Notes

1. The survey grid is a local grid, coincident with Ordnance Survey National Grid at 14STN.
2. Surveyed boundary features are not necessarily legal boundaries.
3. Dimensions should not be scaled. All dimensions should be checked on site before any fabrication / construction.
4. Copyright of all data produced by Technics Group shall remain with Technics Group unless otherwise specifically agreed.
5. Information provided should not be altered or modified in any way. It should not be used for any purpose other than for which it was intended and should not be issued to other parties without prior agreement of Technics Group.
6. Technics Group cannot accept responsibility for any damage to computer systems which may result from viruses which may be contained in the data provided.
7. If the AutoCAD drawing is being read by any system other than AutoCAD it should be checked against a hard copy. Technics Group cannot accept liability for omissions.
8. All utilities have been identified to the best of the surveyors knowledge. The correct identification of the utility types can not be 100% guaranteed, therefore these should be independently verified prior to use in any design and building works.
9. External eaves levels are surveyed to lowest tile position.
10. Contours, if applicable, are not shown over hard standing, gravel, banking or flower borders.

Level Datum

ALL LEVELS ARE ORTHOMETRIC HEIGHTS RELATED TO OSGM15 GPS DATUM, COMPUTED USING LEICA SMARTNET RTK NETWORK.

Topo Key

STREET FURNITURE		LEVELS & DEPTHS		INSPECTION CHAMBERS	
BB	Belisha Beacon	A	Approximate	BH	Borehole
BL	Basement Light	BD	Back Drop Depth	CATV	Cable Television
Bin	Litter Bin	BDL	Back Drop Level	CDC	Concrete Drainage Channel
BO	Bollard	CD	Chamber Depth	EIC	Electric Inspection Cover
BS	Bus Stop	DHL	Door Head Level	ER	Earth Rod
CPO	Concrete Post	DSL	Door Sill Level	FH	Fire Hydrant
ECP	Electric Charging Point	DPC	Damp Proof Course	FWIC	Foul Water Inspection Cover
EP	Electric Pole	EL	Eaves Level	GIC	Gas Inspection Cover
FB	Flower Bed	FFL	Finished Floor Level	GM	Gas Meter
FHM	Fire Hydrant Marker	FRL	Flat Roof Level	GV	Gas Valve
FL	Flood Light	ICL	Cover Level	G	Gully
FP	Flag Pole	ID	Invert Depth	IC	Inspection Cover
FPO	Fence Post	IL	Invert Level	KI	Kerb Inlet
JB	Junction Box	OD	Outlet Depth	LHP	London Hydraulic Power
GB	Grit Box	OL	Outlet Level	MDC	Metal Drainage Channel
GMK	Gas Marker Post	PWL	Parapet Wall Level	MW	Monitoring Well
GPO	Gate Post	RL	Ridge Level	NFI	No Further Information
IBO	Illuminating Bollard	SD	Sump Depth	RE	Rodding Eye
LH	Lamp Hole	SFD	Soffit Depth	SDIC	Service Duct Inspection Cover
LP	Lamp Post	SFL	Soffit Level	SV	Stop Valve
LPO	Lockable Post	SIL	Silt Level	SWCP	Storm Water Catch Pit
MK	Marker	SL	Sump Level	SWIC	Storm Water Inspection Cover
MPO	Metal Post	SSL	Structural Slab Level	TCIC	Traffic Control Inspection Cover
NP	Name Plate	TFL	Top of Fence Level	TIC	Telecom Inspection Cover
PB	Post Box	THL	Threshold Level	UIC	Unidentified Inspectional Cover
PM	Parking Meter	TTL	Top of Tree Level	UTR	Unable to Raise
RPO	Reflector Post	TWL	Top of Wall Level	WIC	Water Inspection Cover
RS	Road Sign	USL	Underside Level	WM	Water Meter
SI	Sign	WL	Water Level	WWO	Water Wash Out
STN	Survey Station	WHL	Window Head Level	WSV	Water Stop Valve
Tap	Water Tap	WSL	Window Sill Level		
TCB	Telephone Cell Box				
TL	Traffic Light	FENCES & WALLS		SURFACES	
TLCB	Traffic Light Control Box	BW	Block Wall	BPav	Brick Paving
TP	Telegraph Post	BRP	Brick Pier	Conc	Concrete
TPO	Timber Post	BRTW	Brick Retaining Wall	CPav	Crazy Paving
		BRW	Brick Wall	CPS	Concrete Paving Slabs
		BWF	Barbed Wire Fence	FB	Flower/Shrub Border
PIPES & SERVICES		CBF	Close Board Fence	KFC	Kidney Flint Cobbles
ACU	Air Condition Unit	CIF	Corrugated Iron Fence	SPM	Soft Play Matting
DP	Down Pipe	CLF	Chain Link Fence	T	Tiles
FWP	Foul Water Pipe	CPF	Chestnut Paling Fence	Tmac	Tarmac
GP	Gas Pipe	CRW	Concrete Retaining Wall	TPav	Tactile Paving
RWP	Rain Water Pipe	CW	Concrete Wall	TS	Trench Scar
SP	Stand Pipe	CWF	Chicken Wire Fence		
SVP	Soil Vent Pipe	DI	Dilapidated		
VP	Vent Pipe	HR	Handrail	MEASUREMENTS	
WP	Waste Pipe	IWF	Interwoven Fence	d	Depth(m)
		LF	Lattice Fence	Ø	Diameter (mm)
		MF	Miscellaneous Fence	Ext. Ø	External Diameter (mm)
		MRF	Metal Railing Fence	H	Object Height (m)
		OBF	Open Board Fence		
		PCF	Post & Chain Fence		
		PNF	Panel Fence		
		PRF	Post & Rail Fence		
		PWF	Post & Wire Fence		
		RTW	Retaining Wall		
		STW	Stone Wall		
		SRTW	Stone Retaining Wall		
		WMF	Wire Mesh Fence		

Symbology

- Single Gate
- Double Gate
- Banking
- Step Up
- Diameter shown in mm
- Survey Station

Linetypes

- Telecom Overhead
- Power Overhead
- Foul Water
- Surface Water
- Combined Water
- Unknown Services
- Change of Surface
- Drop Kerb
- Fence
- Wall
- Kerb
- Building Face
- Overhead Feature
- Trench Scar
- Tree Canopy
- Bushes\Foliage\Overgrowth
- Tree Canopy Extents

Trees

SPECIES ABBREVIATION

AL	Alder	HL	Hemlock	RH	Rhododendron
BE	Beech	HO	Holly	RO	Rowan
CE	Cedar	HZ	Hazel	SAP	Sapling
CH	Cherry	LA	Larch	SB	Silver Birch
CON	Coniferous	LB	Laburnum	SCN	Sweet Chestnut
CY	Cypress	LM	Lime	SHR	Shrub
DE	Dead	LO	Locust	ST	Stump
DEC	Deciduous	LU	Laurel	SY	Sycamore
ED	Elder	MA	Maple	WB	Whitebeam
EU	Eucalyptus	MG	Magnolia	WG	Wellingtonia
FR	Fruit	NS	Norway Spruce	WI	Willow
HA	Hawthorn	PI	Pine	WN	Walnut
HB	Hornbeam	PO	Poplar		
HC	Horse Chestnut	PL	Plane		

NOTES:
1. The tree species have been identified to the best of the surveyors knowledge. They have not been verified by an arborist and are not guaranteed. If they are important they should be verified.
2. Tree heights are estimated.
3. A CAD layer exists with the full tree canopies intact which is turned off.
4. Trees with bole diameters below the specified minimum size may not have been surveyed.
5. Multibole sizes are indicative.

SURVEY STATIONS			
Name	Easting	Northing	Height
1STN	510016.776	188858.542	55.573
2STN	510062.780	188851.279	54.367
3STN	510084.060	188873.631	54.675
4STN	510119.758	188892.190	54.363
5STN	510136.910	188843.182	54.083
6STN	510087.047	188824.656	53.057
7STN	510091.790	188795.827	51.599
8STN	510106.240	188759.079	49.649
9STN	510086.895	188739.553	51.194
10STN	510039.859	188727.133	51.558
11STN	509994.299	188741.217	52.625
12STN	509963.975	188750.429	54.247
13STN	509936.880	188761.693	54.912
14STN	509925.063	188784.226	55.915
15STN	509894.490	188771.687	56.118
16STN	509883.010	188801.869	56.521
17STN	509889.305	188848.197	56.344
18STN	509931.611	188868.800	57.082
19STN	509968.667	188855.279	56.673
B1STN	509899.279	188809.312	56.378
K1STN	509992.431	188880.257	56.837
K2STN	509970.916	188829.891	56.110
SL1STN	510033.484	188808.821	53.807
SL2STN	509982.145	188800.162	55.401

CLIENT

HSP Consulting Engineers Limited

SITE
Grangewood School
Fore Street, Pinner
HA5 2JQ

DRAWING TITLE
Topographical Survey

PROJECT NUMBER	DRAWING NUMBER	DATE
SP21725	SD21725-01	Sep 2021
SURVEYED BY	DRAWN BY	CHECKED BY
BC / CJ	BC / CJ	CJ
SCALE	SHEET SIZE	SHEET
1:200	A0	3 OF 3

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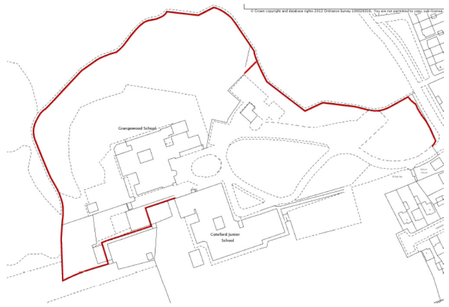
8.3 Appendix C – Proposed Landscape Architect's Plans



Secure Line: Provide for 2.4m high weldmesh along existing secure line boundary

Woodland space with play equipment

KS1 and KS2 External Space

KS1 and KS2 External Space

A,A 0401

B,B 0401

C,C 0401

D,D 0401

E,E 0401

F,F 0401

G,G 0401

H,H 0401

Refer to drawing FS0728-WWA-ZZ-DR-L-0114

Refer to drawing FS0728-WWA-ZZ-DR-L-0114

Refer to drawing FS0728-WWA-ZZ-DR-L-0114

Existing Garage

Fenced bin storage size TBC

Coteford School Drop-off Area

KS3 External space

Shared External Space

MUGA 24X15m

Coteford Courtyard
Subject to redesign - works to be agreed

Coteford School
FFL 55.00

- Parking spaces
- Pedestrian safe walking route
- Drop kerb
- Raised road kerb
- Retained trees with canopy and RPA
- Electric vehicle charging point
- 55.87m Existing levels on topographical survey
- 55.87m Proposed levels (Provisional)
- Indicates sloping ground
- A,A 0401 Sections- refer to drawing 0401
- Woodland access path exsiting
- School entrance
- 01 Storage
- 02 Sensory garden
- 03 Sloped path to woodland

Note; All levels preliminary. Levels in car park to be coordinated with drainage engineer
Note: All external doors to have door guards
Note: Dropped kerbs at crossing points and accessible bays
Note: Hazard paving at all crossing points

- Proposed secure fence line 2-4m high with gates
- 3m high fencing with gates
- Proposed retaining wall, varying height
- Proposed retaining wall,with top fixed fence to 2.4 overall height
- 1.2m high bowtop rail
- Existing metal palisade fencing
- Proposed building
- Existing building
- Proposed canopy to architects details
- Vehicular asphalt paving
- Pedestrian asphalt paving
- Permeable asphalt or safer surfacing
- Soft Landscape areas
- Hedge planting
- Shade sails or canopy by school

No.	Date	Appr	Revision Notes
P 06	19/10/22	KL	Layout updated
P 05	13/10/22	KL	Updated layout
P 04	27/09/22	KL	Overhead netting removed
P 03	23/09/22	KL	Bowtop fence added
P 02	21/09/22		Secure line information added

Note: All Dimensions must be checked on site and not scaled from this drawing.
All cross references are to the latest revision of the relevant drawing or specification being referenced

wynne-williams associates
landscape architects & arboricultural consultants
tel: 01376 573050
web: w-wa.co.uk

Scale/North Point: N; 0 10 15 20 25 M

Client: Kier Construction

Job Title: Pinn River School

Drawing Title: Ground Floor Landscape Layout
DRAFT

Issue: ITT

Scale: 1:250@A1

Drawn: IN | Checked: GWW

Project ID: 2181 | Date: 12/09/2022

Drg: FS0728-WWA-ZZ-ZZ-DR-L-0112 | Status: S4 | Rev: P06

107 Standard parking bays
3 Accessible bays
3 school minibus parking bays
8 minibus drop off bays
9 minibus waiting

01 Powered 2 wheeler parking
02 Minibus drop off bays

Proposed secure fence line 2-4m high

Existing metal palisade fencing

Vehicular asphalt

Parking spaces

Pedestrian safe walking route

Drop kerb

Raised road kerb

Gravel margins

Existing soft landscape

Electric Vehicle Charging Point

Retained trees with canopy and RPA

School entrance

Note; Levels and drainage in car park to be coordinated with drainage engineers drawings
Note; Dropped kerbs at crossing points and accessible bays

Note; Hazard paving at crossing points

No.	Date	Appr	Revision Notes
P 03	19/10/22	KL	Updated layouts and levels
P 02	13/10/22	KL	Updated layout

Note: All Dimensions must be checked on site and not scaled from this drawing.
All cross references are to the latest revision of the relevant drawing or specification being referenced

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web: w-wa.co.uk

Scale/North Point

N

0 10 15 20 25 M

Client
Kier Construction

Job Title
Pinn River School

Drawing Title
Car Park Layout
DRAFT

Issue	PLANNING
Scale	1:250@A1
Drawn	IN
Checked	GWW
Project ID	2181
Date	12/09/2022
Drg	FS0728-WWA-ZZ-ZZ-DR-L-0113
Status	S4
Rev	P03

8.4 Appendix D – Proposed Below Ground Drainage General Arrangement

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

It is a requirement that only experienced and competent contractors carry out the work described, using a recognised safe method of working. The following are significant residual risks identified by the designer and are additional to those hazards/risks normally associated with this type of work.

Where appropriate the residual risks are indicated on the drawing with the symbol and reference to the note number

Construction

C1: WORKS TO TAKE PLACE NEAR TO EXISTING SERVICES AND DRAINAGE, INCLUDING A LARGE GAS MAIN THAT RUNS FROM THE BOILER HOUSE. EXTREME CAUTION ADVISED WHEN OPERATING NEAR TO THE GAS MAIN.
C2: CONSTRUCTION WORKS TO TAKE PLACE ADJACENT TO A LIVE SITE OCCUPIED BY VULNERABLE PERSONS.
C3: WORKS TAKING PLACE ADJACENT TO THE LONDON GREEN BELT, SSSI, GRADE 1 NATURE CONSERVATION
C4: EXISTING UNDERGROUND SERVICES LOCATED ON SITE; ALL EXISTING DRAINAGE SERVICES TO BE TIED BACK TO SITE BOUNDARY PRIOR TO CONSTRUCTION WORKS. EXISTING M&E SERVICES STRATEGY TO BE AGREED UPON WITH THE M&E ENGINEER PRIOR TO CONSTRUCTION.
C5: WORKS REQUIRE CONNECTION INTO LIVE SEWERS. SEWERS TO BE INACTIVE PRIOR TO ANY WORKS TAKING PLACE.
C6: CARE TO BE TAKEN TO AVOID CROSS CONTAMINATION BETWEEN SURFACE WATER AND FOUL WATER SEWERS.
C7: RISK OF DISEASE WHEN WORKING WITH EXISTING SEWERS. APPROPRIATE PPE TO BE WORN AT ALL TIMES. WORKS TO BE UNDERTAKEN ONLY BY TRAINED AND COMPETENT PERSONNEL
C8: EXCAVATION WORKS:

- TRENCHES AND EXCAVATIONS ARE TO BE SHORED UP OR BATTERED BACK TO ENSURE ANY RISK OF THE SIDES COLLAPSING IS MITIGATED.
- EXISTING UTILITIES ARE TO BE IDENTIFIED AND PROTECTED DURING EXCAVATIONS WORKS.. IT IS POSSIBLE THERE ARE UNIDENTIFIED UTILITIES, CARE TO BE TAKEN DURING EXCAVATION TO AVOID AND IDENTIFY THESE.

C9: VENTILATION PIPES TO BE INSTALLED ON FOUL MANHOLES TO PREVENT A BUILD-UP OF TOXIC GAS.

Operation

O1: WHERE WET RISERS ARE PROPOSED FOR USE, TESTING TO BE CARRIED OUT OUTSIDE PEAK FOUL DRAINAGE HOURS.
O2: MANHOLES ARE PROPOSED WITHIN THE PLAYGROUND AND MUGA PITCHES. MANHOLES LOCATED WITHIN SCHOOL GROUNDS TO BE LOCKED TO PREVENT CHILDREN FROM ACCESSING THEM.

Maintenance

M1: SEVERAL PROPOSED MANHOLES HAVE DEPTHS EXCEEDING 2m. CARE TO BE TAKEN WHEN UNDERTAKING MAINTENANCE TASKS ON DEEP MANHOLES. MAINTENANCE TO ONLY BE UNDERTAKEN BY TRAINED AND COMPETENT PERSONNEL.
M2: ACCESS TO THE ATTENUATION TANK IS LIMITED. REFER TO CURTINS' O&M MANUAL AND THE MANUFACTURE'S RECOMMENDATIONS FOR MAINTENANCE PROCEDURES FOR THE ATTENUATION TANK.

Demolition

D1: AN ASBESTOS SURVEY MUST BE UNDERTAKEN PRIOR TO ANY DEMOLITION OR CONSTRUCTION WORKS TAKING PLACE ON SITE.
D2: DEMOLITION WORKS MAY REQUIRE THE REMOVAL OF THE PROPOSED ATTENUATION TANK. CRATES TO BE DISPOSED OF LEGALLY AND IN LINE WITH THE MANUFACTURE'S RECOMMENDATIONS. WHERE POSSIBLE, ATTENUATION CRATES SHOULD BE REUSED, REPURPOSED FOR USE OR RECYCLED.

ALL EXISTING DRAINAGE COLLECTING RUN-OFF FROM WITHIN THE PROPOSED DRAINAGE AREA TO BE STOPPED UP OR REMOVED. PROPOSED AREA TO BE DRAINED USING NEW GULLIES AND CHANNELS

UPSTREAM CONNECTIONS OF EXISTING DRAINAGE RUNS TO BE CONFIRMED. PREVIOUS CCTV SURVEY WAS ABANDONED DUE TO A CHANGE IN PIPE SIZE

CHANNEL DRAIN WILL BE REQUIRED ALONG EASTERN EDGE OF BUILDING IN ORDER TO PROTECT STRUCTURE FROM SURFACE WATER RUNOFF. CHANNEL DRAIN TO CONNECT INTO PROPOSED DIVERSION SURFACE WATER MANHOLE SW34.
SUBJECT TO COORDINATION WITH LANDSCAPE ARCHTIECT LEVELS PLAN.

AREAS OF NEW HARDSTANDING TO BE DRAINED INTO EXISTING DRAINAGE SYSTEM AND DISCHARGED FROM SITE UNRESTRICTED. TO COMPENSATE, AN AREA OF EXISTING CAR PARK TO THE NORTH HAS BEEN INCLUDED IN THE PROPOSED NETWORK'S CATCHMENT AREA. THE AREA DRAINING UN-RESTRICTED IS MARGINALLY LESS THAN THAN IN THE PRE-DEVELOPMENT CASE.

PERMEABLE MUGA SURFACING PROPOSED FOR THE PITCH AND SURROUNDING AREAS WHERE VIABLE. TO BE DESIGNED BY A SPECIALIST MUGA SURFACING ENGINEER.
TYPE 3 SUBBASE OF DEPTH 200-300mm PROPOSED. PERFORATED PIPES PROPOSED TO BE INSTALLED ABOVE THE TANK AND BELOW THE TYPE 3 SUB-BASE. DEPTH TO BE CONFIRMED FOLLOWING RECEIPT OF LANDSCAPE ARCHITECT'S LEVELS PLAN.

CHANNEL DRAIN ALONG EASTERN EDGE OF BUIILDING TO CONNECT INTO EXISTING MANHOLE ST10

EXISTING FOUL MANHOLE

ROUTE SHOWN IS ANTICIPATED ONLY.
CCTV AND GPR SURVEY REQUIRED TO CONFIRM LOCATION AND DIRECTION OF EXISTING SURFACE WATER DRAIN

VORTEX FLOW CONTROL MANHOLE (SW33 OUTFALL):
DESIGN HEAD - 1.9m
DESIGN FLOW - 2.5l/s

PROPOSED MANHOLE TO BE CONSTRUCTED OVER EXISTING SW OUTFALL. GPR AND CCTV SURVEY REQUIRED TO IDENTIFY LOCATION OF EXISTING SEWER).

EXISTING SURFACE WATER MANHOLE TO BE RELOCATED TO SW33 OUTFALL

CONTRACTOR TO CONFRIM EXISTING MANHOLE LEVEL FOLLOWING VARYING SURVEY RESULTS IDENTIFIED BY CURTINS

PROPOSED ATTENUATION TANK TO BE PLACED UNDERNEATH THE PROPOSED PERMEABLE MUGA PITCH.

APPROXIMATE STORAGE VOLUME - 505.5m³
AREA - 473m²
DEPTH - 1.125m
POROSITY - 95%

C.L: 56.10
I.L: 54.14

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. EXISTING SITE SERVICES TO BE DIVERTED AS REQUIRED. PROPOSED SERVICE DIVERSIONS TO BE PROVIDED BY MEP ENGINEER. DESIGN SUBJECT TO CHANGE FOLLOWING RECEIPT OF EXTERNAL SERVICES DRAWINGS.
5. CCTV AND GPR SURVEYS REQUIRED TO CONFIRM LOCATION OF EXISTING UTILITIES ACROSS THE SITE AND THE CONDITION OF EXISTING DRAINAGE STRUCTURES AND PIPES ACROSS THE SITE.
6. SURFACE WATER DISCHARGE RATE LIMITED TO THE 1 IN 1 YEAR GREENFIELD RUN OFF RATE OF 2.5 L/S. PROPOSED DISCHARGE RATE TO BE AGREED UPON WITH THE LLFA. THAMES WATER HAVE AGREED TO THE PROPOSED DISCHARGE RATE; REFER TO THE THAMES WATER PRE-DEVELOPMENT ENQUIRY FOR FURTHER INFORMATION.
7. MUGA SURFACING TO BE USED ATOP MANHOLES LOCATED WITHIN THE MUGA PITCH TO MINIMISE THE IMPACT OF MANHOLES BEING LOCATED WITHIN THE TENNIS COURT. DETAIL TO BE COORDINATED WITH LANDSCAPE ARCHITECT AT A LATER DESIGN STAGE.
8. PROPOSED FOUL OUTFALL (FW23 OUTFALL) TO BE RETAINED.
9. CCTV SURVEY TO CONFIRM WHERE EXISTING SURFACE WATER AND FOUL WATER PIPES DISCHARGE TO.
10. INTERNAL COURTYARDS WILL REQUIRE DRAINAGE; DESIGN TO BE DETERMINED AT A LATER DESIGN STAGE.
11. CCTV SURVEY TO CONFIRM THE UPSTREAM PIPEWORK IS NOT SERVING ADDITONAL PROPERTIES OUTSIDE OF GRANGEWOOD SCHOOL, UPSTREAM PIPEWORK TO BE REMOVED FOLLOWING CONFIRMATION.
12. SITE BOUNDARY EXTENSION OR THIRD PARTY WORKS AGREEMENT WILL BE REQUIRED TO ADEQUATELY DRAIN THE SITE DUE TO REQUIRED PROPOSED MANHOLE LOCATIONS.
13. PROPOSED SURFACE WATER AND FOUL WATER NETWORKS SHOWN AS INDICATIVE, DESIGN SUBJECT TO CHANGE FOLLOWING RECEIPT OF SVP/SS AND RWP LOCATIONS.
14. GROUNDWATER LEVEL TO BE CONFIRMED FOLLOWING FULL SITE INVESTIGATION (S.I) REPORT. DRAINAGE STRATEGY TO BE UPDATED FOLLOWING CONFIRMATION OF GROUNDWATER LEVEL.
15. DESIGN SUBJECT TO CHANGE FOLLOWING RECEIPT OF SUBSTRUCTURE DESIGN.
16. COLLECTION SYSTEM TO BE CONFIRMED FOLLOWING RECEIPT OF LANDSCAPING AND EXTERNAL LEVELS STRATEGY AT A LATER DESIGN STAGE.
17. INTERNAL FOUL MANHOLES REQUIREMENT TO BE CONFIRMED FOLLOWING RECEIPT OF SVP LOCATIONS.
18. PROPOSED COVER LEVELS TO BE CONFIRMED FOLLOWING THE RECEIPT OF THE PROPOSED LEVELS DESIGN AT A LATER DESIGN STAGE.
19. PERMEABLE PAVING REQUIRED ABOVE MUGA PITCH IN ORDER TO ADEQUATELY DRAIN THE SITE. EXTENTS OF PERMEABLE PAVING TO BE CONFIRMED AT A LATER DESIGN STAGE.
20. WHERE DRAINAGE NETWORKS ARE PROPOSED TO BE CONSTRUCTED WITHIN 1.2m OF THE PROPOSED BUILDING, CONCRETE SURROUND TO BE INSTALLED AROUND PIPEWORK.

KEY:

- -PROPOSED REDLINE PLANNING BOUNDARY
- -PROPOSED DRAINAGE AREA
- -PROPOSED BELOW GROUND SURFACE WATER ATTENUATION STORAGE TANK
- -EXISTING FOUL DRAINAGE
- -EXISTING SURFACE WATER DRAINAGE
- FW23 OUTFALL CL: 56.35 IL: 54.30 -EXISTING FOUL MANHOLE
- -SURFACE WATER DRAIN.
- SW01 CL: 55.35 IL: 55.15 -SURFACE WATER CHAMBER.
- -FOUL WATER DRAIN.
- FW01 CL: 56.35 IL: 55.31 -FOUL WATER CHAMBER.
- -SURFACE WATER DRAIN TO BE ABANDONED AND FILLED WITH PFA CEMENT GROUT.
- -FOUL WATER DRAIN TO BE ABANDONED AND FILLED WITH PFA CEMENT GROUT.
- -ANTICIPATED ROUTE OF EXISTING SURFACE WATER DRAIN
- -EXISTING SURFACE WATER MANHOLE
- -RAINWATER PIPE (RWP)
- -PERMEABLE PAVING
- -EXISTING GAS MAIN

Rev:	Description:	Date:	By:	Chkd:
P03	PRE-APPLICATION SUBMISSION	26.10.22	BPC	MCS
P02	ITT SUBMISSION	15.09.22	BPC	MCS
P01	FIRST ISSUE	09.09.22	BPC	MCS

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Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status: SUITABLE FOR INFORMATION — S2

Project: PINN RIVER SCHOOL

Drg Title: PROPOSED DRAINAGE STRATEGY

Drawn By	Designed By	Checked By
BPC	BPC	MCS
	Date: 26.10.2022	Scales @ A1: 1:250

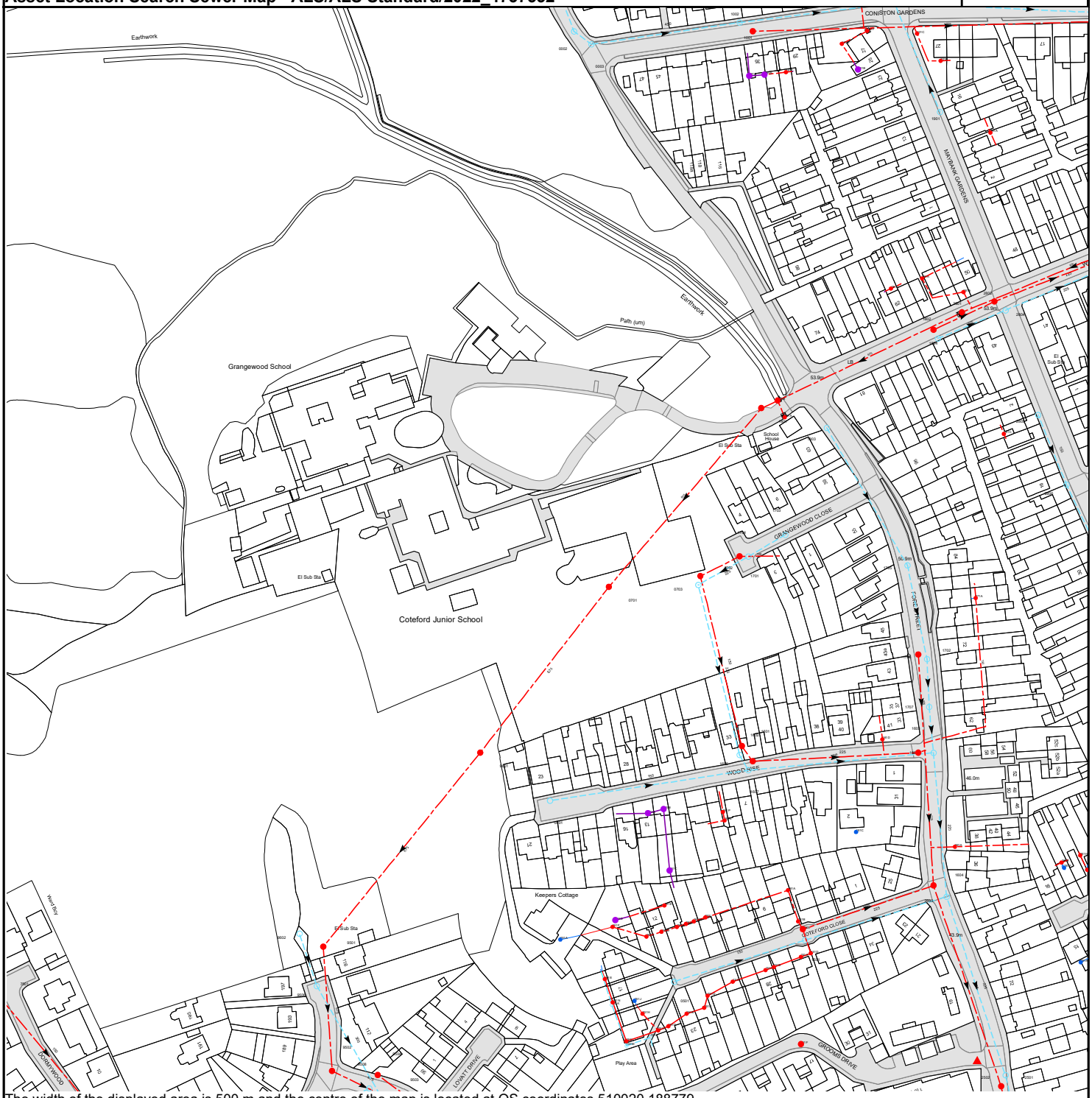
1:250 0 5m 10m 15m 20m 25m
1:1 0 10 20 30 40 50 60 70 80 90 100

Project No - Originator - Function - Spatial - Form - Discipline - Number: FS0728 - CUR - XX - XX - DR - C - 0500

Revision: P03

8.5 Appendix E – Thames Water Sewer Record

Asset Location Search Sewer Map - ALS/ALS Standard/2022_4737552



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 510020,188779

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
151F	n/a	n/a
261G	n/a	n/a
261F	n/a	n/a
261E	n/a	n/a
261H	n/a	n/a
271A	n/a	n/a
281C	n/a	n/a
181C	n/a	n/a
191E	n/a	n/a
191D	n/a	n/a
191C	n/a	n/a
1801	53.42	41.13
181B	n/a	n/a
1804	55.01	52.91
1802	54.94	52.08
2801	54.13	41.3
2804	53.88	51.25
2802	53.75	50.81
281A	n/a	n/a
191A	n/a	n/a
291A	n/a	n/a
1901	52.8	49.85
191B	n/a	n/a
101B	n/a	n/a
101D	n/a	n/a
101C	n/a	n/a
1001	53.12	49.8
101F	n/a	n/a
1002	53.37	50.51
1003	51.32	48.19
051H	n/a	n/a
051K	n/a	n/a
051N	n/a	n/a
051J	n/a	n/a
9506	47.54	45.44
051E	n/a	n/a
9501	48.61	40.47
051A	n/a	n/a
061G	n/a	n/a
9602	48.43	46.28
061F	n/a	n/a
061D	n/a	n/a
061A	n/a	n/a
0601	47.95	46.09
9601	50.36	40.68
0701	50.95	40.93
0003	54.75	51.21
0002	54.85	52.99
2803	53.92	51.25
251A	n/a	n/a
251D	n/a	n/a
2501	43.19	40.45
2502	43.17	41.77
051F	n/a	n/a
051G	n/a	n/a
051B	n/a	n/a
051C	n/a	n/a
051D	n/a	n/a
0501	44.85	43.38
151B	n/a	n/a
151C	n/a	n/a
151E	n/a	n/a
151A	n/a	n/a
151D	n/a	n/a
1501	44.38	42.96
061O	n/a	n/a
1605	44.37	42.29
061H	n/a	n/a
061N	n/a	n/a
161B	n/a	n/a
061M	n/a	n/a
061L	n/a	n/a
061E	n/a	n/a
2603	n/a	n/a
161A	n/a	n/a
1604	45.34	42.29
9502	42.19	40.38
9508	45.57	43.76
9504	45.43	43.25
051I	n/a	n/a
051M	n/a	n/a
051L	n/a	n/a
061B	n/a	n/a
061C	n/a	n/a
0703	n/a	n/a
0702	49.85	47.65
061P	n/a	n/a
161E	n/a	n/a
1701	49.88	48.3
1606	47.18	46.04
1601	47.31	45.41

Manhole Reference	Manhole Cover Level	Manhole Invert Level
1607	46.77	45.47
1704	49.89	48.51
1602	46.84	45.04
181A	n/a	n/a
1703	50.7	48.68
1803	n/a	n/a
161C	n/a	n/a
161D	n/a	n/a
1705	51.44	49.89
1603	46.72	44.22
1702	48.68	45.94
1706	48.49	46.9
1707	47.55	45.46
1608	46.78	44.78
261A	n/a	n/a
2805	53.08	51.68
2806	52.73	50.64

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

Ducts may contain high voltage cables. Please check with Thames Water.

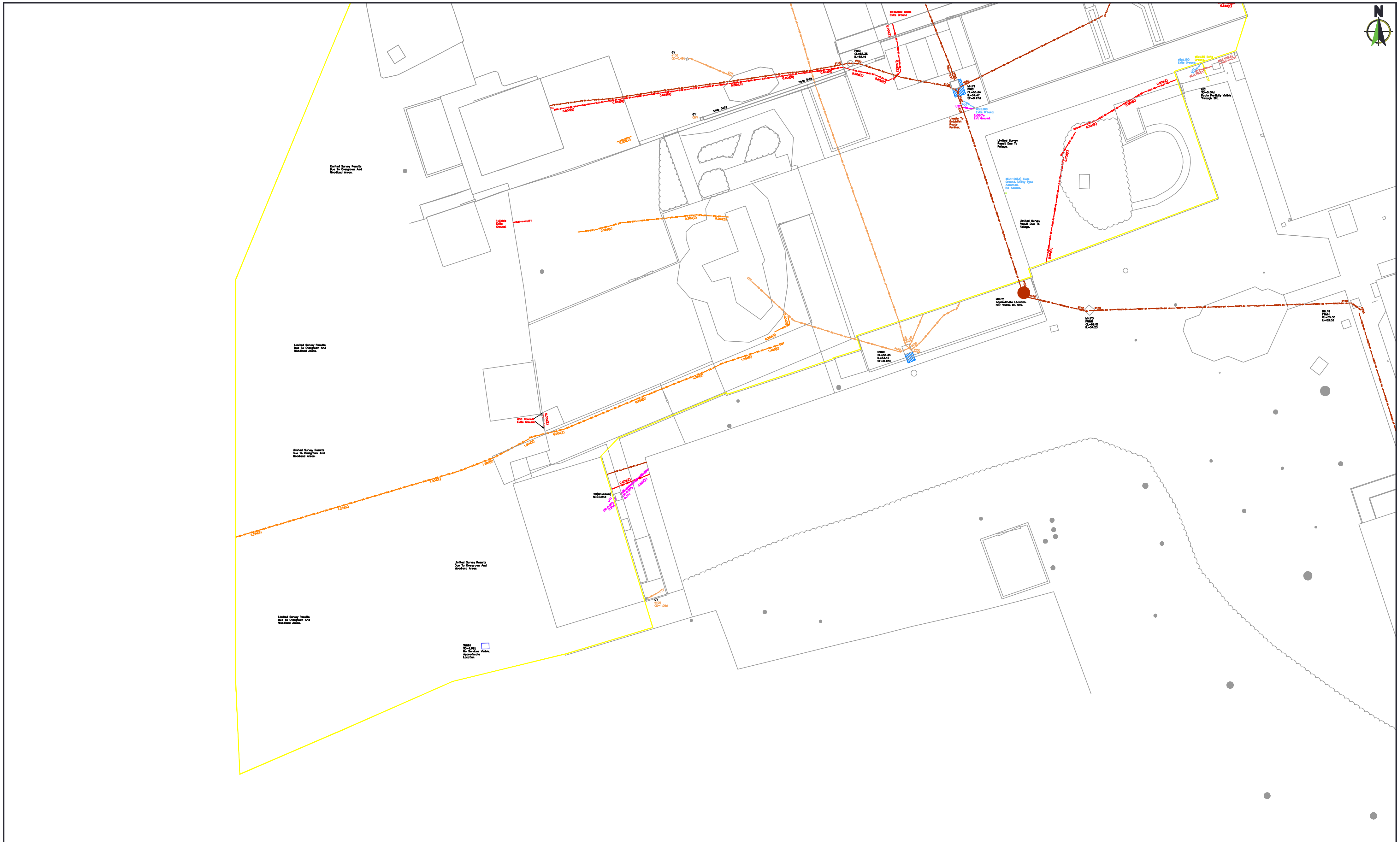
- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

8.6 Appendix F – CCTV and Utilities Survey



Notes

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The topographical survey was produced by Technics Group Drawing No's SD18253-01 & SD21725-01.

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The Ground Penetrating Radar was deployed using PAS 128 method M2.
The Electromagnetic Locator survey was deployed using PAS 128 method M2.

Unless otherwise stated, all services shown on this plan have been surveyed using approved detectors and the connections between manholes, if unable to be traced, have been assumed to be direct. The detection confidence for each utility segment is depicted in line with the scheme and outlined within the PAS128:2014 Quality Level Guide.

Information depicted as QL-C or QL-D and QL-B4, cannot be guaranteed as it is based on historic utility records or assumed routes which can be inaccurate and incomplete.

Depicted service routes may reflect the routes of multiple cables or pipes. It is not always possible to differentiate between buried construction features, utilities and other subsurface linear features therefore it is possible that some features shown are not utility related, and due to the limitations of electromagnetic techniques all utility identifications should be treated with caution and verified prior to any design/building works.

If the location or depth of services/features is of importance to a project then it is recommended that discussions are held with Technics Group regarding any possible limitations or anomalies. Depth indicators derived from Electromagnetic Locators shown with a with a suffix of "d(E)" or "d(S)" are classed as undefined, therefore should be treated with caution and verified prior to any design/building works. It is also advised that trial excavations should be undertaken to verify survey results within key areas of importance prior to any design/building works.

Depths suffixed by "d(E)" are taken to the centre of the conductor (cable, metallic pipe) Depths suffixed with "d(G)" are usually to the crown of the utility unless otherwise indicated and those suffixed with "d(S)" are to the invert of the pipe or duct.

No utility mapping survey can be considered a 100% accurate depiction of the sub-surface environment, and the use of these drawings does not remove the requirement for the use of safe digging techniques at all times, in line with the requirements of HSG47 and current CDM regulations.

Grid

The survey grid is a local grid, coincident with Ordnance Survey National Grid at 14STN.

Datum

All levels are orthometric heights related to OSGM15 GPS datum, computed using Leica Smartnet RTK Network.

Key

GENERAL

BB	Belisha Beacon
EC	Electric Cupboard
EFP	Electric Feeder Pillar
EMK	Electric Marker Post
EP	Electric Pole
FHM	Fire Hydrant Marker
FL	Flood Light
JB	Junction Box
GMK	Gas Marker Post
IBO	Illuminated Bollard
LH	Lamp Hole
LP	Lamp Post
MK	Marker
PM	Parking Meter
RS	Road Sign
SI	Sign
STN	Survey Station
TCB	Telephone Call Box
TL	Traffic Light
TLCB	Traffic Light Control Box
TP	Telegraph Pole

DETECTED DEPTHS

Accuracy defined by Quality Level, see PAS128 Quality Level Guide

d(G)	GPR Depth (m) To Top/Crown Of Utility

UNDEFINED DEPTHS

Accuracy undefined, No reliable depth measurement possible

d(E)	EML Depth (m) To Centre Of Utility
d(S)	Sonde Depth (m) To Invert Of Utility

VERIFIED LEVELS & DEPTHS

(A)	Approximate
BD	Back Drop Depth
BDL	Back Drop Level
CD	Chamber Depth
CL	Cover Level
d	Depth (m) To Top\Crown
IBDL	Internal Back Drop Level
ID	Invert Depth
IL	Invert Level
OD	Outlet Depth
OL	Outlet Level
SD	Silt Depth
SF	Soffit Depth
SFL	Soffit Level
SIL	Silt Level
SL	Sump Level
WL	Water Level

PIPES & CABLES

Ø	Diameter (mm)
BR	Branch-CCTV
CR	Cable Riser
DBC	Directly Buried Cable
DP	Down Pipe
EOT	End Of Trace
Ext.Ø	External Diameter (mm)
FWP	Foul Water Pipe
GP	Gas Pipe
ONV	Outlet Not Visible
RWP	Rain Water Pipe
SP	Stand Pipe
SVP	Soil Vent Pipe
TFR	Transferred From Records
UTT	Unable To Trace
VP	Vent Pipe
WP	Waste Pipe

APPARATUS

AC	Access Cover
BH	Borehole
CDC	Concrete Drainage Channel
CP	Catch Pit
E	Electric
ER	Earth Rod
FW	Foul Water
FH	Fire Hydrant
G	Gas
GM	Gas Meter
GV	Gas Valve
GY	Gully
IC	Inspection Cover
KI	Kerb Inlet
LHP	London Hydraulic Power
MH	Manhole
MU	Multiple Utility
MW	Monitoring Well
NFI	No Further Information
PS	Pumping Station
RE	Rodding Eye
ST	Service Trench
SV	Stop Valve
SW	Surface Water
SA	Soakaway
TC	Traffic Control
T	Telecom
TW	Trade Waste
U	Unidentified
UTR	Unable To Raise
WTR	Water
WM	Water Meter
WWO	Water Wash Out
WSV	Water Stop Valve

Legend

Utility Configuration Examples

Annotation	Graphic	Description
1W	●	1Way Single Duct
2W	●●	2Way Flat
2W 1/2	● ●	2Way 1Wide/2Deep
4W 2/2	●● ●●	4Way 2Wide/2Deep
6W 3/2	●●● ●●●	6Way 3Wide/2Deep

Note: To be adapted for each chamber, manhole or excavation

Hatch Patterns

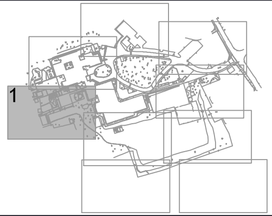
- Chamber
- Chamber With Unknown Extents
- Unable To Survey Area
- Radar Detected Reinforcing Mesh
- Radar Detected Anomaly

An anomalous feature represents an area within the radar data that illustrates a substantial difference from the uniform data of the surrounding area. Such features could be an effect from voids, heavily saturated ground, & subsurface construction features.

Utility Line Types

Control Systems	
TCSU-A	Traffic Control Signal
CCTV-A	Surveillance System
Drainage Systems	
CO-B2	Combined Drainage Flow Direction >
FW-B2	Foul Drainage Flow Direction >
SW-B2	Surface Water Drainage Flow Direction >
Electrical Systems	
HV-B1P	High Voltage
LV-B1P	Low Voltage
SL-B1P	Street Lighting
ELEC-B1P	Unknown
EARTH-B1P	Earth
Gas Systems	
GAS/HP-B2P	High Pressure
GAS/IP-B2P	Intermediate Pressure
GAS/LP-B2P	Low Pressure
GAS/MP-B2P	Medium Pressure
GAS-B2P	Unknown Pressure
Telecom Systems	
BT-B3	British Telecom
CO-B3	COLT
TEL-B3	Unknown
VM-B3	Virgin Media
VO-B3	Vodafone
ZA-B3	Zayo
Water Systems	
FIRE-B4	Fire Extinguishing Supply
POT-B4	Potable Supply
Unknown	
GPR-B3P	Ground Penetrating Radar Linear Feature
EML-B3	Electromagnetic Locator Linear Feature
Survey Area	
	Survey Area
	GPR Survey Area

Sheet Layout



Model / References List

Description	Drawing Number	Revision	Status
Base Mapping	SD18253-01_Grangewood School_Topo_FINAL	1.0	Final
Base Mapping	SD21725-01_Grangewood School_Topo_FINAL	1.0	Final

Statutory Records Information

Utility Type	Provider Details	Date Acquired
Telecoms	BT	17/09/2021
Gas	Cadent	17/09/2021
Drainage	Thames Water	13/09/2021

PAS128:Quality Level Guide

Quality Level	Description	Accuracy Horizontal	Accuracy Vertical
QL-D	Utility records information	Undefined	Undefined
QL-C	A utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works.	Undefined	Undefined
QL-B4	A utility which is suspected to exist but has not been detected and is shown as an assumed route.	Undefined	Undefined
QL-B3 B3P	Horizontal and vertical location of the utility detected by one geophysical technique.	±500 mm Horizontal	Undefined
QL-B2 B2P	Horizontal location only of the utility detected by one of the geophysical techniques used. Not including EML.	±250 mm or ±40% of detected depth whichever is greater	±40% of detected depth
QL-B1 B1P	Horizontal and vertical location of the utility detected by multiple geophysical techniques.	±150 mm or ±15% of detected depth whichever is greater	±15% of detected depth
QL-A	Utilities verified in an open excavation, inside and inspection chamber / manhole or at the point the utility enters / exits the ground.	±50 mm	±25mm

Version History

Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number	Scale	Drawn Date
SP21725	1:100	21/10/2021

Surveyed By	Drawn By	Checked By
RS CP HB	RS	RS

Status	Sheet	Version
FINAL	1 OF 9	1.0

Drawing Number
SD21725-02

Technics
Geospatial Consultant Surveyors

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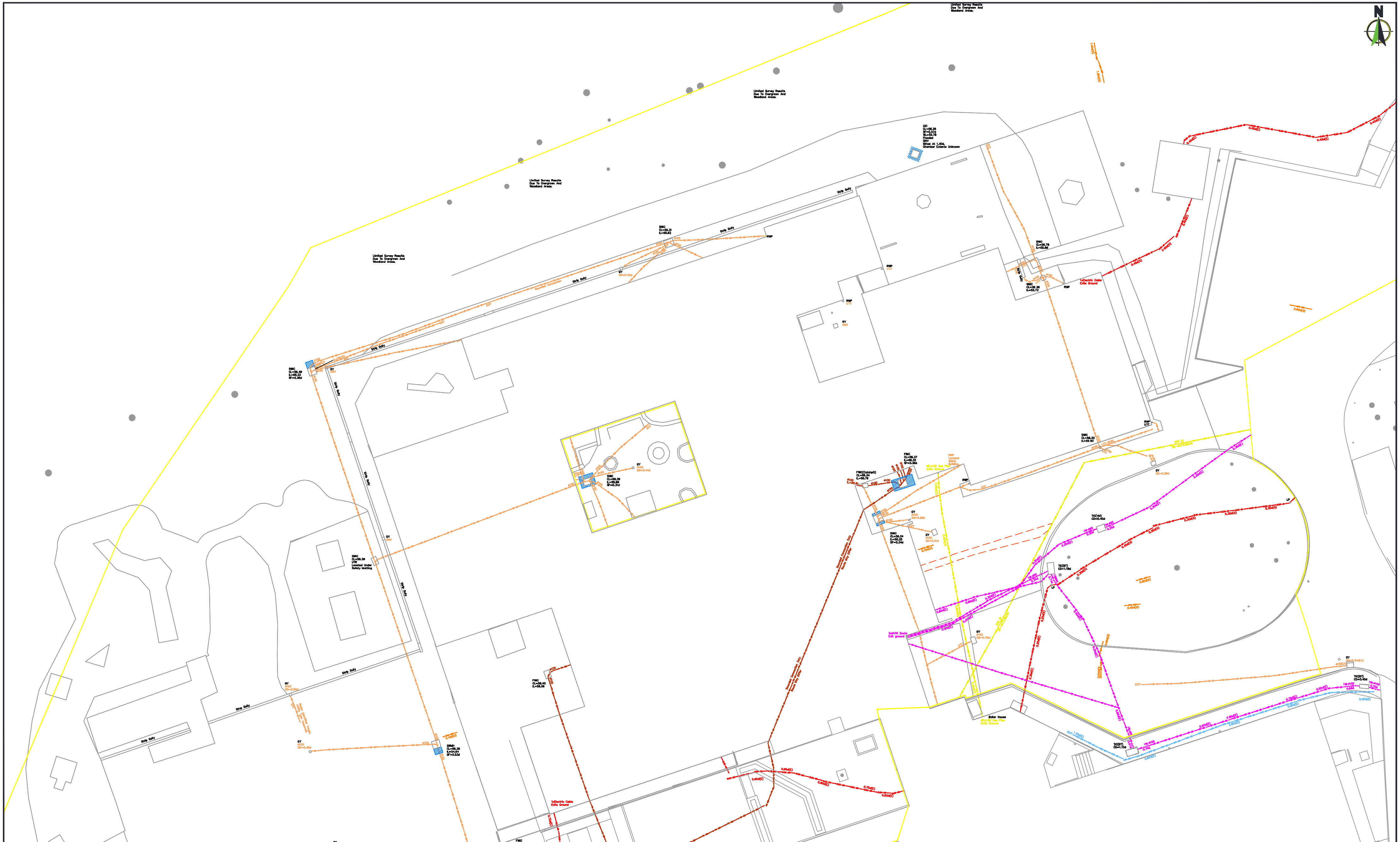
Technics House
Merrow Business Park
Guildford
Surrey, GU4 7WA
T: 01483 230 080
E: mail@technicsgroup.com
W: technicsgroup.com



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The Electromagnetic Locator survey was deployed using PAS 128 method M2.

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Key

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SFL	Soffit Level
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SL	Sump Level
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WP	Waste Pipe

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CP	Catch Pit
E	Electric
ER	Earth Rod
FW	Foul Water
FH	Fire Hydrant
G	Gas
GM	Gas Meter
GV	Gas Valve
GY	Gully
IC	Inspection Cover
KI	Kerb Inlet
LHP	London Hydraulic Power
MH	Manhole
MU	Multiple Utility
MW	Monitoring Well
NFI	No Further Information
PS	Pumping Station
RE	Rodding Eye
ST	Service Trench
SV	Stop Valve
SW	Surface Water
SA	Soakaway
TC	Traffic Control
T	Telecom
TW	Trade Waste
U	Unidentified
UTR	Unable To Raise
WTR	Water
WM	Water Meter
WWO	Water Wash Out
WSV	Water Stop Valve

Legend

Utility Configuration Examples

Annotation	Graphic	Description
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2W:	●●	2Way Flat
2W:1/2		2Way:1Wide/2Deep
4W:2/2		4Way:2Wide/2Deep
6W:3/2		6Way:3Wide/2Deep

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- Chamber With Unknown Extents
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- Radar Detected Anomaly

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Control Systems

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CCTV–A	Surveillance System

Drainage Systems

CO–B2	Combined Drainage Flow Direction >
FW–B2	Foul Drainage Flow Direction >
SW–B2	Surface Water Drainage Flow Direction >

Electrical Systems

HV–B1P	High Voltage
LV–B1P	Low Voltage
SL–B1P	Street Lighting
ELEC–B1P	Unknown
EARTH–B1P	Earth

Gas Systems

GAS/HP–B2P	High Pressure
GAS/IP–B2P	Intermediate Pressure
GAS/LP–B2P	Low Pressure
GAS/MP–B2P	Medium Pressure
GAS–B2P	Unknown Pressure

Telecom Systems

BT–B3	British Telecom
CO–B3	COLT
TEL–B3	Unknown
VM–B3	Virgin Media
VO–B3	Vodafone
ZA–B3	Zayo

Water Systems

FIRE–B4	Fire Extinguishing Supply
POT–B4	Potable Supply

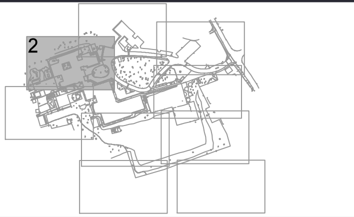
Unknown

GPR–B3P	Ground Penetrating Radar Linear Feature
EML–B3	Electromagnetic Locator Linear Feature

Survey Area

	Survey Area
	GPR Survey Area

Sheet Layout



Model / References List

Description	Drawing Number	Revision	Status
Base Mapping	SD18253-01_Grangewood School_Topo_FINAL	1.0	Final
Base Mapping	SD21725-01_Grangewood School_Topo_FINAL	1.0	Final

Statutory Records Information

Utility Type	Provider Details	Date Acquired
Telecoms	BT	17/09/2021
Gas	Cadent	17/09/2021
Drainage	Thames Water	13/09/2021

PAS128:Quality Level Guide

Quality Level	Description	Accuracy Horizontal	Accuracy Vertical
QL-D	Utility records information	Undefined	Undefined
QL-C	A utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works.	Undefined	Undefined
QL-B4	A utility which is suspected to exist but has not been detected and is shown as an assumed route.	Undefined	Undefined
QL-B3 B3P	Horizontal and vertical location of the utility detected by one geophysical technique.	±500 mm Horizontal	Undefined
QL-B2 B2P	Horizontal location only of the utility detected by one of the geophysical techniques used. Not including EML.	±250 mm or ±40% of detected depth whichever is greater	±40% of detected depth
QL-B1 B1P	Horizontal and vertical location of the utility detected by multiple geophysical techniques.	±150 mm or ±15% of detected depth whichever is greater	±15% of detected depth
QL-A	Utilities verified in an open excavation, inside and inspection chamber / manhole or at the point the utility enters / exits the ground.	±50 mm	±25mm

Version History

Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number	Scale	Drawn Date
SP21725	1:100	21/10/2021

Surveyed By	Drawn By	Checked By
RS CP HB	RS	RS

Status	Sheet	Version
FINAL	2 OF 9	1.0

Drawing Number
SD21725-02

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Geospatial Consultant Surveyors

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ISO A0 Landscape

A0-L

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Key

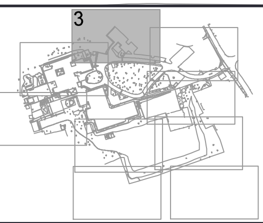
Legend

Utility Configuration Examples

Hatch Patterns

Utility Line Types

Sheet Layout



Model / References List

Description	Drawing Number	Revision	Status
Base Mapping	SD18253-01_Grangewood School_Topo_FINAL	1.0	Final
Base Mapping	SD21725-01_Grangewood School_Topo_FINAL	1.0	Final

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Version History

Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number SP21725 | **Scale** 1:100 | **Drawn Date** 21/10/2021

Surveyed By RS CP HB | **Drawn By** RS | **Checked By** RS

Status FINAL | **Sheet** 3 OF 9 | **Version** 1.0

Drawing Number
SD21725-02

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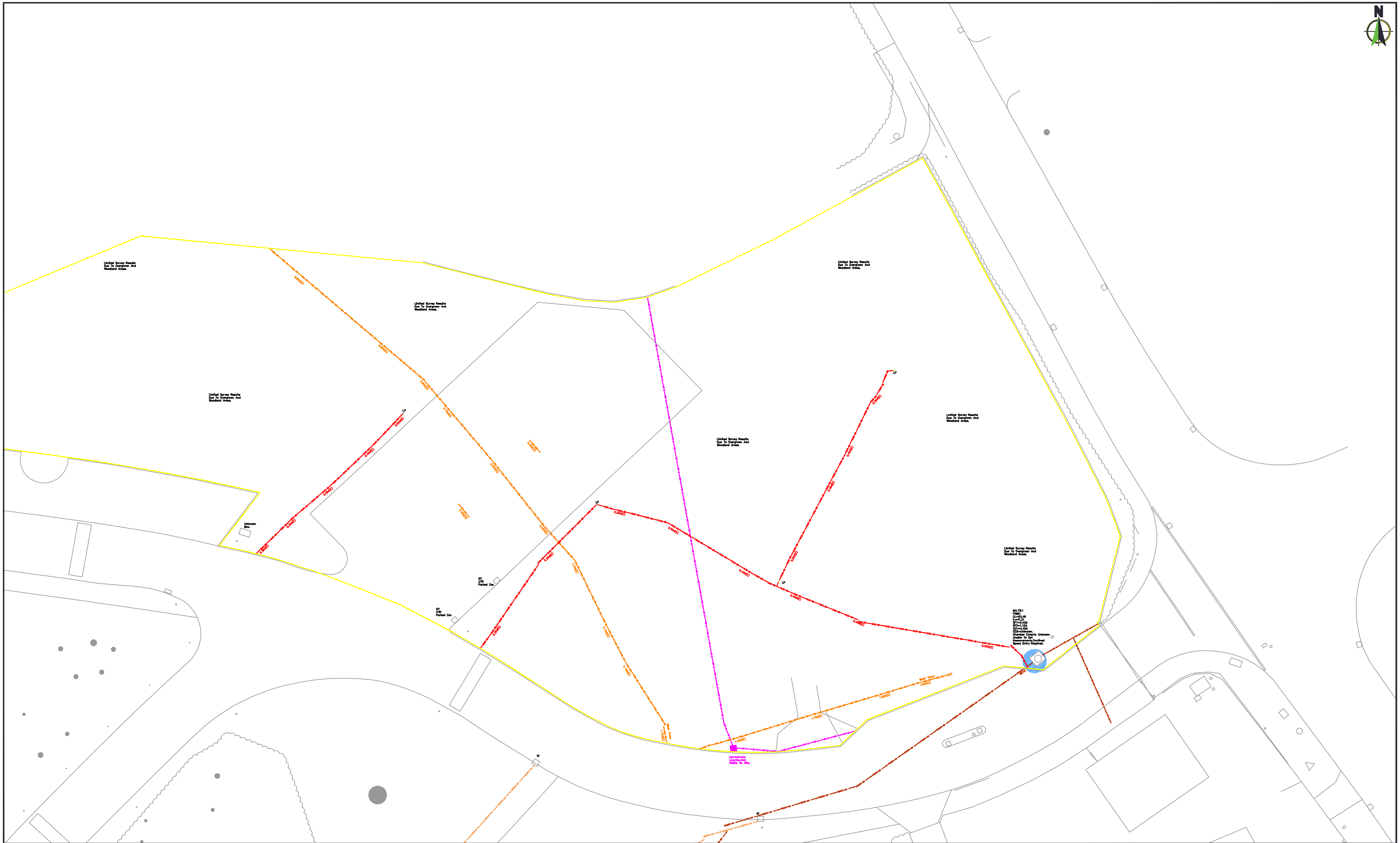

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Key

GENERAL

BB	Belisha Beacon
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EFP	Electric Feeder Pillar
EMK	Electric Marker Post
EP	Electric Pole
FHM	Fire Hydrant Marker
FL	Flood Light
JB	Junction Box
GMK	Gas Marker Post
IBO	Illuminated Bollard
LH	Lamp Hole
LP	Lamp Post
MK	Marker
PM	Parking Meter
RS	Road Sign
SI	Sign
STN	Survey Station
TCB	Telephone Call Box
TL	Traffic Light
TLCB	Traffic Light Control Box
TP	Telegraph Pole

DETECTED DEPTHS

Accuracy defined by Quality Level, see PAS128 Quality Level Guide

d(G)	GPR Depth (m) To Top/Crown Of Utility

UNDEFINED DEPTHS

Accuracy undefined, No reliable depth measurement possible

d(E)	EML Depth (m) To Centre Of Utility
d(S)	Sonde Depth (m) To Invert Of Utility

VERIFIED LEVELS & DEPTHS

(A)	Approximate
BD	Back Drop Depth
BDL	Back Drop Level
CD	Chamber Depth
CL	Cover Level
d	Depth (m) To Top\Crown
IBDL	Internal Back Drop Level
ID	Invert Depth
IL	Invert Level
OD	Outlet Depth
OL	Outlet Level
SD	Silt Depth
SF	Soffit Depth
SFL	Soffit Level
SIlL	Silt Level
SL	Sump Level
WL	Water Level

PIPES & CABLES

Ø	Diameter (mm)
BR	Branch-CCTV
CR	Cable Riser
DBC	Directly Buried Cable
DP	Down Pipe
EOT	End Of Trace
Ext.Ø	External Diameter (mm)
FWP	Foul Water Pipe
GP	Gas Pipe
ONV	Outlet Not Visible
RWP	Rain Water Pipe
SP	Stand Pipe
SVP	Soil Vent Pipe
TFR	Transferred From Records
UTT	Unable To Trace
VP	Vent Pipe
WP	Waste Pipe

APPARATUS

AC	Access Cover
BH	Borehole
CDC	Concrete Drainage Channel
CP	Catch Pit
E	Electric
ER	Earth Rod
FW	Foul Water
FH	Fire Hydrant
G	Gas
GM	Gas Meter
GV	Gas Valve
GY	Gully
IC	Inspection Cover
KI	Kerb Inlet
LHP	London Hydraulic Power
MH	Manhole
MU	Multiple Utility
MW	Monitoring Well
NFI	No Further Information
PS	Pumping Station
RE	Rodding Eye
ST	Service Trench
SV	Stop Valve
SW	Surface Water
SA	Soakaway
TC	Traffic Control
T	Telecom
TW	Trade Waste
U	Unidentified
UTR	Unable To Raise
WTR	Water
WM	Water Meter
WWO	Water Wash Out
WSV	Water Stop Valve

Legend

Utility Configuration Examples

Annotation	Graphic	Description
1W:	●	1Way Single Duct
2W:	●●	2Way Flat
2W:1/2		2Way:1Wide/2Deep
4W:2/2		4Way:2Wide/2Deep
6W:3/2		6Way:3Wide/2Deep

Note: To be adapted for each chamber, manhole or excavation

Hatch Patterns

- Chamber
- Chamber With Unknown Extents
- Unable To Survey Area
- Radar Detected Reinforcing Mesh
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Utility Line Types

Line	Description
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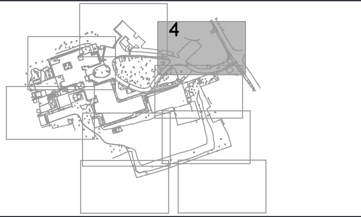
CCTV-A	Surveillance System
Drainage Systems	
CO-B2	Combined Drainage Flow Direction >
FW-B2	Foul Drainage Flow Direction >
SW-B2	Surface Water Drainage Flow Direction >
Electrical Systems	
HV-B1P	High Voltage
LV-B1P	Low Voltage
SL-B1P	Street Lighting
ELEC-B1P	Unknown
EARTH-B1P	Earth
Gas Systems	
GAS/HP-B2P	High Pressure
GAS/IP-B2P	Intermediate Pressure
GAS/LP-B2P	Low Pressure
GAS/MP-B2P	Medium Pressure
GAS-B2P	Unknown Pressure
Telecom Systems	
BT-B3	British Telecom
CO-B3	COLT
TEL-B3	Unknown
VM-B3	Virgin Media
VO-B3	Vodafone
ZA-B3	Zayo
Water Systems	
FIRE-B4	Fire Extinguishing Supply
POT-B4	Potable Supply
Unknown	
GPR-B3P	Ground Penetrating Radar Linear Feature
EML-B3	Electromagnetic Locator Linear Feature
Survey Area	
	Survey Area
	GPR Survey Area

Sheet Layout



Model / References List

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1.0	21/10/2021	First Issue	RS

Client: HSP Consulting Engineers Limited

Site: Grangewood School, Fore Street, HA5 2JQ

Drawing Title: PAS128: M2 Utility Survey

Project Number: SP21725 | **Scale:** 1:100 | **Drawn Date:** 21/10/2021

Surveyed By: RS CP HB | **Drawn By:** RS | **Checked By:** RS

Status: FINAL | **Sheet:** 4 OF 9 | **Version:** 1.0

Drawing Number: SD21725-02

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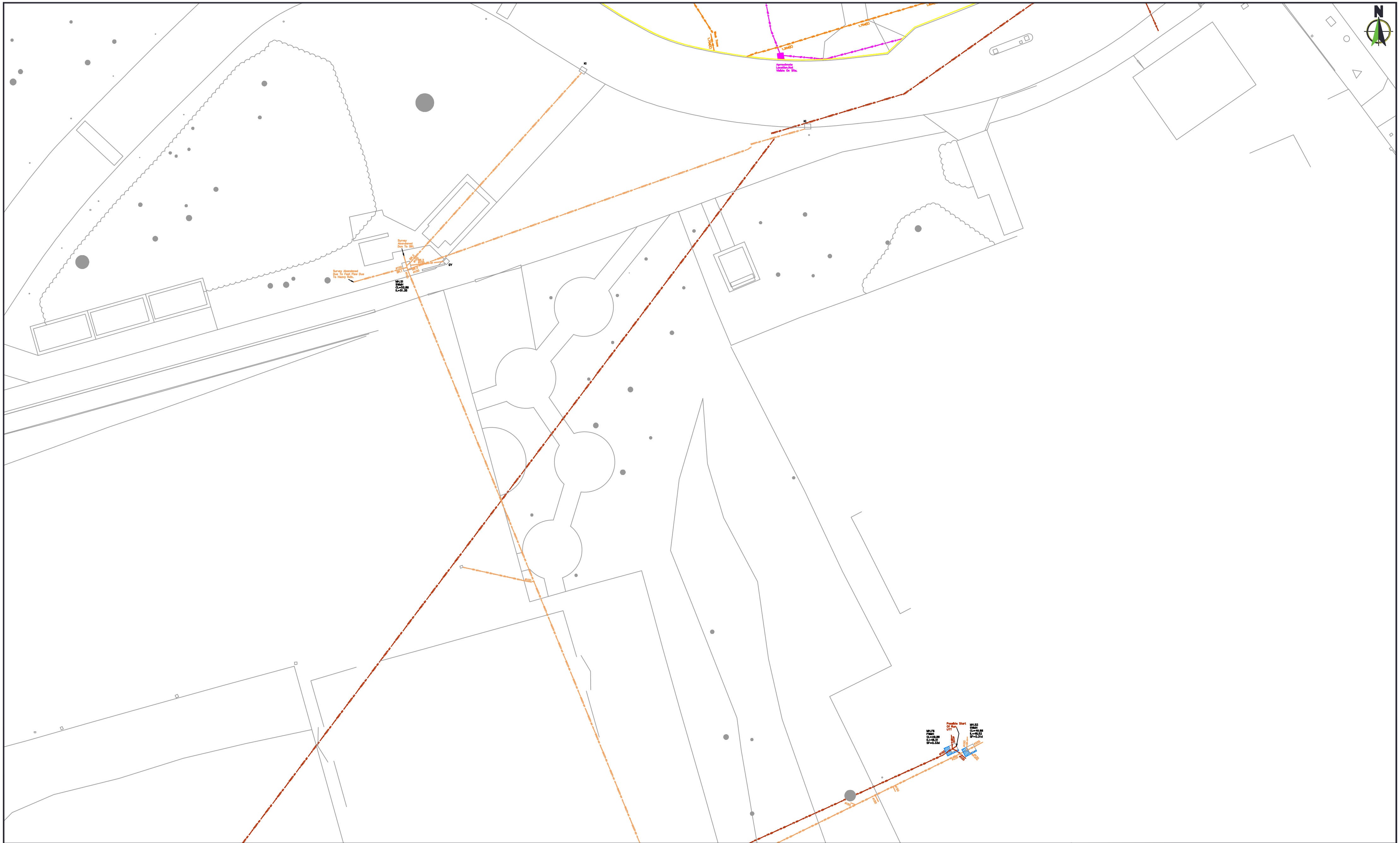

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DP Down Pipe
EOT End Of Trace
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FWP Foul Water Pipe
GP Gas Pipe
ONV Outlet Not Visible
RWP Rain Water Pipe
SP Stand Pipe
SVP Soil Vent Pipe
TFR Transferred From Records
UTT Unable To Trace
VP Vent Pipe
WP Waste Pipe

APPARATUS
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BH Borehole
CDC Concrete Drainage Channel
CP Catch Pit
E Electric
ER Earth Rod
FW Foul Water
FH Fire Hydrant
G Gas
GM Gas Meter
GV Gas Valve
GY Gully
IC Inspection Cover
KI Kerb Inlet
LHP London Hydraulic Power
MH Manhole
MU Multiple Utility
MW Monitoring Well
NFI No Further Information
PS Pumping Station
RE Rodding Eye
ST Service Trench
SV Stop Valve
SW Surface Water
SA Soakaway
TC Traffic Control
T Telecom
TW Trade Waste
U Unidentified
UTR Unable To Raise
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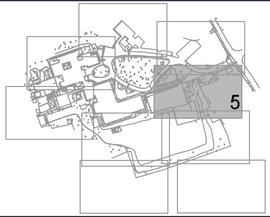

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SP21725	1:100	21/10/2021

Surveyed By	Drawn By	Checked By
RS CP HB	RS	RS

Status	Sheet	Version
FINAL	5 OF 9	1.0

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d(E)	EML Depth (m) To Centre Of Utility
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VERIFIED LEVELS & DEPTHS

(A)	Approximate
BD	Back Drop Depth
BDL	Back Drop Level
CD	Chamber Depth
CL	Cover Level
d	Depth (m) To Top\Crown
IBDL	Internal Back Drop Level
ID	Invert Depth
IL	Invert Level
OD	Outlet Depth
OL	Outlet Level
SD	Silt Depth
SF	Soffit Depth
SFL	Soffit Level
SIL	Silt Level
SL	Sump Level
WL	Water Level

PIPES & CABLES

Ø	Diameter (mm)
BR	Branch-CCTV
CR	Cable Riser
DBC	Directly Buried Cable
DP	Down Pipe
EOT	End Of Trace
Ext.Ø	External Diameter (mm)
FWP	Foul Water Pipe
GP	Gas Pipe
ONV	Outlet Not Visible
RWP	Rain Water Pipe
SP	Stand Pipe
SVP	Soil Vent Pipe
TFR	Transferred From Records
UTT	Unable To Trace
VP	Vent Pipe
WP	Waste Pipe

APPARATUS

AC	Access Cover
BH	Borehole
CDC	Concrete Drainage Channel
CP	Catch Pit
E	Electric
ER	Earth Rod
FW	Foul Water
FH	Fire Hydrant
G	Gas
GM	Gas Meter
GV	Gas Valve
GY	Gully
IC	Inspection Cover
KI	Kerb Inlet
LHP	London Hydraulic Power
MH	Manhole
MU	Multiple Utility
MW	Monitoring Well
NFI	No Further Information
PS	Pumping Station
RE	Rodding Eye
ST	Service Trench
SV	Stop Valve
SW	Surface Water
SA	Soakaway
TC	Traffic Control
T	Telecom
TW	Trade Waste
U	Unidentified
UTR	Unable To Raise
WTR	Water
WM	Water Meter
WWO	Water Wash Out
WSV	Water Stop Valve

Legend

Utility Configuration Examples

Annotation	Graphic	Description
1W:	●	1Way Single Duct
2W:	●●	2Way Flat
2W:1/2	2 stacked ●	2Way:1Wide/2Deep
4W:2/2	2×2 ●	4Way:2Wide/2Deep
6W:3/2	3×2 ●	6Way:3Wide/2Deep

Note: To be adapted for each chamber, manhole or excavation

Hatch Patterns

- Chamber
- Chamber With Unknown Extents
- Unable To Survey Area
- Radar Detected Reinforcing Mesh
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CCTV-A	Surveillance System

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CO-B2	Combined Drainage Flow Direction >
FW-B2	Foul Drainage Flow Direction >
SW-B2	Surface Water Drainage Flow Direction >

Electrical Systems

HV-B1P	High Voltage
LV-B1P	Low Voltage
SL-B1P	Street Lighting
ELEC-B1P	Unknown
EARTH-B1P	Earth

Gas Systems

GAS/HP-B2P	High Pressure
GAS/IP-B2P	Intermediate Pressure
GAS/LP-B2P	Low Pressure
GAS/MP-B2P	Medium Pressure
GAS-B2P	Unknown Pressure

Telecom Systems

BT-B3	British Telecom
CO-B3	COLT
TEL-B3	Unknown
VM-B3	Virgin Media
VO-B3	Vodafone
ZA-B3	Zayo

Water Systems

FIRE-B4	Fire Extinguishing Supply
POT-B4	Potable Supply

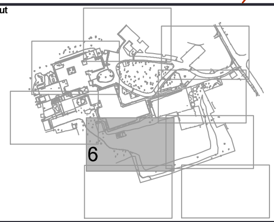
Unknown

GPR-B3P	Ground Penetrating Radar Linear Feature
EML-B3	Electromagnetic Locator Linear Feature

Survey Area

- Survey Area
- GPR Survey Area

Sheet Layout



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Base Mapping	SD18253-01_Grangewood School_Topo_FINAL	1.0	Final
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QL-A	Utilities verified in an open excavation, inside and inspection chamber / manhole or at the point the utility enters / exits the ground.	±50 mm	±25mm

Version History

Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number	Scale	Drawn Date
SP21725	1:100	21/10/2021

Surveyed By	Drawn By	Checked By
RS CP HB	RS	RS

Status	Sheet	Version
FINAL	6 OF 9	1.0

Drawing Number
SD21725-02

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Geospatial Consultants Surveyors

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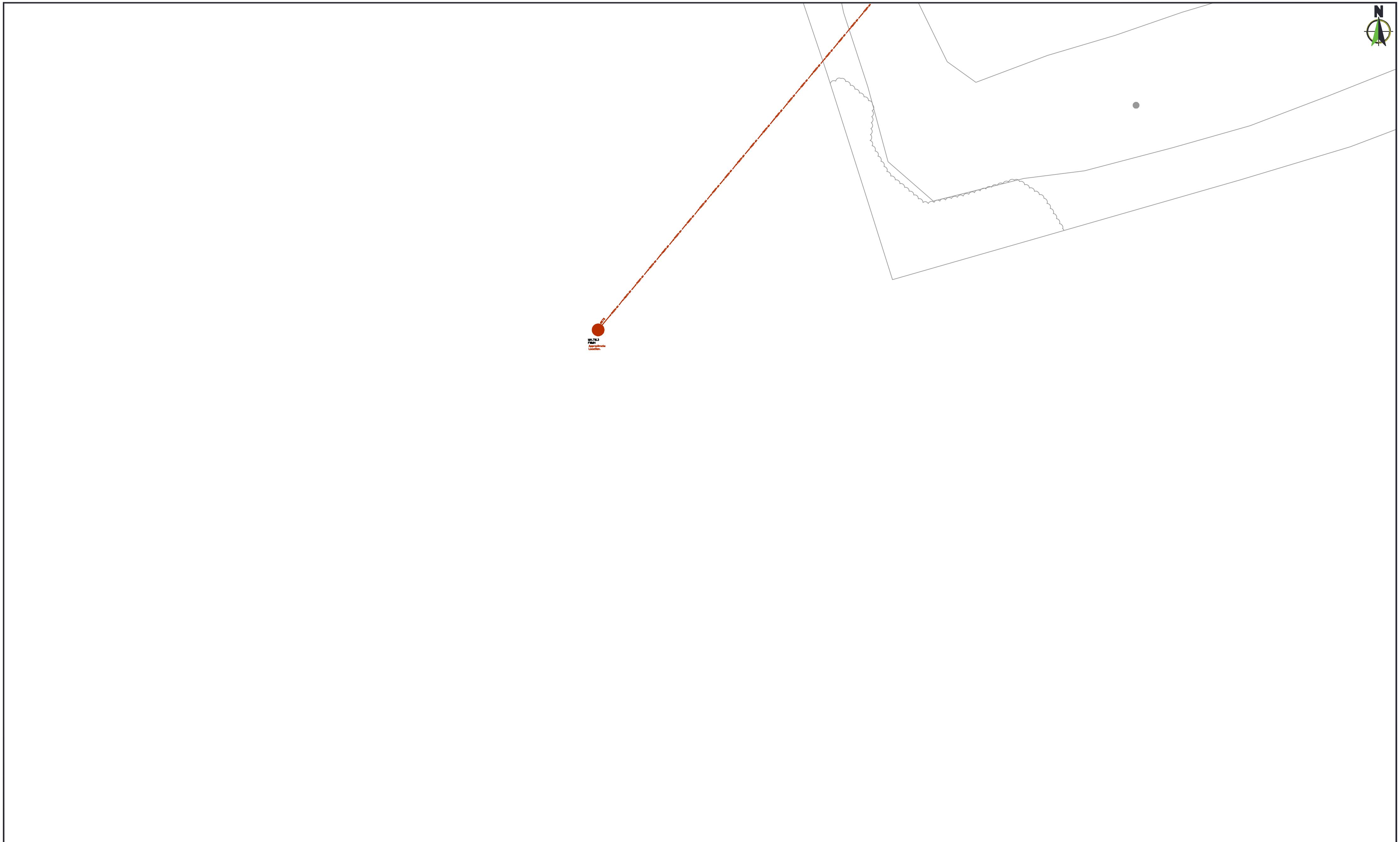
Constructionline
chartered ices
THE SURVEY ASSOCIATION

ISO A0 Landscape



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Datum

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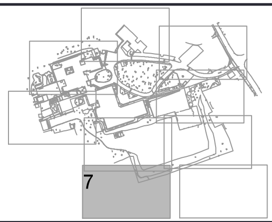
Key

Legend

Utility Line Types

Sheet Layout



Model / References List

Description	Drawing Number	Revision	Status
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Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number	Scale	Drawn Date
SP21725	1:100	21/10/2021

Surveyed By	Drawn By	Checked By
RS CP HB	RS	RS

Status	Sheet	Version
FINAL	7 OF 9	1.0

Drawing Number
SD21725-02

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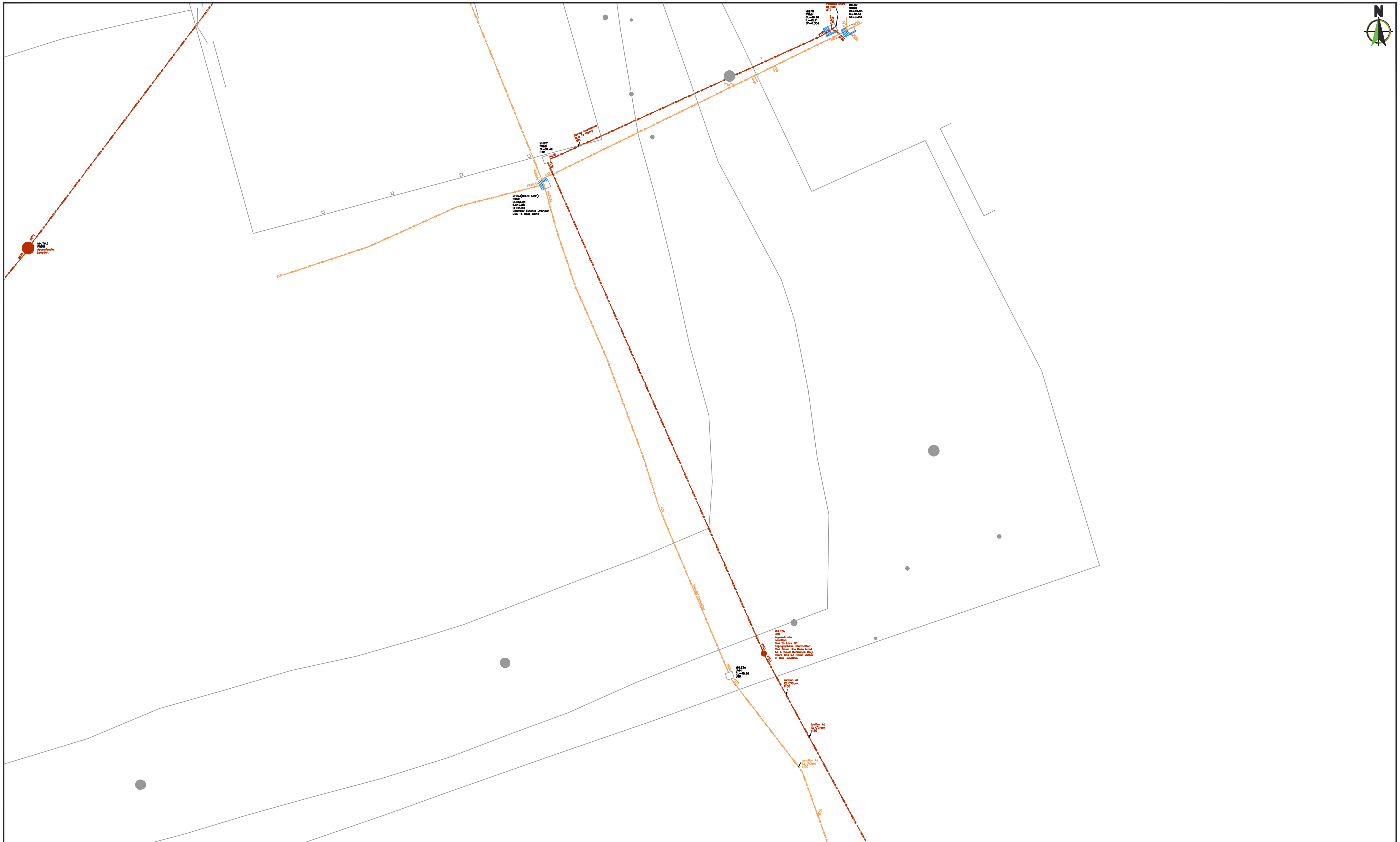

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GENERAL
BB Belisha Beacon
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EMK Electric Marker Post
EP Electric Pole
FHM Fire Hydrant Marker
FL Flood Light
JB Junction Box
GMK Gas Marker Post
IBO Illuminated Bollard
LH Lamp Hole
LP Lamp Post
MK Marker
PM Parking Meter
RS Road Sign
SI Sign
STN Survey Station
TCB Telephone Call Box
TL Traffic Light
TLCB Traffic Light Control Box
TP Telegraph Pole

DETECTED DEPTHS
Accuracy defined by Quality Level see PAS128 Quality Level Guide
d(G) GPR Depth (m) To Top/Crown Of Utility

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WWO Water Wash Out
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Legend

Utility Configuration Examples

Annotation	Graphic	Description
1W	●	1Way Single Duct
2W	●●	2Way Flat
2W 1/2	● ●	2Way 1Wide/2Deep
4W 2/2	●● ●●	4Way 2Wide/2Deep
6W 3/2	●●● ●●●	6Way 3Wide/2Deep

Note: To be adapted for each chamber, manhole or excavation.

Hatch Patterns
Chamber
Chamber With Unknown Extents
Unable To Survey Area
Radar Detected Reinforcing Mesh
Radar Detected Anomaly

An anomalous feature represents an area within the radar data that illustrates a substantial difference from the uniform data of the surrounding area. Such features could be an effect from voids, heavily saturated ground, & subsurface construction features.

Utility Line Types

Control Systems
TCSU—A Traffic Control Signal
CCTV—A Surveillance System

Drainage Systems
CO—B2—> Combined Drainage Flow Direction >
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Electrical Systems
HV—B1P High Voltage
LV—B1P Low Voltage
SL—B1P Street Lighting
ELEC—B1P Unknown
EARTH—B1P Earth

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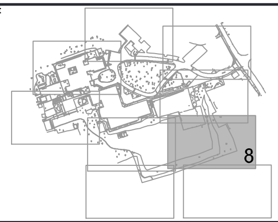
TEL—B3 Unknown
VM—B3 Virgin Media
VO—B3 Vodafone
ZA—B3 Zayo

Water Systems
FIRE—B4 Fire Extinguishing Supply
POT—B4 Potable Supply

Unknown
GPR—B2P Ground Penetrating Radar Linear Feature
EML—B3 Electromagnetic Locator Linear Feature

Survey Area
Survey Area
GPR Survey Area

Sheet Layout



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1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number SP21725
Scale 1:100
Drawn Date 21/10/2021
Surveyed By RS CP HB
Drawn By RS
Checked By RS
Status FINAL
Sheet 8 OF 9
Version 1.0
Drawing Number SD21725-02

Technics
Geospatial Consultant Surveyors

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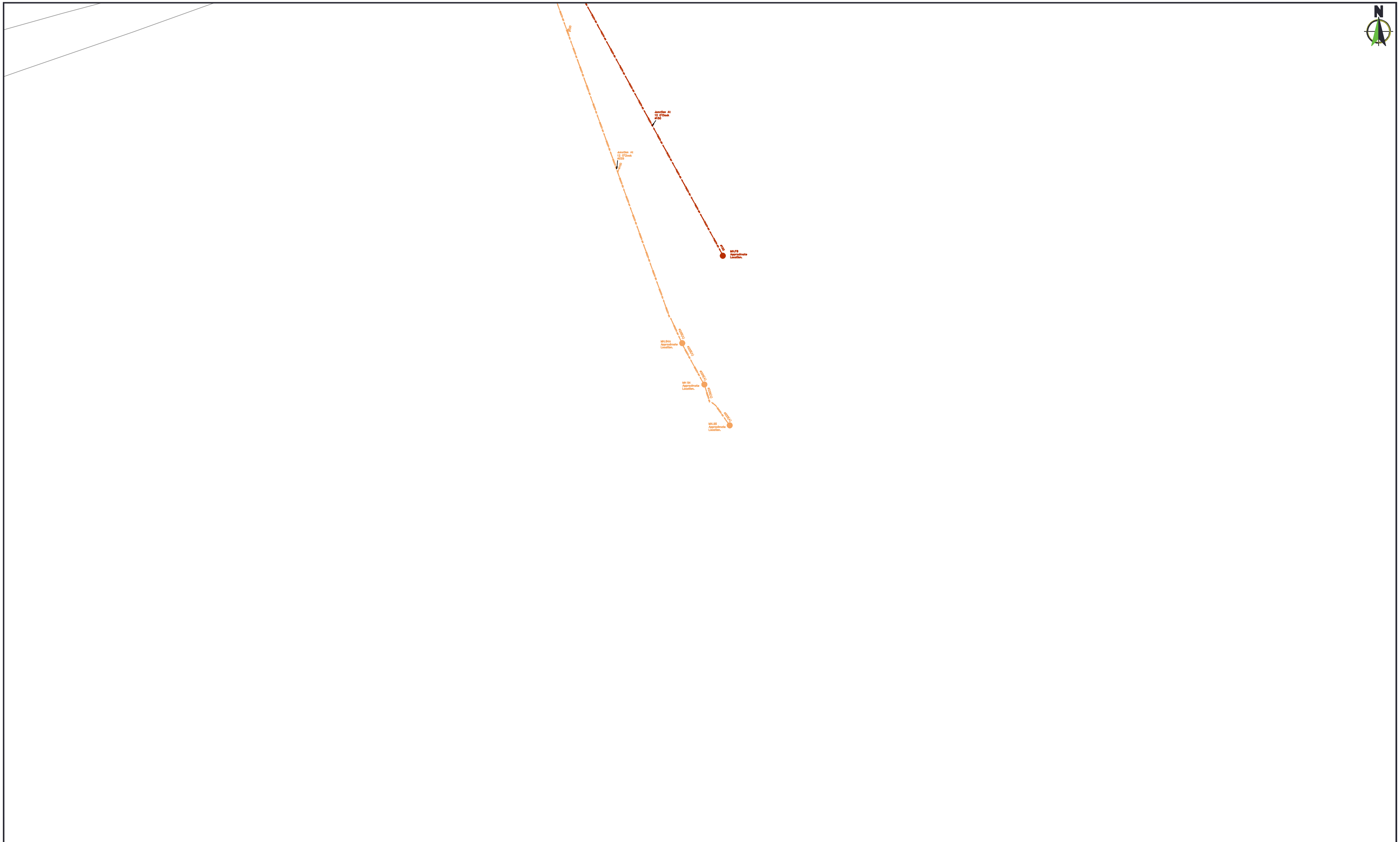
A0-L



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SL-B1P Street Lighting
ELEC-B1P Unknown
EARTH-B1P Earth

Gas Systems
GAS/HP-B2P High Pressure
GAS/IP-B2P Intermediate Pressure
GAS/LP-B2P Low Pressure
GAS/MP-B2P Medium Pressure
GAS-B2P Unknown Pressure

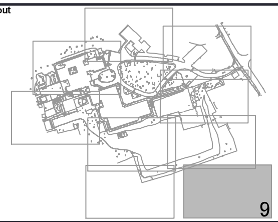
Telecom Systems
BT-B3 British Telecom
CO-B3 COLT
TEL-B3 Unknown
VM-B3 Virgin Media
VD-B3 Vodafone
ZA-B3 Zayo

Water Systems
FIRE-B4 Fire Extinguishing Supply
POT-B4 Potable Supply

Unknown
GPR-B3P Ground Penetrating Radar Linear Feature
EML-B3 Electromagnetic Locator Linear Feature

Survey Area
Survey Area
GPR Survey Area

Sheet Layout



Model / References List			
Description	Drawing Number	Revision	Status
Base Mapping	SD18253-01_Grangewood School_Topo_FINAL	1.0	Final
Base Mapping	SD21725-01_Grangewood School_Topo_FINAL	1.0	Final

Statutory Records Information		
Utility Type	Provider Details	Date Acquired
Telecoms	BT	17/09/2021
Gas	Cadent	17/09/2021
Drainage	Thames Water	13/09/2021

PAS128:Quality Level Guide			
Quality Level	Description	Accuracy Horizontal	Accuracy Vertical
QL-D	Utility records information	Undefined	Undefined
QL-C	A utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works.	Undefined	Undefined
QL-B4	A utility which is suspected to exist but has not been detected and is shown as an assumed route.	Undefined	Undefined
QL-B3 B3P	Horizontal and vertical location of the utility detected by one geophysical technique.	±500 mm Horizontal	Undefined
QL-B2 B2P	Horizontal location only of the utility detected by one of the geophysical techniques used. Not including EML.	±250 mm or ±40% of detected depth whichever is greater	±40% of detected depth
QL-B1 B1P	Horizontal and vertical location of the utility detected by multiple geophysical techniques.	±150 mm or ±15% of detected depth whichever is greater	±15% of detected depth
QL-A	Utilities verified in an open excavation, inside and inspection chamber / manhole or at the point the utility enters / exits the ground.	±50 mm	±25mm

Version History			
Version	Date	Description Of Change	By
1.0	21/10/2021	First Issue	RS

Client
HSP Consulting Engineers Limited

Site
Grangewood School
Fore Street
HA5 2JQ

Drawing Title
PAS128: M2 Utility Survey

Project Number SP21725
Scale 1:100
Drawn Date 21/10/2021
Surveyed By RS CP HB
Drawn By RS
Checked By RS
Status FINAL
Sheet 9 OF 9
Version 1.0

Drawing Number
SD21725-02

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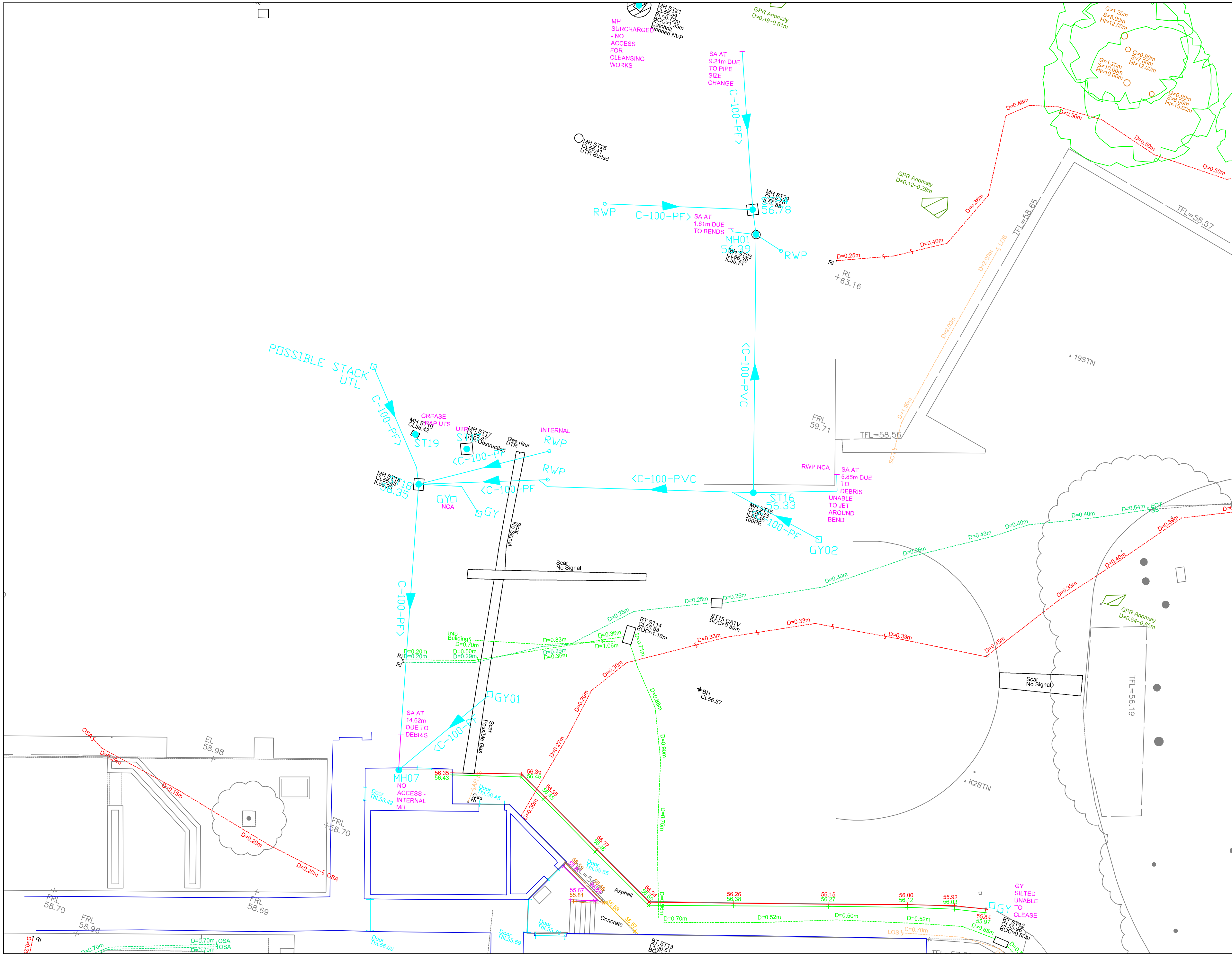

SYMBOLOGY:

LINE TYPES:

SURFACE WATER DRAINAGE (i.e. PIPEWORK)

FOUL WATER DRAINAGE (i.e. PIPEWORK)

COMBINED WATER DRAINAGE (i.e. PIPEWORK)

MAGENTA LINES SHOW UNSURVEYED AND ASSUMED LINES

SYMBOLS:

MANHOLE

OUTFALL

OUTLET

INLET

PUMPING STATION

BIFURCATION OR OVERFLOW

GULLY

GRIP INLET

SOAKAWAY

INTERCEPTOR

CATCH PIT

GHOST NODE

CONNECTOR NODE

ALL PONDS AND WETLANDS

PHANTOM NODE

RODDING EYE

CLIENT: 40SEVEN

REV	AMENDMENT	BY	DATE

PROJECT:

40 SEVEN
PINN RIVER SCHOOL
PINNER

TITLE:

PINN RIVER SCHOOL
DRAINAGE PLAN 1 OF 4

SCALE: 1:100	DRWG SHEET: A1
DRAWING No.:1121-1037	
DRAWN BY: LT	DATE: 06/09/2022
CHECKED BY: RC	DATE: 06/09/2022

Intelligent Drainage Solutions Ltd
Unit 3
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DN22 6HG
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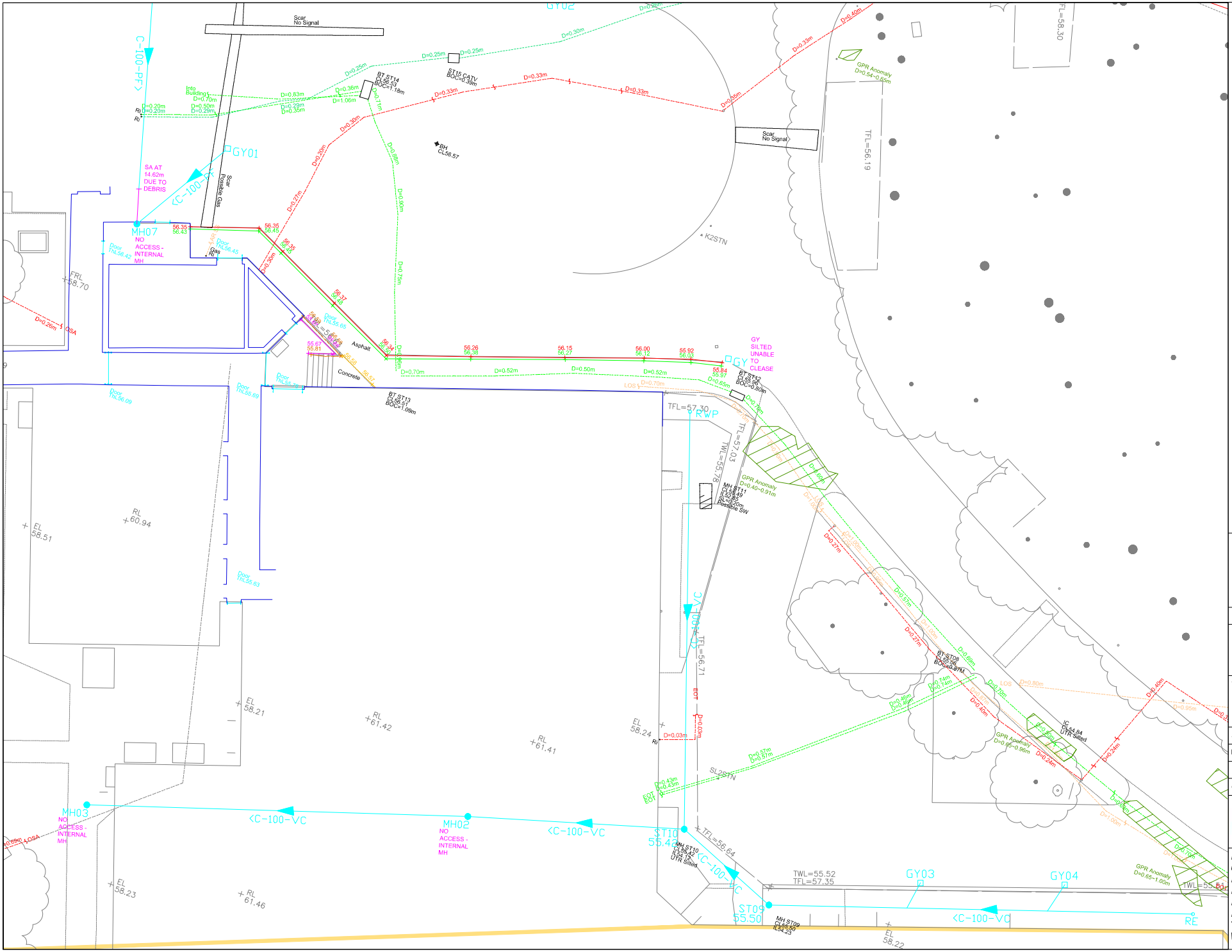
Website: www.drainsids.co.uk



SYMBOLOGY:

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- INTERCEPTOR
- CATCH PIT
- GHOST NODE
- CONNECTOR NODE
- ALL PONDS AND WETLANDS
- PHANTOM NODE
- RODDING EYE

CLIENT: 40SEVEN

REV	AMENDMENT	BY	DATE

PROJECT:
40 SEVEN
PINN RIVER SCHOOL
PINNER

TITLE:
PINN RIVER SCHOOL
DRAINAGE PLAN 2 OF 4

SCALE: 1:100	DRWG SHEET: A1
DRAWING No.: 1121-1037	
DRAWN BY: LT	DATE: 06/09/2022
CHECKED BY: RC	DATE: 06/09/2022

IDS Intelligent DRAINAGE Solutions

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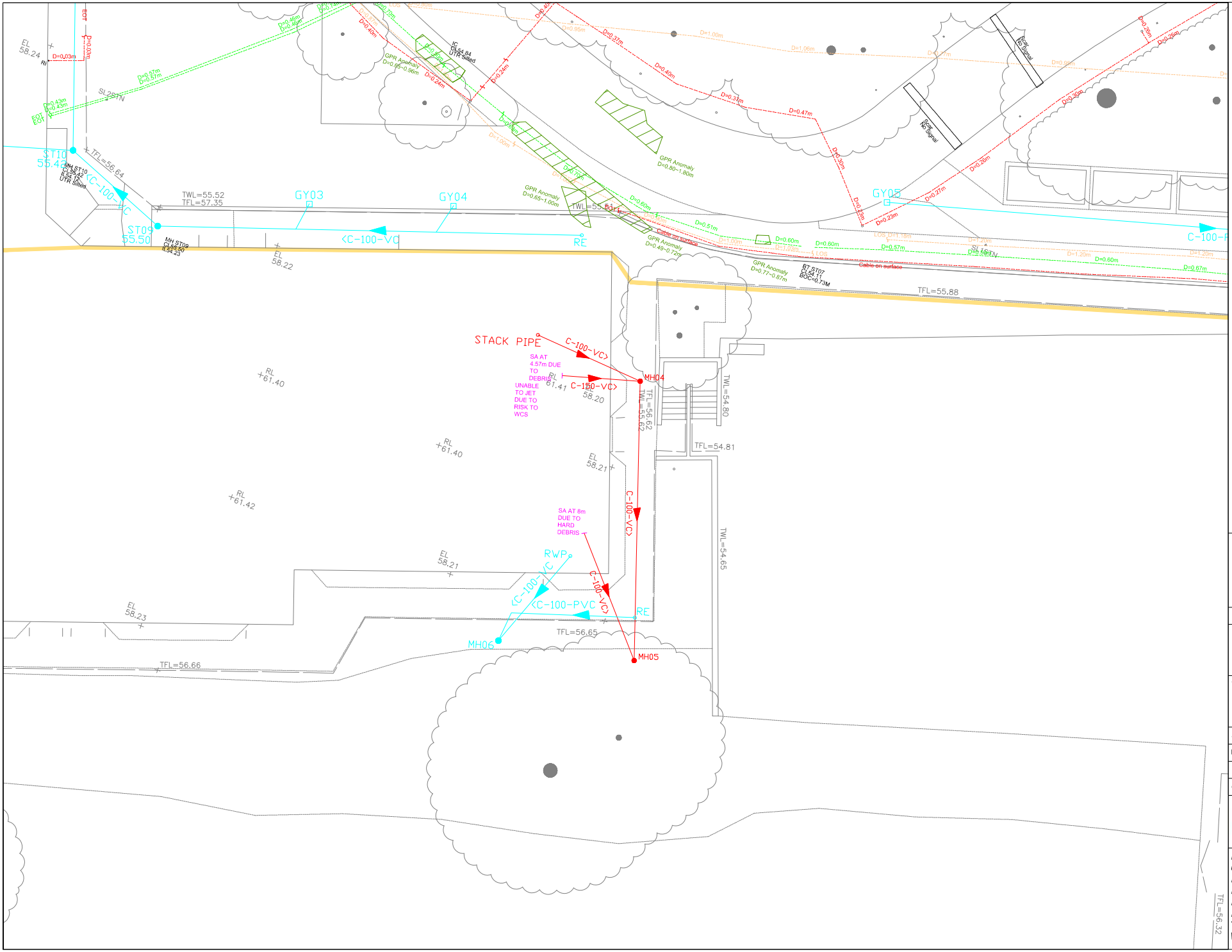

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CLIENT: 40SEVEN

REV	AMENDMENT	BY	DATE

PROJECT:
40 SEVEN
PINN RIVER SCHOOL
PINNER

TITLE:
PINN RIVER SCHOOL
DRAINAGE PLAN 3 OF 4

SCALE: 1:100	DRWG SHEET: A1
DRAWING No.: 1121-1037	
DRAWN BY: LT	DATE: 06/09/2022
CHECKED BY: RC	DATE: 06/09/2022

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