

- NOTES AND SPECIFICATIONS**
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 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
 - THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY MANAGER OF THE TRANSPORT AND ROADS DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
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 - ROADS TRAFFIC CONTROL MUST COMPLY WITH THE REQUIREMENTS OF THE AFRICAN ROAD TRAFFIC SIGNS MANUAL (THIRD EDITION).

BENCHMARKS WGS 1984 Lo.29

	Y	X	Z	
BM1	63212.417	2849497.373	1305.69	10mm iron peg
BM2	63185.309	2849507.493	1305.55	10mm iron peg
BM3	62413.985	2849811.938	1300.56	10mm iron peg
BM4	62394.467	2849809.692	1300.74	10mm iron peg

DEVELOPER DETAIL
ARCHITECTS DETAIL

Balwin PROPERTIES
VTC Architecture
 www.vtcgroup.biz

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.
A	23-06-2016		CONCEPT DRAWING	

DESIGNED
 J.P. WELMAN

DRAWN
 R. WILLIERS

DESIGN CHECKED BY
 W. STANDER

INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT
 D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING TENDER DRAWING APPROVED FOR CONSTRUCTION DRAWING AS BUILT DRAWING

PROJECT ENGINEER (CONSULTANT)
 W. STANDER 20060017 MAY 2016

INSPECTOR OF WORKS (CITY OF TSHWANE)
 INITIALS AND SURNAME SIGNATURE AND P. No. DATE

CONSULTANT DETAIL

CIVIL CONCEPTS
 CONSULTING CIVIL AND STRUCTURAL ENGINEERS
 P.O. BOX 36148 Menlo Park 0102
 Tel: (012) 460-0008
 Fax: (012) 460-0005
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CITY OF TSHWANE
 TRANSPORT DEPARTMENT

Mr P. Letloikane
 STRATEGIC EXECUTIVE DIRECTOR
 P.O. BOX 1409 PRETORIA 0001

Ms. L. V. Kegakile-Piki
 EXECUTIVE DIRECTOR
 P.O. BOX 1409 PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
 Ms. L. V. Kegakile-Piki

RIVERWALK
PORTION 241 OF THE FARM
ZWARTKOPPIES No. 364-JR

INTERNAL ROADS
LONG SECTION - WULA
OPTION 1

CONTRACT No.: PROJECT No.:
 C2142

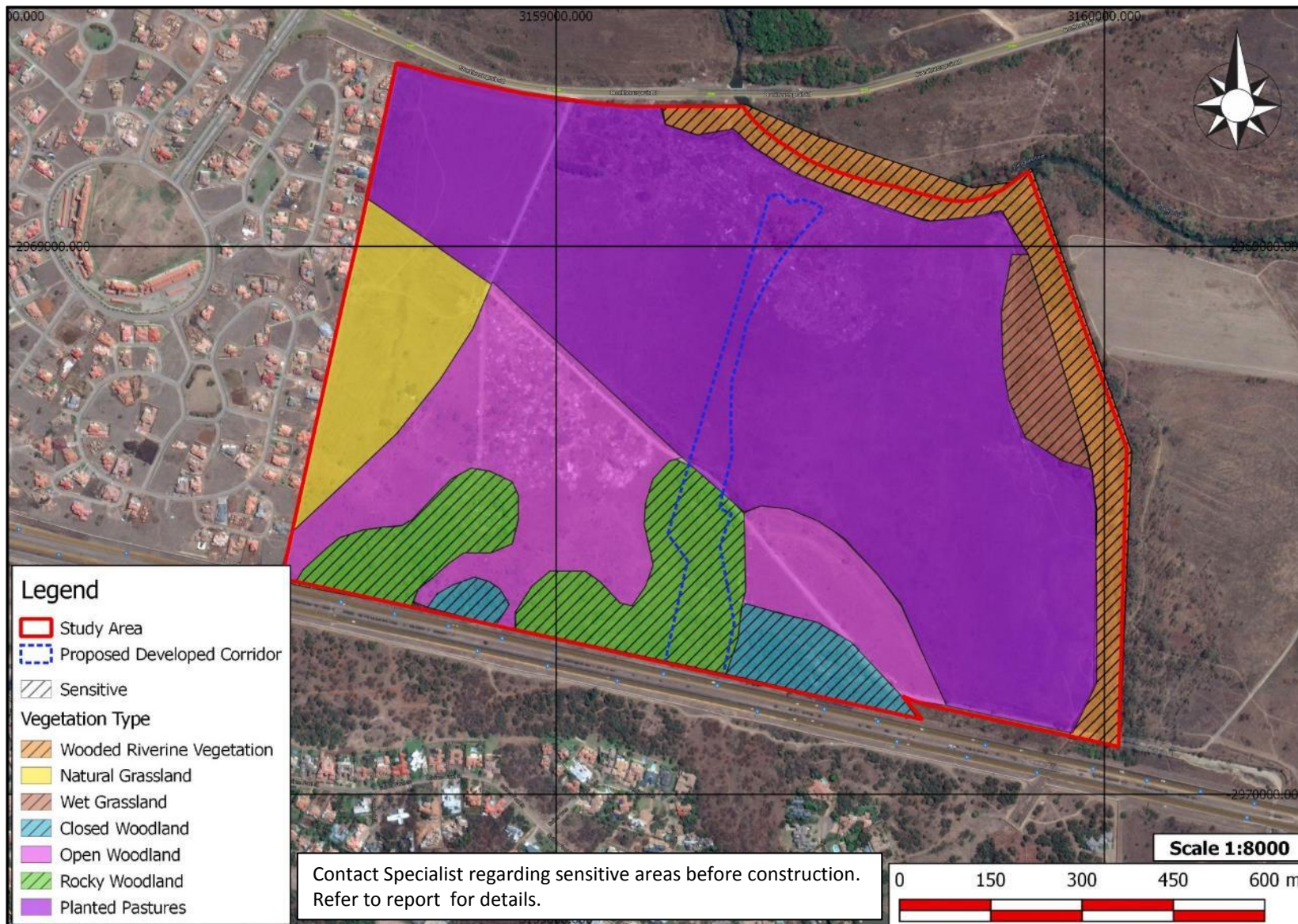
DATE: MAY 2016 SCALE: 1:1000 ORIGINAL PAPER SIZE: A1

DRAWING NO.: SHEET NO.:
 C2142-M910-294

REVISION

Riverwalk Zwartkoppies

Vegetation Map





PARK AND OPEN SPACE ANALYSIS					
NAME	COMMENTS	ON-SITE OPEN PARK AREA (9m ²) 'INTERACTIVE' □	OFF-SITE OPEN PARK AREA (9m ²) 'FUNCTIONAL' ○	% OF PTN	TOTAL AREA PROVIDED
PTN 1	EDUCATION				
PTN 2	RES 3 - THE BLYDE	12 240sqm □	12 240sqm ○	38%	
PTN 3	COMMERCIAL/RETAIL				
PTN 4	RES 3 - THE KOWIE	8 001sqm □	8 001sqm ○	25%	
PTN 5	RES 3 - THE ELAND	11 601sqm □	11 601sqm ○	36%	
			31 842sqm REQUIRED	99%	
PTN 11	P.O.S		31 912sqm PROVIDED	100%	31 912sqm
PTN 6	RES 3 - THE BERG	8 712sqm □	8 712sqm ○	33%	
PTN 7	RES 3 - THE TAMBOTIE	8 091sqm □	8 091sqm ○	30%	
PTN 8	RES 3 - THE SABIE	8 064sqm □	8 064sqm ○	30%	
			24 867sqm REQUIRED	93%	
PTN 10	P.O.S		26 387sqm PROVIDED	100%	26 387sqm
PTN 9	P.O.S	172 625sqm PROVIDED 'PASSIVE'			172 625sqm
TOTAL PARK AREA PROVIDED					230 925sqm

REV	DATE	DESCRIPTION	BY
C	19/05/16	PARK AND OPEN SPACE ANALYSIS	LD
D	23/05/16	ADAPTIVE INFO. AMEND.	LD
E	24/05/16	CHANGES PTN 3 & 4	LD
F	03/06/16	CHANGES PTN 3, 4, 6 & 12 CAD.	LD
B	10/06/16	CHANGES TO PTN 6 & 12 CAD.	LD

Riverwalk
P.R. TORIA-EAST
BLYDE
RIVERWALK ESTATE - PRETORIA EAST

Balwin
PROPERTIES

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PROJECT: RIVERWALK ESTATE
CLIENT: BALWIN PROPERTIES (PTY) LTD
SITE: ENF 1725 ZWARTKOPPIES X44
OWNERS SIGNATURE: DATE: 2016/06/10
DRAWN: LD PROJECT LEADER
SCALE: PROJECT LEADER
DRAWING NO: 753-16-SDP3
REV: G

RIVERWALK BOULEVARD ROAD CENTRE LINE CO-ORDINATE LIST:

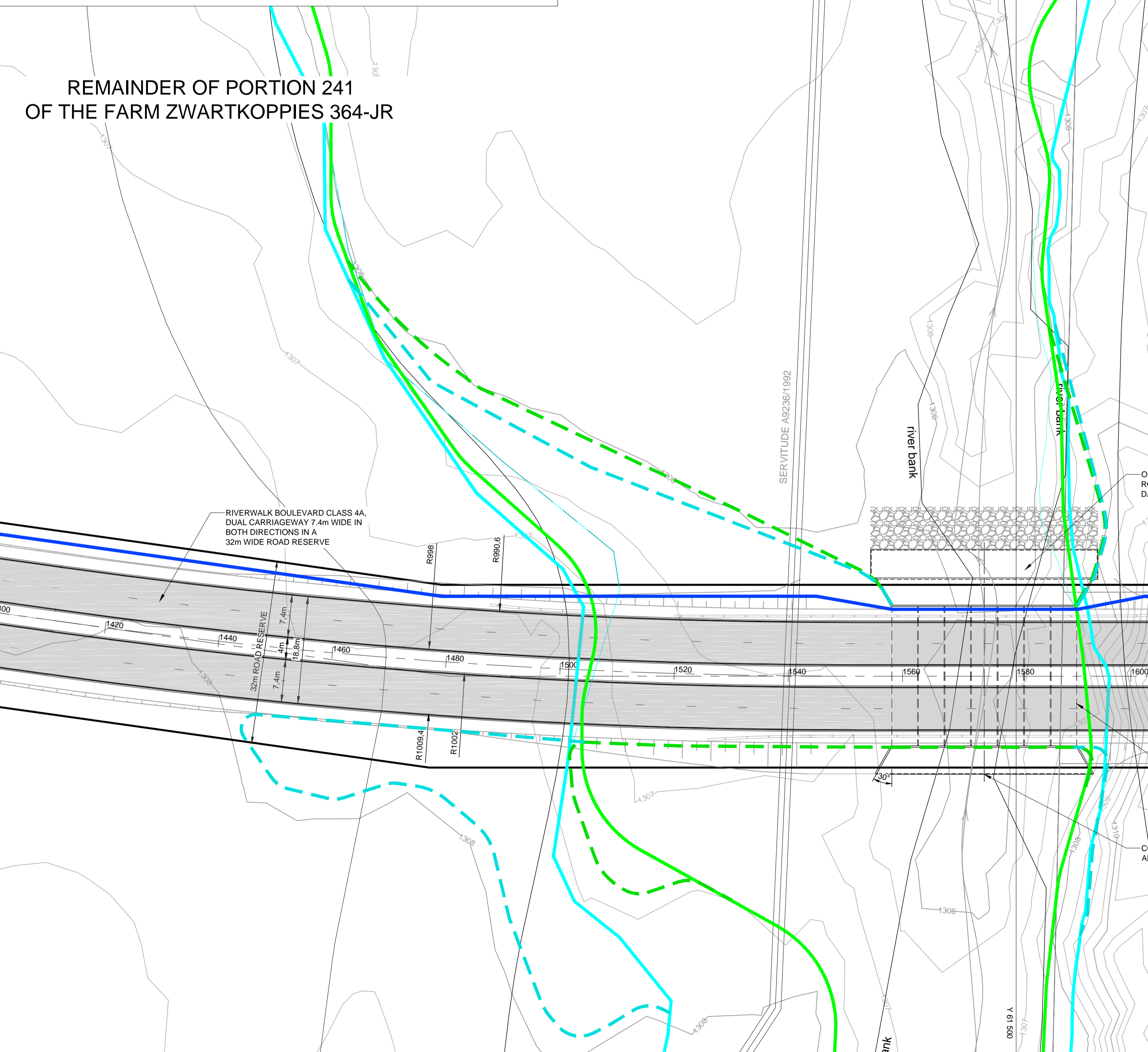
POINT	PEG DISTANCE	DIRECTION	CO-ORDINATES WGS 1984 WG 29		CURVE DATA
			Y	X	
START	0.000		62407.57	2849775.171	
BC1	280.002	7°14'58"	62442.691	2850052.935	CURVE1 RIGHT R = 250m TL = 210.365m
P11			63469.237	2850261.618	
EC1	629.760	287°05'28"	62268.162	2850323.442	Δ = -80°09'31" CL= 349.753m
BC2	898.948		62010.861	2850402.554	CURVE2 RIGHT R = 80m TL = 37.943m
P12			61974.594	2850413.705	
EC2	969.806	337°50'22"	61960.282	2850448.845	Δ = 50°44'54" CL= 70.858m
BC3	1149.972		61892.328	2850615.702	CURVE3 RIGHT R = 140m TL = 80.567m
P13			61861.932	2850670.317	
EC3	1296.186	278°00'01"	61782.149	2850701.530	Δ = -59°50'21" CL= 146.214m
BC4	1410.862		61668.890	2850717.490	CURVE4 LEFT R = 1000m TL = 69.929m
P14			61599.341	2850727.223	
EC4	1550.493	278°00'01"	61529.412	2850727.223	Δ = 8°00'01" CL= 139.631m
END	1916.563		61163.342	2850727.223	

RIVERWALK BOULEVARD

VERTICAL ALIGNMENT DATA - LEFT CARRIAGEWAY					
Peg dist.	Elev.	BVc	EVc	CL	Grade(%)
0.000	1302.653	0.000	0.000	0.00	-2.000
25.000	1302.153	25.000	25.000	0.00	-0.880
110.000	1301.405	30.000	190.000	160.00	1.740
470.000	1307.669	350.000	590.000	240.00	-0.769
660.000	1306.208	610.000	710.000	100.00	0.692
760.000	1306.900	710.000	810.000	100.00	-0.723
890.000	1305.960	820.000	960.000	140.00	1.261
1167.133	1309.454	1067.133	1267.133	200.00	-0.899
1440.000	1307.000	1300.000	1580.000	280.00	0.930
1626.573	1308.736	1586.573	1666.573	80.00	1.410
1916.563	1312.825	1916.563	1916.563	0.00	0.000

RIVERWALK BOULEVARD

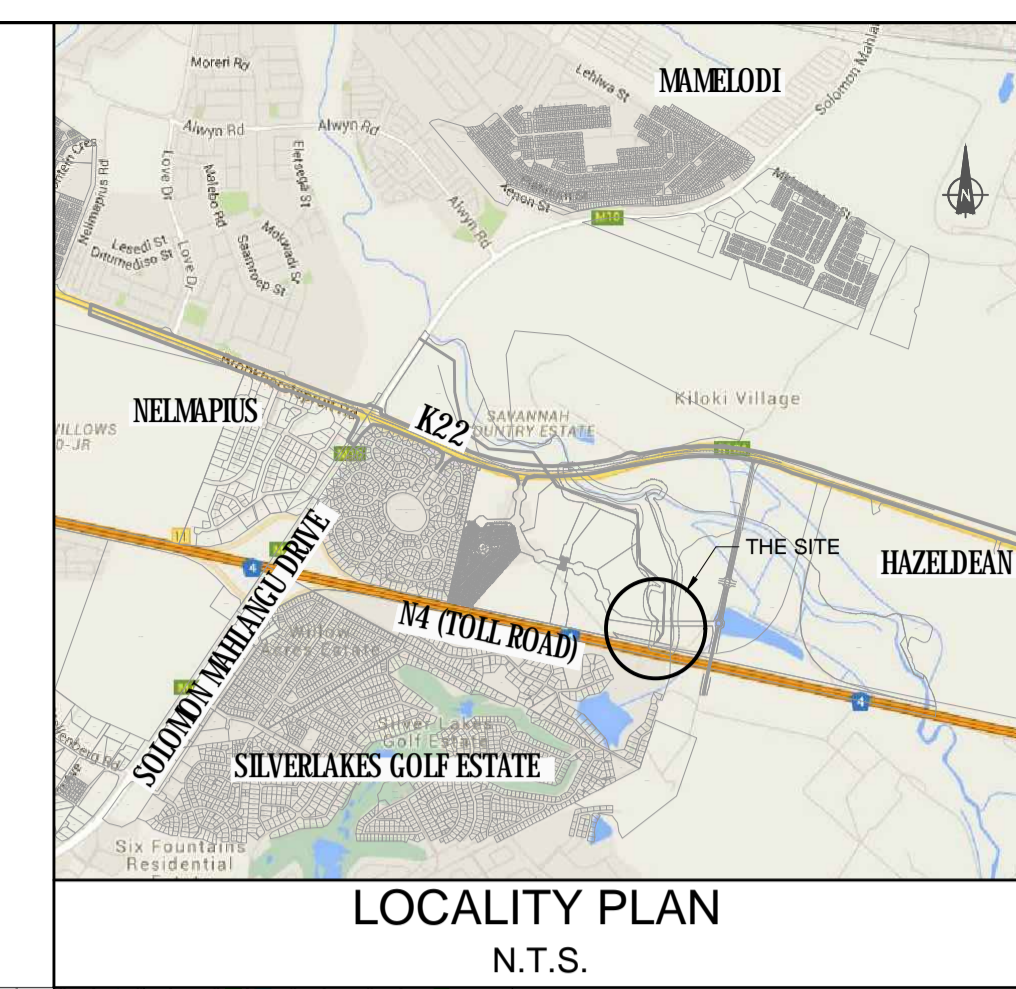
VERTICAL ALIGNMENT DATA - RIGHT CARRIAGEWAY					
Peg dist.	Elev.	BVc	EVc	CL	Grade(%)
0.000	1302.653	0.000	0.000	0.00	-2.000
25.000	1302.153	25.000	25.000	0.00	-0.880
110.000	1301.405	30.000	190.000	160.00	1.740
470.000	1307.669	350.000	590.000	240.00	-0.769
660.000	1306.208	610.000	710.000	100.00	0.692
760.000	1306.900	710.000	810.000	100.00	-0.723
890.000	1305.960	820.000	960.000	140.00	1.261
1167.133	1309.454	1067.133	1267.133	200.00	-0.899
1440.000	1307.000	1300.000	1580.000	280.00	0.930
1626.573	1308.736	1586.573	1666.573	80.00	1.410
1916.563	1312.825	1916.563	1916.563	0.00	0.000



- HYDRAULIC DATA:**
- DESIGN RECURRENCE PERIOD: 50 YEAR
 - DESIGN FLOOD: 107m³/s
 - AVAILABLE HEADWATER (Hw): 1.7m
 - CULVERT DESIGN: 7/4000 x 1500mm BC
 - Hw/D: 1.13 + 300mm FREEBOARD
 - DESIGN FLOW PER OPENING: 15.3m³/s
 - CONTROL: INLET CONTROL

BENCHMARKS WGS 1984 Lo.29

Y	X	Z	Notes
BM1	63212.417	2849497.373	1305.69 10mm iron peg
BM2	63185.309	2849507.493	1305.55 10mm iron peg
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LEGEND:

- NEW ROADWAYS
- EXISTING FLOODLINE 1:100
- EXISTING FLOODLINE 1:50
- PREDICTED NEW FLOODLINE 1:100
- PREDICTED NEW FLOODLINE 1:50
- FUTURE MUNICIPAL WATER PIPE IN SIDE FILL
- FIG.7 KERB + 150mm CONCRETE CHANNEL

NOTE:
FOR LONG SECTION OF ROADWAY REFER TO C2142-M950-294

DEVELOPER DETAIL
Balwin PROPERTIES

ARCHITECTS DETAIL
VTC Architecture
www.vtcgroup.biz

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.
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DESIGNED
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DRAWN
R. WILLIERS

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W. STANDER

INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT
D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING: TENDER DRAWING: APPROVED FOR CONSTRUCTION DRAWING: AS BUILT DRAWING:

PROJECT ENGINEER (CONSULTANT)
W. STANDER 20060017 MAY 2016

INSPECTOR OF WORKS (CITY OF TSHWANE)

CONSULTANT DETAIL

CIVIL CONCEPTS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS
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E-Mail: mail@civilconcepts.co.za

CITY OF TSHWANE
TRANSPORT DEPARTMENT

Mr. P. Letlankane STRATEGIC EXECUTIVE DIRECTOR
Ms. L. V. Kegakile-Piki EXECUTIVE DIRECTOR

P.O. BOX 1409 PRETORIA 0001

RIVERWALK PORTION 241 OF THE FARM ZWARTKOPPIES No. 364-JR

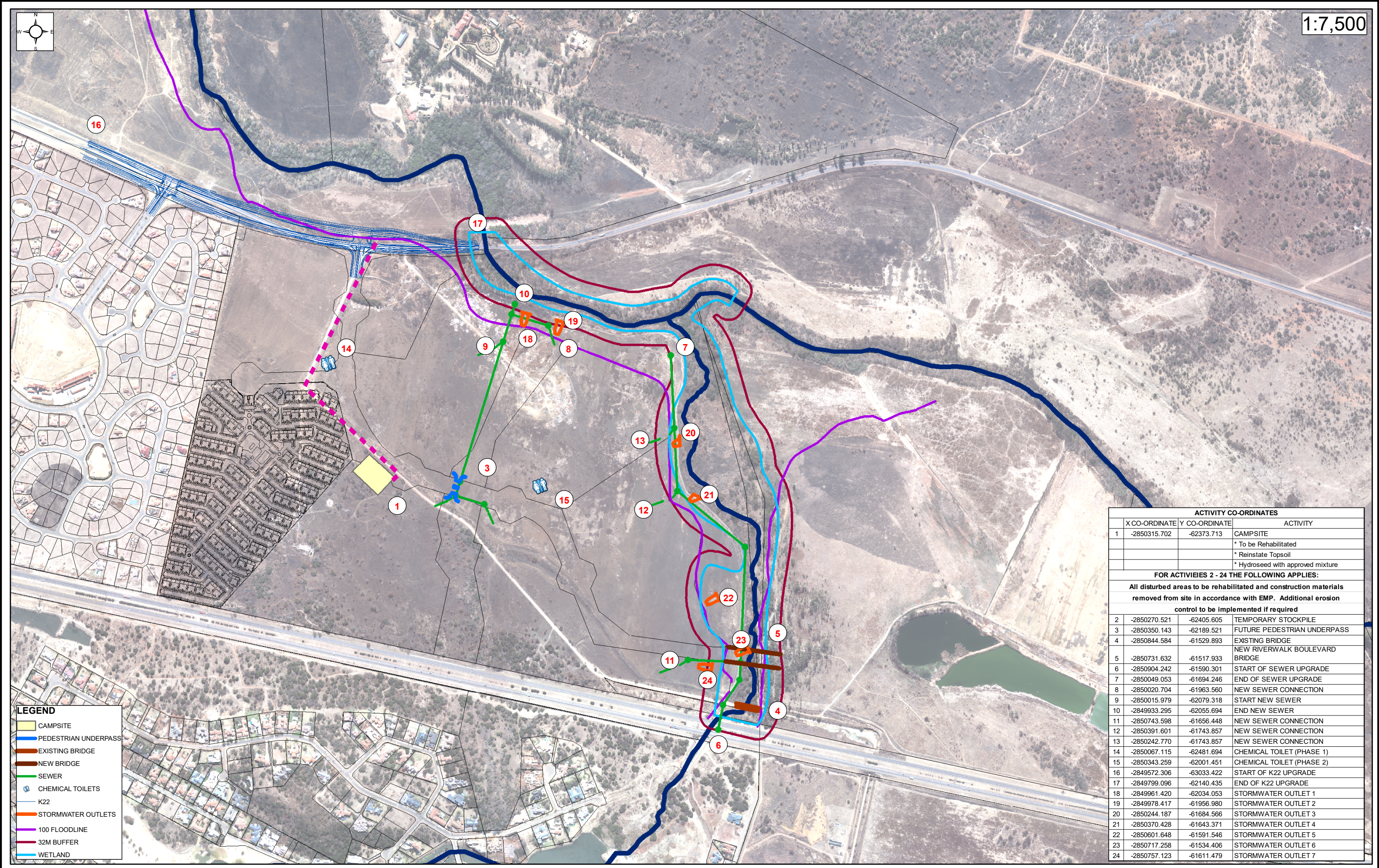
RIVERWALK BOULEVARD BRIDGE LAYOUT OPTION 1

CONTRACT No.: C2142

PROJECT No.: C2142

DATE: MAY 2016 **SCALE:** 1:500 **ORIGINAL PAPER SIZE:** A1

DRAWING No.: C2142-M950-296 **SHEET No.:** REVISION



LEGEND

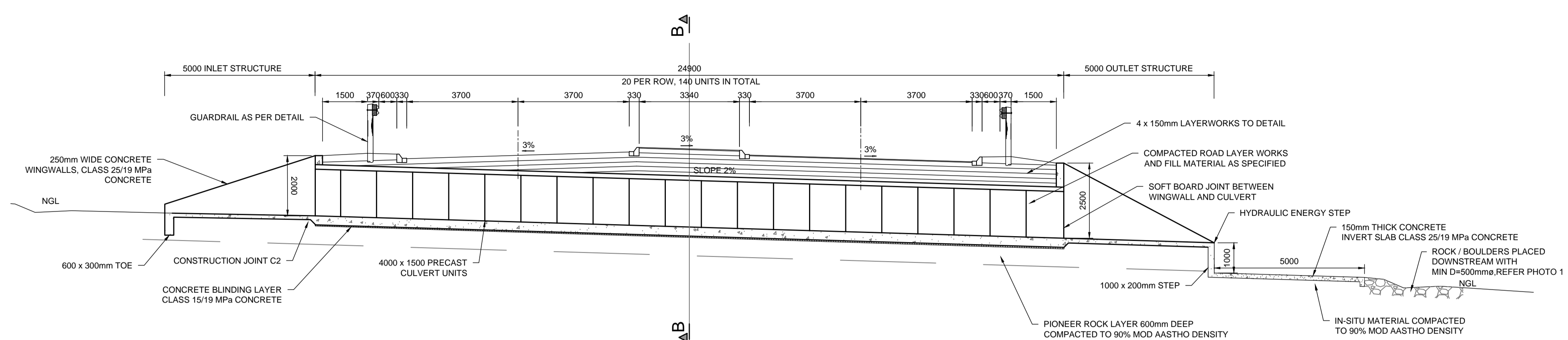
- CAMPSITE
- PEDESTRIAN UNDERPASS
- EXISTING BRIDGE
- NEW BRIDGE
- SEWER
- CHEMICAL TOILETS
- K22
- STORMWATER OUTLETS
- 100 FLOODLINE
- 32M BUFFER
- WETLAND

ACTIVITY CO-ORDINATES			
	X CO-ORDINATE	Y CO-ORDINATE	ACTIVITY
1	-2850315.702	-62373.713	CAMPSITE
			* To be Rehabilitated
			* Reinstate Topsoil
			* Hydroseed with approved mixture
FOR ACTIVITIES 2 - 24 THE FOLLOWING APPLIES:			
All disturbed areas to be rehabilitated and construction materials removed from site in accordance with EMP. Additional erosion control to be implemented if required			
2	-2850270.521	-62405.605	TEMPORARY STOCKPILE
3	-2850350.143	-62189.521	FUTURE PEDESTRIAN UNDERPASS
4	-2850844.584	-61529.893	EXISTING BRIDGE
5	-2850731.632	-61517.933	NEW RIVERWALK BOULEVARD BRIDGE
6	-2850904.242	-61590.301	START OF SEWER UPGRADE
7	-2850049.053	-61694.246	END OF SEWER UPGRADE
8	-2850020.704	-61963.560	NEW SEWER CONNECTION
9	-2850015.979	-62079.318	START NEW SEWER
10	-2849933.295	-62055.694	END NEW SEWER
11	-2850743.598	-61656.448	NEW SEWER CONNECTION
12	-2850391.601	-61743.857	NEW SEWER CONNECTION
13	-2850242.770	-61743.857	NEW SEWER CONNECTION
14	-2850067.115	-62481.694	CHEMICAL TOILET (PHASE 1)
15	-2850343.259	-62001.451	CHEMICAL TOILET (PHASE 2)
16	-2849572.306	-63033.422	START OF K22 UPGRADE
17	-2849799.096	-62140.435	END OF K22 UPGRADE
18	-2849961.420	-62034.053	STORMWATER OUTLET 1
19	-2849978.417	-61956.980	STORMWATER OUTLET 2
20	-2850244.187	-61684.566	STORMWATER OUTLET 3
21	-2850370.428	-61643.371	STORMWATER OUTLET 4
22	-2850601.648	-61591.546	STORMWATER OUTLET 5
23	-2850717.258	-61534.406	STORMWATER OUTLET 6
24	-2850757.123	-61611.479	STORMWATER OUTLET 7

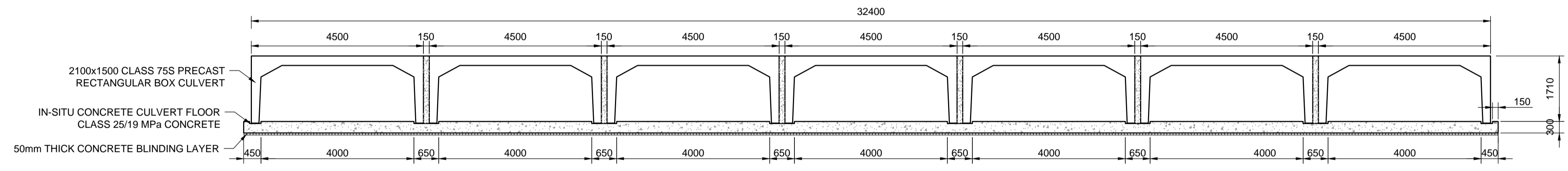


RIVERWALK OPERATIONAL MASTER LAYOUT PLAN

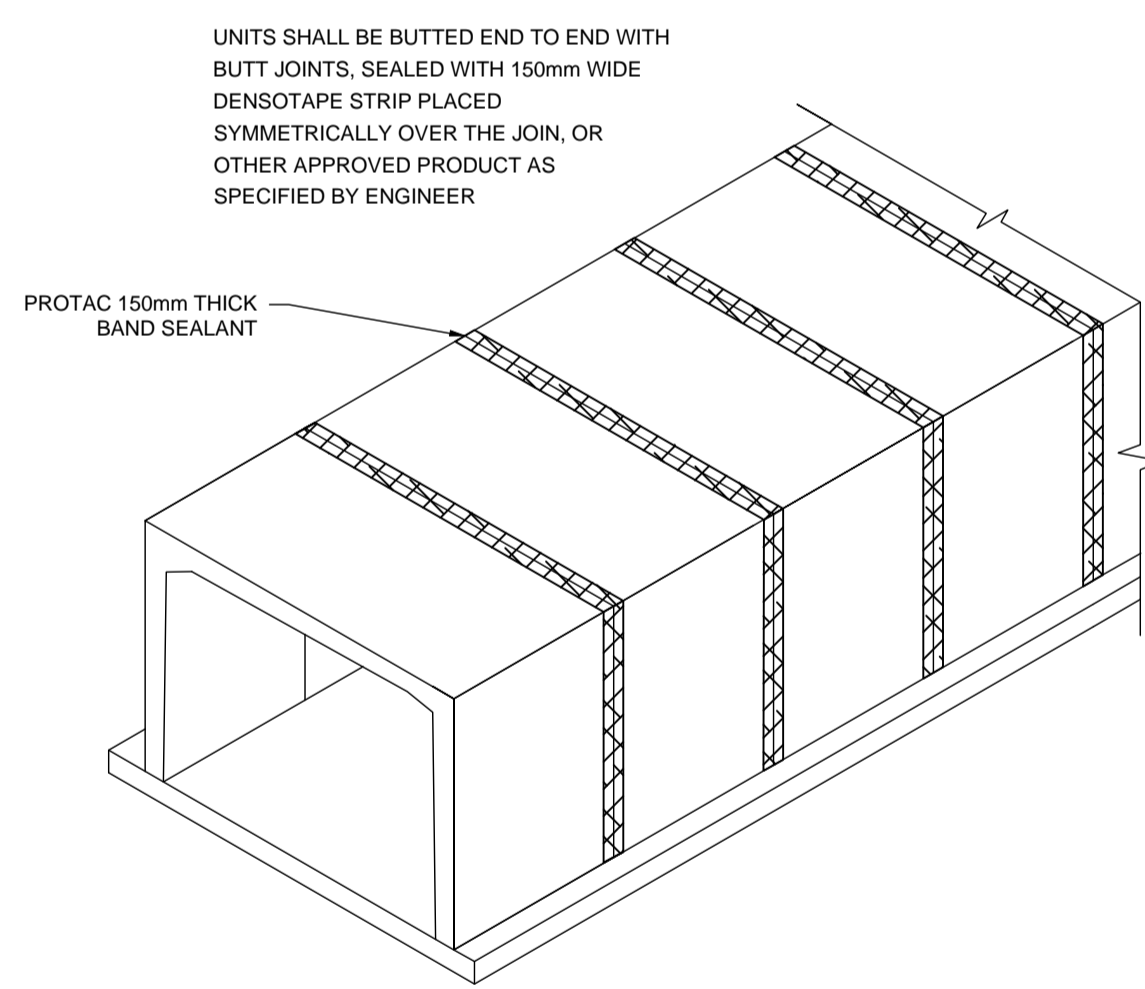
PLAN SIZE : A3
SCALE: AS SHOWN



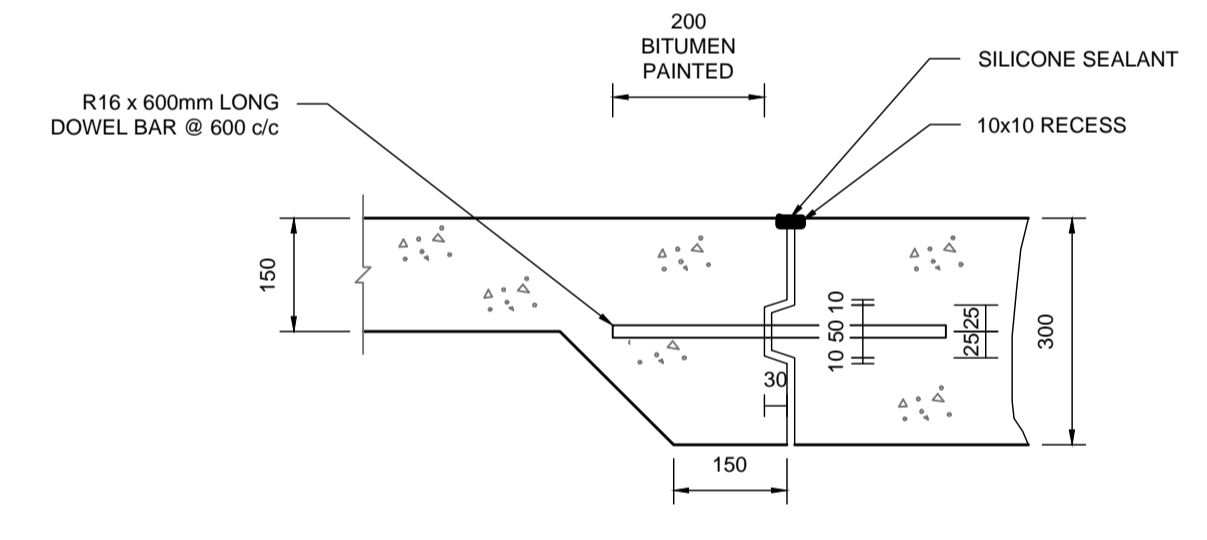
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SCALE 1:100



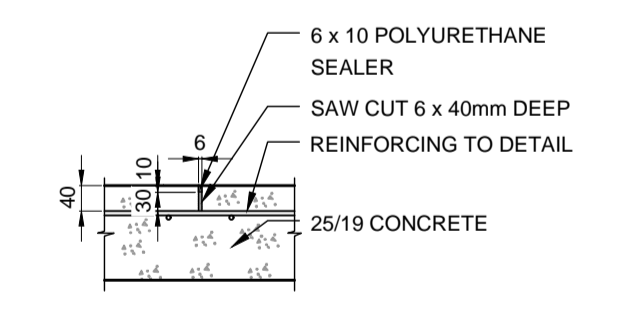
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SCALE 1:75



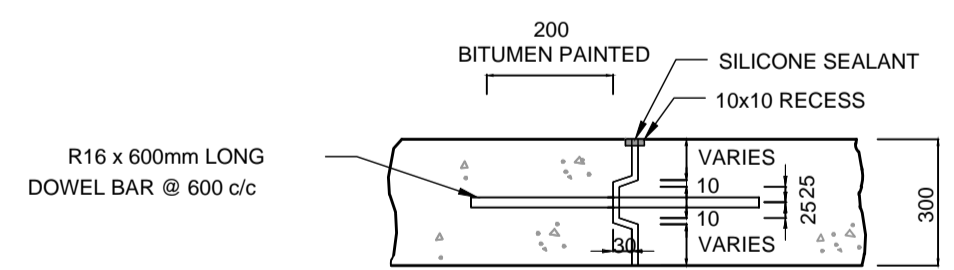
BOX CULVERT JOINT DETAIL
N.T.S.



CONSTRUCTION JOINT DETAIL (C2)
N.T.S.



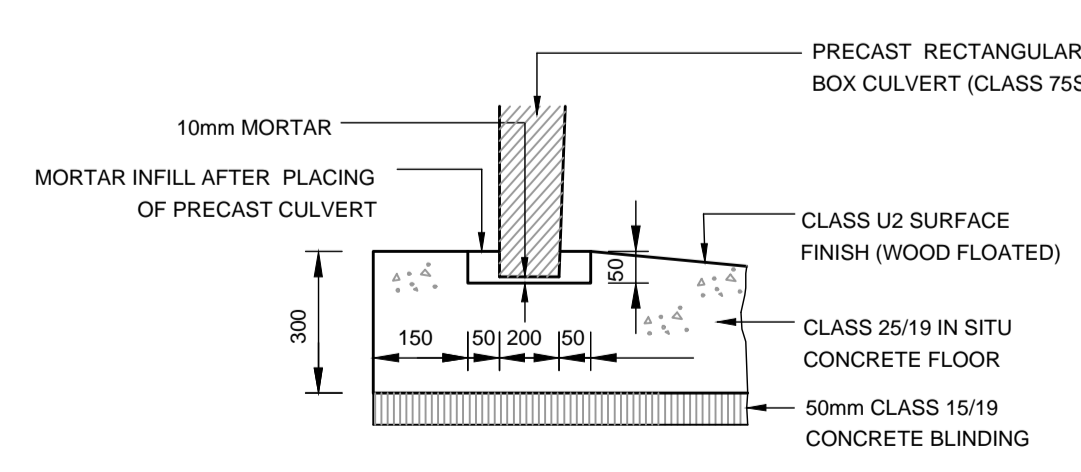
SAW JOINT DETAIL
N.T.S.



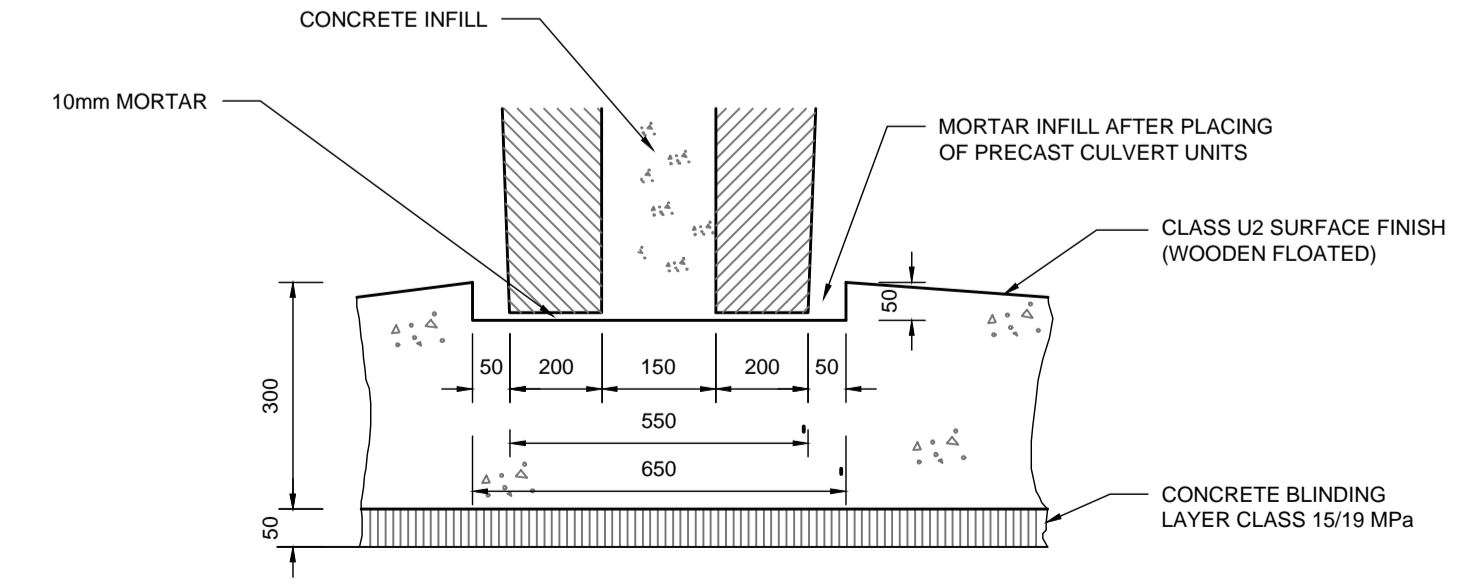
CONSTRUCTION JOINT DETAIL (C1)
N.T.S.



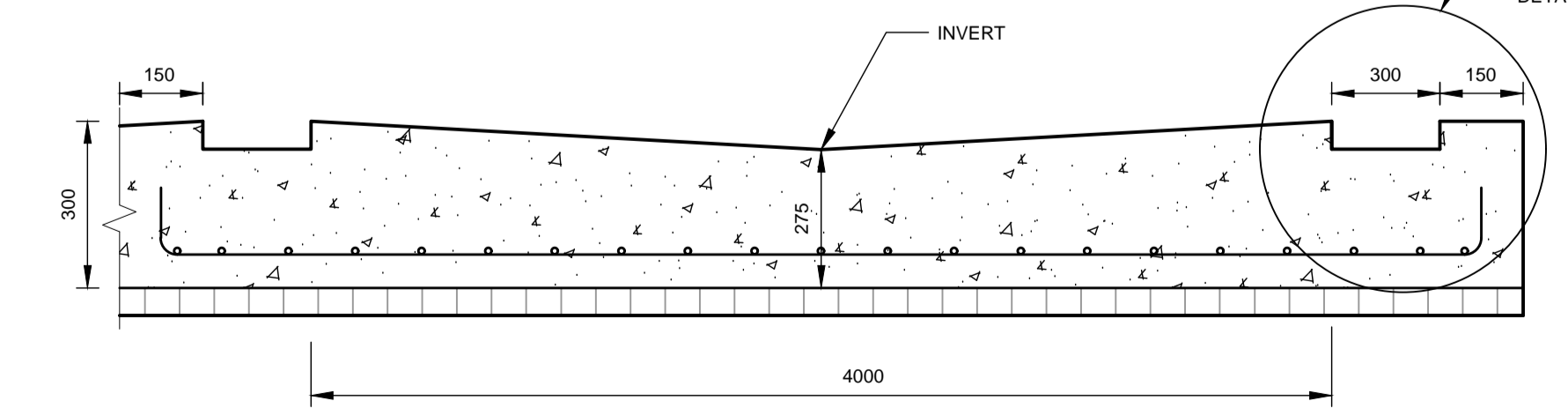
PHOTO 1
TYPICAL BOULDER CHANNEL +/- 1.5 YEARS
AFTER CONSTRUCTION COMPLETED
N.T.S.



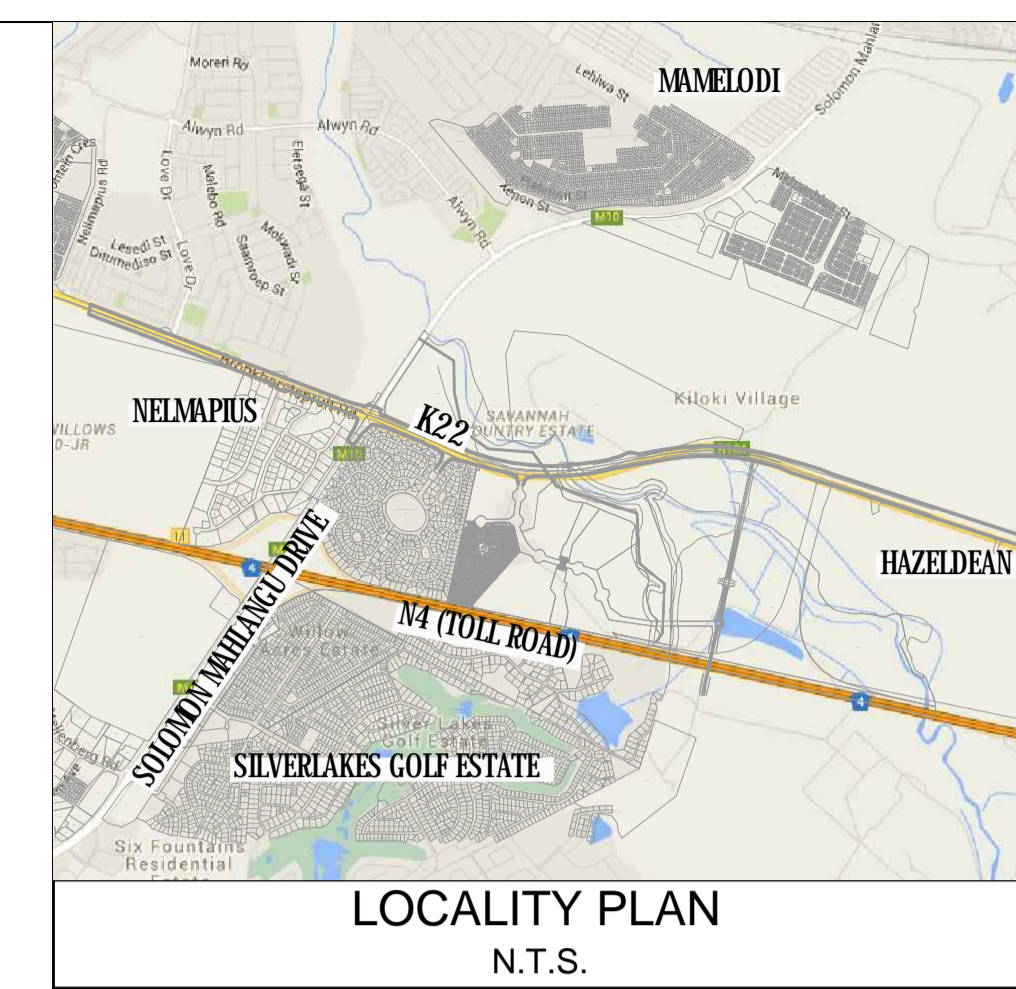
DETAIL A
N.T.S.



DETAIL B
N.T.S.



TYPICAL CULVERT BASE
N.T.S.



LOCALITY PLAN
N.T.S.

- HYDRAULIC DATA:
- DESIGN RECURRENCE PERIOD: 50 YEAR
 - DESIGN FLOOD: 107 m³/s
 - AVAILABLE HEADWATER (Hw): 1.7m
 - CULVERT DESIGN: 71 4000 x 1500mm BC
 - Hw / D: 1.13
 - DESIGN FLOW PER OPENING: 15.3 m³/s
 - CONTROL: INLET CONTROL
 - OUTLET FLOW DEPTH: 0.68m
 - OUTLET VELOCITY: 5.6m/s
 - OUTLET FROUDE NO: 2.18
 - OUTLET JUMP DEPTH: 1.78m

- NOTES:
- PRECAST CULVERT UNITS SHALL COMPLY WITH THE REQUIREMENTS OF SABS 986:1994
 - PRECAST 2100x1500mm CULVERT UNITS SHALL BE CLASS 75S
 - CONCRETE COVER TO STEEL IN FLOOR 40mm MINIMUM

NOTES AND SPECIFICATIONS

- GENERAL
- ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
 - DO NOT SCALE FROM THESE DRAWINGS.
 - ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
 - ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD CTM DETAIL DRAWINGS. CONSTRUCTION TOLERANCES SHALL BE AS SPECIFIED IN SABS 1200 L.E.
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 - THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY MANAGER OF THE TRANSPORT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
 - THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE TRANSPORT DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
 - FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

DEVELOPER DETAIL	ARCHITECTS DETAIL
	www.vtcgroup.biz

AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.
A	23-05-2016		CONCEPT DRAWING	

DESIGNED	J.P. WELMAN	DATE	MAY 2016	DRAWN	R.WILLERS
DESIGN CHECKED BY	W. STANDER	DATE	MAY 2016	INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT	D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING
 TENDER DRAWING
 APPROVED FOR CONSTRUCTION DRAWING
 AS BUILT DRAWING

PROJECT ENGINEER (CONSULTANT): W. STANDER 20060017 MAY 2016

INITIALS AND SURNAME: _____ SIGNATURE AND P. No.: _____ DATE: _____

INSPECTOR OF WORKS (CITY OF TSHWANE): _____

CONSULTANT DETAIL

CONSULTING CIVIL AND STRUCTURAL ENGINEERS
P.O. BOX 36148 Menlo Park 0102
Tel: (012) 460-0008
Fax: (012) 460-0005
E-Mail: mail@civilconcepts.co.za

CITY OF TSHWANE
TRANSPORT DEPARTMENT

Mr P. Letlankane Acting STRATEGIC EXECUTIVE DIRECTOR
Ms. L. V. Kegakile-Piki EXECUTIVE DIRECTOR

P.O. BOX 1409 PRETORIA 0001
P.O. BOX 1409 PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
Ms. L. V. Kegakile-Piki

LOCATION OF PROJECT:

RIVERWALK
PORTION 241 OF THE FARM
ZWARTKOPPIES No. 364-JR

DESCRIPTION OF PROJECT

RIVERWALK BOULEVARD
BRIDGE DETAILS
OPTION 1

CONTRACT No.:	PROJECT No.:	
	C2142	
DATE:	SCALE:	ORIGINAL PAPER SIZE:
MAY 2016	AS SHOWN	A1
DRAWING NO.:	SHEET NO.:	REVISION:
C2142-M950-298		

RIVERWALK BOULEVARD ROAD CENTRE LINE CO-ORDINATE LIST:

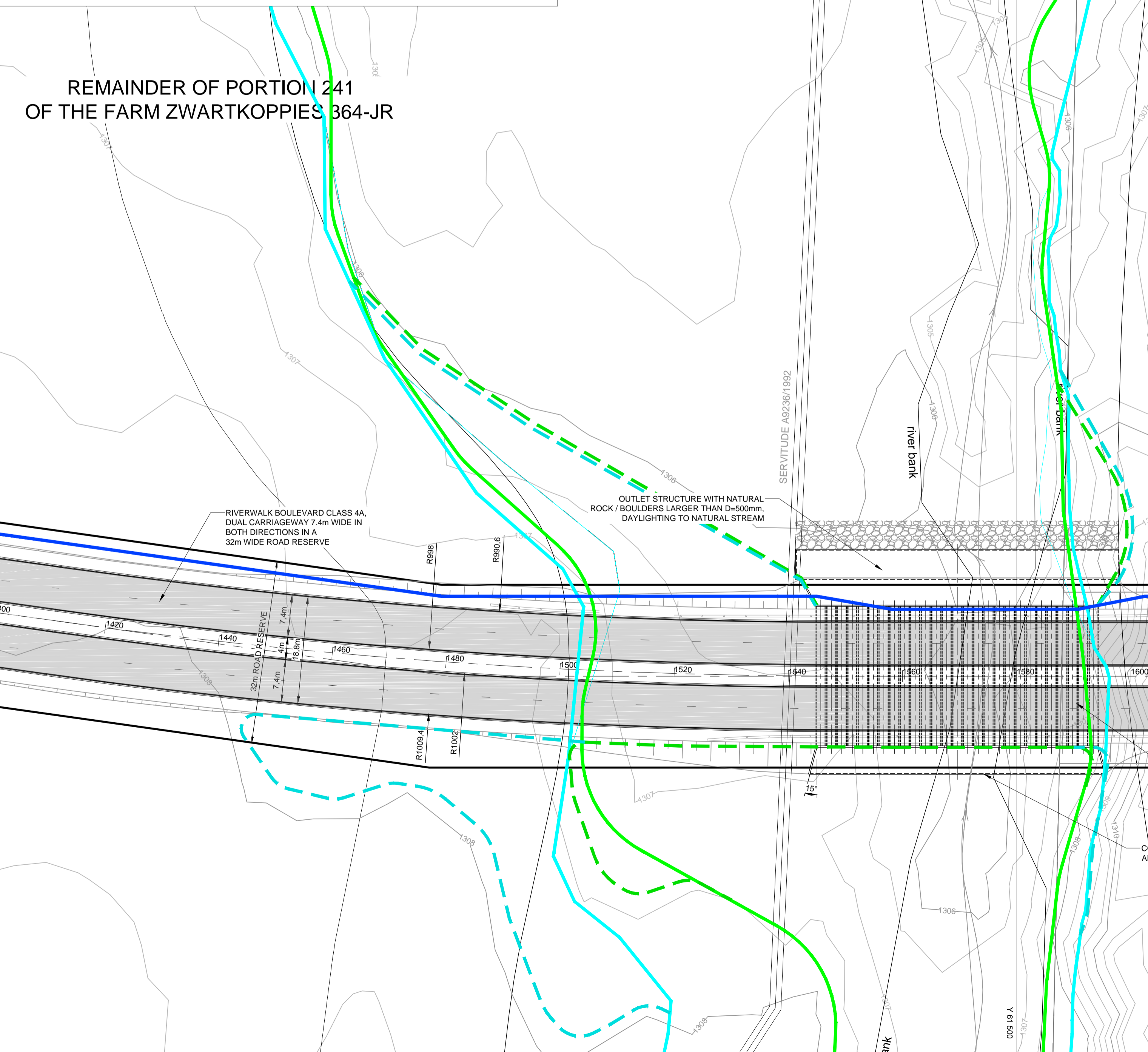
POINT	PEG DISTANCE	DIRECTION	CO-ORDINATES WGS 1984 WG 29		CURVE DATA
			Y	X	
START	0.000		62407.57	2849775.171	
BC1	280.002	7°14'58"	62442.691	2850052.935	CURVE1 RIGHT R = 250m TL = 210.365m CL = 349.753m
P11			63469.237	2850261.618	
EC1	629.760	287°05'28"	62268.162	2850323.442	
BC2	898.948	287°05'28"	62010.861	2850402.554	CURVE2 RIGHT R = 80m TL = 37.943m
P12			61974.594	2850413.705	
EC2	969.806	337°50'22"	61960.282	2850448.845	
BC3	1149.972	337°50'22"	61892.328	2850615.702	CURVE3 RIGHT R = 140m TL = 80.567m
P13			61861.932	2850670.317	
EC3	1296.186	278°00'01"	61782.149	2850701.530	
BC4	1410.862	278°00'01"	61668.890	2850717.490	CURVE4 LEFT R = 1000m TL = 69.929m
P14			61599.341	2850727.223	
EC4	1550.493	278°00'01"	61529.412	2850727.223	
END	1916.563		61163.342	2850727.223	

RIVERWALK BOULEVARD

VERTICAL ALIGNMENT DATA - LEFT CARRIAGEWAY					
Peg dist.	Elev.	BVc	EVc	CL	Grade(%)
0.000	1302.653	0.000	0.000	0.00	-2.000
25.000	1302.153	25.000	25.000	0.00	-0.880
110.000	1301.405	30.000	190.000	160.000	1.740
470.000	1307.669	350.000	590.000	240.000	-0.769
660.000	1306.208	610.000	710.000	100.000	0.692
760.000	1306.900	710.000	810.000	100.000	-0.723
890.000	1305.960	820.000	960.000	140.000	1.261
1167.133	1309.454	1067.133	1267.133	200.000	-0.899
1440.000	1307.000	1300.000	1580.000	280.000	0.930
1626.573	1308.736	1586.573	1666.573	80.000	1.410
1916.563	1312.825	1916.563	1916.563	0.000	0.000

RIVERWALK BOULEVARD

VERTICAL ALIGNMENT DATA - RIGHT CARRIAGEWAY					
Peg dist.	Elev.	BVc	EVc	CL	Grade(%)
0.000	1302.653	0.000	0.000	0.00	-2.000
25.000	1302.153	25.000	25.000	0.00	-0.880
110.000	1301.405	30.000	190.000	160.000	1.740
470.000	1307.669	350.000	590.000	240.000	-0.769
660.000	1306.208	610.000	710.000	100.000	0.692
760.000	1306.900	710.000	810.000	100.000	-0.723
890.000	1305.960	820.000	960.000	140.000	1.261
1167.133	1309.454	1067.133	1267.133	200.000	-0.899
1440.000	1307.000	1300.000	1580.000	280.000	0.930
1626.573	1308.736	1586.573	1666.573	80.000	1.410
1916.563	1312.825	1916.563	1916.563	0.000	0.000

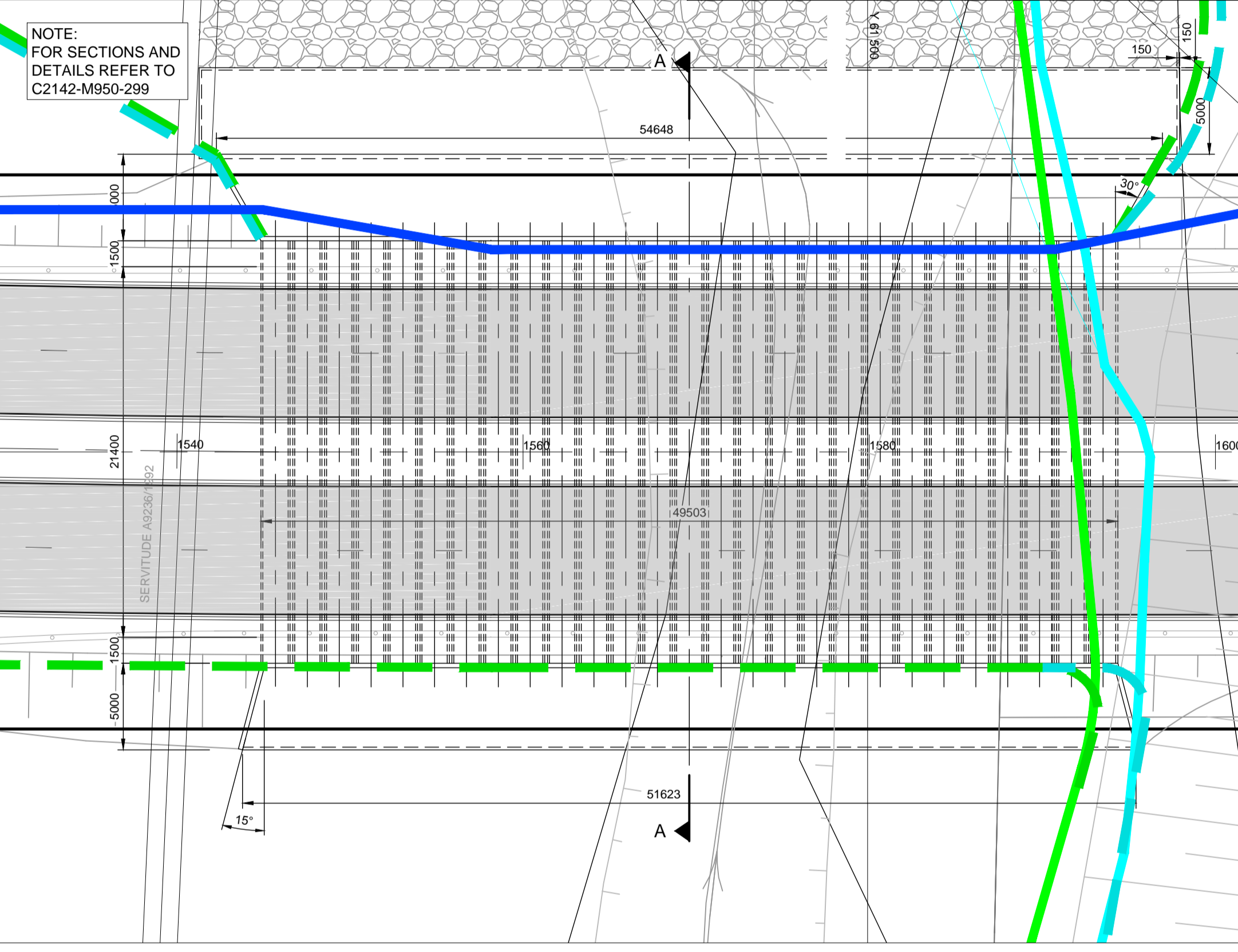
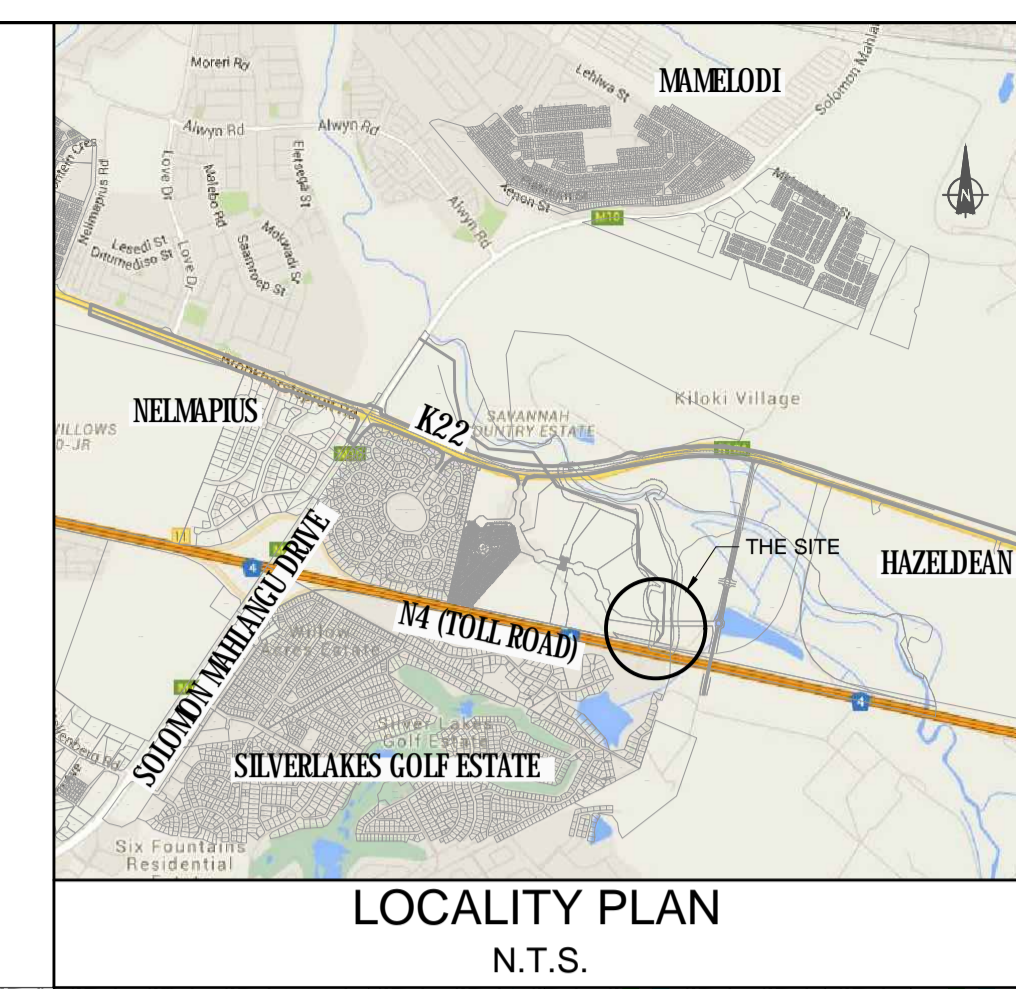


REMAINDER OF PORTION 241 OF THE FARM ZWARTKOPPIES 364-JR

- HYDRAULIC DATA:**
- DESIGN RECURRENCE PERIOD: 50 YEAR
 - DESIGN FLOOD: 107m³/s
 - AVAILABLE HEADWATER (Hw): 1.7m
 - CULVERT DESIGN: 27 x 1500mm PC
 - Hw/D: 1.13 + 300mm FREEBOARD
 - DESIGN FLOW PER OPENING: 3.96m³/s
 - CONTROL: INLET CONTROL

BENCHMARKS WGS 1984 Lo.29

	Y	X	Z	
BM1	63212.417	2849497.373	1305.69	10mm iron peg
BM2	63185.309	2849507.493	1305.55	10mm iron peg
BM3	62413.985	2849811.938	1300.56	10mm iron peg
BM4	62394.467	2849809.692	1300.74	10mm iron peg



LAYOUT AND DIMENSIONS
SCALE 1:250

NOTES AND SPECIFICATIONS

- ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS SPECIFICATION.
- ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
- DO NOT SCALE FROM THESE DRAWINGS.
- ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
- ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD CTMM DETAIL DRAWINGS
- THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECTS DRAWINGS. (IF APPLICABLE)
- HIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
- THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY MANAGER OF THE TRANSPORT AND ROADS DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
- THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE TRANSPORT AND ROADS DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
- ALL LEVELS OF EXISTING SERVICES ARE TO BE CHECKED AND VERIFIED ON SITE AND SUBMITTED TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION.
- FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.
- ROADS: TRAFFIC CONTROL MUST COMPLY WITH THE REQUIREMENTS OF THE AFRICAN ROAD TRAFFIC SIGNS MANUAL (THIRD EDITION).

LEGEND:

- NEW ROADWAYS
- EXISTING FLOODLINE 1:100
- EXISTING FLOODLINE 1:50
- PREDICTED NEW FLOODLINE 1:100
- PREDICTED NEW FLOODLINE 1:50
- FUTURE MUNICIPAL WATER PIPE IN SIDE FILL
- FIG.7 KERB + 150mm CONCRETE CHANNEL

NOTE: FOR LONG SECTION OF ROADWAY REFER TO C2142-M950-295

DEVELOPER DETAIL
Balwin PROPERTIES

ARCHITECTS DETAIL
VTC Architecture
www.vtcgroup.biz

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.
A	23-05-2016		CONCEPT DRAWING	

DESIGNED: J.P. WELMAN
DATE: MAY 2016
DRAWN: R. WILLIERS

DESIGN CHECKED BY: W. STANDER
DATE: MAY 2016
INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT: D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING: TENDER DRAWING: APPROVED FOR CONSTRUCTION DRAWING: AS BUILT DRAWING:

PROJECT ENGINEER (CONSULTANT): W. STANDER, 20060017, MAY 2016

INITIALS AND SURNAME: W. STANDER, 20060017, MAY 2016

SIGNATURE AND P. No.: W. STANDER, 20060017, MAY 2016

INSPECTOR OF WORKS (CITY OF TSHWANE):

CONSULTANT DETAIL

CIVIL CONCEPTS
CONSULTING CIVIL AND STRUCTURAL ENGINEERS
P.O. BOX 36148 Menlo Park 0102
Tel: (012) 460-0008
Fax: (012) 460-0005
E-Mail: mail@civilconcepts.co.za

CITY OF TSHWANE
TRANSPORT DEPARTMENT

Mr. P. Letlankane
STRATEGIC EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

Ms. L. V. Kegakihle-Piki
EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR: Ms. L. V. Kegakihle-Piki

RIVERWALK PORTION 241 OF THE FARM ZWARTKOPPIES No. 364-JR

RIVERWALK BOULEVARD BRIDGE LAYOUT OPTION 2

CONTRACT No.: PROJECT No.: C2142

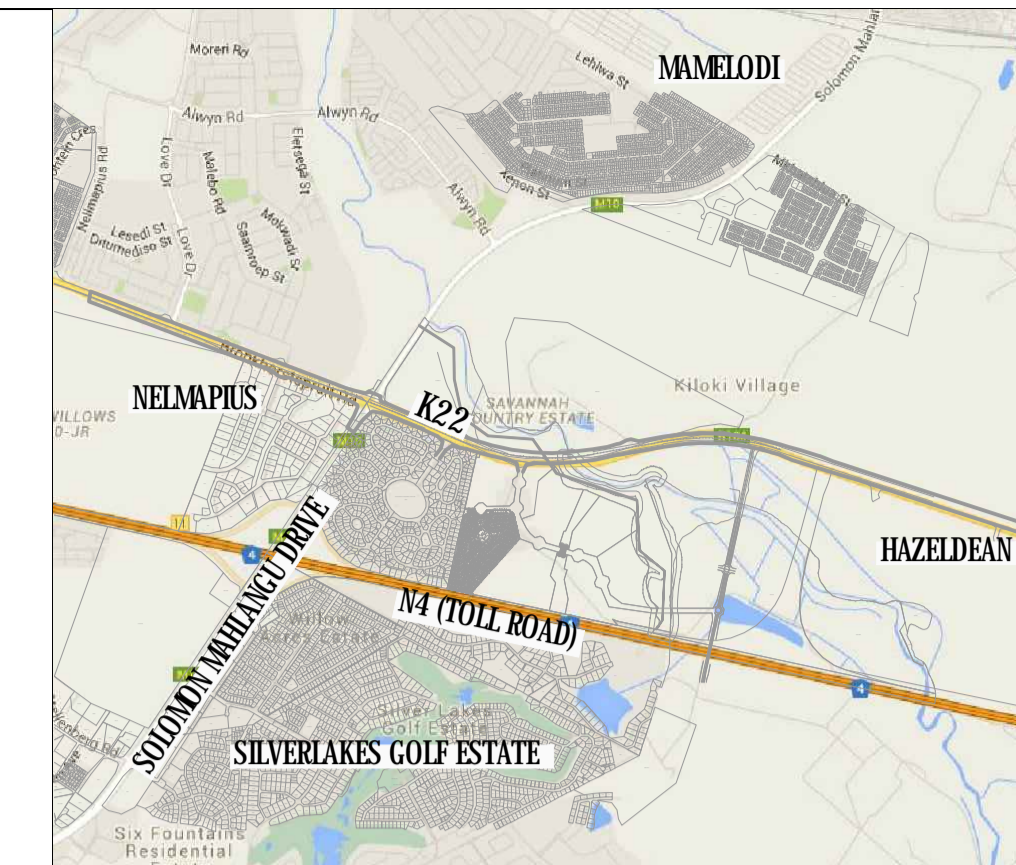
DATE: MAY 2016 **SCALE:** 1:500 **ORIGINAL PAPER SIZE:** A1

DRAWING No.: C2142-M950-297 **SHEET No.:** 1

REVISION

NOTES AND SPECIFICATIONS

- GENERAL**
1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
 2. DO NOT SCALE FROM THESE DRAWINGS.
 3. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
 4. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD CTM DETAIL DRAWINGS. CONSTRUCTION TOLERANCES SHALL BE AS SPECIFIED IN SABS 1200 L.E.
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 6. THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY MANAGER OF THE TRANSPORT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
 7. THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE TRANSPORT DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
 8. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.



LOCALITY PLAN
N.T.S.

- HYDRAULIC DATA:**
- DESIGN RECURRENCE PERIOD: 50 YEAR
 - DESIGN FLOOD: 107 m³/s
 - AVAILABLE HEADWATER (Hw): 1.7m
 - CULVERT DESIGN: 27 x 1500mm PC
 - Hw/D: 1.13
 - DESIGN FLOW PER OPENING: 3.96 m³/s
 - CONTROL: INLET CONTROL
 - OUTLET FLOW DEPTH: 0.45m
 - OUTLET VELOCITY: 5.8m/s
 - OUTLET FROUDE NO: 2.8
 - OUTLET JUMP DEPTH: 1.57m

- NOTES:**
- PRECAST CULVERT UNITS SHALL COMPLY WITH THE REQUIREMENTS OF SABS 986:1994
 - PRECAST 2100x1500mm CULVERT UNITS SHALL BE CLASS 75'S
 - CONCRETE COVER TO STEEL IN FLOOR 40mm MINIMUM

DEVELOPER DETAIL	ARCHITECTS DETAIL
	www.vtcgroup.biz

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.
A	23-05-2016		CONCEPT DRAWING	

DESIGNED	DRAWN
J.P. WELMAN	R. WILLERS
DESIGN CHECKED BY	INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT
W. STANDER	D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING
 TENDER DRAWING
 APPROVED FOR CONSTRUCTION DRAWING
 AS BUILT DRAWING

PROJECT ENGINEER (CONSULTANT): W. STANDER 20060017 MAY 2016
 INITIALS AND SURNAME: _____ SIGNATURE AND P. No.: _____ DATE: _____
 INSPECTOR OF WORKS (CITY OF TSHWANE): _____
 INITIALS AND SURNAME: _____ SIGNATURE AND P. No.: _____ DATE: _____

CONSULTANT DETAIL

CONSULTING CIVIL AND STRUCTURAL ENGINEERS
 P.O. BOX 36148 Menlo Park 0102
 Tel: (012) 460-0008
 Fax: (012) 460-0005
 E-Mail: mail@civilconcepts.co.za

CITY OF TSHWANE
TRANSPORT DEPARTMENT

Mr P. Letlankane Ms. L. V. Kegakile-Piki
 Acting STRATEGIC EXECUTIVE EXECUTIVE DIRECTOR
 DIRECTOR
 P.O. BOX 1409 P.O. BOX 1409
 PRETORIA PRETORIA
 0001 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
 Ms. L. V. Kegakile-Piki

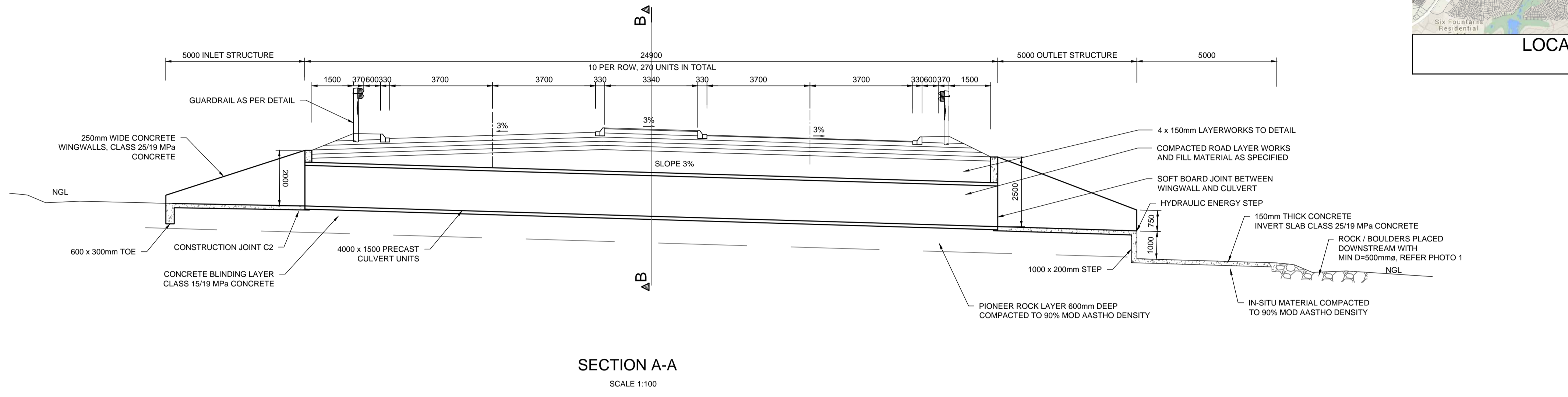
LOCATION OF PROJECT:

RIVERWALK
PORTION 241 OF THE FARM
ZWARTKOPPIES No. 364-JR

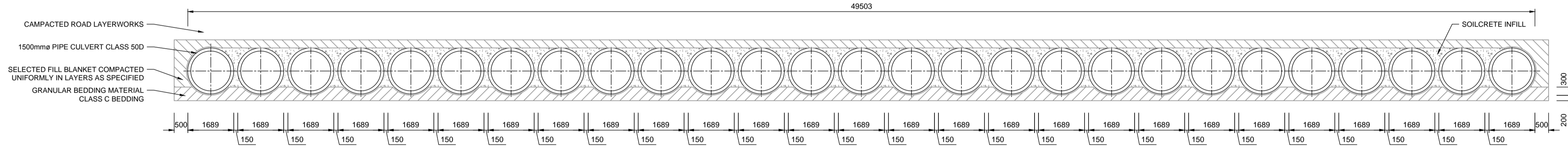
DESCRIPTION OF PROJECT

RIVERWALK BOULEVARD
BRIDGE DETAILS
OPTION 2

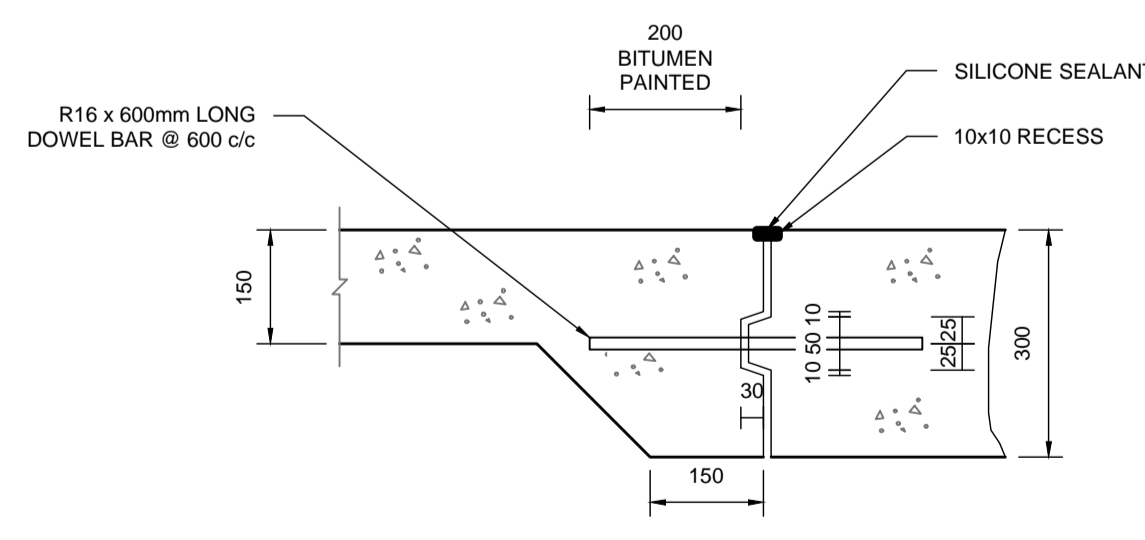
CONTRACT No.:	PROJECT No.:	
	C2142	
DATE:	SCALE:	ORIGINAL PAPER SIZE:
MAY 2016	AS SHOWN	A1
DRAWING NO.:	SHEET NO.:	REVISION:
C2142-M950-299		



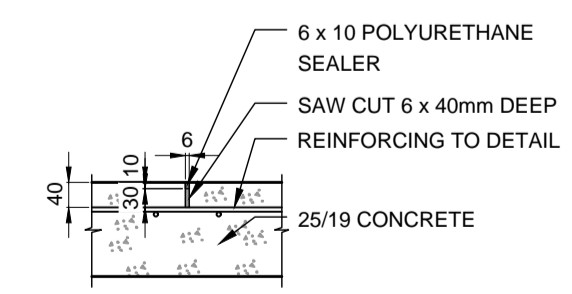
SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100



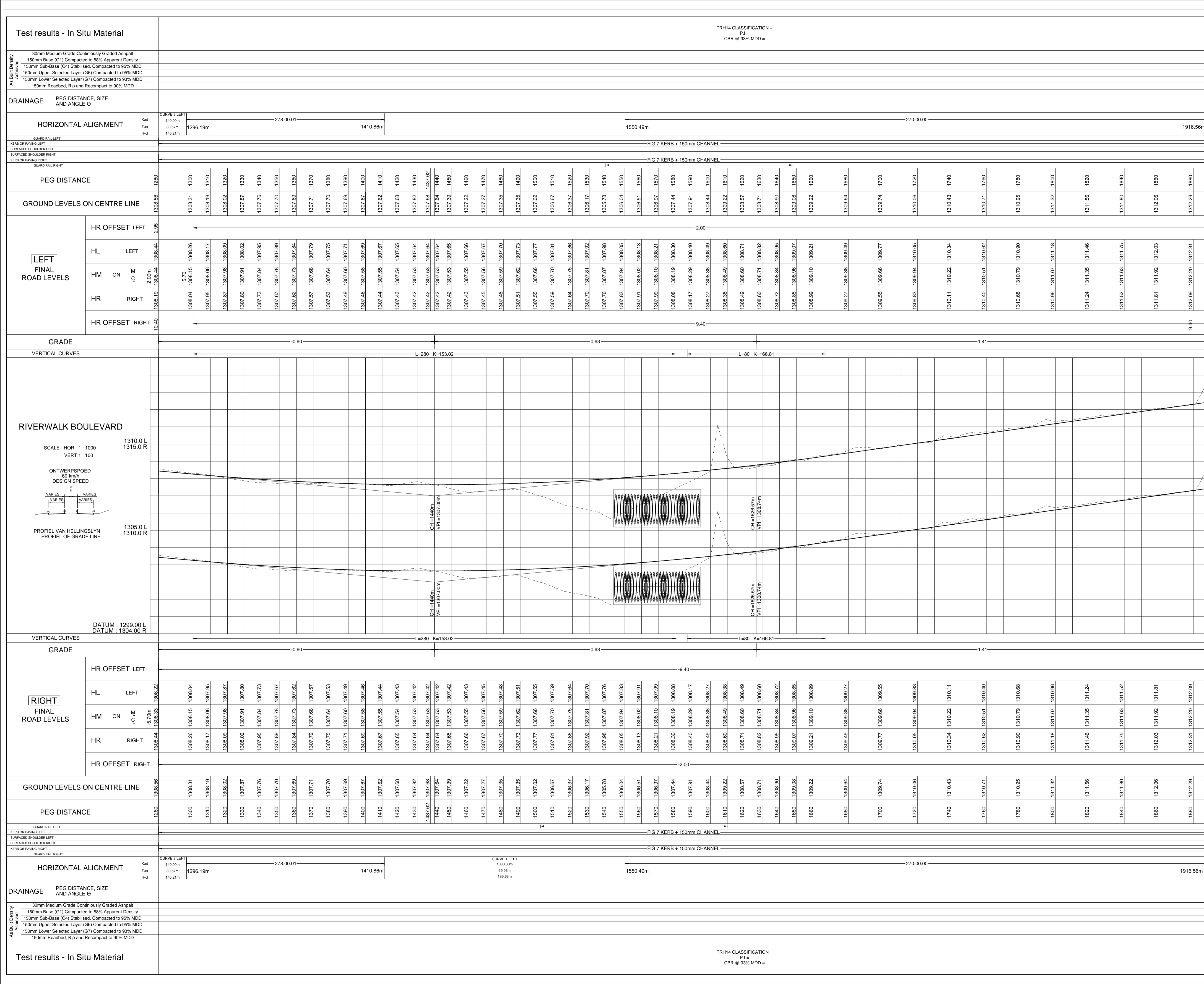
CONSTRUCTION JOINT DETAIL (C2)
N.T.S.



SAW JOINT DETAIL
N.T.S.



PHOTO 1
TYPICAL BOULDER CHANNEL +/- 1.5 YEARS
AFTER CONSTRUCTION COMPLETED
N.T.S.



NOTES AND SPECIFICATIONS

1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS SPECIFICATION.
2. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
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11. ROADS TRAFFIC CONTROL MUST COMPLY WITH THE REQUIREMENTS OF THE AFRICAN ROAD TRAFFIC SIGNS MANUAL (THIRD EDITION).

BENCHMARKS WGS 1984 Ld.29			
	Y	X	Z
BM1	63212.417	2849497.373	1305.69
BM2	63185.309	2849507.493	1305.55
BM3	62413.985	2849811.938	1300.56
BM4	62394.467	2849809.692	1300.74

<p>DEVELOPER DETAIL</p> <p>BALWIN PROPERTIES</p>	<p>ARCHITECTS DETAIL</p> <p>VTC Architecture www.vtcgroup.biz</p>
--	---

AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.
A	23-06-2016		CONCEPT DRAWING	

DESIGNED	J.P. WELMAN	DATE	MAY 2016	DRAWN	R. WILLIERS
DESIGN CHECKED BY	W. STANDER	DATE	MAY 2016	INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT	D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING
 TENDER DRAWING
 APPROVED FOR CONSTRUCTION DRAWING
 AS BUILT DRAWING

PROJECT ENGINEER (CONSULTANT): W. STANDER 20060017 MAY 2016

INITIALS AND SURNAME: _____ SIGNATURE AND P. No.: _____ DATE: _____

INSPECTOR OF WORKS (CITY OF TSHWANE): _____ SIGNATURE AND P. No.: _____ DATE: _____

CONSULTANT DETAIL

CONSULTING CIVIL AND STRUCTURAL ENGINEERS
P.O. BOX 36148 Menlo Park 0102
Tel: (012) 460-0008
Fax: (012) 460-0005
E-Mail: mail@civilconcepts.co.za

CITY OF TSHWANE
TRANSPORT DEPARTMENT

Mr P. Letlofane
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P.O. BOX 1409
PRETORIA 0001

Ms. L. V. Kegakile-Phe
EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
Ms. L. V. Kegakile-Phe

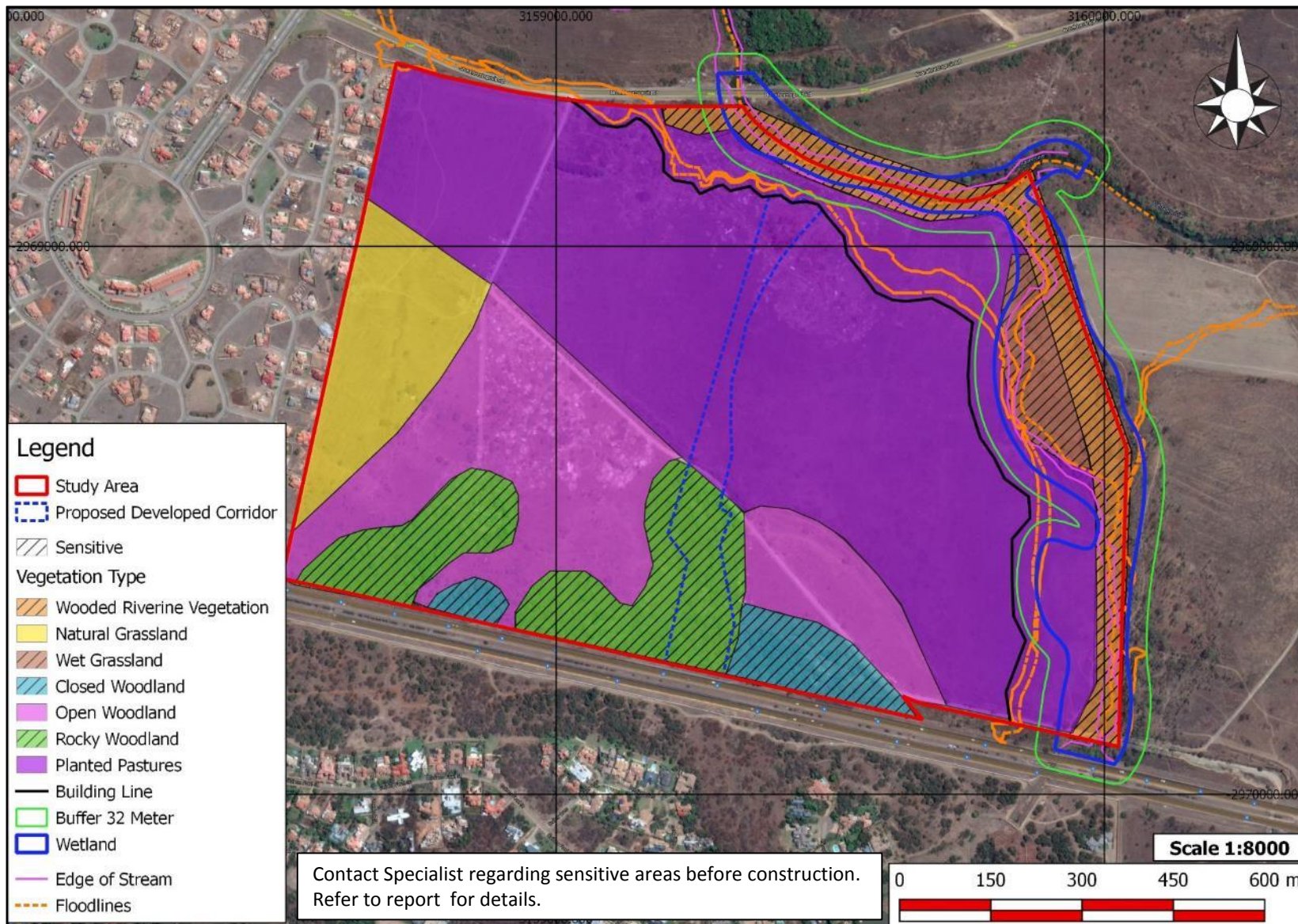
RIVERWALK
PORTION 241 OF THE FARM
ZWARTKOPPIES No. 364-JR

INTERNAL ROADS
LONG SECTION - WULA
OPTION 2

CONTRACT NO.:	PROJECT NO.:	
	C2142	
DATE:	SCALE:	ORIGINAL PAPER SIZE:
MAY_2016	1:1000	A1
DRAWING NO.:	SHEET NO.:	REVISION:
C2142-M910-295		

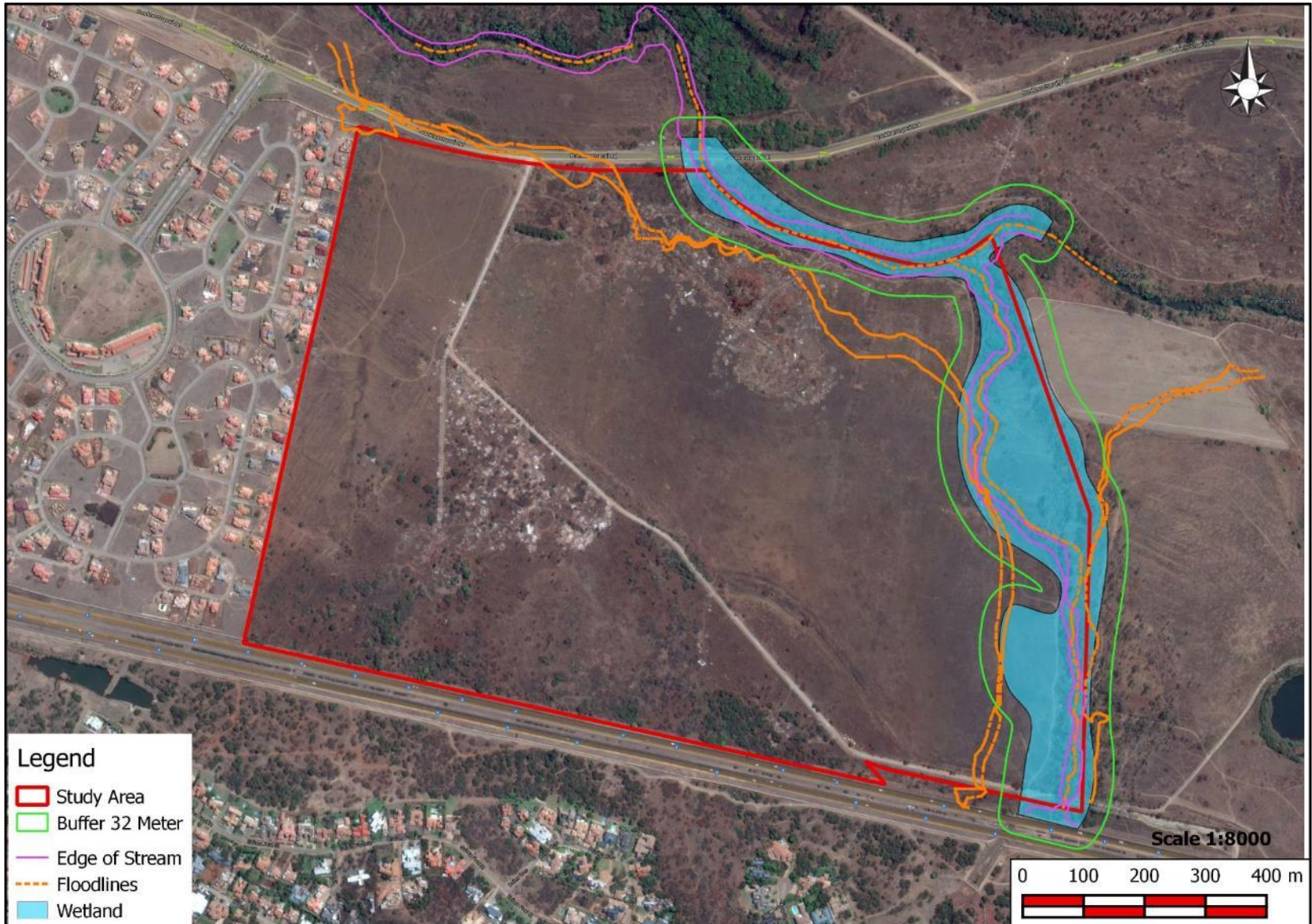
Riverwalk Zwartkoppies

Intergrated Map



Riverwalk Zwartkoppies

Wetland Delineation



Riverwalk Zwartkoppies

Wetland Area



Legend

- Study Area
- Wetland

Scale 1:10000

