PILE ASSESSMENT

Axial Capacity

Based on the loads outlined above and characteristic parameters presented in **Section 3.4**, a preliminary assessment of the pile capacity has been made. The ground model used for the assessment is presented in **Table 7**.

The ground conditions are somewhat variable across the site and given the limited thickness of the drift, only the shaft and base resistance generated by the rock socket have been considered.

Table 7 - Pile Design Ground Model Input Parameters

Strata	Depth to Base (m brh)	Design Parameters	Comments
Weathered Chester Formation Sandstone	2	γ_b = 20kN/m^3 φ'_{peak} = 42° $K_s tan\delta$ = 0.6	Characteristic skin friction limited to 100kN/m^2
Upper Intact Chester Formation Sandstone	10	γ_b = 21kN/m^3 UCS = 2MN/m^2 α = 0.3 β = 0.65	Characteristic skin friction limited to 350kN/m^2
Lower Intact Chester Formation Sandstone	>20	γ_b = 21kN/m^3 UCS = 4MN/m^2 α = 0.2 β = 0.65	Characteristic skin friction limited to 460kN/m^2

Axial resistances have been derived in accordance with Design Approach 1 as presented in the National Annex to BS EN 1997-1:2004 (BSI, 2004). This assessment has been carried out for single 0.45m, 0.60m and 0.75m diameter CFA/bored piles terminating within the Chester Formation Sandstone. Compressive resistances ($R_{c;d}$) are summarised in **Table 8**. When considering rock sockets of this length it is necessary to confirm that settlements remain within acceptable limits. As such pile working capacities may be taken as the lesser of the resistance of the skin friction alone reduced by a factor of 1.5 or that calculated DA1 methodology.

For the purposes of this assessment, it has been assumed that the serviceability limit state will be verified by load tests (preliminary and/or working) carried out on more than 1% of constructed piles to loads not less than 1.5 times the representative load for which they are designed.

Table 8 - Summary of Pile Resistances

Pile Diameter (mm)	Pile Length * (m)	Socket length (m)	$R_{c;d}$ (kN)				Structural Capacity † (kN)
			Nominal	Shaft Resistance (FoS 1.5)	C1	C2	
450	8	4	2740	760	1960	1250	2440
	10.5	6.5	3975	1890	2840	1885	
600	8	4	4360	1275	3110	1970	4340
	10.5	6.5	6010	2650	4290	2810	
750	8	4	6330	1590	4520	2830	6780
	10.5	6.5	8390	3310	5990	3880	

* pile length will likely vary due to the thickness of superficial deposits and depth to rockhead varying across the site.
† Assumes C28 concrete

Once pile cap arrangements and structural loads have been finalised, consideration should be given to pile group effects and serviceability.

Design Responsibility

Pile resistances presented in **Table 8** are provided for guidance only. Pile design should be undertaken by, and remain the sole responsibility of, a specialist piling contractor who will determine the most appropriate and cost-

effective pile type for the site based on their own interpretation of the site investigation data, their own installation techniques, and experience of piling in similar ground conditions.

Working Platform

For all piling operations on the site, the design, construction, and maintenance of a working platform in accordance with BRE guidance (BRE, 2004) will be required.

Pile Testing

It is recommended that pile testing is undertaken for all structures. It is considered that as a minimum this should comprise one sacrificial pile test per structure and serviceability testing on more than 1% of constructed piles to loads not less than 1.5 times the representative load for which they are designed. Integrity testing should be undertaken on all piles.

A Piling Specification should be completed prior to piling works commencing.

Obstructions

The presence of obstructions within the Made Ground and their removal are discussed in **Section 4.6**. Based on the soil descriptions and experience, the Glacial Sand and Gravel has the potential to contain cobbles and the piling contractor should consider this risk and ensure that the piling technique and equipment chosen are capable of forming piles to the required depth.

Historic Tunnels

Much of Stockport's industrial heritage is based around mills serving the cotton industry, with the River Mersey providing some of the water required for the industrial processes involved and acting as a receiver of waste water and products. To enable industrial development further from the River Mersey numerous tunnels were dug to deliver water to the mills and to discharge the waste water.

The principal geotechnical risk posed to the proposed redevelopment by the presence of tunnels beneath the site were considered to be;

- Potential collapse of the tunnels affecting future foundations or external paved areas;
- The potential for piles to penetrate tunnels during their formation; and,
- The risk of piles terminating very close to the crown of a tunnel, possibly leading to over stressing of the ground resulting in significant deformation / collapse.

Desk study research (WSP, 2017) and a laser-scan survey of the south bank of the River Mersey identified six historic tunnels on the southern bank of the River Mersey between the Stockport railway viaduct and the A6 bridge. Given the estimated orientations of the tunnels and that the proposed structures requiring piles are set back from the river, it is considered that two historic tunnels may project beneath the structures.

Further reference should be made to **Dwg. 70031899-PTLP-001** in **Appendix C** and "*Stockport Interchange: Mersey Bank Survey Report"* (WSP, 2018).

Further works are proposed to investigate the orientation, dimensions, and conditions of the historic tunnels. Based on the results of the investigation, a further risk assessment will be produced and an assessment of potential remedial works made (e.g. relocation of piles to avoid any underground cavities and grouting where a significant risk of collapse is identified.

SPREAD FOUNDATIONS

As discussed above, the use of conventional pad, or strip foundations could be considered for the two-storey building on the Northern Concourse.

Such foundations should fully penetrate any Made Ground and be designed to bear a minimum of 150mm into undisturbed Glacial Sand and Gravel.

A minimum foundation depth of 0.6m is recommended, although actual foundation depths are likely to exceed this.

There is also a risk that deeper areas of Made Ground may be encountered and that the disturbance caused by the removal of obstructions may also have an adverse effect on foundation depths.

A safe bearing capacity of 100kN/m^2 is considered appropriate for outline design of foundations bearing within the Glacial Sand and Gravel. The net allowable bearing capacity for detailed design will need to be determined once structural loads and serviceability requirements are known.

4.4 GROUND FLOOR SLABS

Ground floor loads for the concourse areas and Residential Building are likely to be low (circa 10kN/m^2). Given the anticipated finished levels, it is anticipated that Made Ground will be present at underside of slab level under the Northern Concourse, with granular and cohesive glacial soils likely encountered locally under the Southern Concourse and the Residential Building.

It is considered that ground bearing slabs may be adopted for these areas, subject to appropriate treatment and re-engineering of the ground which would be anticipated to include;

- Removal of all obstructions encountered during the general site turnover/reduced level dig.
- Removal of any deleterious soils, or cohesive soils with and undrained shear strength of less than 40kN/m^2 (as determined with a hand shear vane) at the reduced level.
- Any voids/low areas resulting from the above should be cleaned out, appropriately benched into the surrounding ground, and backfilled with well graded, well compacted granular fill (e.g. crushed and screened demolition arisings).
- The prepared formation should be proof rolled with a heavy roller, carefully inspected by a geotechnical engineer, and any additional soft spots, or low areas appropriately remediated.
- Placement of an appropriate piling platform – it is anticipated that top of piling platform would be set at around subbase level to allow for some trimming post piling.
- Laying of a well compacted subbase layer.

4.5 ACCESS ROUTES AND HARDSTANDINGS

Based on the proposed finished levels it is anticipated that granular Made Ground will likely be encountered at subgrade level, with possibly areas of cohesive Made Ground encountered locally.

Specific testing for pavement design was not undertaken during the AECOM investigation and, given the disturbance likely to be caused by the enabling works, such testing is unlikely to be representative of site conditions at construction stage.

Subgrade preparation may be in accordance with the methodology presented in **Section 4.2**, although there may be an argument for only removing obstructions to 1m below subgrade level and the invert of services and manholes.

Specific California Bearing Ratio (CBR) testing will be required on completed subgrade to inform detailed pavement design and at this stage, a CBR of 3% may be assumed for preliminary design. Given the general granular nature of the Made Ground, it is possible that a CBR in the region of 5% could be achieved with appropriate preparation of the subgrade.

4.6 OBSTRUCTIONS

Whilst no significant obstructions were encountered during the investigation exploratory holes were obviously positioned to avoid the existing interchange foundations. In addition to below ground construction associated with the interchange, the risk of encountering obstructions associated with the previous site usages is high. Obstructions may significantly hinder the installation of foundations and groundworks in general. The risk of boulders being present in the Glacial Sand and Gravel poses a risk to piling operations and is discussed above.

A detailed strategy will be required for managing obstructions within the ground to minimise potential delays on site and associated abnormal costs. It would be advisable to mitigate the obstruction risk as much as practicable

prior to any piling works and this may be best achieved by an appropriately detailed, supervised and recorded proof digging exercise, with full, or partial obstruction removal as appropriate.

It should be appreciated that while such works may reduce the risk of obstructions, they will not fully eliminate it and the risk will need to be highlighted to the Principal Contractor and appropriate contingencies put in place to ensure that if obstructions are encountered, that they do not significantly hinder/delay general groundworks and the installation of piles.

4.7 GENERAL BELOW GROUND EXCAVATIONS

The stability of any Made Ground or granular soils should not be relied upon in unsupported excavations. Safe working conditions should be ensured at all times where persons are required to work in any excavations. This can be achieved by the use of ground support or battering excavation sides back to a safe angle.

Given the reduction in level on the southern part of the site, appropriate temporary measures will need to be put in place to ensure the stability of the adjacent footpaths, highways and services.

Further refence should be made to CIRA 97 (Irvine & Smith, 2001).

Based on monitored groundwater levels, excavations for spread foundations and pile caps will likely not encounter the main groundwater table. However, inflows perched water within the Made Ground may be encountered, and whilst such inflows are unlikely to be excessive, they may be persistent, particularly during periods of inclement weather. Subject to an assessment by a specialist, it is considered that sump pumping may proof effective in controlling any such inflows.

A licence will be required for the discharge of groundwater.

Further reference should be made to CIRIA C515 (Preene et al, 2000).

4.8 WELLINGTON ROAD VIADUCT

Further investigation comprising trial pits to investigate the construction of the foundations of the Wellington Road Viaduct is proposed. This report will be updated with an assessment of the proposed road lowering once the trial pitting has been completed.

4.9 UNITED UTILITIES SEWER

Two United Utilities sewers run beneath the proposed interchange and applications for build over agreements have been submitted. **Dwg**. **70031899-D-003** (**Appendix C**) shows the proposed public sewer build over and details of the sewers are presented below. Further reference should be made to Technical Note 1899/D/TN02 (WSP, 2018).

- 2201-1203
  - 1800mm diameter combined brick sewer
  - Approximately 8.90m deep
  - Falls beneath the footprint of the proposed structure at the western end of the development
  - Piled foundations would need to be situated at least 2.5 times the diameter of the pile from the outer edge of the sewer according to United Utilities
- 3213-2205-2200
  - 900mm diameter combined concrete pipe with sections of “rock cut conduit”
  - Located adjacent to and running parallel with the Wellington Road viaduct
  - Build over is acceptable according to United Utilities

4.10 CHEMICAL ATTACK BURIED CONCRETE

Made Ground, Glacial Sand and Gravel, and groundwater samples were tested for water soluble sulphate concentration and pH. The assessment has been undertaken in accordance with guidance presented in BRE *“Special Digest 1”* (BRE, 2005).

The mean of the highest two sulphate concentrations has been taken as the characteristic value for the soil samples and the highest sulphate concentration taken as the characteristic value for groundwater. The greater

of the two has been used to determine the Design Sulphate Class and, as such, a Design Sulphate Class of DS-1 and Aggressive Chemical Environmental for Concrete of AC-1 are considered appropriate for below ground concrete.

Further testing will be undertaken as part of the additional ground investigation and the assessment of concrete class will be revisited.

4.11 PRELIMINARY GEOTECHNICAL RISK REGISTER

A preliminary Geotechnical Risk Register for the scheme is presented in **Appendix D**.

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Appendix A

GENERAL LIMITATIONS

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.

3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.

4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.

8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:

- **i.** The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
- **ii.** Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.

10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.

12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.

13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.

14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.

16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective

effects of any future changes or amendments to these values. Specific assumptions associated with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.

18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.

19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.

20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.

22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.

25. Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

26. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

27. These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.

28. The data is presented and will be compared with assessment criteria.

Appendix B

DEVELOPMENT PROPOSALS

South Elevation

East Elevation

BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

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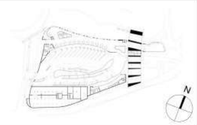
DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:
- THE CDM DESIGN ISSUES REGISTER
- THE BDP RISK SERIES OF DRAWINGS
- THE PROJECT CDM/RSK REGISTER

NOTES

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P09	Planning Issue	KM	AB	06/08/18
P08	Draft Planning Issue	KM	AB	03/08/18
P07	Updated Stage 02 Issue	KM	AB	20/07/18
P06	Stage 2 Issue	KM	AB	18/07/18
P05	PLANNING FREEZE ISSUE	AB	AB	22/06/18
P04	Elevations updated throughout.	AB	AB	15/06/18
P03	Concept material hatches added. Drawing updated generally.	AB	AB	01/06/18
P02	Elevations updated generally. Levels associated with the park structure updated.	KM	AB	25/05/18
P01	First Issue	AB	AB	18/05/18



CLIENT
Transport for Greater Manchester
STOCKPORT METROPOLITAN BOROUGH COUNCIL

11 Ducie Street
PO Box 85
Piccadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 (0)161 828 2200

BDP.

PROJECT TITLE
Stockport Interchange

PROJECT NUMBER | PROJECT CLASSIFICATION
P2007822 | Commercial In Confidence

DRAWING TITLE
Sitewide
Proposed GA Elevation
South & East

SCALE @ A0
1 : 200

DATE (PRINT DRAWN)
18/05/18

DRAWING NUMBER
STPT- BDP- XX- ZZ- DR- A- ZZ_70_30- 0002

REVISION
P09

North Elevation

West Elevation

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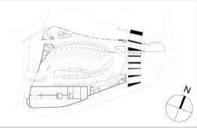
P01	First Issue	AB	AB	18/05/18



Transport for Greater Manchester

STOCKPORT METROPOLITAN BOROUGH COUNCIL

11 Ducie Street
PO Box 85
Piccadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 (0)161 828 2200

BDP.

Stockport Interchange

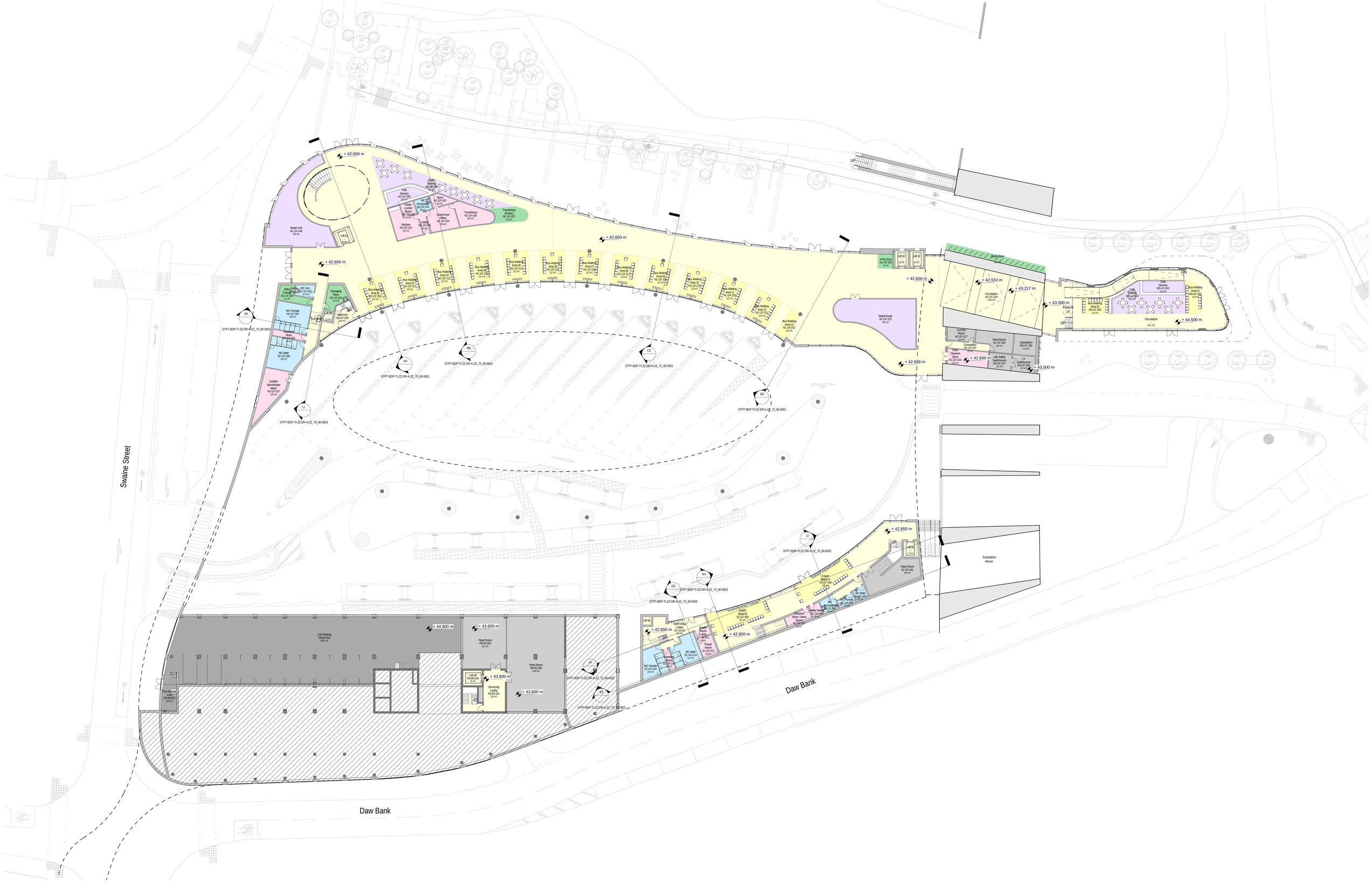
P2007822 | Commercial In Confidence

Sitewide
Proposed GA Elevation
North & West

@ A0
1 : 200
18/05/18

STPT- BDP- XX- ZZ- DR- A- ZZ_70_30- 0001

P09



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DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:
- THE CDM DESIGN ISSUES REGISTER
- THE RIBP WORK SERIES OF DRAWINGS
- THE PROJECT CDM RISK REGISTER

NOTES

- Car Park
- Circulation
- Commercial Circulation
- F & B
- Plant
- Public Facilities
- Staff Facilities
- Waiting
- WC

NOTES

- 5m min. bus clearance throughout theTransport Interchange.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P09	Planning Issue	KM	AB	08/08/18
P08	Draft Planning Issue	KM	AB	03/08/18
P07	Updated Stage 2 Issue	KM	AB	20/07/18
P06	Stage 2 Issue	KM	AB	19/07/18
P05	PLANNING FREEZE ISSUE	KM	AB	22.06.18
P04	Internal space planning updated throughout. Northern Concourse elevation updated.	KM	AB	15.06.18
P03	Update to Swaine Street elevation. Internal layouts updated to incorporate TfGM comments. General updates throughout.	KM	AB	08.06.18
P02	GA General Updates throughout	KM	AB	25.05.18
P01	First Issue	KM	AB	14.05.18

CLIENT

Transport for Greater Manchester

STOCKPORT METROPOLITAN BOROUGH COUNCIL

11 Ducie Street
PO Box 85
Piccadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200

BDP.

PROJECT TITLE
Stockport Interchange

JOB NUMBER | SECURITY CLASSIFICATION
P2007822 | Commercial In Confidence

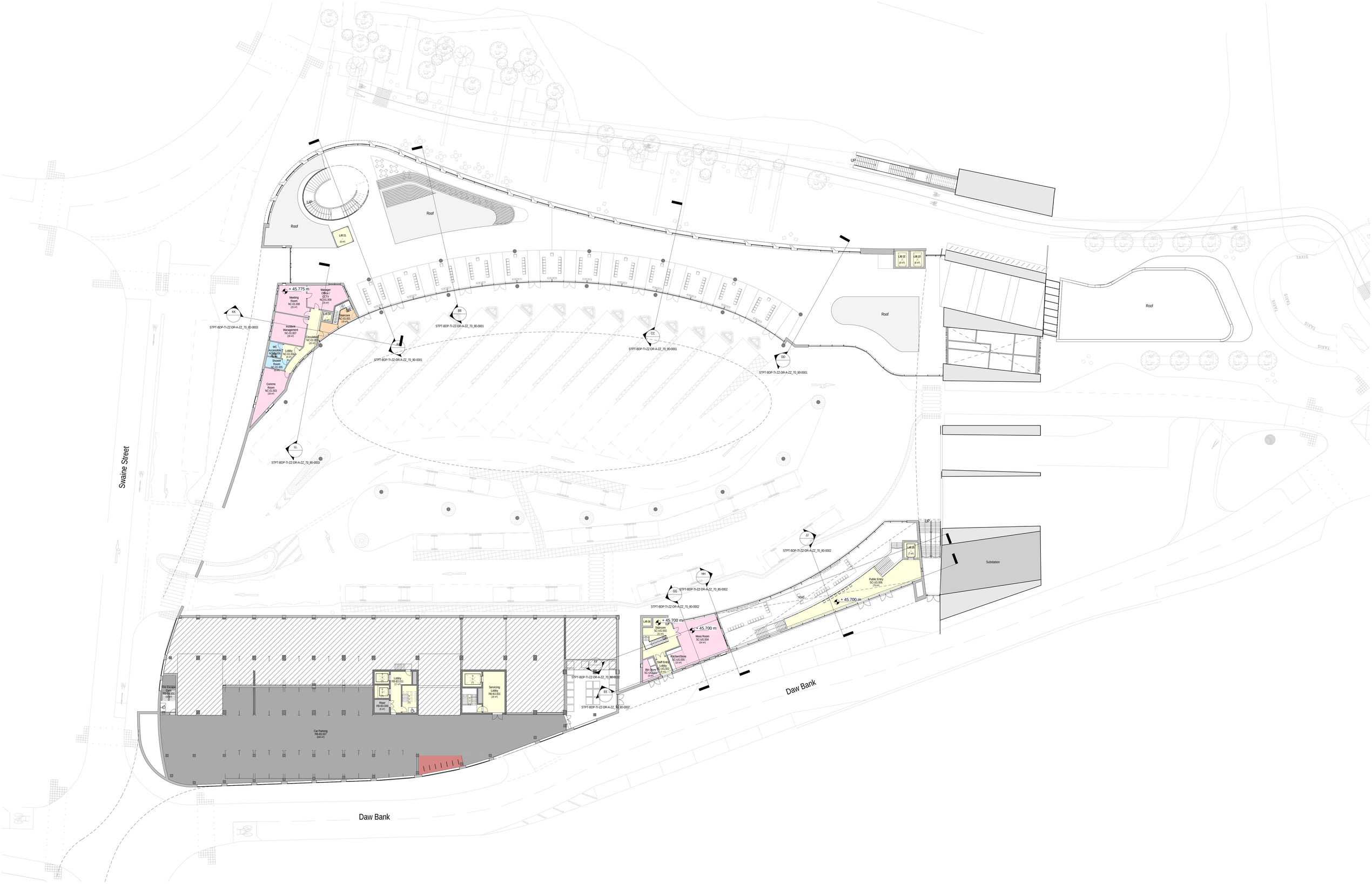
DRAWING TITLE
Sitewide
Proposed GA Plan
Ground Floor

SCALE
@ A0
1 : 200

DATE
14.05.18

DRAWING No.
STPT- BDP- XX- ZZ- DR- A- ZZ_70_60- 0001

REVISION
P09



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DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:
- THE CDM DESIGN ISSUES REGISTER
- THE BDP RISK SERIES OF DRAWINGS
- THE PROJECT CDM RISK REGISTER

NOTES

- Car Park
- Circulation
- Commercial Circulation
- F & B
- Plant
- Staff Facilities
- Stair
- Utility
- WC

NOTES

- 5m min. bus clearance throughout theTransport Interchange.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P09	Planning Issue	KM	AB	08/08/18
P08	Draft Planning Issue	KM	AB	03/08/18
P07	Updated Stage 2 Issue	KM	AB	20/07/18
P06	Stage 2 Issue	KM	AB	18/07/18
P05	PLANNING FEEZE ISSUE	KM	AB	22.06.18
P04	Internal space planning updated throughout. Northern Concourse elevation updated.	KM	AB	15.06.18
P03	Update to Swaine Street elevation. Internal layouts updated to incorporate TfGM comments. General updates throughout.	KM	AB	08.06.18
P02	GA General Updates throughout	KM	AB	25.05.18
P01	First Issue	KM	AB	14.05.18

CLIENT

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BDP.

PROJECT TITLE
Stockport Interchange

PROJECT NUMBER | CLASSIFICATION
P2007822 | Commercial In Confidence

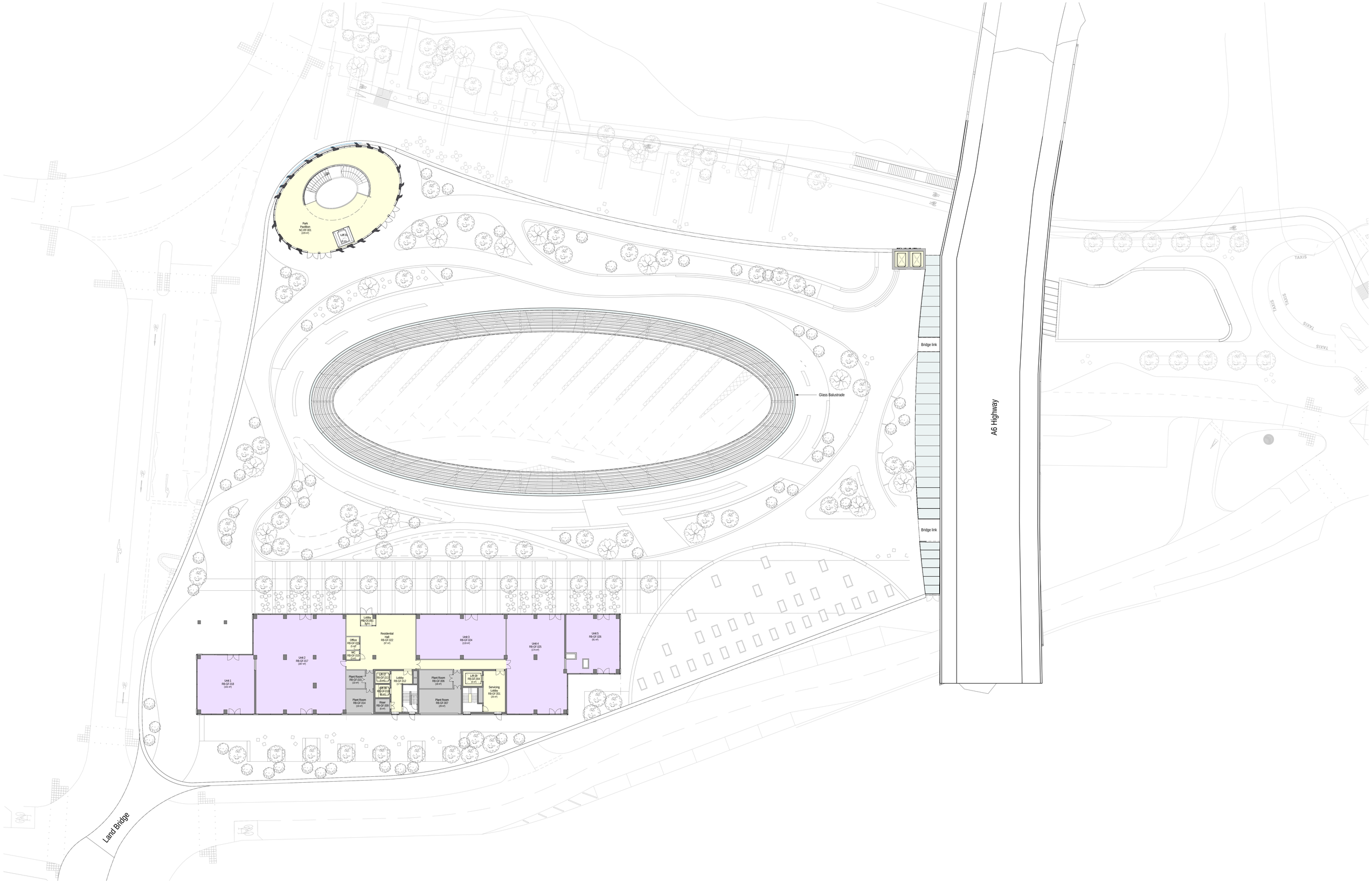
DRAWING TITLE
Sitewide
Proposed GA Plan
First Floor

SCALE @ A0
1 : 200

DATE FIRST ISSUED
14.05.18

DRAWING NO.
STPT- BDP- XX- ZZ- DR- A- ZZ_70_60- 0002

REVISION
P09



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DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING BEFORE WORK COMMENCES:

- THE CDM DESIGN ISSUES REGISTER
- THE BDP RISK SERIES OF DRAWINGS
- THE PROJECT CDM RISK REGISTER

NOTES

- Circulation
- Commercial Circulation
- Commercial Unit
- Plant

NOTES

- 5m min. bus clearance throughout theTransport Interchange.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P09	Planning Issue	KM	AB	08/08/18
P08	Draft Planning Issue	KM	AB	03/08/18
P07	Updated Stage 2 Issue	KM	AB	20/07/18
P06	Stage 2 Issue	KM	AB	18/07/18
P05	PLANNING FEEZE ISSUE	KM	AB	22.06.18
P04	Northern Concourse elevation updated. Rooftop enclosure updated. A6 glazed link updated. updated throughout.	KM	AB	15.06.18
P03	Update to Swaine Street elevation. Internal layouts updated to incorporate TfGM comments. General updates throughout.	KM	AB	08.06.18
P02	GA General Updates throughout	KM	AB	25.05.18
P01	First Issue	KM	AB	14.05.18

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M60 3JA
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T +44 (0)161 828 2200

BDP.

PROJECT TITLE
Stockport Interchange

PROJECT NUMBER	PROJECT CLASSIFICATION
P2007822	Commercial In Confidence

DRAWING TITLE
Sitewide
Proposed GA Plan
Roof

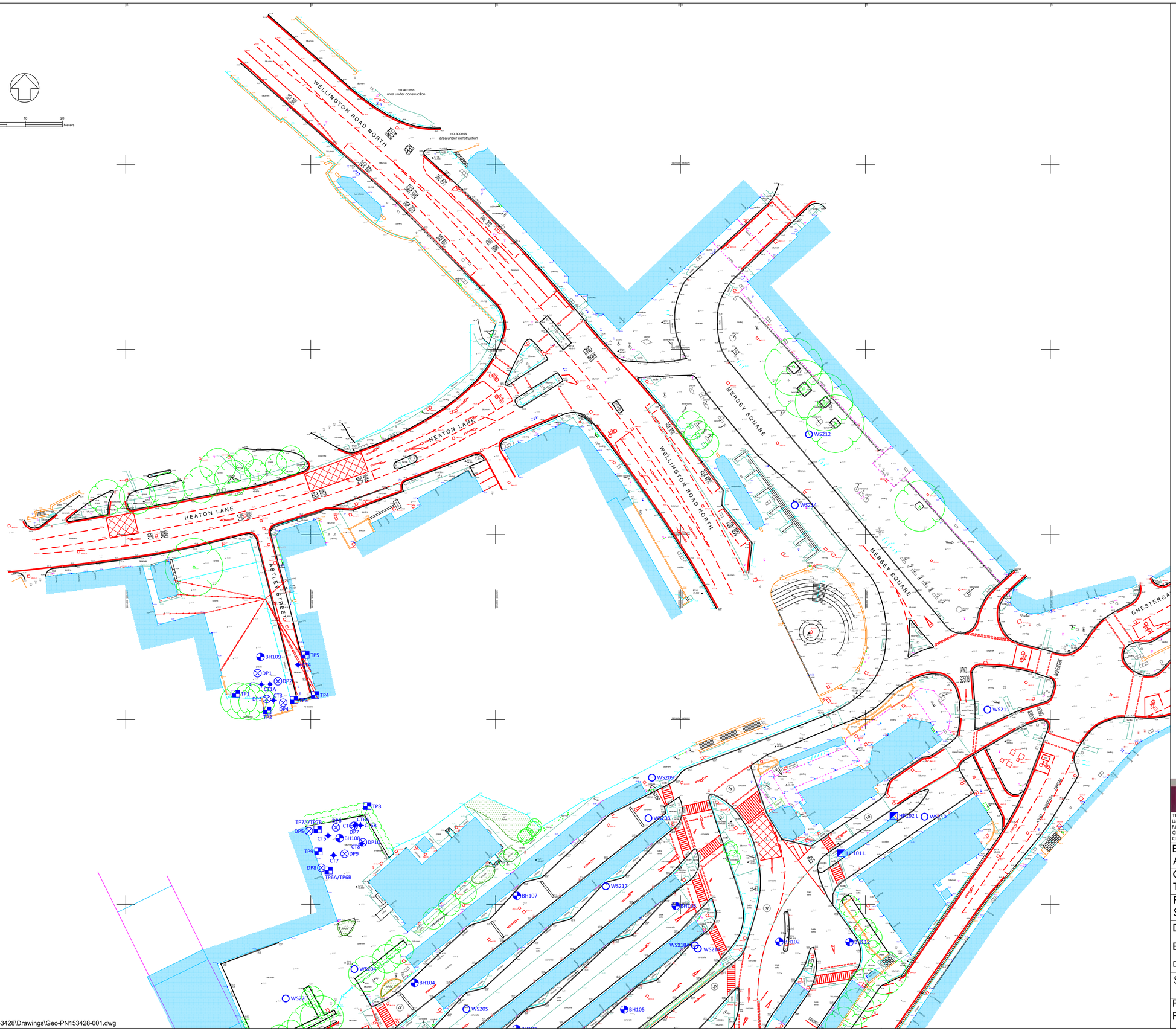
SCALE	@ A0
	1 : 200
DATE FIRST ISSUED	14.05.18

DRAWING NO.
STPT- BDP- XX- ZZ- DR- A- ZZ_70_60- 0003

REVISION
P09

Appendix C

FIGURES & DRAWINGS



Key

- Borehole
- CT
- Dynamic Probe
- Trial Pit
- Hand Pit
- Dynamic Sample Borehole

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
BH101	389243.299	390165.094	45.218
BH102	389276.731	390239.978	43.345
BH103	389205.655	390216.422	42.422
BH104	389178.078	390228.877	42.473
BH105	389234.786	390221.642	42.624
BH106	389248.707	390249.657	42.445
BH107	389205.789	390252.392	42.265
BH108	389157.818	390267.979	42.717
BH109	389136.430	390316.960	42.360
BH111	389253.456	390080.226	50.919
BH112	389295.702	390239.877	43.703
CT1	389136.670	390309.530	42.240
CT1A	389139.000	390309.600	42.190
CT3	389139.940	390305.200	42.110
CT4	389146.580	390314.810	42.070
CT5	389154.697	390268.627	42.732
CT6	389161.890	390271.340	42.600
CT6A	389162.230	390271.690	42.590
CT6B	389163.474	390271.412	42.662
CT7	389156.186	390263.329	42.754
CT8	389163.796	390266.428	42.721
DP1	389135.620	390312.530	42.300
DP2	389141.140	390310.370	42.130
DP3	389138.080	390305.580	42.130
DP4	389142.570	390304.560	42.070
DP5	389149.490	390269.830	42.730
DP6	389156.840	390270.840	42.620
DP7	389161.680	390271.310	42.590
DP8	389152.880	390259.980	42.850
DP9	389159.150	390263.750	42.710
DP10	389164.140	390266.860	42.650
HP101	389288.636	390260.602	48.577
HP102	389310.624	390281.273	52.835
TP1	389129.760	390307.010	42.250
TP2	389138.240	390302.500	42.090
TP3	389145.520	390305.290	42.070
TP4	389151.170	390306.650	42.120
TP5	389148.570	390317.490	42.160
TP6A/TP6B	389154.835	390259.244	42.863
TP7A/TP7B	389151.875	390270.319	42.705
TP8	389165.304	390276.628	42.802
TP9	389152.081	390264.391	42.789
WS201	389210.666	390145.901	45.614
WS203	389159.132	390201.040	43.011
WS204	389161.807	390232.600	42.851
WS205	389192.101	390221.783	42.391
WS206	389278.750	390194.812	48.125
WS208	389241.331	390273.366	42.350
WS209	389242.280	390284.319	42.673
WS210	389315.993	390273.770	44.431
WS211	389332.987	390302.677	44.884
WS212	389284.728	390377.074	45.736
WS214	389280.915	390357.942	46.345
WS217	389229.781	390254.966	42.295
WS218	389254.700	390238.100	42.750
WS218A	389253.900	390239.000	42.710
WS219	389259.659	390175.323	45.127
WS220	389143.232	390224.649	44.686
WS221	389275.017	390086.165	51.031
WS223	389237.657	390204.856	43.392
WS224	389229.683	390086.414	53.306

geotechnics
The Geotechnical Centre,
Unit 1, Borders Industrial Park,
River Lane, Saltney,
Chester
CH4 8RJ
Phone: 01244 671117
Fax: 01244 671122
Email mail@geotechnics.co.uk
www.geotechnics.co.uk

Engineer:
Aecom

Client:
TfGM

Project:
Stockport Bus Station

Drawing Title:

Exploratory Hole Location Plan

Drawing 1 of 2

Scale: 1:500@A1

Date:
February 2016

Project No:
PN153428

File Name:
Geo-PN153428-001(1)

G:\Projects\Chester\2015\PN153428\Drawings\Geo-PN153428-001.dwg