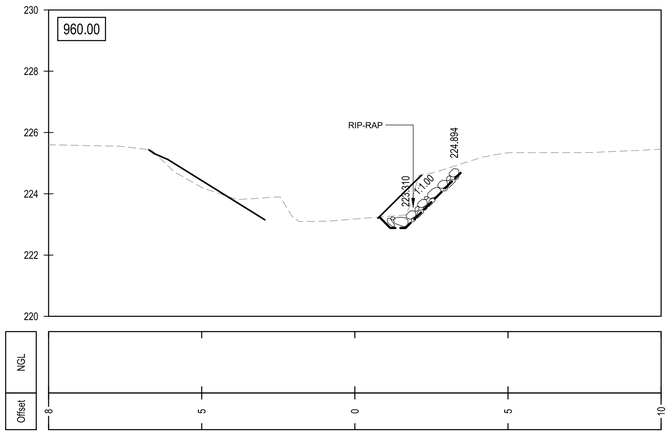
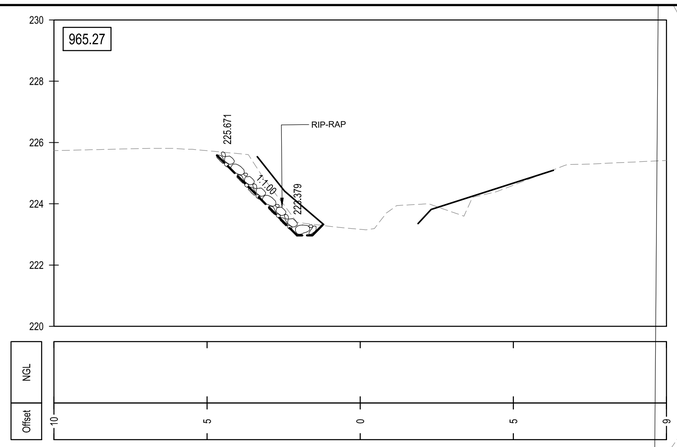
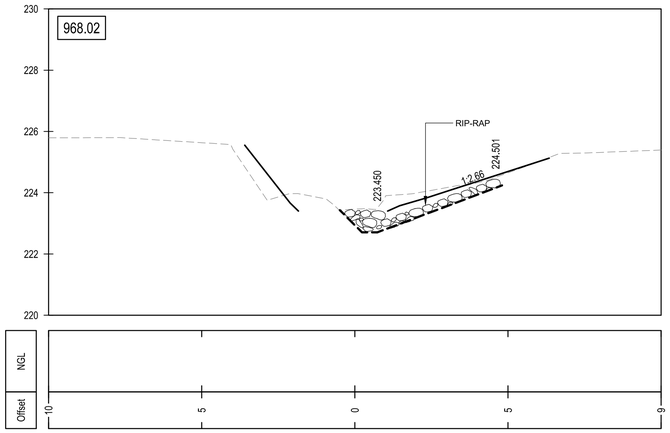
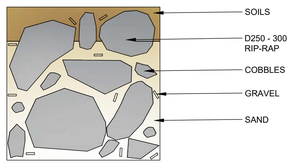


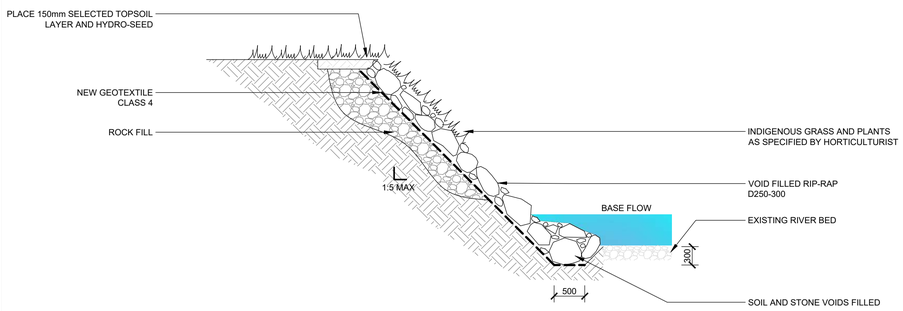




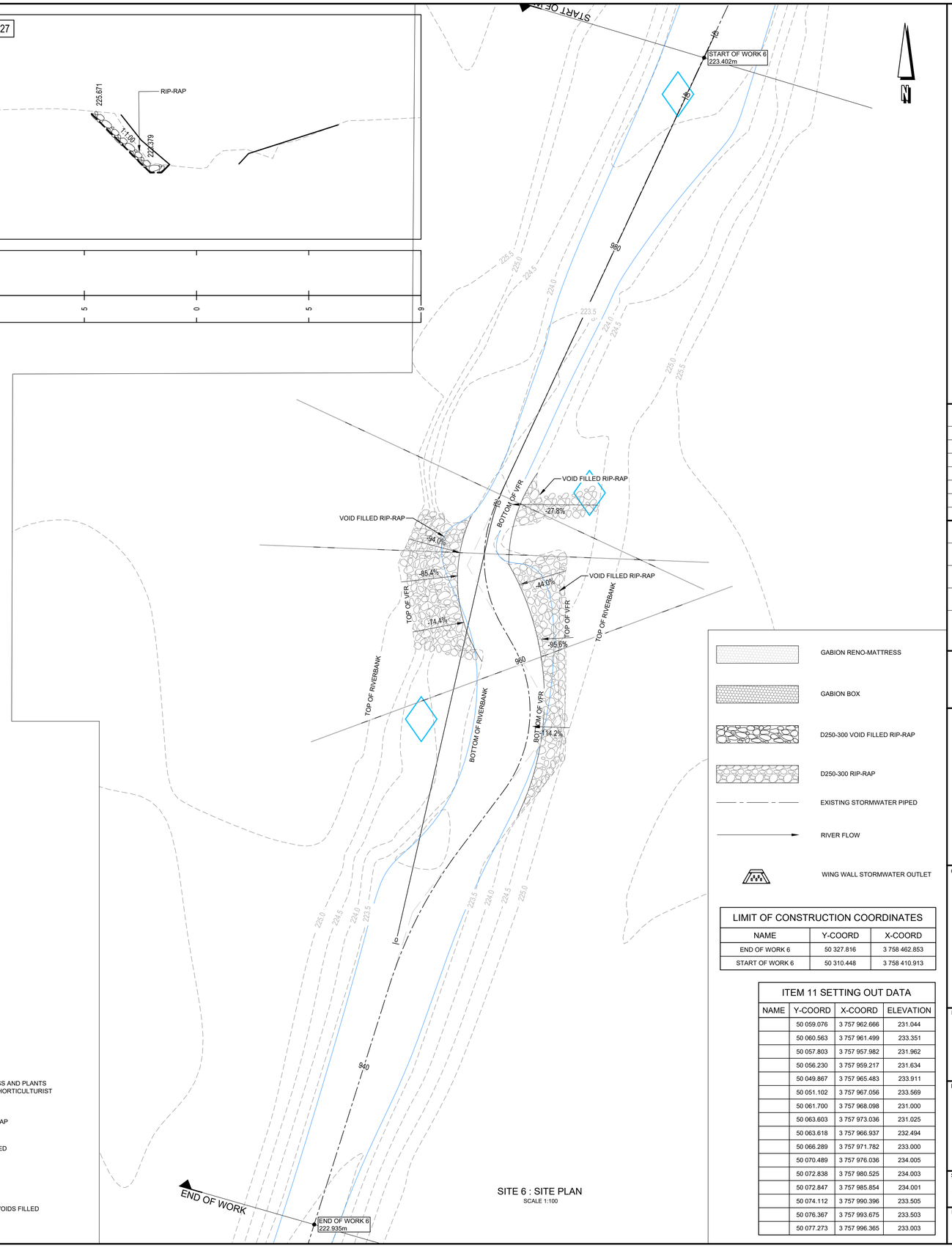
SITE 6 : CROSS SECTIONS
SCALE 1:250



VOID FILLED RIP-RAP
TYPICAL DETAIL (VFR)
SCALE 1:20



TYPICAL RIP RAP DETAIL
SCALE 1:50



SITE 6 : SITE PLAN
SCALE 1:100

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, PLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
3. WHERE A GEOTEXTILE IS USED AS A FILTER LAYER, THE DUMPING OF RIPRAP SHOULD BE LIMITED TO DROP HEIGHTS OF LESS THAN 300mm TO PREVENT TEARING OF THE GEOTEXTILE FABRIC.
4. ALONG THE BANK LINE, THE GEOTEXTILE SHOULD BE PLACED SO THAT THE UPSTREAM STRIPS OF FABRIC OVERLAP DOWNSTREAM STRIPS, AND SO THAT UPSLOPE STRIPS OVERLAP DOWNSLOPE STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

LIMIT OF CONSTRUCTION COORDINATES

NAME	Y-COORD	X-COORD
END OF WORK 6	50 327.816	3 758 462.853
START OF WORK 6	50 310.448	3 758 410.913

ITEM 11 SETTING OUT DATA

NAME	Y-COORD	X-COORD	ELEVATION
	50 059.076	3 757 962.666	231.044
	50 060.563	3 757 961.499	233.351
	50 057.803	3 757 957.982	231.962
	50 056.230	3 757 959.217	231.634
	50 049.867	3 757 965.483	233.911
	50 051.102	3 757 967.056	233.569
	50 061.700	3 757 968.098	231.000
	50 063.603	3 757 973.036	231.025
	50 063.618	3 757 966.937	232.494
	50 066.289	3 757 971.782	233.000
	50 070.489	3 757 976.036	234.005
	50 072.838	3 757 980.525	234.003
	50 072.847	3 757 985.854	234.001
	50 074.112	3 757 990.396	233.505
	50 076.367	3 757 993.675	233.503
	50 077.273	3 757 996.365	233.003

No	APPROVED	AMENDMENTS	DATE
P0	KP	ISSUED FOR CONSTRUCTION	2024-02-20

SURVEYED	ANDRÉ GENADE	2023-11-07
DRAWN	DAMIAN HART & JAMES STOTER	2023-11-07
DESIGNED	PIETER MARX	2023-11-07
CHECKED	PATRICK DALLAS	2023-11-07
APPROVED	PR REGISTRATION NO. 201770064	DATE: 2023-11-08

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LUKHOZI
LUKHOZI CONSULTING ENGINEERS (PTY) LTD
ST JOHN'S PLACE, 8 ST JOHN'S STREET,
DORMEHLSDRIFT, GEORGE
TEL 044 050 4154
EMAIL grg@lukhozi.co.za
WEB www.lukhozi.co.za

CLIENT
GEORGE
THE CITY FOR ALL REASONS

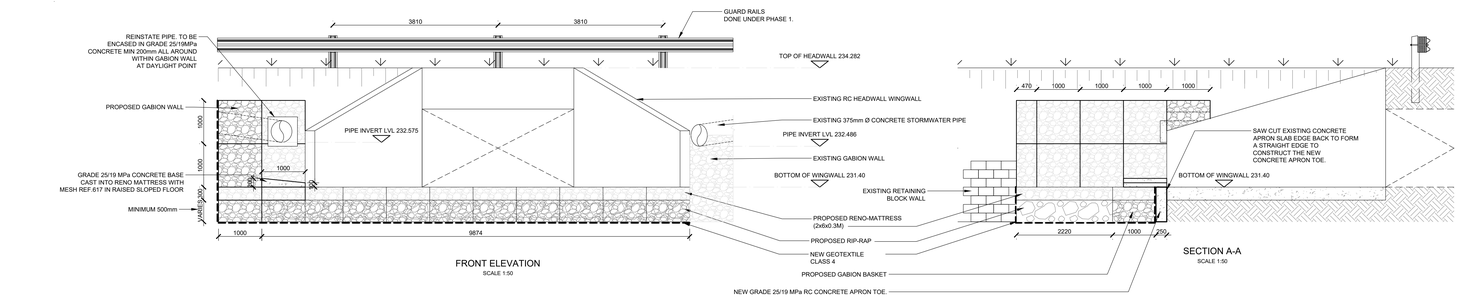
PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 6
ITEM 11 PER CONCEPT STUDY
REINSTATE AND PROTECT
EMBANKMENT

SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 1 SHEETS	A1
DRAWING No. 1760-STW-007		REVISION 0

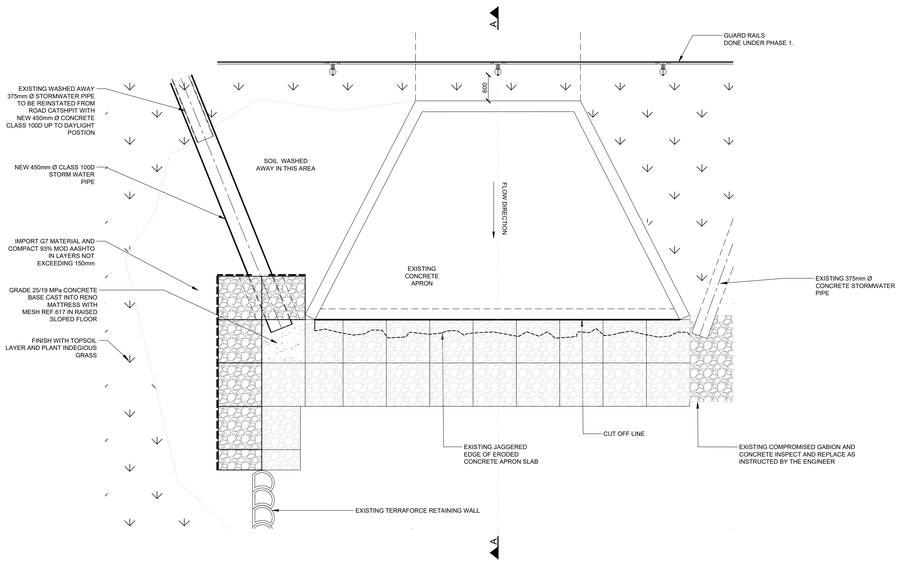
2024/05/10 01:54 pm

P:\GO\1760 Van Riebeeck Gardens and Camphersdrift\04 Design & Drawings\04 Stormwater\1760-GEN-001 & STW-003 to 010.dwg

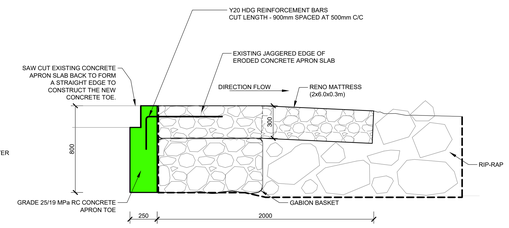


FRONT ELEVATION
SCALE 1:50

SECTION A-A
SCALE 1:50

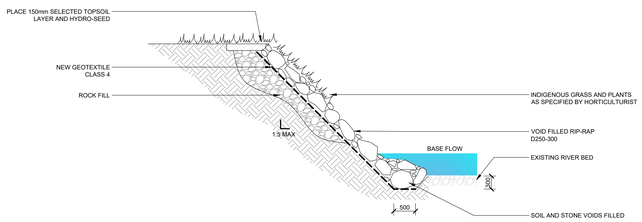


PLAN VIEW
SCALE 1:50

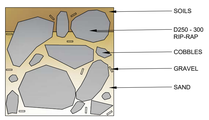


APRON SLAB REPAIR DETAIL
SCALE 1:20

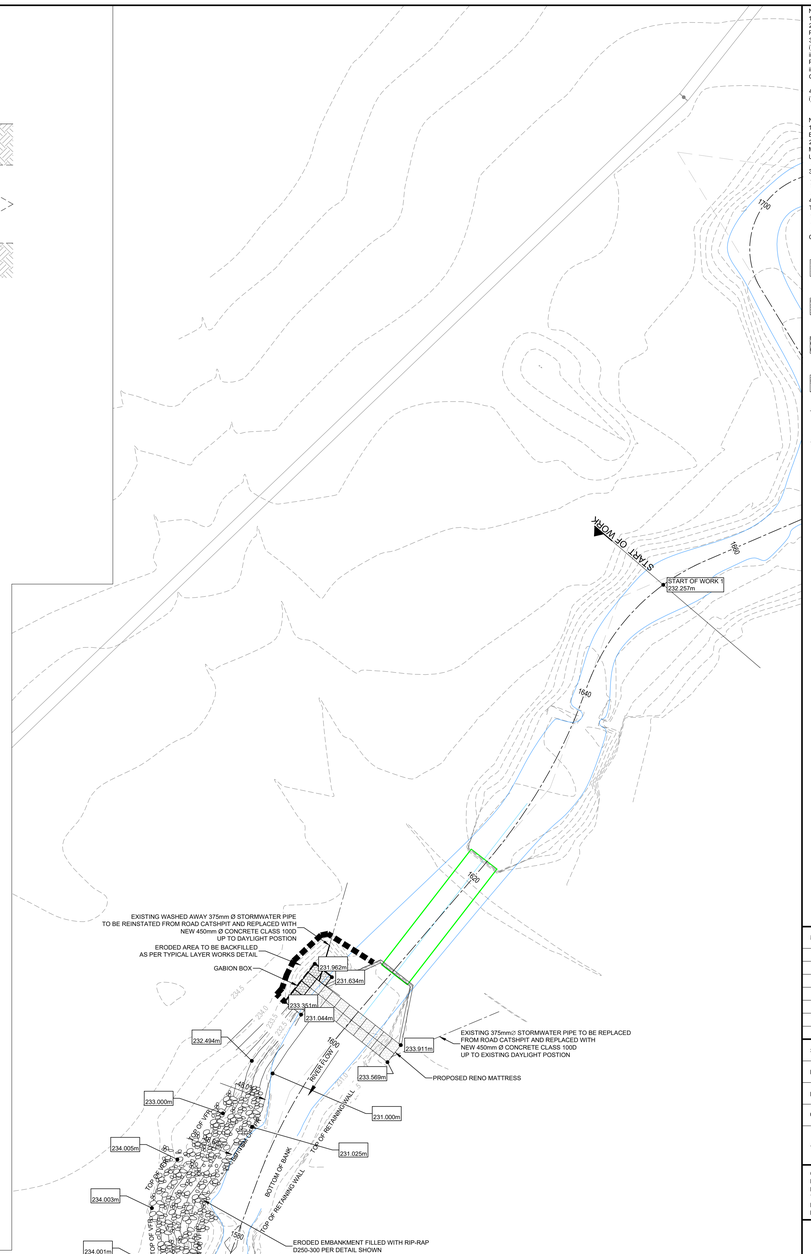
ITEM 2 : CAMPHERSDRIFT BRIDGE CULVERT
SCALE 1 : 200



TYPICAL RIP RAP DETAIL
SCALE 1:50



VOID FILLED RIP-RAP TYPICAL DETAIL (VFR)
SCALE 1:20



SITE 1: SITE PLAN
SCALE 1:500

LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 1	50 088.433	3 758 013.403
START OF WORK 1	50 025.643	3 757 922.984

SITE 3 SETTING OUT DATA			
NAME	Y-COORD	X-COORD	ELEVATION
	50 059.076	3 757 962.666	231.044
	50 060.563	3 757 961.499	233.351
	50 057.803	3 757 957.982	231.962
	50 056.230	3 757 959.217	231.634
	50 049.867	3 757 965.483	233.911
	50 051.102	3 757 967.056	233.569
	50 061.700	3 757 968.098	231.000
	50 063.603	3 757 973.036	231.025
	50 063.618	3 757 966.937	232.494
	50 066.289	3 757 971.782	233.000
	50 070.489	3 757 976.036	234.005
	50 072.838	3 757 980.525	234.003
	50 072.847	3 757 985.854	234.001
	50 074.112	3 757 990.396	233.505
	50 076.367	3 757 993.675	233.503
	50 077.273	3 757 996.365	233.003

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE.
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, PLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
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STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	KP	ISSUED FOR CONSTRUCTION	DATE

SURVEYED	ANDRE GENADE	07-11-2023
DRAWN	DAMIAN HART	FEB 2024
DESIGNED	P. MARX	FEB 2024
CHECKED	K. POTGIETER	FEB 2024
APPROVED	PR REGISTRATION NO. 201770084	DATE:---

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KWA LUKHOZI, QUARTZITE DRIVE,
THE QUARRY, SELBORNE, 5201
TEL 043 721 1321
EMAIL ad@lukhozi.co.za
WEB www.lukhozi.co.za

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THE CITY FOR ALL REASONS

PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 1
ITEMS 2 AND 3 PER CONCEPT STUDY
REINSTATE STORMWATER OUTLET
AND REINSTATE EMBANKMENT

SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 2 SHEETS	A0
DRAWING No. 1760-STW-003-1		REVISION 0

2024/05/10 01:46 pm

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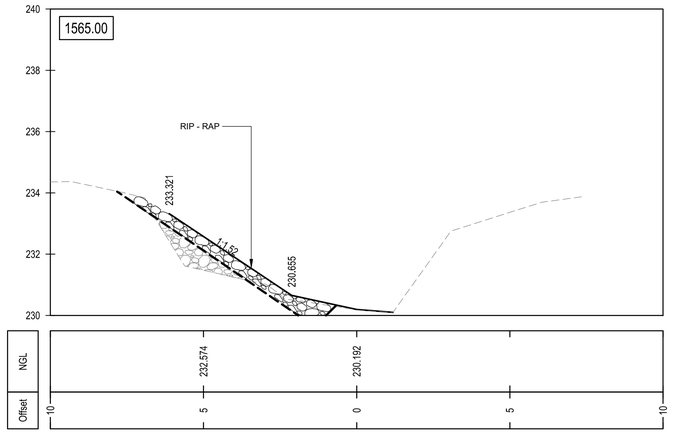

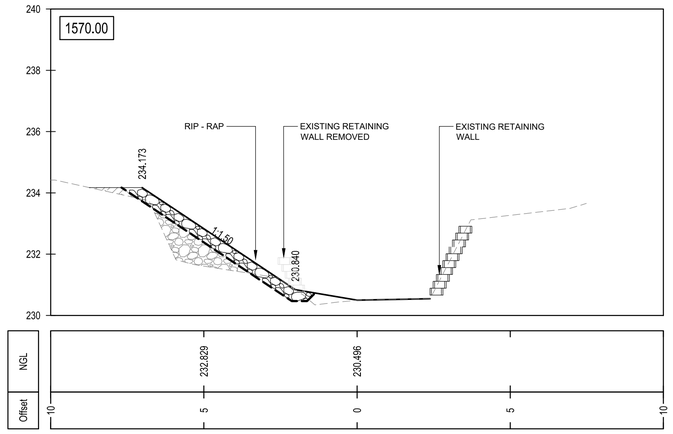

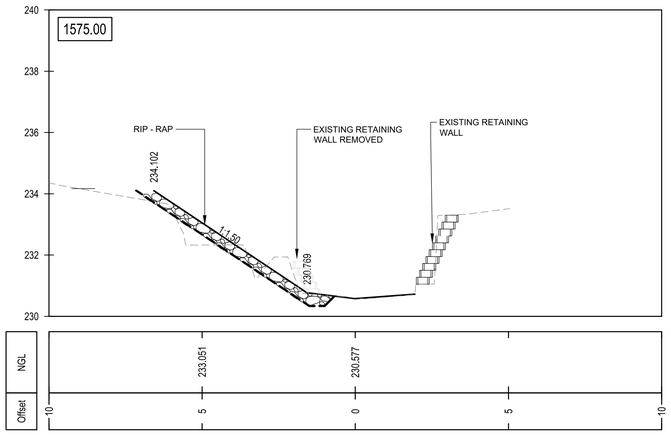

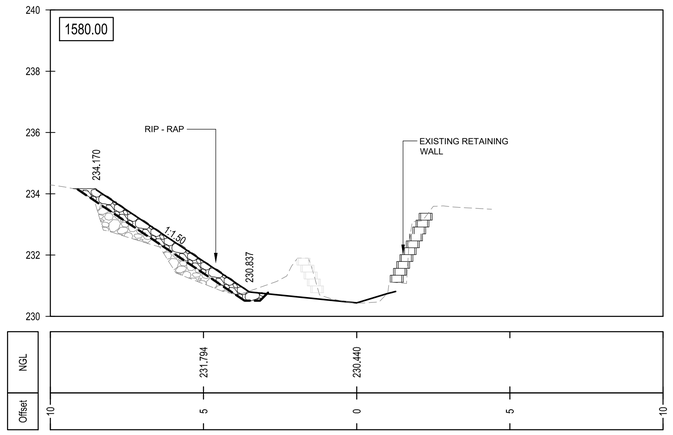

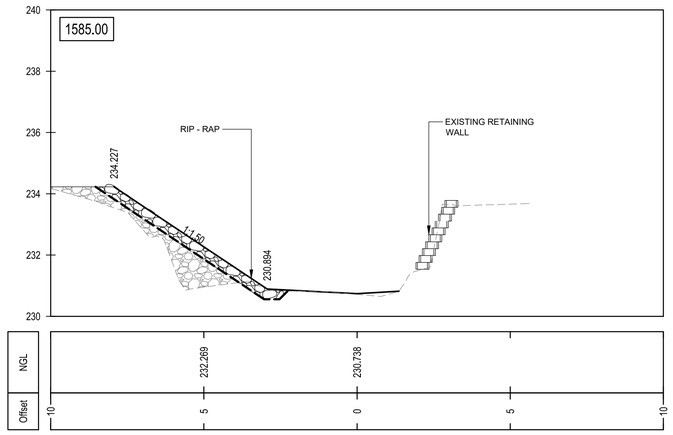

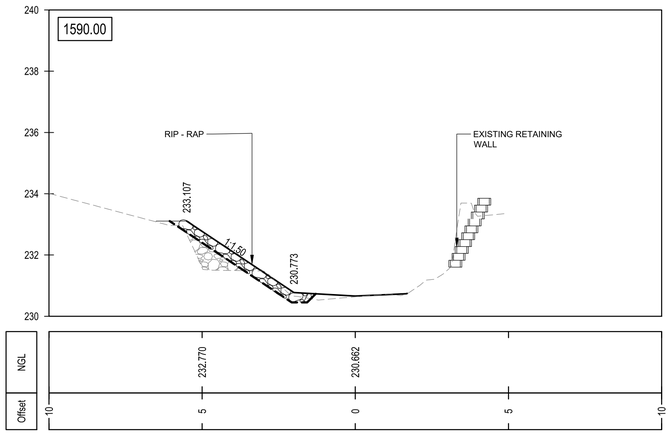

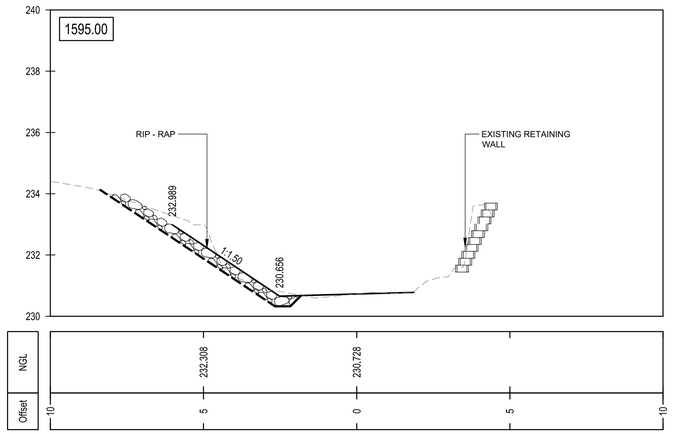

NOTES:

1. REFER TO SHEET 1 0F 2 FOR PLAN LAYOUT

No	APPROVED	AMENDMENTS	DATE
P0	KP	FOR INFORMATION	2024-02-20

SURVEYED	ANDRÉ GENADE	2023-11-07
DRAWN	DAMIAN HART & JAMES STOTER	2023-11-07
DESIGNED	PIETER MARX	2023-11-07
CHECKED	PATRICK DALLAS	2023-11-07
APPROVED	PR REGISTRATION NO. 201770064	DATE: 2023-11-08

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LUKHOZI CONSULTING ENGINEERS (PTY) LTD

ST JOHN'S PLACE, 8 ST JOHN'S STREET,
DORMEHLSDRIFT, GEORGE

TEL 044 050 4154
EMAIL grg@lukhozi.co.za
WEB www.lukhozi.co.za

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PROJECT TITLE

MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE

PHASE 2 : SITE 1

ITEM 3 PER CONCEPT STUDY
CROSS SECTIONS

SCALE	SHEET SET	SHEET SIZE
1:100	SHEET 2 OF 2 SHEETS	A1

DRAWING No.	REVISION
1760-STW-003-2	0

2024/06/05 01:00 pm

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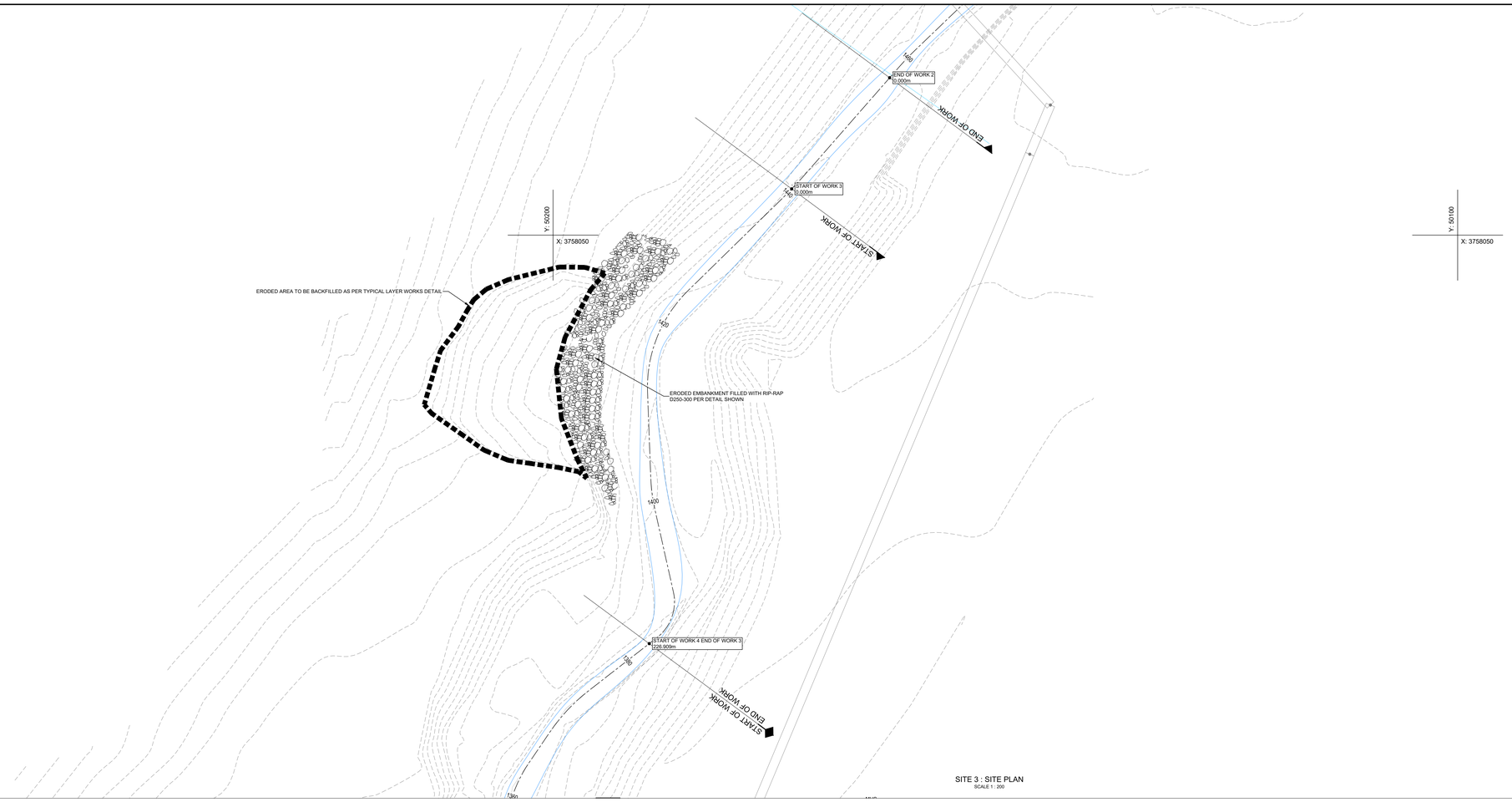
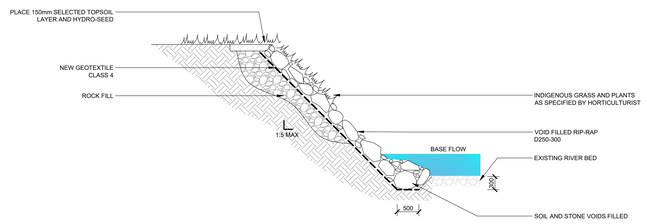
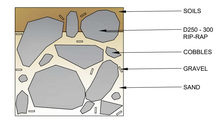


SITE 3 : SITE PLAN
SCALE 1 : 200

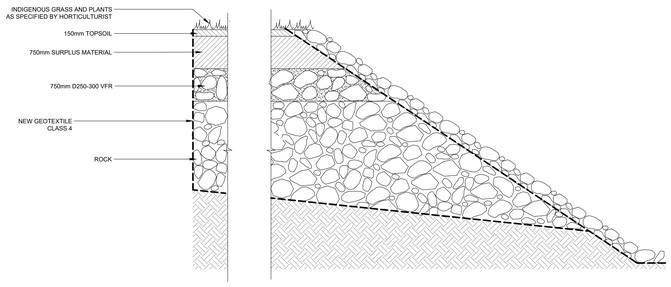
LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 4	50 246.240	3 758 192.622
START OF WORK 4 END OF WORK 3	50 189.370	3 758 095.136



TYPICAL RIP RAP DETAIL
SCALE 1:50



VOID FILLED RIP-RAP
TYPICAL DETAIL (VFR)
SCALE 1:20



TYPICAL LAYER WORKS DETAIL
SCALE 1:50

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE.
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
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GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	KP	ISSUED FOR CONSTRUCTION	DATE

SURVEYED	ANDRE GENADE	07-11-2023
DRAWN	DAMIAN HART	MAY 2024
DESIGNED	P. MARX	MAY 2024
CHECKED	K. POTGIETER	MAY 2024
APPROVED	PR REGISTRATION NO. 201770064	DATE:---

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WEB www.lukhozi.co.za

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THE CITY FOR ALL REASONS

PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 3
REINSTATE EMBANKMENT
AND LAYER WORKS DETAILS

SCALE	SHEET SET	SHEET SIZE
AS HOWN	SHEET 1 OF 1 SHEETS	A0
DRAWING No. 1760-STW-004		REVISION 0

2024/05/10 01:47 pm

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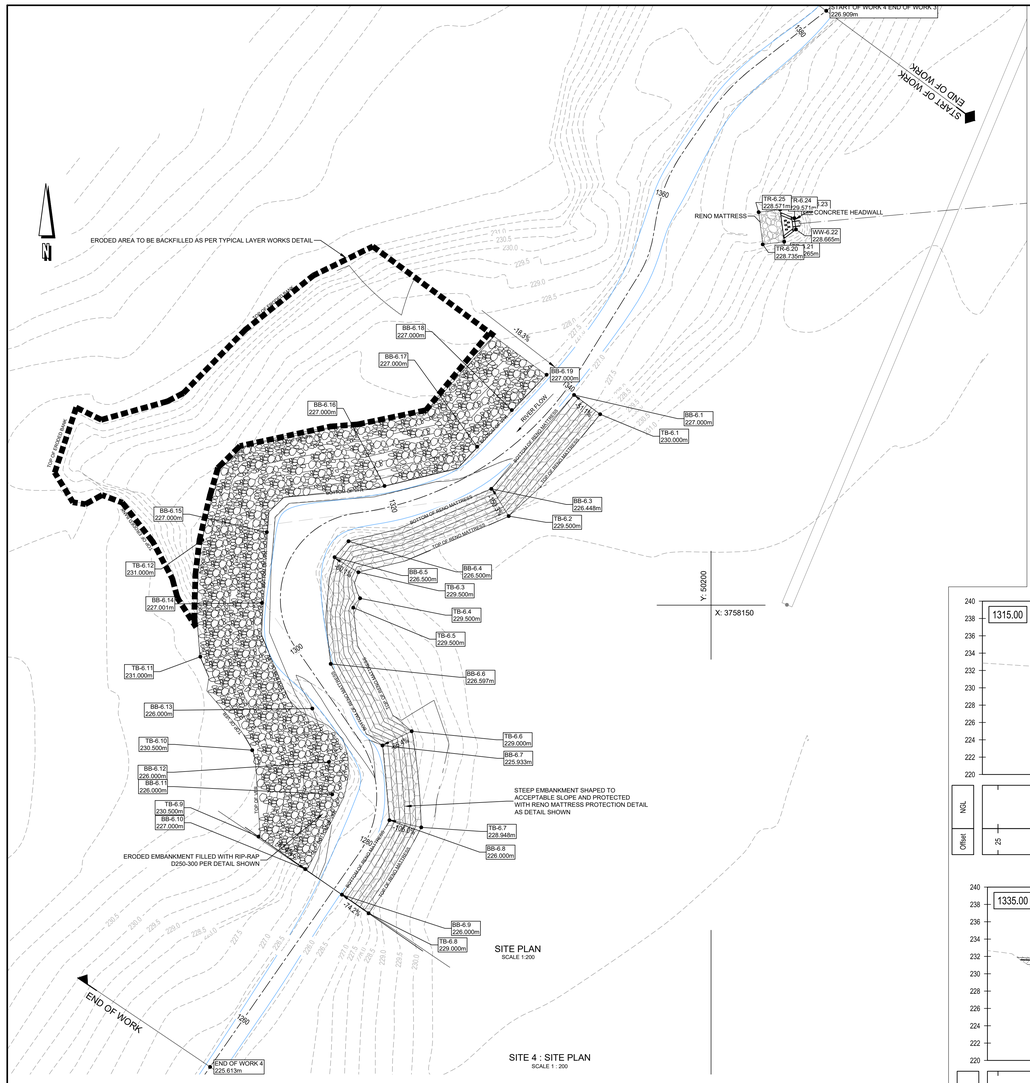
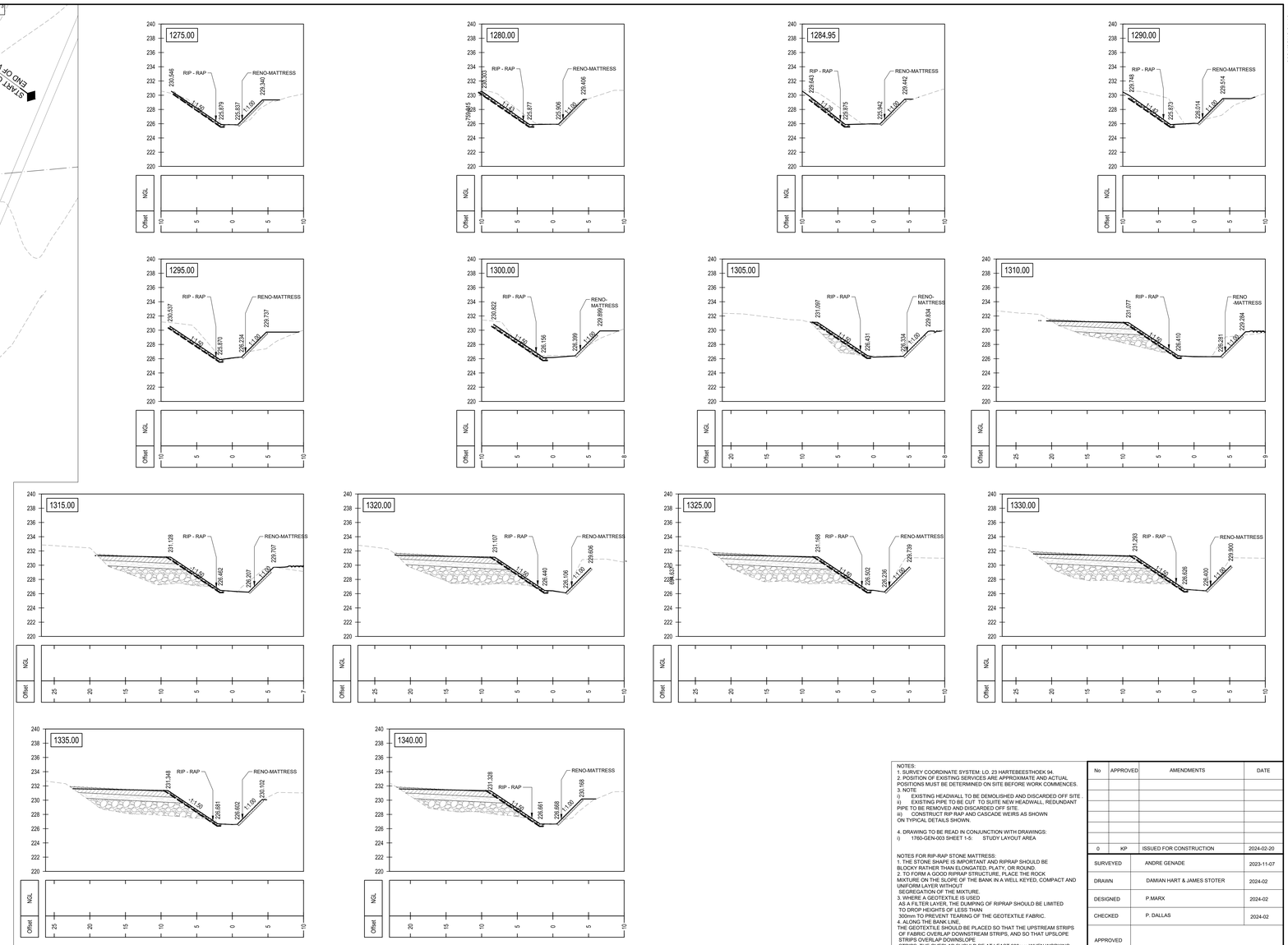


SITE PLAN
SCALE 1:200

SITE 4 : SITE PLAN
SCALE 1 : 200



SITE 4 : CROSS SECTIONS
SCALE 1:250

LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 4	50 246.240	3 758 192.622
START OF WORK 4 END OF WORK 3	50 189.370	3 758 095.136

ITEM 6-8 SETTING OUT DATA			
NAME	Y-COORD	X-COORD	ELEVATION
BB-6.1	50 212.646	3 758 130.593	227.000
BB-6.3	50 220.279	3 758 139.263	226.448
BB-6.4	50 233.464	3 758 144.096	226.500
BB-6.5	50 234.745	3 758 145.573	226.500
BB-6.6	50 235.105	3 758 155.414	226.597
BB-6.7	50 230.325	3 758 162.951	225.933
BB-6.8	50 229.687	3 758 169.846	226.000
BB-6.9	50 234.065	3 758 176.726	226.000
BB-6.10	50 237.457	3 758 174.362	227.000
BB-6.11	50 234.967	3 758 167.463	226.000
BB-6.12	50 235.276	3 758 164.474	226.000
BB-6.13	50 236.802	3 758 159.538	226.000
BB-6.14	50 241.446	3 758 149.796	227.001
BB-6.15	50 241.002	3 758 143.258	227.000
BB-6.16	50 230.138	3 758 138.996	227.000
BB-6.17	50 221.592	3 758 135.373	227.000
BB-6.18	50 218.389	3 758 131.992	227.000
BB-6.19	50 215.182	3 758 128.729	227.000
TB-6.1	50 210.234	3 758 132.375	230.000
TB-6.2	50 218.678	3 758 141.780	229.500

ITEM 6-8 SETTING OUT DATA			
NAME	Y-COORD	X-COORD	ELEVATION
TB-6.3	50 232.550	3 758 146.956	229.500
TB-6.4	50 232.395	3 758 149.365	229.500
TB-6.5	50 233.019	3 758 150.230	229.500
TB-6.6	50 227.632	3 758 161.638	229.000
TB-6.7	50 226.750	3 758 170.509	228.948
TB-6.8	50 231.604	3 758 178.442	229.000
TB-6.9	50 241.764	3 758 171.360	230.500
TB-6.10	50 242.350	3 758 163.387	230.500
TB-6.11	50 247.131	3 758 154.753	231.000
TB-6.12	50 246.948	3 758 143.984	231.000
TR-6.20	50 195.230	3 758 116.698	228.735
TR-6.21	50 193.246	3 758 116.444	229.265
TR-6.24	50 193.627	3 758 113.469	229.571
TR-6.25	50 195.610	3 758 113.722	228.571
WW-6.22	50 192.170	3 758 115.318	228.665
WW-6.23	50 192.316	3 758 114.281	228.775

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE.
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, FLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
3. WHERE A GEOTEXTILE IS USED AS A FILTER LAYER, THE DUMPING OF RIPRAP SHOULD BE LIMITED TO DROP HEIGHTS OF LESS THAN 300mm TO PREVENT TEARING OF THE GEOTEXTILE FABRIC.
4. ALONG THE BANK LINE, THE GEOTEXTILE SHOULD BE PLACED SO THAT THE UPSTREAM STRIPS OF FABRIC OVERLAP DOWNSTREAM STRIPS, AND SO THAT UPSLOPE STRIPS OVERLAP DOWNSLOPE STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	KP	ISSUED FOR CONSTRUCTION	2024-02-20

SURVEYED	ANDRE GENADE	2023-11-07
DRAWN	DAMIAN HART & JAMES STOTER	2024-02
DESIGNED	P.MARX	2024-02
CHECKED	P. DALLAS	2024-02
APPROVED	PR REGISTRATION NO.	DATE:—

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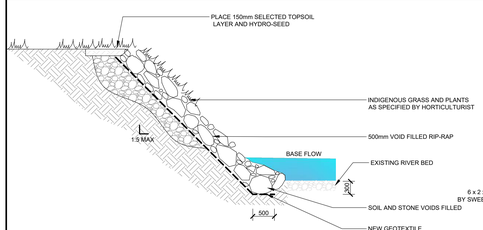
WEB www.lukhozi.co.za

CLIENT
GEORGE
THE CITY FOR ALL REASONS

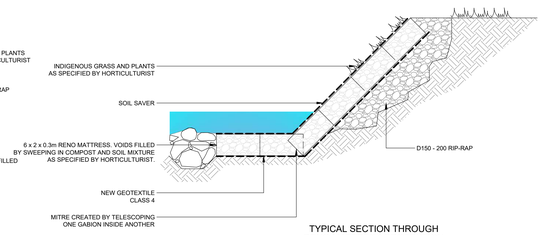
PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 4
ITEMS 6,7 AND 8 PER CONCEPT STUDY
REINSTATE STORMWATER OUTLET
AND REINSTATE EMBANKMENT

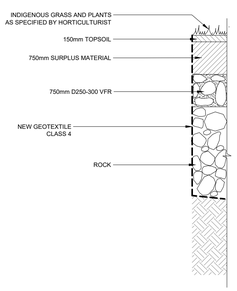
SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 1 SHEETS	A0
DRAWING No.		REVISION
1760-STW-005		0

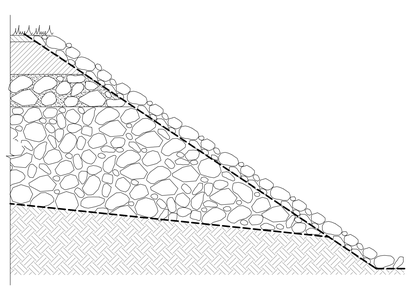


TYPICAL RIP RAP DETAIL
SCALE 1:50

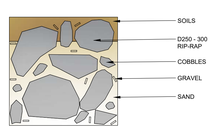


TYPICAL SECTION THROUGH
RENO MATTRESS PROTECTION
SCALE 1:50





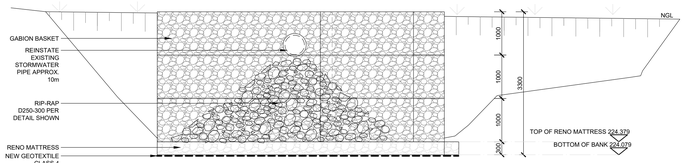
TYPICAL LAYER WORKS DETAIL
SCALE 1:50



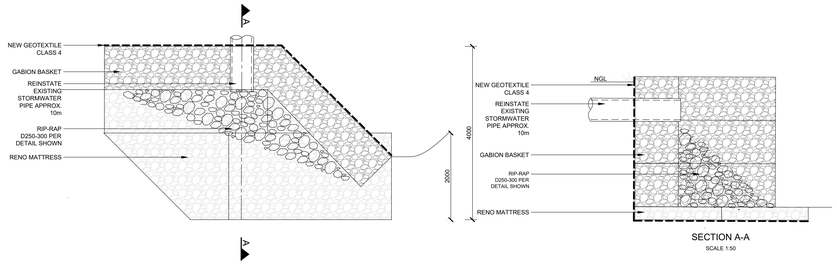
VOID FILLED RIP-RAP
TYPICAL DETAIL (VFR)
SCALE 1:20

2024/05/10 01:48 pm

P:\GO\1760 Van Riebeeck Gardens and Camphersdrift\04 Design & Drawings\04 Stormwater\1760-GEN-001 & STW-003 to 010.dwg



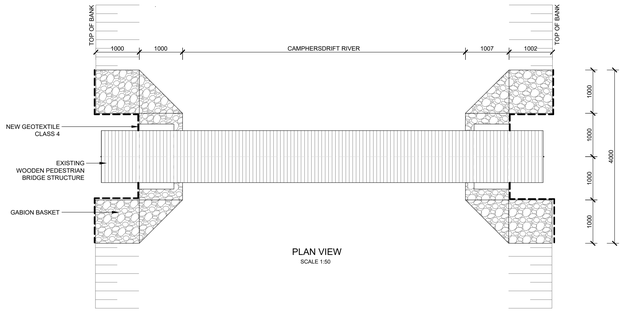
FRONT ELEVATION
SCALE 1:50



PLAN VIEW
SCALE 1:50

SECTION A-A
SCALE 1:50

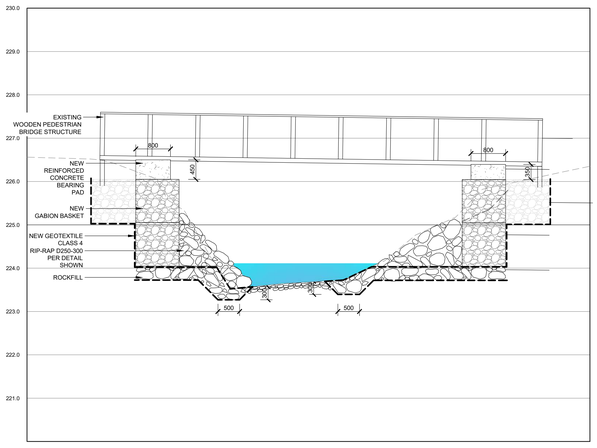
ITEM 9 : STORMWATER PIPE OUTLET
SCALE 1 : 50



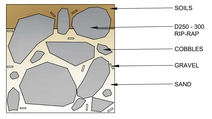
PLAN VIEW
SCALE 1:50

LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 5	50 306.229	3 758 400.762
START OF WORK 5	50 283.318	3 758 322.032

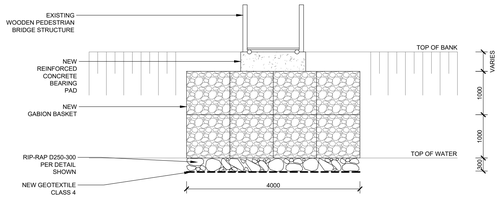
ITEM 10 SETTING OUT DATA			
NAME	Y-COORD	X-COORD	ELEVATION
BR-13	50 273.035	3 758 339.128	223.743
BR-14	50 275.261	3 758 340.873	223.713
BR-15	50 275.819	3 758 345.486	225.622
GB-1	50 295.511	3 758 377.502	225.658
GB-2	50 296.439	3 758 381.393	225.797
GB-3	50 296.715	3 758 378.243	224.805
GB-4	50 297.179	3 758 380.188	225.130
GB-5	50 303.462	3 758 375.606	226.278
GB-6	50 304.390	3 758 379.497	226.204
GB-7	50 303.185	3 758 378.756	225.756
GB-8	50 302.721	3 758 376.811	225.267
TG-10	50 274.378	3 758 345.653	227.231
TG-11	50 271.541	3 758 343.431	227.136
TG-12	50 271.051	3 758 339.384	226.951



SECTION A-A
SCALE 1:50

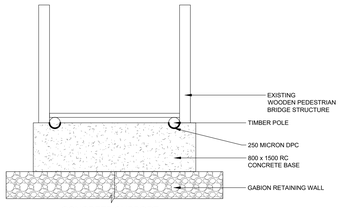


VOID FILLED RIP-RAP
TYPICAL DETAIL (VFR)
SCALE 1:20

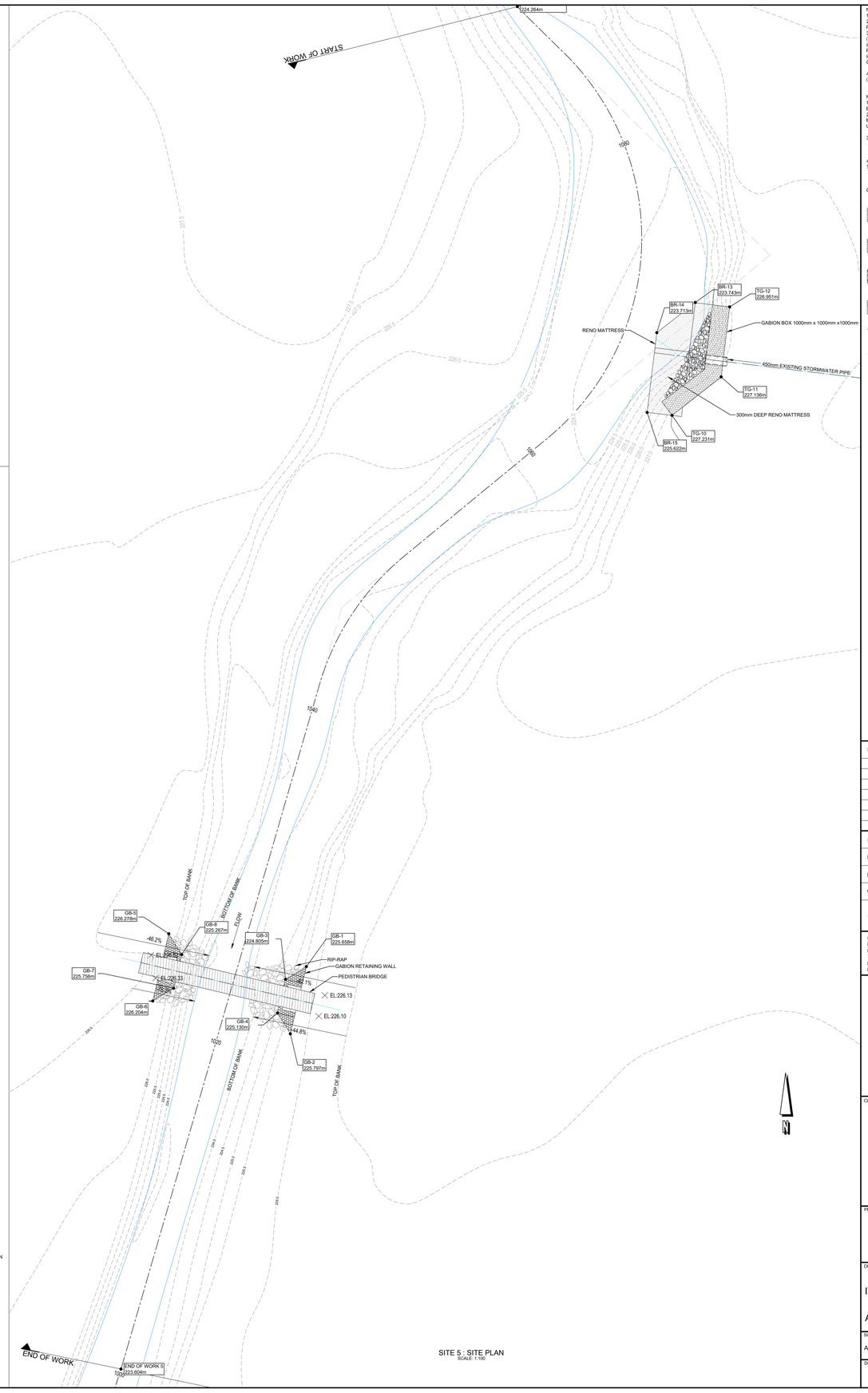


FRONT ELEVATION
SCALE 1:50

ITEM 10 : EXISTING PEDESTRIAN BRIDGE
SCALE 1 : 50



CONCRETE SUPPORT
DETAIL
SCALE 1:20



SITE 5 : SITE PLAN
SCALE: 1:100

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE:
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE .
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, PLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
3. WHERE A GEOTEXTILE IS USED AS A FILTER LAYER, THE DUMPING OF RIPRAP SHOULD BE LIMITED TO DROP HEIGHTS OF LESS THAN 300mm TO PREVENT TEARING OF THE GEOTEXTILE FABRIC.
4. ALONG THE BANK LINE, THE GEOTEXTILE SHOULD BE PLACED SO THAT THE UPSTREAM STRIPS OF FABRIC OVERLAP DOWNSTREAM STRIPS, AND SO THAT UPSLOPE STRIPS OVERLAP DOWNSLOPE STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	XX	ISSUED FOR CONSTRUCTION	DATE

SURVEYED	ANDRE GENADE	07-11-2023
DRAWN	DAMIAN HART	FEB 2024
DESIGNED	P. MARX	FEB 2024
CHECKED	K. POTGIETER	FEB 2024
APPROVED	PR REGISTRATION NO. 201770084	DATE:---

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PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 5
ITEMS 9 AND 10 PER CONCEPT STUDY
REINSTATE STORMWATER OUTLET
AND REINSTATE PEDESTRIAN BRIDGE

SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 1 SHEETS	A0
DRAWING No. 1760-STW-006		REVISION 0

2024/05/10 01:50 pm

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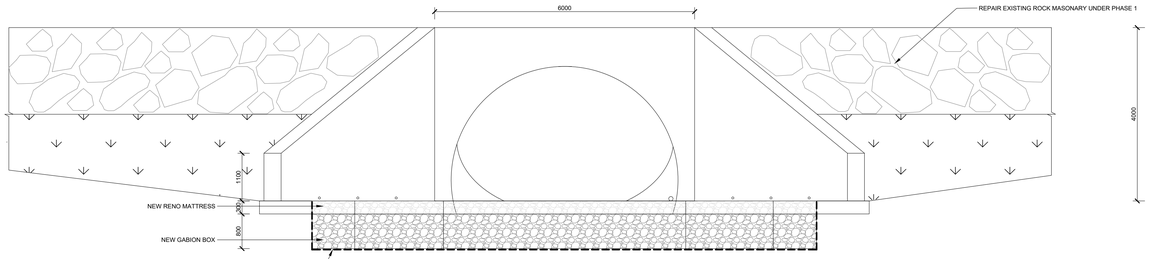
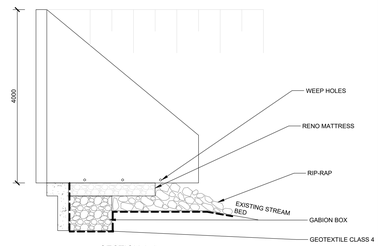
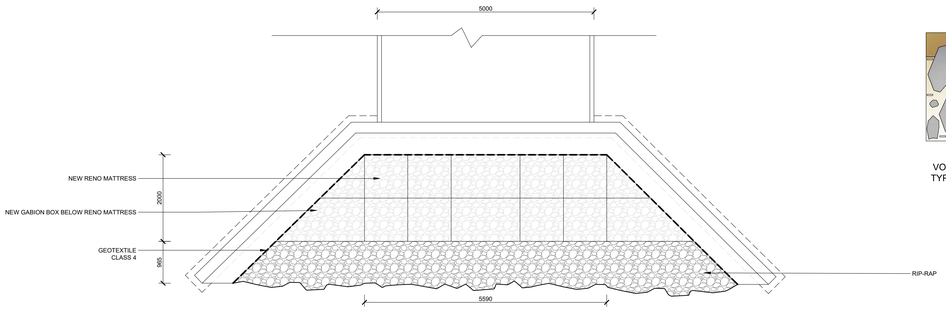


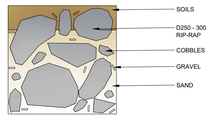
FRONT ELEVATION
SCALE 1:50



SECTION A-A
SCALE 1:50

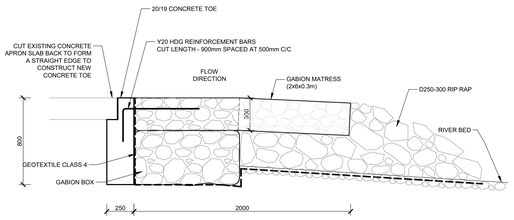


PLAN VIEW : DOWN STREAM OF CULVERT
SCALE 1:50

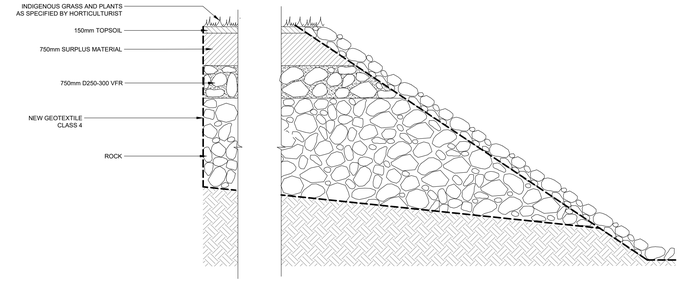


VOID FILLED RIP-RAP TYPICAL DETAIL (VFR)
SCALE 1:20

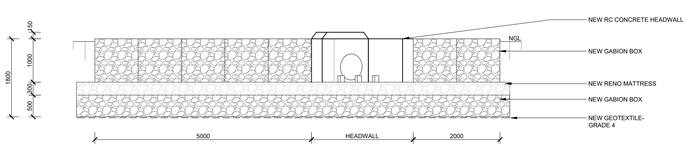
ITEM 14 : DAVIDSON ROAD BRIDGE CULVERT
SCALE 1 : 50



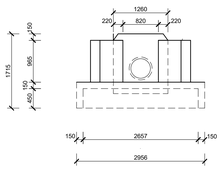
APRON SLAB REPAIR DETAIL
SCALE 1:20

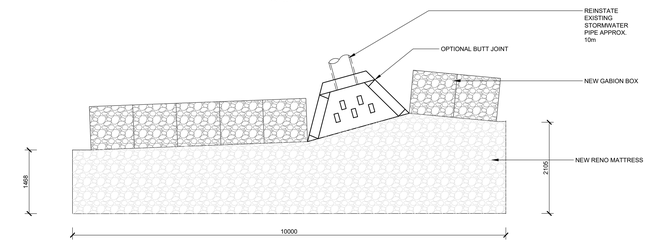


TYPICAL LAYER WORKS DETAIL
SCALE 1:50



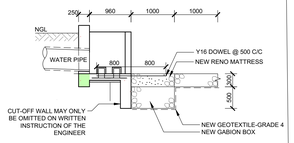
FRONT ELEVATION
SCALE 1:50





PLAN VIEW
SCALE 1:50

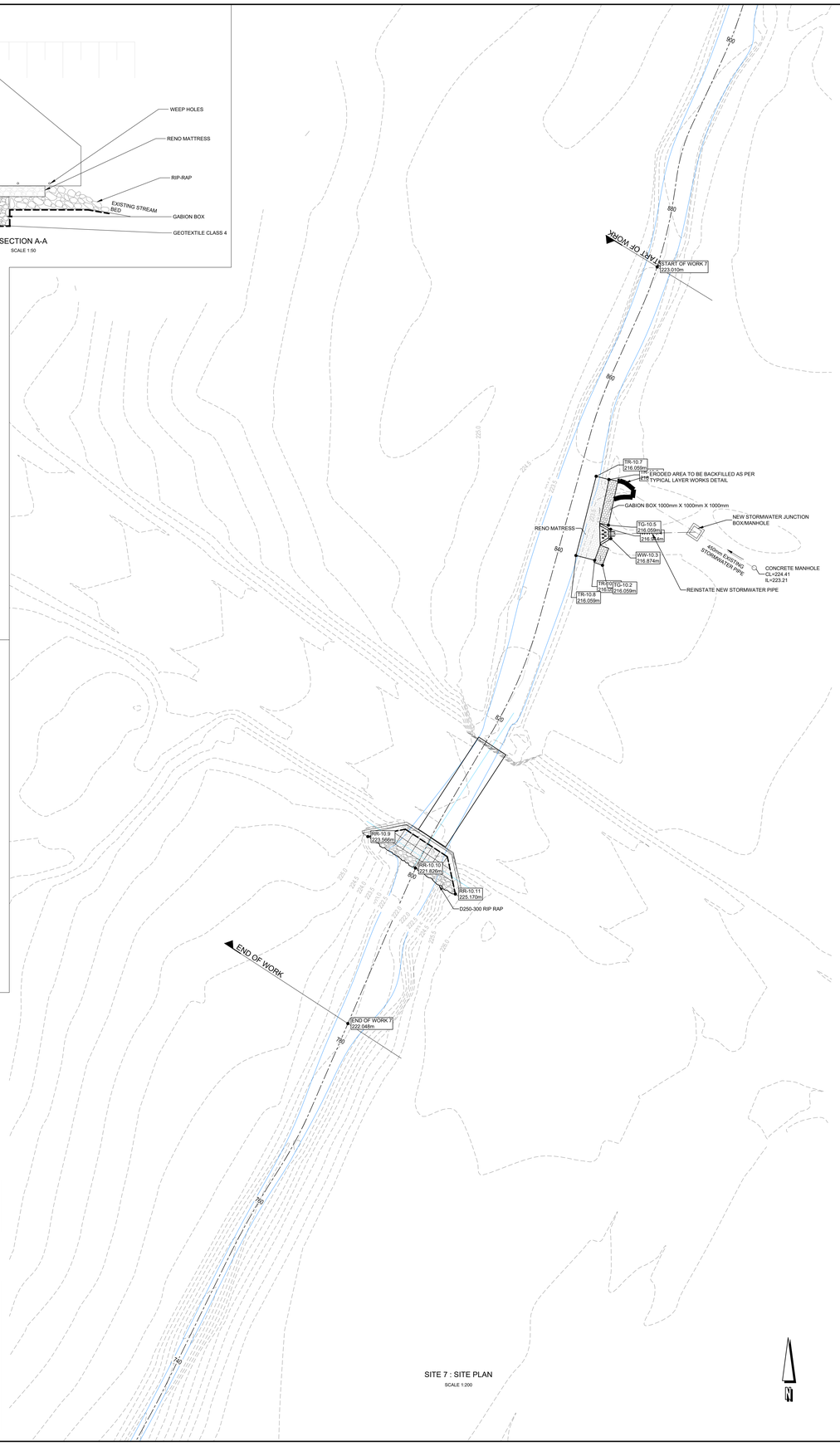
ITEM 12 : STORMWATER PIPE OUTLET
SCALE 1 : 50



SECTION A-A
SCALE 1:50

LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 7	50 380.260	3 758 603.114
START OF WORK 7	50 345.868	3 758 518.953

SITE 7 SETTING OUT DATA			
NAME	Y-COORD	X-COORD	ELEVATION
RR-10.9	50 378.039	3 758 582.325	223.566
RR-10.10	50 372.754	3 758 585.822	221.826
RR-10.11	50 368.306	3 758 588.714	225.170
TG-10.2	50 351.952	3 758 552.154	216.059
TG-10.5	50 351.289	3 758 547.688	216.059
TR-10.1	50 352.812	3 758 551.591	216.059
TR-10.6	50 351.227	3 758 542.618	216.059
TR-10.7	50 352.653	3 758 542.255	216.059
TR-10.8	50 354.891	3 758 551.063	216.059
WW-10.3	50 351.019	3 758 549.190	216.874
WW-10.4	50 351.042	3 758 548.151	216.944



SITE 7 : SITE PLAN
SCALE 1:200

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE .
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, PLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
3. WHERE A GEOTEXTILE IS USED AS A FILTER LAYER, THE DUMPING OF RIPRAP SHOULD BE LIMITED TO DROP HEIGHTS OF LESS THAN 300mm TO PREVENT TEARING OF THE GEOTEXTILE FABRIC.
4. ALONG THE BANK LINE, THE GEOTEXTILE SHOULD BE PLACED SO THAT THE UPSTREAM STRIPS OF FABRIC OVERLAP DOWNSTREAM STRIPS, AND SO THAT UPSLOPE STRIPS OVERLAP DOWNSLOPE STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	KP	ISSUED FOR CONSTRUCTION	DATE

SURVEYED	ANDRE GENADE	07-11-2023
DRAWN	DAMIAN HART	DEC 2023
DESIGNED	P.MARX	DEC 2023
CHECKED	K. POTGIETER	APRIL 2024
APPROVED	PR REGISTRATION NO .201770064	DATE:16.01.2024

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LUKHOZI CONSULTING ENGINEERS (PTY) LTD
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THE QUARRY, SELBORNE, 5201
TEL 043 721 1321
EMAIL ei@lukhozi.co.za
WEB www.lukhozi.co.za

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GEORGE
THE CITY FOR ALL REASONS

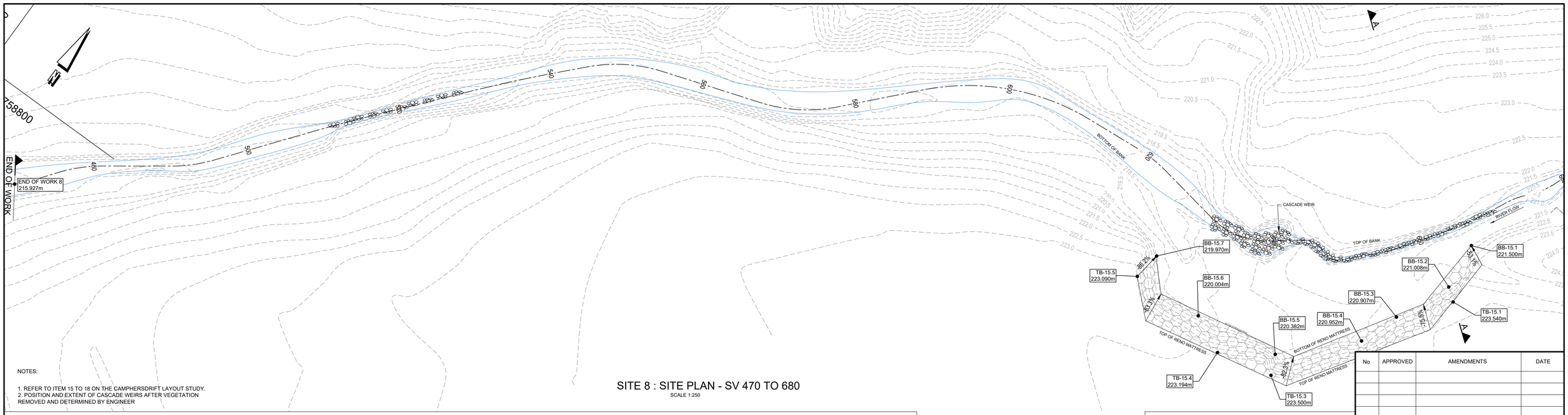
PROJECT TITLE
MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE
PHASE 2 : SITE 7
ITEMS 12,13 & 14 PER CONCEPT STUDY
REINSTATE HEADWALL OUTLET
REINSTATE BRIDGE APRON

SCALE	SHEET SET	SHEET SIZE
AS SHOWM	SHEET 1 OF 1 SHEETS	A0
DRAWING No.		REVISION
1760-STW-008		0

2024/05/10 01:56 pm

P:/GO/1760 Van Riebeeck Gardens and Camphersdrift/04 Design & Drawings/04 Stormwater/1760-GEN-001 & STW-003 to 010.dwg

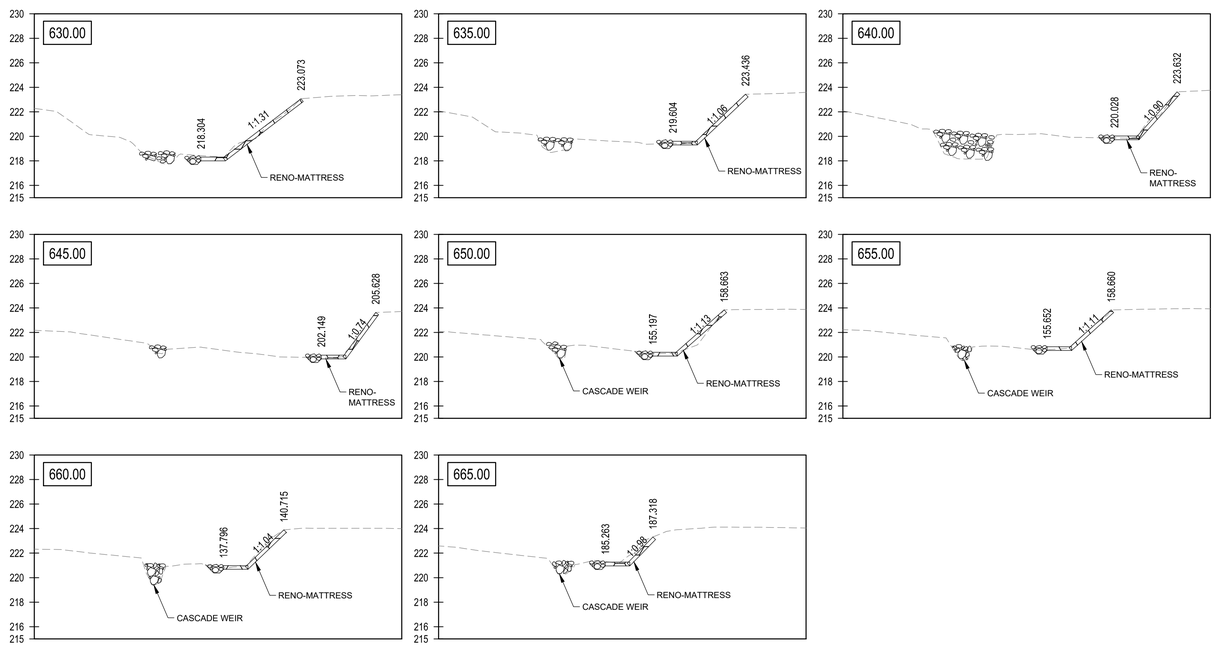


NOTES:

1. REFER TO ITEM 15 TO 18 ON THE CAMPHERSDRIFT LAYOUT STUDY.
2. POSITION AND EXTENT OF CASCADE WEIRS AFTER VEGETATION REMOVED AND DETERMINED BY ENGINEER

SITE 8 : SITE PLAN - SV 470 TO 680

SCALE 1:250



SITE 8 : CROSS SECTIONS

SCALE 1:250

LIMIT OF CONSTRUCTION COORDINATES

NAME	Y-COORD	X-COORD
END OF WORK 8	50 588.418	3 758 810.084
START OF WORK 8	50 424.833	3 758 683.896

ITEM 15 SETTING OUT DATA

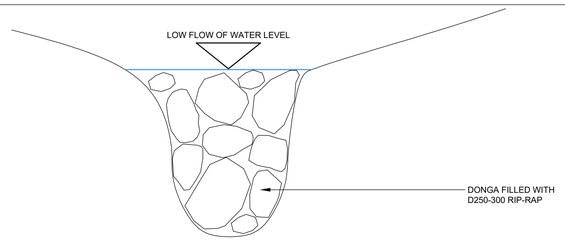
NAME	Y-COORD	X-COORD	ELEVATION
BB-15.1	50 432.970	3 758 706.543	221.500
BB-15.2	50 432.194	3 758 712.530	221.008
BB-15.3	50 435.339	3 758 719.597	220.907
BB-15.4	50 437.147	3 758 724.704	220.952
BB-15.5	50 445.076	3 758 732.606	220.382
BB-15.6	50 455.946	3 758 734.414	220.004
BB-15.7	50 464.761	3 758 731.368	219.970
TB-15.1	50 430.605	3 758 713.755	223.540
TB-15.2	50 435.733	3 758 726.470	223.514
TB-15.3	50 443.934	3 758 735.087	223.500
TB-15.4	50 451.190	3 758 736.766	223.194
TB-15.5	50 465.224	3 758 734.941	223.090

NOTES:
1. SURVEY COORDINATE SYSTEM: LO. 23 HARTEBEESTHOEK 94.
2. POSITION OF EXISTING SERVICES ARE APPROXIMATE AND ACTUAL POSITIONS MUST BE DETERMINED ON SITE BEFORE WORK COMMENCES.
3. NOTE
i) EXISTING HEADWALL TO BE DEMOLISHED AND DISCARDED OFF SITE.
ii) EXISTING PIPE TO BE CUT TO SUITE NEW HEADWALL, REDUNDANT PIPE TO BE REMOVED AND DISCARDED OFF SITE.
iii) CONSTRUCT RIP RAP AND CASCADE WEIRS AS SHOWN ON TYPICAL DETAILS SHOWN.

4. DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS:
i) 1760-GEN-003 SHEET 1-5: STUDY LAYOUT AREA

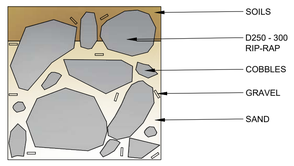
NOTES FOR RIP-RAP STONE MATTRESS:
1. THE STONE SHAPE IS IMPORTANT AND RIPRAP SHOULD BE BLOCKY RATHER THAN ELONGATED, PLATY, OR ROUND.
2. TO FORM A GOOD RIPRAP STRUCTURE, PLACE THE ROCK MIXTURE ON THE SLOPE OF THE BANK IN A WELL KEYED, COMPACT AND UNIFORM LAYER WITHOUT SEGREGATION OF THE MIXTURE.
3. WHERE A GEOTEXTILE IS USED AS A FILTER LAYER, THE DUMPING OF RIPRAP SHOULD BE LIMITED TO DROP HEIGHTS OF LESS THAN 300mm TO PREVENT TEARING OF THE GEOTEXTILE FABRIC.
4. ALONG THE BANK LINE, THE GEOTEXTILE SHOULD BE PLACED SO THAT THE UPSTREAM STRIPS OF FABRIC OVERLAP DOWNSTREAM STRIPS, AND SO THAT UPSLOPE STRIPS OVERLAP DOWNSLOPE STRIPS. THE OVERLAP SHOULD BE AT LEAST 300mm WHEN WORKING ON DRY GROUND.

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW



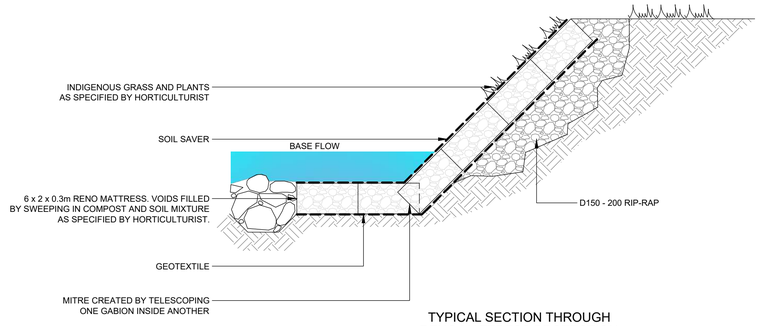
CASCADE WEIR TYPICAL DETAIL

SCALE: 1:20



VOID FILLED RIP-RAP
TYPICAL DETAIL (VFR)

SCALE 1:20



TYPICAL SECTION THROUGH
RENO MATTRESS PROTECTION

SCALE 1:50

No	APPROVED	AMENDMENTS	DATE
P0	KP	ISSUED FOR CONSTRUCTION	2024-02-20

SURVEYED	ANDRÉ GENADE	2023-11-07
DRAWN	DAMIAN HART & JAMES STOTER	2023-11-07
DESIGNED	PIETER MARX	2023-11-07
CHECKED	PATRICK DALLAS	2023-11-07
APPROVED	PR REGISTRATION NO. 201770064	DATE: 2023-11-08

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WEB www.lukhozi.co.za
LEVEL 1 CIDB

CLIENT

GEORGE
THE CITY FOR ALL REASONS

PROJECT TITLE

MDRG PROJECT 28(3) VAN RIEBEECK GARDENS AND CAMPHERSDRIFT

DRAWING TITLE

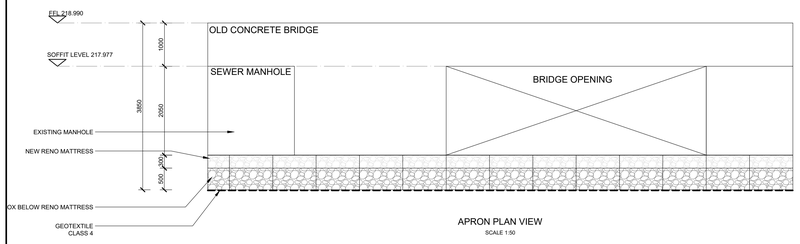
PHASE 2 : SITE 8
ITEM 15,16,17 & 18 PER CONCEPT STUDY: REINSTATE AND PROTECT EMBANKMENT, CROSS SECTIONS

SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 1 SHEETS	A1

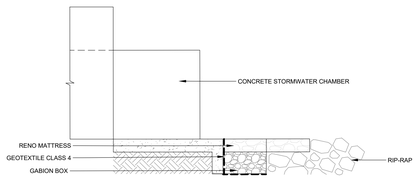
DRAWING No.	REVISION
1760-STW-009	0

2024/05/10 02:00 pm

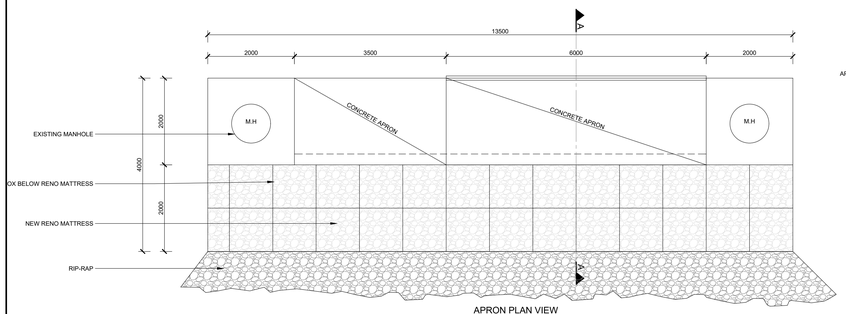
P:\GG\1760 Van Riebeeck Gardens and Camphersdrift\04 Design & Drawings\04 Stormwater\1760-GEN-001 & STW-003 to 010.dwg



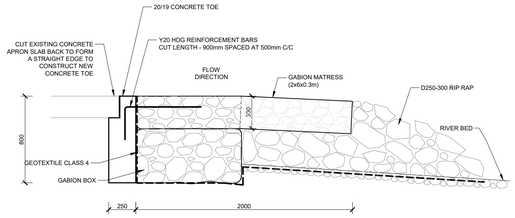
APRON PLAN VIEW
SCALE 1:50



SECTION A-A
SCALE 1:50

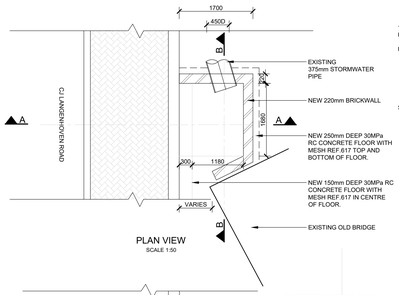


APRON PLAN VIEW
SCALE 1:50



APRON SLAB REPAIR DETAIL
SCALE 1:20

ITEM 22 : CJ LANGENHOVEN ROAD BRIDGE CULVERT
SCALE 1 : 50

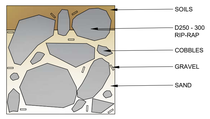


PLAN VIEW
SCALE 1:50

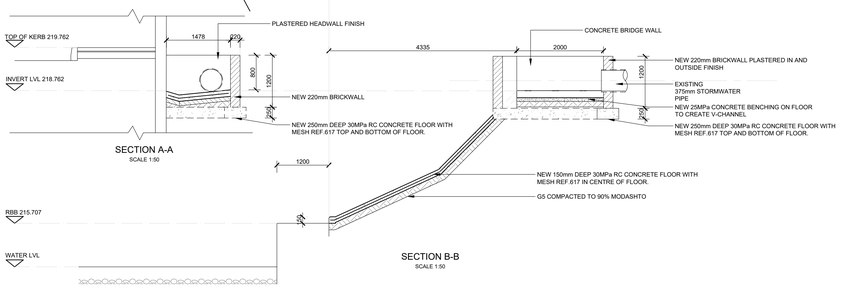
1. SPECIFICATION FOR MASONRY UNITS (BURNT CLAY MASONRY UNITS - SANS 227:2007)

UNDERGROUND INFRASTRUCTURE
- CLASS : NFXE (ENGINEERS UNIT)
- SOLID (UN-PERFORATED)
- NOMINAL COMPRESSIVE STRENGTH:21 MPa
- DIMENSIONS: IMPERIAL 222 X 106 X 73
- LIMITS FOR COLD WATER ABSORPTION: NOT MORE THAN 12%
- EFFLORESCENCE: SPECIAL GRADE

SURFACE INFRASTRUCTURE
- CLASS : FBXE (ENGINEERS UNIT)
- SOLID (UN-PERFORATED)
- NOMINAL COMPRESSIVE STRENGTH:21 MPa
- DIMENSIONS: IMPERIAL 222 X 106 X 73
- LIMITS FOR COLD WATER ABSORPTION: NOT MORE THAN 12%
- EFFLORESCENCE: UNIFORM



VOID FILLED RIP-RAP TYPICAL DETAIL (VFR)
SCALE 1:20



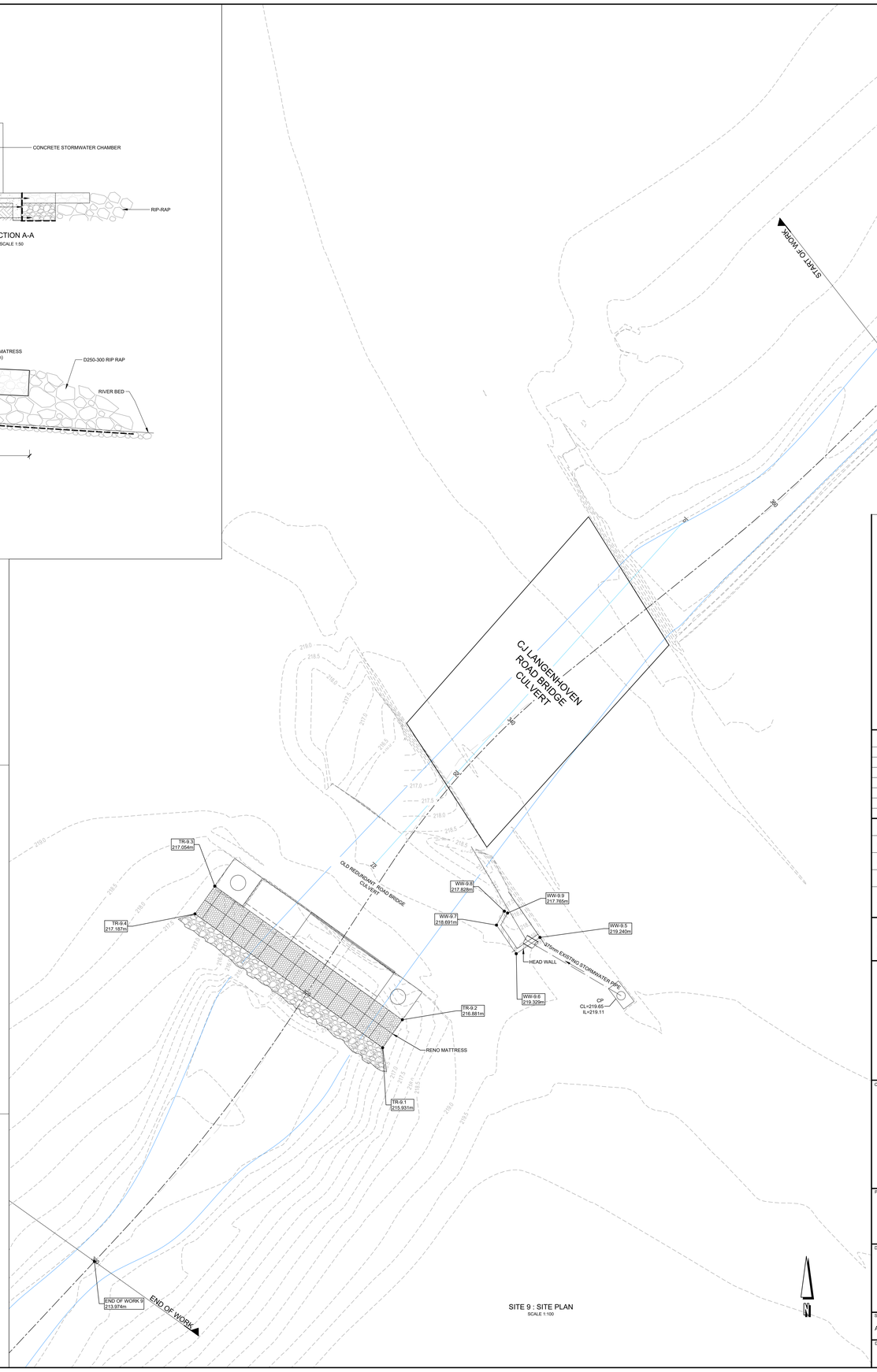
SECTION A-A
SCALE 1:50

SECTION B-B
SCALE 1:50

ITEM 20 : NEW STORMWATER RAMP OUTLET
SCALE 1 : 50

LIMIT OF CONSTRUCTION COORDINATES		
NAME	Y-COORD	X-COORD
END OF WORK 9	50 699.495	3 758 935.884
START OF WORK 9	50 652.053	3 758 884.099

SITE SETTING OUT POINTS			
POINT	Y-COORD	X-COORD	ELEVATION
1501	50 682.619	3 758 923.357	215.931
1502	50 681.462	3 758 921.717	216.881
1503	50 692.446	3 758 913.887	217.054
1504	50 693.608	3 758 915.515	217.187
1505	50 673.402	3 758 916.892	219.240
1506	50 674.789	3 758 917.848	219.329
1507	50 675.946	3 758 916.171	218.691
1508	50 675.485	3 758 915.354	217.828
1509	50 675.294	3 758 915.462	217.765



SITE 9 : SITE PLAN
SCALE 1:100

GABION RENO-MATTRESS
GABION BOX
D250-300 VOID FILLED RIP-RAP
D250-300 RIP-RAP
EXISTING STORMWATER PIPED
RIVER FLOW
WING WALL STORMWATER OUTLET

No	APPROVED	AMENDMENTS	DATE
0	KP	ISSUED FOR CONSTRUCTION	DATE

SURVEYED	ANDRE GENADE	07-11-2023
DRAWN	DAMIAN HART	FEB 2024
DESIGNED	P. MARX	FEB 2024
CHECKED	K. POTGIETER	APRIL 2024
APPROVED	PR REGISTRATION NO. 201770064	DATE:--

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LUKHOZI

LUKHOZI CONSULTING ENGINEERS (PTY) LTD

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EMAIL eit@lukhozi.co.za
WEB www.lukhozi.co.za

CLIENT

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THE CITY FOR ALL REASONS

PROJECT TITLE

MDRG PROJECT 28(3)
VAN RIEBEECK GARDENS
AND CAMPHERSDRIFT

DRAWING TITLE

PHASE 2 : SITE 9
ITEMS 19,20,21 & 22 PER CONCEPT
STUDY: REINSTATE EMBANKMENT
AND BRIDGE APRON

SCALE	SHEET SET	SHEET SIZE
AS SHOWN	SHEET 1 OF 1 SHEETS	A0

DRAWING No.	REVISION
1760-STW-010	0

2024/05/10 02:04 pm

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