



sport, arts, culture & recreation

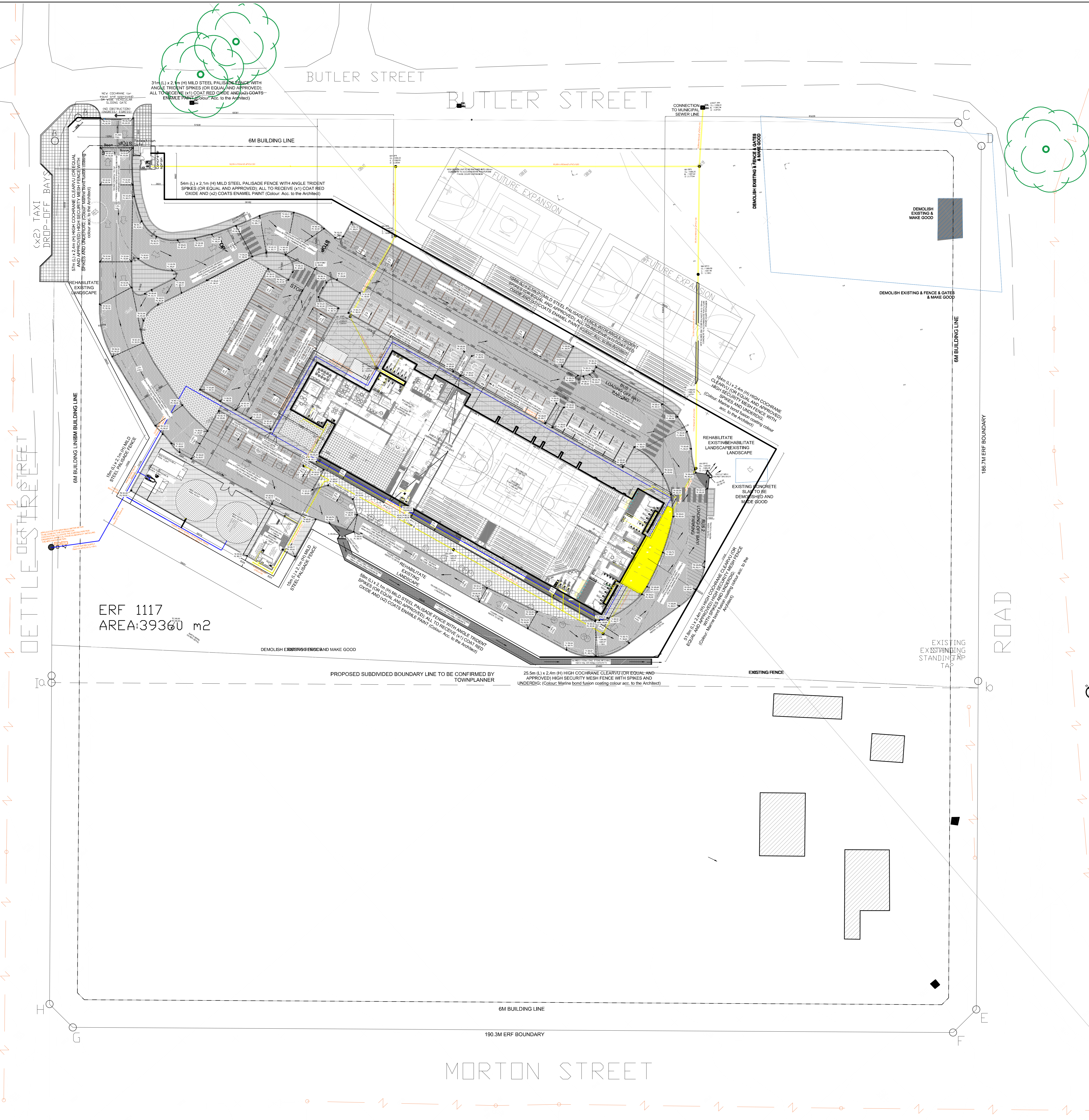
Department of
Sport, Arts, Culture and Recreation
FREE STATE PROVINCE

SMITHFIELD MULTI-PURPOSE INDOOR SPORT CENTRE

CIVIL ENGINEERING DRAWINGS



TENDER DOCUMENT



ERF 1117
AREA: 39360 m²

NOTES / LEGEND

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER

LAYERS USED		
NUMBER	REVISION	DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT

CITY ENGINEER / CLIENT	REG. NO.	DATE

AMENDMENTS CODE

A.B.C. / BEFORE TENDER	BY ARCHITECT	BY CLIENT
1		
2		
3		

DATE	INITIAL	NO. CODE	REVISION DESCRIPTION
2023/02/22	LM	AD	DETAILED DESIGN DRAWINGS
16/02/2024	LM	AD	CONSTRUCTION DRAWINGS

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FREE STATE
CONSULTING ENGINEERS
Civil, Structural & Electrical Engineers, Environmental & Project Management

CLIENT

QUANTUM
SILT & ENVIRONMENTAL CONSULTANTS (PTY) LTD
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PROJECT
SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE
CIVIL ENGINEERING SERVICES: GENERAL SERVICES

APPROVED BY BVI

DF LEUKES	200270145	2024/02/16
ENGINEER/TECHNOLOGIST	REG. NO.	DATE
SCALE: 1:300	DRAWN: N MAKENA	
DESIGNED: L MATHEBE	CHECKED: DF LEUKES	
PLAN NUMBER: B34581C-101-01	REVISION NO.: 1	DATE SAVED: 16 Feb 2024

LAYERS USED

NUMBER	REVISION	DRAWING DESCRIPTION

DRIVEWAYS & PARKING AREA PEGS (CO-ORDINATES)

Coordinate List System: Transverse Mercator WGS 84

Name	Y	X	Z	Comment
1	44833.983	3344737.074	1390.550	DRIVEWAYS & PARKING AREA
2	44828.702	3344741.667	1390.550	DRIVEWAYS & PARKING AREA
3	44833.034	3344746.452	1390.860	DRIVEWAYS & PARKING AREA
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5	44838.153	3344752.627	1390.740	DRIVEWAYS & PARKING AREA
6	44843.485	3344748.044	1390.740	DRIVEWAYS & PARKING AREA
7	44839.535	3344754.694	1390.700	DRIVEWAYS & PARKING AREA
8	44841.814	3344759.798	1390.720	DRIVEWAYS & PARKING AREA
9	44841.561	3344764.437	1390.650	DRIVEWAYS & PARKING AREA
10	44847.650	3344765.514	1390.590	DRIVEWAYS & PARKING AREA
11	44849.204	3344765.070	1390.490	DRIVEWAYS & PARKING AREA
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13	44835.459	3344770.175	1390.510	DRIVEWAYS & PARKING AREA
14	44843.739	3344772.265	1390.510	DRIVEWAYS & PARKING AREA
15	44844.524	3344773.831	1390.510	DRIVEWAYS & PARKING AREA
16	44849.850	3344772.507	1390.410	DRIVEWAYS & PARKING AREA
17	44851.519	3344772.194	1390.410	DRIVEWAYS & PARKING AREA
18	44850.920	3344775.847	1390.360	DRIVEWAYS & PARKING AREA
19	44845.382	3344777.227	1390.510	DRIVEWAYS & PARKING AREA
20	44839.442	3344778.701	1390.410	DRIVEWAYS & PARKING AREA
21	44832.164	3344771.914	1390.440	DRIVEWAYS & PARKING AREA
22	44826.964	3344773.916	1390.360	DRIVEWAYS & PARKING AREA
23	44828.630	3344781.244	1390.300	DRIVEWAYS & PARKING AREA
24	44825.844	3344782.574	1390.270	DRIVEWAYS & PARKING AREA
25	44821.682	3344775.584	1390.270	DRIVEWAYS & PARKING AREA
26	44815.618	3344779.889	1390.160	DRIVEWAYS & PARKING AREA
27	44822.960	3344785.611	1390.230	DRIVEWAYS & PARKING AREA
28	44812.919	3344786.789	1390.050	DRIVEWAYS & PARKING AREA
29	44812.432	3344789.816	1390.010	DRIVEWAYS & PARKING AREA
30	44810.824	3344790.770	1390.010	DRIVEWAYS & PARKING AREA
31	44824.237	3344789.492	1390.150	DRIVEWAYS & PARKING AREA
32	44807.487	3344789.574	1390.110	DRIVEWAYS & PARKING AREA
33	44820.197	3344795.972	1390.150	DRIVEWAYS & PARKING AREA
34	44818.084	3344796.993	1390.080	DRIVEWAYS & PARKING AREA
35	44816.148	3344802.286	1390.130	DRIVEWAYS & PARKING AREA
36	44820.847	3344803.993	1390.230	DRIVEWAYS & PARKING AREA
37	44811.971	3344828.431	1390.080	DRIVEWAYS & PARKING AREA
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39	44806.657	3344828.416	1389.980	DRIVEWAYS & PARKING AREA
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DRIVEWAYS & PARKING AREA PEGS (CO-ORDINATES)

Coordinate List System: Transverse Mercator WGS 84

Name	Y	X	Z	Comment
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44	44803.576	3344851.544	1389.970	DRIVEWAYS & PARKING AREA
45	44788.691	3344841.228	1389.850	DRIVEWAYS & PARKING AREA
46	44793.392	3344842.942	1389.750	DRIVEWAYS & PARKING AREA
47	44792.049	3344846.634	1389.730	DRIVEWAYS & PARKING AREA
48	44791.241	3344847.520	1389.720	DRIVEWAYS & PARKING AREA
49	44789.993	3344848.089	1389.710	DRIVEWAYS & PARKING AREA
50	44788.823	3344848.165	1389.700	DRIVEWAYS & PARKING AREA
51	44787.831	3344847.804	1389.690	DRIVEWAYS & PARKING AREA
52	44782.225	3344863.236	1389.520	DRIVEWAYS & PARKING AREA
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76	44835.908	3344881.040	1390.090	DRIVEWAYS & PARKING AREA
77	44831.996	3344879.615	1390.140	DRIVEWAYS & PARKING AREA
78	44840.114	3344869.833	1390.210	DRIVEWAYS & PARKING AREA
79	44836.851	3344868.645	1390.260	DRIVEWAYS & PARKING AREA
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DRIVEWAYS & PARKING AREA PEGS (CO-ORDINATES)

Coordinate List System: Transverse Mercator WGS 84

Name	Y	X	Z	Comment
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83	44853.593	3344835.888	1389.840	DRIVEWAYS & PARKING AREA
84	44848.456	3344829.444	1390.120	DRIVEWAYS & PARKING AREA
85	44855.195	3344833.192	1389.870	DRIVEWAYS & PARKING AREA
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98	44861.075	3344795.767	1389.990	DRIVEWAYS & PARKING AREA
99	44868.383	3344795.299	1390.170	DRIVEWAYS & PARKING AREA
100	44865.702	3344777.910	1390.230	DRIVEWAYS & PARKING AREA
101	44858.690	3344780.070	1390.230	DRIVEWAYS & PARKING AREA
102	44855.544	3344776.402	1390.290	DRIVEWAYS & PARKING AREA
103	44852.731	3344769.288	1390.410	DRIVEWAYS & PARKING AREA
104	44860.378	3344767.603	1390.350	DRIVEWAYS & PARKING AREA
105	44854.368	3344760.634	1390.490	DRIVEWAYS & PARKING AREA
106	44826.008	3344790.148	1390.180	DRIVEWAYS & PARKING AREA
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108	44855.973	3344795.727	1390.430	DRIVEWAYS & PARKING AREA
109	44854.291	3344800.406	1390.330	DRIVEWAYS & PARKING AREA
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113	44823.486	3344797.170	1390.180	DRIVEWAYS & PARKING AREA

NOTES / LEGEND

CLIENT PLAN NUMBER

CONSTRUCTION DRAWING

LAYERS USED

NUMBER	REVISION	DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT

CITY ENGINEER / CLIENT	REG. NO.	DATE

AMENDMENTS CODE

A.B.C.J. BEFORE TENDER	K. BY ARCHITECT
1. TENDER DRAWING	2. BY ARCHITECT
2.3. AFTER TENDER	3. BY MECHANICAL OR ELECTRICAL
Z. AS BUILT	4. BY CIVIL
	5. BY OTHER

DATE	INITIAL	NO.	CODE	REVISION DESCRIPTION
11/03/2024	LM	101		CONSTRUCTION DRAWINGS

OFFICES

PROVINCE	OFFICE	E-MAIL

CLIENT

QUANTUM
BUILT & ENVIRONMENTAL CONSULTANTS (PTY) LTD

PROJECT
SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE
CIVIL ENGINEERING SERVICES: DRIVEWAYS AND PARKING AREAS (SURVEY COORDINATE LIST)

APPROVED BY BVI

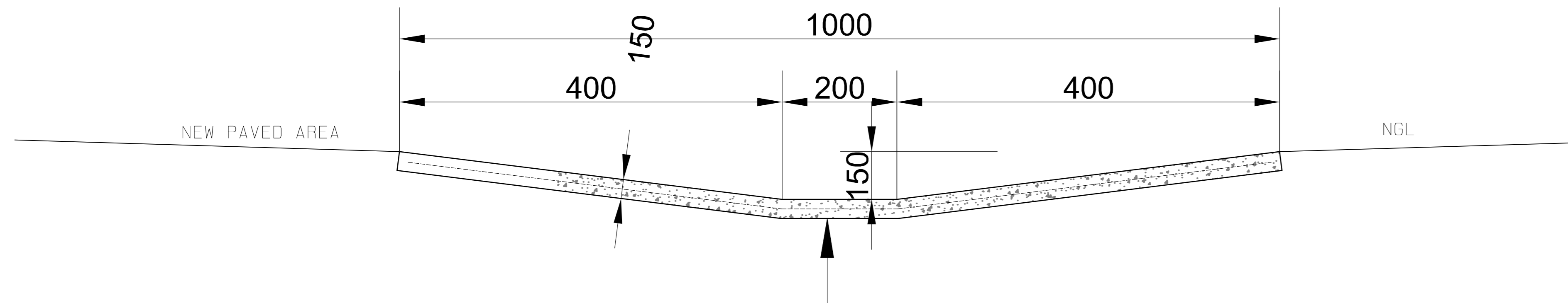
ENGINEER/TECHNOLOGIST	REG. NO.	DATE
DF LEUKES	200270145	2024/10/17

SCALE	DRAWN	N. MAKENA
1:200		

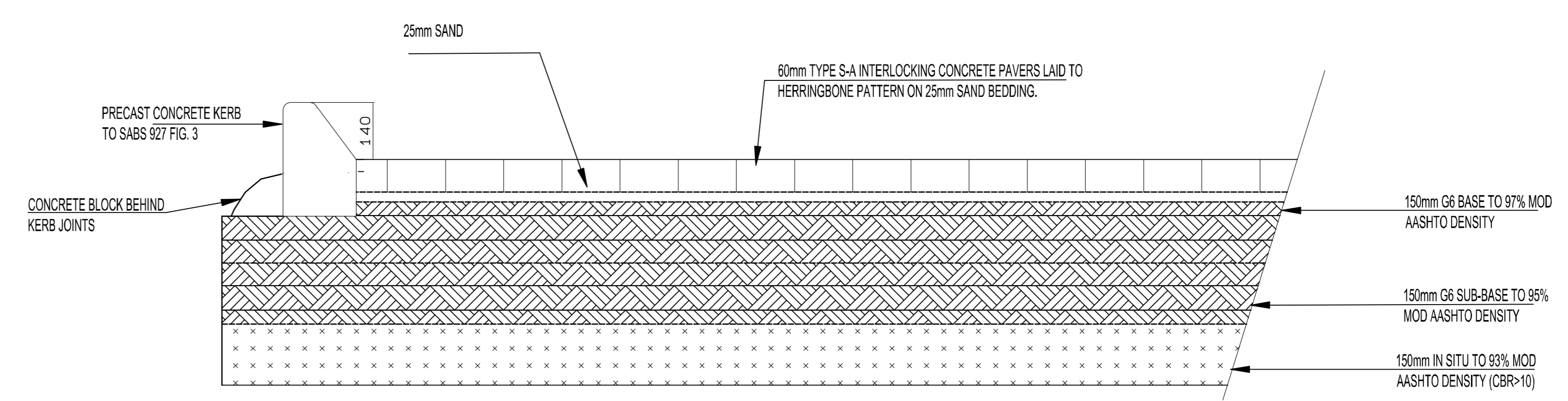
DESIGNED	CHECKED	DATE
L. MATHEBE	DF LEUKES	

PLAN NUMBER	REVISION NO.	DATE SAVED
B34581C-121-01	0	17 Oct 2024

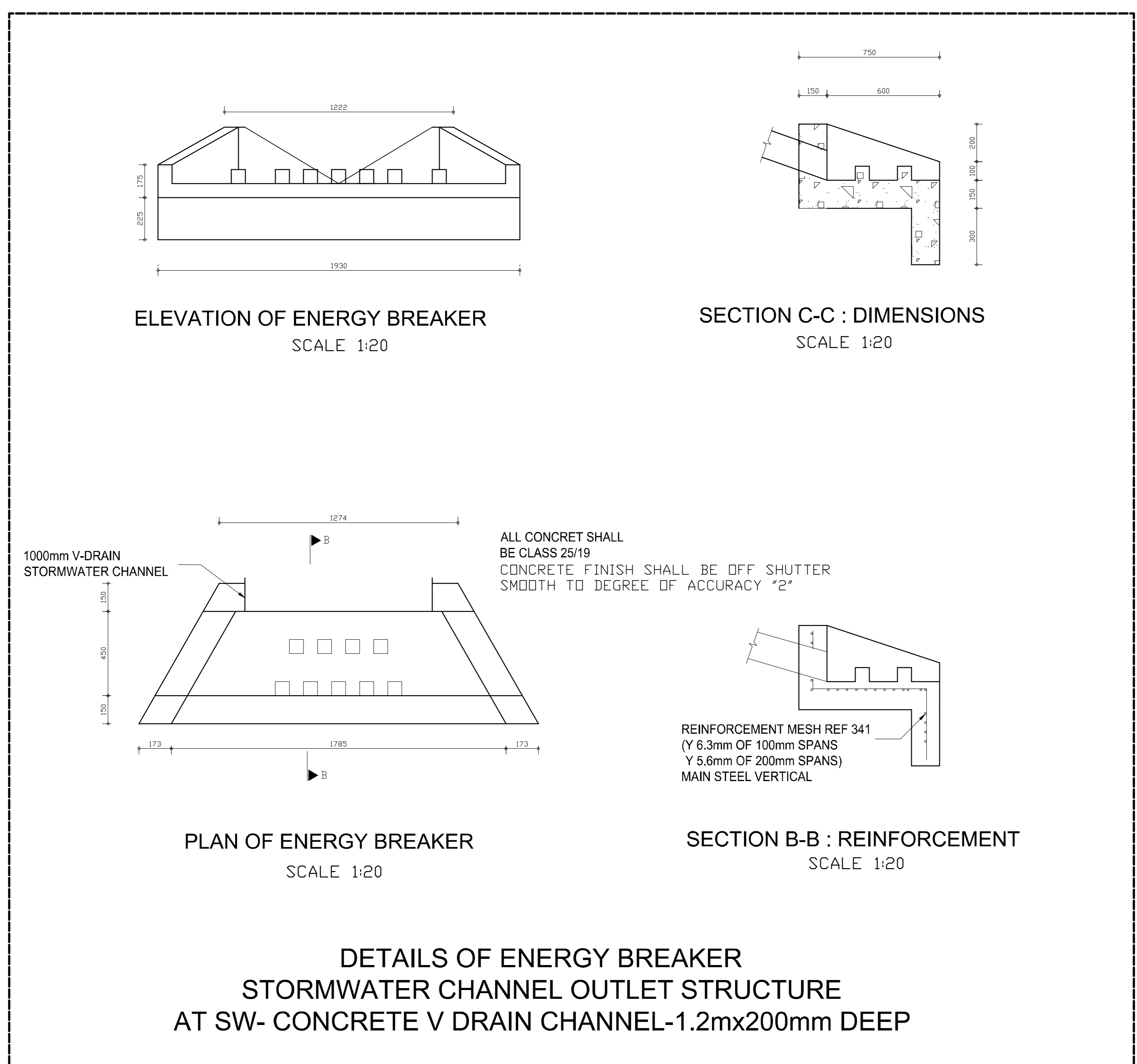
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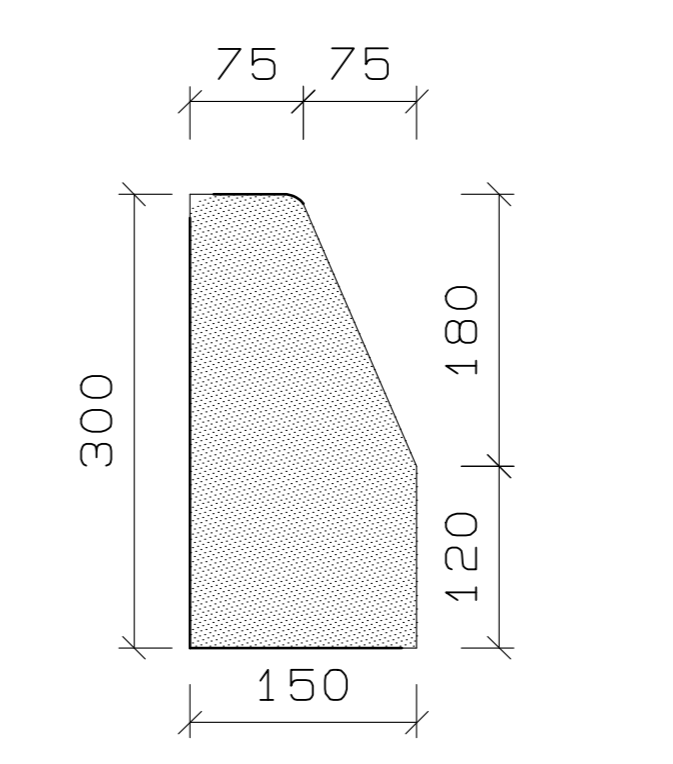
1m WIDE x 100m LONG, STONE PITCHING
 >50mm Dia. ON 25Mpa CONCRETE
 SCALE 1 : 25



TYPICAL LAYER WORK FOR PARKING AREAS
 SCALE 1 : 10



DETAILS OF ENERGY BREAKER
 STORMWATER CHANNEL OUTLET STRUCTURE
 AT SW- CONCRETE V DRAIN CHANNEL-1.2mx200mm DEEP



SABS FIG. 3 KERB
 SCALE 1 : 5

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER		
LAYERS USED		
NUMBER	REVISION	DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT		
CITY ENGINEER / CLIENT	REG. NO.	DATE

AMENDMENTS CODE		
A.B.C. /	BEFORE TENDER	BY CLIENT
0 /	TENDER DRAWING	BY ARCHITECT
1,2,3... /	AFTER TENDER	BY MECHANICAL OR ELECTRICAL
4 /	AS BUILT	BY CIVIL
5 /		BY OTHER

DATE	INITIAL	NO	CODE	REVISION DESCRIPTION
28/03/2020	LM	AD		DETAILED DESIGN DRAWINGS
16/05/2024	LM	AD		CONSTRUCTION DRAWINGS

OFFICES				
PROVINCE	OFFICE	PHONE	EMAIL	
Free State				
North West				
Western Cape				
Free State				
Free State				
Free State				
Free State				
Free State				
Free State				

CLIENT

PROJECT
 SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR
 DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE

CIVIL ENGINEERING SERVICES:
 DRIVEWAYS AND PARKING AREAS
 DETAILS

APPROVED BY: SM

DF LEUKES	20070145	2024/02/16
ENGINEER/TECHNOLOGIST	REG. NO.	DATE

SCALE	AS SHOWN	DRAWN	N MAKENA
DESIGNED	L MATHHEBE	CHEKHO	DF LEUKES
PLAN NUMBER	REVISION NO.	DATE SAVED	
B34581C-123-01	1	16 Feb 2024	

NOTE ON UNDERGROUND SEWER PIPE INSTALLATION:

ALL PIPES AND FITTINGS FOR UNDERGROUND SEWERAGE NETWORK SHALL COMPLY WITH THE FOLLOWING:

- SANS 791 1986: CLASS 34, HEAVY DUTY, SOLID WALL. COLOUR KALAHARI SAND. FLEXIBLE uPVC PIPES TO BE IN LENGTHS OF 6m MAXIMUM AND EACH PIPE FITTED WITH INTEGRAL RUBBER RING CUFF JOINT ON ONE END. CHANNELS, CHANNEL BENDS AND CHANNEL JUNCTIONS SHALL BE INJECTION MOULDED WITH ANCHORS TO GRIP IN CONCRETE BENCHING SUITABLE FOR USE WITH ABOVE PIPES.
- SANS 1601 1994: STRUCTURED WALL, TYPE 1, SANDWICH WALL, CLASS 400: FLEXIBLE uPVC PIPES TO BE IN LENGTHS OF 6m MAXIMUM AND EACH PIPE FITTED WITH INTEGRAL RUBBER RING CUFF JOINT ON ONE END. CHANNELS, CHANNEL BENDS AND CHANNEL JUNCTIONS SHALL BE INJECTION MOULDED FREEFLO TO SANS 967: 1986 WITH ANCHORS TO GRIP IN CONCRETE BENCHING.
- FLEXIBLE JOINTS TO SABS 1601: 1994 AMENDED: ALL NON STANDARD PIPE SECTIONS OR PLAIN ENDS TO BE JOINED WITH DOUBLE OR KIMBERLEY/REPAIR COUPLINGS.
- ALL SEWER PIPES UNDER BUILDING FLOOR SLAB SHALL BE ENCASED IN 500mmx500mm CLASS 20/19 CONCRETE.
- FIELD TESTS:
 - AIR TESTS ACCORDING TO CLAUSE 7.2 OF SANS 1200 LD MUST BE CARRIED OUT BETWEEN MANHOLES DURING THE FOLLOWING PHASES OF CONSTRUCTION:
 - AFTER THE PIPES HAVE BEEN LAID.
 - AFTER THE INNITIAL BACKFILLING HAS BEEN COMPLETED.
 - THE AIR TEST IS ONLY AN INDICATION OF ACCEPTANCE OF A COMPLETED PORTION OF THE LINE AND IN ANY DISPUTE ARISING THE OUTCOME OF A WATER TEST WILL BE BINDING.
 - THE MANDATORY WATER TEST SHALL BE APPLIED TO THE PIPELINE AS WELL AS THE MANHOLES
- TRENCHES:
 - EXCAVATION AND BACKFILLING OF TRENCHES TO COMPLY WITH SANS 1200 DB WITH 1:10 SOILCRETE BACKFILLING WHERE PIPES GO UNDER OR THROUGH STRIP FOUNDATIONS OR COLUMN FOOTINGS.
 - BEDDING OF PIPES TO COMPLY WITH SANS 1200 LB FOR FLEXIBLE PIPES.
 - TRENCHES DEEPER THAN 2.0m TO BE EXCAVATED IN V-SHAPE FOR TOP 1.5m AS SAFETY PRECAUTION ACCORDING THE HEALTH AND SAFETY PLAN, ONLY ON INSTRUCTION OF THE ENGINEER AS DETERMINED ON SITE AND BY THE INSITU MATERIAL.
 - SEWERS TO BE PROTECTED AT ROAD CROSSINGS AS SHOWN ON THE TYPICAL PLAN FOR PIPE BEDDINGS.
 - TRENCHES TO BE PROTECTED FROM STROMWATER INFLOW.
- MANHOLES AND FITTINGS:
 - ALL CONCRETE, BENCHING AND SEALERS SHALL COMPLY WITH SANS 1200 GA OR SANS 1200 LD AS APPLICABLE.
 - PRECAST CONCRETE SECTIONS, COVER SLABS AND LIDS TO COMPLY WITH SANS 1294. IN COVERED WALKWAYS MANHOLE LIDS AND FRAMES SHALL BE CAST IRON DOUBLE SEAL UNITS.
 - CLASSES OF CONCRETE:
 - PRECAST CONCRETE SECTIONS - 30/19.
 - BEDDING CRADDLE - 15/19.
 - ALL OTHER CONCRETE - 25/19.
 - ONLY DOLEMITIC AGGREGATE SHALL BE USED IN CONCRETE
 - CHANNELS IN THE MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST OR STARTER PRECAST SECTION OF 250mm BE PLACED AND THE BENCHING COMPLETED WITHIN 24 HOURS AFTER CASTING THE CONCRETE FLOOR. NO DRIERS WILL BE PERMITTED.
 - NO STEP IRONS SHALL BE INSTALLED IN MANHOLES.
- CLEANING: THE MANHOLE IN TOTAL, BUT THE CHANNELS IN PARTICULAR MUST BE RUBBED AND CLEANED OUT PROPERLY TO A SMOOTH FINISH BEFORE THE MANHOLE WILL BE INSPECTED FOR APPROVAL.

NOTE ON ABOVE GROUND SOIL AND WASTE PIPE INSTALLATION:

ALL ABOVE GROUND SANITATION PLUMBING SHALL COMPLY WITH THE FOLLOWING:

- EXPOSED AREA INSTALLATIONS:
 - SOIL VENT AND WASTE PIPES AND FITTINGS SHALL BE uPVC FREEFLOW SYSTEM TO (SANS 967-1987) COLOUR WHITE
 - JOINTING METHOD:
 - RUBBER RING FOR 110 AND 160mm PIPES
 - SOLVENT WELD FOR 32, 40 AND 50mm PIPES
 - SPIGOT AND SOCKET FOR 75mm AND CERTAIN 110mm PIPES
 - SADDLESS SHALL NOT BE USED FOR JOINTING WASTE PIPES TO SOIL PIPES, ONLY MANUFACTURED JUNCTIONS SHALL BE USED.
- PIPE HANGERS FOR HORIZONTAL FIXING SHALL BE GALVANIZED HOLDERBAT OR HANGER FOR GRIP AND ANTI-SWAY SUPPORT WITH 2XHANGERS.
- GALVANISED BAND HANGER FOR HORIZONTAL SUPPORT WITH SINGLE HANGER.
- STAINLESS STEEL HOLDERBAT OR HANGER FOR VERTICAL OR HORIZONTAL AND SUPPORT FIXING FOR FITTINGS.
- ALL VERTICAL STAG PIPES SHALL BE FITTED WITH A 50mm Ø VENT VALVE TO SANS 1532

LEGEND FOR SANITATION INSTALLATION:

SS = "STUB STACK" OR GULLEYLESS OR CLOSED SYSTEM WITH OVERFLOW CAP AND WASTE CONNECTION IN uPVC PIPE

VSS = "VENTILATED STUB STACK" IS STUB STACK IN uPVC PIPE FITTED WITH 50mm Ø 1 WAY VENT VALVE TO SANS 1532

VP = "VENT PIPE" IN uPVC FITTED TO WALL IN SERVICES DUCTS WITH 110mm Ø TWO WAY VENT/VACUUM VALVE.

FD = "FLOOR DRAIN" TO ARCHITRCT'S SPECIFICATIONS OR "GULLY MAN" STAINLESS STEEL SHOWER TRAPS.

P-TRAP = ORDINARY P-TRAP LIKE "COBRA 373SQ" ROUGH BRAS, WITH SHALLOWSEAL, CHROME PLATED SQUARE GRATING AND 32mm DIAM FEMALE OUTLET.

ANTI-VAC = 32,40 OR 50mm Ø BOTTLE TRAP WITH ANTI-VACUUM VALVE INSTALLED AT WASH HAND BASENS, SINKS OR TROUGHTS.

SP = "SOIL PIPE" IN uPVC PIPE CARRYING SOILED WATER

WP = "WASTE PIPE" IN uPVC PIPE CARRYING GREY WATER

MH G 3.5 = MANHOLE NUMBER
 GL = GROUND LEVEL OR PAVING LEVEL
 CL = MANHOLE COVER LEVEL NORMALLY LEVEL WITH PAVING OR 150mm ABOVE GL
 IL = INVERT LEVEL OF PIPE IN MANHOLE
 D = DEPTH OF MANHOLE IL TO CL

P14x10mx200mmØxuPVC/34x1.6667%xR/C 10/34/1s
 = PIPE NUMBER
 = PIPE LENGTH
 = PIPE DIAMETER
 = PIPE MATERIAL AND CLASS
 =SLOPE IN PERCENTAGE
 =RUNOFF/ CAPACITY IN LITERS PER SECOND.

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER

LAYERS USED

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

APPROVED BY COUNCIL / CLIENT


CITY ENGINEER / CLIENT REG. NO. DATE

APPROVED BY

DATE	INITIAL	NO.	CODE	REVISION DESCRIPTION
28/02/2024	LM	AD		DETAILED DESIGN DRAWINGS
16/02/2024	LM	AD		CONSTRUCTION DRAWINGS

OFFICES

PROVINCE	OFFICE	NAME	PHONE	EMAIL


bvi
 CONSULTING ENGINEERS
 Civil, Structural & Electrical Engineers, Environmental & Project Management
 FREE STATE

CLIENT

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PROJECT

SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR

DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE

CIVIL ENGINEERING SERVICES:
 SEWER PIPE
 MATERIAL SPECIFICATIONS

APPROVED BY

ENGINEER/TECHNOLOGIST	REG. NO.	DATE
DF LEUKES	200270145	2024/02/16

SCALE	AS SHOWN	DRAWN	N MAKENA
DESIGNED	L MATHIBE	CHECKED	DF LEUKES

PLAN NUMBER	REVISION NO.	DATE SAVED
B34581C-133-04	1	16 Feb 2024

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER

LAYERS USED

REFERENCE DRAWINGS

NUMBER REVISION DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT

CITY ENGINEER / CLIENT REG. NO. DATE

AMENDMENTS CODE

A.B.C. / BEFORE TENDER JA BY CLIENT

0 / TENDER DRAWING IB BY ARCHITECT

1,2,3... / AFTER TENDER IC BY MECHANICAL OR ELECTRICAL

4 / AS BUILT ID BY BVA

5 / BY OTHER IJ BY OTHER

DATE INITIAL No. CODE REVISION DESCRIPTION

28/03/2020 LM AD DETAILED DESIGN DRAWINGS

16/02/2024 LM AD CONSTRUCTION DRAWINGS

OFFICES

PROVINCE OFFICE

Free State

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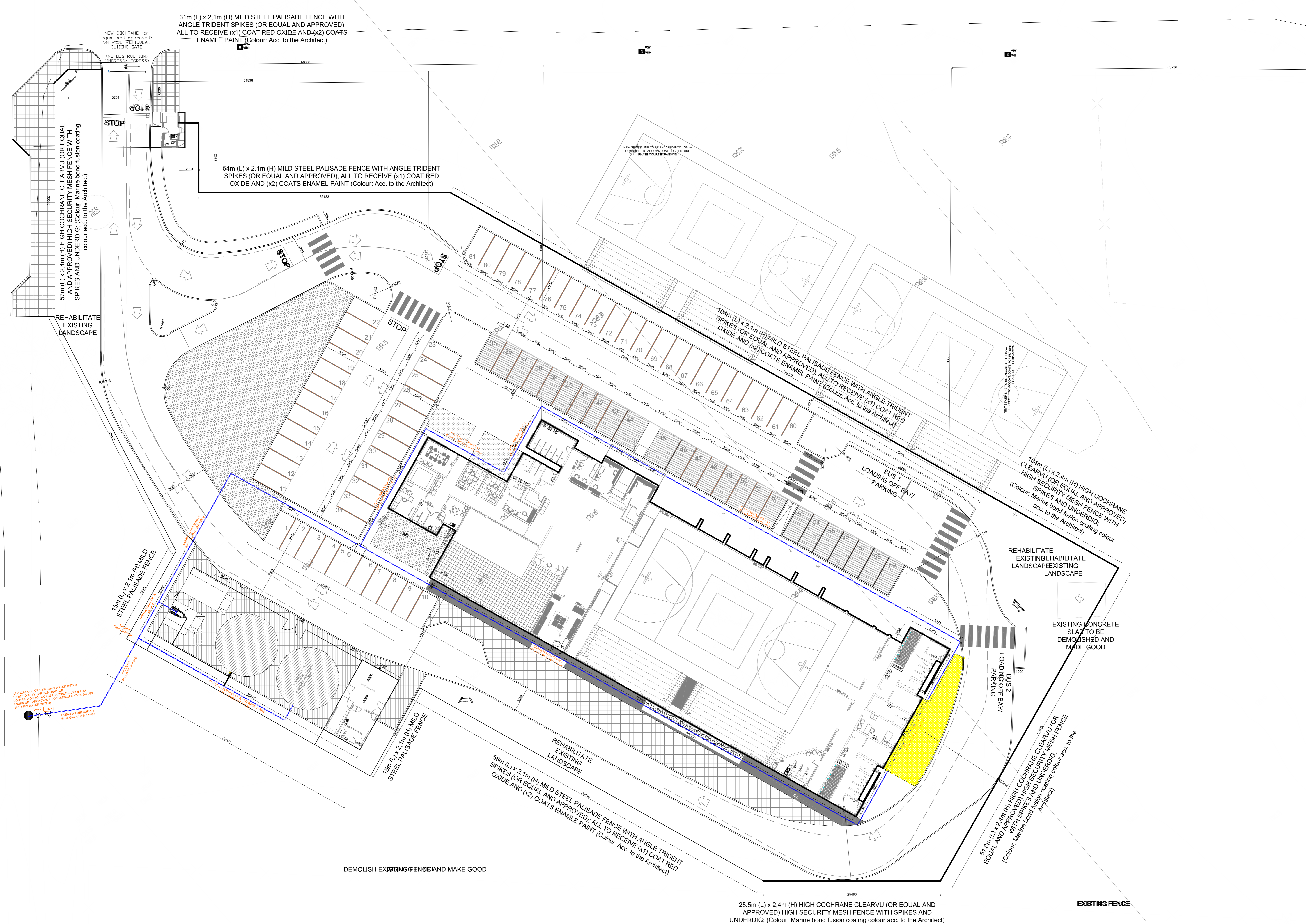
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QUANTUM

BLACK & ENVIRONMENTAL CONSULTANTS PTY LTD

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PROJECT

SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRE FOR

DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE

CIVIL ENGINEERING SERVICES: CLEARDOMESTIC LAYOUT PLAN

APPROVED BY BVI

DF LEUKES 200270145 2024/02/16

ENGINEER/TECHNOLOGIST REG. NO. DATE

SCALE 1:200 DRAWN N MAKENA

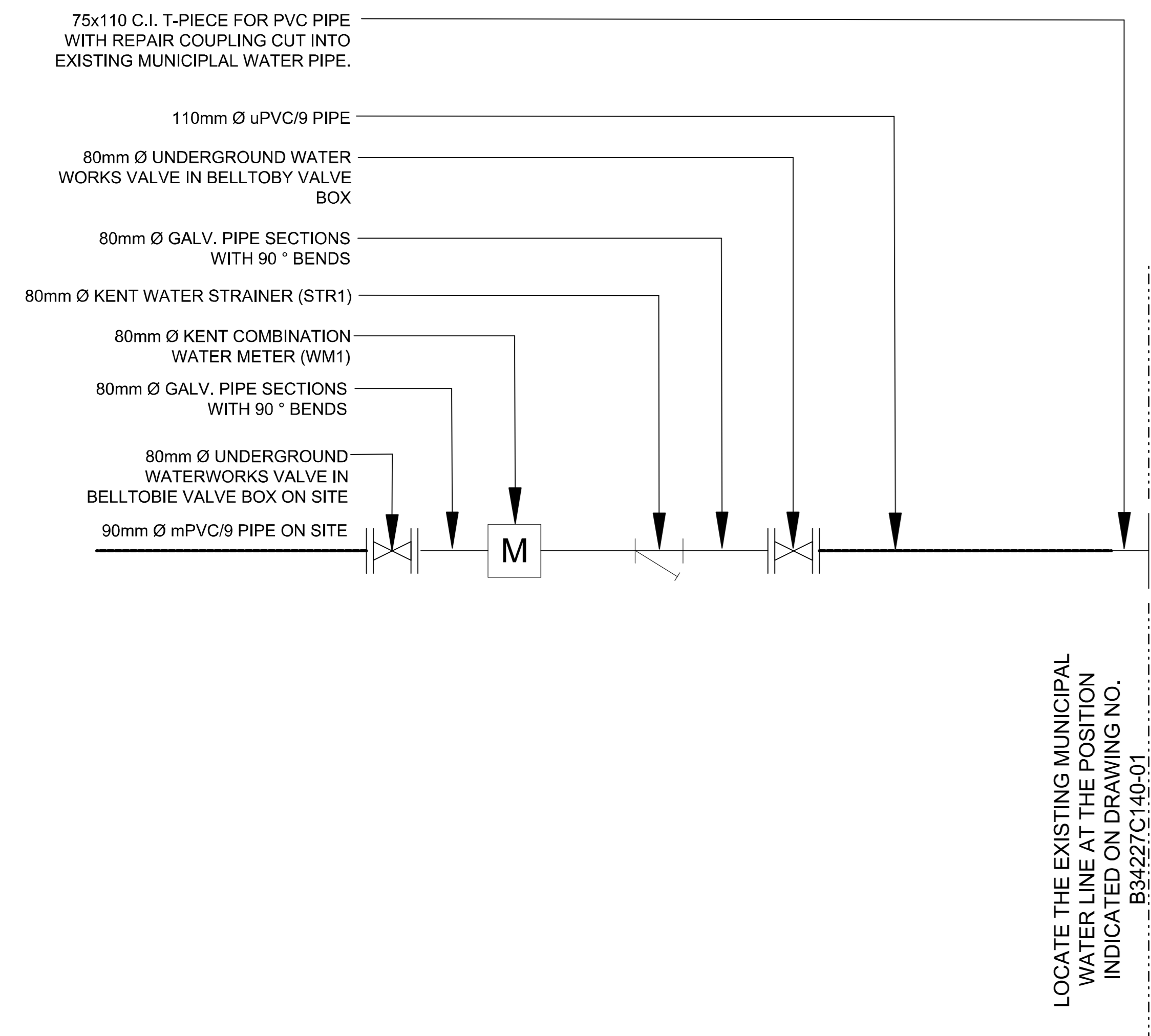
DESIGNED L. MATHEBE CHECKED DF LEUKES

PLAN NUMBER REVISION NO. DATE SAVED

LAYERS USED

B34581C-140-01 1 16 Feb 2024

2024/02/16 Smithfield Indoor Sport Centre - Civil Drawings Rev. 16 Feb 2024 at 16:28:19



DETAIL "A"
SCALE 1:25

NOTE: NEW MUNICIPAL WATER CONNECTION FOR DOMESTIC AND FIRE WATERSUPPLY BY MMM:

LOCATE EXISTING MUNICIPAL DOMESTIC WATER SUPPLY AS INDICATED ON DRAWING NO. B34227C-140-01.

A NEW DOMESTIC WATER CONNECTION SHALL BE CONSTRUCTED AS FOLLOWS:

- CUT INTO THE EXISTING MUNICIPAL WATER SUPPLY PIPE .
- INSTALL 90mm Ø UPVC CLASS 9 UP TO BOUNDARY (MMM).
- INSTALL 80mm Ø UNDERGROUND WATERWORKS VALVE IN BELLTOBY BOX (MMM).
- INSTALL 80mm Ø KENT STRAINER + KENT COMBINATION WATER METER WITH STEEL PIPEWORK ABOVE GROUND AS PER MUNICIPAL STANDARD (MMM).
- INSTALL 80mm Ø CONSUMER ISOLATING VALVE IN BELLTOBY VALVE BOX INSIDE PROPERTY (MMM).
- INSTALL ON-SITE NETWORK AS PER DETAIL.

NOTE:

ALL PIPES AND FITTINGS FOR UNDERGROUND DOMESTIC WATER NETWORK SHALL COMPLY WITH THE FOLLOWING:

mPVC PIPE:
MATERIAL - MODIFIED POLY VINYL CHLORIDE
PIPE - SABS 966 PART 11: 1998
SEAL RINGS - SABS 974
BENDS - SABS 966 PART 11: 1998

HDPE PIPE:
MATERIAL - HOMO-POLYMER OF ETHYLENE OR CO-POLYMER OF ETHYLENE AND HIGHER OLEFINS
PIPE - SABS 533 PART 11:1982 (AMENDED MAY 1993) HIGH DENSITY BLACK POLYETHYLENE PRESSURE PIPES TYPE IV IN WHICH THE NOMINAL SIZE IS RELATED TO THE OUTSIDE DIAMETER.
 - SABS 533 PART 11:1995 (AMENDED AUGUST 1997) HIGH DENSITY BLACK POLYETHYLENE PE 80 PRESSURE PIPES TYPE V IN WHICH THE NOMINAL SIZE IS RELATED TO THE OUTSIDE DIAMETER.
FITTINGS - COMPRESSION TYPE FITTINGS WITH LIP GASKET

STEEL PIPE:
MATERIAL - UP TO 150mm Ø: MILD STEEL TO SABS 62 ERW GRADE "A" MEDIUM DUTY
 - OVER 150mm Ø: MILD STEEL TO SABS 719 ERW GRADE "A" MEDIUM DUTY
FLANGES - SABS 1123 TABLE 1600/3
COUPLINGS - VIKING JOHNSON REPAIR COUPLINGS
CORROSION - HOT DIPPED GALVANIZING TO SABS 763 FOR FABRICATED ITEMS.

COPPER TUBING:
MATERIAL - COPPER TUBING SHALL COMPLY WITH SABS 460/85 (as amended 1986) TO THE FOLLOWING CLASSES:
 - 460/0 TUBES CLASS 0 (HARD DRAWN) ABOVE GROUND AND EXPOSED ONLY.
 - 460/1 TUBES CLASS 1 (LIGHT, HALF HARD) ABOVE GROUND AND EXPOSED ONLY.
 - 460/2 TUBES CLASS 2 (MEDIUM, HALF HARD) ABOVE AND BELOW GROUND AND CHASED IN.
 - 460/3 TUBES CLASS 3 (HEAVY, HALF HARD) ONLY USED FOR UNDERGROUND PLUMBING.
FITTINGS - FITTINGS SHALL BE OF THE CAPILLARY SOLDERED JOINTS TYPE EXCEPT FOR UNDERGROUND WHERE COMPRESSION FITTINGS SHALL BE USED.
SOLDERS - SOLDERS USED FOR CAPILLARY FITTINGS SHALL COMPLY WITH SABS 24-1971 AMENDED 1987, OR DIN 1707 SPECIFICATIONS AND SHALL BE OF GRADE 97/3 (97% TIN, 3% COPPER)

NOTE:

ALL PIPES AND FITTINGS FOR ON SITE FIRE WATER NETWORK AND CONNECTIONS TO COMPLY WITH THE FOLLOWING:

uPVC PIPE:
PRESSURE CLASS - CLASS 09 OR AS INDICATED
MATERIAL - UNPLASTICISED POLY VINYL CHLORIDE
PIPE - SABS 966 PART 1: 1998
SEAL RINGS - SABS 974
BENDS - SABS 966 PART 1: 1998

HDPE PIPE:
PRESSURE CLASS - CLASS 12 OR AS INDICATED
MATERIAL - HOMO-POLYMER OF ETHYLENE OR CO-POLYMER OF ETHYLENE AND HIGHER OLEFINS
PIPE - SABS 533 PART 11:1982 HIGH DENSITY BLACK POLYETHYLENE PRESSURE PIPES
FITTINGS - COMPRESSION TYPE FITTINGS WITH LIP GASKET

STEEL PIPE:
PRESSURE CLASS - MEDIUM DUTY
MATERIAL - UP TO 150mm [MILD STEEL TO SABS 62 MEDIUM
 - OVER 150mm [MILD STEEL TO SABS 719 ERW GRADE A MEDIUM
FLANGES - SABS 1123 TABLE 1600/3
COUPLINGS - VIKING JOHNSON REPAIR COUPLINGS
CORROSION PROTECTION - HOT DIPPED GALVANIZING TO SABS 763 AND 10240 FOR FABRICATED ITEMS.

COPPER TUBING:
MATERIAL - COPPER TUBING SHALL COMPLY WITH SABS 460/85 (as amended 1986) TO THE FOLLOWING CLASSES.
 - 460/0 TUBES CLASS 0 (HARD DRAWN) ABOVE GROUND AND EXPOSED.
 - 460/1 TUBES CLASS 1 (LIGHT, HALF HARD) ABOVE GROUND AND EXPOSED.
 - 460/2 TUBES CLASS 2 (MEDIUM, HALF HARD) ABOVE AND BELOW GROUND AND CHASED IN.
FITTINGS - FITTINGS SHALL BE OF THE CAPILLARY SOLDERED JOINTS TYPE EXCEPT FOR UNDERGROUND WHERE COMPRESSION FITTINGS SHALL BE USED.
SOLDERS - SOLDERS USED FOR CAPILLARY FITTINGS SHALL COMPLY WITH SABS 24-1971 AMENDED 1987, OR DIN 1707 SPECIFICATIONS AND SHALL BE OF GRADE 97/3 (97% TIN, 3% COPPER)

NOTES / LEGEND

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER

LAYERS USED

NUMBER	REVISION	DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT

CITY ENGINEER / CLIENT REG. NO. DATE

AMENDMENTS CODE

A.B.C. / BEFORE TENDER	A. BY CLIENT
1. / TENDER DRAWING	1. BY ARCHITECT
2. / AFTER TENDER	2. BY MECHANICAL OR ELECTRICAL
3. / AS BUILT	3. BY OTHER

DATE	INITIAL	NO. / CODE	REVISION DESCRIPTION
2023/02/01	LM	A/D	DETAILED DESIGN DRAWINGS
2024/02/01	LM	A/D	CONSTRUCTION DRAWINGS

OFFICES

PROVINCE	OFFICE	EMAIL

bvi Bloemfontein
CONSULTING ENGINEERS
Civil, Structural & Electrical Engineers, Environmental & Project Management

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PROJECT
SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE
CIVIL ENGINEERING SERVICES: WATER MATERIAL SPECIFICATIONS AND DETAILS

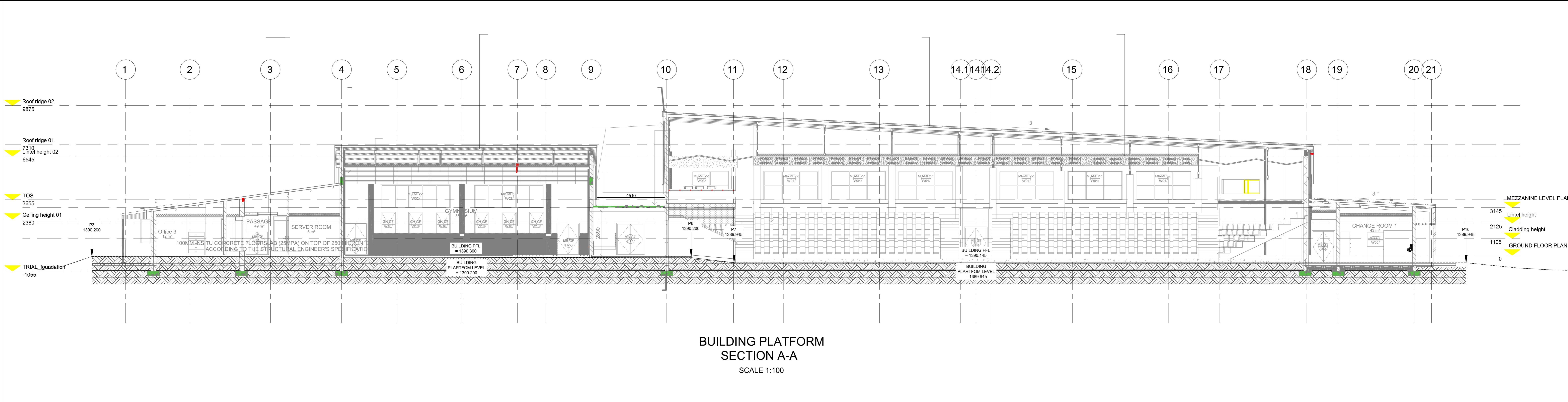
APPROVED BY BVI

ENGINEER/TECHNOLOGIST	REG. NO.	DATE
DF LEUKES	200270145	2024/02/16

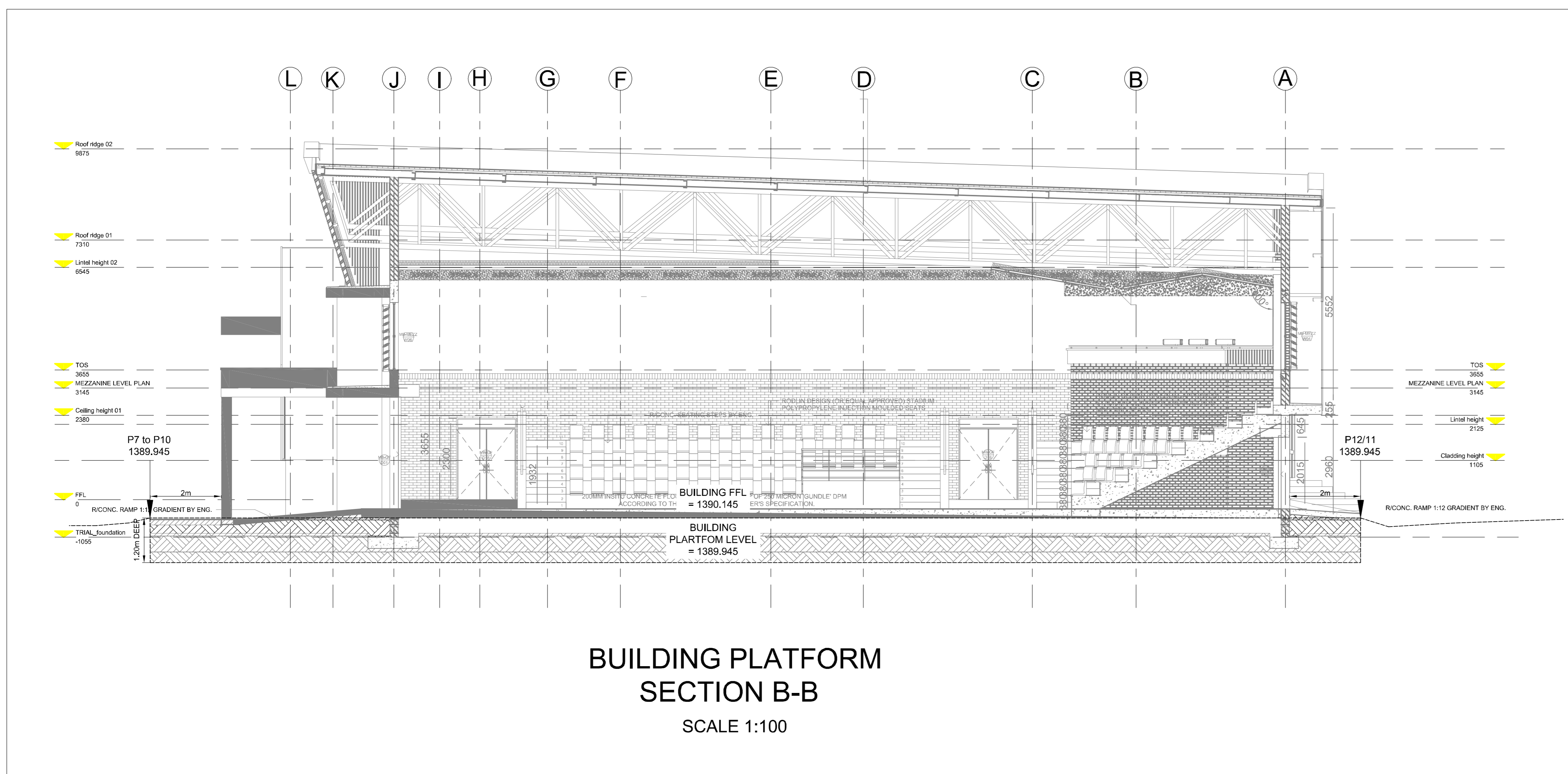
SCALE	AS SHOWN	DRAWN	N MAKENA
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PLAN NUMBER	REVISION NO.	DATE SAVED
B34581C-143-01	1	16 Feb 2024

LAYERS USED



BUILDING PLATFORM SECTION A-A
SCALE 1:100



BUILDING PLATFORM SECTION B-B
SCALE 1:100

- NOTES:**
1. TOPSOIL
--GRASS TO BE BLADED OFF AND 200mm TOPSOIL TO BE STRIPPED AND SPOILED
 2. ALL CUT SLOPES TO BE SHAPED TO 1:1.5 AND FILL SLOPES TO 1:2 UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
 3. FILL AREAS:
-- FILL MATERIAL TO BE COMPACTED IN LAYERS OF 150mm MAX. TO 98% MOD AASHTO
 4. FREQUENCY TESTING:
-- EACH LAYER TO BE TESTED WITH MIN. OF 2 DENSITY TESTS (15000m²)

- NOTE:**
PAVEMENT DESIGN :
- A: PLATFORM PAVEMENT DESIGN REQUIRED
 A.1: SELECTED FILL OF MIN 150mm THICK "G5 OR G6" GRAVEL COMPACTED TO 97% MOD. AASHTO DENSITY.
 A.2: IN-SITU ROADBED MATERIAL: RIP AND RECOMPACT 200mm TO 93% MOD. AASHTO DENSITY AS FOR "G10" GRAVEL MATERIAL.

BUILDING PLATFORM QUANTITIES (MATERIALS)
TOTAL CUT MATERIAL FOR BUILDING PLATFORM

Description : BUILDING PLATFORM-CUT MATERIAL
 Ground Surface : NGL
 Design Surface : PLATFORM CUT LVL
 Ground Hole Distance : 30.000
 Design Hole Distance : 100.000
 Grid Interval : 2.400
 The unadjusted volumes are :-
 2646.08 cu.m. total Cut.
 0.07 cu.m. total Fill.
 2847.36 sq.m. total area in Cut.
 3.84 sq.m. total area in Fill.

Volumes adjusted for 98.00% compaction and 0.20m Topsoil stripping :-
 2035.08 cu.m. Cut available for Fill
 0.84 cu.m. of Fill is required giving:-
 2034.24 cu.m. of excess Cut and:-
 570.24 cu.m. of Topsoil to be stripped

BUILDING PLATFORM QUANTITIES (MATERIALS)
TOTAL FILL MATERIAL (G5 OR G6) FOR BUILDING PLATFORM

Description : BUILDING PLATFORM-CUT MATERIAL
 Ground Surface : FINAL CUT LVL
 Design Surface : BUILDING PLATFORM
 Ground Hole Distance : 30.000
 Design Hole Distance : 100.000
 Grid Interval : 2.900
 The unadjusted volumes are :-
 0.00 cu.m. total Cut.
 2754.78 cu.m. total Fill.
 0.00 sq.m. total area in Cut.
 2649.15 sq.m. total area in Fill.

Volumes adjusted for 98.00% compaction and 0.00m Topsoil stripping :-
 0.00 cu.m. Cut available for Fill
 2754.78 cu.m. of Fill is required giving:-
 2754.78 cu.m. of Fill shortfall and:-
 0.00 cu.m. of Topsoil to be stripped

NOTES / LEGEND

2024/02/16 Smithfield Indoor Sport Centre_Civil Drawings Title Page.dwg (16 Feb 2024) 11:27:27

CONSTRUCTION DRAWING

CLIENT PLAN NUMBER

LAYERS USED

NUMBER	REVISION	DRAWING DESCRIPTION

APPROVED BY COUNCIL / CLIENT

CITY ENGINEER / CLIENT	REG. NO.	DATE

AMENDMENTS CODE

A.B.C.D.	BY	DATE	DESCRIPTION

DATE	INITIAL	NO.	CODE	REVISION DESCRIPTION
28/10/2024	LM	AID		DETAILED DESIGN DRAWINGS
16/02/2024	LM	AID		CONSTRUCTION DRAWINGS

OFFICES

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bvi Bloemfontein
 CONSULTING ENGINEERS
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 Civil, Structural & Electrical Engineers, Environmental & Project Management

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PROJECT
 SMITHFIELD: MULTI-PURPOSE INDOOR SPORT CENTRUM FOR
 DEPARTMENT OF SPORTS, ARTS, CULTURE & RECREATION

DRAWING TITLE
 CIVIL ENGINEERING SERVICES:
 BUILDING PLATFORM SECTION A-A & B-B

APPROVED BY: EA

ENGINEER/TECHNOLOGIST	REG. NO.	DATE
DF LEUKES	202270145	2024/02/16

SCALE	AS SHOWN	DRAWN	N MAKENA
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PLAN NUMBER	REVISION NO.	DATE SAVED
B34581C-150-01	1	16 Feb 2024

LAYERS USED