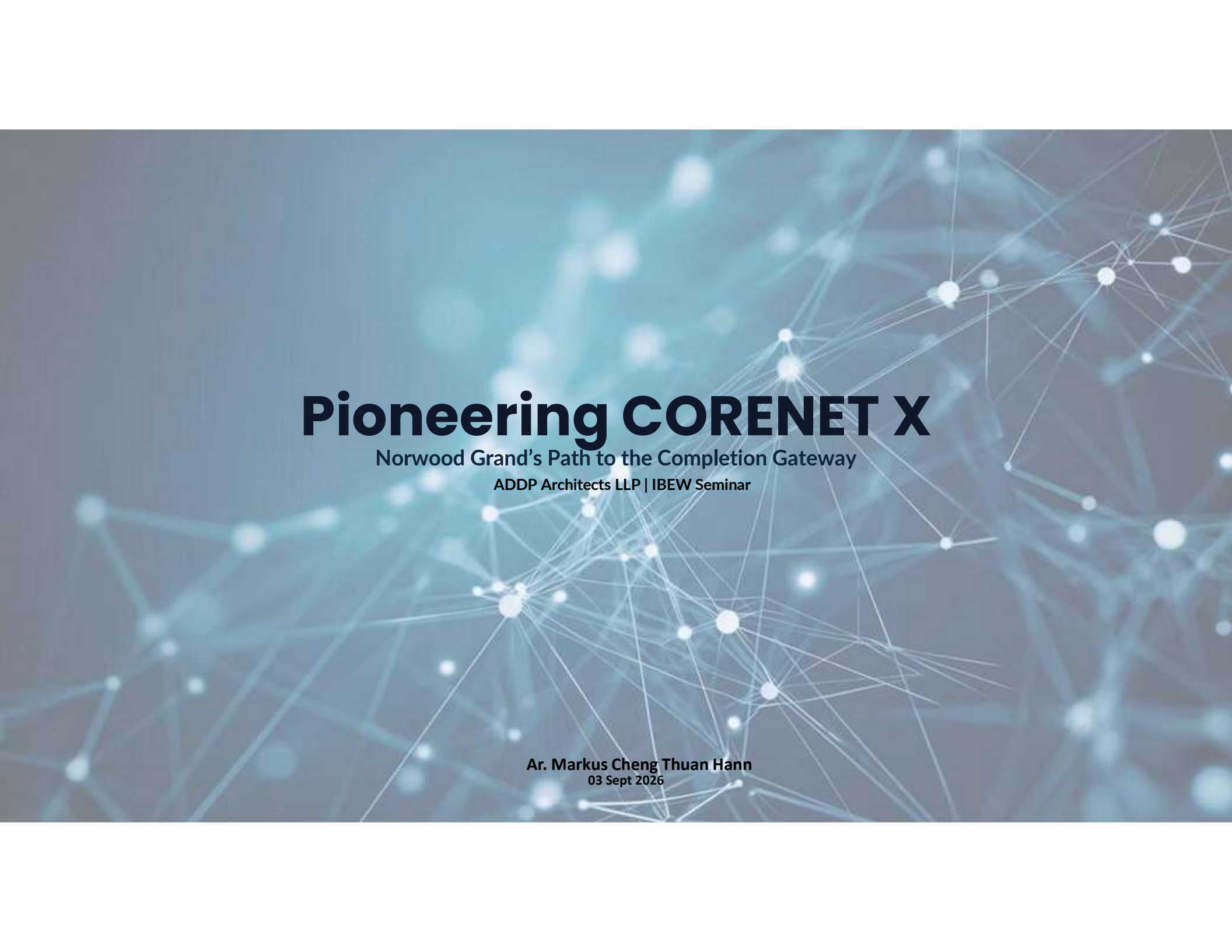




Pioneering CORENET X

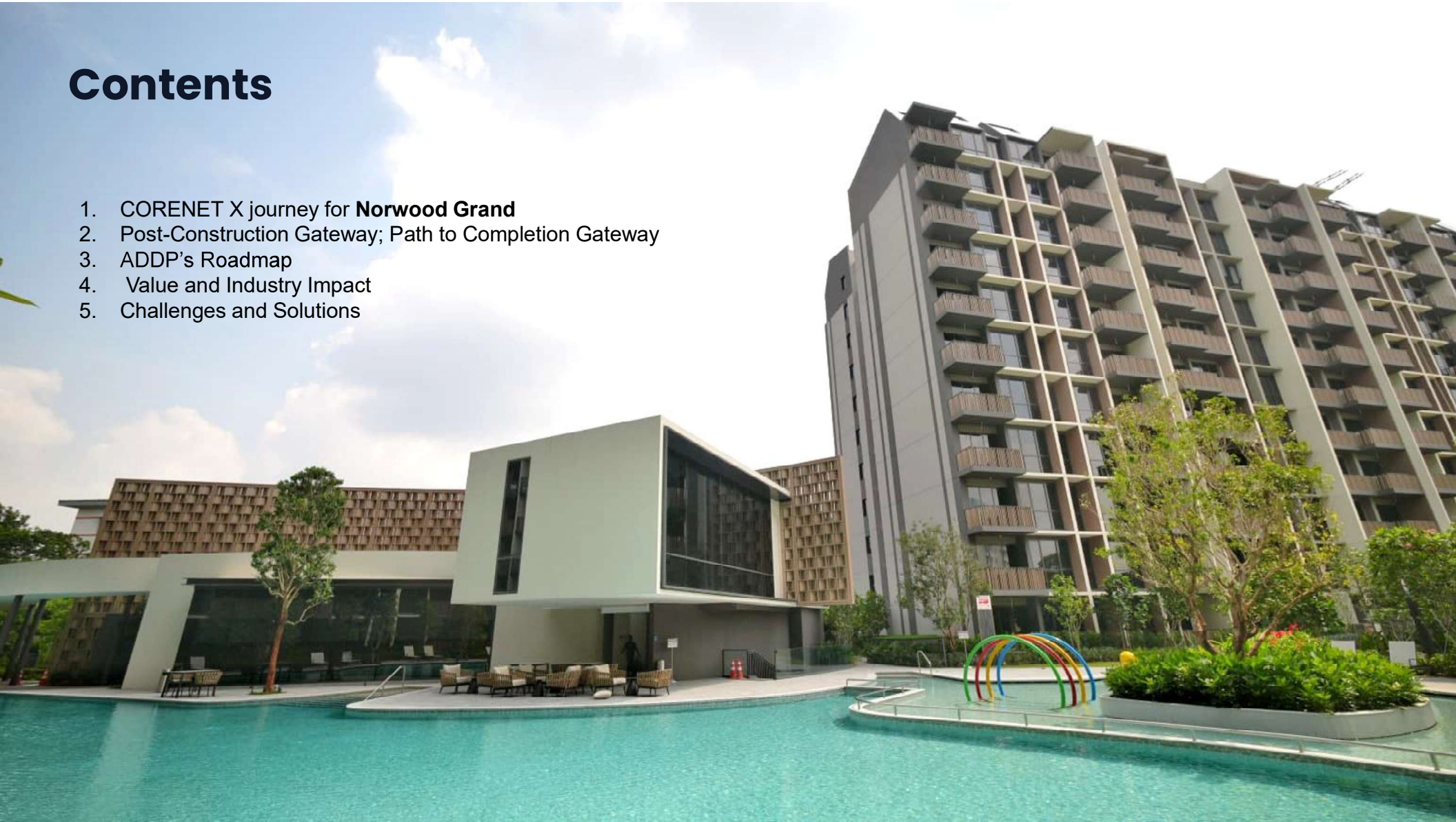
Norwood Grand's Path to the Completion Gateway

ADDP Architects LLP | IBEW Seminar

Ar. Markus Cheng Thuan Hann
03 Sept 2026

Contents

1. CORENET X journey for **Norwood Grand**
2. Post-Construction Gateway; Path to Completion Gateway
3. ADDP's Roadmap
4. Value and Industry Impact
5. Challenges and Solutions



Project Context & Pioneering Role

Norwood Grand Development

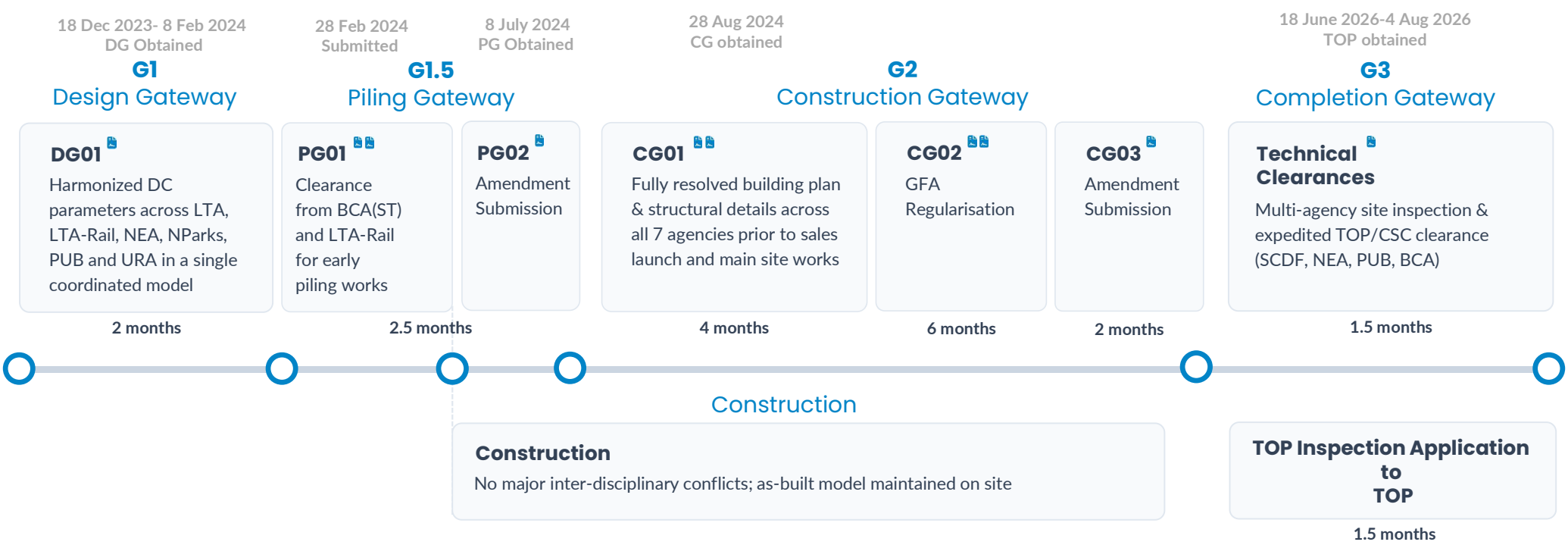
A private residential project by City Developments Limited (CDL), designed by ADDP Architects. The GLS site was awarded to CDL on 18 September 2023.

Volunteered to be a pioneer development to undergo the full 3-Gateway CORENET X regulatory approval submission process using IFC-SG standard BIM models.

First GLS Site Completion Gateway

The first GLS CORENET X project in Singapore to successfully cross the Construction Gateway and reach the Completion Gateway (TOP) on 4 August 2026.

1.0 The CORENET X 3-Gateway Journey: Norwood Grand



Number of Written Directions issued per Gateway

2.0 Post-Construction Gateway

Path to Completion Gateway

Seamless On-Site Transition

Crossing the Construction Gateway (CG) meant that majority of the cross-agency regulatory issues were resolved upfront. This eliminated the historical friction of late agency rejections during site execution.

During construction, **detailed development were coordinated through the 3D IFC-SG model**. The approach strengthened coordination across project timeline, preventing costly abortive works and supported efficient project delivery towards obtaining TOP.



2.0 Post-Construction Gateway

Path to Completion Gateway



Upstream Harmony

All agencies' compliance was addressed at CG, i.e SCDF's fire plan approval was audited, LTA's road ingress and egress, and PUB's platform levels and planning issues. Ensuring zero surprises during construction and final agency checks.



Unified BIM

Amendments and as-built were updated directly into coordinated IFC-SG model, replacing stacks of fragmented drawings with single digital record.



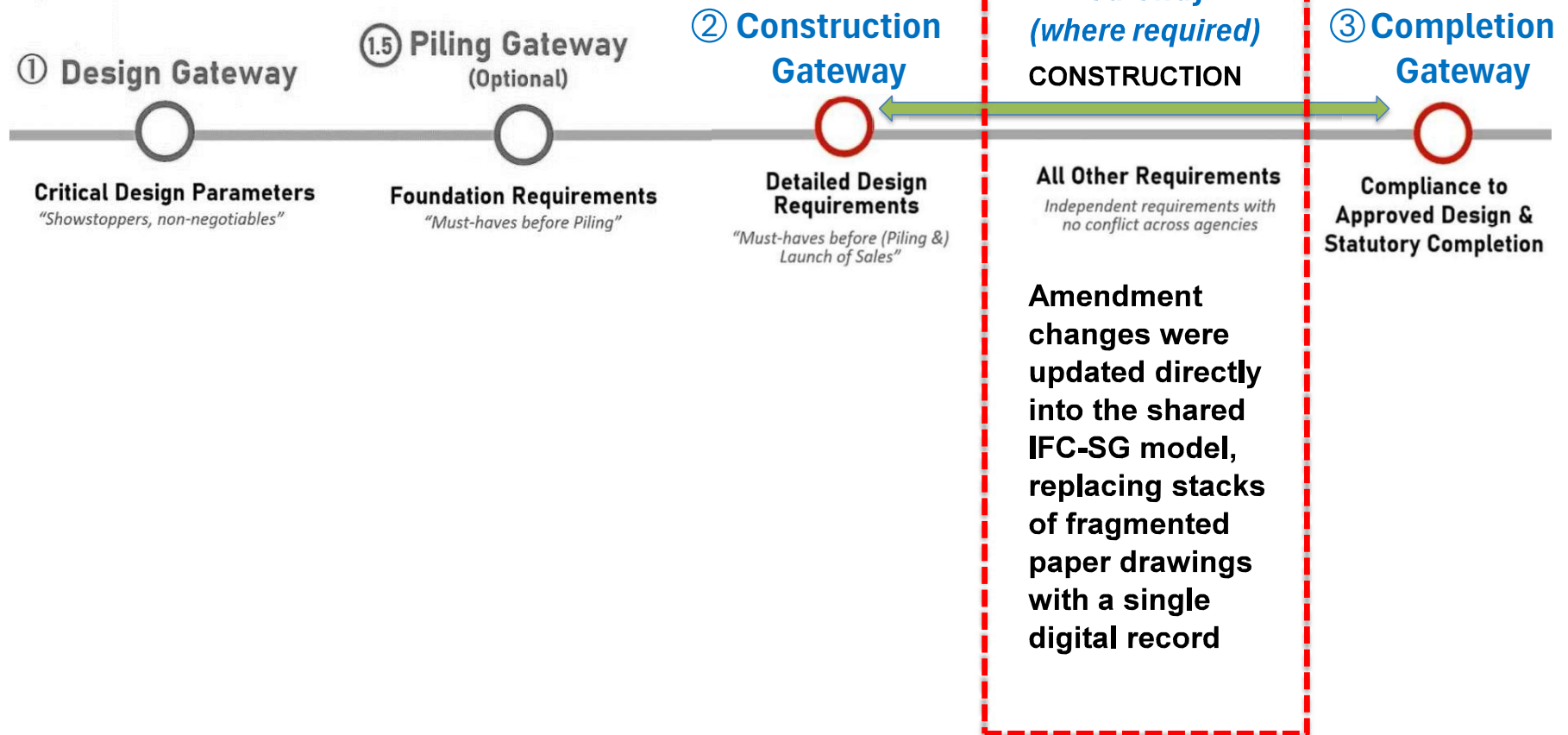
Synchronized Inspection

Agencies conducted inspections against the verified CG model, confirming that what was constructed complies with approved design and statutory requirements, dramatically accelerating the TOP approval process.

(Norwood Grand: 1.5 months to secure TOP)

2.0 Post-Construction Gateway

Path to Completion Gateway



3.0 ADDP's Roadmap

Key Strategic Roadmaps

Upskilling Capabilities & Standards

Established a dedicated internal CORENET X Taskforce within ADDP to standardise BIM templates in line with RABW, Compliance with IFC-SG and COP

Conducted intensive training for Architects and technical teams to transit from CORENET 2.0 to CORENET X

Alignment of stakeholders

Set milestones target across all internal teams (BIM managers, technical staff, architects) and external (clients, main contractors, consultants) teams to align expectations.

Pre-Consultations: Critical issues

Identify high-risk issues early to trigger agency pre-consultations/clarification specifically with LTA for rail protection, and risk assessments—to prevent abortive designs and unproductive downstream works

Integrated Consultant Workflow

Shifted from sequential consultant handoffs to concurrent, collaborative design workflow with C&S and M&E engineers from Day 1.

Multi-disciplinary BIM modelling IFC-SG before any official gateway submission.

4.0 Value & Industry Impact

Traditional Process vs CORENET X

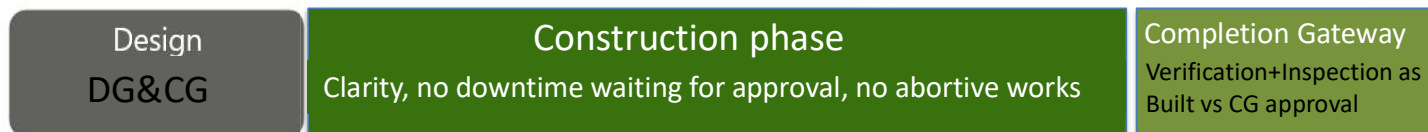
Traditional CORENET 2.0



Total duration: longer - still
- CD Shelter comments & resubmission
- Ingress/Egress comments & resubmission and impact on drainage platform levels
- Exhaust air direction/location
- Fire plan audit compliance issues ie FEA ,lobby ventilation

- *Regulatory coordination & compliance at the late stage, i.e., road realignment, fire site audit comments affecting **TOP***

CORENET X



Upfront technical department BP approval SCDF, NEA, PUB ,LTA etc..
zero clashes, zero delays

- **Regulatory coordination upstream.**
Fewer amendments to agencies; smoother flow for TOP clearance.

CORENET X fundamentally shifts regulatory review upstream, eliminating iterative downstream amendments and securing project timelines.

4.0 Value & Industry Impact

The biggest benefit may not be "faster submission". It is **greater clarity and certainty in the ecosystem**.



CLARITY



CERTAINTY



EFFICIENCY

The development lifecycle:

- ✓ **Design Clarity**
- ✓ **Regulatory Certainty**
- ✓ **Construction Certainty**
- ✓ **Completion Certainty**

Efficiency Across the Ecosystem

By streamlining over 20 separate regulatory approval touchpoints into 3 key integrated Gateways, Norwood Grand achieved unprecedented submission clarity upstream,.

For ADDP and CDL, this meant reduced resubmission loops, sales clearance readiness, and predictable construction milestones from piling to TOP.

4.0 Value & Industry Impact



Value & Impact to Our Firm

- **Design Risk Reduction:** Consolidated agency responses eliminate conflicting requirements between planning, fire safety, and drainage approvals.
- **Upfront Efficiency:** Standardising on the IFC+SG BIM forces early integration with C&S and MEP engineers, drastically reducing late-stage design rework and costly abortive drafting.

4.0 Value & Industry Impact



Impact on Project & Construction Timelines

- **Accelerated Approval Cycle:** Moving to concurrent agency reviews compresses multi-month approval buffers into predictable gateway milestones, allowing construction to be earlier.
- **Fewer On-Site Variation Orders:** Comprehensive multi-agency clearance before breaking ground reduces unexpected site stoppages, constructability issues, and mid-stream redesigns.
- **Smoother Handover:** Early alignment during the Completion Gateway simplifies the Final Inspection and Temporary Occupation Permit (TOP) process.

4.0 Value & Industry Impact



Wider Industry Impact

- **Standardisation across the Ecosystem:** Establishes a unified digital language (IFC+SG openBIM) that bridges developers, consultants, and main contractors.
- **Push towards an Integrated Automated Digital Approval:** Accelerates Singapore's Built Environment Industry Transformation Map by converting regulatory compliance into an automated, digital-first process.

5.0 Overcoming Challenges & Solutions



Mindset Shift Across Disciplines: Aligning Archi, C&S, and M&E QPs to lock decisions early at Design Gateway.

Solution: Regular cross-disciplinary workshops prior to gateway submissions.



IFC-SG Data Mapping: Conversion between native BIM software and IFC-SG required technical calibration. Modelling quality and geo-referencing are always common problems.

Solution: Developed automated property set scripts, internal quality checks, and training



Upfront Workload Inflation: Early regulatory coordination front-loaded design effort, requiring firms to rethink traditional fee structures and project scheduling.

Solution: Adopt milestone-based fee structures and strengthen early multidisciplinary coordination.

Thank You

Norwood Grand: Shaping the Future of Digital Regulatory Clearances in Singapore

ADDP Architects LLP | CORENET X Industry Sharing & Panel Discussion