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HS2

I hope you've enjoyed this morning's presentations.

You've heard a lot about HS2 - the political context from Sir David Higgins; Simon Kirby's vision for HS2 and Beth has outlined our overall commercial approach.

This has been a lot of information, and I'd like you to bear with me over the next 15 minutes or so - I know lunch is beckoning - but I'd like to come now to the exciting part of how we are going to deliver this and what this means for you, our suppliers.

Over the past two months as an executive, we have spent considerable effort detailing our overall Delivery Strategy for the programme, and the organisational structure we require to achieve success.

In outline, we will adopt a matrix organisational structure with delivery being executed through three delivery business units. These are Development, Phase 1 Infrastructure and Operations.

These will be supported by the functional business units whose job is to enable the delivery of the overall business through providing capability and resource into the programme teams.

Procurement Management framework

A key element of our delivery strategy is the establishment of a programme management framework to effectively govern and control all our work.

This will define all of our policies, strategies and the processes we will follow, the management systems and information we require to support effective delivery; and the organisations' terms of reference and development model to drive continuous improvement in what we do.

The framework will determine our ways of working and set the standards for high performance across all parties involved in delivering the programme. The principles of this framework will be flowed down to the supply chain.

These will cover core programme and project management requirements such as EDI, HSE, BIM benefits management, whole life costing, planning, cost control, risk management and reporting to name but a few.

Phase 1 Infrastructure

If we look at the Phase 1 infrastructure business unit in detail, the team is structured along the same matrix management principles we've adopted for the overall organisation.

The delivery teams are organised around how we intend to package up and manage the work.

You will note that we have a construction logistics team, three programme areas which reflect the geographical split of the work; and a railway systems team.

You will also see a separate team for Euston, which will be staffed jointly between Network Rail and HS2.

These delivery teams will be fully supported by functional teams integrated and located within them. I will expand upon the work packaging structure in more detail in later slides.

HS2 Management structure

In terms of our management approach - and recognising the long term nature of the programme - we have adopted a basic principle that HS2 will undertake the overall programme management and systems integration across the overall programme.

Delivery and integration of Phase 1 Infrastructure will also be undertaken in-house, but we envisage our resource being supported by a mix of external consultants and other delivery partners.

As mentioned previously, our work will be packaged up by three geographic areas plus a fourth package for Euston. We intend to procure work based on fewer, higher value contracts.

HS2, however, will retain package integration responsibilities and associated client risk.

Phase 1 infrastructure programme integration

If we look at this in a bit more detail, you can see that the civil engineering works will be split across four packages represented in the centre of this slide:

1. We have the Euston area which will encompass Euston station and all the regeneration around it
2. we have Area South which predominantly consists of tunnels as the route goes north out of London
3. we have Area Central which is mainly major earthworks and viaducts as the route goes North towards Birmingham

4. and lastly, we have Area North which covers the final route going in to Birmingham and connecting to the West Coast Mainline. This includes two new build stations.

Railway systems will be developed route-wide and procured by discipline e.g. signalling, power etc.

Construction logistics will also be developed route-wide and it is likely to be procured by discipline e.g. utilities, highways, land assembly, mass haul etc. The construction logistics packages will be the first to be tendered.

Finally, as mentioned previously, each area team will lead on the overall integration of works within its geographical boundary.

Structural area model

As described in the previous slide, this is a pictorial representation of the four Delivery Areas - starting in the Area North from Birmingham; down to the Area Central; to Area South; and ultimately to Euston.

Each Area will contain three contract packages.

And to re-iterate, within each area we will follow the procurement principle of fewer, but larger contracts to enable more effective integration.

The procurement value of works in each area is approx. £3Bn.

The following slides will give you more detail of what this looks like.

North - As you can see, Area North will be packaged into three elements; there will be two surface route contracts, N1 & N2 and one station contract, N3. Total value approx. £3Bn.

Central - Area Central will be split into three major civil packages. In all, these three packages will cover a route distance of 110km, and will be predominantly major civil works, earthworks and embankments.

South - Area South will also be split into three packages. Package S1 and S2 are predominantly tunnelling packages and associated earthworks for work in the London area; Package S3 will cover tunnelling work in the Chiltern area and the Colne Valley Viaduct - the Chiltern Tunnel and this Viaduct will be the longest single tunnels and viaduct across the entire Phase 1 Programme.

Euston -The final area is Euston. We are still developing the delivery model for Euston in conjunction with Network Rail.

Considerable thought is being given to how we can jointly design a solution for Euston that will be a catalyst for wider regeneration around the station within the available cost envelopes.

We have formed a joint sponsor board with Network Rail and their senior team have been seconded to work direct with HS2 to detail the delivery approach over the coming months.

Area integration: Contract level

Looking at our integration challenges, and using Area Central as an example, we envisage each of the three major civil packages probably being undertaken by JV's due to their size and complexity.

We want these contractors to adopt collaborative ways of working based upon the BS11000 model. We will seek to incentivise mutual success through the achievement of joint milestones at contract, area and programme level.

We envisage integration at area level being undertaken by HS2 but consideration is being given to whether a Tier 1 contractor or delivery partner could undertake this role.

Key construction statistics

Just to give you a feel of the overall scale of the programme and the challenges ahead, here are a few headline statistics.

In particular the overall route length is 230km of which about 25% is in tunnels.

It is also worth highlighting that about a third of this length is in cuttings to reduce the visual impacts of the railway.

We are looking to reuse 90% of 128m tonnes of excavated materials within the programme.

Additionally, there are more than 300 over and under bridges along the route and no level crossings!

Hierarchy of Design

In terms of our approach to design, we envisage four levels of design hierarchy.

HS2 will undertake the specification design and will also develop this into sets of employer's requirements at a discipline level. The level of detail within these employers' requirements will be developed to an appropriate level, recognising the complexity of each package.

The employers' requirements will form the basis of the ECI stage one tender for supplier scheme design for all the main contracts.

Subject to successful completion of ECI scheme design and agreeable target costs, stage 2 contracts will be awarded for detailed design and construction.

Design procurement

To support the development of our design specification and employers requirements, in the short term we will seek to utilise existing professional services support contracts with a target date of having these arrangements in place by Spring 2015.

In the medium term, we will seek to tender for further design support contracts to help in our evaluation of suppliers Stage 1 scheme designs and provision of support to our in house technical teams.

Longer term, we will also require further design support to assess detailed design submissions from contractors.

We are seeking to have all these medium-to-longer term arrangements in position by end 2016.

Timeline: High level schedule

Having looked at the short to medium term design timescales, I would like to give a high level overview of the overall Phase 1 delivery plan for main works.

Royal Assent is expected December 2016 - this is a key milestone and provides us with the authority to award all main contracts.

Scheme design will continue through to early 2017.

Main construction will commence during 2018 to 2025.

Railway systems integration will occur between 2022-2025.

Testing and commissioning will commence during 2024 through to 2026.

Rolling stock reliability and resilience testing will be conducted during 2025-2026.

And finally, entry to service end of 2026.

Key opportunities

Before concluding, I just want to highlight the big opportunities where we are looking to work collaboratively with the supply chain to make a real difference to the quality, buildability and safe delivery of the programme.

1. Safe and inclusive design - from the start, we are looking for contractors to develop a design that provides high levels of safety and inclusivity in both construction and operations
2. Occupational health - we are passionate about ensuring we achieve leading standards in health and safety in our work place, whether office or site based.
3. Building Information Modelling - or BIM - we intend to establish a programme wide approach to BIM that establishes a common programme ethos, way of working, language and flow of information to deliver maximum efficiencies and value for money across the whole life costs of the programme.
4. Brand New build -HS2 provides a huge opportunity to create a step-change in our way of working in delivering national rail programmes by being innovative and using world class practices. We need to harness the collective intellectual capabilities of the supply chain. Demonstrating high levels of EDI will be a critical success factor in achieving this.
5. ECI - provides the immediate opportunity for our suppliers to demonstrate their ability to influence the design and constructability of the programme by working collaboratively with HS2 commencing in a few months' time.
6. Environment/Sustainability - we have to recognise that the building of HS2 will impact those along the route. We have an opportunity now to ensure that the design minimizes these impacts and provides sustainable benefits to communities in the longer term.

Next steps

So they're the key opportunities for you on HS2.

This is a hugely exciting time for us all - to have the opportunity to play a part in one of the United Kingdom's most strategic programmes; one that will make a difference for generations to come.

But we need you to make this happen.

We are looking forward to working with you to achieve this.