN



BOTTOM SLAB UPLIFT PRESSURE

ZONE 2

DESIGN LOAD FOR SURFACE LOADS

LEGEND	USAGE	IMPOSED LIVE LOAD (kPa)	SUPERIMPOSED DEAD LOAD (kPa)	FRR (HR)
	LAWN	5	4 (450mH BACKFILL)	–
	MAINTENANCE (GROUND LEVEL)	7.5	3 (150mH BACKFILL)	–
	LANDING OF CAT LADDER	7.5	1.25	–
	SEWERAGE HOLDING TANK	19.6 (2mH WATER)	1.25	–
	MAINTENANCE/EQUIPMENT FLOOR	7.5	1.25	–

DESIGN LOAD FOR UPLIFT PRESSURE

LEGEND	DESCRIPTION	CRAPP PRESSURE
①	ZONE1 – TANK AREA	– 29.4
②	ZONE1 – MAINTANANCE AREA	– 31.9
③	ZONE1 – SUMPIT	– 34.8
④	ZONE2 – TANK AREA	– 24.5
⑤	ZONE2 – MAINTANANCE AREA	– 27.5
⑥	ZONE2 – SUMPIT	– 30.4

0 5 10 15 20m

1 : 200 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL H.K. LTD.

PLANNING CONSULTANT : KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title

DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-12

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date:

Drawing Title

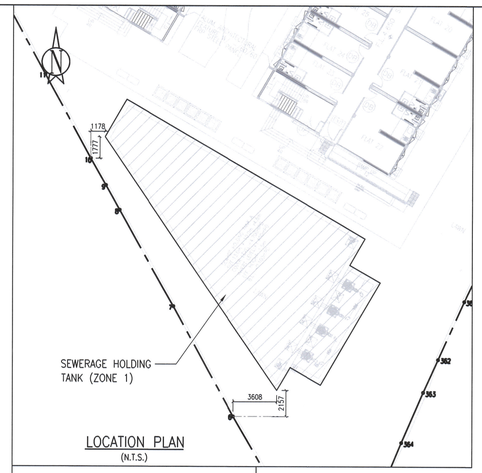
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – LOADING KEY PLAN

Drawing No.	Scale	Rev.
SE/8800/DS101/LP001	1:200 (A1)	–

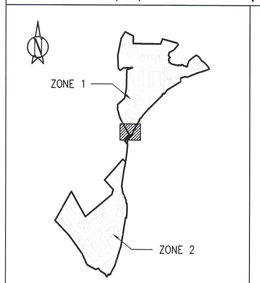
Date: 11/2024

建築署 Architectural Services Department

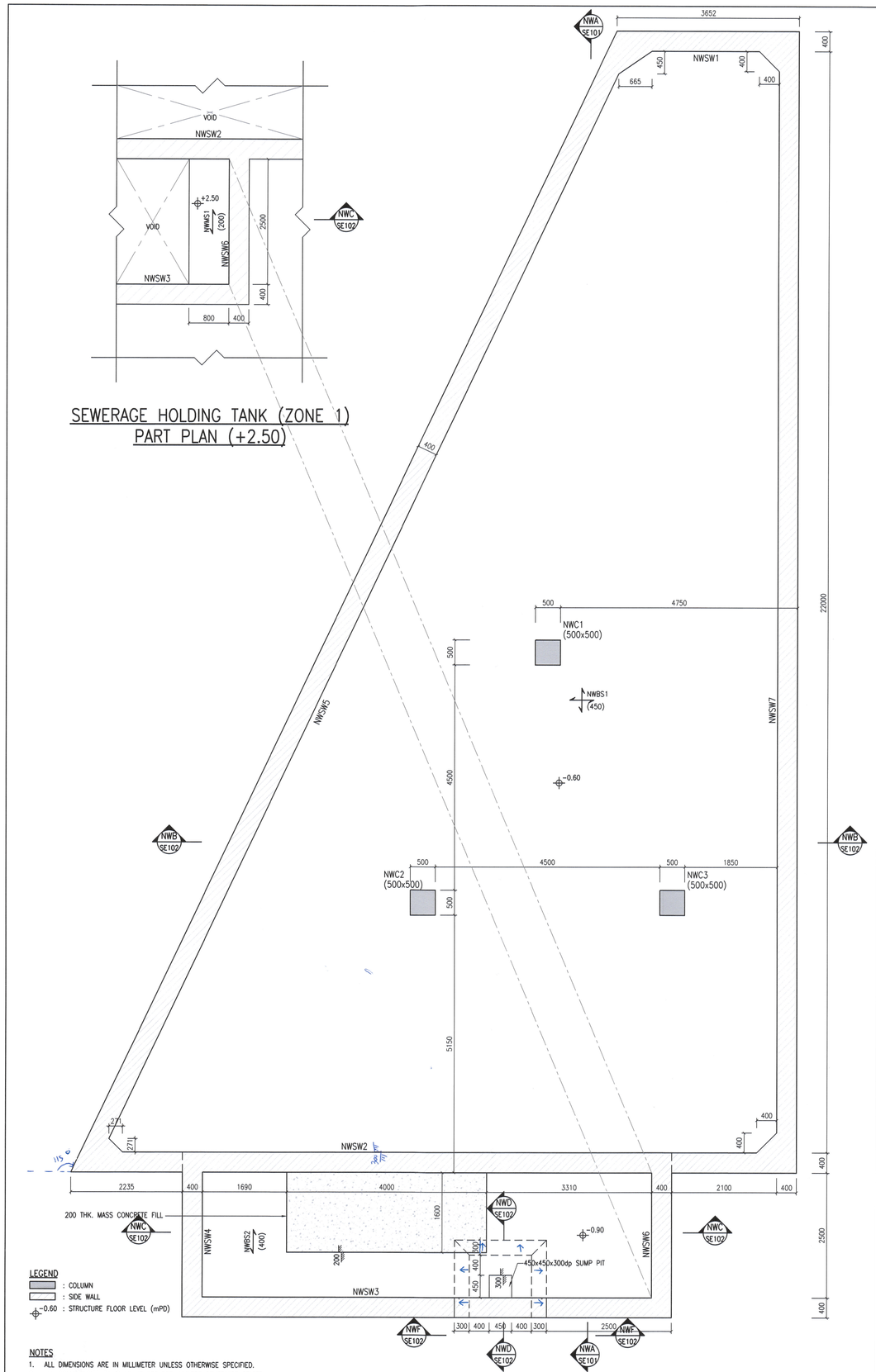
SEWERAGE HOLDING TANK (ZONE 1)
PART PLAN (+2.50)



LOCATION PLAN
(N.T.S.)



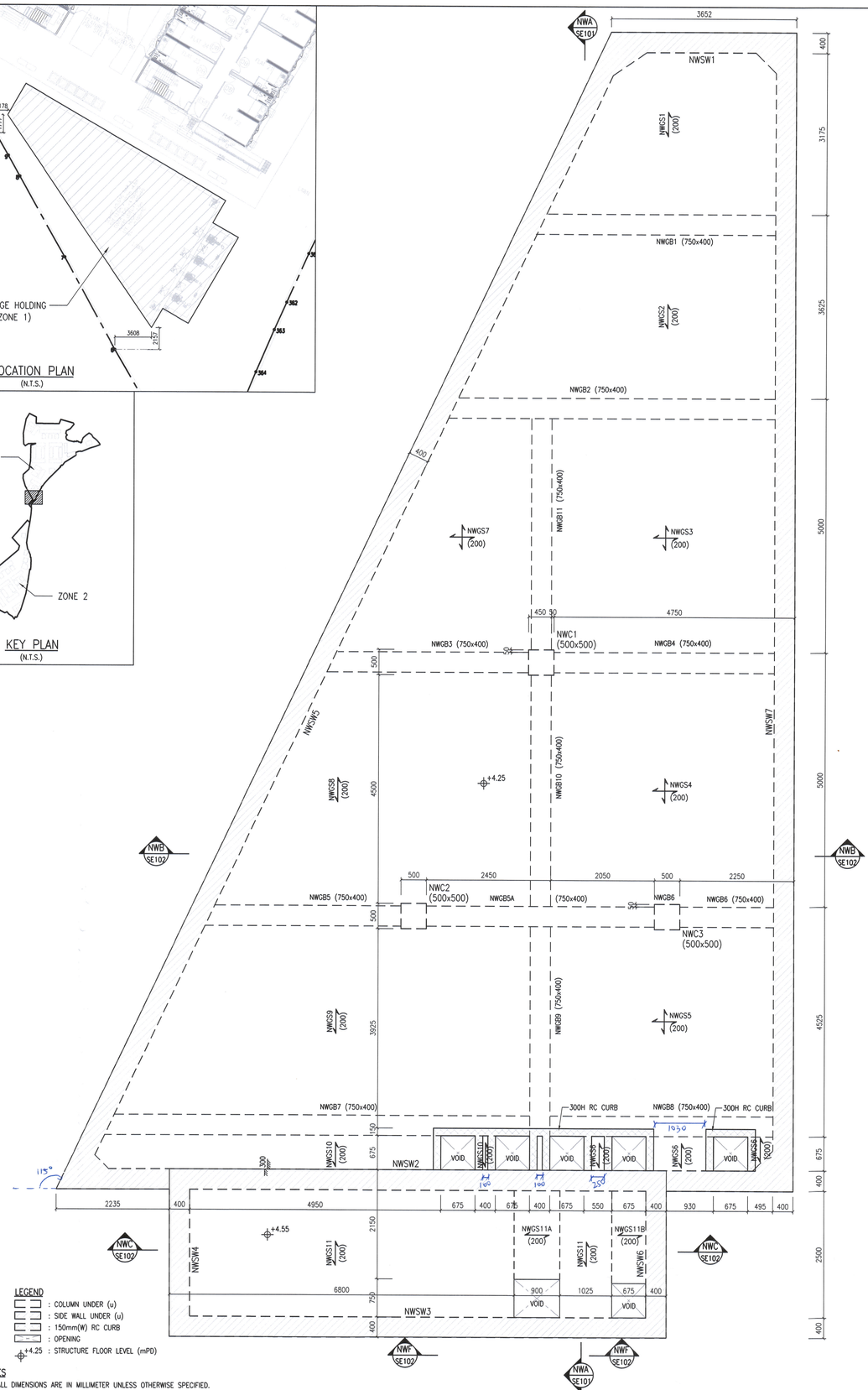
KEY PLAN
(N.T.S.)



LEGEND
: COLUMN
: SIDE WALL
-0.60 : STRUCTURE FLOOR LEVEL (mPD)

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. ALL COLUMN SIZE (BxD) TO BE 500x500, UNLESS OTHERWISE STATED.
3. ALL SIDE WALL TO BE 400mm THICK UNLESS OTHERWISE STATED.
4. ALL SLABS TO BE 400mm THICK UNLESS OTHERWISE STATED.

SEWERAGE HOLDING TANK (ZONE 1)
BOTTOM LEVEL FRAMING PLAN



LEGEND
: COLUMN UNDER (u)
: SIDE WALL UNDER (u)
: 150mm(W) RC CURB
: OPENING
+4.25 : STRUCTURE FLOOR LEVEL (mPD)

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. ALL COLUMN SIZE (BxD) TO BE 500x500, UNLESS OTHERWISE STATED.
3. ALL SIDE WALL TO BE 400mm THICK UNLESS OTHERWISE STATED.
4. ALL BEAM SIZE (DxB) TO BE 750x400, UNLESS OTHERWISE STATED.
5. ALL SLABS TO BE 200mm THICK UNLESS OTHERWISE STATED.

SEWERAGE HOLDING TANK (ZONE 1)
TOP LEVEL FRAMING PLAN

0 1 2 3 4 5m
1 : 50 SCALE BAR

Notes :

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 遠倫
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LIMITED
CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF
LIGHT PUBLIC HOUSING
AT YAU POK ROAD, YUEN LONG,
AT TUEN MUN AREA 3A AND
AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
(✓)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-27

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK -
FRAMING PLAN
(ZONE 1)

Drawing No.	Scale	Rev.
SE/8800/DS101/FP101	1:50 (A1)	-

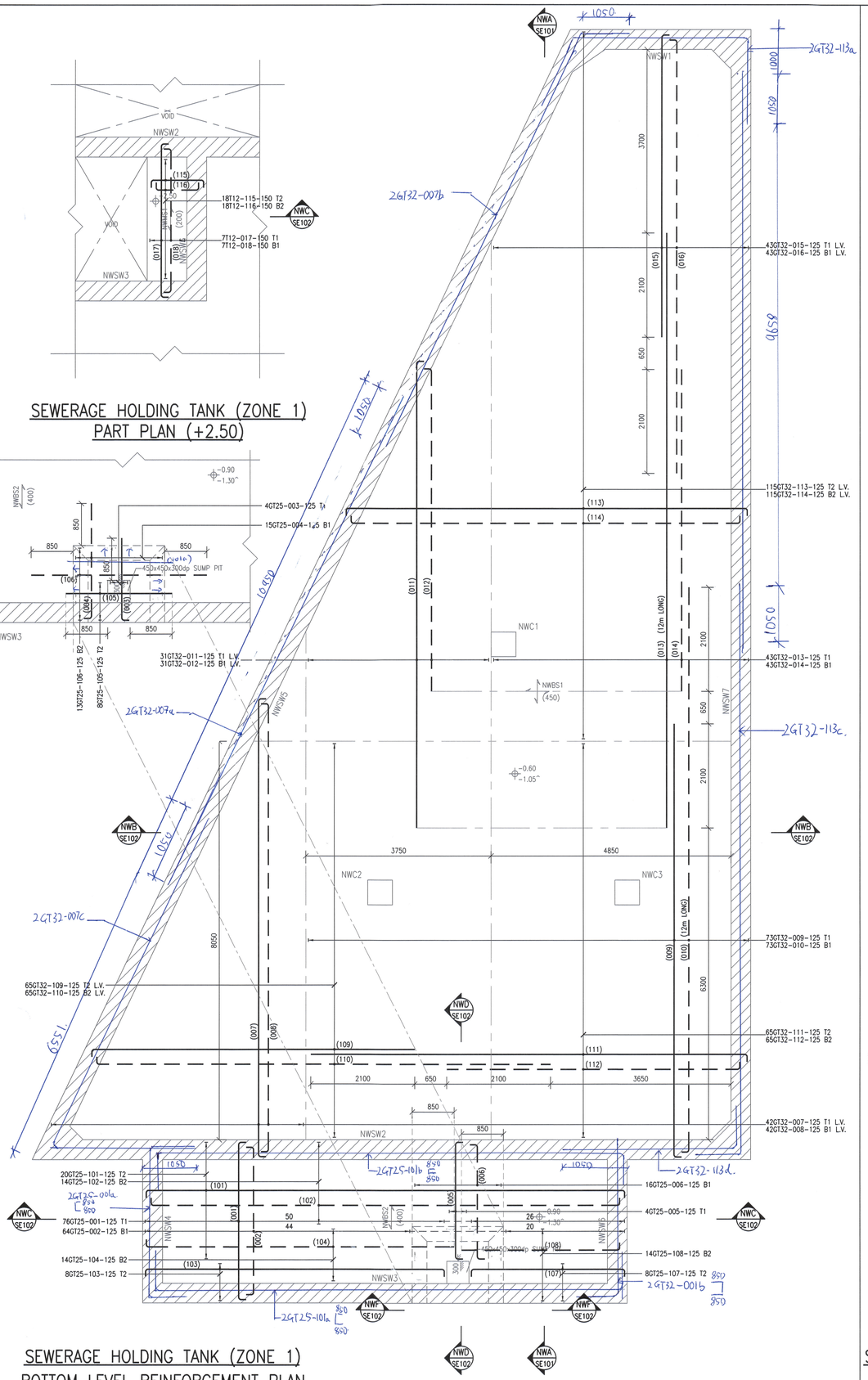
Date: 11/2024

建築署
Architectural Services Department

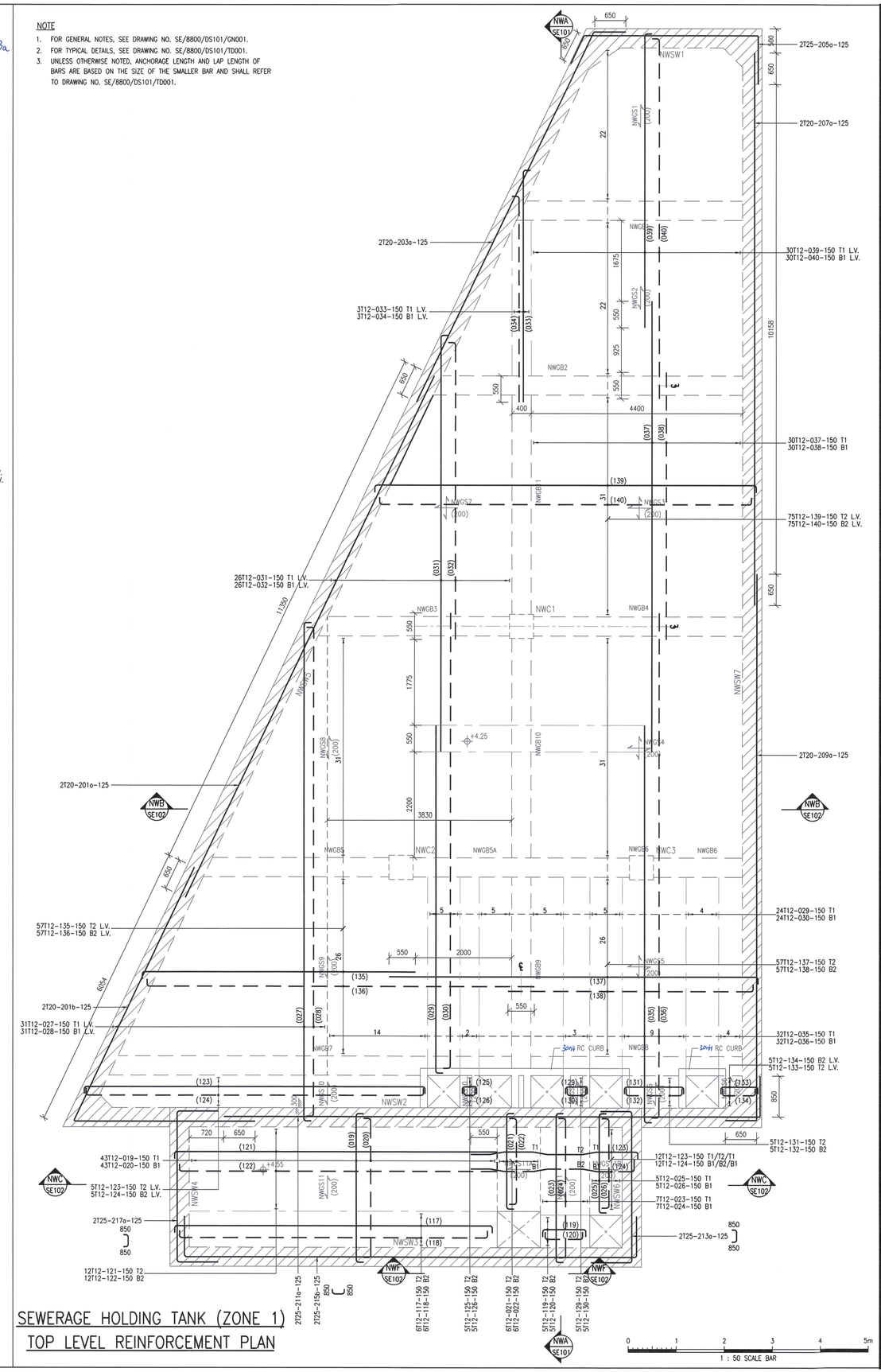
NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

SEWERAGE HOLDING TANK (ZONE 1) PART PLAN (+2.50)



SEWERAGE HOLDING TANK (ZONE 1) BOTTOM LEVEL REINFORCEMENT PLAN



SEWERAGE HOLDING TANK (ZONE 1) TOP LEVEL REINFORCEMENT PLAN

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions — ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 遠信 — J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : — EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD — BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL — RAMBOLL H.K. LTD.

PLANNING CONSULTANT : — KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LIMITED — CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title

DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

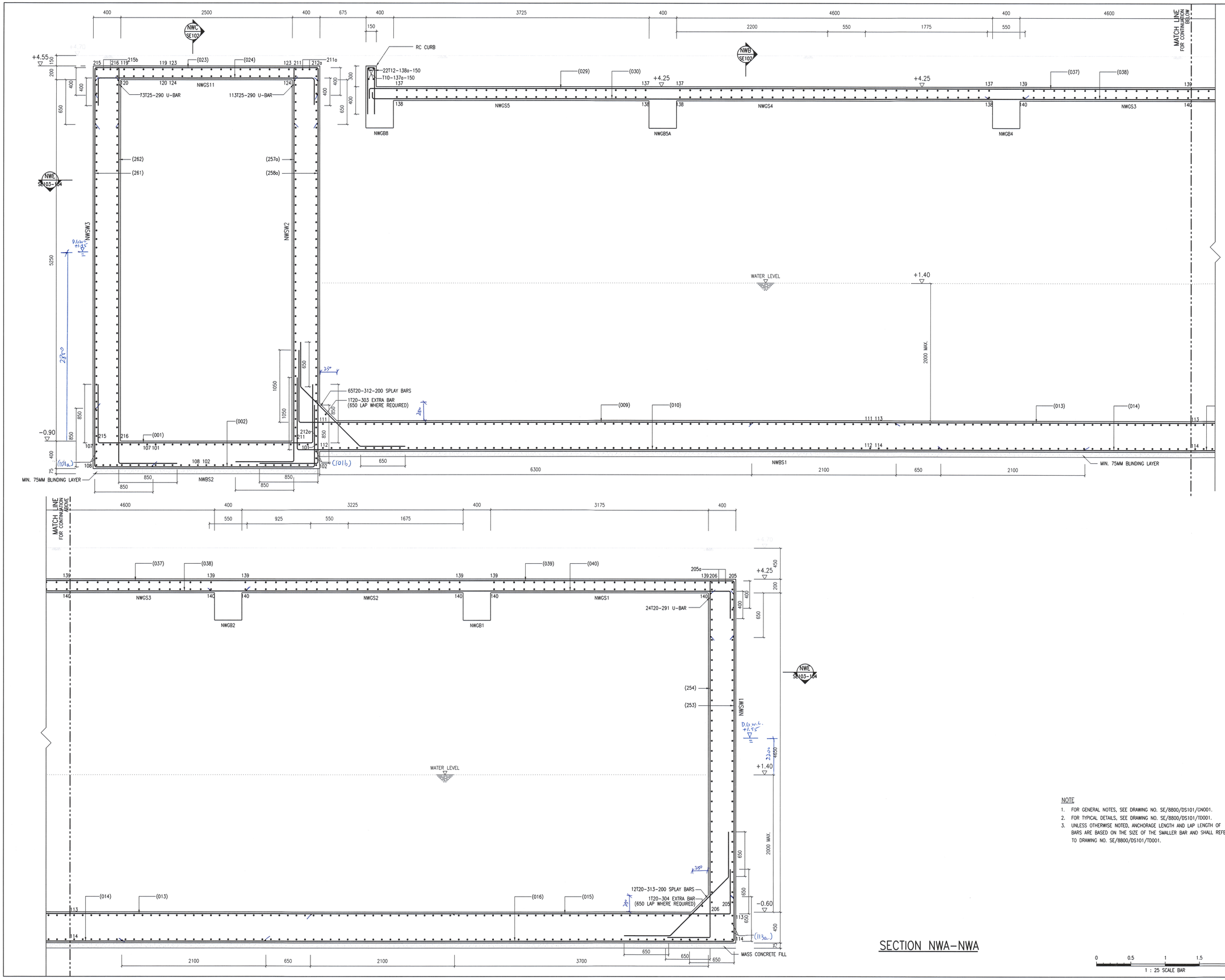
Drawing Title

YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – SLAB R.C. DETAILS (ZONE 1)

Drawing No.	Scale	Rev.
SE/8800/DS101/SL101	1:50 (A1)	-

Date: 11/2024

建築署 Architectural Services Department



SECTION NWA–NWA

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/CN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 遠信
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
(✓)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 6 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-27

STRUCTURAL DESIGN CHECKER:

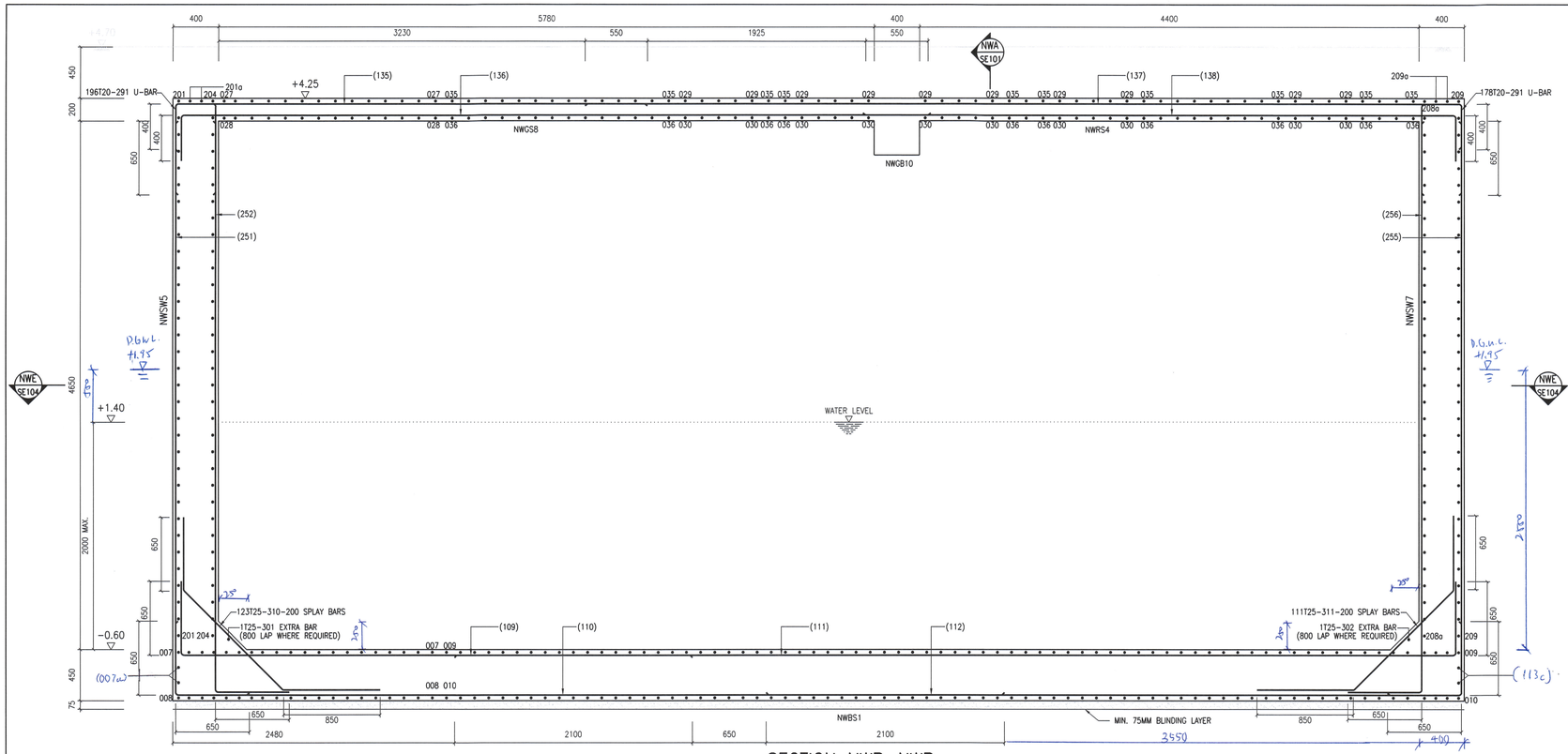
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-27

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – SECTION NWA–NWA (ZONE 1)

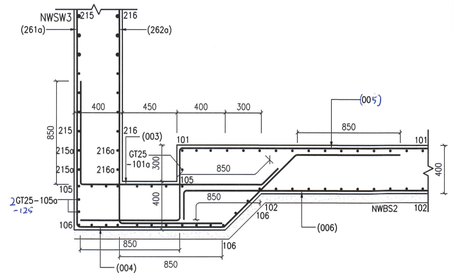
Drawing No.	Scale	Rev.
SE/8800/DS101/SE101	1:25 (A1)	–

Date: 11/2024

建築署 Architectural Services Department



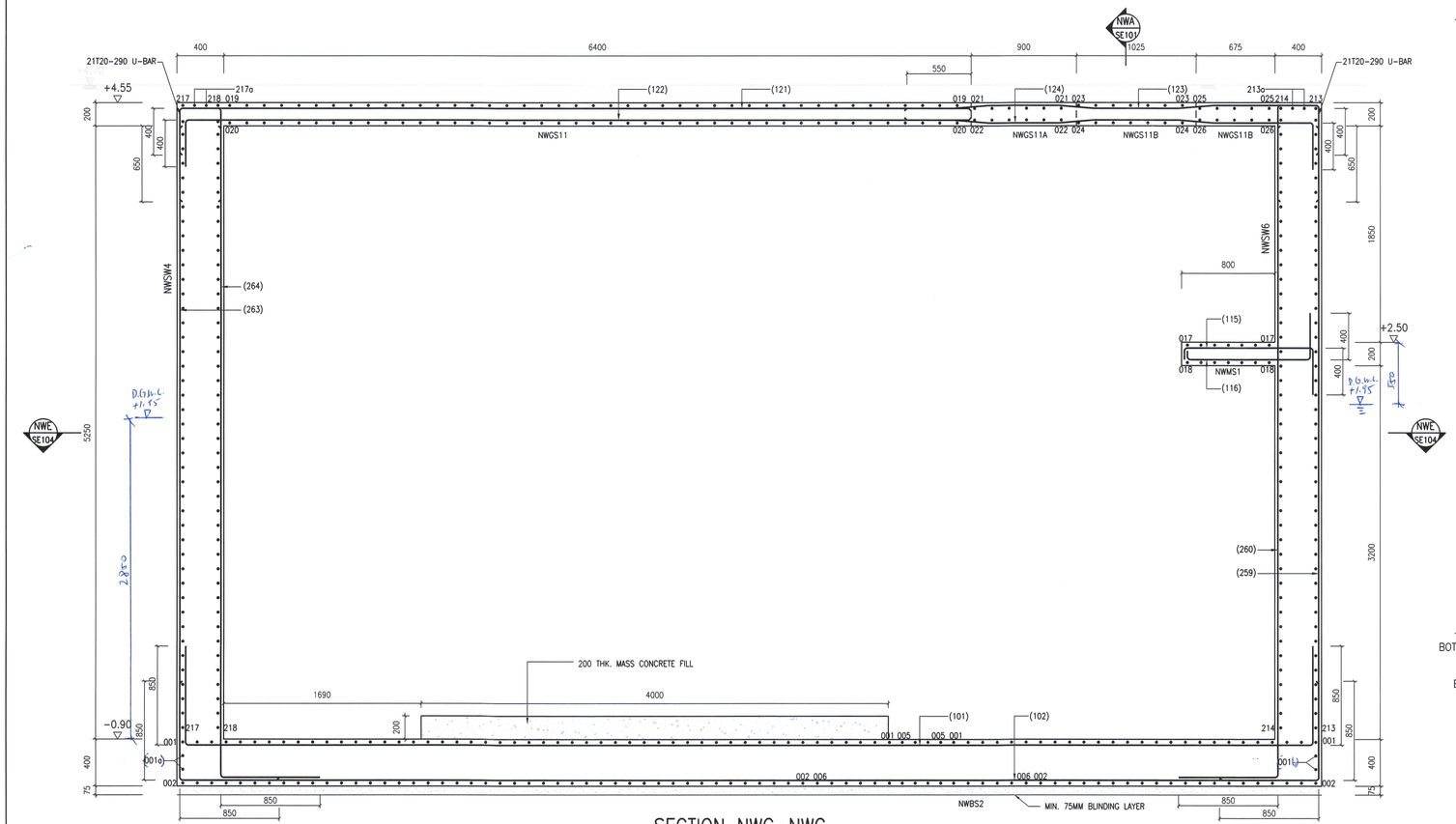
SECTION NWB–NWB



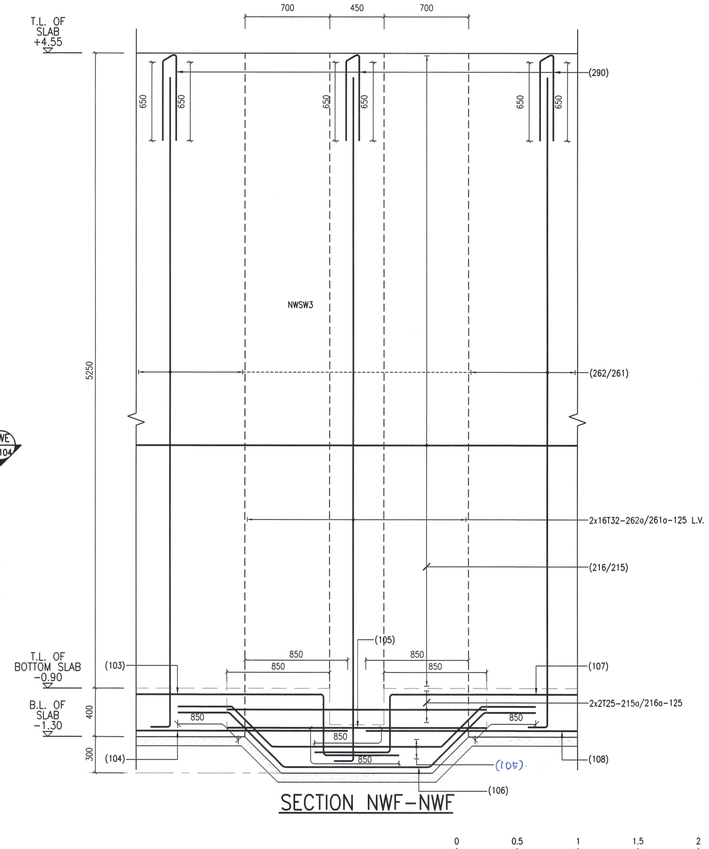
SECTION NWD–NWD

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.



SECTION NWC–NWC



SECTION NWF–NWF

Notes :			
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-
No.	Date	Description	Initial

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ALKF+ ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 遠信 J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL RAMBOLL H.K. LTD.

PLANNING CONSULTANT : KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
(✓)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT
LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: - 4 DEC 2024

STRUCTURAL DESIGNER:
CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-27

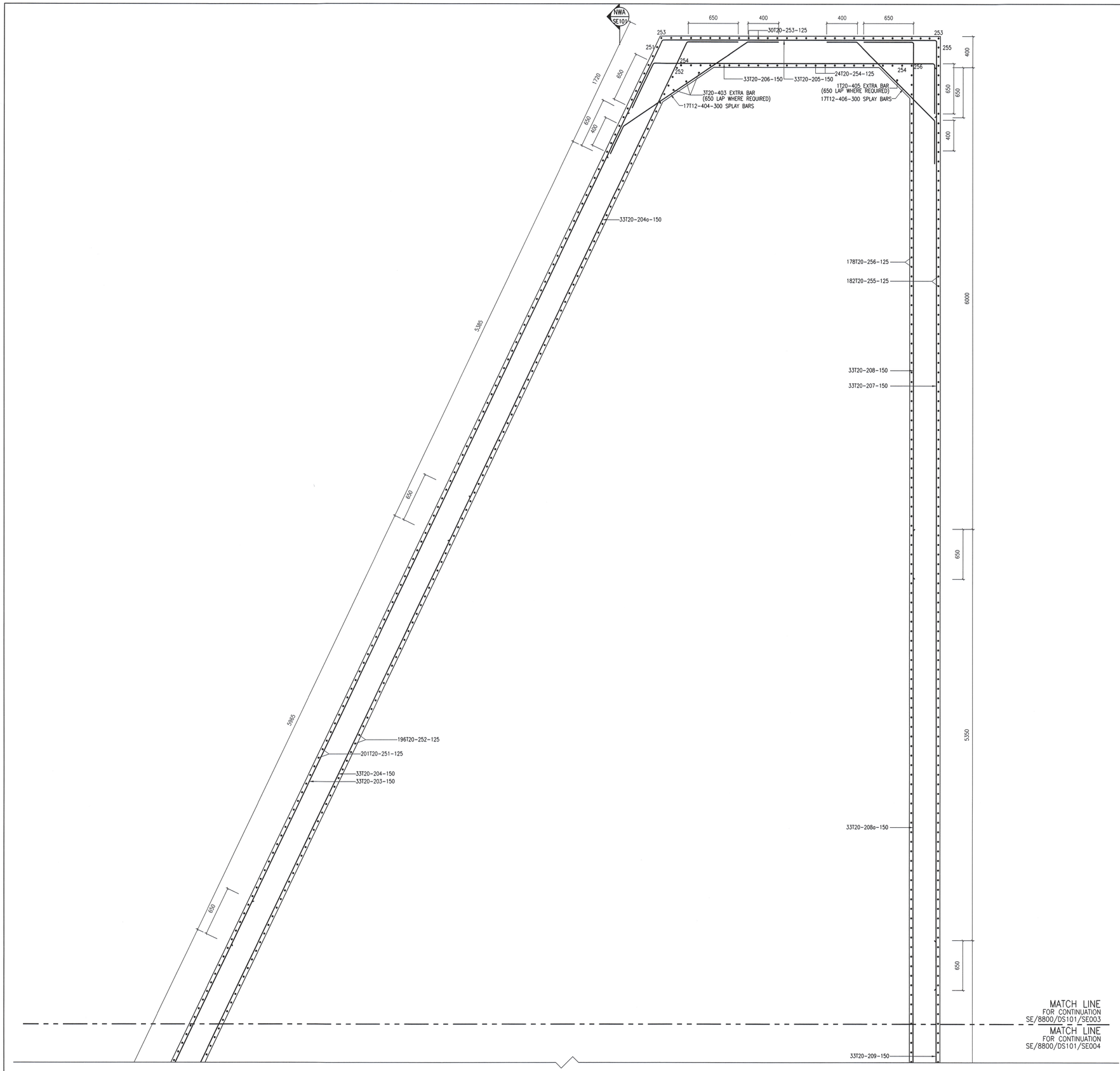
STRUCTURAL DESIGN CHECKER:
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-27

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – SECTIONS NWB–NWB, NWC–NWC , NWD–NWD AND NWF–NWF (ZONE 1)

Drawing No.	Scale	Rev.
SE/8800/DS101/SE102	1:25 (A1)	-

Date: 11/2024

建築署 Architectural Services Department



NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

SECTION NWE-NWE (SHEET 1 OF 2)

0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 捷信
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( ) CONSENT IS GIVEN WITHOUT CONDITIONS
(✓) CONSENT IS GIVEN WITH CONDITIONS
( ) CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: - 1 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-27

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-27

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – SECTION NWE-NWE (ZONE 1)

(SHEET 1 OF 2)

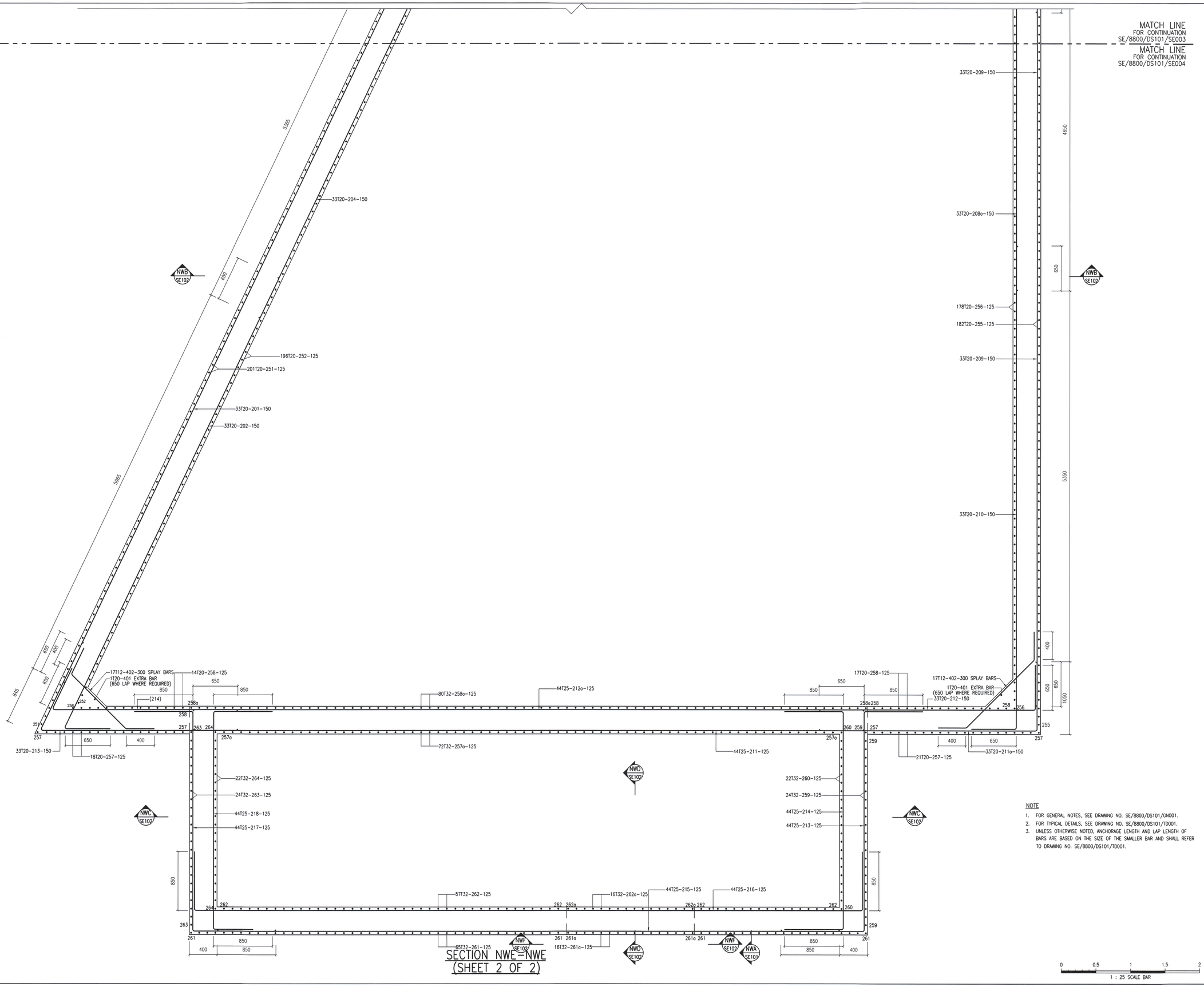
Drawing No.	Scale	Rev.
SE/8800/DS101/SE103	1:25 (A1)	-

Date: 11/2024

建築署
Architectural Services Department

MATCH LINE
FOR CONTINUATION
SE/8800/DS101/SE003

MATCH LINE
FOR CONTINUATION
SE/8800/DS101/SE004



SECTION NWE–NWE
(SHEET 2 OF 2)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 遠信
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LIMITED
CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF
LIGHT PUBLIC HOUSING
AT YAU POK ROAD, YUEN LONG,
AT TUEN MUN AREA 3A AND
AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(✓)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

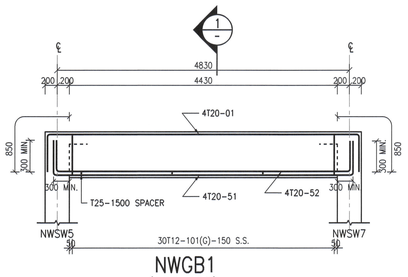
Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
SECTION NWE–NWE
(ZONE 1)

(SHEET 2 OF 2)

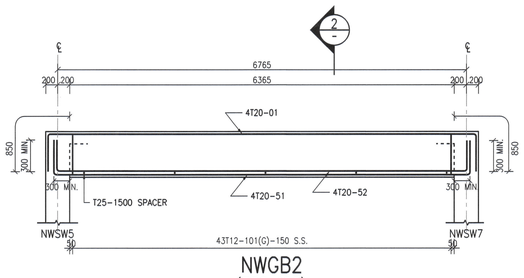
Drawing No.	Scale	Rev.
SE/8800/DS101/SE104	1:25 (A1)	–

Date: 11/2024

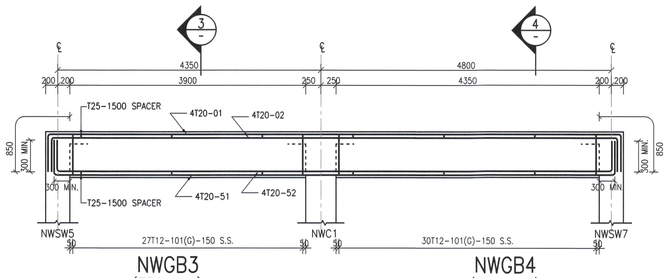
建築署
Architectural Services Department



NWGB1
(750x400)

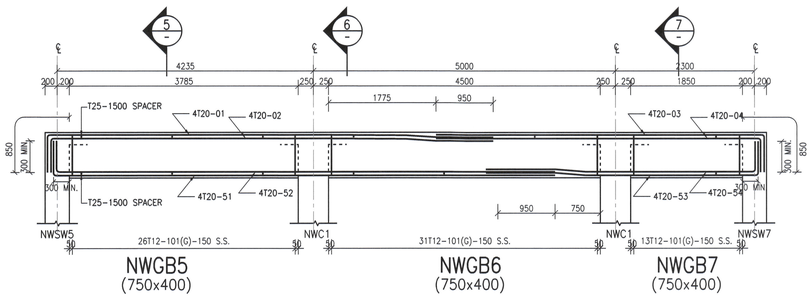


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NWGB3
(750x400)

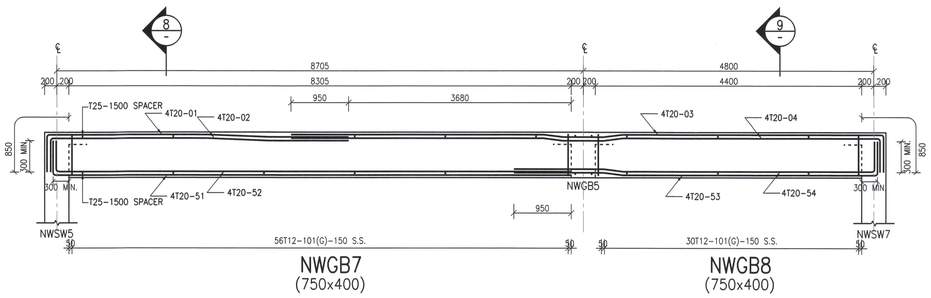
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NWGB5
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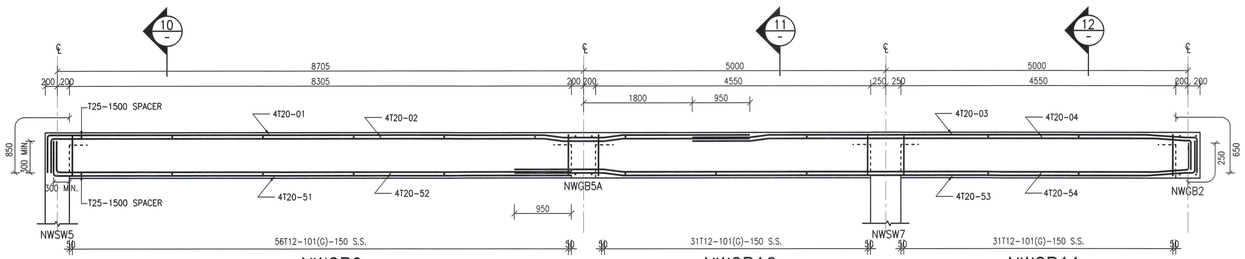
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NWGB7
(750x400)



NWGB7
(750x400)

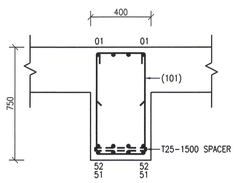
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NWGB9
(750x400)

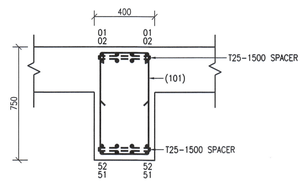
NWGB10
(750x400)

NWGB11
(750x400)



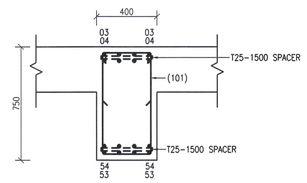
SEC 1

(SEC 2 SIMILAR)



SEC 3

(SEC 4, SEC 5, SEC 6,
SEC 8, SEC 10 SIMILAR)



SEC 7

(SEC 9, SEC 11, SEC 12 SIMILAR)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

0 1 2 3 4 5m
1 : 50 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
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CKM ASIA LTD.

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Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

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PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 1 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

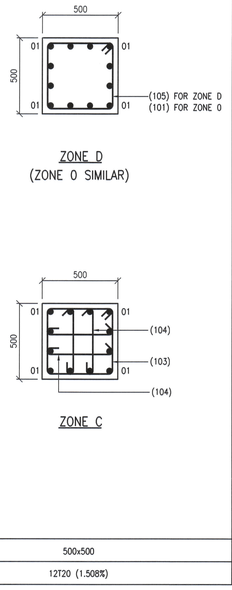
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
BEAM R.C. DETAILS
(ZONE 1)

Drawing No.	Scale	Rev.
SE/8800/DS101/BE101	1:50 (A1)	–

Date: 11/2024

建築署
Architectural Services Department

COLUMN MARK / FLOOR	NWC1, NWC2, NWC3
BASE SLAB ~ G/F	
SIZE	500x500
MAIN BARS	12T20 (1.508%)

NOTE

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2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

NOTE FOR COLUMN DETAILS

1. ALL OUTERMOST COLUMN BINDERS TO BE TYPE C & TYPE E, UNLESS OTHERWISE STATED.

0 0.5 1 1.5 2m

1 : 20 SCALE BAR

Notes :

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

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TRAFFIC CONSULTANT : CKM ASIA LIMITED — CKM ASIA LTD.

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Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title

DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

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PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
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(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

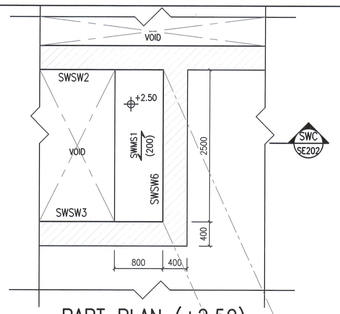
Drawing Title

YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – COLUMN R.C. DETAILS (ZONE 1)

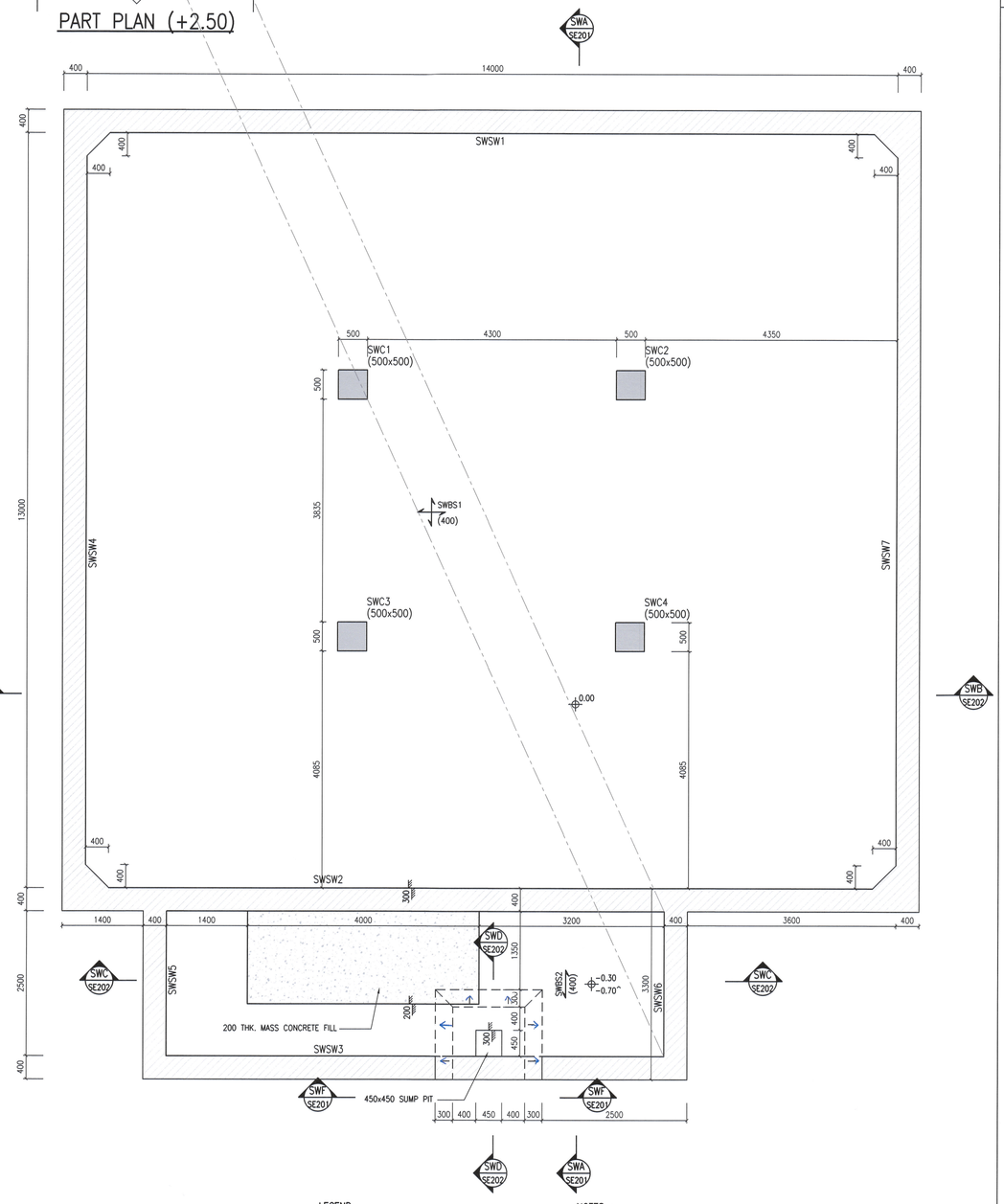
Drawing No.	Scale	Rev.
SE/8800/DS101/CL101	1:20 (A1)	-

Date: 11/2024

建築署 Architectural Services Department



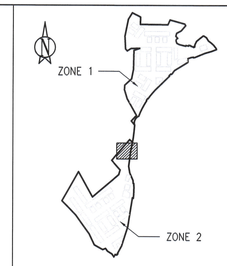
PART PLAN (+2.50)



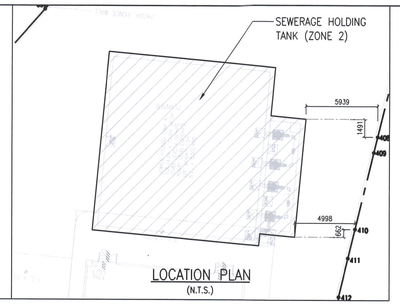
LEGEND
- : COLUMN
- : SIDE WALL
- 0.00 : STRUCTURE FLOOR LEVEL (mPD)

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. ALL COLUMN SIZE (BxD) TO BE 500x500, UNLESS OTHERWISE STATED.
3. ALL SIDE WALL TO BE 400mm THICK UNLESS OTHERWISE STATED.
4. ALL SLABS TO BE 400mm THICK UNLESS OTHERWISE STATED.

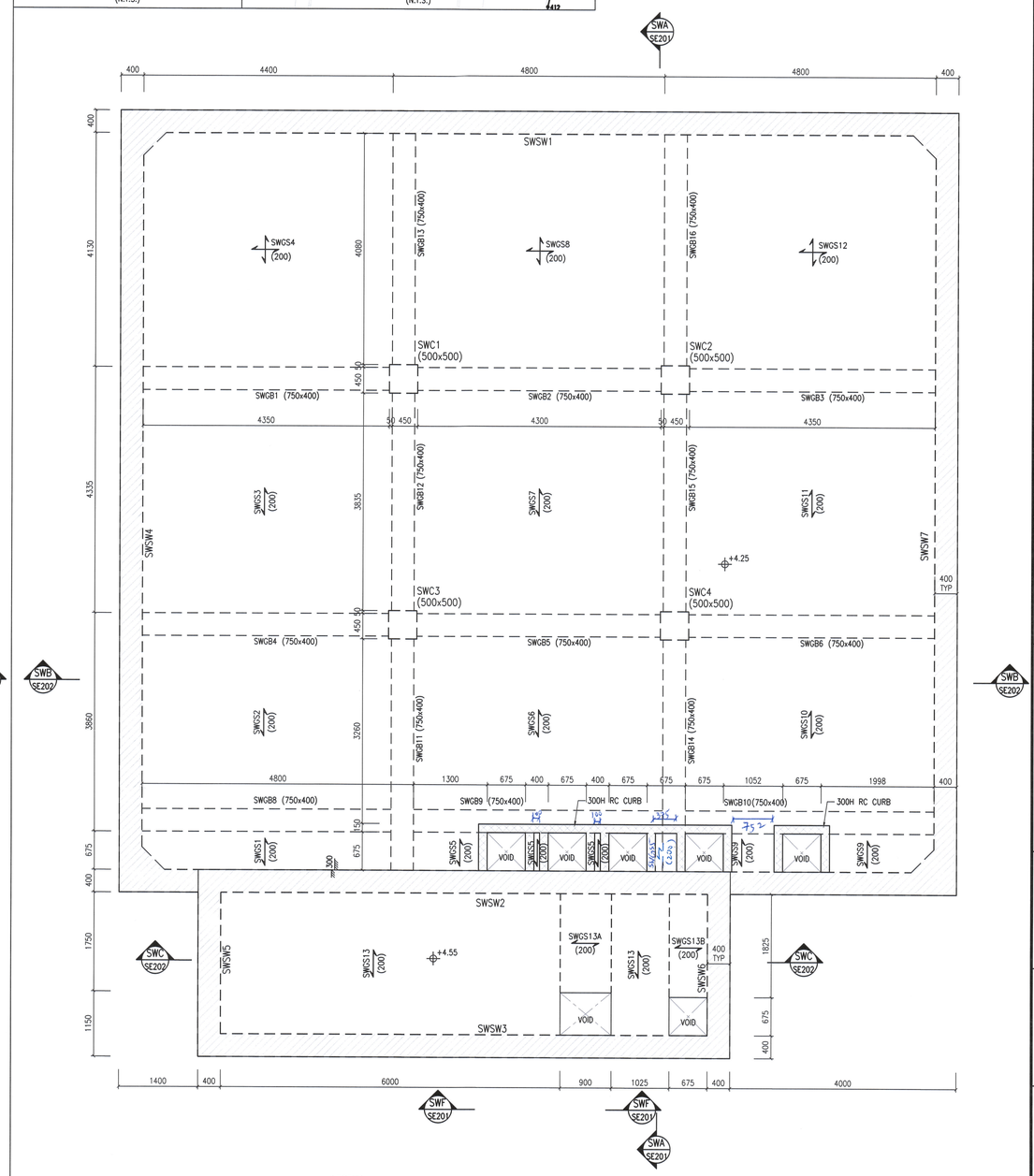
SEWERAGE HOLDING TANK (ZONE 2)
BOTTOM LEVEL FRAMING PLAN



KEY PLAN
(N.T.S.)



LOCATION PLAN
(N.T.S.)



LEGEND
- : COLUMN UNDER (u)
- : SIDE WALL UNDER (u)
- : 150mm(W) RC CURB
- : OPENING
- +4.25 : STRUCTURE FLOOR LEVEL (mPD)

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. ALL COLUMN SIZE (BxD) TO BE 500x500, UNLESS OTHERWISE STATED.
3. ALL SIDE WALL TO BE 400mm THICK UNLESS OTHERWISE STATED.
4. ALL BEAM SIZE (DxB) TO BE 750x400, UNLESS OTHERWISE STATED.
5. ALL SLABS TO BE 200mm THICK UNLESS OTHERWISE STATED.

SEWERAGE HOLDING TANK (ZONE 2)
TOP LEVEL FRAMING PLAN

0 1 2 3 4 5m
1 : 50 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

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LANDSCAPE CONSULTANT : — EARTHASIA LTD.

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PLANNING CONSULTANT : — KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LIMITED — CKM ASIA LTD.

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Designed	KING CHONG		11/2024
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Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

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PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
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(REGISTRATION NO.: RSE 70/05)
DATE: - 1 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

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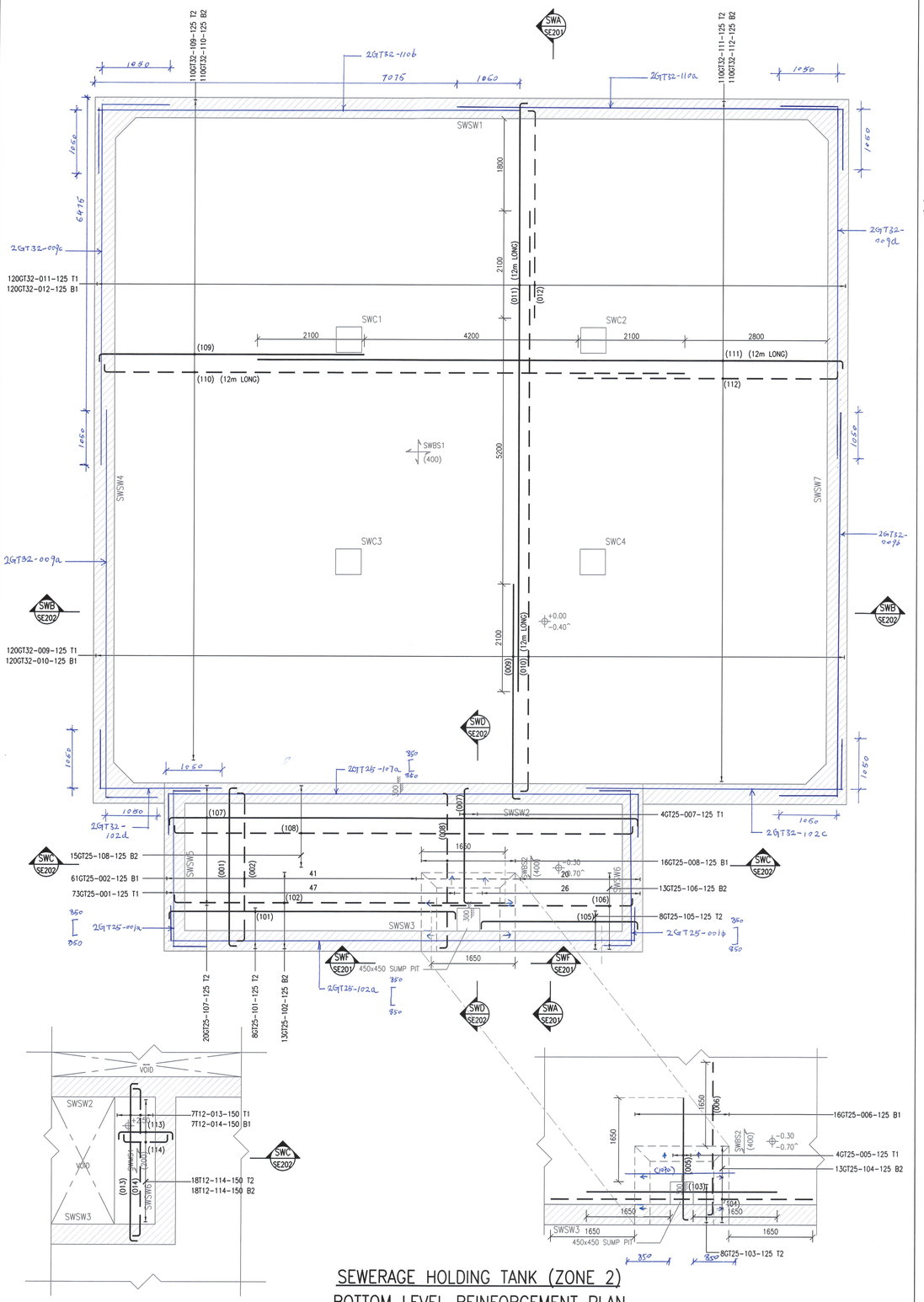
WAI SAI CHONG
FOR AND ON BEHALF OF
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(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
FRAMING PLAN
(ZONE 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/FP201	1:50 (A1)	–

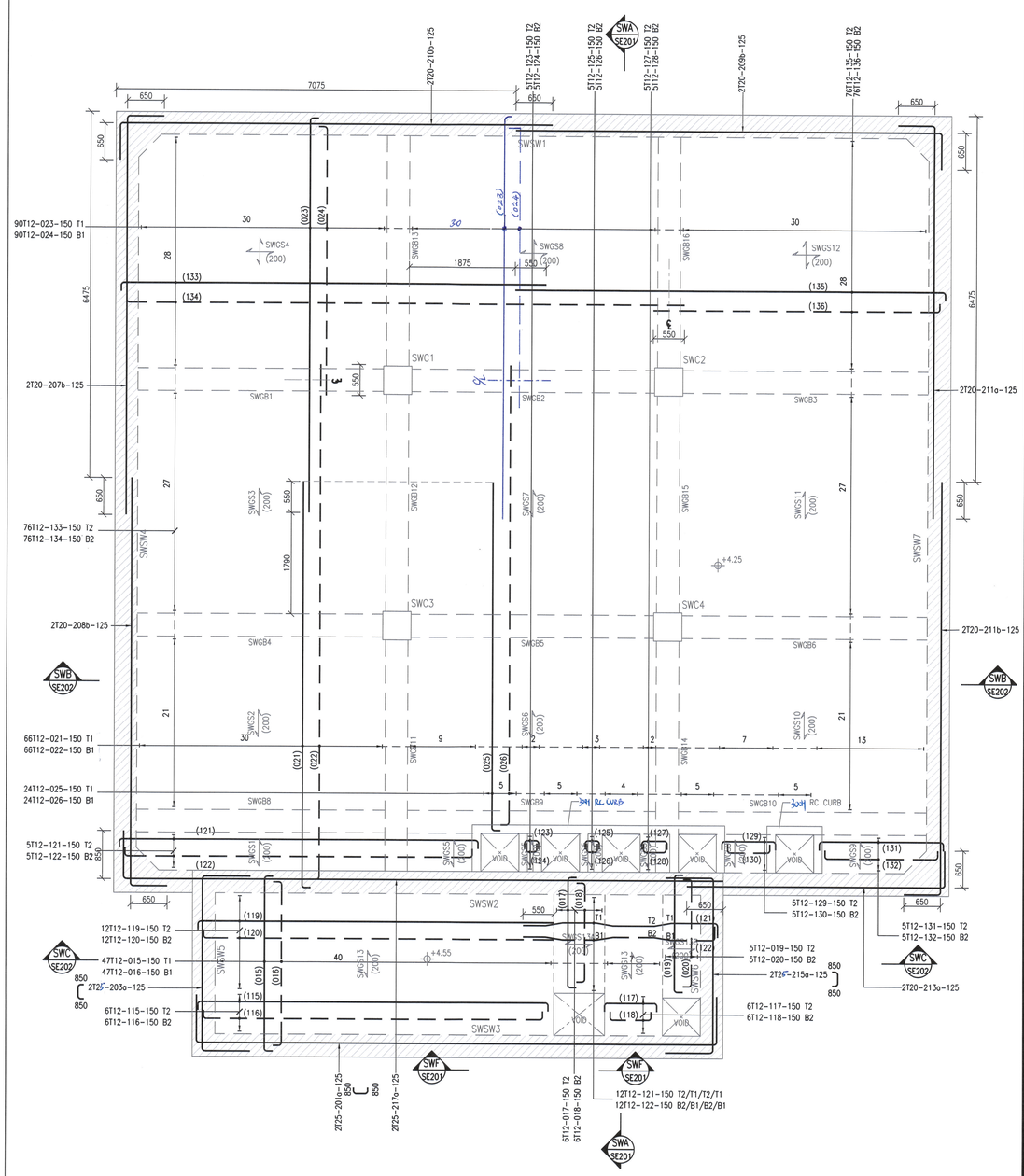
Date: 11/2024

建築署 Architectural Services Department



SEWERAGE HOLDING TANK (ZONE 2)
PART PLAN (+2.50)

SEWERAGE HOLDING TANK (ZONE 2)
BOTTOM LEVEL REINFORCEMENT PLAN



SEWERAGE HOLDING TANK (ZONE 2)
TOP LEVEL REINFORCEMENT PLAN

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
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0 1 2 3 4 5m
1 : 50 SCALE BAR

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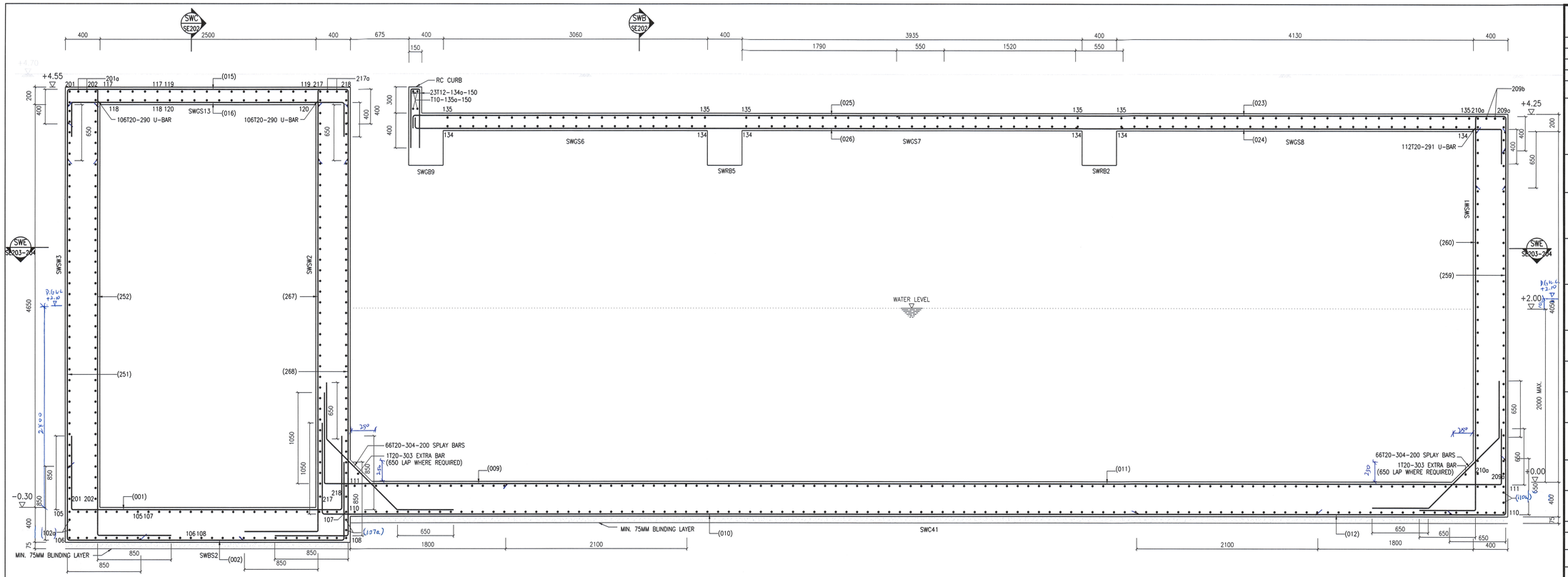
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(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
SLAB R.C. DETAILS
(ZONE 2)

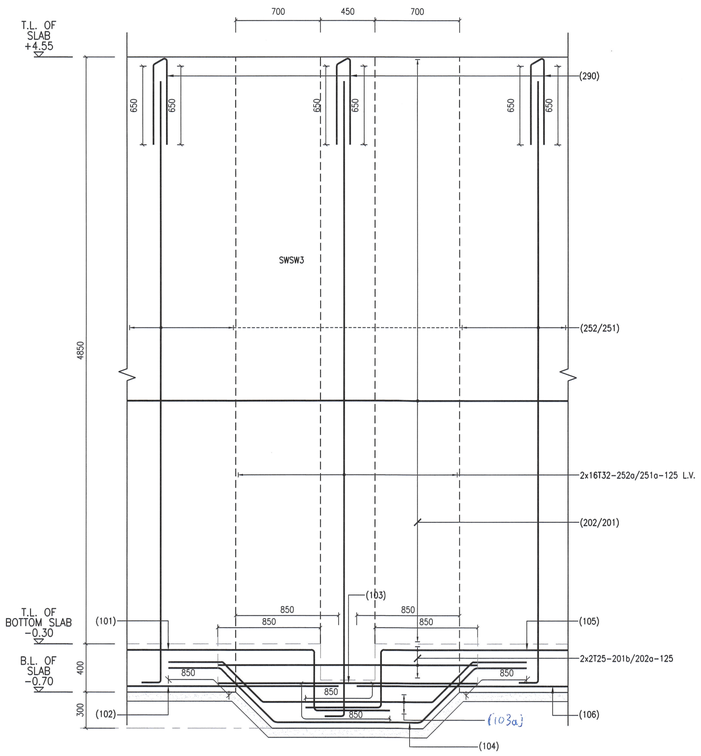
Drawing No.	Scale	Rev.
SE/8800/DS101/SL201	1:50 (A1)	-

Date: 11/2024

建築署 Architectural Services Department



SECTION SWA-SWA



SECTION SWF-SWF

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
-	11/2024	1ST SUBMISSION OF AIP AND DDA	-

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions — ASIA INFRASTRUCTURE SOLUTION LTD.

MIC CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 — WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 遠信 — J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : — EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD — BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL — RAMBOLL H.K. LTD.

PLANNING CONSULTANT : — KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LIMITED — CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title

DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

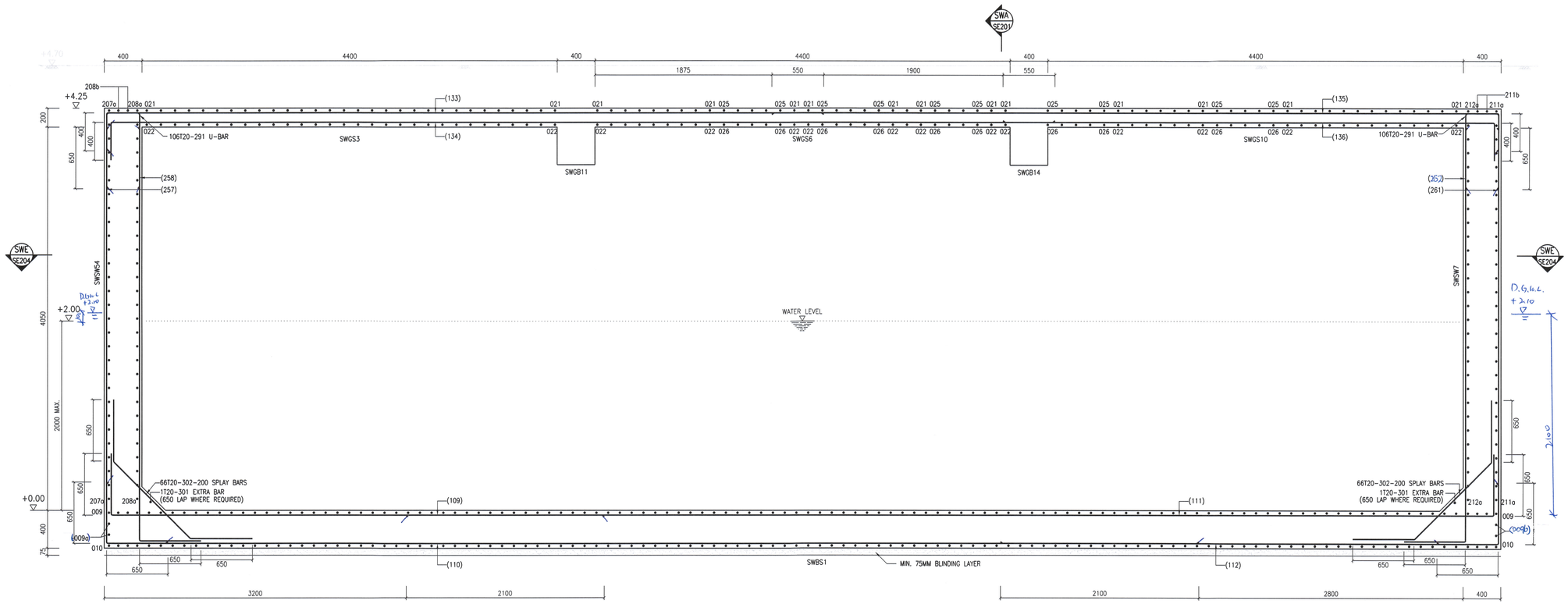
Drawing Title

YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
SECTION SWA-SWA & SWF-SWF
(ZONE 2)

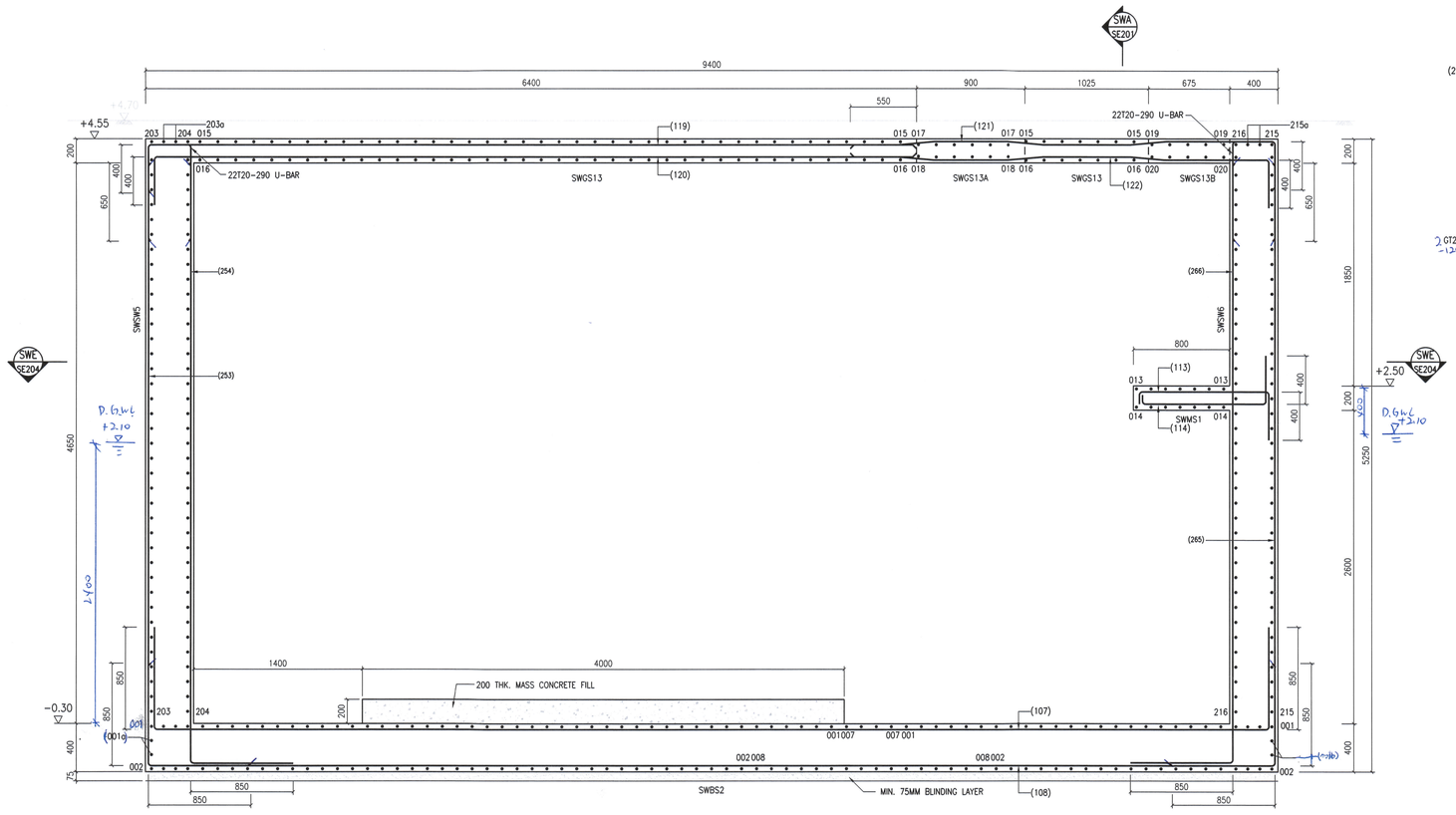
Drawing No.	Scale	Rev.
SE/8800/DS101/SE201	1:25 (A1)	-

Date: 11/2024

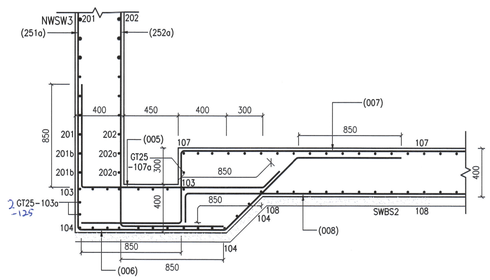
建築署 Architectural Services Department



SECTION SWB-SWB



SECTION SWC-SWC



SECTION SWD-SWD

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
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1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR : CHEVALIER / 中国铁建

ARCHITECT : ALKF+ ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER : asia infrastructure solutions ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT : Wilson & Associates Ltd 張耀新建築工程師有限公司 WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER : JRP 渣信 J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT : EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER : BREAD BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT : RAMBOLL RAMBOLL H.K. LTD.

PLANNING CONSULTANT : KTA PLANNING LTD.

TRAFFIC CONSULTANT : CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION

( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – SECTIONS SWB-SWB, SWC-SWC AND SWD-SWD (ZONE 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/SE202	1:25 (A1)	–

Date: 11/2024

建築署 Architectural Services Department



SECTION SWE-SWE
(SHEET 1 OF 2)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
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0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ALKF+
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LTD.

	Name	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF
LIGHT PUBLIC HOUSING
AT YAU POK ROAD, YUEN LONG,
AT TUEN MUN AREA 3A AND
AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
(√)CONSENT IS GIVEN WITH CONDITIONS
( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

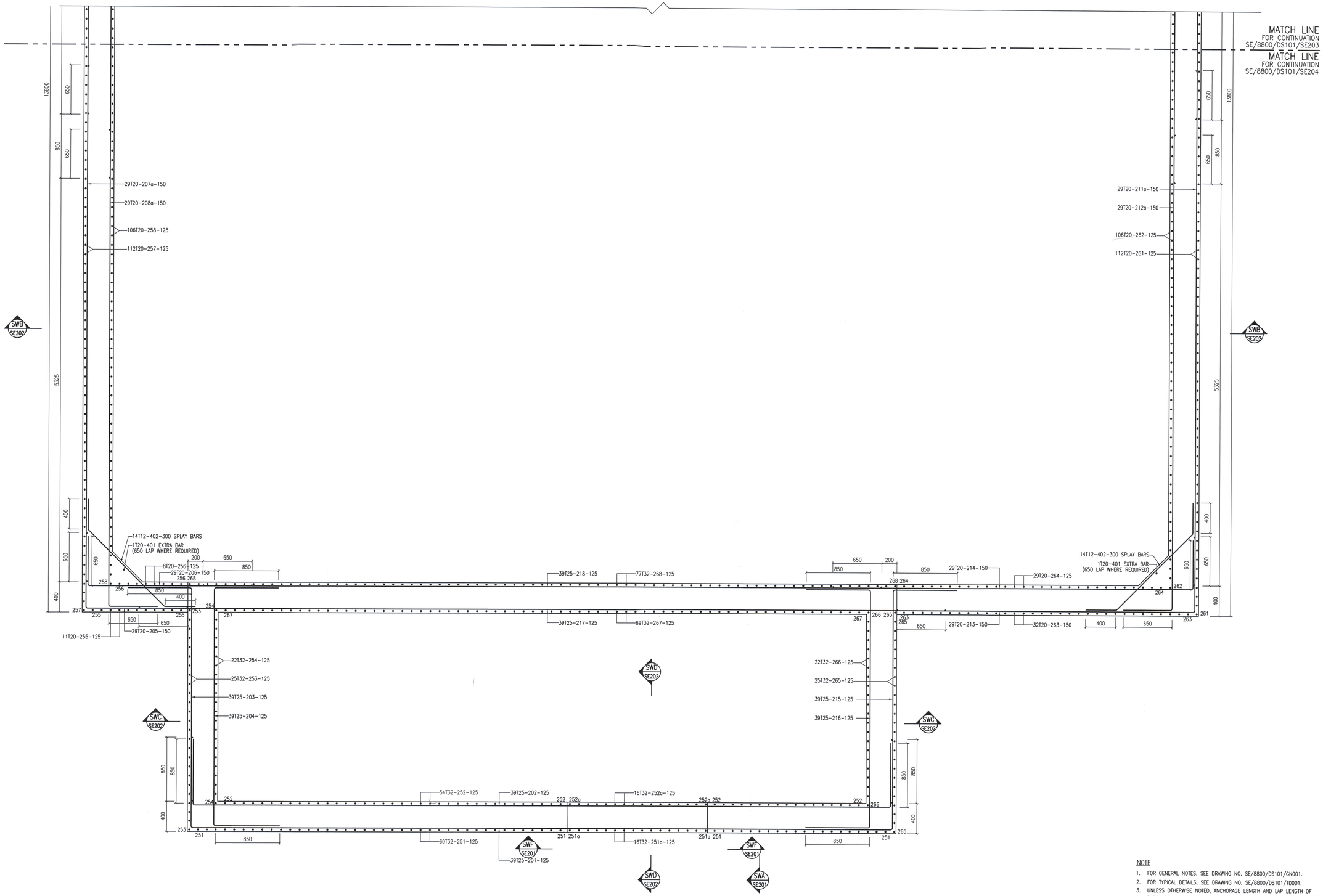
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
SECTION SWE-SWE
(ZONE 2)
(SHEET 1 OF 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/SE203	1:25 (A1)	–

Date: 11/2024

建築署
Architectural Services Department



SECTION SWE-SWE
(SHEET 2 OF 2)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
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0 0.5 1 1.5 2
1 : 25 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

MiC CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LTD.

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Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF
LIGHT PUBLIC HOUSING
AT YAU POK ROAD, YUEN LONG,
AT TUEN MUN AREA 3A AND
AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
(✓)CONSENT IS GIVEN WITH CONDITIONS
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PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

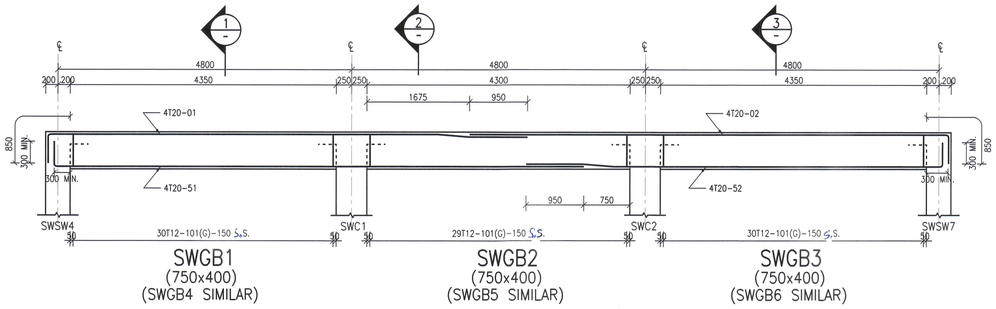
Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
SECTION SWE-SWE
(ZONE 2)

(SHEET 2 OF 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/SE204	1:25 (A1)	–

Date: 11/2024

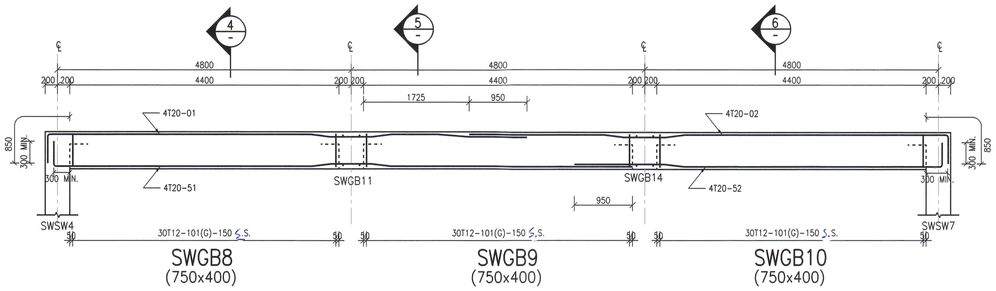
建築署
Architectural Services Department



SWGB1
(750x400)
(SWGB4 SIMILAR)

SWGB2
(750x400)
(SWGB5 SIMILAR)

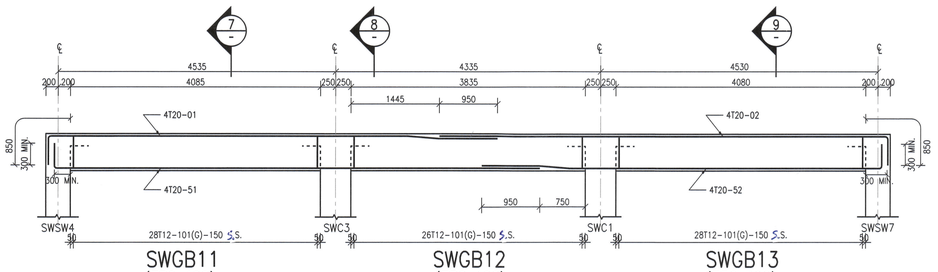
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(750x400)
(SWGB6 SIMILAR)



SWGB8
(750x400)

SWGB9
(750x400)

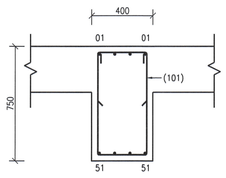
SWGB10
(750x400)



SWGB11
(750x400)
(SWGB14 SIMILAR)

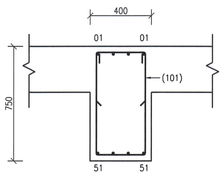
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(SWGB15 SIMILAR)

SWGB13
(750x400)
(SWGB16 SIMILAR)



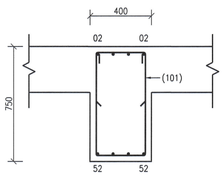
SEC 1

(SEC 4, SEC 7 SIMILAR)



SEC 2

(SEC 5, SEC 8 SIMILAR)



SEC 3

(SEC 6, SEC 9 SIMILAR)

NOTE

1. FOR GENERAL NOTES, SEE DRAWING NO. SE/8800/DS101/GN001.
2. FOR TYPICAL DETAILS, SEE DRAWING NO. SE/8800/DS101/TD001.
3. UNLESS OTHERWISE NOTED, ANCHORAGE LENGTH AND LAP LENGTH OF BARS ARE BASED ON THE SIZE OF THE SMALLER BAR AND SHALL REFER TO DRAWING NO. SE/8800/DS101/TD001.

0 0.5 1 1.5 2m

1 : 20 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT :
Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 捷佰
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LTD.

	Nome	Signed	Date
Designed	KING CHONG		11/2024
Drawn	IESON CHOW		11/2024
Checked	KING CHONG		11/2024
Approved	WILSON CHEUNG		11/2024

Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF
LIGHT PUBLIC HOUSING
AT YAU POK ROAD, YUEN LONG,
AT TUEN MUN AREA 3A AND
AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
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( )CONSENT NOT GRANTED
PROJECT MANAGEMENT CONSULTANT

LEUNG CHI HUNG BEN
FOR AND ON BEHALF OF
C M WONG & ASSOCIATES LTD
(REGISTRATION NO.: RSE 70/05)
DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

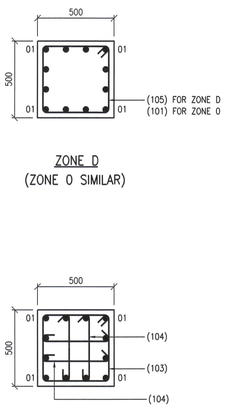
WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG
SEWERAGE HOLDING TANK –
BEAM R.C. DETAILS
(ZONE 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/BE201	1:20 (A1)	–

Date: 11/2024

建築署
Architectural Services Department

COLUMN MARK / FLOOR	SWC1, SWC2, SWC3, SWC4
BASE SLAB ~ G/F	
SIZE	500x500
MAIN BARS	12T20 (1.508%)

NOTE

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NOTE FOR COLUMN DETAILS

1. ALL OUTERMOST COLUMN BINDERS TO BE TYPE C & TYPE E, UNLESS OTHERWISE STATED.

0 1 2 3 4 5m
1 : 50 SCALE BAR

Notes :

No.	Date	Description	Initial
–	11/2024	1ST SUBMISSION OF AIP AND DDA	–

Revision

DESIGN AND BUILD CONTRACTOR :
CHEVALIER
中国铁建

ARCHITECT :
ALKF+ ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

CIVIL & STRUCTURAL ENGINEER :
WAL Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

GEOTECHNICAL ENGINEER :
asia infrastructure solutions
ASIA INFRASTRUCTURE SOLUTION LTD.

M/C CONSULTANT :
WAL Wilson & Associates Ltd 張耀新建築工程師有限公司
WILSON & ASSOC. LTD.

BUILDING SERVICES ENGINEER :
JRP 捷得
J. ROGER PRESTON LTD.

LANDSCAPE CONSULTANT :
EARTHASIA LTD.

INTERIOR & BRANDING DESIGNER :
BREAD STUDIO

ENVIRONMENTAL, BEAM CERTIFICATION, SUSTAINABILITY & ACOUSTIC CONSULTANT :
RAMBOLL
RAMBOLL H.K. LTD.

PLANNING CONSULTANT :
KTA PLANNING LTD.

TRAFFIC CONSULTANT :
CKM ASIA LIMITED
CKM ASIA LTD.

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Contract No. SS M518

Project Title
DESIGN AND CONSTRUCTION OF LIGHT PUBLIC HOUSING AT YAU POK ROAD, YUEN LONG, AT TUEN MUN AREA 3A AND AT CHOI HING ROAD, NGAU TAU KOK

AIP/DDA SUBMISSION
( )CONSENT IS GIVEN WITHOUT CONDITIONS
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PROJECT MANAGEMENT CONSULTANT

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FOR AND ON BEHALF OF
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DATE: 4 DEC 2024

STRUCTURAL DESIGNER:

CHEUNG YIU SUN
FOR AND ON BEHALF OF
WILSON & ASSOCIATES LIMITED
(REGISTRATION NO.: RSE 38/06) Date: 2024-11-29

STRUCTURAL DESIGN CHECKER:

WAI SAI CHONG
FOR AND ON BEHALF OF
KEWISK ENGINEERING & CONSULTING CO. LTD.
(REGISTRATION NO.: RSE 72/00) Date: 2024-11-29

Drawing Title
YAU POK ROAD, YUEN LONG SEWERAGE HOLDING TANK – COLUMN R.C. DETAILS (ZONE 2)

Drawing No.	Scale	Rev.
SE/8800/DS101/CL201	1:50 (A1)	–

Date: 11/2024

建築署 Architectural Services Department