

# Rochford Construction Ltd.

## Method Statement

<b>Principal Contractor</b>	ROCHFORD
<b>CONTRACT TITLE</b>	192 Haverstock Hill, London NW3
<b>SITE ADDRESS</b>	192 Haverstock Hill, London NW3,

## Method Statement For Substructure works At 192 Haverstock Hill London NW3

**CONTROLLED COPY DISTRIBUTUION LIST**

SIGN	Site Manager	Health and Safety Advisor	Contracts Manager	Approval required.
PRINT	..... <b>SMSTS Trained</b>	All Day Safety Services	Cliff Short	
	BREIFINGS TO BE CARRIED OUT BY;	TO BE REVEIWED BY	WRITTEN BY	APPROVED BY CLIENT (IF APPLICABLE)

REV01	30/08/16	Initial Submission
<b>REV</b>	<b>DATE</b>	<b>STATUS / DESCRIPTION OF CHANGES</b>

CONTROLLED COPY NO.	JOB TITLE
01	Cliff Short- Contracts Manager
02	Site team
03	..... (ROCHFORD)
04	All Day Safety Services Ltd
05	
06	
07	

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- 2.0 Method Of Works / Sequence Of Events
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## APPENDICES / ASSOCIATED RISK ASSESSMENTS

- A Safety Risk Assessments (previously Issued separately)
- B COSHH Assessments (previously Issued separately)
- C Hand Arm Vibration Register ( book to be issued on site)
- D Task Briefings (issued separately)**

### 1.0 Introduction & Scope of Works.

The site is a irregular shape, bounded on some sides (party Wall) and works along the party wall will be undertaken in accordance with the party wall agreement with any works along that section properly supported as per the specification and design  
The project consists of :-

Pile attendance and substructure foundations and drainage works. We are only carrying out the works up to the ground floor which consist of the basement construction of single sided walls and slab  
ROCHFORD are the principal contractor on this project.

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## 2.0 Method of Works / Sequence of Events

All site operatives will first undergo a site specific induction by the Principal Contractor, (ROCHFORD) after which this document will be used to give an overview of the works and methodology in addition to the Method Statement task briefing sheets which will be explained to all involved (by Rochford site management) and the operatives will sign the method statement acknowledgment sheet.

The CAT & Genny Calibration certificate will be sent site direct from the office

The Cat & Genny Training certificates of competency will be sent to site direct from the office

All 360 excavator operators will be kwick hitch trained

All excavations deeper than 1m will have protection fitted against collapse this will be determined on site by the Site manager depending on the depth and the ground conditions encountered.

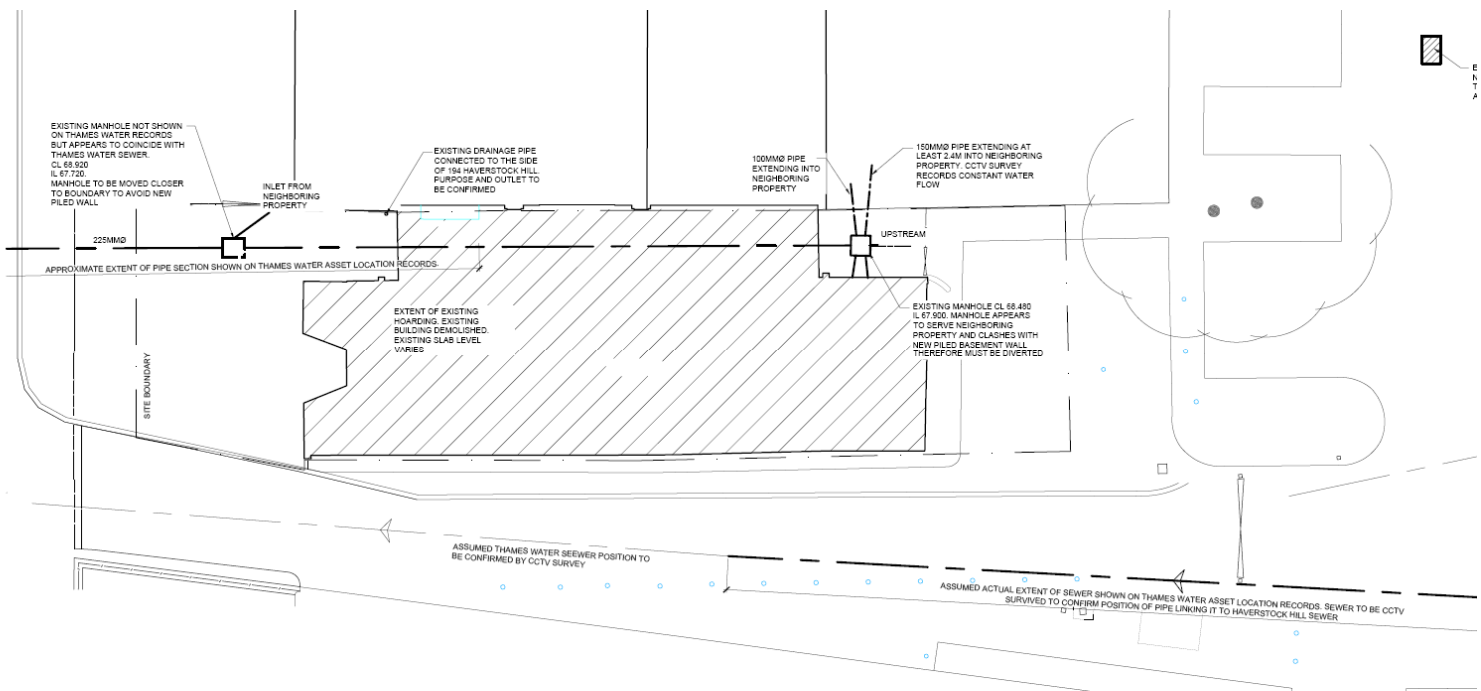
All protruding re-bar ends will be covered with plastic mushrooms

Where seat belts are available on machines these will be worn at all times whilst in operation

All unattended plant will have the ignition key removed

All dumper operators will dismount whilst being loaded

A whole body vibration assessment will be carried out as and when it is required to use a ride on roller



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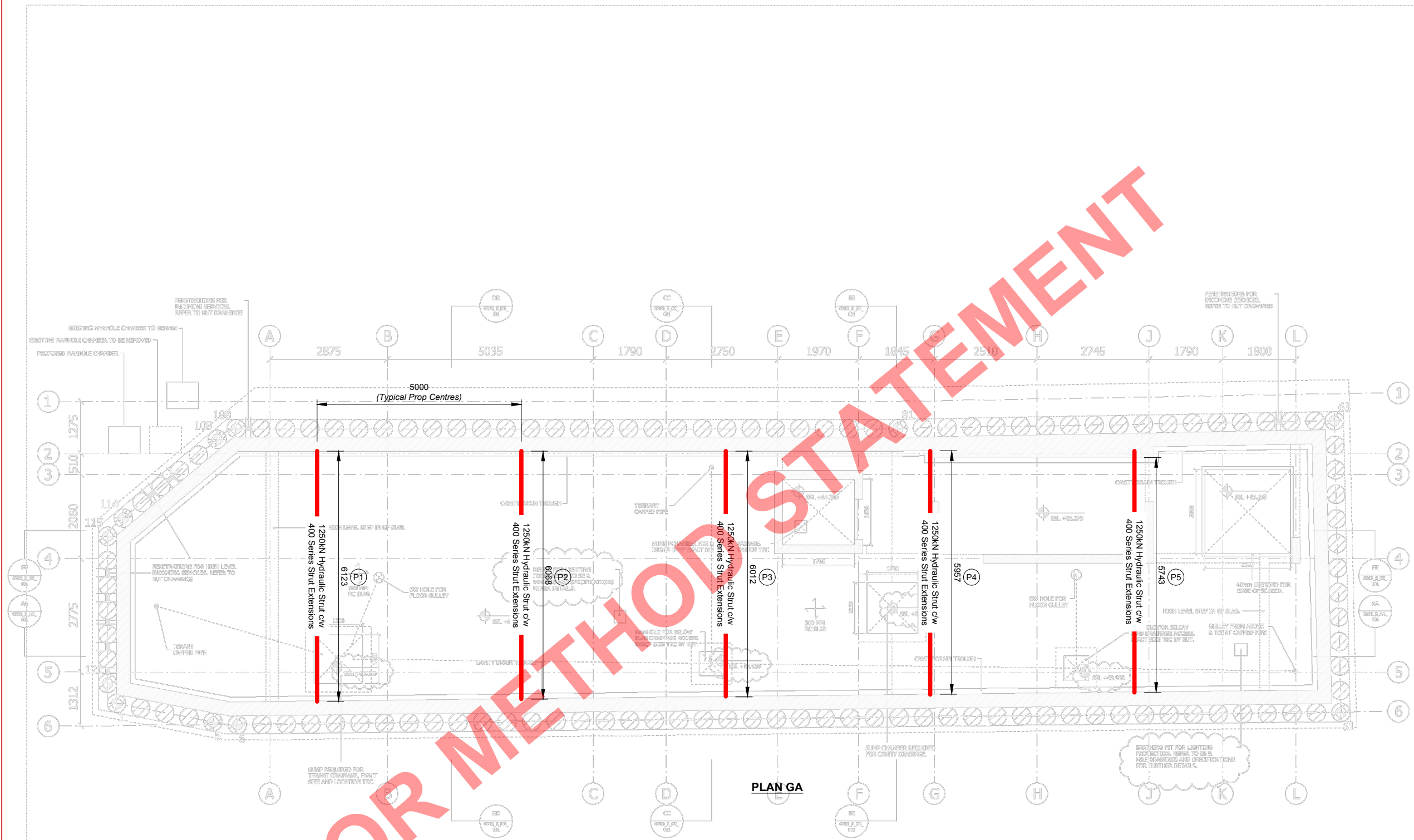
## Method of Works / Sequence of Events continued

1. On day 1 mobilize to site and erect temp heras fencing around boundary of site including all necessary H&S signage
2. Remove existing hoarding and erect new hoarding to boundary line
3. Erect Tree protection where required
4. Demolish brick wall internally that exists near hoarding line
5. Setup site offices and Welfare facilities including all temp supplies
6. Demolish and remove existing concrete slab
7. Form Piling matt at finish Level of +68.100 and set out for piles
8. Commence Piling starting at front right corner as you look in from main road (Pile Nr.1 on drawings) (Refer to Piling method statement for piling works)
9. After Piling has commenced start drainage diversion to back of building through neighbours party wall
10. Connect to drainage to foul manhole on entrance road, traffic management will be in place to ensure clear access at all times to Tennis Club area
11. Drainage connection through existing brick boundary wall will be propped during works to ensure stability
12. Week before Piling completion we will commence cutting top of piles to correct level
13. Commence reduce dig to level +67.100 so as to allow capping beam construction
14. Complete capping beam construction
15. Install Horizontal props between piles (Gridlines 2 to 6) at 5m centres at capping beam level to ensure stability of piles on party wall side (See Temp preliminary works Drawing attached)
16. Complete reduce dig of basement to required formation level +64.775 as props are installed
17. Install internal drainage and pumping chamber
18. Lift Pit construction in basement
19. Pour basement slab
20. Commence rebar & formwork and all necessary propping to for basement walls/columns/beams etc
21. Pour concrete to formwork from basement level to ground floor level
22. Commence formwork & rebar to soffit of ground floor slab with all necessary propping
23. Pour ground floor slab and strike formwork
24. Remove all horizontal props once ground floor slab has been poured and cured
25. At all stages of works outlined above the H&S plan will be adhered to and all necessary inspections carried out as required
26. During the construction period, the stated working hours will be adhered to
27. Site and surrounding area will be kept clean at all times during basement construction

## Temp Works Drawing

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- Propping has been designed to resist an unfactored load of 150kN/m.
- Designed to BS5950-1.
- Capping beam assumed as continuous @ stepped location.
- Capping beam to be designed to span between prop locations.



FOR METHOD STATEMENT

NOT FOR CONSTRUCTION

PILE NO.	COL. REF.	START DATE	COMPLETION DATE
101	101	10/10/16	10/10/16
102	102	10/10/16	10/10/16
103	103	10/10/16	10/10/16
104	104	10/10/16	10/10/16
105	105	10/10/16	10/10/16
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119	119	10/10/16	10/10/16
120	120	10/10/16	10/10/16

05.09.16	Joe Waller	---
Date	Designed	Checked
Issue Status		

CONCEPTUAL

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Site  
 192 Haverstock Hill, London, NW3 2AJ

Scheme  
 Temporary Basement Propping

Drawing Title  
 Plan GA

Drawing No  
 43648-100 T1

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**Potential existing underground services.**

• If the hierarchy of risk reduction as outlined within the tables below has not been achieved, resulting in working around live services, the procedures outlined will be followed:

- Complete detailed 'permit to dig' form and arrange for Site Manager to double check & sign off.
- Follow procedures outlined within appendix 2:
- Review information issued - survey drawings etc..
- Hand dig trial pits to locate services if necessary
- Establish min 500mm exclusion zone - no mechanical plant within this area.
- Where necessary (within hard ground) excavate alongside and approach from side to expose cable position.



<b>Relevant paragraphs of: CDM 2007 ACOP "managing health and safety in construction"</b>	<b>action by</b>
Clients responsibilities – Provision of adequate information.	Client
and Pre-Construction Information Clients responsibilities – Provision of adequate buried services information.	Client / CDM-C
Designers responsibilities to reduce risks and provide adequate information or residual risk.	Designers.
Designers responsibilities to minimize risk – elimination of risk at source	Designers.

<b>Relevant paragraphs of HSG 47 avoidance of underground services</b>	<b>action by</b>
30, 31, 32, 33 - "Planning the works", Designer requirements: remove risk at source, disconnect, isolate, and relocate prior to work. Re-design construction works to accommodate. 37 - Provision of accurate information.	Client Designers CDM Coordinator
44 - Investigative surveys to establish adequate information	Client / PC
69, 70, 71 - Safe digging practices - exposing services: details the need to identify using available information, use of hand tools (do not use power tools or mechanic plant & equipment)	Principal Contractor Contractor
106, 107, 108, 109, 110, 111 - Safe digging practices - Identification: Examples of how to identify various electrical services, depths, emanating energy signals etc..	Principal Contractor Contractor
112 - Safe digging practices - Identification: use of "power tools" - not applicable. (Power tools not used.)	Principal Contractor Contractor
113 - Safe digging practices - Identification: use of "power tools should never be used"	Principal Contractor Contractor

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## General Excavation Principles for Pilecaps, Groundbeams and Drainage:

- **Method of works for shallow excavation and 'muck away':**
- *All excavations will be restricted to authorised persons only and we will install edge protection and signage to ensure clear communication – the edge protection will be a combination of traditional Tube and fitting, chapter 8 style red and whites and aluminium pedestrian barriers – all systems will need to be agreed with before implementation*
- Using 360° excavators operated by competent operators (**all training certs will be copied to the site files**) the reduced dig will commence. Copies of the operator's certificate of training achievement (CITB) will be available for inspection. Copies of current Thorough Examination for excavator will also be available for inspection.
- Restrict access to the proposed work area, ensure plant and operator have adequate space to commence excavation.
- Complete permit to dig & obtain suitable service drawings to mark known services also using hand held Cable Avoidance Tool undertake 'sweep' of excavation area to identify location of services.
- Excavated material will be loaded into front loading dumper and taken to a stockpile and then into awaiting muck away lorries.

## Method of works for bulk excavation and muck away:

- A competent person who has a proven record of experience in this work will supervise all works (**all training and competency certs will be copied to the site files**).
- Using 360° excavators operated by competent operators (**all training certs will be copied to the site files**) the reduced dig will commence. Copies of the operator's certificate of training achievement (CITB) will be available for inspection. Copies of current Thorough Examination for excavator will also be available for inspection.
- Restrict access to the proposed work area, ensure plant and operator have adequate space to commence excavation.
- Complete permit to dig & obtain suitable service drawings to mark known services also using hand held Cable Avoidance Tool undertake 'sweep' of excavation area to identify location of services.
- The ground will be reduced using a 13t 360 excavator.
- Excavated material will be loaded front loading dumper to a stockpile Care will be taken to minimise excavated material deposits on the surrounding traffic routes along the adjacent public highway, excess material will be scrapped off at the site boundary, the use of manual cleaning methods, brushes, shovels, jet washes will be used as necessary to maintain the roads clear of material.

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## **Pile Trimming and Pilecap Construction**

### ○ **Pile Trimming:**

- **Note:** It is required that the Principal Contractor, Planning Supervisor and Designer minimise risks of exposure to HAVS using the 'risk reduction hierarchy' by eliminating potential hazards at source. Design Risk Assessments of the process is required to reduce recognised significant hazards to the lowest level reasonably practicable, for example to remove the need for arduous hand trimming of the pile.
  - Therefore we anticipate the Piling Contractor will use a method to accommodate the cutting / trimming process.
- **Long cut off levels: (>1.0m).**
- Long cut off levels often present other opportunities to minimize HAVS exposure.
  - The 'cut and lift' method requires the breaking out and exposure of the internal reinforcement at around the 1.0m above cut off level. Once exposed the upper section of pile for removal is restrained by the attending excavator and lifting slings.
  - Wherever acceptable the breaking out will be carried out by machine mounted breaker – where due to design criteria hand held breakers may have to be used..
  - The slings are secured around the concrete at the '**above ½ way point**' and the strain is taken.
  - The exposed reinforcement is the cut using an abrasive wheel and the pile top removed.
  - The remaining cut off is attended to as detailed for the 'short cut off' method.

### **Short cut off levels: (<1.0m).**

- Our usual preferred method of a proprietary type hydraulic cruncher to extensively reduce the piles to formation or pile cap level which is reliant on additional factors; design, access, sequence of works etc.. will be undertaken where reasonably practicable.
- If hydraulic crunchers cannot be used (due pile integrity, location & access or commercial viability) then, the alternative traditional method of operatives using hand held breakers to trim the pile down to formation level will be carried out.
- To minimise the risk of HAVS (hand arm vibration syndrome) or VWF (vibration white finger) the following primary measures will be taken:
  - Explanation will be given to all operatives by safety advisor of HAVS & VWF procedures and measures
  - Selected suitable 'smooth tools', well maintained equipment with sharp effective breaker points to maximise efficiency and minimise exposure.
  - Regular rotation of workforce undertaking pile trimming, a regular gang will be detailed to rotate between trimming, saw cutting, preparation works and clearing away off cuts.
  - Suitable insulated gloves will be provided to reduce risk during cold weather.
  - Each operative will be given personal protective equipment such as:- Ear Defenders, Ear Plugs, Visors, Goggles, Glasses etc..
  - All of which will be maintained in good order and replaced when necessary.
- During long exposure levels, noise assessments will be carried out and the operatives made aware of the recommendations or actions, copies of each noise assessment will be issued to the Principal Contractors site management.
- Trimmed and exposed reinforcement will either be bent down or fitted with protective caps to minimise possible injury due to sharp reinforcement.

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## **Foundation Excavations - General (with / without access up to 1.5m deep)**

- Pilecaps, groundbeams will be excavated using a 360° excavator or similar. All excavated spoil will either be; placed adjacent to the excavation (not within 1.5m), removed to temporary spoil heaps by front loading dumpers or loaded directly into waiting muck away wagons for immediate removal from site.
- ***The formwork for the pile caps will be Cordeck, Cellcore, Claymaster or similar – however we will have traditional timber shutters available if required (due to ground conditions weather etc)***
- The formations of all excavations will be cut and trimmed to the lines, levels and depths shown on the drawings.
- Exposed piles will be excavated around and cleaned out to allow the cut off level to be marked around the pile.
- Where access is required, a timber ladder will be the primary means off access into to the foundation excavations and will be secured to prevent accidental displacement. Excavations will either be self-supporting (up to 1.2m) or will be battered back to prevent collapse (and entrapment).
- Excavations of substantial depth will have suitable barriers erected around the perimeter.
- Piles will then be broken down to cut off level as previously mentioned.
- Cellcore insulation will be placed in the bottom of the excavations under the pile caps and Claymaster (or similar) sheets will be placed to internal faces of external foundations as per the relevant drawings.
- Holding down bolts will be set to the correct line and level as per the construction drawings and will be secured in position.
- Sacrificial permanent formwork (cordeck etc) will be used to construct the pilecaps / groundbeams and lift pit.
- Proprietary shutter panels (doka or similaar) will be erected to form a box to the required size of the foundation base.
- If proprietary shutters are not feasible, then traditional timber shutters will be used.
- Where necessary, shutters will be lifted into place by the attending excavator. Once in place, the shutter will be propped of the excavation sides to prevent movement.
- Concrete will then be poured into the awaiting shutter to form the base foundations as mentioned above.

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## **Pilecaps / Bases etc – Proprietary formwork :**

- The intended foundation construction, unless specified by the client will utilise the proprietary 'Cordek' style foundation formwork or traditional timber.
- Suitable excavated spoil will be salvaged and used for backfilling as appropriate around the formwork.
- The excavation will be open for a minimal duration, enough time for an inspection and installation of the reinforcement / 'Cordek' style permanent formwork,
- Proprietary 'Cordek' style permanent formwork will be cut to suit the required excavations, shape, depth etc. and supported using suitable excavated spoil materials
- Where backfill is returned by dumper a banksman will guide the driver to his discharge position.



## **Reinforcement:**

- If possible steel reinforcing cages will be made up on the ground prior to being lifted into place by an excavator.
- During fabrication of the cage, particular attention will be given to the lifting points.
  - All chairs will be double extra tied. All horizontal bars will be double extra tied to the vertical bars (as per Standard Steelfixing best practice).
- After fabrication, the cages will have the permanent formwork attached to the sides.
- Cages are then lifted into the excavation by machine.
- Where this cannot be achieved (and for splice bars) then reinforcement will be manually lifted into position and fixed as per the design specification and schedule.



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## ⊙ Drainage Installation:

- A competent person who has a proven record of experience in this work will supervise all works (***all training and competency certs will be copied to the site files***).
- The excavation for drain runs will be by 360° excavator. The use of mechanical plant reduces the need for manual handling. Copies of relevant test, thorough examination and inspection certificates will be maintained on site.
- Restrict access to the proposed work area, ensure plant and operator have adequate space to commence excavation.
- After establishing the drain run connection the backfilling process will commence. Backfilling will be carried out in accordance with the design specification, compacted in layers etc.
- Drainage pipes will be connected and leveled to falls as per the design and backfilled leaving the next connection open in readiness for the next excavation.
- Works will progress in this sequence repeated until the manhole connections are made.

## ⊙ Laying of drainage.

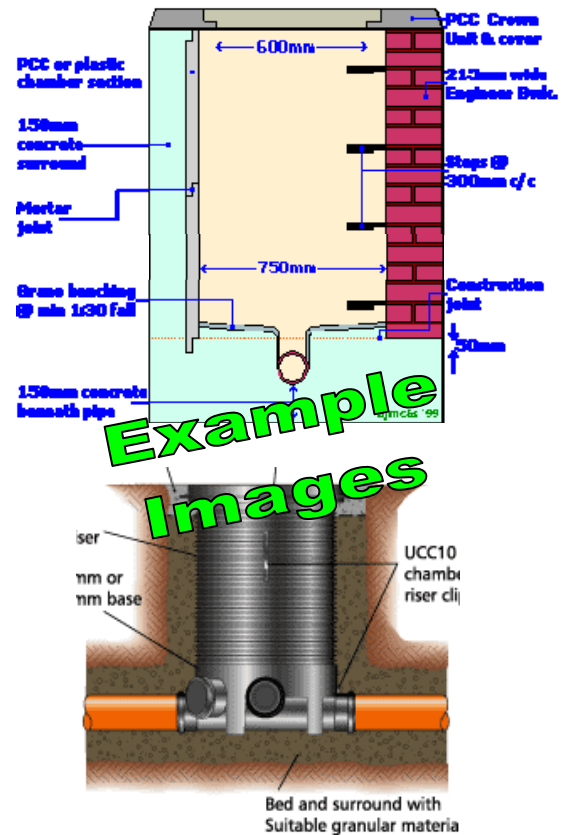
- All pipes supplied to the sites will comply with the relevant British Standard, and all site works shall be in accordance with the specification.
- Before the laying of pipes is commenced, the position and level of the drainage connection shall be confirmed. All pipes shall be laid in straight lines in both directions and gradient between manholes.
- All pipe runs are to be checked for line and level using engineering equipment or a laser.
- All drain laying will be carried out by suitably experienced operatives and will be laid in accordance with the manufacturer's specification.
- Heavy & large diameter pipes will be lowered into position via the adjacent excavator or similar mechanical plant
- All pipes shall be laid with the whole of the barrel of the pipes evenly and solidly supported by the bedding material, with shaped holes to receive the sockets.
- After making the joint the bedding material will be carefully packed around the joint to fill the void in the bed left for jointing. All pipes must be securely positioned to prevent movement and all bends, rodding eyes etc., will be surrounded with concrete.
- All ends of pipe runs left open shall have a temporary stopper.

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## Manholes / Inspection Chambers;

- ***All manhole trenches will be access via a secured timber pole ladder***
- Manholes will either be traditional PC rings / brick units or proprietary Polypropylene Inspection Chambers (as specified).
- Precast manhole rings (or similar) will be lifted into position by lifting equipment using manhole lifting pins and each joint will be covered in cement mortar 1:3 or proprietary compound before the next ring is positioned. The joints shall be wiped clean and flush pointed. Care must be taken, when lowering the rings into position that the step irons are truly aligned vertically and are as the drawing. Any holes formed for lifting purposes will be made good.
- Concrete surround to the manholes 150mm thick can now be placed and is supported using a pre formed manhole shutter. The precast manhole cover slab can now be placed and the final level achieved with engineering bricks.
- Brick manholes will be constructed typically using a 'double' skin of bricks giving 215mm width.
- Bases will be cast as before and the manhole built to the required depth before the frame and cover are positioned.
- Inspection chambers (base) will be placed on suitable evenly compacted as dug or granular material to ensure the base is fully supported.
- Chamber riser sections are then added to achieve the desired chamber height / cover level.
- Once installed, the manhole excavation is then backfilled with suitable material.



Example Images

## Manholes cover brickwork surround;

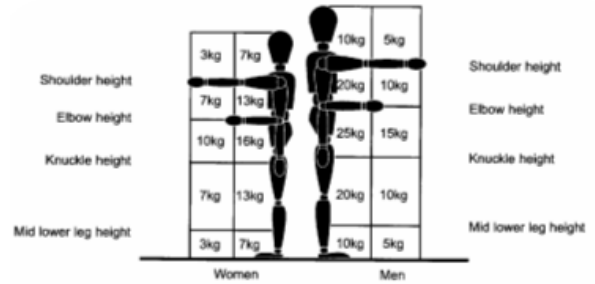
- Brick manholes will be constructed typically using a 'double' skin of bricks giving 215mm width
- The works are to be carried out from above using 2 scaffold tubes and a 580mm x 580mm plywood cover to completely close off the access into the manholes and provide a safe working environment for the bricklayers to carry out their works (the 4no left out bricks will be installed after the surround has been completed and the lid replaced).
- The operatives installing the scaffold tube and plywood protection will be wearing a full body harness and inertia reel and will be attached to a secure anchorage point.
- Only when the plywood protection has been installed will the bricklayers commence their works.
- Once the brickwork has been completed (1 course upto 4 courses of brickwork the plywood protection will be removed (once again by operatives wearing full body harnesses and inertia reels attached to a secure anchorage point), the scaffold tubes slid out and either the permanent cover or a plywood temporary cover affixed prior to the installation of the last 4 bricks to complete the surround.

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## Manual handling arrangements

- Wherever practicable the use of mechanical lifting equipment, cranes etc will be used to minimize the amount of manual handling to the lowest levels reasonably practicable, however the nature or the works will require some element of manual handling.
- To minimize the risks from manual handling the following approach has been taken:
  - Worker training and awareness of manual handling issues (ongoing tool box talks)
  - Schedule of known weights for bar size and length
  - Kenetic handling
  - General assessment
  - Multi person lifting – team lifting



Size	6mm	8mm	10mm	12mm	15mm	20mm	25mm	32mm	40mm
Area (mm <sup>2</sup> )	28.3	50.3	78.5	113.1	201.1	314.2	490.9	804.2	1256.6
Weight kg per m	0.222	0.395	0.616	0.888	1.579	2.466	3.854	6.313	9.864
Approx no. of 12m bars per tonne	375	211	135	94	53	34	22	13	8

## Concrete placement (General):

- All operatives will be aware of COSHH requirements of concrete and **full 5 point PPE will be available and worn.**
- Generally :
  - Concrete placement location is inspected
  - Concrete grade and specification ordered by Engineering team.
  - Concrete arrives to site and is directed by banksman to discharge location.
  - Concrete is inspected.
  - Concrete is discharged and placed by appropriate methods.
  - Concrete is adequately compacted by appropriate method.
  - Work area is prepared for next delivery or is tidied.
  - Delivery wagon washes out at designated location.
  - Concrete is protected if necessary
- Concrete will arrive on site by ready mixed delivery wagon. All concrete mix and pouring procedures will be accordance with design specifications.
- **General Note:** All drivers will wear **full 5 point PPE which includes safety helmets, safety footwear, Safety Glasses, Gloves and high visibility vests on site outside their cabs.**
- Concrete will be placed by one of the following methods:
  - Direct into formwork - a banksman guides the reversing vehicle into the correct position and the concrete is inspected and discharged if acceptable.
  - Bucket of the machine - a banksman will guide the delivery vehicle as close to the machine as required and unload the concrete into the cleaned machine bucket. The machine operator will then transfer this load and discharge into the formwork or excavation base
  - Pump (for floor pours) – A competent CITB operator will position, make pump lines and dismantle the pump for each pour.
  - Concrete Skip – Attached to Crane / 360 excavator SWL of excavator will not be exceeded

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## 6.7 Horizontal slab reinforcement

- The RCL Site Manager / Steel fixer foreman will inspect the slab location to ensure it is ready for steel placement.
- For above ground slabs the access up to the deck and the fall protection surrounding the work area will be supplied, installed and maintained by Associated Formwork prior to reinforcement slab installation.
- Bundles of reinforcement will be carefully placed onto the decking ensuring the load is placed across adequate support members.
- The Main Contractor lifting equipment, operator and slinger will arrange for the delivery.
- The lower mat reinforcement will be fixed and spaced as per the specification, appropriate spaces fitted to meet cover requirements.
- The upper matt reinforcement is placed at 90° to the lower matt and secured into place on spacer bars to form the slab thickness.
- Walking boards will be placed on top of the reinforcement to walk upon.

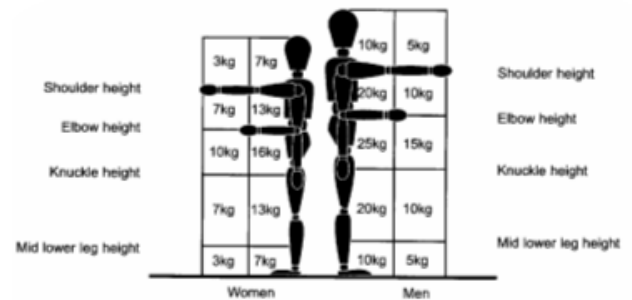


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## Manual handling arrangements

- Wherever practicable the use of mechanical lifting equipment, cranes etc will be used to minimize the amount of manual handling to the lowest levels reasonably practicable, however the nature or the works will require some element of manual handling.
- To minimize the risks from manual handling the following approach has been taken:



- Worker training and awareness of manual handling issues (ongoing tool box talks)
- Schedule of known weights for bar size and length
- Kinetic handling
- General assessment
- Multi person lifting – team lifting

Size	6mm	8mm	10mm	12mm	16mm	20mm	25mm	32mm	40mm
Area (mm <sup>2</sup> )	28.3	50.3	78.5	113.1	201.1	314.2	490.9	804.2	1256.6
Weight kg per m	0.222	0.395	0.616	0.888	1.579	2.466	3.854	6.313	9.864
Approx no. of 12m bars per tonne	375	211	135	94	53	34	22	13	8

## 6.8 Wall fabrication:

- All walls will be constructed using the Alu Framax system.
- With the envisaged height of the walls it is anticipated that these will be made up in sections at ground level and then mechanically lifted into place using the site Tower Crane
- The Crane will lift the shutters by the appropriate lifting eye / sling and will ensure the load is securely choked to prevent displacement.
- Once in the correct position, 'acrow' style props will be used to stabilize the shutter while the remainders are erected.
- It is anticipated that steel for the walls will be prefabricated on site in a separate designated area.
- With the steel in place the remaining shutters can be erected.
- Shutters will be secured using one of a number of methods, dependant on local conditions relating to space, availability etc. This will be either by the use of column clamps, dividag bars/bolts. In some cases it may be necessary to use a combination of the above systems.
- The uppermost clamps will be placed by operatives working from secured ladders when the work is of a short duration or alternatively, using aluminum mobile tower.
- When the shutters are secured on all sides the column will be ready to be poured.

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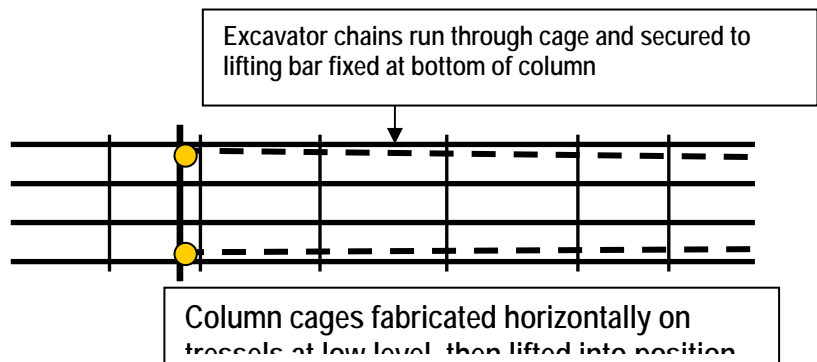
## 6.9 Reinforcement: pre fabricated

- Where arrangements allow steel reinforcing cages should be made up on the ground prior to being lifted into place by Crane / tower crane.
- During fabrication of the cage, particular attention will be given to the lifting points.
- All chairs will be double extra tied. All horizontal bars will be double extra tied to the vertical bars.
- Following the lift and placing of the load, it is to be propped and adequately tied in before the Crane is released.
- Access to secure adjacent reinforcement panels will be by either secured ladder (for very short and single handed operation – affix spacer block etc).
- During adverse weather, higher winds or placement into restricted areas then tag lines comprising rope hand lines will be used.

### Reinforcement fixing:

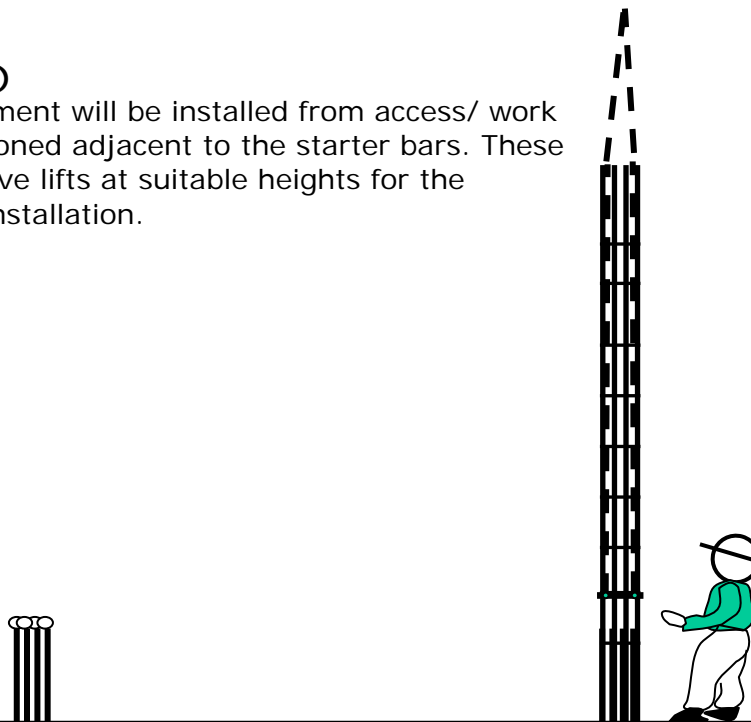
#### o **General**

- Reinforcement will be provided by the by an approved supplier we anticipate that it will arrive on site to suit the work activity and be lifted by Crane or other lifting appliance and stored on site for installation.
- (Note : All appropriate test, thorough examination certificates for both Appliance and Equipment will be in good order before use. )
- Whenever practicable we intend to prefabricate reinforcement and lift into position with mechanical lifting appliances.
- Reinforcement will be lifted at the lifting points, these will be areas reinforced with structural 'double ties'



#### o **Walls - (insitu)**

- o Insitu reinforcement will be installed from access/ work platforms positioned adjacent to the starter bars. These scaffolds will have lifts at suitable heights for the reinforcement installation.



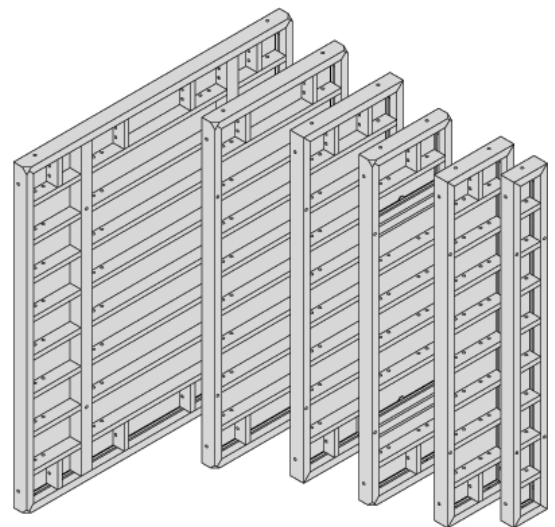
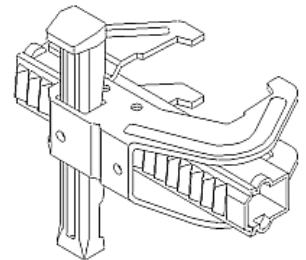
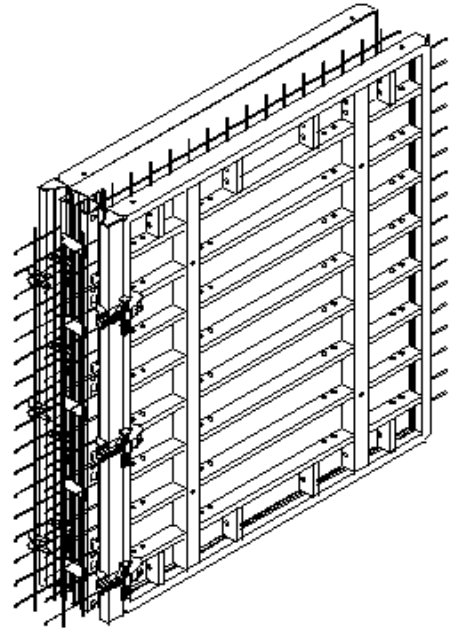
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## 6.10 Wall / shaft formwork:

- To safely construct wall / shaft formwork, install, strike and prepare for next use.
- We anticipate using Alu Framax pans to construct the wall formwork.
- Fabrication of the wall shutters will be carried out at ground level and be in accordance with the manufacturers literature.
- The special clamps firmly secure adjacent panels together
- The shutter will be lifted into position by Crane , controlled at all times by an experienced banksman. Each lifting point on the shutter will be clearly identified.
- Tag lines will be placed on the wall shutters in adverse weather conditions.
- Once in position the carpenters will stabilise the shutter by propping in position with 'Acrow' style props, these also ensure that the line and level is correct. Only when the props are in place can the chains be released this will be carried out from a footed ladder.
- This sequence is repeated until the other shutter face is in position, then 'dividag' style bolts are placed through the shutters and tightened against the kicker.
- Each Shutter will have its own proprietary work platforms attached to the rear of the shutter or if an alternative (traditional tube and fitting scaffold erected and positioned adjacent to the wall, in either case handrails, toe boards and an access ladder will be maintained in good order.) by others.
- Striking the shutter will take place approx. 24 hours ( dependent on weather conditions and cube results )
- The striking procedure is the reverse of the erection.
- The Crane is attached to the shutter and the 'slack' is taken up - negligible load is taken - the carpenters then prise the shutters apart, only when the shutter is free will the Crane raise the load and deposit on the floor to be cleaned / prepared for next use..



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## **Section 7 Falsework erection and Decking Operations.**

### ⊙ **Outline**

- To safely carry out various superstructure works including: Reinforced concrete construction operations using mainly proprietary SGB GASS formwork systems supplemented with Topec formwork, install, strike and prepare for next use, reinforcement and concrete placement.

### ⊙ **Formwork Systems**

- The 1<sup>st</sup> Floor slab will be formed using a combination of SGB GASS & Topec falsework.
- Concrete for walls and columns will be poured using Ally towers.
- Slab edges and steps in level will be formed using timber and plywood forms.

The second most common cause of accidents on RC frame projects are injuries caused by falling objects.

The following measures will be adopted to protect against this risk:

- All lifting appliances and equipment will carry current test certificates.
- All lifting equipment will be visually inspected prior to use.
- Only trained banksmen will direct the crane drivers and only trained slingers will sling loads.

### ⊙ **Implementation:**

- All Supervision - Foreman, Chargehands, site managers and Principal Contractors Supervision to ensure implementation and compliance with procedures outlined below. Disciplinary action will be taken to anyone found in breach of these procedures.

- **7.1 Erection of supporting Falsework.**

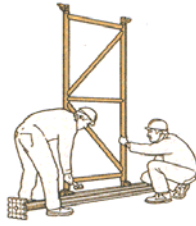
- A nominated foreman will supervise the erection of the SGB GASS support, plywood decking.
- The proprietary decking will be erected and used in accordance with the detailed specific design and manufacturers instructions.
- SGB GASS decking is a modular legs, bracing gates and support beams system which is quickly connected together to form initial bays which are expanded as additional bays are connected to it.
- Once the bays are connected and the primary & secondary support beams are fixed in position on top of the bays then ply wood is fixed over the open joisted area to form the decking level.
- Reinforcement is then placed and fixed as per the schedules / drawings and finally, concrete is poured.

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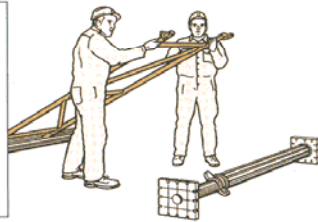
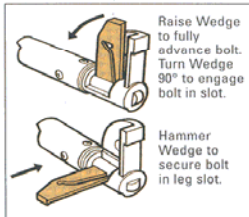
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## BASE ASSEMBLY

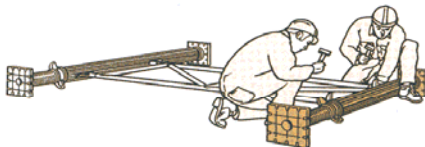
- 1 Set Inner Leg at required height and insert into Outer Leg. Attach one end of Ledger Frame to uppermost slot of Outer Leg. Make sure that the thick end of the secured wedge faces down when actioning sequence 2.



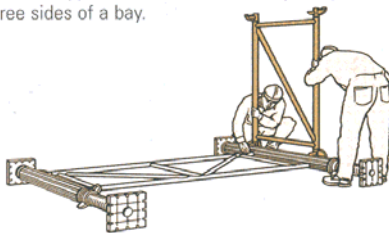
- 2 Rotate Ledger Frame to lay flat, and secure Outer Leg such that the thick end of the wedge will face up.



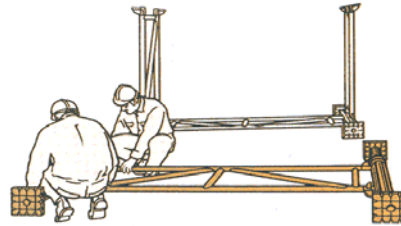
- 3 Attach Ledger frame to second Outer Leg in the required position. The wedge will sit horizontal when correctly located. See SGB Design Data for optimum Ledger Frame positions for the load capacity concerned.



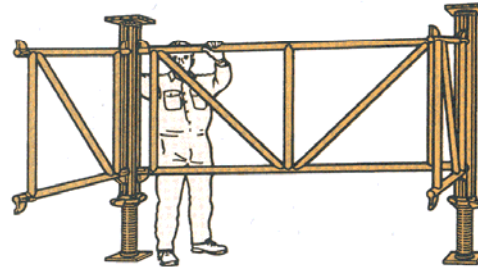
- 4 Attach Ledger Frame at right angles to the first Ledger Frame in uppermost slots of Outer Legs. Repeat to complete three sides of a bay.



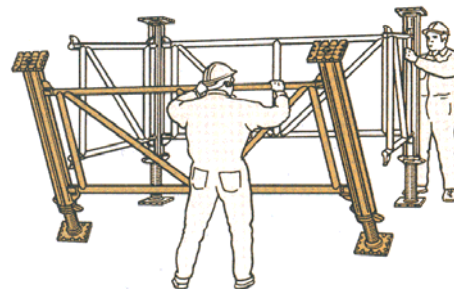
- 5 Repeat steps 1 and 2 separately to assemble fourth side.



- 6 Lift the three sided bay into vertical position.

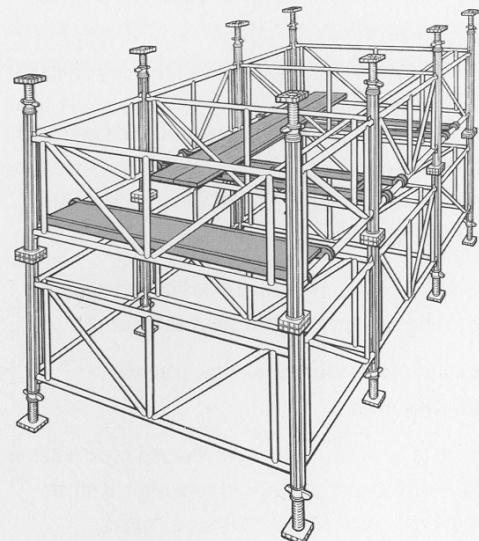


- 7 Lift the fourth side up to meet the other three sides. Engage wedges to secure in place. Level both horizontally and vertically using a level and measure.



- o Erection of the falsework support will be carried out from the floor (or slab) level to form bays beneath the proposed new slab location (Stage 1). This will be achieved by forming the framework either 1 or 2 lifts at a time (for high levels - utilising the tower crane to lift the frames to the required level).
- o The above process is repeated until a sufficient number of gates and frames have been erected to allow the support beams to be placed.
- Where inter connection work cannot be achieved from the ground then 'Youngmans' or similar boards will be placed onto the lower ledger of the bracing gates to form a safe working platform within the gates and the remaining cross braces will be connected.

Add further Ledger Frames and fasten by firmly securing wedges. Continue to use GASS Transom Units and scaffold boards or GASS Access platforms.

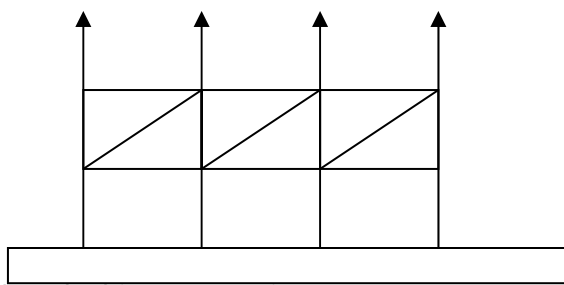


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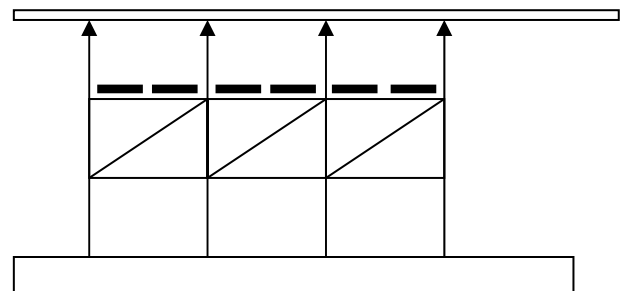
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- Using a tied timber pole ladder the operative gains access onto the Youngman (or similar) boards.
- The remaining legs and frames etc can then be placed from within existing gates which will act as a safe working area.
- Once these are in place the primary and secondary beams can be placed to form the support structure to the plywood soffit. (Stage 2)
- The above process is repeated until sufficient soffit support is progressed.
- Once the bays are connected and the support beams are fixed in position on top of the bays, plywood can be laid to form the deck.

Stage 1

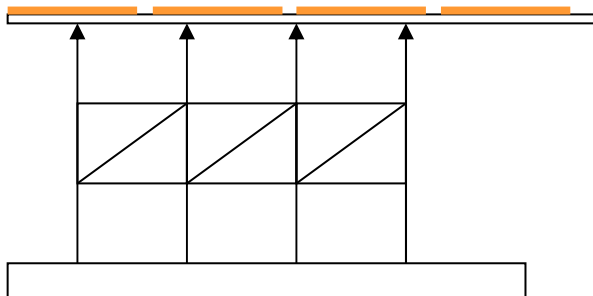


Stage 2

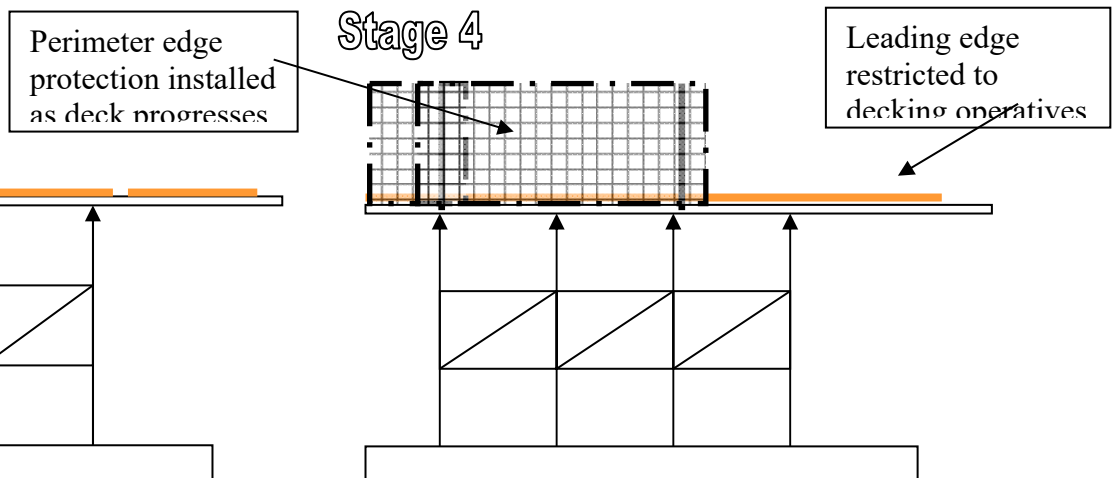


- The 'decking' operation can now commence.
- With the support structure in place the decking can now commence. A pack of ply will be landed adjacent to the area to be decked by the tower crane. An operative will gain access to place the first sheet, which will then act as a platform from where the rest of the deck will be progressed.
- Access to the decking levels will be by secured pole ladder and will be restricted to our site operatives only until the deck is complete and edge protection is in place.
- Where the use of physical edge protection is impracticable and the risks too great then the use of suitable full harnesses and other fall arrest devices will be used and enforced until such time as guardrails can be erected.
- This 'leading edge work' will be confined to and carried out only by operatives wearing harnesses who will be clipped on at all times until sufficient external fall protection is in place.

Stage 3



Stage 4



- When the deck is established, the progressing or leading edge will be restricted to only those working to install the Perimeter edge protection. Other trades must work on the completed areas only.

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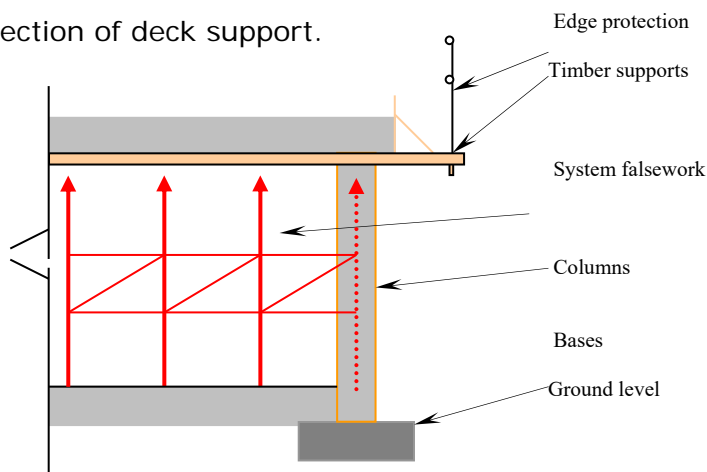
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- It is a team effort by the construction team to maintain the temporary handrails. Once in position normal construction activities will continue with the preparation of the slab and placement of reinforcement.
- All Perimeter handrails will comprise of double handrail and toe board (Combisafe panels) which will be maintained whilst we are in occupation of the area.

## 7.2 Sequence for safe erection of decking:

- The Site Manager and Contracts Director will determine the most appropriate erection method as detailed below. Individual circumstances, falsework design, work arrangements, materials etc will influence the choice of erection method as shown below:
- **Standard Erection method & boarding out method 1.**
  - A Site SSSTS trained supervisor assisted by a nominated foreman will supervise the erection of the support decking / plywood decking.
  - The decking will be erected and used in accordance with the detailed specific design and manufacturer's instructions.
  - The decking comprises modular legs, bracing gates and support beams system which is quickly connected together to form initial bays which are expanded as additional bays are connected to it.
  - Once the bays are connected and the support beams are fixed in position on top of the bays then ply wood is fixed over the open joisted area to form the decking level.
  - The above process is repeated until a sufficient area is available for concreting.
  - Wherever possible & the majority of the inter connection of gate braces will be achieved from ground level where this cannot be achieved the temporary platforms will be erected to work from.

- Typical section of deck support.



- Using a tied timber pole ladder the operative gains access and secure timbers support truss beam onto support structure to the plywood soffit.
- Where inter connection work cannot be achieved from the ground then 'Youngman's' or similar boards will be placed onto the bracing gates to form a safe working platform and the remaining cross braces will be connected.
- Using a tied timber pole ladder the operative gains access onto the 'Youngman's' or similar boards.
- Solid areas of decking or slab ply sheeting is placed either as a pack by available lifting equipment or each sheet manually onto the top of the framework and supporting beams, Access is gained by a tied pole ladder to receive ply wood sheets.

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- As the plywood sheeting is placed by the carpenter the Perimeter edge double handrails and toe board will be progressed.
- Temporary segregation of this area and operation from the completed bay by the use of crowd barriers.
- The barriers will be positioned at each end of the bay to act as segregation a min of 2m back from the leading edge.
- It is a team effort by the construction team to maintain the barriers. Once in position normal construction activities will continue with the preparation of the slab and placement of reinforcement and mesh.
- When the deck is established, the progressing or leading edge will be restricted to only those working to install the Perimeter edge protection; other trades must work on the completed areas only.
- During the erection process the area below will cordoned off
- All Perimeter handrails will comprise of double handrail and toe board which will be maintained whilst we are in occupation of the area.

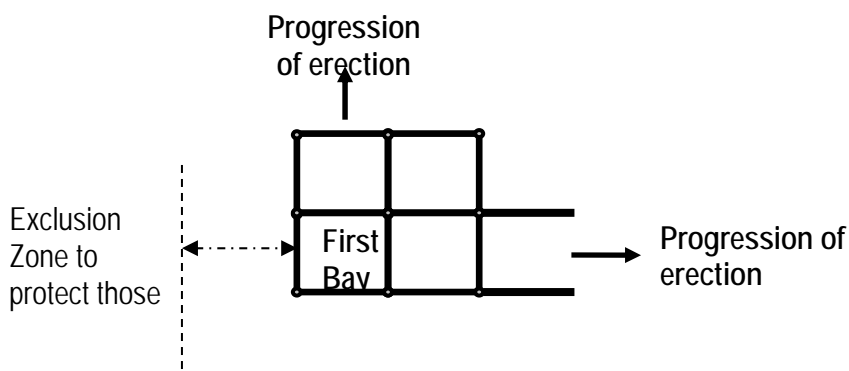
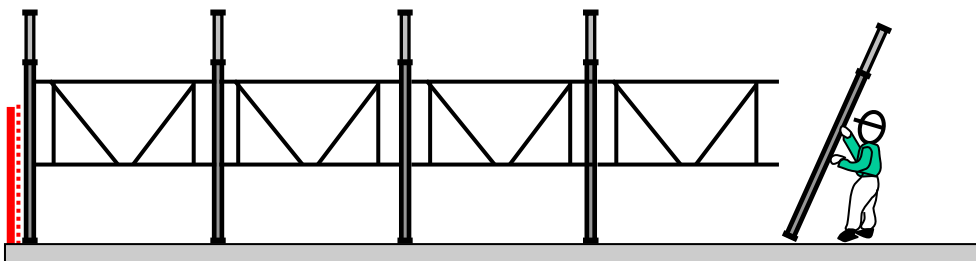
illustration only - not to scale

⊙ **Stage 1**

- Prepare footing as necessary to agreed details and method statement.

⊙ **Stage 2**

- Erect 1st bay of four legs and four gates with operatives using ground or slab as safe working platform. From 1st bay extend falsework in both directions by adding gates then legs.

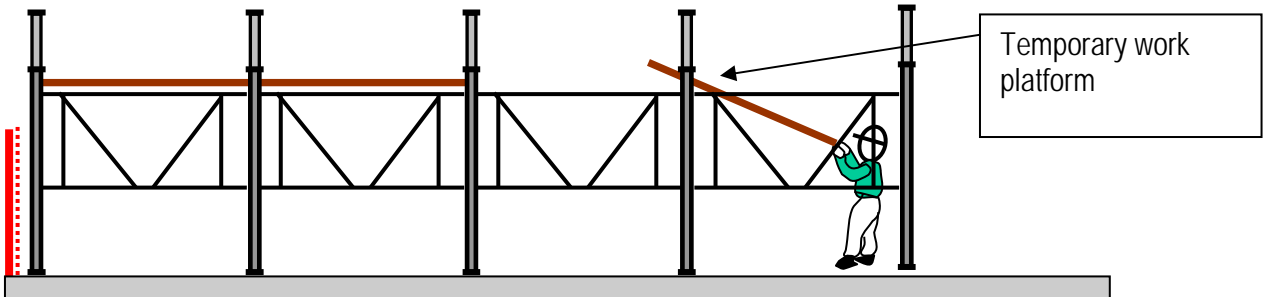


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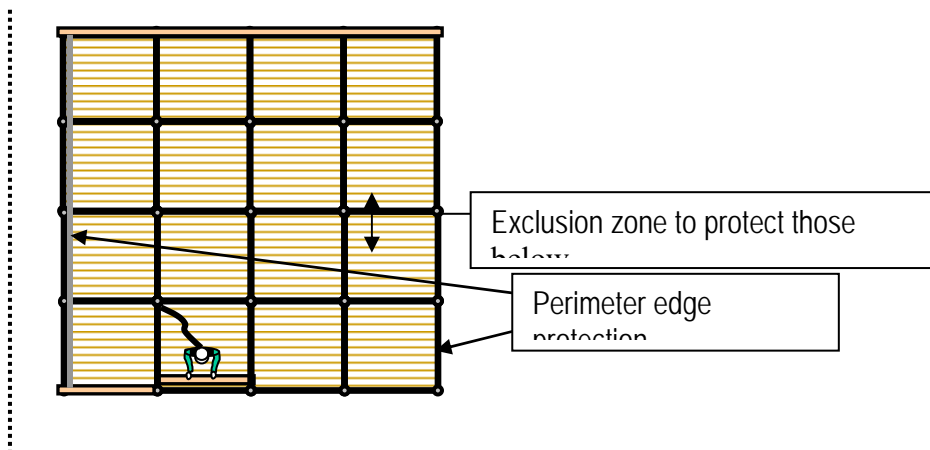
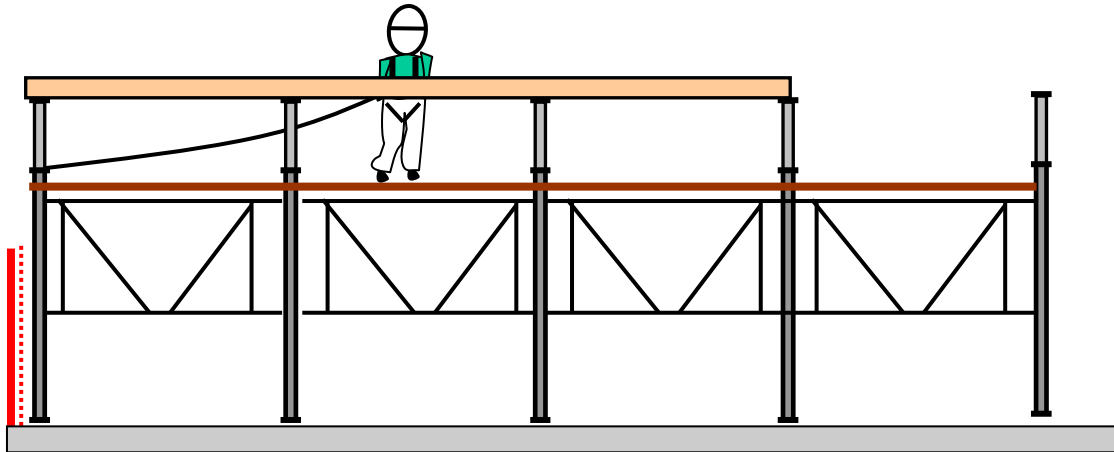
## Stage 3

- Fully board out the top of the gates with operatives at ground / slab level only.



## Stage 4

- Using inertia reel anchored to an "Inner" leg using the boarded gates as a work platform, operatives fix first primary beams (which act as top rail). Erection of edge protection should be similar to SG4 for scaffolders i.e. work, transport material from the already protected area.

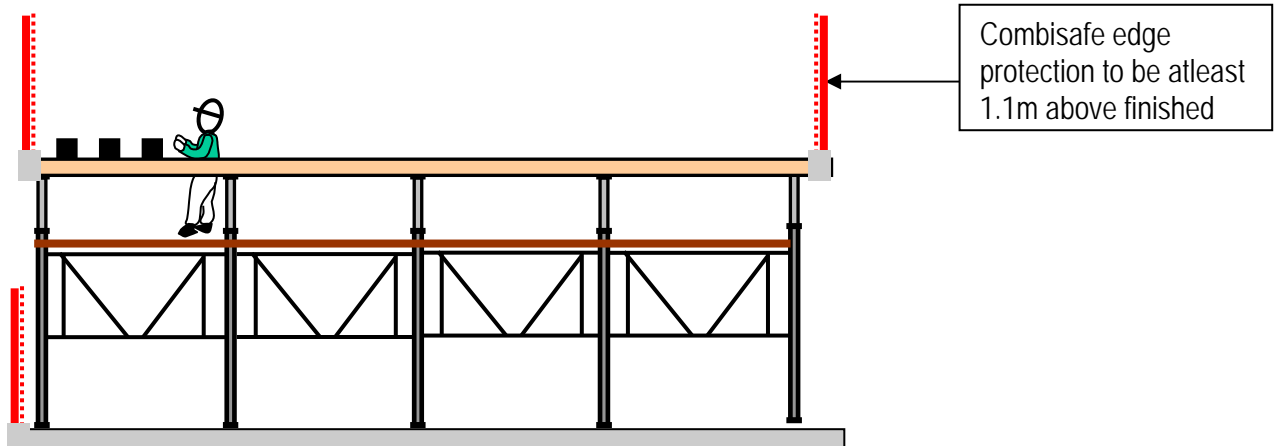


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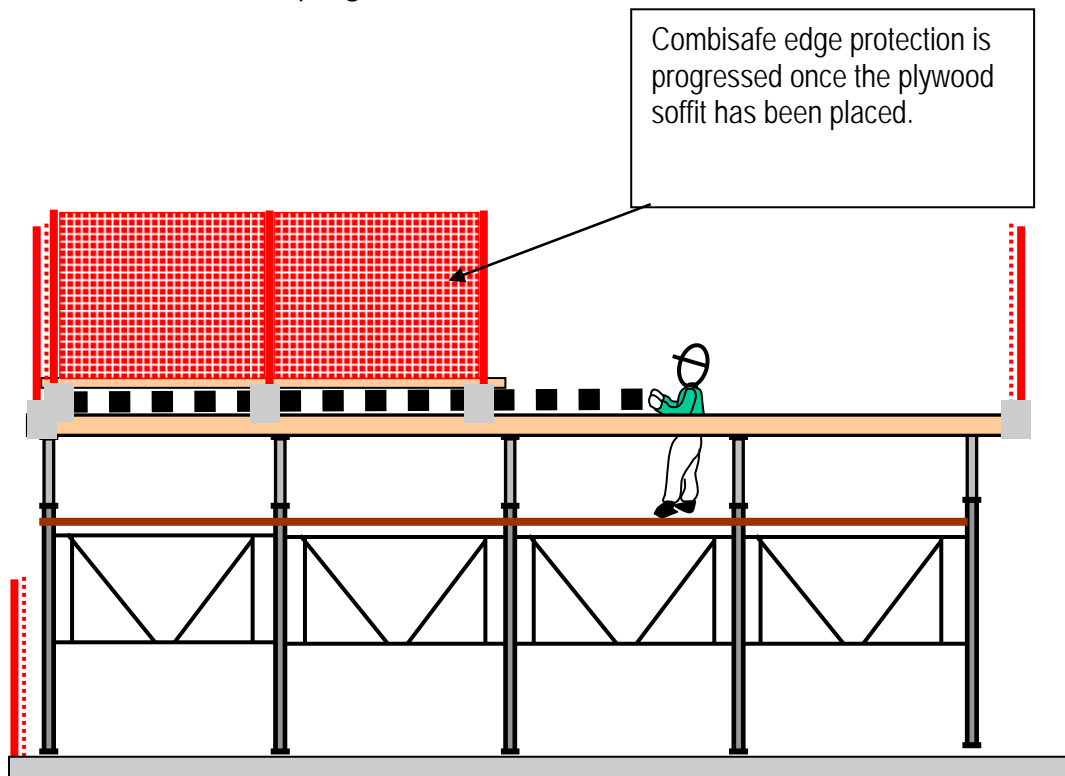
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## Stage 5 (Erection of decking edge protection)

- Where possible with operatives working on the boarded out gates that the decking edge protection is fitted above. If this is not reasonable practicable temporary anchor points are created using exposed reinforcement and whilst using fall arrest the fall protection barrier system is erected.



- From the now enclosed work platform formed by the boarded out gates the secondary beams can be fitted without the need to use fall arrest PPE and the upper level edge protection fitted as work progresses.

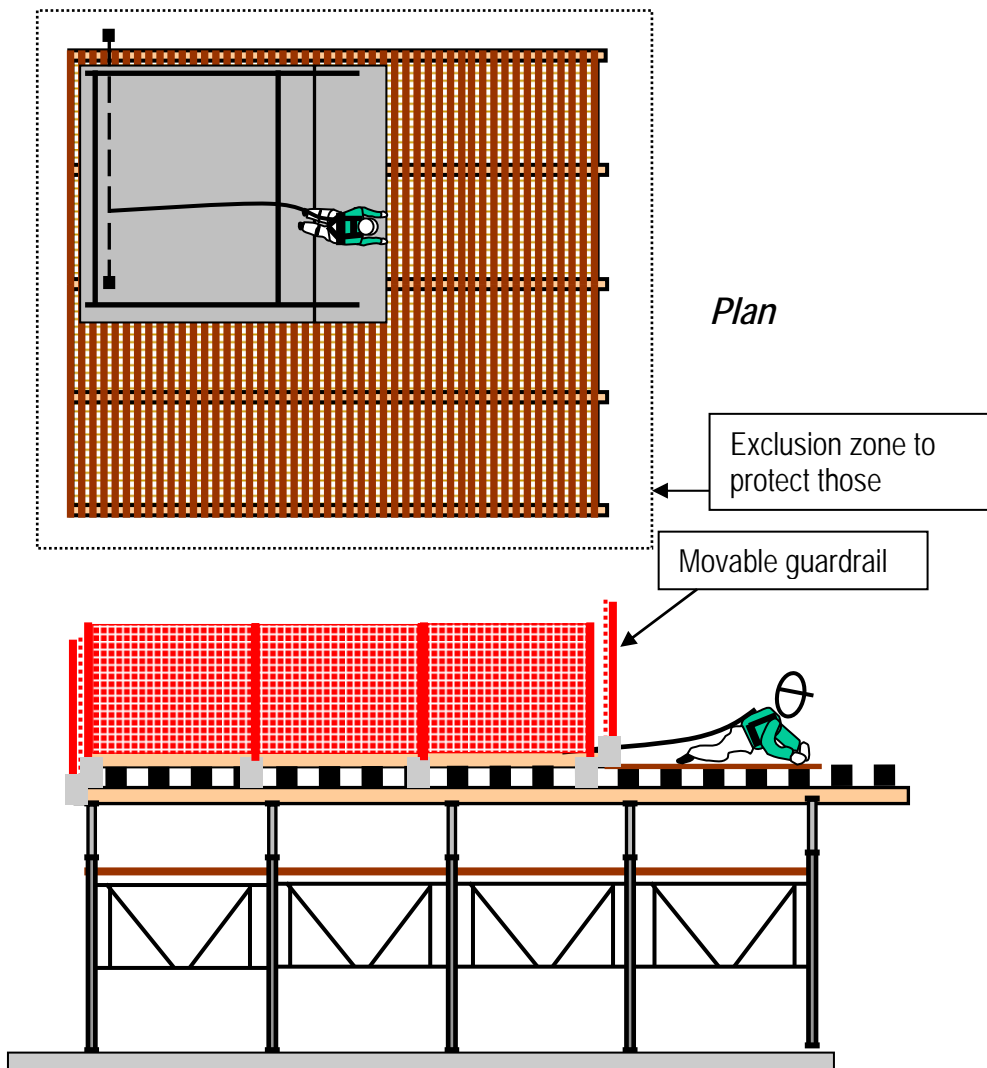


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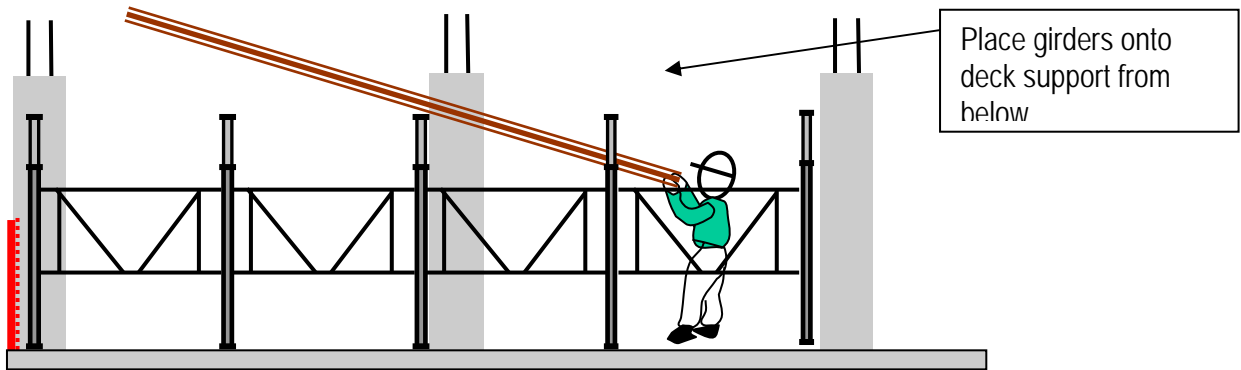
- **Stage 6a (Decking where decking level edge protection is in place to all perimeters)**
  - Commence decking from a corner protected on two sides, and using the decking laid as a work platform and the sheet being laid as leading edge protection. With a fully boarded deck below the use of PPE fall protection is not required. Temporary movable barriers such as segregation /edge protection is to be provided to prevent others than carpenters laying the decking from gaining access to the leading edge.
- **Stage 6b (Decking where decking level edge protection has can not be fitted from safe working platform below)**
  - Decking should in one corner accessible by ladder. Using starter bars at column locations as the anchor point, place and secure plywood progressively, erecting as soon as practical temporary movable barriers / edge protection along the perimeter and leading edge to prevent others than carpenters laying the decking from gaining access to the leading edge.



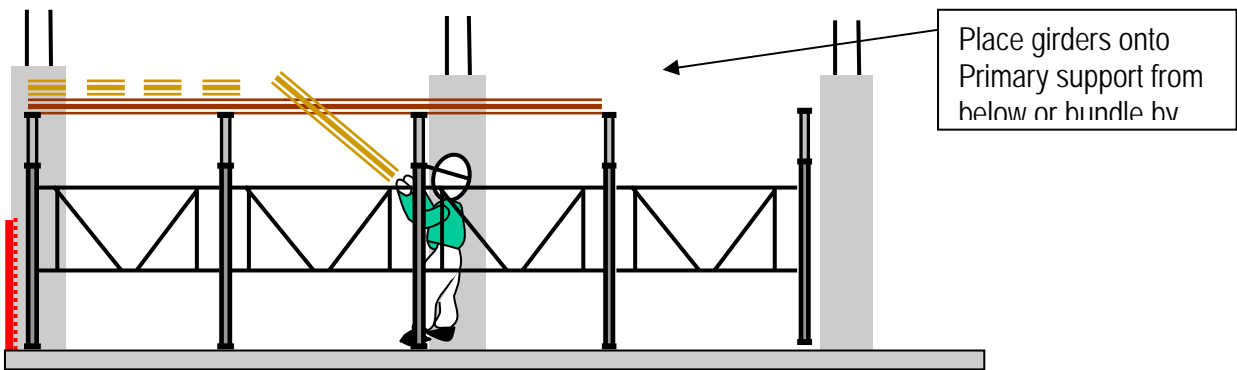
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⦿ **Boarding out method 2.**

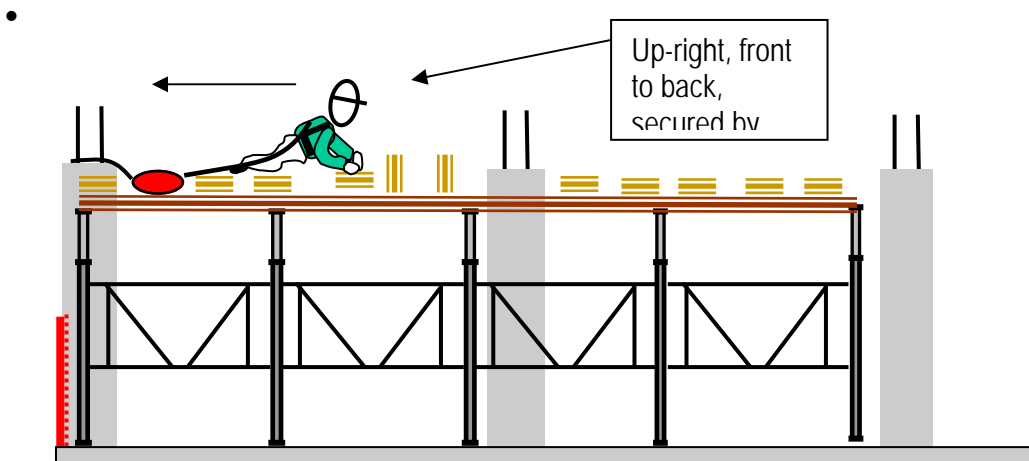
- Erect framework as detailed and position primaries from ground level



- Either secondary's are placed onto primaries from below and position from above or to minimize manual handling operations, a bundle of secondary's will be placed onto the primaries. And spread out.



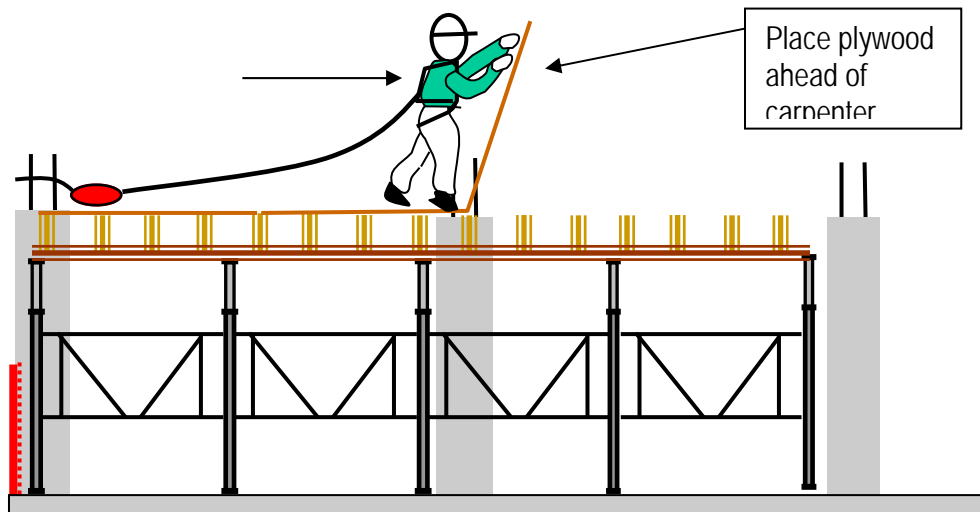
- Secondary's are placed on flat edge, then stood up-right from front to back , nailed into position to receive plywood as illustrated.



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This procedure repeats itself for each sequence of work progressing from the leading edge



- Plywood is again either passed up to form the initial work place or placed as a pack by crane, individual sheets are the placed ahead of carpenter as indicated.
- Carpenters are connected to 'JRG' inertia reel via safety harness, secured onto adjacent column starter bars behind the placement direction.
- Perimeter Combisafe edge protection will be placed along perimeter edges as previously shown.

## Dismantling or Striking Supporting Falsework

- The process of dismantling the support decking is the reverse of the erection
- The process of striking however is different.
- A 'Permission to Strike Temporary Works' Permit must be completed and presented to the Principal Contractor, once this has been reviewed and signed off striking can commence.
- The striking area is restricted to only those people carrying out the striking; Safety signage and hazard warning bunting will be erected and maintained to identify this area.
- Firstly each tie between each bay area to be struck is removed, then working from the temporary platforms described previously the jack legs are lowered - this has the effect of breaking the adhesion between the concrete slab and the moulds or plywood
- Temporary stages (Youngman's, scaffold boards etc depending on support span) are re-positioned on the framework to provide access to the underside of the plywood; the operatives carrying out the striking will gain access via tied ladders and use safety harness.
- The plywood and supporting beams are available to be removed by hand and passed down for stacking.
- Although the area is cordoned off, it will be maintained reasonably tidy with plywood and beams stacked for removal.
- If however awkward pieces of plywood remain stuck to the soft then these will be removed by hand from a mobile scaffold.
- Note: All operatives, supervisors and foreman will be given full explanation of this Method Statement prior to work commencement.

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## **Safety & Access**

### o Safety & Access:

The principle risk associated with the construction of RC frames is of falling from heights.

The following measures are to be adopted to protect against this risk:

- Falsework will be erected from the slab level this method will be combined with the use of low level platforms where necessary.
- The men erecting the decking and combi-safe system will utilize full body harnesses to ensure safe working and prevention from falls.
  - The Harness will be attached on the Horizontal Plane to either a column or kentilidge block anchorage point for connection of an inertia reel. The operatives wear a harness which attaches to the inertia reel.
- Soffit formwork will have "Combi-safe" edge protection system erected with the progress of the falsework.
- The Combi -Safe will be re-fixed to the edges of completed slabs so that the Perimeter remains protected after striking of the formwork system. Combi-safe will remain in place until the Principal Contractors permanent edge protection is installed.

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## o 'TOPEC' Falsework support

### o Nature & Sequence of works:

- SGB TOPEC will be used on this project to supplement the GASS falsework system to construct the suspended slabs. This Method Statement covers the safe erection and dismantling of the TOPEC falsework scheme.

### o Control Measures

- All works will be supervised by a competent person who has a proven record of experience in this type of work.
- Prior to commencing operations, operatives will have this method statement explained to them in a tool box talk. Additionally a training video of the system, developed by SGB, will be shown.
- The scheme will be assembled in accordance with design/detail drawings and calculations prepared by SGB.
- These drawings will be issued under separate cover.
- Any significant deviation from the drawings will be brought to the attention of the Construction Manager who will in turn liaise with SGB design department.
- All operatives will wear suitable personal protective equipment such as safety helmet, safety footwear, high visibility vest. Additionally, dependent upon the task being performed, gloves, goggles, ear protection and safety harnesses will be provided.

### o Access System

- We shall establish and maintain access walkways through work areas to the erection positions. Access up onto the erected falsework and working positions will be via secured timber pole ladders.

### o Materials Delivery

- The following is a non-exhaustive list of components that will be delivered to site:
  - SGB multi-props
  - SGB SDP pans
  - SGB SAL cover strip
  - SGB SDB access platforms
  - 19mm plywood for infills
  - Combisafe guard rail posts and mesh barriers
- Materials will be delivered to site on purpose made pallets for ease of transportation and storage. The components will be off loaded by crane on to a designated storage area, close to it's point of use.



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## Sequence of Operations:

### o Erection

- Start at setting out point determined on SGB drawing. This is important, as it will determine the layout of beams and props for the rest of the floor.
- Stand props vertically and hang edge of panel onto top of prop so that it self locks into position. Adjust prop to required height.
- Stand the first two props approximately 2 metres apart and in the direction of the main beam and stabilize with tripods.
- Manually insert the first panels.
- Erect a second line of props and beams in this manner, parallel to the first line and approximately 1.5 m away.
- The additional legs are then stood up and are now connected to the other props to form a rigid free standing structure. The tripods to the props are released and the four props adjusted for verticality.
- The first three pans are manually lifted into position and located on lugs of the props to complete the first grid.
- The falsework erection is progressed in the direction longitudinal to the main beams. The next panel is hooked on to the drop head of the prop that has already been installed.
- The above procedure is repeated for each line of beam and pan installation until the deck is complete.
- Handrails to the leading edge will be one of the following:
  - **Scaffold 'A' frame near edge of falsework**
  - **Purpose made timber posts, nailed to the deck with handrails and toe boards.**
  - **SGB handrail holder SGH with SGB post handrail and toe boards.**
- When infilling in plywood around columns and other areas, the ally tower will be placed underneath the area to be infilled, to act as a crash deck. SGB edge beams and timber filler pieces as detailed on drawings will be used to complete the infill areas.
- The TOPEC cover strips are now fitted to close the gap over the main beams.
- 19mm ply with 100x75 timber backing will be used to make up the side shutters. The

#### TOPEC® must only be used by competent personnel.

The method of erection/dismantling detailed is intended to be used as a general guide to inform the user about the product details to enable safe use. It must not be used as a substitute for a contractor's specific risk assessment and method statement and all relevant health and safety legislation must be adhered to.


In addition, an alternative method of erection may be preferred or developed in which case it is imperative that all relevant health and safety legislation is adhered to.

#### Erection of TOPEC®

The methods of erection shown are for prop heights up to 3.5m performed from ground level using either EUROPLUS or GASS® props (depending on applied load).

The following diagrams show assembly with use of uni-tripod stands (i.e. for closed structures) and assembly with use of GASS® towers (i.e. for open structures). Refer to the scheme design drawings for full plan layout of panels and any required additional stability measures (e.g. for structures with open ends).

For heights above 3.5m, the TOPEC® lift or mobile access such as a MINIBOSS or MEWP (mobile elevating work platform) can be used to aid assembly in a similar method. Alternatively, as GASS® props are required for heights over 3.5m, ledger frames can be fixed and decked out with access platforms and suitable edge protection to provide access to aid assembly.

 After hooking panels on to the bearing, ensure the panel edge is held by the cams of the bearings. Do not allow panels to hang freely, continue to support the panel until raised and supported with the erection rod. Erection rods should be used to support panels via the square central openings of the panel edge profile from the underside of the panel.



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side shutters will be fixed to the slab edge line, as marked by the engineer and strutted off the deck formwork to prevent movement during concreting.

## o **Construction**

- The deck is levelled from the underside using a laser level and inverted staff.
- Reinforcement fixing and concreting of the slab is described in separate Construction Method Statements, issued under separate cover.
- After the slab has been concreted and when the cubes have achieved the required minimum strength, a 'Permit to Strike' form will be issued for removal of the pans.
- When the slab has reached the required minimum strike strength, a further 'Permit to Strike' form will be issued for removal of all props.
- Prior to removal of the falsework system at slab edges, Combisafe expanding anchor sockets, safety posts and mash barrier system will be installed along the slab at position to be agreed.

## o **Striking**

- The area to be struck will be cordoned off with bunting tape and a 'Striking in Progress' sign will be erected.
- The dropheads on the props are lowered to leave a gap of 60mm between the pans and the **soffit of the** slab for striking. This is done by striking the drophead in the direction of the arrow with a claw hammer, working off an ally tower.
- Working off the ally tower at all times, the pans are lifted free off the main beam lugs and removed. The panels are passed down to another operative on the slab for stacking directly onto a pallet.
- After the panels have been removed, the main beams are taken down by lifting both ends off the dropheads.
- The drophead props are removed and stacked on pallets for re-use.

## o **Access & Egress of Work area:**

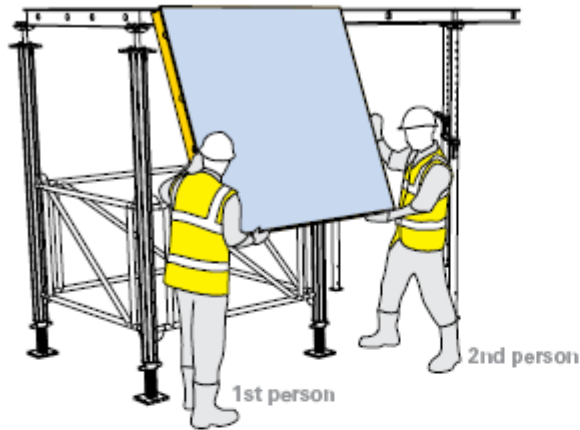
- Generally safe access to each work-face will be achieved by utilising the Principal Contractors designated walkways onto and around site.

**We will establish and maintain a safe access routes across our work areas and up to each beam**

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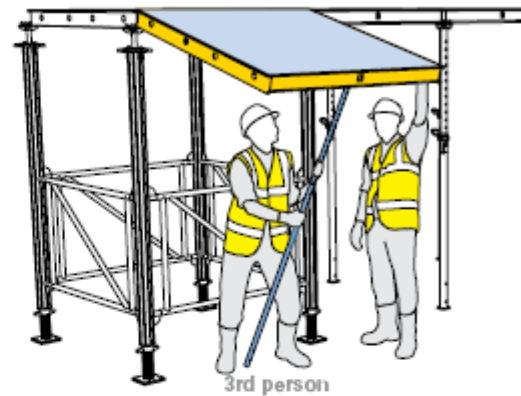
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The basic method of erecting TOPEC® panels is shown here. Panels are simply hooked on to the supports, then raised and temporarily supported by means of the aluminium erection rod (H585434). A prop with the relevant TOPEC® bearing is then positioned beneath a corner of the panel then offered up to support the panel. For more detailed assembly notes see method of assembly (pages 36-43).



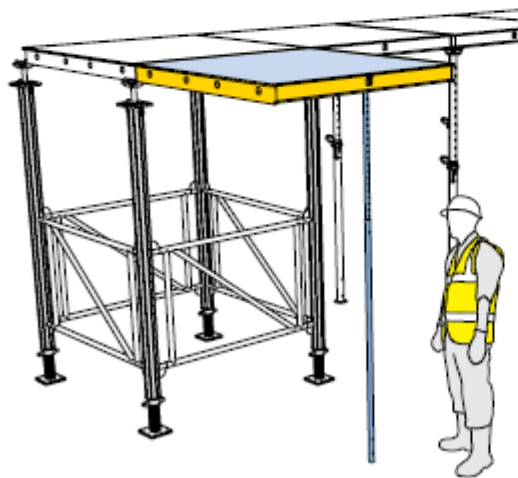
## Step 1

Panel hooked onto bearings. Note the orientation of the panel, the panel has shaped edge profiles on the squared hole side that hook on cleaner than the adjacent edge profiles. Continue to support panel until raised with the erection rod.



## Step 2

Panel raised up with aluminium erection rod through the square central opening of the panel. Panels are easily raised from the underside of the panel (as shown) as opposed to raising from the outer side.



## Step 3

Panel now temporarily supported with erection rod. Though the erection rod is sufficient to support the panel, panels should not be unmanned until fully supported with props.



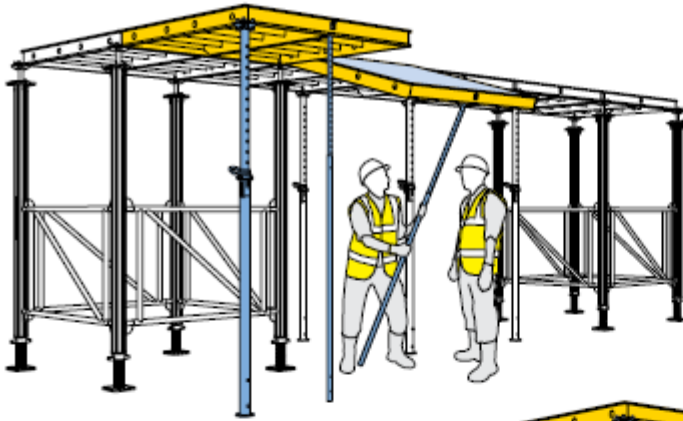
## Step 4

Prop and bearing put into position beneath the panel and aligned to give support (one only at this stage). Props should be set to the required height before being installed. Ensure the erection rod remains in position during the installation of the prop, minor adjustment may be required.

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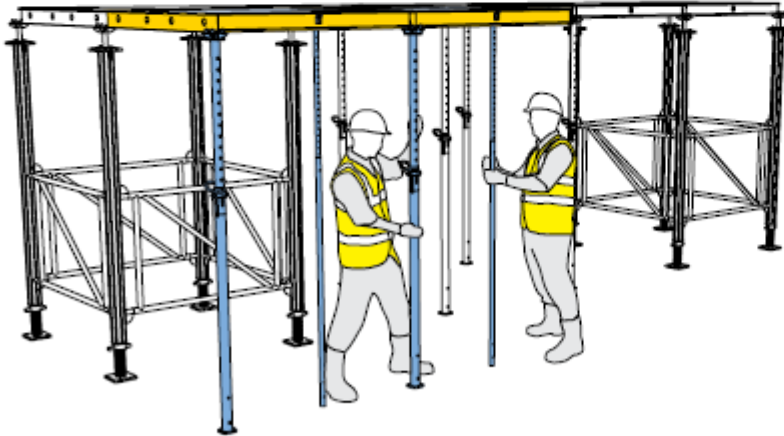
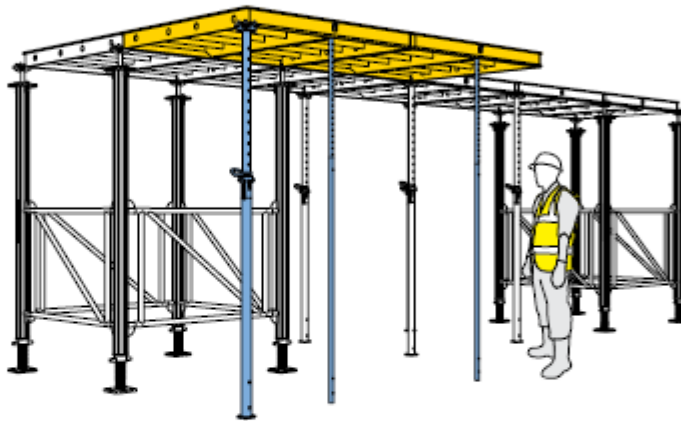


## Step 5 (repeat steps 1 -3)

Next panel hooked on and raised up with a second aluminium erection rod through the square central opening of the panel. Note the direction of the assembly with regards to the installation of the previous prop (step 4).


## Step 6

Two panels now temporarily supported with erection rods. Ensure the assembly is manned at all times until fully supported with props.



## Step 7

Prop and bearing positioned beneath the two panels and aligned to give support. The first erection rod can be now removed from the fully supported panel and re-used for subsequent panels.

 Is it recommended that the assembly is inspected every five bays to check for alignment of props and stability of the build.

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## DECKING RISK ASSESSMENT

<b>LOCATION:</b>	C/O ROCHFORD – Havestock Hill	<b>DATE:</b>	August 2016
<b>OPERATION/PROCESS:</b>	Falsework strike & Erect		
<b>HAZARDS IDENTIFIED:</b>	<ol style="list-style-type: none"> <li>1. Falls - when working from heights</li> <li>2. Falls - when working from ladders</li> <li>3. Slip, Trips etc - untidy access routes</li> <li>4. Hand injuries - handling sharp materials</li> <li>5. Health Hazards - inhalation of dusts &amp; oils</li> <li>6. Falling loads – Incorrect Slinging of Loads</li> </ol>		
<b>SECONDARY HAZARDS:</b>	Weather conditions, Other contractors works		
<b>EXPOSED PERSONS:</b>	Labourers/ Steel Fixers/ Slinger Banksman		
<b>FREQUENCY OF EXPOSURE:</b>	Daily	<b>DURATION OF EXPOSURE:</b>	As per Site Working hours
<b>RISK = LIKELIHOOD X SEVERITY</b>			
<b>LIKELIHOOD</b>		<b>SEVERITY</b>	
<b>0</b> = Zero to very low <b>1</b> = Very unlikely <b>2</b> = Unlikely <b>3</b> = Likely <b>4</b> = Very likely <b>5</b> = Almost certain		<b>0</b> = No injury or illness <b>1</b> = First aid injury or illness <b>2</b> = Minor injury or illness <b>3</b> = " 3 day " injury or illness <b>4</b> = Major injury or illness <b>5</b> = Fatality, disablement injury, etc	
<b>Risk Values:</b>	LOW = <b>1 to 8</b>	MEDIUM = <b>9 to 16</b>	HIGH = <b>17 to 25</b>
<b>Activity Risk Rating:</b> Likelihood <b>5</b> X Severity <b>5</b> = Total <b>25</b>			
<b>Activity Risk Value:</b>	LOW	MEDIUM	HIGH ✓
<b>CONTROL MEASURES</b> METHOD STATEMENT, INSTRUCTION, TRAINING, PPE, ETC:  <b>PPE arrangements:</b> BS EN397 – Safety helmets ✓✓ BS EN345 – safety footwear ✓✓ BS EN471 – Hi Vis vest ✓✓ BS EN420 – Gloves ✓✓ BS EN166b – Eye protection ✓✓ BS EN352 – Ear Protection ✓ BS EN149 – RPE ✓✓ BS EN365 - Harnesses ✓✓ BS EN345 - Wellington boots ✓  ✓✓                      ✓ Worn always    Worn when at risk	<ul style="list-style-type: none"> <li>All operatives to have read/ been briefed on the current Method statement and Risk Assessments inc. COSHH when relevant.</li> <li>Follow the correct sequence and design drawings for the erection of formwork and falsework.</li> <li>Do not deviate from drawings unless authorised by the design provider – SGB</li> <li>Ensure sufficient supervision is on site</li> <li>Get HPL permit to load before loading, pouring, striking</li> <li>Ensure there is a clearly defined access and egress route to and from the workforce.</li> <li>Do not allow work in areas directly below especially during striking</li> <li>Establish best access at every stage</li> <li>Work from ground level where possible.</li> <li>Always follow the pour pattern / sequence</li> <li>Do not work from outside of edge protection / handrails</li> <li>Ensure there is a suitable working platform capable of accepting the load.</li> <li>When above ground erecting decking always: - where practicable work from platform - use an installed fall prevention system - the supervisor will determine safest alternative to work platform</li> <li>Ensure manual handling is kept to a minimum.</li> </ul>		
<b>Residual Risk Rating:</b> Likelihood <b>2</b> X Severity <b>4</b> = Total <b>8</b>			
<b>MONITORING RESULTS:</b>	Site Managers to ensure the above control measures are adhered to and such areas are safe on completion of works.		
<b>REVIEW DATE:</b>	At regular intervals, not to exceed 12 months or when circumstances change.		
<b>RESIDUAL RISK RATING: LOW</b>			
<b>ASSESSOR:</b>	Kieran Dempsey	<b>POSITION:</b>	Safety Advisor

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## **7.3 Concrete placement:**

1. All operatives will be aware of COSHH requirements of concrete and appropriate PPE will be available and worn.
2. Generally :
  - Concrete placement location is inspected
  - Concrete grade and specification ordered by engineering team.
  - Concrete arrives to site and is directed by banksman to discharge location.
  - Concrete is inspected.
  - Concrete is discharged and placed by appropriate methods.
  - Concrete is adequately compacted by appropriate method.
  - Work area is prepared for next delivery or is tidied.
  - Delivery wagon washes out at designated location.
  - Concrete is protected if necessary
3. Concrete will arrive on site by ready mixed delivery wagon. All concrete mix and pouring procedures will be accordance with design specifications.
4. **Concrete will be placed by one of the following methods:**
  - Direct into formwork - a banksman guides the reversing vehicle into the correct position and the concrete is inspected and discharged if acceptable.
  - Concrete Skip - a banksman will guide the delivery vehicle as close to the skip as required and unload the concrete into the skip. The Tower Crane operator will then transfer this load to be discharged into the formwork or excavation base
  - Pump – A competent CITB operator will position, make pump lines and dismantle the pump for each pour.
    - For larger pours we may use a static concrete pump to distribute the concrete.
    - The competent CPCS operator will position the pump, make pump lines and dismantle the pump for each pour, as directed by RCL site personnel.
    - The Operator will control the pump by direct vision or will take directions from the concrete gang foreman during placement operations.
    - All concrete delivery vehicles will be banked into position to discharge into the pump hopper.
    - Vehicles will then be directed to the wash-out location to clean before leaving site.

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## 5. Cleaning of concrete pump & Hoses using compressed air

- The use of compressed air to clean out a pipeline should only be used where there is no practical alternative. The operation must be carried out under the close supervision of a suitably trained person.
- It is essential that all operatives involved in these operations are wearing suitable PPE, primarily eye protection and gloves.
- The pump operator should establish effective communications with site personnel and should ensure that all operatives stand clear of the pipeline, particularly at the discharge end.
- All flexible hoses must be removed from the pipeline.
- The pipeline must be fully supported and secure, there should be no bends in the last 15m of the pipeline.
- A ball catcher attachment will be fitted to the discharge end of the pipeline to catch the sponge washout ball, which could be expelled at great force.
- The maximum pressure output for this operation should not exceed 7 bar.
- Compressed air should be introduced into the pipeline through a purpose made washout adaptor, designed for the purpose; the adaptor must be equipped with an air entry control valve and an emergency pressure release valve.
- Compressed air should be introduced gradually, sufficient only to move the sponge washout ball steadily along the pipeline.
- A competent operative should assist in this process to monitor the progress of the washout sponge along the pipeline whilst the concrete pump operator controls the pressure. They should do this by means of tapping the pipes with a hammer or similar to check which pipes are empty.
- As the sponge washout ball progresses and the resistance of the concrete decreases, the flow of air introduced into the pipeline should be reduced by the pump operator.
- Air must be exhausted via the emergency valve whenever the speed of the concrete discharged increases and becomes too rapid.
- The pipeline must be considered to be pressurized during the cleaning process and couplings should be loosened or removed unless the pressure in the pipeline has been released and this has been confirmed by the pump operator.
- It has been confirmed onsite that reinforcement '1 lift' bag will be placed over the end of the ball catcher to ensure that there is no discharge of concrete during this cleaning process.

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## 4.0 Supervisor

A full time site manager will be on site to supervise the works, there will also be a visiting Contracts Manager (Cliff Short) and a visiting Safety Advisor from Allday Safety Ltd (***all training and competency certs will be copied to the site files***). ***The site supervisor will ensure that all safety documents (method statements, risk assessment etc) are signed off and dated***

## 5.0 Resources. Materials

As per the construction issue/temp works drawings, crushed concrete, teram, aggregates as required

### **Plant**

Engineering instruments  
Slings and Chains (certified)  
Heras fencing  
General hand tools  
Excavator  
Dumper  
Roller  
Tipper lorries  
Laser level

## 6.0 Labour

As the programme requires,(to be issued). A full time supervisor will be on site for Rochford at all times.

## 7.0 Personal Protective Equipment

***5 Point PPE will be worn at all times safety footwear, head protection and hi-viz, Glasses and gloves are mandatory. For all other tasks that may require further PPE, risk assessments are to read/followed. For example, Goggles (Not Glasses) and ear plugs when breaking concrete or grinding out.***

## 8.0 Emergency Procedures.

Rochford Construction will follow the fire/emergency plan as normal. These will be briefed to all on the main induction.  
First arrangements will be by principal contractor

## 9.0 Environment

Consideration should be given to our neighbours at all times regarding noise & dust pollution.

***No dust is to be emitted into the atmosphere and engineering solutions found to combat the problem not just left to PPE – PPE is a last resort***

Safe systems of work are to be complied with at all times.

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## 10 Permit to Work

Permit to dig.

Hot works (if required).

***Permit to Pump Concrete***

***Permit to Load***

***Permit to strike***

***Permit to pour***

## 11 Training

Only trained, competent and experienced operatives will be used on these works  
CSCS cards will be available to view with the operatives, all plant operatives will hold current CPCS/CITB cards.

## 12 Fuel & Fire

***All diesel will be stored in double bunded tanks with 110l spill kits on site  
petrol will be kept in 5l plastic containers maximum of 3 on site and will be  
locked away when not in use stored on a bunded storage tray.  
Drip trays will be in use for all plant and foam/dry powder fire  
extinguishers to be provided***

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**I HAVE READ / AND OR HAD THIS METHOD STATEMENT & RISK ASSESSMENTS EXPLAINED TO ME. BY SIGNING BELOW I AGREE TO WORK AS THE PROCEDURES/POLICIES WRITTEN IN THIS METHOD STATEMENT DESCRIBE.**

**NAME:**

**COMPANY:**

**SIGNATURE:**

**DATE:**
