

Picking in a Parts Supply Chain

A Case Study

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Agenda

- British Gas and the Parts Supply Chain
- Our Existing Operation
- Project Brodie
- Picking Systems at the NDC
- Lessons Learnt
- Questions

Recognise Him?



British Gas provides installation, service & breakdown cover for heating and appliances to over 4½ million customers throughout England Scotland & Wales

British Gas Parts Supply Chain

- The Parts Supply Chain based at Leicester provides a next day service to over 8,500 engineers
 - Order by 18:30 receive by 07:45 the next day
- The current centralised operation has been in place for 10 years, and replaced a regionalised structure
- The NDC holds 30,000 stock lines plus approx. 5,000 special order lines at any one time
- It despatches 22,000 order lines per day (35k at peak) via the Royal Mail, using 700 sorting offices

National Parts Centre

- Opened in 1995
- FTE approximately 150 with a peak during winter requiring up to 50 temps
- Conveyorised zone picking into transport totes
- Manual picking from shelving using labels
 - Mezzanine floor
 - Lots of walking
- Repacking into despatch totes
- High requirement for manual handling at despatch
- Pick error levels (parts leaving the warehouse) were in the order of 0.4% (4 parts per 1000) – a potential for letting down 48 customers each day

Carousel Pick Stations



Fast Pick Zone



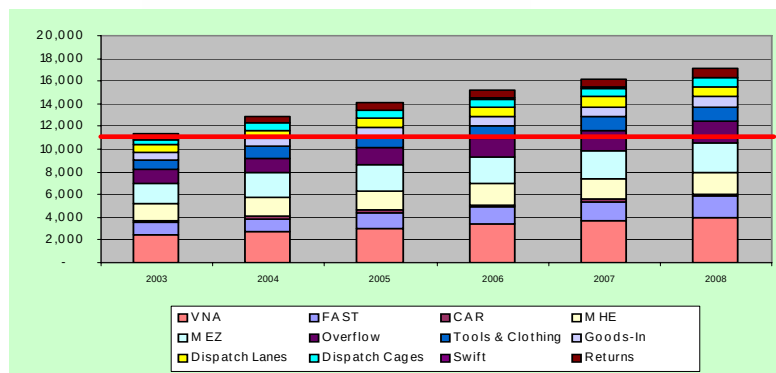
Despatch Sortation



Project Brodie

- What
 - Ten Year Strategy with a new automated National Distribution Centre (NDC) at the core

- Why

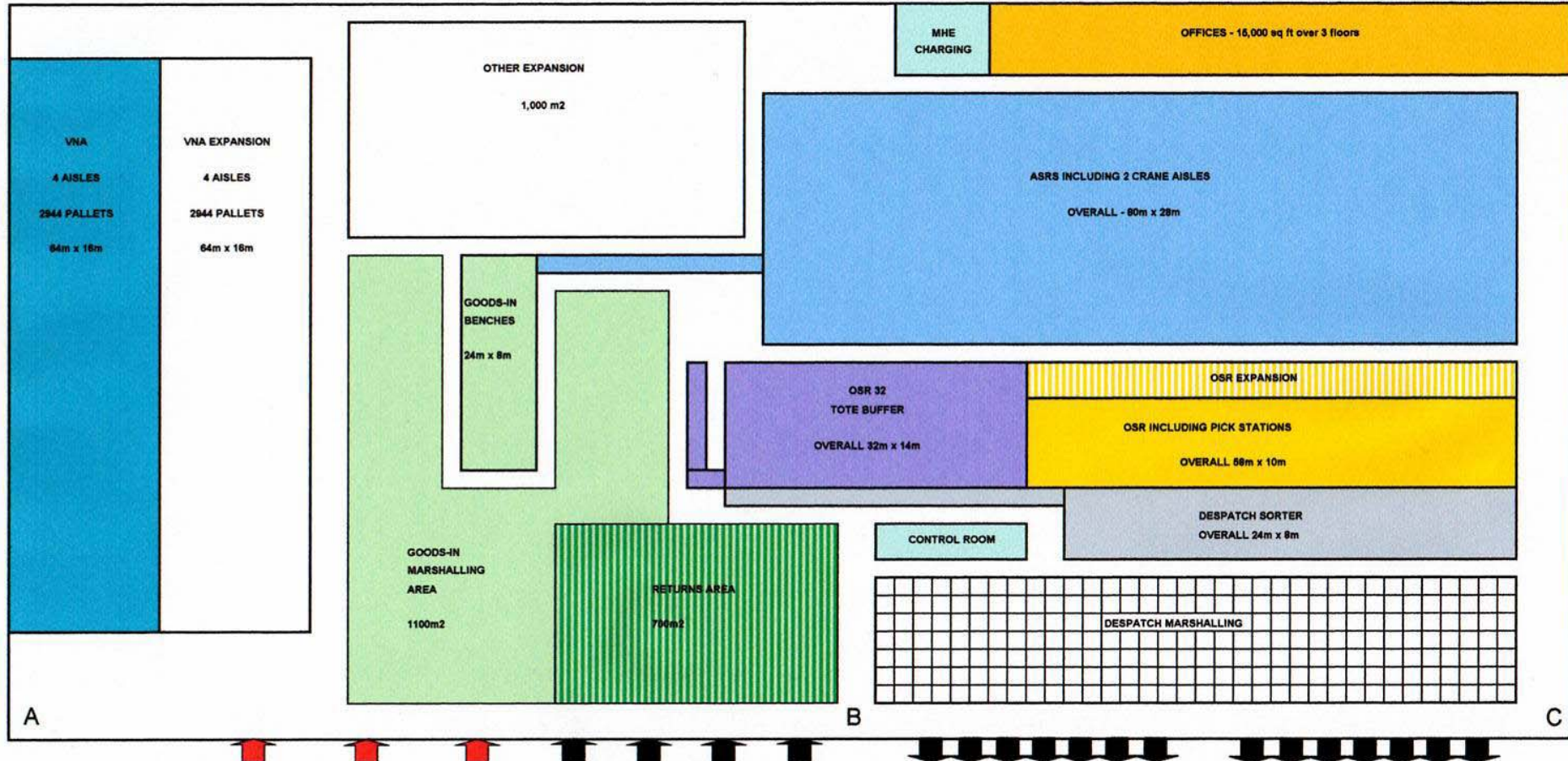


- When
 - March 05 Approval
 - May 06 Building up and MHE in place
 - April 07 complete transition

The Solution

- Opened in October 2006
- Planned FTE approximately 100 with a peaks during winter requiring up to 10 temps
- Semi-automated, tote based, small parts handling solution including
 - Goods-in decanting process
 - Removal of waste packaging prior to pick
 - Automatic miniload cranes feeding flow racks for fast moving products with pick by light technology
 - 2 x OSR machines (shuttle car storage & retrieval system)
 1. Storage of small and/or slow moving parts – Goods to man
 2. Buffer storage for part picked despatch totes
 - Automated finishing line, including box closing, labelling, manifest insertion and strapping prior to a despatch sorter

NDC – Schematic Layout











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A Day in the Life of the NDC

- 20,000 to 35,000 order lines per day
 - The range / demand pareto has a very long tail
 - 1% lines = 56% of demand
 - 50% lines = 99% of demand
- 3 principle order types -
 - Parts –18:30 cut off for next day delivery - guaranteed
 - On average < 2 lines per order & ~ 1 item per line
 - Van stock – next day delivery, not guaranteed
 - Similar order profile to parts
 - Consumables – 2 day delivery
 - On average ~3 lines per order & ~ 3 items per line
- Orders are “drip fed” to the NDC during the day, with the majority of parts & van stock orders received PM
- Despatch vehicles leave between 19:30 & 21:30

3 Picking Areas

VNA

- RF supported, pick from pallets on man-up trucks
- 2% of line picks
- Mainly parts (e.g. washing m/c drums, heat exchangers)
- Shipped as individual parcels

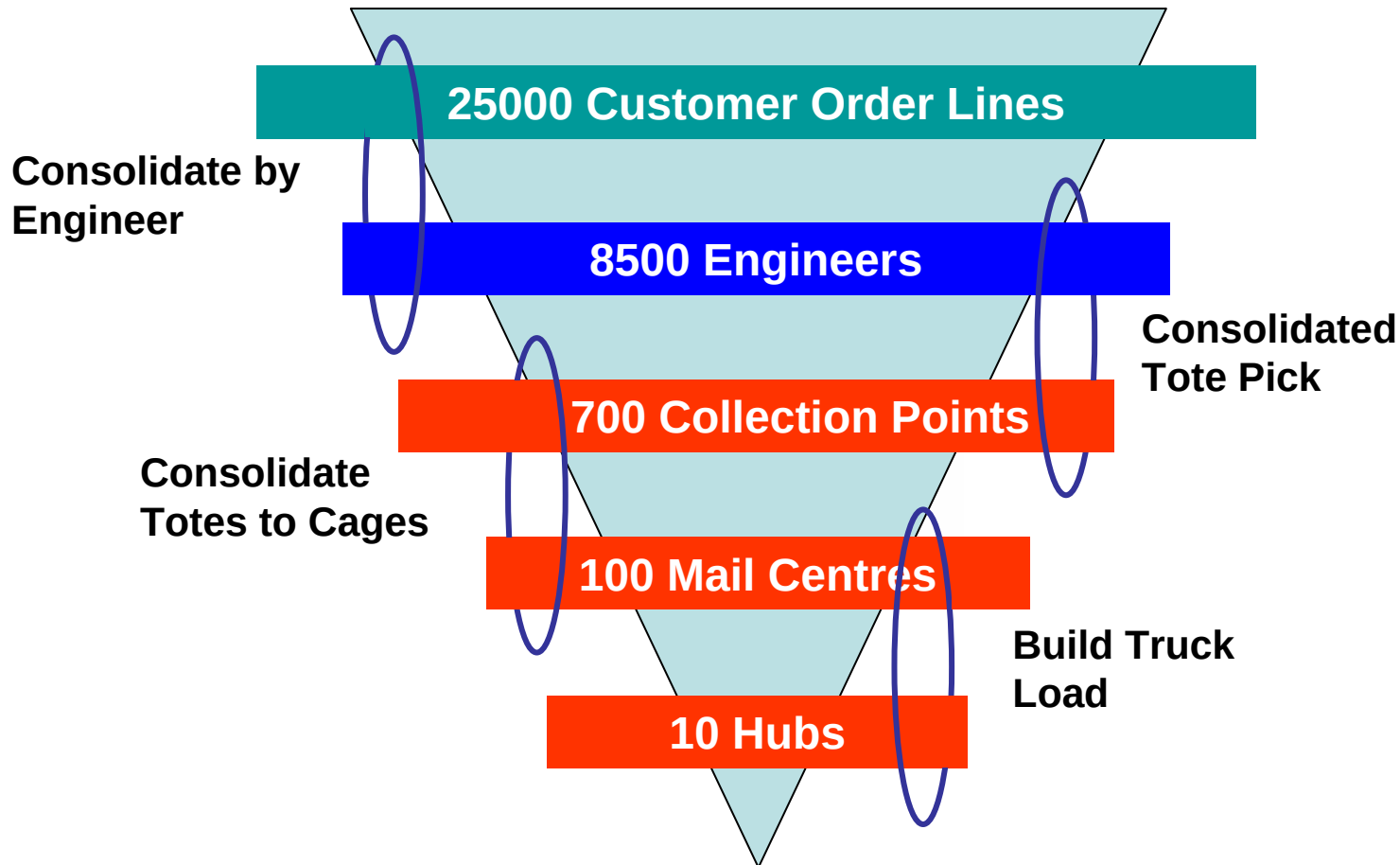
ASRS

- 78% of line picks
- All types of goods including fast moving consumables
- Shipped in totes

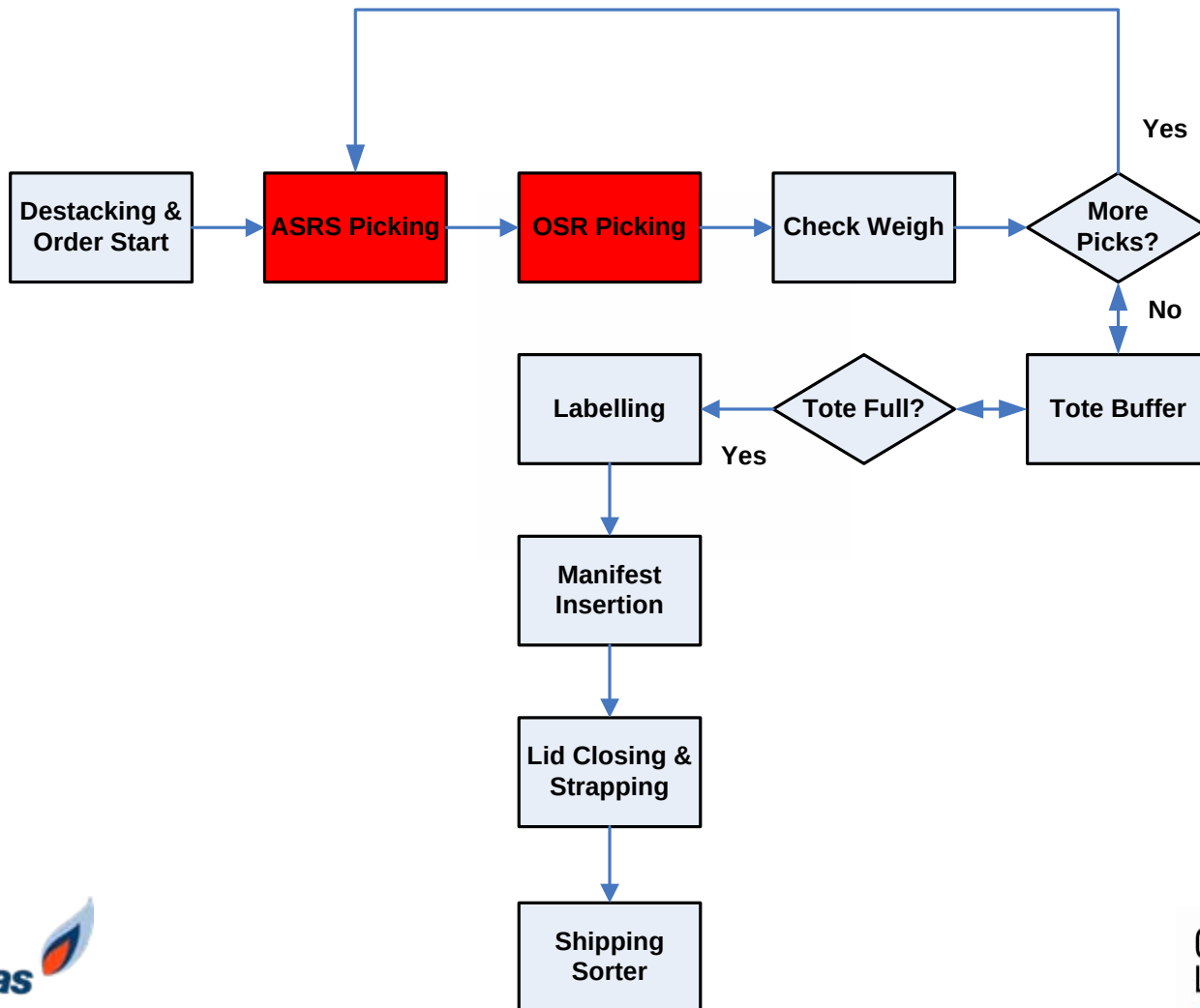
OSR

- 20% of line picks
- Mainly parts - small and slow moving
- Shipped in totes

Consolidation Principles



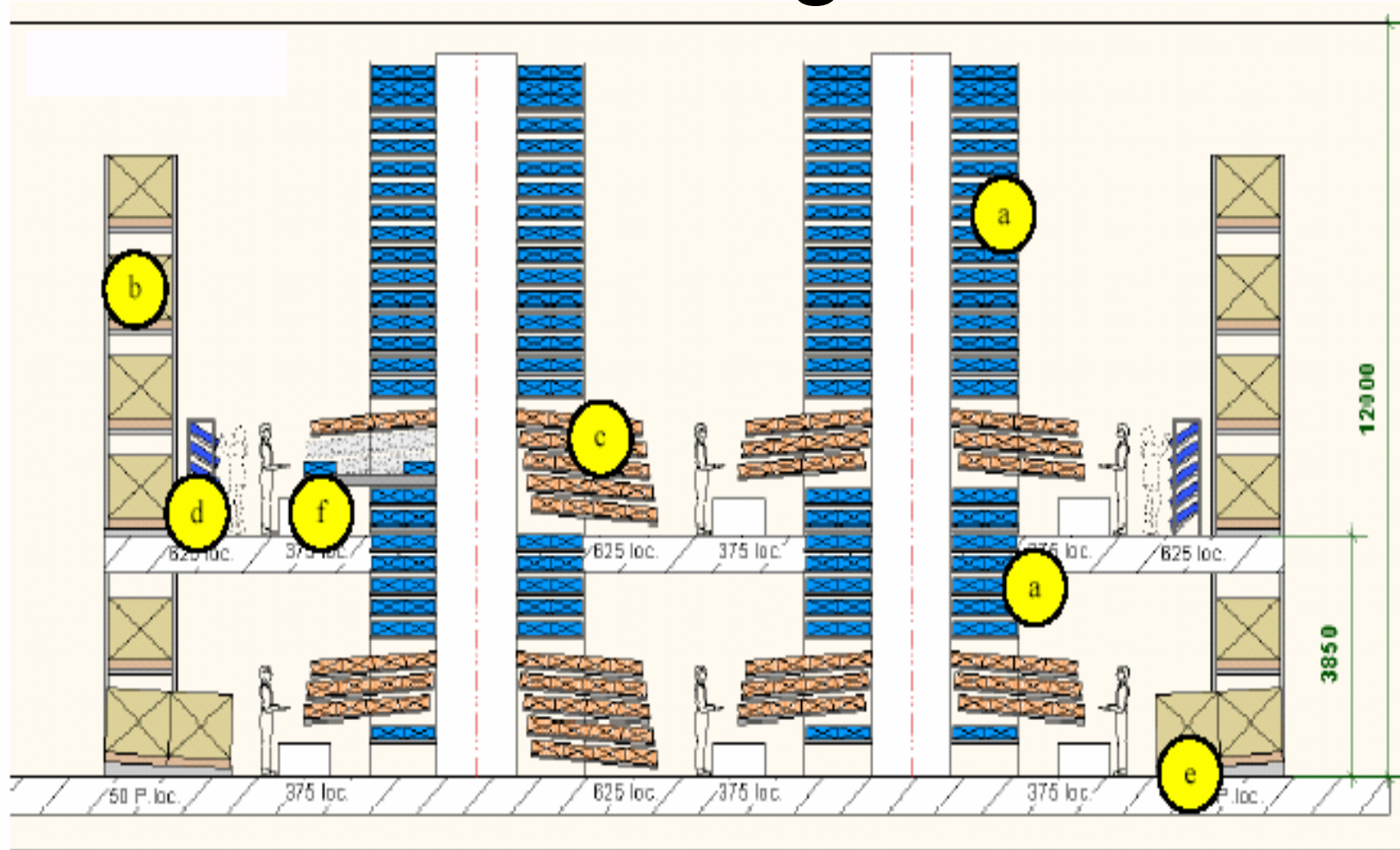
The Tote Picking Process



ASRS Picking

- 18 picking stations over 2 floors
- Pick to light technology
- Automatic label printing
 - Bagged or loose items
- Pallet picking on flow racks for bulky fast movers replenished by VNA trucks
- 3,600 flow shelving locations for totes replenished by 2 miniload cranes
- 2 goods-to-man picking stations for slower moving items
- Static shelves for bulky slow movers
 - Matrix PTL
- Planned pick performance is 160 lines per man hour

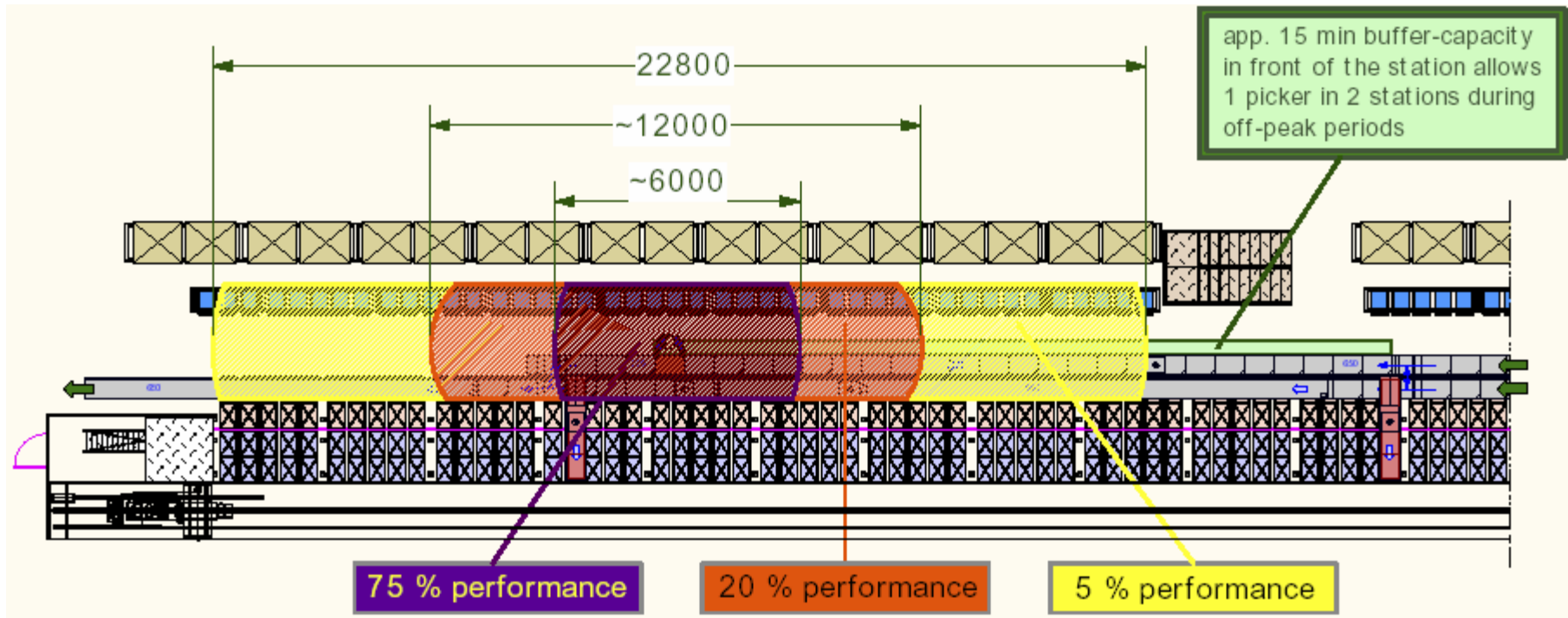
Section Through ASRS



ASRS Pick Station



ASRS Picking Layout



OSR Picking

- A goods to man picking system for small and/or slow moving items.
- A total of 45,000 compartments in 20,600 trays in 4 storage modules
- 4 lifts and 92 shuttles bring trays to the operators at a rate of 1200 trays per hour
- 2 picking stations and 1 input station
- Planned performance is 300 lines per operator per hour.

OSR Picking & Input Stations



OSR Picking Circuit



Why Did We Choose These Systems

- Capacity to cope with expected growth
- Reduce walking & manual handling
- Significantly reduce manual replenishment
- Eliminate a whole activity from the despatch process
- Better identification of parts
- Reduction in errors
 - “Not foolproof, but difficult to get it wrong”
 - We expect a 75% improvement
- Improve stock integrity
- Improve MI

The Good

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The Bad...

- Very easy to use, the operators love it!
 - Good ergonomics
 - Performance is on track
 - Excellent despatch process (labelling, manifests & sortation)
 - Space utilisation
 - Product security
- Dimensional data & check weighing
 - RF coverage & speed of response
 - “At Aylestone Road we used to
 - Some software functionality is not quite how we expected it

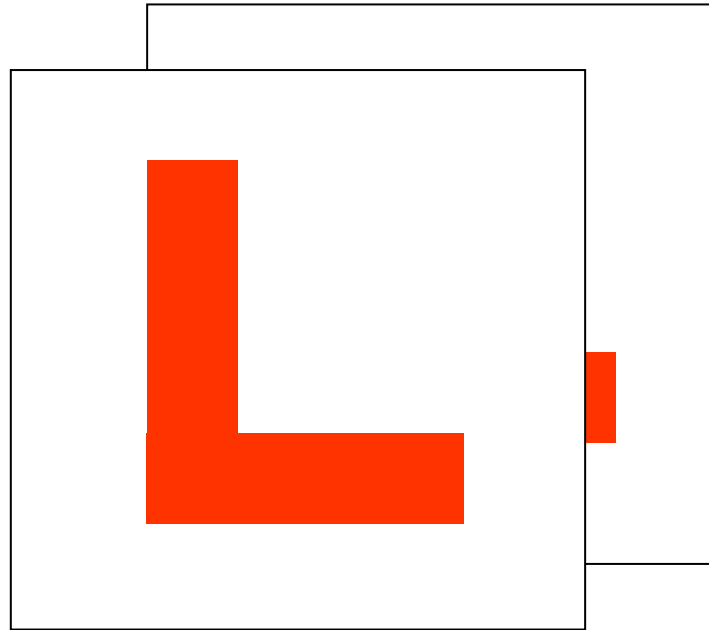
...And we Never Expected....

- The diagonal doesn't exist!
- Sensitivity of weight scales
- Losing it on the corners

.....And we underestimated

- Changes required in management behaviour
- Complexity of the British Gas operation

The Biggest Issue



Questions?



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