



# Byggavfall – fra problem til ressurs

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1. C&D Waste – from problem to resource
2. Waste Management Plan – Why and How?
3. Survey of hazardous materials and components
4. Environmental remediation
- 5. Organisation and sorting on site**
6. Downstream solutions



# Disposition

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- ✓ How to sort in the best possible way?
- ✓ Which fractions are sorted when in the process?
- ✓ Which fractions should and might be sorted?
- ✓ Logistics
- ✓ Protective cover and clean, dry construction





# Important players to prevent/reduce waste generation

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- ✓ Architect and designer
- ✓ Design with focus on waste reduction
- ✓ Contractor or designer:
- ✓ Create a suitable waste management plan
- ✓ Contractor: Smart sorting, logistics
- ✓ Transporter: Facilitation, container solutions, disposal



# Waste generation in project phases

Phases in the project					
Excavation	Foundation	Structure	Façade works	Internal walls	Installations
Soil and rock					
Hazardous waste					
	Concrete				
	Metalls				
	EPS/XPS				
		Roof covering			
			Plasterboard		
			Insulation		
			Plastic		
	Wood				
			Glass		
				WEEE	
				Cardboard	



# Logistikk på byggeplass

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Good planning gives better resource use

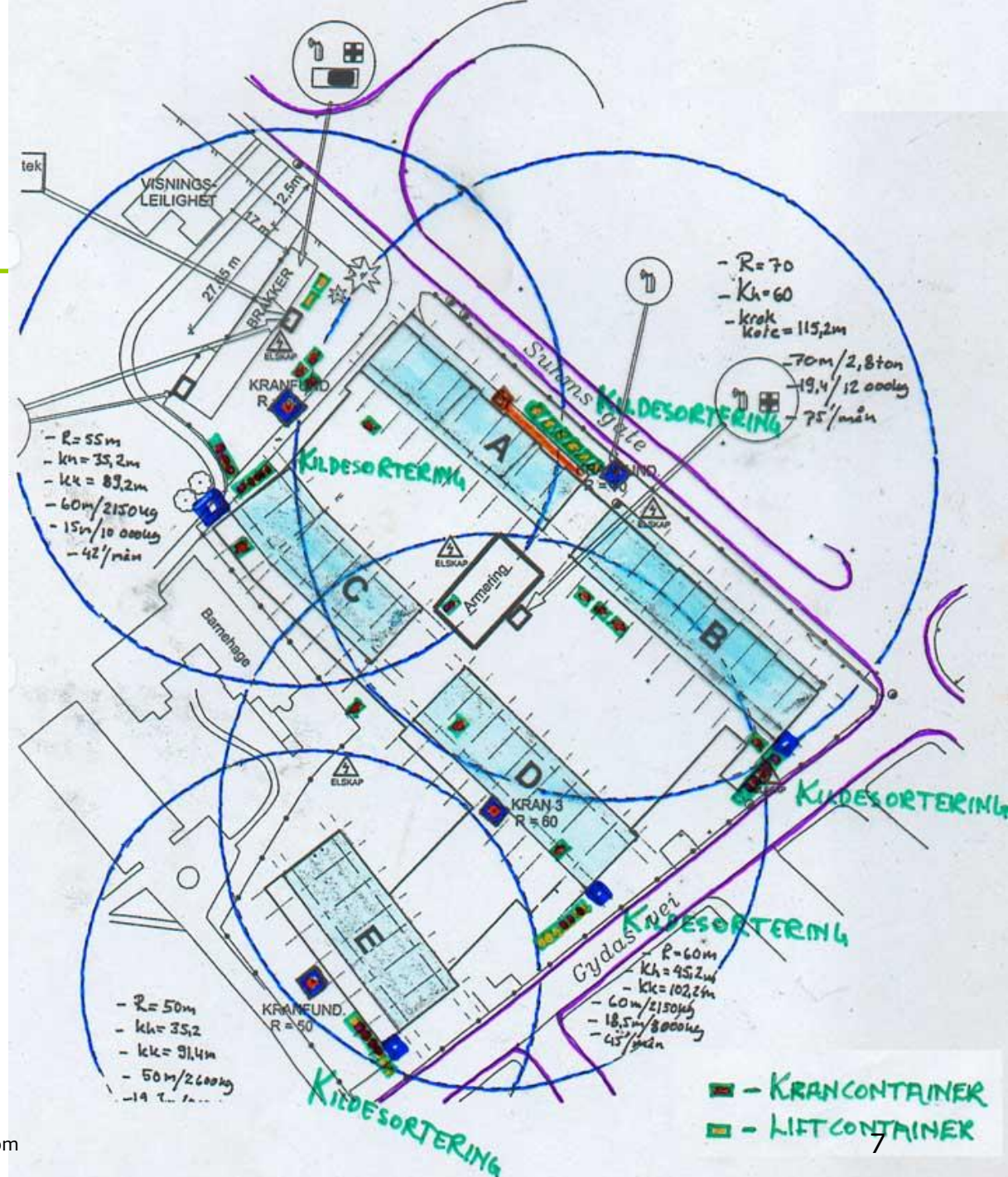
- ✓ Plan for waste transport out of building
- ✓ Create collection points on strategic locations
- ✓ Determine the number of fractions to be sorted
- ✓ Use ramps to support transport to the containers.
- ✓ Measures to help choosing the right container
- ✓ Reduce the need for manual liftingfor
- ✓ Locate the general waste container less available - this may contribute to increased sorting





# Rig plan

- ✓ Plan collection points.
- ✓ These should be within the crane's operating radius





# Detailed plan

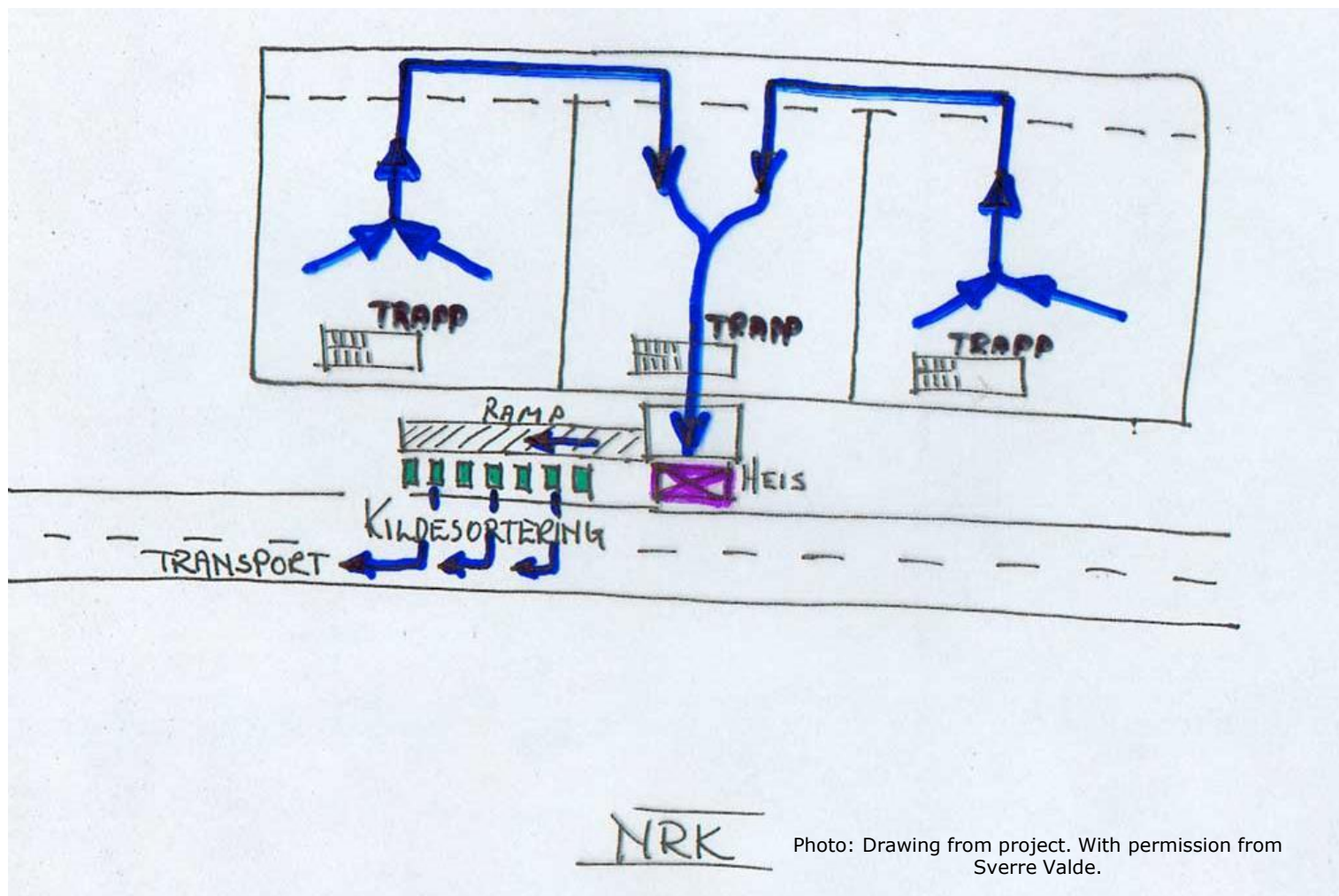


Photo: Drawing from project. With permission from Sverre Valde.





# Hazardous waste

Remains of paint, glue, grout cartridges, chemicals and hazardous waste from environmental remediation

- ✓ Skal alltid sorteres ut
- ✓ Sorteres som egne fraksjoner (ikke sammenblandes)
- ✓ Må håndteres forsvarlig
- ✓ Skal leveres til godkjent mottak
- ✓ Anbefalt låsbare containere





# The earth engineering phase

- ✓ Metalls
- ✓ Wood
- ✓ Hazardous waste
- ✓ EPS/XPS
- ✓ General waste



Photo: Guro Kristine Milli



# Structure/internal work

Several containers of different sizes:

- ✓ Plastic foil
- ✓ Hard plastic
- ✓ Styrofoam
- ✓ Cables
- ✓ WEEE
- ✓ Plaster
- ✓ Hazardous waste
- ✓ Impregnated wood
- ✓ Clean wood
- ✓ Bricks/concrete
- ✓ General waste



Photo: Eirik Werner





# Plastic

- ✓ Use several containers with different sizes
  - ✓ A heavy and a light fraction in the same container
- Less transport 4x7 plastic bags



Photo: Eirik Werner



# Plaster



Photo: Sverre Valde



# Insulation

- ✓ Use sacks in the building.
- ✓ Use containers outside. Use net or other covers to prevent spillage.



Phot: Eirik Werner





# Cables and WEE

Cables are classified as WEE. Must be collected and sorted as a separate fraction.

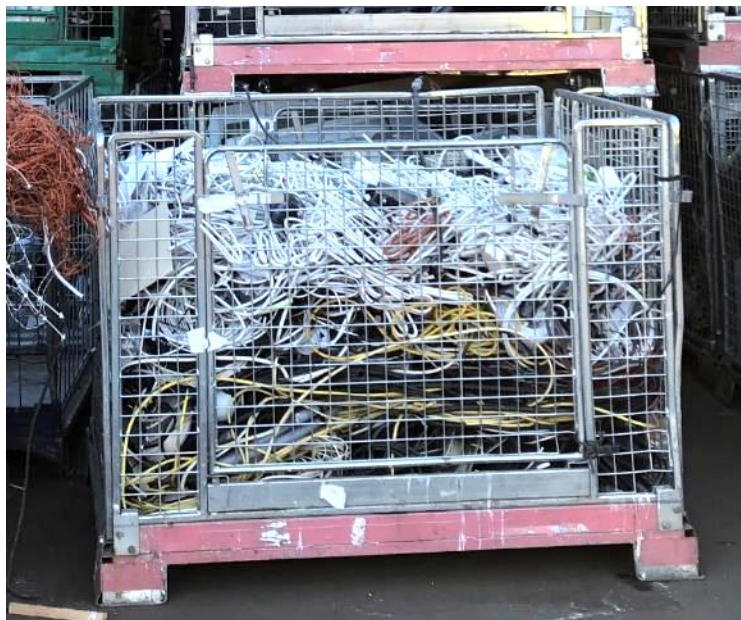


Photo: Guro Kristine Milli



# Heavy construction materials

- ✓ Clean materials are used for back filling
- ✓ Must be free of contamination from paint, plaster, sealants etc., as well as reinforcement
- ✓ Expensive to deliver as mixed waste
- ✓ Largest faction



Photo: Sverre Valde





# Contaminated concrete/bricks

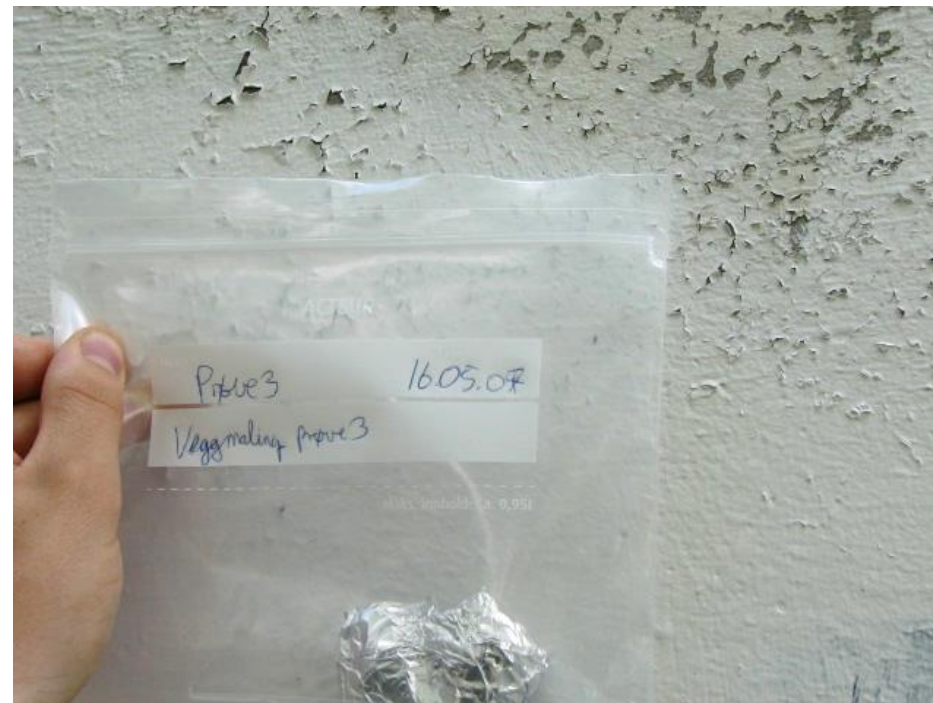


Photo: Sverre Valde



# Wood



Photo: Sverre Valde

- ✓ Untreated wood
- ✓ Treated wood
- ✓ Impregnated wood

Avoid "air", it is expensive to transport



# Metals

- ✓ Recycling of metals has several hundred years of tradition
- ✓ You get paid for delivering metals



Photo: Sverre Valde





# General waste



Photo: Sverre Valde

- ✓ Minimize generation of general waste
- ✓ General waste waste is expensive to dispose of
- ✓ Is your sorting degree satisfactory?
- ✓
- ✓ Never keep hazardous waste and WEEE in the general waste





# Did anyone complain about limited space?

Intermediate storage awaiting containers



Photo: Eirik Werner





# Sites with limited space

- ✓ Several master builders bring the waste to collection facility and sort waste themselves upon delivery
- ✓ Then you don't get any documentation on sorting level
- ✓ Bag solutions are an alternative for increased waste sorting. You will then be able to obtain documentation of what has been sorted



Photo: Guro Kristine Milli



# Clean, dry building (CDB)

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CDB offers many advantages:

- ✓ Clean and tidy
- ✓ Better waste sorting
- ✓ RIF has prepared a guide for CDB (RTB)





# Safety inspection

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Waste should also be a topic

- ✓ Safety inspection may be held weekly.
- ✓ Incorrect sorting and littering can be documented with a photo
- ✓ The person responsible for incorrectly sorted waste should be informed.
- ✓ The subcontractor can be invoiced if the waste is not sorted well enough, if this is stipulated in the contract.





# Beneficial effects of waste sorting

- ✓ More materials can be sent for reuse
- ✓ Hazardous waste is sorted out.
- ✓ Better stacking in the containers, less transport of air.
- ✓ Fewer container transports.
- ✓ Increased knowledge about waste and source sorting will increase the rate of recycling.
- ✓ Many fractions can be delivered at a reduced price.
- ✓ There are producer responsibility schemes for several waste fractions.



Photo: Terje Borud [sortere.no/bedrift](http://sortere.no/bedrift)