Checklist for Foundation Plan Submissions
(This checklist is **not** required to be submitted to the BD.)

Part A–Administration

Typical Items		Requirements	Reference
1.	Statutory Forms	◯ Form BA 4 (for appointment of AP/RSE/RGE)	ADM-8 B(A)R 18A and 29(1)
		◯ Form BA 5 (for application for approval)	
		◯ Form BA6 (Stability Certificate as necessary)	
		◯ Form BA16 (Application for exemption/ modification as necessary)	
2.	Fee for plan processing	◯ Payment required when fees are charged according to total number of plans submitted	APP-55
3.	Plans and Documents	◯ 2 signed sets of plans and 1 signed set of all documents	ADM-8 APP-141
4.	Additional sets of plans and/or documents for referrals to relevant organizations required when the proposed foundation works involve or affect the areas	◯ Scheduled Area Nos. 1, 2 & 4 (1 set of plans and 1 sets of documents)	ADM-8 APP-24 APP-30 APP-32 APP-61 APP-62 APP-134
		◯ Railway Protection Areas (2 sets of plans)	
		◯ Scheduled Area No. 5 (2 sets of plans and 1 set of documents)	
		◯ Designated Area of Northshore Lantau (1 set of plans and 1 set of documents)	
		◯ Slopes/Retaining Structures/ deep excavation/ disused tunnel (1 set of plans and 1 set of documents)	
		◯ Culvert, nullah, stream course (3 sets of plans)	
		◯ Chek Lap Kok Airport (1 set of plans)	
		◯ Structures to be erected in, over, under or upon street (2 sets of plans)	
		◯ Highway structures (1 set of plans and 1 set of documents)	
		◯ Sea walls, adjacent to sea front (1 set of plans and 1 set of documents)	
		◯ Reclamation, piers (2 sets of plans and 2 sets of design documents)	
		◯ Public drainage or water mains (1 set of plans)	

Part B - Documents

Typical Items		Requirements	Reference
1.	Design Document : Part I - Synopsis and Essential information	A description of the foundation system includes: ☐ Types of the foundation works ☐ Design codes/standards with edition ☐ Grade of materials to recognized standards ☐ Geotechnical parameters ☐ Groundwater conditions ☐ Design assumption for footings/rafts/pile caps of pile foundations for the transfer of the assumed loads to the founding strata ☐ A summary abstracted from the appraisal and assessment report on the effects on adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. affected by the proposed works, including vibration, tilting, settlement, etc. together with the proposed precautionary measures and monitoring system ☐ Assumed loadings considered, including: • Dead and Imposed loads • Wind loads • Earth loads, including ground water pressure ☐ Information on computerized calculations: • Structural/geotechnical computer program statement signed by RSE and/or RGE • Assumptions made and justifications on parameters used in the computer model, e.g. material properties, boundary conditions, etc. • Input data with computer-generated graphics or hand sketch showing the framing & layout of the system, nodes & elements, connection fixity, etc.	ADM-8 ADM-19 APP-18 ADM-6 ADM-8
2.	Design Document : Part II - Detailed analysis and design	☐ Analysis and design on the structural elements of the foundation system to design codes adopted and B(C)R, for example: • Design check on combined axial and flexural stresses for piled foundations • Calculation of Final set table based on dynamic pile driving formula • Design on the allowable load capacities of the foundation • Combinations of loads on each pile/footing	ADM-8 ADM-19 APP-18 B(C)R 15

Typical Items		Requirements	Reference
		☐ Design check on the margins of safety of the foundations in accordance with Code of Practice for Foundations: • FOS against overturning • FOS against sliding • FOS against uplift	
3.	Geotechnical Assessment Report together with Ground/Site Investigation Report	☐ Justification on geotechnical parameters & assumptions adopted with G.I. information and tests from Ground/Site Investigation Reports ☐ For foundations in Scheduled Area Nos. 1, 2 & 4 and Designated Area of Northshore of Lantau and foundations affecting slopes and retaining walls, RGE to sign geotechnical assessment reports and supporting documents	ADM-8 ADM-19 APP-18 APP-22 APP-49 APP-141
4.	Appraisal report together with assessment on the effects on adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. affecting and/or be affected by the proposed works	☐ Construction method ☐ Estimates on vibration on adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. e.g. due to pile driving operation ☐ Estimates on the envisaged amount of settlement induced on adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc., e.g. due to loss of ground caused by the pile installation operation and/or dewatering required for the construction of the foundation system ☐ Assessment of the effects on subsurface structures/tunnels, e.g. additional stress on MTR structures/sewage tunnels ☐ Precautionary measures together with construction sequence required to safeguard the adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. affected, e.g. shoring, underpinning, grouting, etc. ☐ Instrumentation and monitoring required to safeguard the adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. affected	ADM-8 ADM-19 APP-18 APP-22 APP-24 APP-30 APP-62 APP-137

PART C – Plans

Typical Items		Requirements	Reference
1.	Plans properly indexed and space reserved at the lower right corner for	☐ Plans to be properly indexed and each drawing to bear a title and number ☐ Vertical space (90mm wide x 200 mm	ADM-8 ADM-10

Typical Items		Requirements	Reference
	official stamps of approval	high) or horizontal space (245mm wide x 80mm high) for accommodating official stamps of approval, curtailed check and true copy certification by the BA on every plan at the lower right corner	
2.	A block plan showing the location of the site and relevant details	☐ Block plan to be in scale not less than 1:500 ☐ Location of the site with adjoining buildings, structures, lands, streets, utility services, slopes, retaining walls, access road over which right of way, if any, granted, etc. ☐ Remarks provided below the block plan, if site within boundaries of Scheduled Area(s), Designated Area(s), etc.	APP-18 B(A)R Section 13
3.	Plans and sections in appropriate scales for readability	☐ Plans and sections/elevation to be in a scale not less than 1:100; except that a scale of not less than 1:200 may be accepted for cases of very extensive works ☐ Details to be in scale not less than 1:75	B(A)R Section 13
4.	Details showing the characteristic features of the site and environments	☐ Locations of all boreholes contained in G.I. ☐ Existing adjoining buildings, underground structures, tunnels, basement, etc. with types, layouts and depths/levels of foundations ☐ Ground profile with levels of all adjoining slopes ☐ Existing retaining walls with layouts, sizes and depths/levels of foundations ☐ Layouts and depths/levels of all adjoining existing nullahs, underground services and utility services	APP-18 APP-30
5.	General Notes on Design Codes and Standards	☐ Building (Construction) Regulations ☐ Updated editions of relevant Design Codes of Practices and Standards	ADM-8 ADM-19 APP-18
6.	General Notes on Material specifications with limiting stresses	☐ Grade of materials complying with updated editions of relevant Codes of Practices and standards ☐ Founding stratum of presumed allowable bearing pressure with the category of rock/soil strata complying with Code of Practice for Foundations	
7.	General Notes on quality control standards and testing on workmanship	☐ For conventional construction materials, statements on sampling method, frequency of tests, testing methods and acceptance criteria of tested materials complying with Building (Construction)	APP-18

Typical Items		Requirements	Reference
		Regulations, updated editions of relevant Codes of Practices and standards ☐ For unconventional construction materials, details of sampling method, frequency of tests, testing methods and acceptance criteria of tested materials complying with relevant standards to be provided ☐ Testing proposal and method statement for non-recognised pile types ☐ For piles and raft/footings founded on category 1(c) or of better rock, pre-drilling with UCS/PLI_{50} tests and post-installation drilling to verify the quality of rock founding strata complying with Code of Practice for Foundations ☐ For piles with pile resistance derived from shaft friction, pre-drilling with SPT tests complying with Code of Practice for Foundations ☐ <u>Particulars for Large Diameter Bored Piles</u>: • Post-installation proof drilling at concrete/rock interface confirming the quality of concrete and rock at interface • Remedial works proposal for rectifying minor imperfection observed during the interface core-drilling • Ultrasonic echo sounder test to measure the profile of excavation of the pile shafts and the dimensions of the bell-outs ☐ <u>Particulars for Small Diameter Bored Piles</u>: • Pre-drilling with SPT tests complying with Code of Practice for Foundations for piles with pile resistance derived from shaft friction ☐ <u>Particulars for Driven Precast Prestressed Spun Concrete Piles</u>: • Core test proposal for verification of the concrete strength of piles • Final set table based on dynamic pile	

Typical Items		Requirements	Reference
		driving formula • Visual inspection to every pile section delivered to site • Stress wave dynamic tests - PDA test with CAPWAP analysis during driving ☐ <u>Particulars for Driven Steel Bearing Piles</u>: • Stress wave dynamic tests - PDA test with CAPWAP analysis during driving for piles driven to and founded on bedrock • Final set tables based on dynamic pile driving formula ☐ <u>Particulars for Socketed Steel H-Piles</u>: • Boring method with precautionary measures, including monitoring procedures and measures to prevent excessive overbreak and ground loss etc. ☐ <u>Particulars for Footings/Rafts</u>: • For cases without adequate justification by ground investigation information and soil tests, static plate load tests or Standard Penetration tests to verify the bearing capacity of soil founding strata complying with Code of Practice for Foundations	
8.	Notes on details of construction method/sequence	☐ Construction method and plant used ☐ For sites situated in close proximity to existing buildings/structures/ services and vibration-sensitive buildings/structures/ services, sequence of construction for control of vibrations and/or settlement induced due to construction of the proposed foundations (such as, driven steel H-piles), including number of plants used, phasing of works, number of piles being installed concurrently in each phase, etc. ☐ Method of overcoming underground obstruction with typical details	APP-18 APP-137
9.	Notes on Precautionary Measures	☐ Precautionary measures with details, e.g. shoring, underpinning, grouting, etc., to safeguard adjoining buildings, structures, lands, streets, utility services, slopes and retaining walls, etc. affected	ADM-19

Typical Items		Requirements	Reference
10.	Locations and details of instrumentation and monitoring requirements	☐ Ground settlement, building settlement, building tilting, building vibration and utilities settlement to be monitored ☐ Frequency of monitoring ☐ Monitoring criteria in three triggering levels, namely the alert, alarm and action levels respectively and the corresponding contingency measures ☐ Locations of monitoring points on adjoining buildings, structures, lands, streets, utility services, slopes, retaining walls, sea walls, etc.	ADM-19 APP-18 APP-22 APP-24 APP-61 APP-62 APP-137
11.	Plans showing the layout arrangement of the foundation systems	☐ Layout with identification, setting-out dimensions, tentative founding levels, sizes of the foundation and cut-off levels of each pile & cap/tie-beam layout for the piled foundation ☐ Setting-out dimensions of piles/spread footings/rafts from site lot boundaries ☐ Locations of all boreholes in the G.I. ☐ Contour lines of the founding strata based on boreholes in G.I. ☐ Layout with identification and setting-out dimensions of columns/walls supported by the foundation	APP-18
12.	Information on sections and elevations	☐ Ground investigation boreholes with profile of the existing ground and soil/rock strata with SPT values for cohesionless soil and undrained shear strength (s_u) values for cohesive soil ☐ Design groundwater levels ☐ Estimated profile of founding soil/rock strata based on G.I. ☐ Existing adjoining buildings, structures nullahs, underground structures, tunnels and basement, etc. with types, layouts and depths/levels of foundations ☐ Ground profile with levels of all adjoining slopes ☐ Existing retaining walls with layouts, sizes and depths/levels of foundations ☐ Identification, setting-out dimensions, tentative founding levels and cut-off levels of piles & caps/tie-beams for the piled foundation ☐ Identification, setting-out dimensions, tentative founding levels, sizes of spread footings/rafts	APP-18

Typical Items		Requirements	Reference
		☐ Soil backfill/retained soil of future screen/ basement walls	
13.	Structural details	☐ Detailed information on brand name, sizes, shape, areas and grades of steel piles ☐ Typical cross section showing the assembly of the proposed foundation ☐ Reinforced concrete details for reinforced concrete foundations ☐ Typical details on pile shoes, pile head, pile splices and cap/pile connections, etc.	APP-18
14.	Column/wall loading tables	☐ Assumed loads on each column/wall of the superstructure on the foundation, e.g. dead loads, imposed loads, wind loads, earth loads including ground water pressure, etc. ☐ Orientation of forces and moments	ADM-19 APP-18
15.	Piling/Footing Schedules	☐ Identification with sizes, tentative founding levels, design minimum rock socketed lengths for piled foundation and allowable bearing capacities/ultimate uplift resistance of the foundations ☐ Magnitude of characteristic dead, imposed, wind and earth loads, including ground water pressure, negative skin friction (if applicable), and others, and their critical combinations acting on each pile/footing	ADM-19 APP-18

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