Highways England
Principal Designer Working Group
Meeting No.14

Thursday, 17th October 10.00 am – 3.00 pm
Arcadis Offices, Meeting Rm B1, Cornerblock, 2 Cornwall Street, Birmingham. B3 2DX

Name	Initials	Position	Organisation
Richard Wilson (Chair)	RW	H&S Director (Major Projects)	Highways England
Ian Scott	IS	NIP Health & Safety Lead	Highways England
Doug Potter (Secretary)	DP	Principal Designer Manager	Arcadis
Mark Lamport	ML	Technical Director / Principal Designer Manager	Arcadis
Pav Singh	PSi	Associate. Technical Director / Principal Designer Manager	Arcadis
Tim Bowes	TB	Principal Designer Manager	Atkins
Ed French	EF	Principal Designer Manager	Arcadis
Paul Brown	PB	Technical Manager	WSP Group
Nicola Knowles	NK	Principal Designer Manager	Arcadis
Andrew Finch	AF	Director of Operations	Jacobs
Robert Butcher	RB	Technical Director CDM	Jacobs
Mark O'Riordan	MoR	Principal Engineering Manager	Amey
Simon Wilkinson	SWi	Technical Director	AECOM
Tim Goddard	TG	Principal Designer Manager	Arcadis
Malcolm Shaw	MS	Principal Designer SMP M1 23-25a	Arup
Toria Thomas	TT	Principal Designer	Arup
Paul Dennis	PD	Principal Designer/Senior Engineer	Arup
Katie Swanick	KS	Principal Designer Manager	Costain
Dave Owen	DO	Regional Director	Galliford Try
Steve Coppin	SC	Principal Designer Manager	Arcadis
Richard Jones	RJ	Technical Solutions Manager	Balfour Beatty
David Townsend	BOD	H&S Head of Policy	Highways England
Liz Braithwaite	LB	H&S Manager	Skanska
Jim Tod	JT	TW Director	Tony Gee
Tim Beaumont	TB	HSE Policy Advisor	HSE
Gordon Crick	GC	H&S Inspector	HSE
Lesley Waud	LW	Technical Director	Atkins (Part)

Apologies:

Name	Initials	Position	Organisation
Ed French	EF	Principal Designer Manager	Arcadis
Liz Bennett	LB	Director	Safety in Design
Roger Swainston	RS	PD / CDM Advisor	Jacobs
John Migoski	JM	H&S Manager	Network Rail
Jonathan Giles	JG	Divisional Team Manager, Principal Designer	WSP Group

	Agenda	Actions
1.0	**Welcome and Safety Moment** **Safety Alert 1 - by ML - M4J3-12 SMP HiPO - Head injury** - Thames Bray Bridge **Safety Alert 2 - by SC - Silica Dust** - Cancer and Construction - HSE statistics are due to be released to determine the current facts re silica and ill health. Most dust should be dealt with at source by vacuum extraction methods fitted directly to tools/equipment – see examples. Please share. **Safety Alert 3 - by SC - Cable strikes** - reported cable strikes have increasing year on year since 2012 in the UK - an increase of 668% in the last 5 years! HSG47 provides guidance for working near and around buried services. RW welcomed everyone to the PDWG today and particularly the HSE who will be providing their view on the state of the industry and what is currently going well and maybe not so well for the Highways sector, and their future aspirations.	All
2.0	**Embedment CDM 2015 – Four Years On - Presentation by Gordon Crick and Tim Beaumont (HSE)** **(See presentation attached)** 2.1 Paddington Rail Crash - 20 years ago this year. Could it have been prevented? How was the risk evaluated and avoided? Do we all review risk effectively? What design glitches are present in our designs? • We need to understand the culture of our organisations. Otherwise the messages of CDM will not resonate. 2.2 Embedding CDM 2015 PRIORITIES TB explained that HSE's perception was that the CDM Regs. are now about right but have three new priorities: • 2.2.1 Persuading clients and advisors to invest in the Preconstruction phase was essential - risk management processes should be developed at the early stages of a project; • 2.2.2 Work with PD's to establish good practice; • 2.2.3 Ensuring the benefits of digital technologies for H&S are realised. 2.3 Fatal injuries and ill health rates have reached a point of stasis. No continued improvement in health and safety is now being seen. The HSE feel that there is an acceptance that the current levels of safety and health risk are acceptable, and this is becoming the norm which is not acceptable!! 2.4 The industry needs to change this attitude and the perception of health and safety. There now needs to be a step change to ensure the statistics to fall further. 2.5 TB highlighted key push and pull influences which have a multiplier effect on the risk management of a design. 2.6 HSE admit that historically the PC has been at the forefront of most of HSE's time and inspections.	All

2.7 The HSE Construction Sector team are now trying to work more closely with the Client and PD teams to help drive improvements.

2.8 TB felt that designers have the most effect on safety and health risk management in design and the best opportunity to create better site conditions.

2.9 Client engagement is paramount to setting the tone of the project right at the start. Advisors to the Client can sometimes take away the emphasis from the PD/Client duties.

2.10 HSE want the PD to be in control of the design. There must be technical expertise present in order to manage H&S during the preconstruction phase. The PD must be given the platform by the client to ensure the PD have enough 'clout' on the project.

2.11 TB felt that 4D modelling is very important. BIM created a better design providing visualisation which improved the design decision-making process (see examples provided).

2.12 D&B contracts encourage late design and perhaps move away from the spirit of CDM, which looks to encourage more design to be done in the early stages of the project.

2.13 HSE are now keen to review contract types and the effect they have on H&S.

2.14 PD should be encouraging POP in design. This should foster and be encouraging greater risk elimination and reduction.

2.15 A change in culture is needed to bring TW's into the design process at an earlier stage of a project also.

The Client -

- Logically and legally everything starts with the Client
    - The brief
    - PCI
    - EIR - BIM expectations
    - Resources - CDE, Digital Twinning etc
    - Time
    - Reg 4(1) - Suitable arrangements for the project

2.16 GC - believed that if Clients invested more in the pre-construction phase the overall project delivery would be better and we would all see a reduction in risk.

2.17 So what is at the heart of the PD role?

- Co-ordinating the health and safety matters for the project i.e. Use

- BIM Tools - Model federation, Clash detection, 4D modelling
- GC highlighted Jacob GIS example of a platform for collaborate - Planning a New Road - created a single dataset which can be shared across all disciplines for the project.
- This must remain up todate throughout the life of the project.

- PD should Plan, manage, monitor and co-ordinate - what's the plan?

2.18 PD plan – at the start - how the company will carry out the following:

        - Client PCI review
        - PCI Gap analysis
        - Design Team DRM/HES
        - Design information
        - Preliminary Hazard Analysis and Safety Review - with all stakeholders right at the start of the project - challenges, risks and uncertainties. Also, provide a platform to identify opportunities for doing things better/safer!
    - PD Manage and Monitor - the middle
        - Design Tasks
        - Design Teams
        - PD Scrutiny - Identify share and use the information that comes from the design tasks/team - which creates design outputs
        - PD role to oversee design and ensure information flows between parties. Handover designs that can be constructed safely.

2.19 PAS1192 - 6:2018 - Project common data environment - a collaborative approach to incorporating all stakeholders into the project which creates an open learning environment.

2.20 PD has to be able to identify foreseeable risk - designer duty to eliminate foreseeable risk.

2.21 POP - How well do we apply this on our projects?

2.22 PS – felt financial pressures are influencing the type of contracts we use and encouraging the use of D&B contracts. This may exacerbate the problems we are trying to avoid.

2.23 TB felt Client's Employer's requirements are rarely in place at the start of the project which leads to difficulties in delivery.

2.24 It was recognised that there were problems associated with the handover of BIM models to operating organisations, as they are often not equipped to receive the data in this digital format. Contracts drive behaviours rather than the law! This needs to change! Or the contracts need to change to reflect the law.

2.25 Risk Information in Design - PAS1192 Symbols and Risk Registers

- What is known and shown in the beginning of the project? This may be more of a narrative and not ranked. To include:
    - Key Design Decisions
    - Design Assumption
    - Critical Information
    - Major Risks and other risks
- What is known and shown at the end of the pre-construction phase? This may be more organised in terms of PAS representation:
    - Risk Symbols
    - Specific Risk named
    - Fully assessed
    - Specific mitigation stated
    - Who is responsible?
    - Prioritised and managed

2.26 PD Role during the construction phase -

- PD must ensure a plan is in place
- Ensure Model federation
- Clash detection
- Design Team risk reviews

	• 4D Sequences Modelled • Set Piece - Constructability/Rehearsal Review - reveals hidden risks quite often. • GC showed a Network Rail 4D shaft construction undertaken on Cross rail. • BIM enhances and raises the quality of conversation about risk. Allows better visibility of "foreseeable risk". • GC showed example of a Premtech delivered project for the National Grid gas transmission arm. Premtech were the PD for the design stage. 4D modelling was used saving money on the project circa 20% and made the execution far safer. • BIM needs to be used more to promote improved dissemination of information. 2.27 PD role during the Commissioning and Handover phase: • PD must ensure in plan is in place • Identify critical information • Co-ordinate commissioning • Ensure a Hand Over Information checklist is in place • Check as built info/models/ drawings which all form part of the H&S file • Management of Health and Safety at Work Regs. are just as important as CDM. • GC provided a video of a digital HSF - visual index 2.28 Suggested metrics for the Pre-Construction Phase – capture of KPI's to drive change Examples include: • No. of escalated risks eliminated, reduced or controlled through subsequent design • Have design solutions used multiple mitigation strategies i.e. has substitution been considered? POP • Quantity and quality of model federation and clash detection • No of RFIs returned to design team • Attendance/participation of key stakeholders at design reviews • Level of feed forward detail delivered by reviewing constructability • Quality of PD plan • Assess Quality of mitigation against POP • Engagement level of Client in Risk Management • Engagement level of PC/supply chain in ECI 2.29 Hulland PD Maturity Scale – developed in 2016. All to review against their own organisational maturity levels. **2.30 Q&A Session with HSE – (See Appendix A)**	All
3.0	**Supply Chain Senior Leadership Group (SCSLG) - Lesley Waud (Atkins)** **Remit and Objectives** **(Presentation attached for sharing across organisations)** 3.1 LW explained that Home Safe and Well focuses on the highest risk areas to raise standards. 3.2 Background - AFR's have reduced.	

3.3 But, how can we move forward differently?

3.4 Significant number of safety groups 100+ within HE Supply Chain. Not all of whom have senior level sponsorship and many of these are not communicating and sharing with one another.

3.5 Lucy Fell - HE HS Director – has been assisting to promote the supply chain leadership to co-own the Home Safe and Well campaign and agree priorities to invest time in.

3.6 SCSLG will now focus on Task and Finish groups rather than groups that go on for a long period. SCSLG's aspiration is to bring other disciplines in including Mental Health which they are now championing.

3.7 Key element is that the group membership are business leaders who are being challenged to own and direct the groups.

3.8 James Halluch is the current Chair of the group.

3.9 Everyone can play a part in the Task and Finish groups(T&FG). A Collaboration Board is also being formed led by 4 group leaders.

3.10 LW wanted to understand how the current T&FG's aligned with the outputs, or targets for the PDWG.

3.11 Hence the presentation to PDWG today:
Initial SCSLG T&FG's:

- Incident investigation
- Service strike avoidance
- 60mph trial
- HE passport
- Incursions
- Mental Health
- People plant interface
- Excavation and TW's

3.12 Each group has an email contact address (see presentation attached) so members of PDWG wishing to join, can provide expression of interest.
All groups have to have a design and construction focus. They should not just focus on the construction phase.

3.13 LW wanted to look at what longer term priorities need to be developed in our approach to design. How can we all add value? LW had a specified scope and terms of reference for this but wanted to encourage ideas for other T&FGs.

3.14 Could individuals from the PDWG work with LW to shape the design community and progress the T&FG's?

3.15 DP provided a brief update on the work of the PDWG todate and the current topics underway at present:

- CDM Implementation Standards update - (Lead by IS)
- Whole of Life Safety (Design improvement) Task Group - (AF)
- Safety Alert and Lessons Learned (Accident investigation) – (TG)
- Risk Management (including BIM integration) Task Group – (DP)(forming)
- RTB's - in particular RTB26 – (PB)

	○ Health in Design – (Liz Bennett) 3.16 RW – was keen to develop the work already undertaken in analysing Safety Alerts and Near Misses to provide better feedback and capture of lessons learned for the next generation of designers. 3.17 Liz Brathwaite indicated that Skanska had undertaken a recent exercise in capturing Near Misses and undertaking root cause analysis to investigate causation – she would share with the group and SCSLG. 3.18 RW regards the PDWG as a two-way method of communication to help improve design delivery and drive change. Sponsorship by the SLT is required. 3.19 LW would like TG to join the Incident Investigation T&FG to build on the work already undertaken (TG is presenting on this work later). DP explained that RAG lists had started to be developed here to capturing Lessons Learned which could be shared with designers. 3.20 PS asked that a recommendation be made that the PD is part of the accident investigation team. 3.21 JT would be interested in joining the Excavation and TW T&FG – dependent on input requirements. DP to arrange contact. 3.22 Whole life design group - AF to feedback to LW separately. 3.23 DP has worked previously with *ciria* on LEAN for H&S guide providing industry outputs – further case studies are required in order to facilitate further feedback. DP to investigate. 3.24 General comment. More videos, photos and learning from site is required to feedback to the design teams. All to action. 3.25 DP to forward PDWG SCSLG Deliverables Form issued in September for LW to review.	LB RW/LW TG/LW TG/LW DP/JT/LW AF DP All DP
4.0	**Task Group and Hub Feedback** **4.1 Health and Safety Hub** As discussed, HE are reviewing the current format of PDWG and H&S Safety Hub and it understood a meeting will be taking place on Monday 21st October - RW to feedback output from the review. <u>Post meeting Note</u> RW informed that PDWG to continue until further notice **4.2 Whole Life Design Task Group – Andrew Finch – (Jacobs)** **Design Safety Guidance (DSG)** • The group are currently looking at completing the DSG Examples which have been developed over the last few months from Safety Alert and Near Miss feedback – most are currently initial drafts and he is hoping that these will be finalised by the end of year deadline • 14 Safety Areas have been identified and DSG Examples developed: 1. PCI 2. Stats 3. Utility strikes 4. TM 5. Footings - for concrete barriers etc	RW WLDTG

	6. TW's - drainage and ducts 7. Slopes 8. Narrow verges 9. RLB's 10. Cabinets and Signal Posts 11. Inspection and Testing 12. Off network access 13. Modular Construction 14. Not drafted yet • AF is determining how best to share this knowledge with SharePoint as a possible platform for disseminating this information to our design community. • AF was a strong believer in new technology and felt YouTube may be a possible route for the distribution of training and educational details to younger design staff	
5.0	**5.1 Home Safe and Well update – Richard Wilson – Highways England** • IS has been developing new CDM Standards documents. Further details will be available shortly. DP to liaise with IS and DT • Home Safe and Well has been launched externally and internally and further feedback will be provided shortly – SCSLG is part of this initiative • RIP D&B's contractors are being appointed and should fully align with Home Safe and Well initiative • 12 core corporate objectives have been identified - HE are appointing a H&S consultant to support this work - details to follow • Workshops will be organised for November and December to cascade objectives down and this will include PDWG. • Safe by design objectives - how will we share this internally? RW to provide further feedback at PDWG 15 in January **5.2 Capture and Application of Lessons Learned (Accident Root Cause Analysis) Process Review - Tim Goddard (Arcadis)** • Safety Alerts and Near Misses are reviewed by the Arcadis CDM team monthly and where possible root cause analysis is undertaken. All Safety Alerts are saved on the Health and Safety Hub webpage. Better accident investigation would help to identify all related issues – see SCSLG T&G Group comments earlier. • Based on findings, incidents are categorised, recommendations made, and the group compile the results to identify H&S trends • Design and PD implications are identified, recorded and actioned if applicable. • These are forwarded to the Arcadis Technical Leadership groups who are helping to develop future RAG lists which can then be shared with the design teams • Lots of Safety Alerts need more information in order to determine a conclusive root cause – there is little, or no follow-up currently so better feedback required here. • Information and statistics can now be targeted to relevant design disciplines, which allows capture of Lessons Learned to improve designer knowledge and promote changes to design process to improve safety. • RW asked that TG presentation be issued to LW to demonstrate the good work that PDWG is delivering.	IS/DP/DT RW RW/IS RW RW/IS TG

	• NK to share feedback on the Safety Leading Indicator software which has been developed by the University of Manchester to determine organisational safety maturity, to see if it is possible to draw parallels with the Safety Alert work currently underway.	NK/TG
	5.3 Underbridge Paving Safety Alert – A14 - Tim Bowes - (Atkins) • A14 paving slab installation on bridge revetments - injury to operatives' leg. • DRA investigation - showed that this activity was intended to have been mechanically installed but had actually been manually installed. • Secondary activities that increased safety risks include cutting angles on the slabs including - dust/noise/vibration/working at height • **Action taken** – A14 are looking at the specification of the slabs and whether or not another design solution was possible and appropriate. • TB thanked those who had provided comments prior to the meeting and the contributions during. But as the presentation had been cut short due to time pressures he asked that any further comments be sent directly to tim.bowes@atkinsglobal.com . This has already been issued under separate cover.	All
	5.4 Safety Alert – HEi 117 – Mechanically Operated Post Driver • Not covered due to time pressures – but could all review the attached Safety Alert details and provide any comments back to doug.potter@arcadis.com	All
	5.5 Risk Management Task Group • DP asked for volunteers to join this new group that we are looking to form. • A number of names had already been provided and he would be in touch soon.	All
	5.5 RTB26 Update Task Group • Paul Brown to be in touch with the group members who had previously registered interest in progressing this group.	DP PB
6.0	Lunch	
7.0	**Issues and Actions Tracker –** 7.1 Updated and attached – DP to liaise with RW in respect to potential targets for 2020	DP/RW
8.0	**Next Meeting – Thursday 16th Jan 2020 – Venue – TBC** **DP asked for a volunteer to host the next event**	All