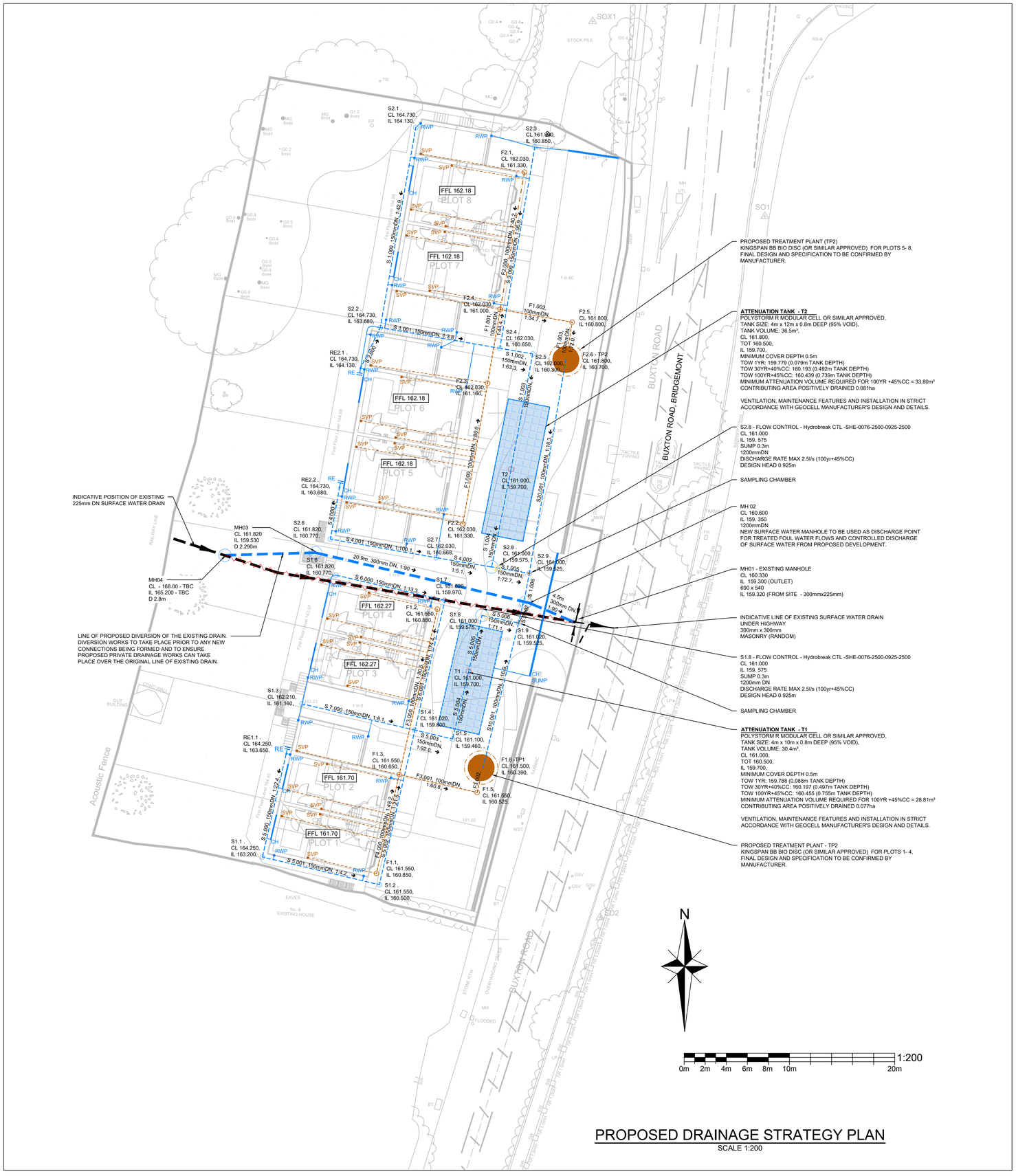


PROPOSED DRAINAGE STRATEGY PLAN

SCALE 1:200

KEY

- EXISTING SURFACE WATER
- PROPOSED SURFACE WATER
- PROPOSED FOUL WATER
- EXISTING ASSET TO BE ABANDONED
- S — PROPOSED SURFACE WATER ACCESS CHAMBER
- F — PROPOSED FOUL WATER ACCESS CHAMBER
- RWP — PROPOSED RAIN WATER PIPE
- SVP — PROPOSED SOIL VENT PIPE
- RE — PROPOSED RODDING EYE
- G — PROPOSED SURFACE WATER GULLY
- G — PROPOSED FOUL WATER GULLY
- CH — PROPOSED SLOT/CHANNEL DRAIN TO ARCHITECTS SPECIFICATION
- GEOCELL — PROPOSED SURFACE WATER ATTENUATION STORAGE STRUCTURE - GEOCELL (95%VOID) POLYSTORM R - PSM1A FOR TRAFFICKED AND LOADED APPLICATION, OR SIMILAR APPROVED. POLYSTORM INSPECT TUNNEL (PSM4) TO BE INCLUDED FOR MAINTENANCE. GEOCELLS TO BE WRAPPED IN IMPERMEABLE GEOMEMBRANE AND PERMATEX 300 TO PROTECT THE GEOMEMBRANE FROM PUNCTURE. VENTILATION AND PIPE CONNECTIONS TO MANUFACTURER DETAILS AND SPECIFICATION. INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILS.
- TP — PROPOSED FOUL WATER TREATMENT PLANT

TABLE 1
IMPERMEABLE AREAS COMPARISON

	SQ M	HA
SITE AREA	2780	0.278
EXISTING IMPERMEABLE AREA	717	0.072
EXISTING PIMP %	26%	
PROPOSED IMPERMEABLE AREAS	1574	0.157
PROPOSED PIMP %	56%	

TABLE 2
DISCHARGE RATE COMPARISON

	Q1 L/S	Q30 L/S	Q100 L/S
IH 124 GREENFIELD RUNOFF RATE	2.5	4.9	6.0
Q (L/S) BROWNFIELD (MRM) BASED ON EXISTING IMPERMEABLE AREAS = 717 SQ M (26%PIMP)	5.0	12.3	16.1
MAXIMUM PROPOSED DISCHARGE RATE	**5.0**		

TABLE 3
SURFACE WATER DISCHARGE HIERARCHY ASSESSMENT

IN TO THE GROUND - INFILTRATION	DISCOUNTED FOLLOWING BRE 365 SITE TESTING.
TO A SURFACE WATER BODY	NO WATER BODIES WITHIN SITE BOUDARY
TO A SURFACE WATER SEWER, HIGHWAY DRAIN, OR ANOTHER DRAINAGE SYSTEM;	TO EXISTING SURFACE WATER DRAIN CROSSING THE SITE
TO A COMBINED SEWER	N/A

TABLE 4
ATTENUATION VOLUME ESTIMATION

	YR 1 (100% AEP)	YR 30 (30% AEP) + 40%CC	YR 100 (1% AEP) +45%CC
V (m³) DISCHARGE RATE - 5 l/s. CONTRIBUTING AREA = 0.158 ha	6 < V < 13	40 < V < 70	64 < V < 104
ATTENUATION TANK 1 V (m³) FLOW CONTROL TYPE: HYDROBREAKS MAXIMUM PASS FORWARD RATE: 2.5 l/s DESIGN HEAD 0.975 m	3.40	19.9	29.6
ATTENUATION TANK 2 V (m³) FLOW CONTROL TYPE: HYDROBREAKS MAXIMUM PASS FORWARD RATE: 2.5 l/s DESIGN HEAD 0.975 m	3.70	22.6	33.8
TOTAL SITE ATTENUATION V(m³)	7.10	40.5	63.5

TABLE 5
WATER QUALITY - SIMPLE INDEX APPROACH

AREA	POLLUTION HAZARD	PRE-TREATMENT POLLUTION INDEX	MITIGATION MEASURE	MITIGATION INDICES	SUFFICIENT TREATMENT PROVIDED
RESIDENTIAL ROOFS	VERY LOW	TOTAL SUSPENDED SOLIDS = 0.2 METALS = 0.2 HYDROCARBONS = 0.05	SILT CHAMBERS, ATTENUATION TANK,		YES
RESIDENTIAL DRIVEWAY	LOW	TOTAL SUSPENDED SOLIDS = 0.5 METALS = 0.4 HYDROCARBONS = 0.4	PERMEABLE SURFACES	TOTAL SUSPENDED SOLIDS = 0.7 METALS = 0.6 HYDROCARBONS = 0.7	YES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER HBL DRAWINGS ISSUED FOR THIS PROJECT

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METERS UNLESS OTHERWISE SPECIFIED. ALL MEASUREMENTS SHOULD BE VERIFIED ON SITE PRIOR TO WORKS BEING UNDERTAKEN. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DRAWINGS AND SPECIFICATIONS.
3. THE DRAINAGE CONTRACTOR IS RESPONSIBLE TO MAKING AN APPLICATION TO ANY SEWERAGE UNDERTAKER PRIOR TO CONSTRUCTION OF ANY CONNECTION INTO A PUBLIC MANHOLE.
4. THE ENGINEER IS TO BE NOTIFIED OF ANY DISCREPANCIES TO THE DETAILS SHOWN ON THE DRAINAGE AND ANY UNRECORDED CONNECTIONS NOT SHOWN ON THE DRAWINGS.
5. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS AND LEVELS AND FOR CONFIRMING THE GIVEN LEVEL OF OUTFALL INTO PUBLIC SEWER, WATERCOURSE OR OTHER OUTFALL PRIOR TO CONSTRUCTION WORKS COMMENCING.
6. UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT AUTHORITIES ALL DRAWINGS ISSUED ARE AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT THEIR OWN RISK.
7. TO PROTECT THE DRAINAGE SYSTEM FROM CONSTRUCTION SITE DERBIES, THE CONTRACTOR SHALL ENSURE THAT STOPPERS ARE SECURELY PLACED IN ALL CONNECTIONS IMMEDIATELY UPSTREAM OF THE TANK, ONLY TO BE REMOVED ONCE THE FINAL CLEANING OF THE ROADS/ DRAINAGE HAS BEEN COMPLETED.
8. THE DESIGN IS BASED ON THE INFORMATION AVAILABLE ON THE DATE OF ISSUE FROM OTHER PARTIES (E.G. ARCHITECT AND M&E ENGINEER). IT IS SUBJECT TO CHANGE RESULTING FROM UPDATES TO THE AVAILABLE INFORMATION FROM OTHERS.
9. NEW DRAINS AND SEWERS TO BE AS FOLLOWS;
 - 9.1. CONSTRUCTION AND MATERIALS OF PRIVATE SURFACE, FOUL & COMBINED WATER SEWERAGE SYSTEM TO BE IN ACCORDANCE WITH "BUILDING REGULATIONS - APPROVED DOCUMENT H" & "BS EN 752:2017 DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS"
 - 9.2. CONSTRUCTION AND MATERIALS OF PUBLIC SURFACE, FOUL & COMBINED WATER SEWERS TO BE IN ACCORDANCE WITH "DESIGN & CONSTRUCTION GUIDANCE, SEWERAGE SECTOR GUIDANCE APPENDIX C" AND IN ACCORDANCE WITH LOCAL SEWERAGE UNDERTAKER
 - 9.3. MINIMUM PIPE SIZE FOR ADOPTABLE SURFACE WATER DRAINAGE IS 150mmDN
 - 9.3.1. 100mmDN AT MIN 1:100 FOR 10 DWELLINGS OR LESS
 - 9.3.2. 150mmDN AT MIN 1:150 FOR GREATER THAN 10 DWELLINGS
 - 9.4. MINIMUM PIPE SIZE FOR ADOPTABLE FOUL WATER DRAINAGE IS 100mmDN
 - 9.4.1. 100mmDN 1:40 WHERE 10 DWELLINGS OR LESS AND NO WC
 - 9.4.2. 100mmDN 1:80 WHERE GREATER THAN 10 DWELLINGS AND AT LEAST 1 WC
 - 9.5. ALL ROAD GULLY PIPEWORK SPURS TO BE 150mmDN UNLESS OTHERWISE SPECIFIED
10. LOAD CLASS SELECTION TO COMPLY WITH BS EN 124.
 - 10.1. LOAD CLASS A15 - AREAS INACCESSIBLE TO MOTOR VEHICLES
 - 10.2. LOAD CLASS B125 - FOOTWAYS, PEDESTRIAN AREAS ETC
 - 10.3. LOAD CLASS D250 - GULLY TOPS IN KERBSIDE CHANNELS OF ROADS
 - 10.4. LOAD CLASS D400 - CARRIAGEWAYS OF ROADS (HEAVY DUTY)
 - 10.5. LOAD CLASS E600 - AREAS IMPOSING HIGH WHEEL LOADS
 - 10.6. LOAD CLASS F900 - AREAS IMPOSING PARTICULARLY HIGH WHEEL LOADS
11. ALL FOUL DRAINS BENEATH BUILDINGS AND FROM SOIL VENT PIPES, GULLIES AND WC CONNECTIONS BE 100mmDN AT A GRADIENT NOT LESS THAN OF 1:40.
12. ALL FOUL CONNECTIONS TO BE FULLY TRAPPED AND EACH FOUL CONNECTION TO A BRANCH DRAIN TO HAVE FULL RODDING ACCESS (E.G. LOW-LEVEL RODDING ACCESS).
13. RAINWATER DOWN PIPES ARE TO CONNECT TO A DRAIN VIA A REST BEND.
14. WHERE DRAINAGE IS COMBINED A 'P' TRAP MUST BE PROVIDED ABOVE PROPOSED FLOOR SLAB LEVEL.
15. MINIMUM DEPTH OF COVER TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTION SHOULD BE AS FOLLOWS (IN ACCORDANCE WITH "DESIGN & CONSTRUCTION GUIDANCE, SEWERAGE SECTOR GUIDANCE APPENDIX C"):
 - 15.1. 350mm - DOMESTIC GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS.
 - 15.2. 500mm - DOMESTIC DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS WEIGHT IN EXCESS OF 7.5 TONNES.
 - 15.3. 900mm - DOMESTIC DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS WEIGHT IN EXCESS OF 7.5 TONNES.
 - 15.4. 900mm - AGRICULTURAL LAND & PUBLIC OPEN SPACE.
 - 15.5. 1200mm - HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLE WITH A GROSS WEIGHT IN EXCESS OF 7.5 TONNES.
16. BACKFILL TO DRAINAGE TRENCHES UNDER CARRIAGEWAYS TO BE TYPE 1 SUB-BASE MATERIAL, ELSEWHERE BACKFILL TO BE FREE DRAINING READILY AVAILABLE COMPACTABLE MATERIAL FREE FROM RUBBISH, ORGANIC MATTER, FROZEN SOIL, CLAY LUMPS AND LARGE STONES. TO BE COMPACTED IN LAYERS NOT EXCEEDING 250mm THICK
17. A FLEXIBLE JOINT SHALL BE PROVIDED AS CLOSE AS IS FEASIBLE TO THE OUTSIDE FACE OF ANY STRUCTURE INTO WHICH A PIPE IS BUILT, COMPATIBLE WITH THE SATISFACTORY COMPLETION AND SUBSEQUENT MOVEMENTS OF THE JOINT. LENGTH OF THE NEXT PIPE (ROCKER PIPE) IS TO BE IN ACCORDANCE WITH THE TABLE BELOW
 - 17.1. 150-600mmDN - 600mm LONG ROCKER PIPE
 - 17.2. 601-750mmDN - 1000mm LONG ROCKER PIPE
 - 17.3. 751mmDN AND ABOVE - 1250mm LONG ROCKER PIPE
18. PIPE CROSSOVERS TO HAVE MINIMUM OF 300mm CLEARANCE BETWEEN OUTSIDE TOP OF THE LOWER PIPE AND OUTSIDE BOTTOM OF THE UPPER PIPE. WHERE THIS CANNOT BE ACHIEVED A SEPARATION, CONCRETE SURROUND IS TO BE FORMED WHICH WILL EXTEND NOT LESS THE 1000mm EACH SIDE OF THE CROSSING POINT. THE EXTENT OF THE CONCRETE SHOULD BE WITHIN 150mm OF A FLEXIBLE PIPE JOINT. THE CONCRETE SPECIFICATION SHOULD BE IN ACCORDANCE WITH THE STANDARD DETAILS FOR PIPE BED AND SURROUND AS ISSUED BY THE ENGINEER.
19. CONCRETE MIXES INDICATED ON THIS DRAWING ARE DESIGNATED MIXES CONFORMING TO BS 8500-1:2006. ALL CONCRETE TO BE SULPHATE RESISTANT. CONTRACTOR SHOULD ALLOWANCE FOR CARRYING OUT TESTING ONSITE TO CONFIRM SULPHATE LEVEL CLASSIFICATION.
20. ALL PRIVATE MANHOLES AND INSPECTION CHAMBERS TO BE CONSTRUCTED IN ACCORDANCE WITH "BUILDING REGULATIONS - APPROVED DOCUMENT H" & "BS EN 752:2017 DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS"
21. ALL MANHOLES AND INSPECTION CHAMBERS TO BE ADOPTED TO BE CONSTRUCTED IN ACCORDANCE WITH "IN ACCORDANCE WITH "DESIGN & CONSTRUCTION GUIDANCE, SEWERAGE SECTOR GUIDANCE APPENDIX C" AND IN ACCORDANCE WITH LOCAL SEWERAGE UNDERTAKER.
22. CCTV SURVEY OF ALL THE DRAINAGE SHOULD BE CARRIED OUT ON COMPLETION OF THE BUILDING WORKS AND PASSED ON TO THE CLIENT.
23. ANY EXISTING DRAINAGE INFRASTRUCTURE TO BE RETAINED TO HAVE NEW COVERS AND FRAMES TO SUIT NEW LEVELS AND SURFACING.
24. WHERE DRAINAGE RUNS PASS BELOW FOUNDATIONS, PIPES TO BE ENCASED IN MIN. 100mm CONCRETE SURROUND AND SURROUND WRAPPED IN 50mm COMPRESSIBLE MATERIAL (TOP & SIDES) PIPE SLEEVED THROUGH FOUNDATIONS AND FITTED WITH ROCKER PIPE. FOUNDATIONS ADJACENT TO DRAIN RUN TO BE DEEPENED LOCALLY TO INVERT OF DRAINAGE PIPE TO AVOID SURCHARGE LOADING.
25. WHERE DRAINAGE RUNS PASS ABOVE FOUNDATIONS, PROVIDE 65mm DEEP PRE-STRESSED CONCRETE LINTELS e.g. 'NAYLOR' Ref. P100

REV.	DATE	DRAWN	DESCRIPTION	CHKD	APPRD
P01	FEB'24	ES	ISSUED FOR COMMENTS	RJ	RJ

STATUS DESCRIPTION: FOR INFORMATION — STATUS: S2

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PROJECT: LAND AT 10-12 BRIDGEMONT, WHALEY BRIDGE, SK23 7PB

DRAWING TITLE: PROPOSED DRAINAGE STRATEGY PLAN

CLIENT: TREVILLE PROPERTIES

HBL REF.	DATE	SCALE(S)	
7962	JAN'24	1:200	A1

DRAWN	CHECKED	APPROVED
ES		

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