



REFERENCE: TPW/CFS/RP/LUD/REZ/SUB-16/89 (Job 27317)
ENQUIRIES: F Hunter
DATE: 02 December 2021

UDS Africa

Time Square Building
9 Electron Street
Techno Park, Stellenbosch
Western Cape
7600

Attention: Mr.Erhard Blom

Email: Erhard@udsafrika.co.za

Dear Sir

DESIGN APPROVAL – STILL BAY: MAIN ROAD 332: ACCESS UPGRADE ON MR332

1. The following correspondence refers:

1.1 This Branch's letter, referenced TPW/CFS/RP/LUD/REZ/SUB-16/89 dated 16 November 2020.

1.2 Your signed design drawings with latest revisions:

UDS-383-GL1_General Layout_RevA

UDS-383-GS1_General Layout and Existing-and New Services Layout

UDS-383-RM1_Road Signs and Markings Layout_RevC

UDS-383-GD1_Stormwater Detail for 450dia Pipe Culvert Headwall_RevB

UDS-383-TAP1_Traffic Accommodation

2. The abovementioned design drawings are herewith approved in terms of Road Ordinance No. 19 of 1976 and the National Road Traffic Act 93 of 1996, subject to the following conditions:

2.1 All work to be carried out must be in accordance with COLTO: Standard Specifications for Road and Bridge Works for State Road Authorities, as well as any additional requirements as stipulated below.

2.2 Approval of these plans does not absolve UDS Africa Consulting Engineers from any responsibility and/or liability in respect of their design.

- 2.3 The District Roads Engineer (Xander.Smuts@westerncape.gov.za), must be informed in writing, not less than two weeks before any construction is to commence. This submission shall be accompanied by your traffic accommodation plan for all works within the road reserve.
- 2.4 An adequate level of supervision by a Registered Engineer or Engineering Technologist must be provided for the full duration of the works. In this regard a proposal for site supervision must be submitted to the District Roads Engineer for approval before construction commences. The proposal shall include the name and CV of the proposed individual, as well as the time that they will devote to on-site supervision.
- 2.5 The developer must accept the handing over of the site in writing from the District Roads Engineer. This site shall consist of the entire Road Reserve over the length required for roadworks and placement of advanced warning signs and/or traffic accommodation.
- 2.6 The developer shall be responsible for the safe and easy passage of public traffic past and/or over the site of which he has occupation. To this end he must take all necessary precautions to protect road users and facilitate the flow of traffic. Every effort must be made to ensure that temporary signage is maintained and that courtesy is extended to the traveling public at all times.
- 2.7 Stormwater systems affected by the works shall be kept functional at all times.
- 2.8 The developer must maintain the site of which he has occupation in good order and repair.
- 2.9 All works shall be completed to the satisfaction of the District Roads Engineer. Any costs associated with the repair or reconstruction of rejected works shall be for the developer's account.
- 2.10 On completion of the works, the District Roads Engineer, must accept in writing the handing over of the site from the developer.
- 2.11 A set of As-built drawings and relevant test results must be submitted to the Directorate; Design Services (Faiz.Hunter@westerncape.gov.za) no later than one calendar month after the completion of the works.
3. This approval is for roadworks within the provincial road reserve boundary of Main Road 332 only and does not exempt the developer from any other legislation applicable to the proposed works.
4. This approval is only valid for two (2) years from date of approval and if not implemented the developer must reapply for design approval.

5. The Department reserves the right to amend or withdraw any conditions or to impose new conditions, within the limits of the ordinance.

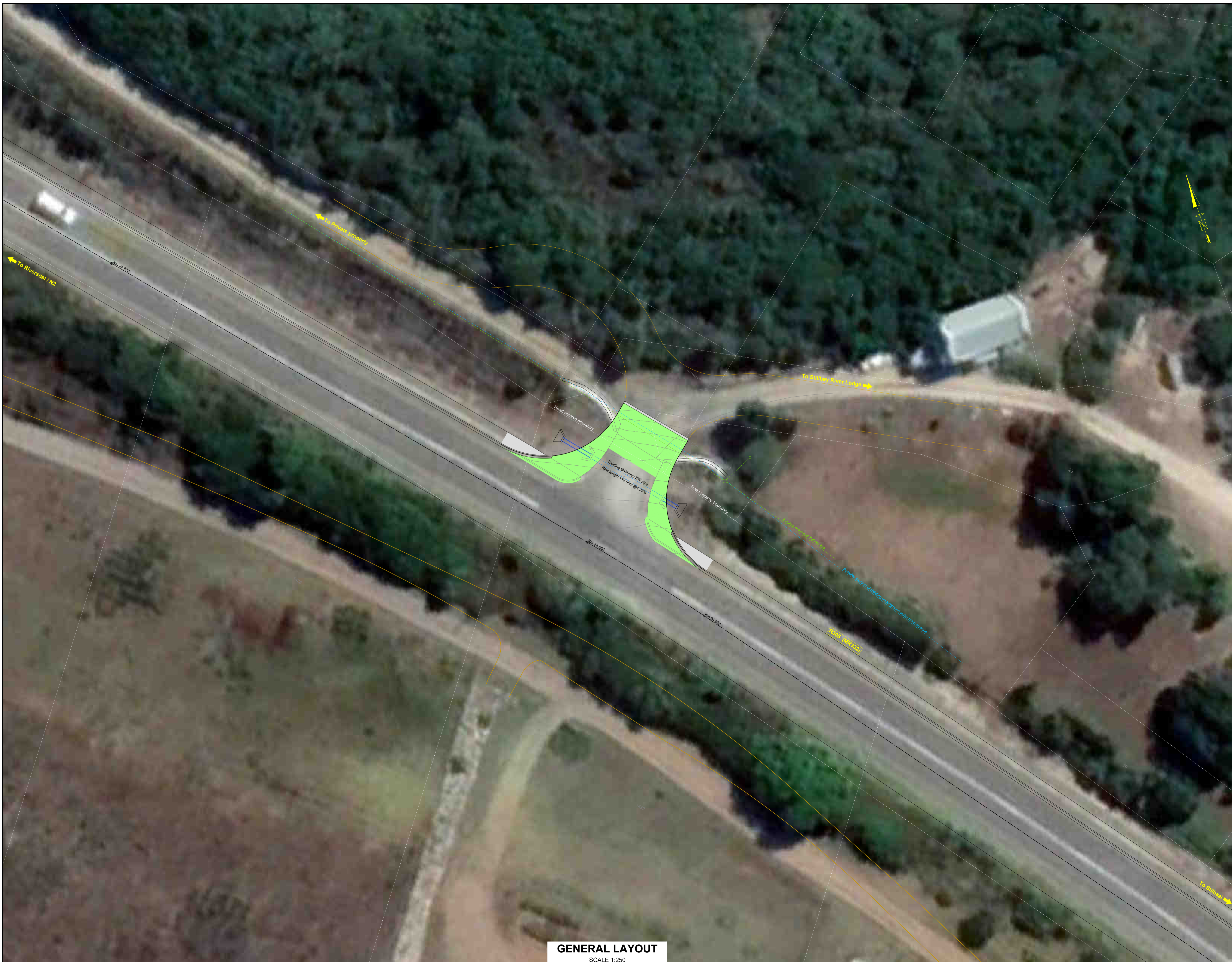
Yours sincerely,



MICHAEL HENDRICKSE
CHIEF ENGINEER: GEOMETRIC DESIGN
DATE 02/12/2021

EMAIL COPY

- | | |
|------------------|-------------------------------|
| 1. Mr S Carstens | Chief Engineer: Road Planning |
| 2. Mr X Smuts | DRE: Oudtshoorn |
| 3. Ms M Hofmeyr | Chief Director: Road Design |



GENERAL LAYOUT
SCALE 1:250



0 10 20 30 40 50 80
Oorspronlike SCALE in mm / Original scale in mm

NOTAS - NOTES		

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Wysiging Amend.	Datum Date	Beskrywing - Description
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Posbus / PO Box 131
 Stellenbosch 7599

 Time Square Unit 8
 9 Electron Street
 Techno Park
 Stellenbosch 7600

 Tel : 021 - 880 0443
 Faks / Fax : 021 - 880 0390
 e-pos / e-mail : cobus@udsafrika.co.za

Opgemeet Surveied	BEKKER AND HOUTERMAN LAND SURVEYORS	Geteken Signed	Ingenieur - Engineer	Pr. Eng. No. 865472
Ontwerp Designed	E.Blom	Datum Date	2021-12-01	
Geteken Drawn	E.Blom	Geteken Signed	Kliënt - Client	
Nagesien Checked		Datum Date		

Kliënt - Client
**FOURIE FAMILIE
LANDGOED (BPK)
& STILL BAY NATURE
RESORT CC**

Projek - Project
**ACCESS UPGRADE TO
ERF 1692 & ERF RE/220 ON
THE R305 (MR332)
STILBAAI**

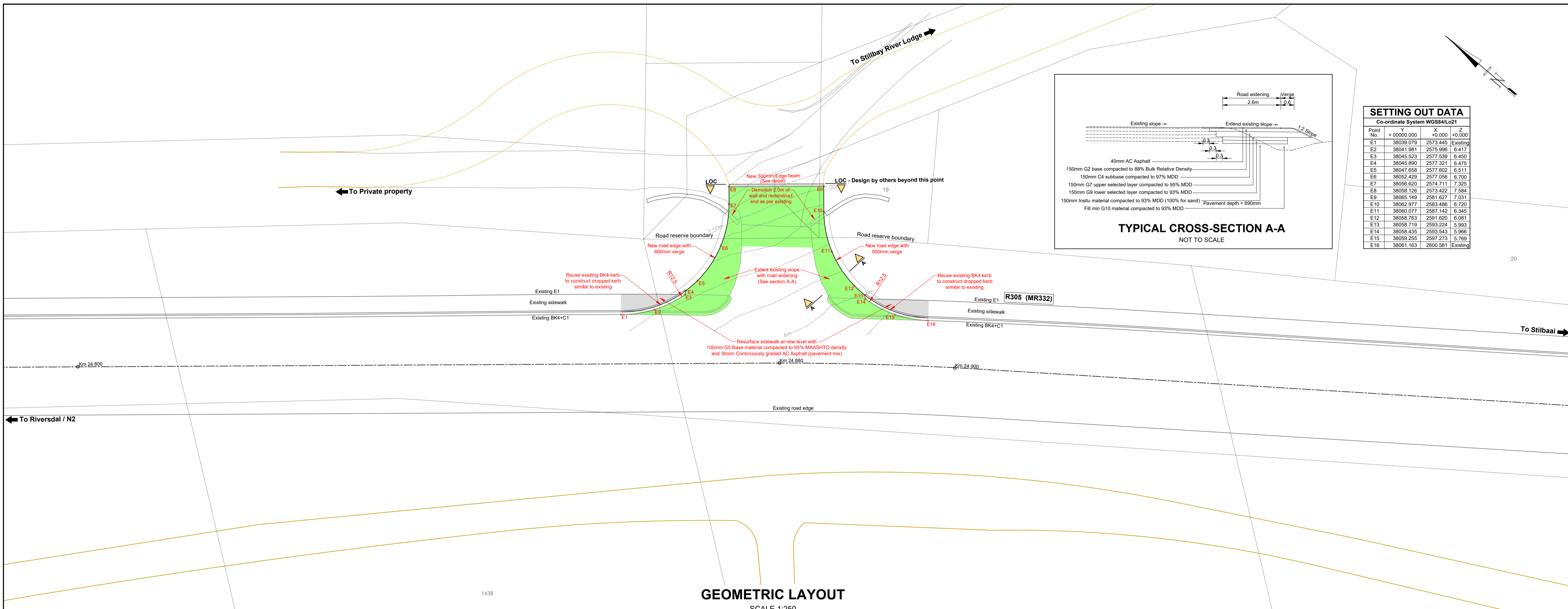
Planbeskrywing - Plan Description
GENERAL LAYOUT

Skaal - Scale
AS SHOWN

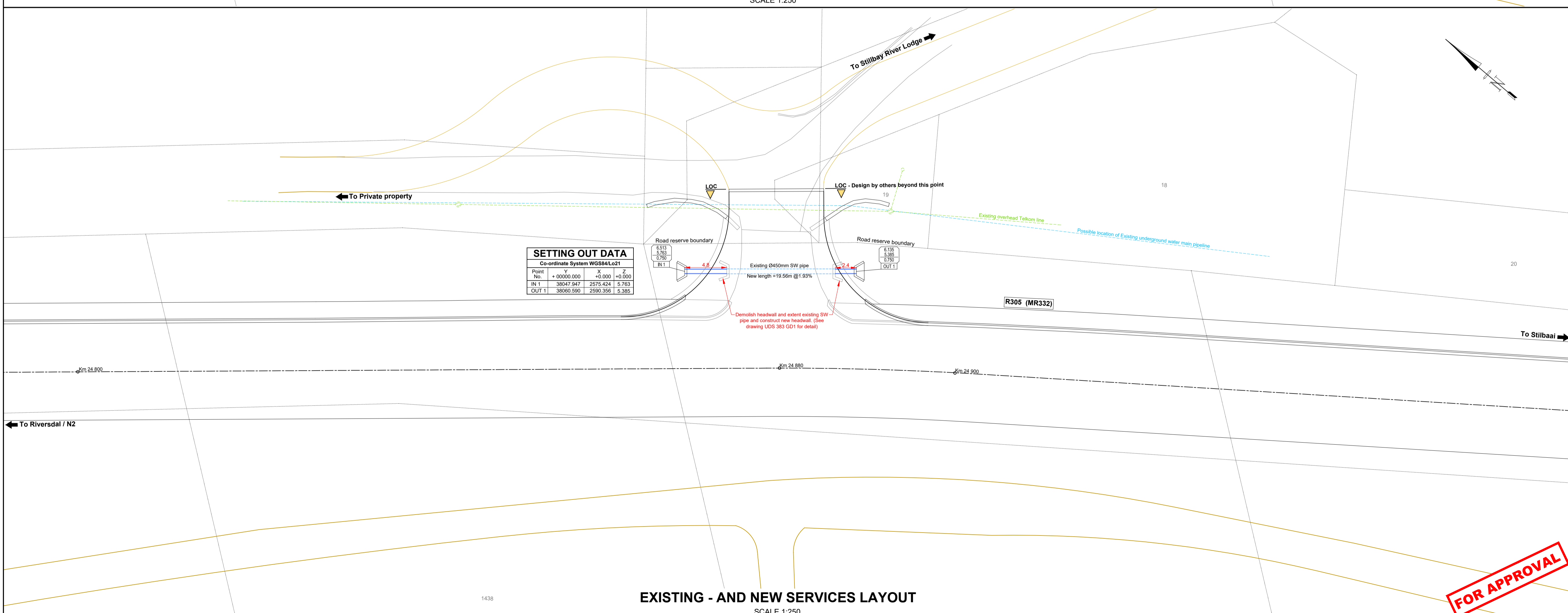
Datum - Date
1 DECEMBER 2021

Plannommer - Plan number
UDS 383 GL1

Wysiging Amendement	A								
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GEOMETRIC LAYOUT
SCALE 1:250



EXISTING - AND NEW SERVICES LAYOUT
SCALE 1:250

0 10 20 30 40 50 80
Courspronklike SCALE in mm / Original scale in mm

NOTAS - NOTES

- All joints to be cut and sealed with viaseal or similar.
- All the dimensions in the road is taken as blacktop.
- Layerworks at tie-in with existing road should be benched (300mm) - subbase, base and premix.
- For pavement depth see cross-sections.
- Road signs for traffic accommodation to be in accordance with the Southern African Development Community Road Traffic Signs Manual. See drawing UDS 383 TAP1 for the traffic accommodation plan.
- See drawing UDS 383 RM1 for the road signs and - markings layout.
- See drawing UDS 383 GD1 for stormwater detail.
- Levels and co-ordinates are based on WGS84/Lo21 system.
- The existing speed limit on R305 (MR332) is 80km/h.
- LOC = Limit of construction.

CO-ORDINATE AND LEVEL DESCRIPTION LEGEND

TYPE 12C INSITU EDGE BEAM (Rural roads)
Not to scale

Wysigting Amend.	Datum Date	Beskrywing - Description
B	2021-11-29	Amendments as per WCG comments
A	2021-09-20	Amendments as per WCG comments

UDS
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8002
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info@udsafrika.co.za

Opgemeet / Surveer	Geteken / Signed	Ingenieur - Engineer	Pr. Eng. No.
BEKKER AND HOUTERMAN LAND SURVEYORS	E. Blom	E. Blom	865472

CLIENT - CLIENT
FOURIE FAMILIE LANDGOED (BPK) & STILL BAY NATURE RESORT CC

PROJECT - PROJECT
ACCESS UPGRADE TO ERF 1692 & ERF RE/220 ON THE R305 (MR332) STILBAAI

PLANBESKRYWING - PLAN DESCRIPTION
GEOMETRIC LAYOUT & EXISTING - AND NEW SERVICES LAYOUT

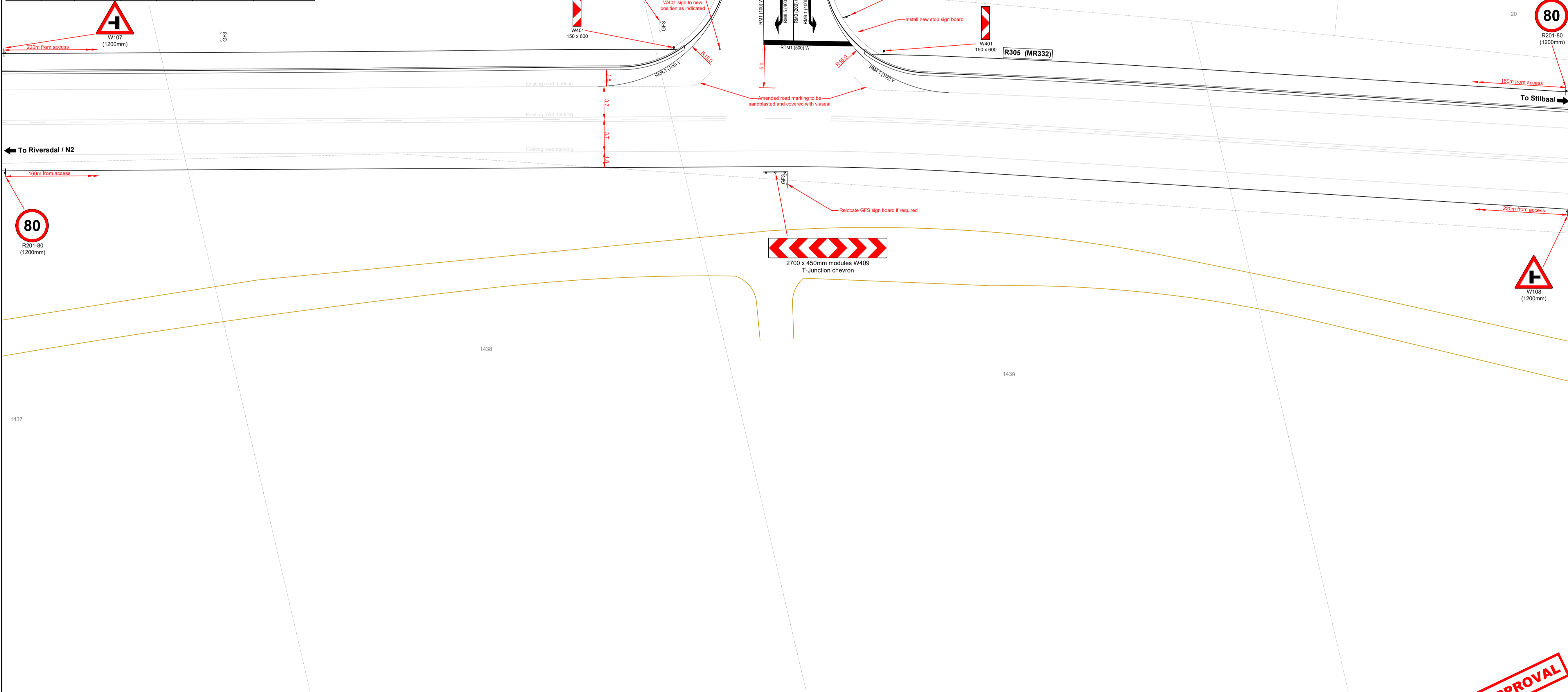
SKAAL - SCALE
AS SHOWN

DATUM - DATE
29 NOVEMBER 2021

PLANNOMMER - PLAN NUMBER
UDS 383 GS1

Wysigting Amendement	A	B

SIGN No.	Km DIST	ROAD	SIGN TYPE	SIZE	SIGN FACE MATERIAL	SKETCH OF SIGNS
No. 1	Km 24 660	R305 (MR332)	W107	1200mm	Border: Red Class 1 Symbol: Black Semi-matt Background: White Class 1	
No. 2	Km 24 720	R305 (MR332)	R201-80	1200mm	Border: Red Class 1 Legend: Black Semi-matt Background: White Class 1	
No. 3	Km 24 816	R305 (MR332)	GF3		Existing Sign	Tourism Direction Sign
No. 4	Km 24 866	R305 (MR332)	GF3		Existing Sign	Tourism Direction Sign
No. 5	Km 24 868	R305 (MR332)	W401	150 x 600mm	Arrows: Red Class 3 Background: White Class 3	
No. 6	Km 24 880	R305 (MR332)	W409	2700 x 450mm	Arrows: Red Class 3 Background: White Class 3	
No. 7	Km 24 801	R305 (MR332)	GF3		Existing Sign	Tourism Direction Sign
No. 8	Km 24 888	R305 (MR332)	R1	900mm	Background: White Class 3 Background: Red Class 3	
No. 9	Km 24 892	R305 (MR332)	W401	150 x 600mm	Arrows: Red Class 3 Background: White Class 3	
No. 10	Km 25 040	R305 (MR332)	R201-80	1200mm	Border: Red Class 1 Legend: Black Semi-matt Background: White Class 1	
No. 11	Km 25 100	R305 (MR332)	W108	1200mm	Border: Red Class 1 Symbol: Black Semi-matt Background: White Class 1	



NOTAS - NOTES

- All road signs and markings must comply with the Southern African Development Community Road Traffic Signs Manual.
- Road signs for traffic accommodation to be in accordance with the Southern African Development Community Road Traffic Signs Manual. See drawing UDS 383 TAP1 for the traffic accommodation plan.
- Final positions of road signs and road markings to be determined on site in conjunction with the engineer.
- Levels and co-ordinates are based on WGS84/Lo21 system.
- All the dimensions in the road are taken as blacktop.
- All road signs shall be constructed with timber support poles as per WCG specifications.
- See drawing UDS 383 GS1 for the Geometric Layout and for the existing - and new services layout.
- The existing speed limit on R305 (MR332) is 80km/h.
- All final road markings to be done with Reflectorised Thermo plastic road paint.
- LOC = Limit of construction.

Wysiging Amend.	Datum Date	Beskrywing - Description
C	2021-12-01	Amendments as per WCG comments
B	2021-11-29	Amendments as per WCG comments
A	2021-09-20	Amendments as per WCG comments

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Opgemeet / Surveed	BEKKER AND HOUTERMAN LAND SURVEYORS	Geteken / Signed	Ingenieur - Engineer
Ontwerp / Designed	E.Blom	Datum / Date	2021-12-01
Geteken / Drawn	E.Blom	Kliënt - Client	
Nagesien / Checked		Geteken / Signed	

Kliënt - Client
FOURIE FAMILIE LANDGOED (BPK) & STILL BAY NATURE RESORT CC

Projek - Project
ACCESS UPGRADE TO ERF 1692 & ERF RE/220 ON THE R305 (MR332) STILBAAI

Planbeskrywing - Plan Description
ROAD SIGNS AND - MARKINGS LAYOUT

Skaal - Scale
AS SHOWN

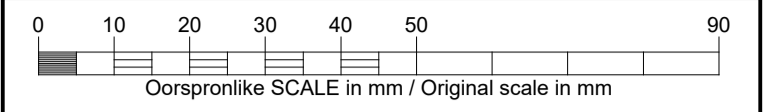
Datum - Date
1 DECEMBER 2021

Plannommer - Plan number
UDS 383 RM1

Wysiging Amendement	A	B	C			
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ROAD SIGNS AND - MARKINGS LAYOUT
SCALE 1:250

FOR APPROVAL



NOTAS - NOTES

B	2021-12-01	Amendments as per WCG comments
A	2021-09-20	Amendments as per WCG comments
Wysiging Amend.	Datum Date	Beskrywing - Description

ups africa

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e-pos / e-mail : cobus@udsafrika.co.za

Opgemeet / Surveyed	BEKKER AND HOUTERMAN LAND SURVEYORS	Ingenieur - Engineer
Ontwerp / Designed	E.Blom	Getekene / Signed: <i>E. Blom</i> Pr. Ing. 860472
Geteken / Drawn	E.Blom	Kliënt - Client
Nagesien / Checked		Datum / Date

FOURIE FAMILIE LANDGOED (BPK) & STILL BAY NATURE RESORT CC

Projek - Project

ACCESS UPGRADE TO ERF 1692 & ERF RE/220 ON THE R305 (MR332) STILBAAI

Planbeskrywing - Plan Description

STORMWATER DETAIL FOR 450Ø PIPE CULVERT HEADWALL

Skaal - Scale

AS SHOWN

Datum - Date

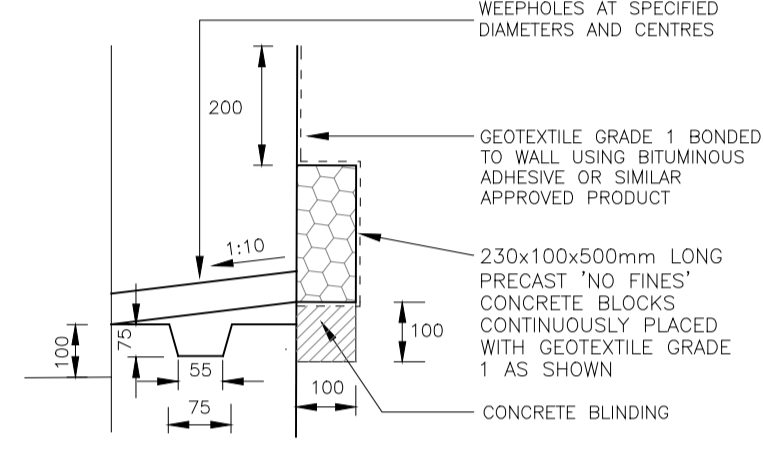
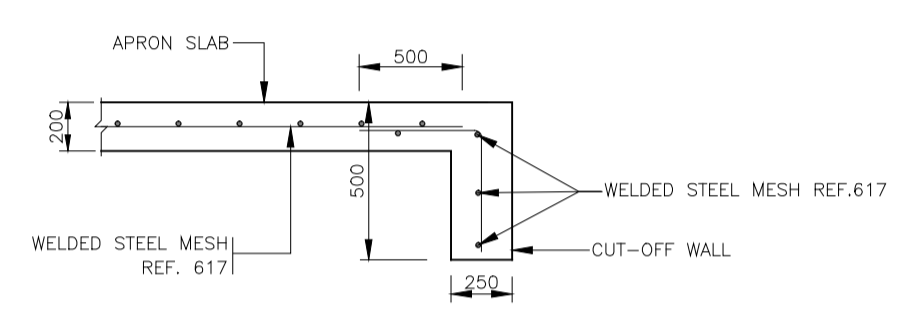
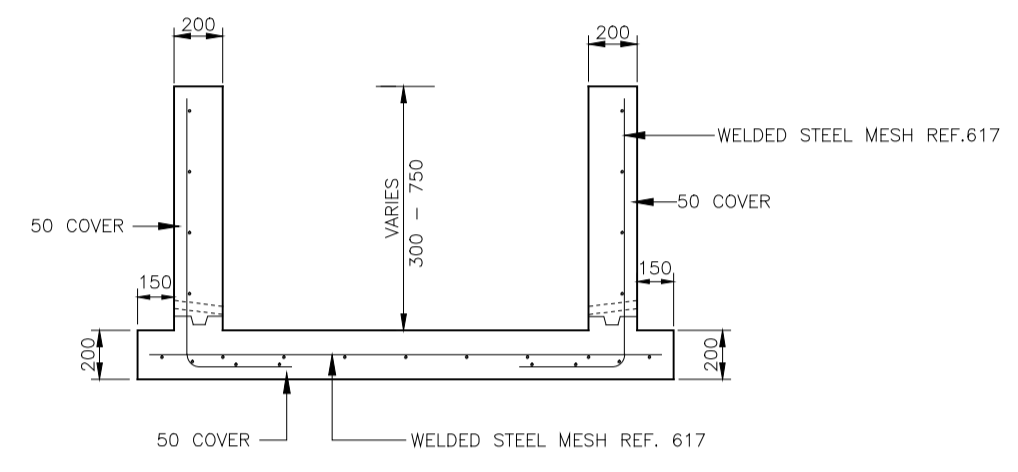
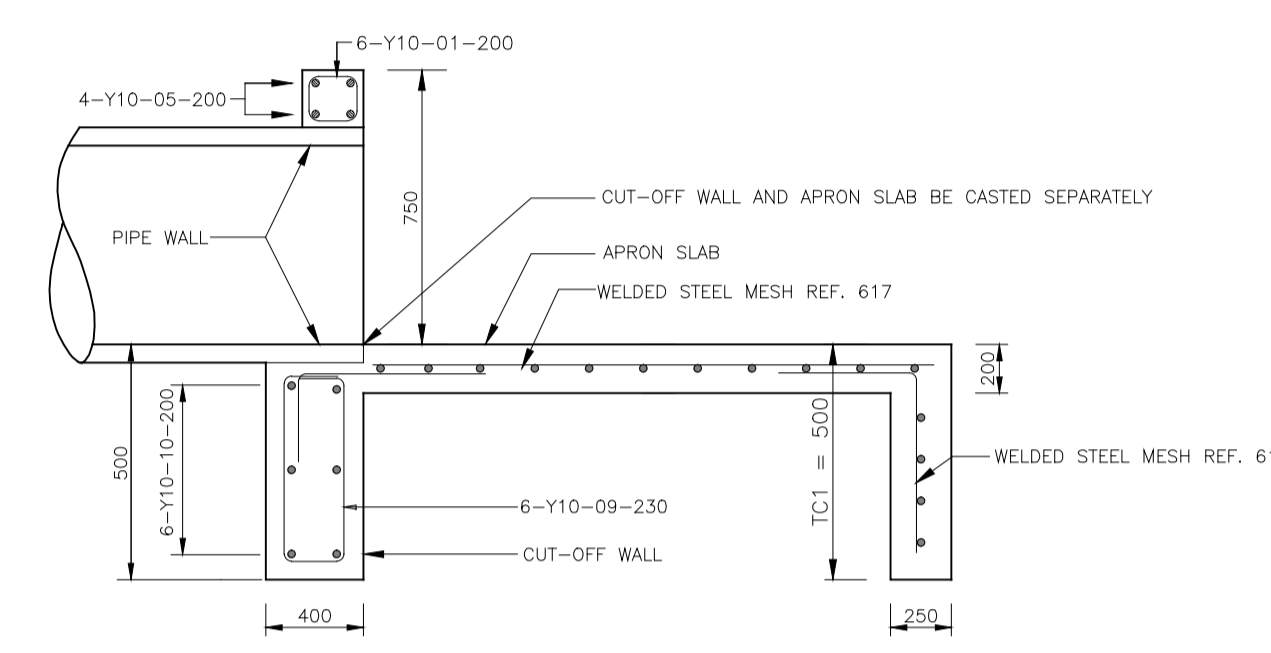
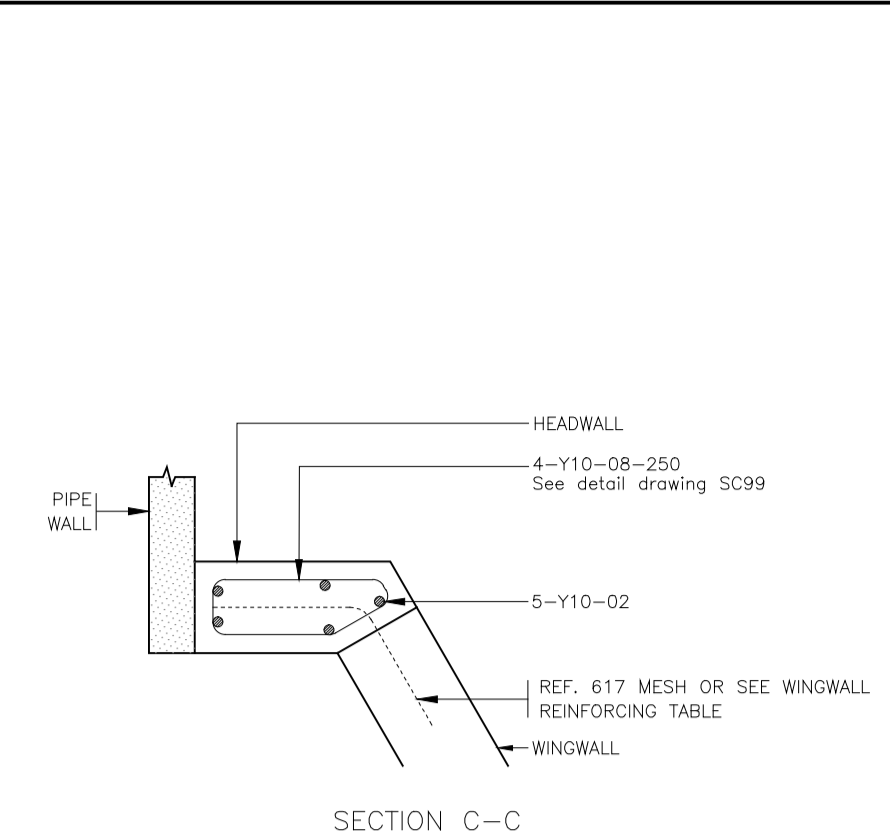
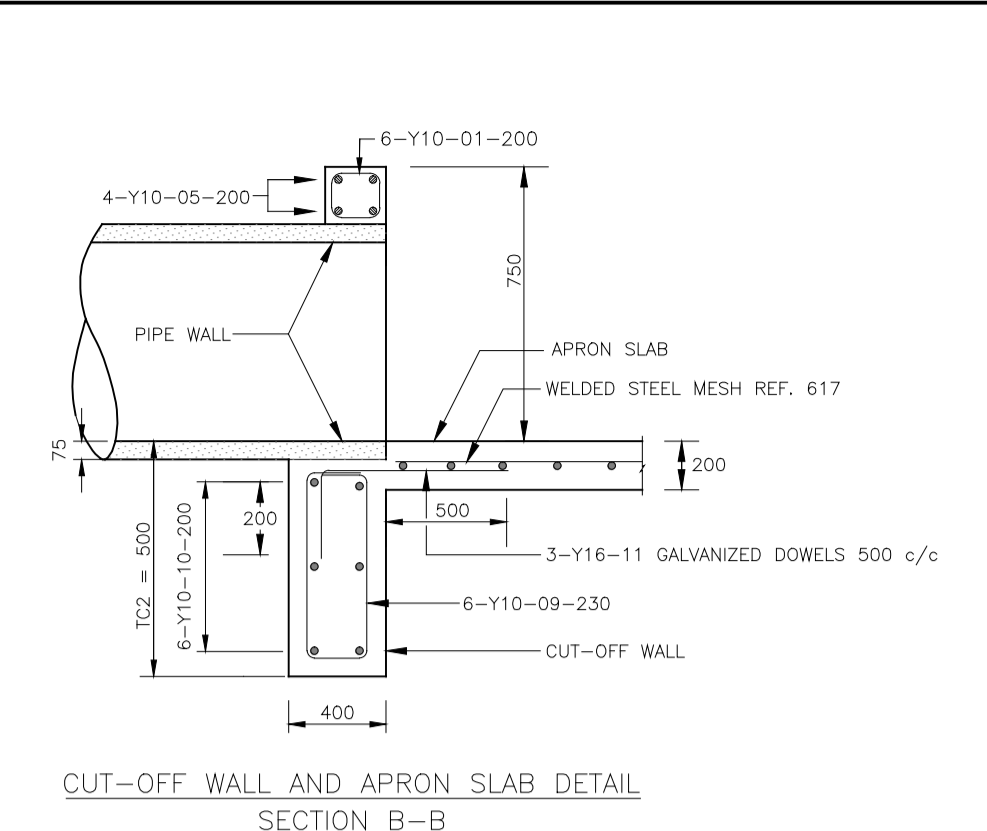
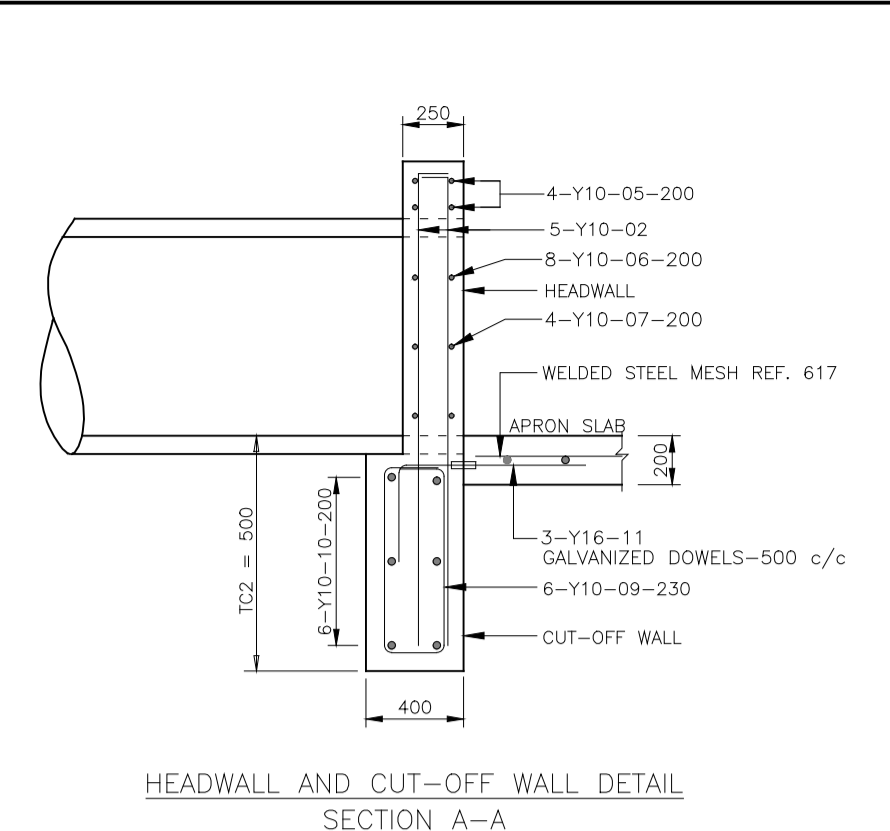
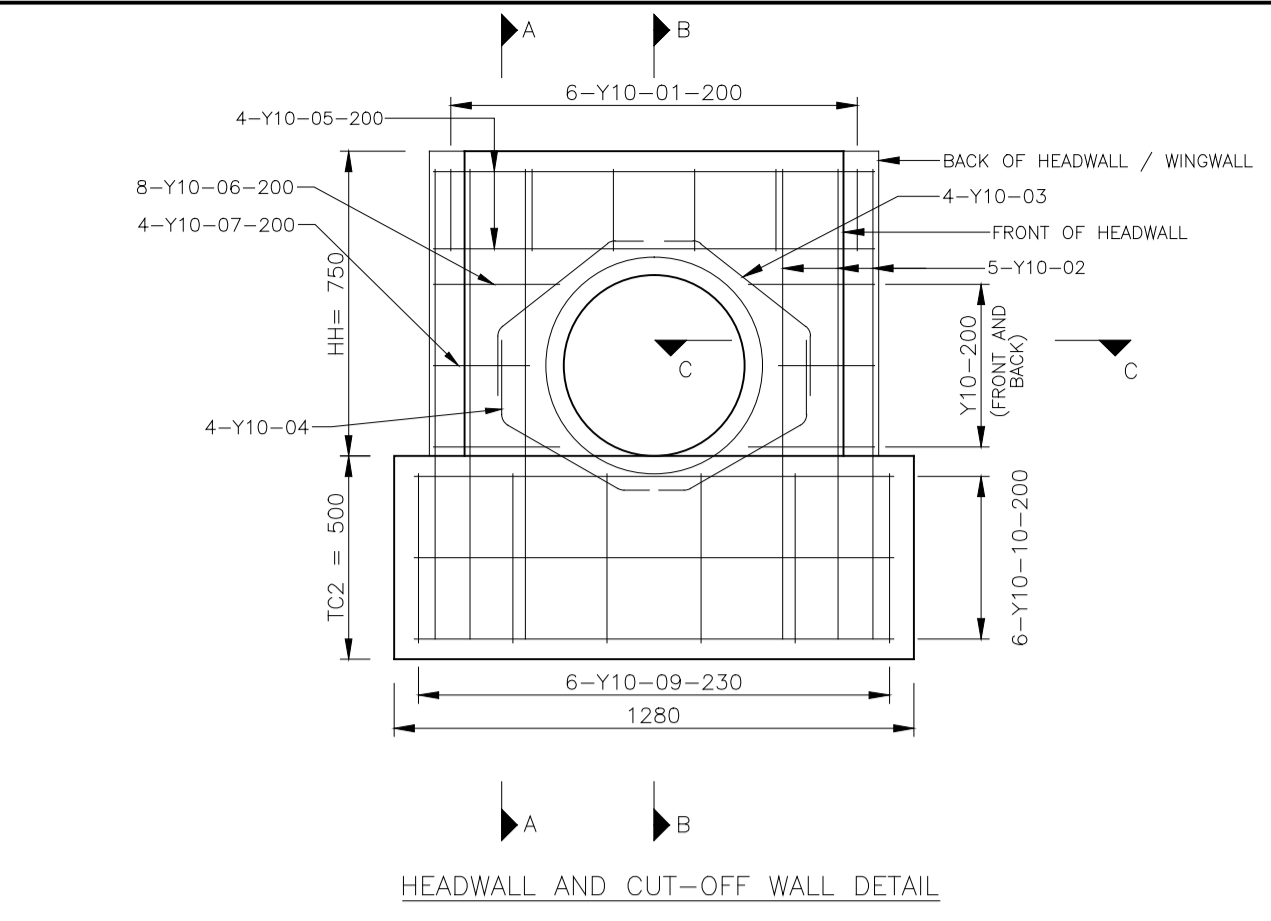
1 DECEMBER 2021

Plannommer - Plan number

UDS 383 GD1

Wysiging Amendement	A	B
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FOR APPROVAL



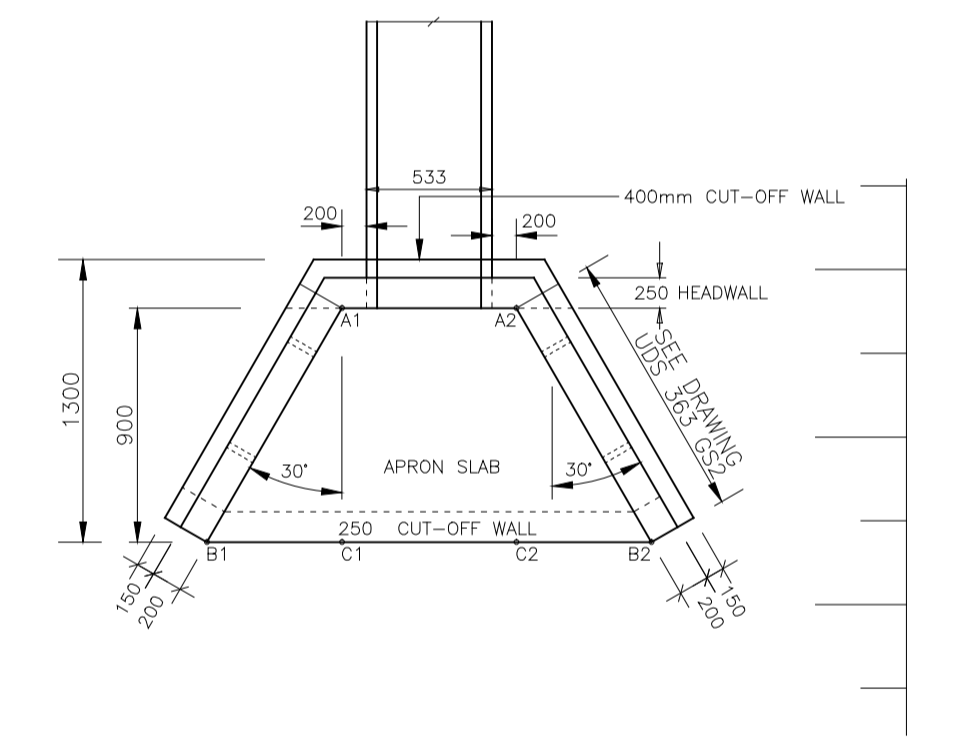
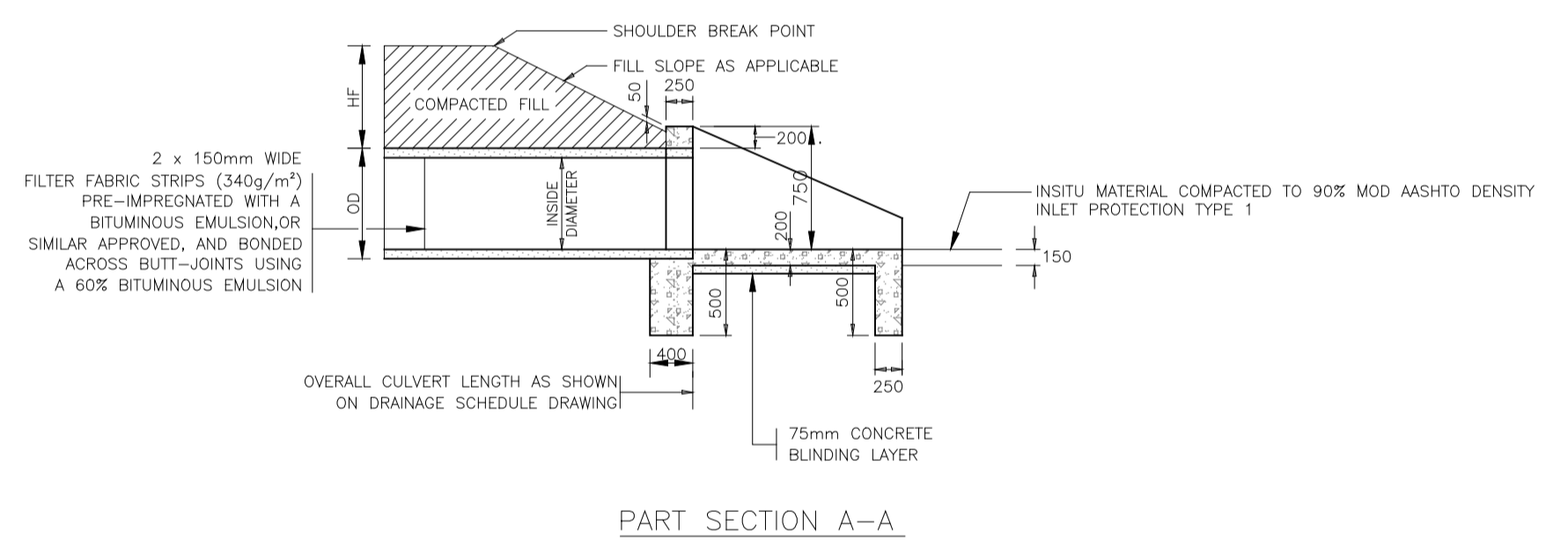
TYPICAL SECTION OF CUT-OFF WALL AND APRON SLAB DETAIL WITHOUT JOINT

WINGWALL AND APRON SLAB DETAIL FOR HEADWALL HEIGHTS (HH) NOT EXCEEDING 1,200m

APRON SLAB AND CUT-OFF WALL DETAIL

WEEPHOLE DETAIL

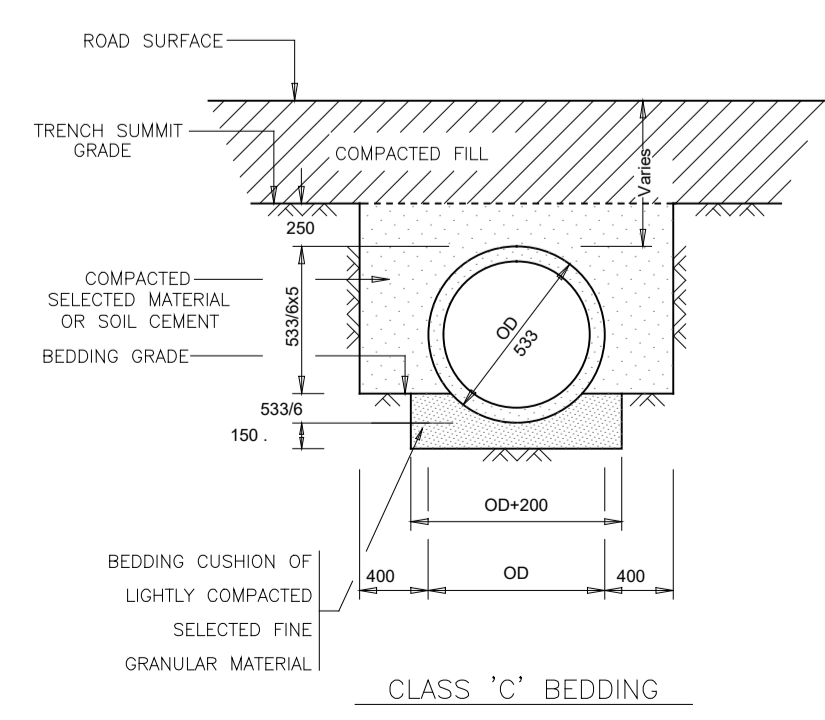
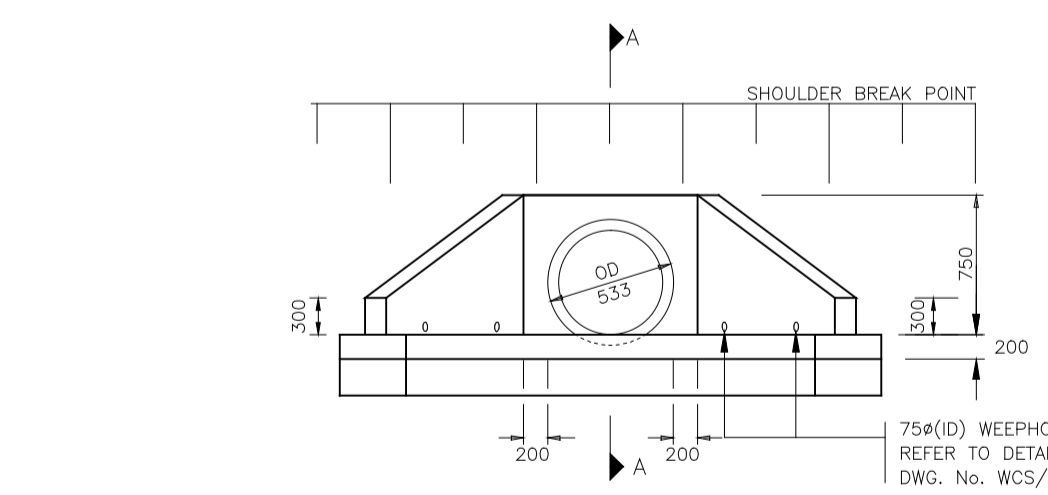
- NOTES :**
- MATERIAL SPECIFICATIONS:**
 - CONCRETE CLASS : 30/20 THROUGHOUT OR AS SPECIFIED
 - MINIMUM CEMENTITIOUS CONTENT = 300 kg/m³
 - GABIONS AND GEOTEXTILE : AS SPECIFIED ON SCOUR PROTECTION DWG No. WCS/51/1/D1
 - STEEL REINFORCEMENT : HIGH TENSILE STEEL 450 MPa
 - WELDED STEEL MESH : HIGH TENSILE STEEL 485 MPa
 - WELDED STEEL MESH REINFORCEMENT TO CONFORM TO SABS 1024
 - CONCRETE FINISH**
 - NON VISIBLE F1
 - VISIBLE F2
 - UNIFORMED U2
 - ALL EXPOSED SHARP EDGES TO HAVE 20 x 20 mm CHAMFERS.
 - CONCRETE COVER = 50mm.
 - REINFORCING LAP LENGTH = 45d.
 - HEADWALL NOT TO EXTEND 50mm MAXIMUM ABOVE SHOULDER BREAK POINT.



WHH	VERTICAL STEEL
300 - 1200	Y10 - 200
ALL TRANSVERSE STEEL Y10-250 THROUGHOUT	

SETTING OUT OF SKEW 450Ø SQUARE PIPE CULVERT HEADWALL

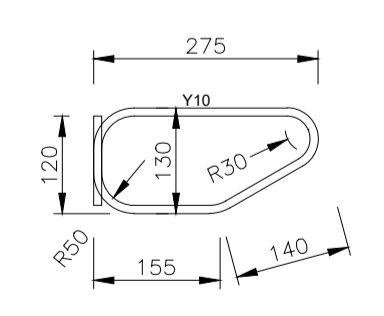
- INSTALLATION NOTES :**
- WHERE THE BEDDING GRADE REVEALS OBJECTIONABLE MATERIAL OR MATERIAL NOT UNIFORMLY FIRM, THE BEDDING GRADE SHALL BE EXCAVATED DEEPER INTO THE MATERIAL. THE DEPTH OF ADDITIONAL EXCAVATION SHALL NOT BE LESS THAN 200mm AND, IN ADDITION, ALL POCKETS OF UNSTABLE OR POOR FOUNDATION MATERIAL SHALL BE REMOVED TO A DEPTH OF AT LEAST ONE METRE. EXCAVATIONS ADDITIONALLY EXECUTED SHALL BE BACKFILLED WITH SELECTED MATERIAL, PROPERLY COMPACTED TO PROVIDE A FIRM FOUNDATION.
 - SELECTED MATERIAL TO BE USED FOR THE BEDDING CUSHION SHALL BE FINE GRANULAR MATERIAL SUCH AS COARSE SAND OR WELL-GRADED CRUSHED STONE OF NOMINAL SIZE NOT EXCEEDING 6.7mm AND NOT MORE THAN 10% OF WHICH SHALL PASS THROUGH A 0.15mm SIEVE.
 - SELECTED MATERIAL TO BE USED FOR BACKFILLING SHALL BE SAND, GRAVEL, WELL-GRADED CRUSHED STONE OR OTHER APPROVED MATERIAL CONTAINING NO MORE SILT OR CLAY THAN IS NECESSARY TO PROVIDE A DENSE AND STABLE FILLING. THE MATERIAL SHALL BE PLACED AT OPTIMUM MOISTURE CONTENT IN LAYERS EACH OF MAXIMUM THICKNESS 150mm AND COMPACTED TO AT LEAST 90% M699AASHTO DENSITY, OR THE DENSITY REQUIRED FOR ADJOINING LAYERS.
 - ALTERNATIVELY A WET MIXTURE OF SOIL CEMENT MAY BE USED FOR PIPE BACK-FILLING. THE MIXTURE SHALL CONSIST OF AN APPROVED SOIL OR GRAVEL MIXED WITH 5% (BY MASS) OF PORTLAND CEMENT BY VOLUME AND ONLY SUFFICIENT WATER TO GIVE A CONSISTENCY THAT WILL PERMIT THE SOIL CEMENT TO BE PLACED WITH VIBRATORS SO THAT ALL VOIDS BE PROPERLY FILLED. THE AGGREGATE USED FOR SOIL CEMENT SHALL PREFERABLY BE A SANDY MATERIAL BUT MAY CONTAIN LARGER PARTICLES UP TO 38mm AND IT SHALL NOT HAVE A F.I. EXCEEDING 10.
 - THE PIPE SHALL BE ADEQUATELY SUPPORTED DURING CASTING OF THE CLASS 'A' CONCRETE GRADE. THE CONSTRUCTION SHALL BE MONOLITHIC WITHOUT HORIZONTAL JOINTS AND THE MIX SHALL BE SLOPPY AND SHALL BE PLACED ON ONE SIDE OF THE PIPE FLOWING THROUGH TO THE OTHER SIDE. VIBRATION SHALL NOT BE USED.
 - THE CLASS 'C' BEDDING CUSHION SHALL BE PLACED AND LIGHTLY COMPACTED TO THE LOWEST LEVEL OF THE UNDERSIDE OF THE PIPE WHEREUPON THE PIPE SHALL BE PLACED AND THE BEDDING CUSHION COMPLETED BY RAMMING AND TAMPING ADJACENT TO AND UNDER THE PIPE. ALTERNATIVELY, FOR APPROPRIATE IN SITU MATERIAL, THE BEDDING CUSHION MAY BE OMITTED AND THE SOIL FOUNDATION SHAPED TO FIT THE LOWER PART OF THE PIPE EXTERIOR WITH REASONABLE CLOSENESS.
 - BACKFILLING SHALL BE CARRIED OUT SIMULTANEOUSLY AND EQUALLY ON BOTH SIDES OF A CULVERT TO PREVENT UNEQUAL LATERAL FORCES FROM OCCURRING.



BENDING SCHEDULE FOR A 450Ø PIPE CULVERT HEADWALL

No. off = quantity for one structure. Multiply No. off by number of structures for final order quantity

Member	No. Off	No. Each	Type & Dia	Bar mark	Total Number	Length	Shape Code	BENDING (TO SABS 82) & PLACING					DETAIL DRAWING		
								A	B	C	D	E	Bar mark (S Shape code 99)	Shape code 99	
Headwall	1	6	Y10	Ø1	6	800	60	200	150						
	1	10	Y10	Ø2	10	1300	37	150							
	1	4	Y10	Ø3	4	600	49	100	220	N/A	50	125			
	1	4	Y10	Ø4	4	600	49	100	220	N/A	35	175			
Cut-off wall	1	4	Y10	Ø5	4	1080	29	1080							
	1	8	Y10	Ø6	8	310	20	310							
	1	4	Y10	Ø7	4	240	20	240							
	1	6	Y10	Ø8	6	800	99	120	155	140	275	120			
	1	6	Y10	Ø9	6	1500	74	400	300						
	1	3	Y16	Ø11	3	1000	37	200							



HH: HEADWALL HEIGHT	750
ID: INSIDE DIAMETER	450Ø
OD: OUTSIDE DIAMETER	533
ND: NOMINAL DIAMETER	450
OC: ANGLE OF SKEW	0°
TC1: CUT OFF WALL DEPTH AT END OF APRON	500
TC2: CUT OFF WALL DEPTH AT END OF BASE SLAB	500
IL: INVERT LEVEL	
SC: SHAPE CODE	
SC99: SPECIAL SHAPE BAR	

DIAMENSIONS	HEADWALL NAME	
	IN 1	OUT 1
PIPE SIZE	450Ø	450Ø
A1B1	1040	1040
A1C1	900	900
B1C1	520	520
A2B2	1040	1040
A2C2	900	900
B2C2	520	520

ROUTE No.	STAKE DISTANCE	GENERAL LAYOUT DWG. No.	CATCHMENT AREA	DESIGN RETURN PERIOD	DESIGN DISCHARGE Q (CHECK 1,50)	FORMAT WIDTH F	CULVERT DIMENSION (NOMINAL INTERNAL) TYPE	CULVERT STRENGTH CLASS	BUILD TO WORKING DWG. No.	SLOPE	SKEW ANGLE S	ROAD LEVELS			INVERT LEVELS			HW / D OR HW/H	FREEBOARD TO ROAD SHOULDER (CHECK 1,50)	MAX. OUTFLOW VELOCITY	FILL HEIGHT			HORIZONTAL LENGTHS			CUT-OFF WALL DEPTHS		CULVERT UNITS	INLET TYPE	OUTLET TYPE	REMARKS		
												LEFT R L L	CENTER R L C	RIGHT R L R	LEFT I L L	CENTER I L C	RIGHT I L R				(CHECK 1,50)	h ₁	h ₂	h ₃	LEFT LL	RIGHT LR	TOTAL LENGTH LT	TC1					TC2	
												m	m	m	m	m	m				m	m	m	m	m	m	m	m					m	m
R305 (MR332)	km	No.	km ²	YEARS	M ³ /s		NUMBER/S x H OR D CLASS	No.	% DEGREES			6,493	8,416	6,306	5,717	5,551	5,385	0,54	1,2	6,513	0,03	1,42	0,287	0,376	0,432	10,5	9,10	19,56	0,5	0,5	8	1	1	

DRAINAGE SCHEDULE

