The background image shows a construction site for a hydrant replacement. A yellow excavator is positioned on the left, with its arm raised and bucket open, holding a yellow hydrant. In the center, a black vertical pipe stands upright. To the right, a large black dump truck is parked. Three workers wearing yellow hard hats are visible: one is standing near the base of the black pipe, another is leaning against a ladder, and a third is in the foreground wearing an orange shirt. The scene is set outdoors with trees and a clear sky in the background.

Hydrant Replacement Methods and Techniques

- Are prioritized and submitted to the Clearances and Locations Work Group.

		Units Affected	
_____ :	Houses	Comments: _____	
_____ :	Apartments	Comments: _____	
_____ C/S _____ :	Schools	Comments: _____	
Business: _____		Type: _____	
Truck: _____ :	Other: _____		
_____ :			
_____ :			
Valve _____		Off _____	
GIS No. _____		YYMM _____	Time _____

Stone: _____ Blvd: _____

Provision _____

(Arranged For); _____

(Arranged For); _____

- Section A of the Water Service Disruption Report.

[illegible]

Water Service Disruption Reports

- Section B of the Water Service Disruption Report.

Hydrants out of Service Location of Hydrant	Hydrant GIS No.	Off		Crew Initials	On		Crew Initials
		YYMMDD	Time		YYMMDD	Time	
Connection drawings for: _____							
Excavation Obstructions:				Additional Information Required:			
Tree: _____ Comments: _____				Correlation Required: _____ Yes; _____ No;			
Utility Pole: _____ Comments: _____				Slow Leak: _____ Yes; _____ No;			
Fence: _____ Comments: _____				Hydro Excavate: _____ Yes; _____ No;			
Vehicle: _____ Comments: _____				Washout Visible: _____ Yes; _____ No;			
Pavement: ____; Concrete: ____; Paving Stone: ____; Blvd: ____:				Broke into Sanitary Main: _____ Yes; _____ No;			
Other: _____				Broke into Storm Main: _____ Yes; _____ No;			
Temporary Water Provisions:				Traffic Controls:			
Water Trailer: _____ (On Site); _____ (Arranged For);				Detour Required: _____ Yes; _____ No;			
Temporary Connection: _____ (Installed); _____ (Arranged For);				Bus Route: _____ Yes; _____ No;			
From: _____; To: _____				Post for No Parking: _____ Yes; _____ No;			
Fill-up: _____ (Time On); _____ (Time Off); _____							
PROPERTY DAMAGE: Yes: _____; No _____;							
OTHER REMARKS / OBSERVATIONS:							
TWE 03/0401							

Clearances and Locations Work Group

- Provides: drawings, utility locations, location numbers and forms.
- Coordinates the removal of obstructions if required.



Daily Work Sheet

- The daily work sheet is created to provide other departments with the location of the Water & Sewer work being performed.

DATE: Friday May 9 - 03												
Water and Sewer Maintenance Section												
:W&SMT1												
STATUS	LOCATION	REPAIR TYPE	PRIORITY	JOB #	Loc.	ACTIVITY	GL	SIGNING	GIS	UTL-LOC.	STAFFING	
Current	1006 Tiffin Crescent	Sanitary Connection	MBL	664	3112	5-6500	05-270	S/S			LABOURERS -	Parker/Klassen
2nd	Massey Drive & Marr Avenue	Water Main	MP1	146	3114	5-6100	02-150	On Site			BACKHOE OPERATOR -	Dmytrowich - 2343
Hold	175/303 Delaronde Road	Repair C/B Lead	MP1	775	3079	5-6710	07-310	On Site	27126		T/A OPERATORS -	Pingue
Hold	Arnhem St. & McNaughton Avenue	Hydrant (McAvity)	MP2	243	3059	5-6300	02-160	On Site	23535			
Hold	Field House	Water Connection	MBL	49246	1724067	5-6410	02-170	Crew				
:W&SMT2												
STATUS	LOCATION	REPAIR TYPE	PRIORITY	JOB #	Loc.	ACTIVITY	GL	SIGNING	GIS	UTL-LOC.	STAFFING	
Hold	Clarence Avenue - 8th St. - 9th St.	Water Main	MP1	146	3115	5-6100	02-150	S/S			LABOURERS -	
Hold	15 Moxon Crescent	Sanitary Connection	MBL	664	3108	5-6500	05-270	S/S			BACKHOE OPERATOR -	
			MBL								T/A OPERATORS -	
			MBL									
			MBL									
:W&SMT3												
STATUS	LOCATION	REPAIR TYPE	PRIORITY	JOB #	Loc.	ACTIVITY	GL	SIGNING	GIS	UTL-LOC.	STAFFING	
Hold	Dudley Street	Sanitary Connection	FMP	46806	1724067	5-6100	17-596	N/A			LABOURERS -	
			MBL								BACKHOE OPERATOR -	
			MBL								T/A OPERATORS -	
			MBL									
Hold	8th Street Yard	Cleanup Yard	MBL	49195	1724067	5-6100	02-150	N/A				
:W&SMT4												
STATUS	LOCATION	REPAIR TYPE	PRIORITY	JOB #	Loc.	ACTIVITY	GL	SIGNING	GIS	UTL-LOC.	STAFFING	
Hold	Isabella Street / Eastlake Avenue	Repair C/B Lead	MBL	48959	1724067	5-6710	07-310	S/S			LABOURERS -	
Hold	Isabella Street / Eastlake Avenue	Valve (WPL)	MP2	146	3031	5-6200	02-150	S/S	1168		T/A OPERATORS -	
			MBL									
			MBL									
DAY OFF/EDO		VACATION:		SICK:		OTHER:		ADDITIONAL STAFFING:				
Ross, Young, Maskwa & Crews, Olchove,		Hilton, Swidzinski				Collins - Medical		Loader - Cousins @ Landfill -				
Priority Legend												
(MP1) Maintenance Priority - (MBL) Maintenance Backlog - (MPS) Maintenance Program Support - (FMP) Funded Maintenance Program												
Pending Water & Sewer Work												
STATUS	LOCATION	REPAIR TYPE	PRIORITY	JOB #	Loc.	ACTIVITY	GL	SIGNING	GIS			
Hold	Boychuck Dr. South of Taylor St.	San MH F&C	MBL	760	3010	5-6620	07-310	Crew	21925			
Hold	Boychuck Dr. South of Taylor St.	San MH F&C	MBL	760	3010	5-6620	07-310	Crew	21924			
Hold	4200 Block Taylor Street	San MH F&C	MBL	563		5-6620	05-260	Crew	8575			
Hold	412 Avenue C South	Stop (C&S)	MP2	48237	1724067	5-6400	02-170	S/S				
Hold	213 Avenue I South	Stop (C&S)	MP2	48150	1724067	5-6400	02-170	S/S				
Hold	4th Avenue & 23th Street	San Top	MBL	573	3012	5-6620	05-260	S/S	3813			
Hold	Ottawa Avenue / 20th Street	San Bev Top	FMP	573	3068	5-6620	05-260	S/S	3231			

Daily Work Sheet Section A

- Section A shows the tasks for each Supervisor IV.

DATE: Friday May 9 - 03							
Water and Sewer Maintenance Section A							
PIECOWYEW&SMT1							
STATUS	LOCATION:	REPAIR TYPE	PRIORITY	JOB #	Loc:	ACTIVITY:	GL
Current	1006 Tiffin Crescent	Sanitary Connection	MBL	664	3112	5-6500	05-270
2nd	Massey Drive & Marr Avenue	Water Main	MP1	146	3114	5-6100	02-150
Hold	175/303 Delaronde Road	Repair C/B Lead	MP1	775	3079	5-6710	07-310
Hold	Arnhem St. & McNaughton Avenue	Hydrant (McAvery)	MP2	243	3059	5-6300	02-160
Hold	Field House	Water Connection	MBL	49246	1724067	5-6410	02-170
:W&SMT2							
STATUS	LOCATION:	REPAIR TYPE	PRIORITY	JOB #	Loc:	ACTIVITY:	GL
Hold	Clarence Avenue - 8th St. - 9th St.	Water Main	MP1	146	3115	5-6100	02-150
Hold	15 Moxon Crescent	Sanitary Connection	MBL	664	3108	5-6500	05-270
			MBL				
			MBL				
			MBL				
:W&SMT3							
STATUS	LOCATION:	REPAIR TYPE	PRIORITY	JOB #	Loc:	ACTIVITY:	GL
Hold	Dudley Street	Cathodic Protection	FMP	46806	1724067	5-6100	17-596
			MBL				
			MBL				
			MBL				
Hold	8th Street Yard	Cleanup Yard	MBL	49195	1724067	5-6100	02-150
:W&SMT4							
STATUS	LOCATION:	REPAIR TYPE	PRIORITY	JOB #	Loc:	ACTIVITY:	GL
			MBL				
Hold	Isabella Street / Eastlake Avenue	Repair C/B Lead	MBL	48959	1724067	5-6710	07-310
Hold	Isabella Street / Eastlake Avenue	Valve (WPL)	MP2	146	3031	5-6200	02-150
			MBL				
			MBL				
DAY OFF/EDO		VACATION:		SICK:			
Ross, Young, Maskwa & Crews, Olchove,		Hilton, Swidzinski				Collins - Medical	
Priority Legend							
(MP1) Maintenance Priority - (MBL) Maintenance Backlog - (MPS) Maintenance Program Support - (FMP) F							

Daily Work Sheet Section B

- Section B shows the rest of the row of tasks for each Supervisor IV.

on					
SIGNING:	GIS	UTL>LOC:	STAFFING:		COMMENTS:
S/S			LABOURERS -	Parker/Klassen	
On Site			BACKHOE OPERATOR -	Dmytrowich - 2343	
On Site	27126		T/A OPERATORS -	Pingue	Gravel required to complete
On Site	23535				
Crew					
SIGNING:	GIS	UTL>LOC:	STAFFING:		COMMENTS:
S/S			LABOURERS -		No homes out!
S/S			BACKHOE OPERATOR -		
			T/A OPERATORS -		
SIGNING:	GIS	UTL>LOC:	STAFFING:		COMMENTS:
N/A			LABOURERS -		
			BACKHOE OPERATOR -		
			T/A OPERATORS -		
N/A					
SIGNING:	GIS	UTL>LOC:	STAFFING:		COMMENTS:
			LABOURERS -		
S/S			BACKHOE OPERATOR -		
S/S	1168		T/A OPERATORS -		
OTHER:			ADDITIONAL STAFFING:		COMMENTS:
			Loader - Cousins @ Landfill -		
unded Maintenance Program					

Daily Work Sheet Section C

- Section C shows work pending.

Pending Water & Sewer Work									
STATUS	LOCATION:	REPAIR TYPE	PRIORITY	JOB #	Loc:	ACTIVITY:	GL	SIGNING:	GIS
Hold	Boychuck Dr. South of Taylor St.	Storm MH F&C	MBL	760	3010	5-6620	07-310	Crew	21925
Hold	Boychuck Dr. South of Taylor St.	Storm MH F&C	MBL	760	3010	5-6620	07-310	Crew	21924
Hold	4200 Block Taylor Street	Sanitary MH F&C	MBL	563		5-6620	05-260	Crew	8575
Hold	412 Avenue C South	Curb Stop (C&S)	MP2	48237	1724067	5-6400	02-170	S/S	3813
Hold	213 Avenue I South	Curb Stop (C&S)	MP2	48150	1724067	5-6400	02-170	S/S	
Hold	4th Avenue & 23th Street	San Bev Top	MBL	573	3012	5-6620	05-260	S/S	
Hold	Ottawa Avenue / 20th Street	San Bev Top	FMP	573	3068	5-6620	05-260	S/S	3231

Pick up Materials









- The Supervisor IV will pick up the required materials



Marking Utilities

- Representatives from utility companies can field locate their lines if required.

APWA Colour Codes

	Electric Power Lines
	Gas, Oil, or Steam
	Communications Lines, Cables, or Conduit
	Potable Water
	Reclaimed Water, Irrigation, and Slurry Lines
	Sewers and Drain Lines
	Temporary Survey Markings
	Proposed Excavation

Choosing Equipment

- Dimensions of the excavation will determine the type of shoring selected.



Trailer Placement

- Locate trailers clear of the excavation.



Emergency Water Supply Trailer

- Water trailers and temporary hook ups are options to consider when there is a water outage.
- .



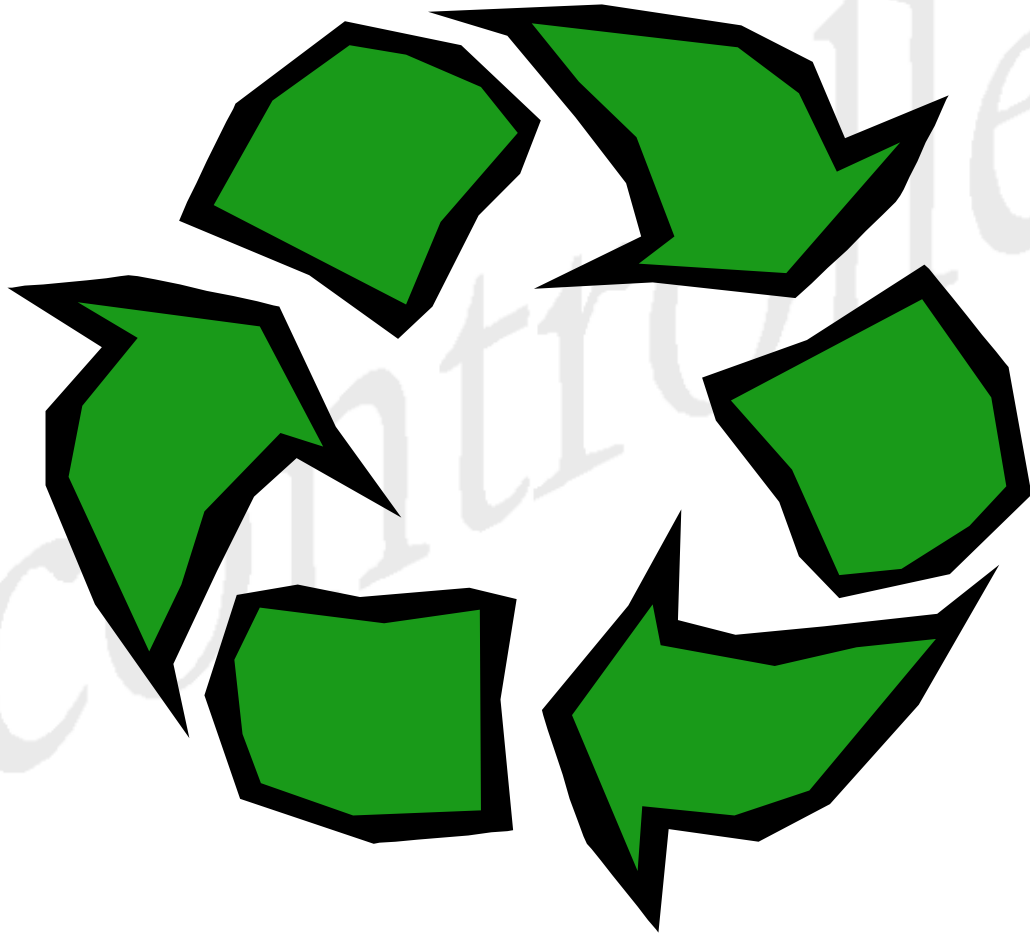
Cutting Asphalt or Concrete

- Cut the asphalt or concrete before excavating..



Recycling Asphalt or Concrete

- The asphalt or concrete can be recycled.



Excavation

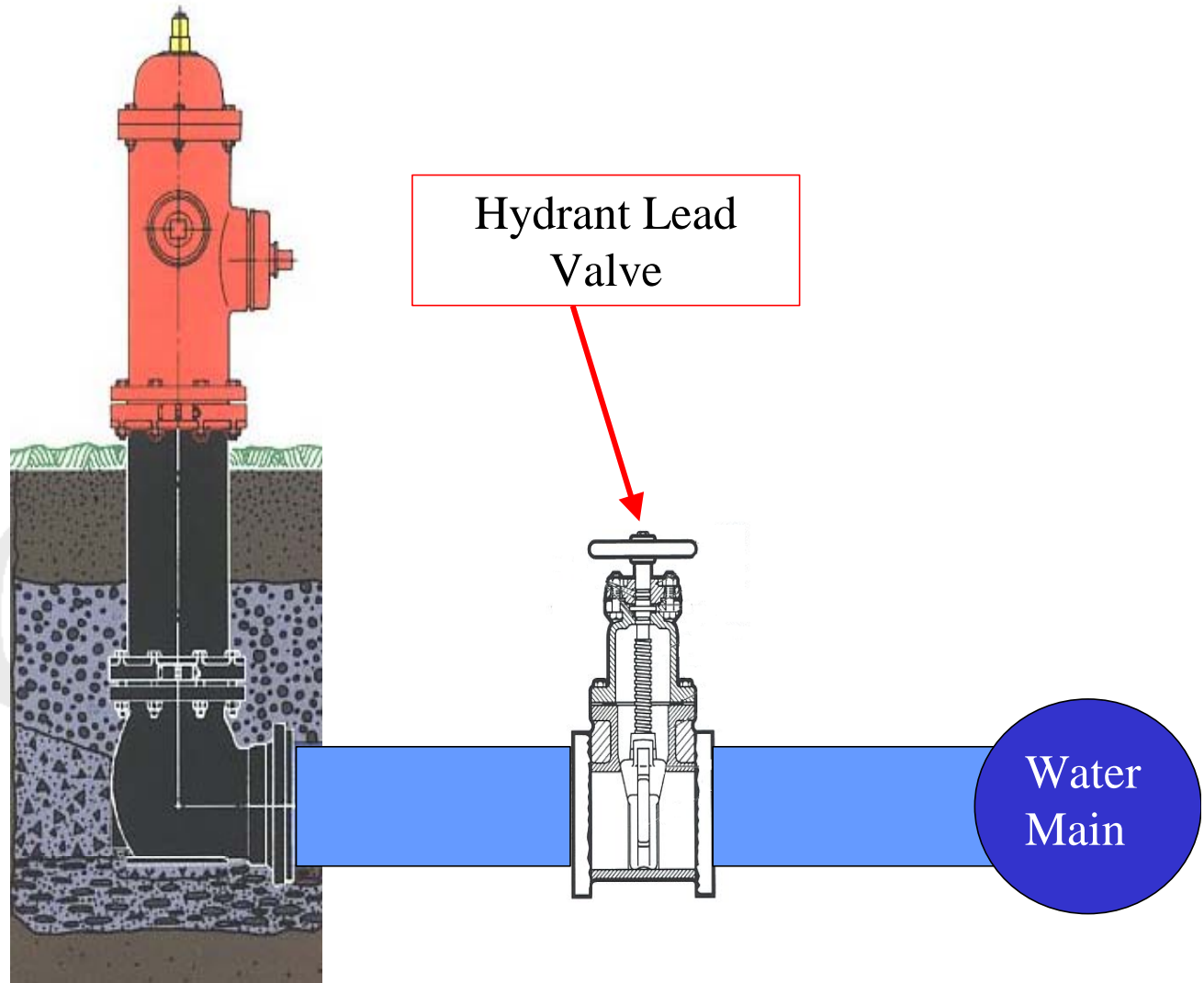
- Excavate on the opposite side of the sewermain.



Hydrant Lead Valve

1

- In certain areas a hydrant lead valve must be installed.



Spoil Pile

- The trench will be sorted into salvageable material and non-salvageable material.



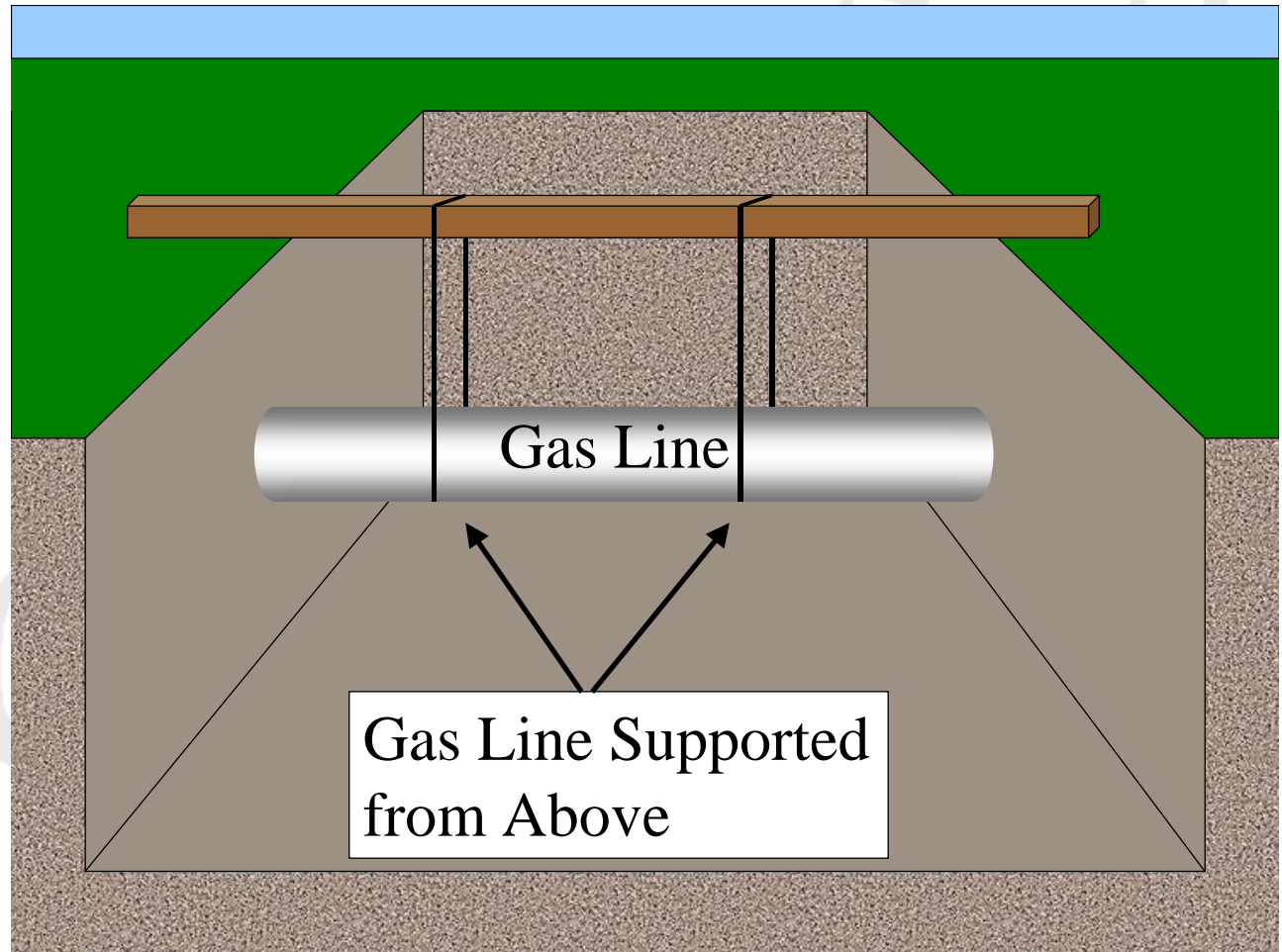
Utility Depths

- Establish utility depths using the feeling rod.



Supported Utility

- Other Utilities must be supported



General Excavation Safety



Gas Line Safety

- In the event of a natural gas line hit the machine shall be immediately turned off



Power Line Safety

- Should a power line come to rest on the equipment, do not exit the equipment



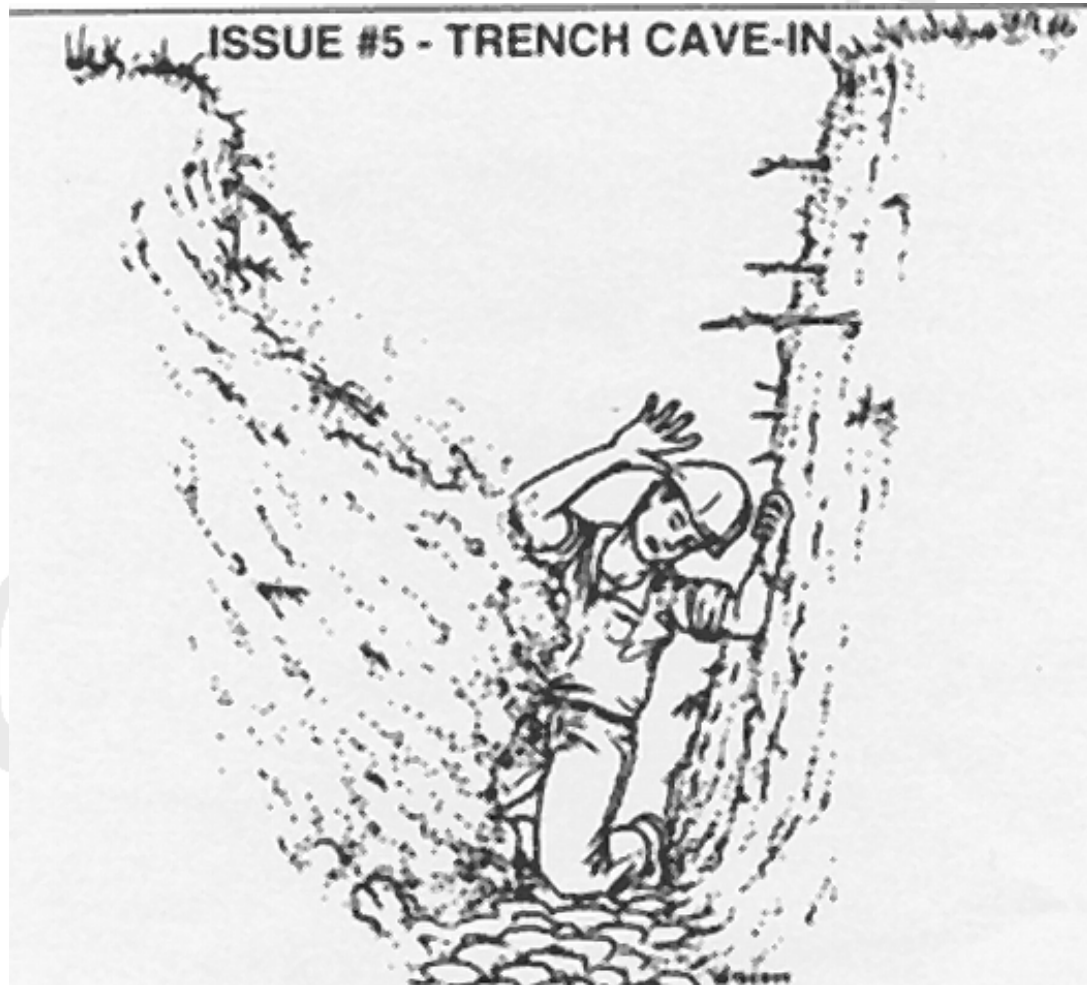
Excavation Safety

- Don't get between the excavator bucket and the truck being loaded.



Trench Cave-in

- Protective structures must be used.



Preparing for Repair



Shoring on Trailer

- Inspect the shoring before use.



Unloading Shoring

- Hook up shoring lifting chains appropriately



Shoring Installation

- Use excavator/backhoe to install shoring.



Hydraulic Expansion of Shoring

- Expand shoring side panels to be tight against the excavation walls.



Tool Disinfection

- All tools must be disinfected prior to use on a water main.



Tool Disinfection

- Soak items with disinfectant solution (Min 5% Sodium Hypo-chlorite solution).



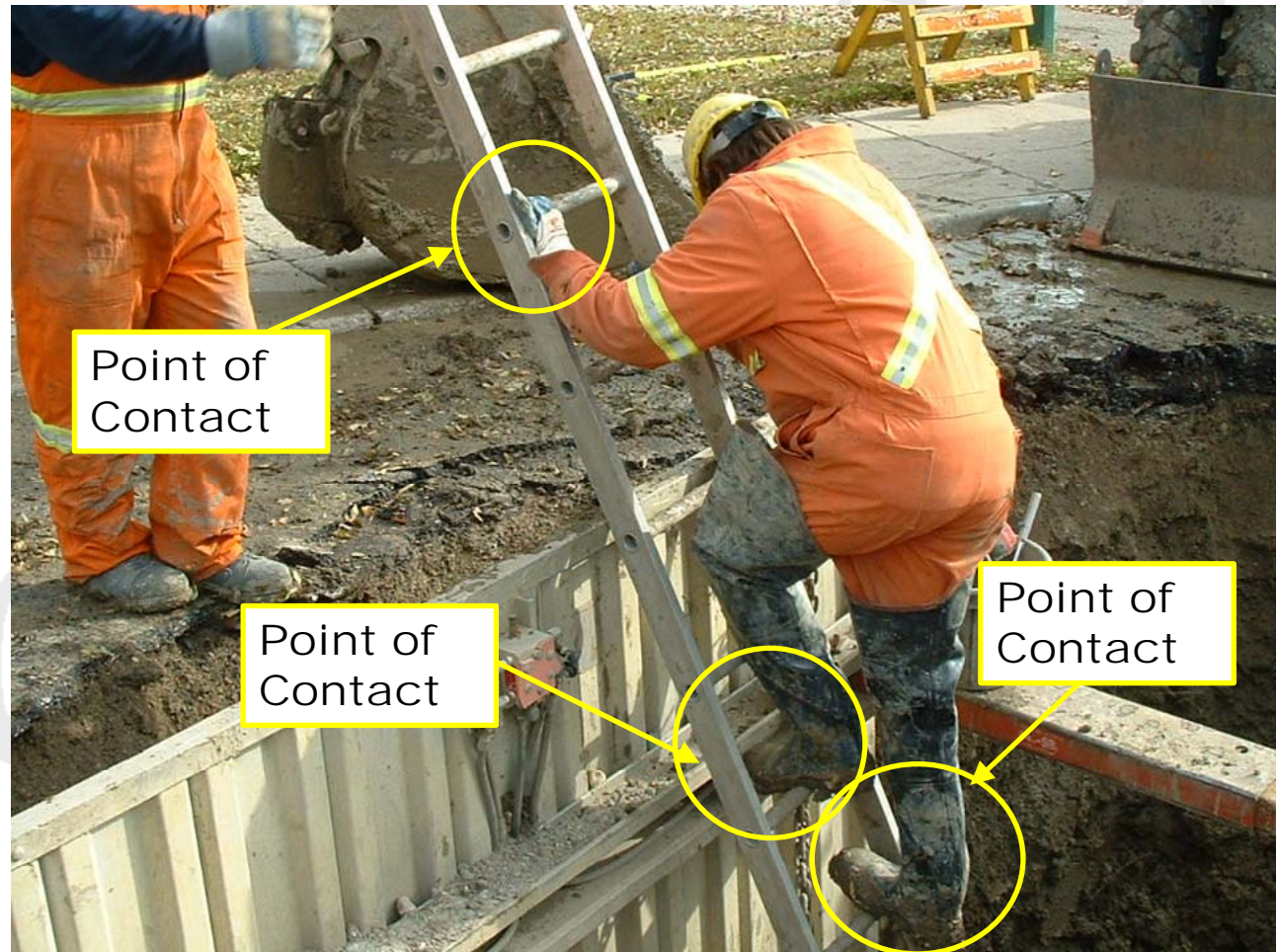
Enter Excavation

- Bottom Labourer may enter excavation.



Three Points of Contact

- Keep three point of contact with the ladder.



Submersible Pump

- Should an excess amount of water be observed in the trench, install a submersible pump.



Lead Replacement

- Extend lead replacement past the face of curb.



Secure Hydrant

- Existing hydrant secured.



Cut Pipe

- Cut pipe using the quickie saw.



Cutting A/C Pipe

- Tile cutters shall be used for A/C pipe.
- Keep pipe wet while cutting to minimize airborne particles.



Hydraulic Pipe Cutters

- Hydraulic cutters can be used on CI pipe.



Remove Hydrant

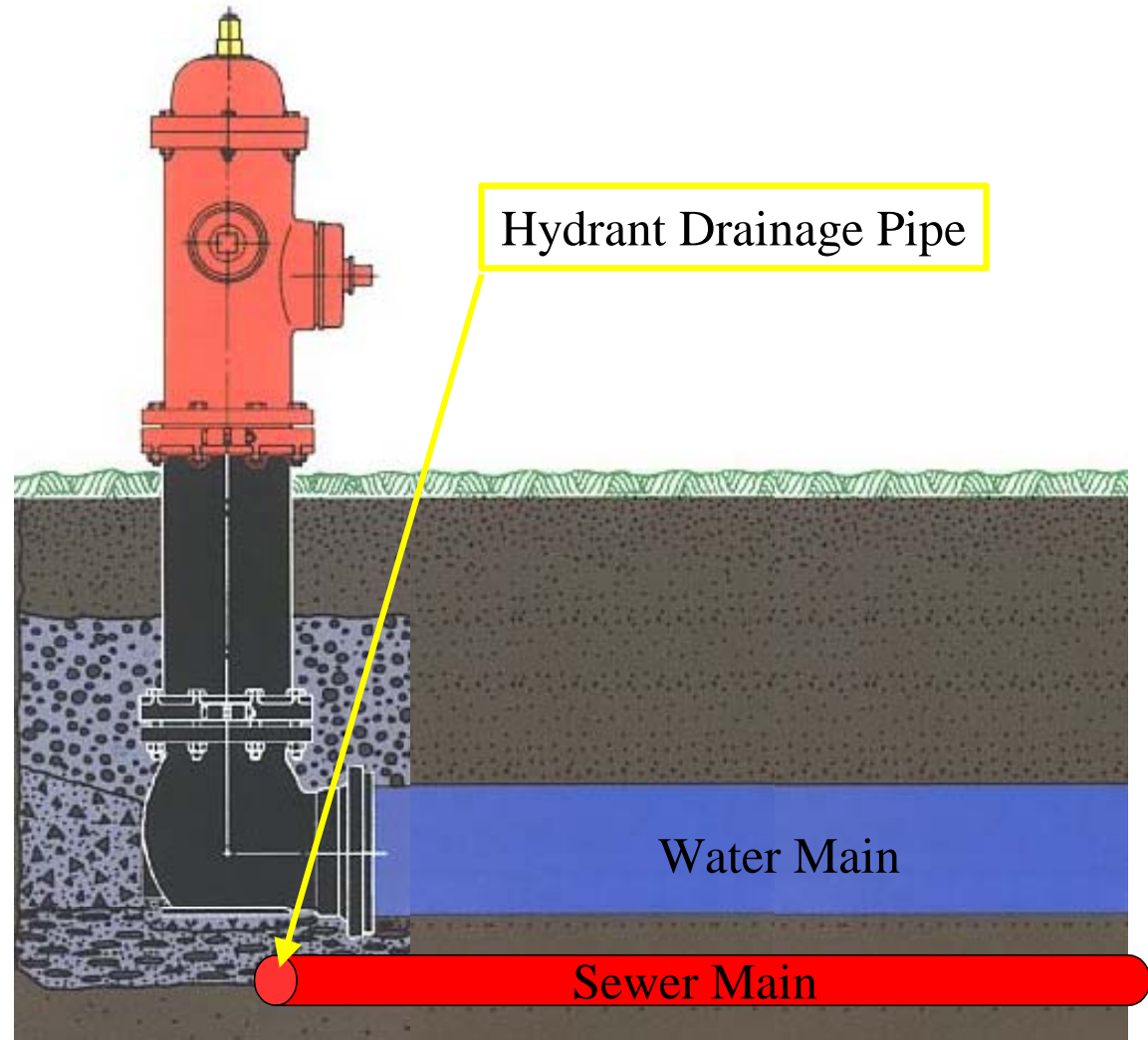
- Remove hydrant.



Expose Drain Pipe

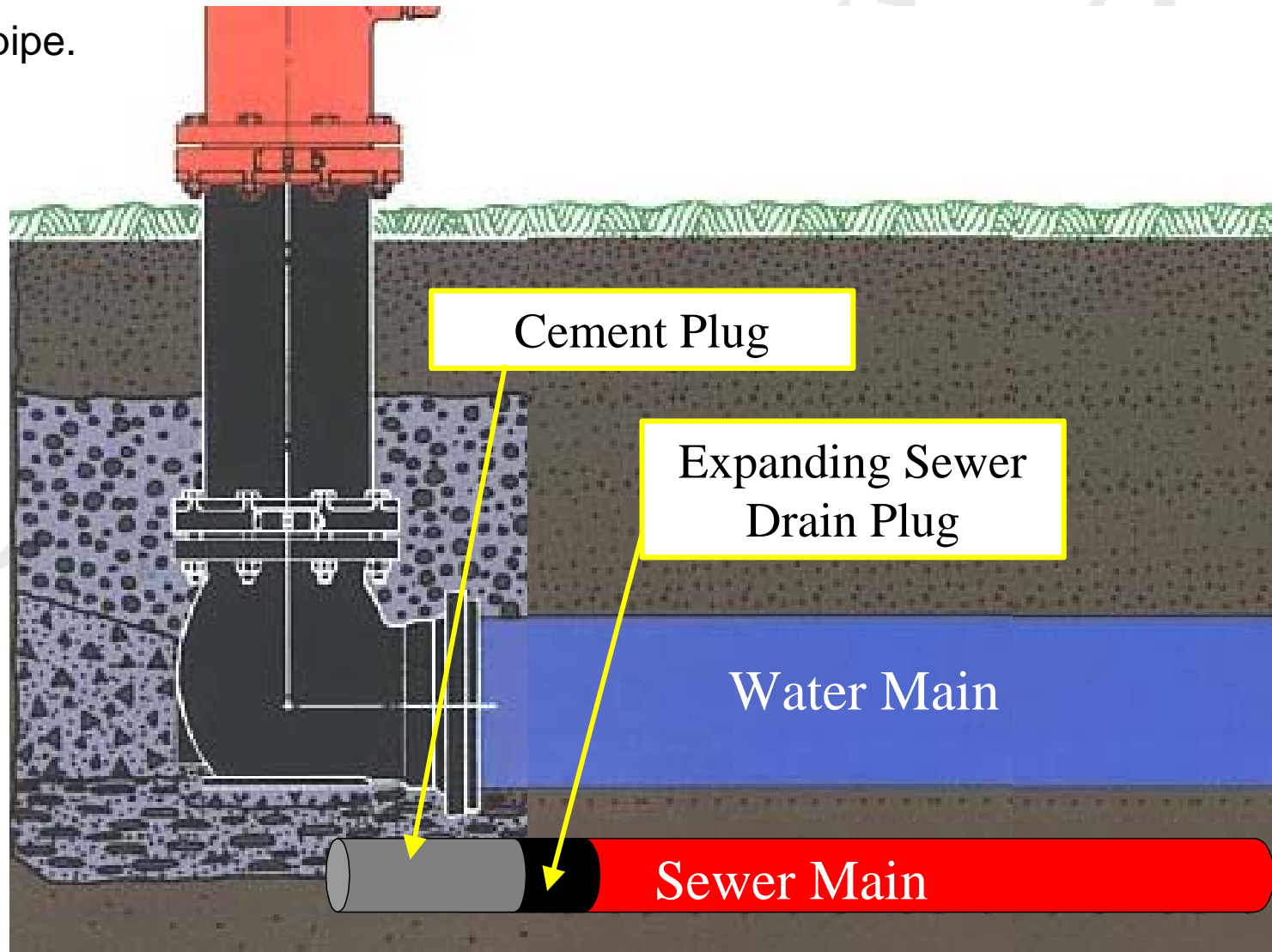
1

- Expose drain pipe if applicable.



Blocking off Drain Pipe

- Block off drain pipe.



Add Bedding

- Have Excavator/Backhoe add crushed rocks for bedding and drain pit.



Level Base

- Level base for new hydrant.



Level Concrete Block

- Place and level concrete block.



Measurement for Pipe

- Measurement from old pipe.



New Pipe

- Cut and file edge of new pipe.



Clean Pipe

- Clean remaining pipe to facilitate coupler.



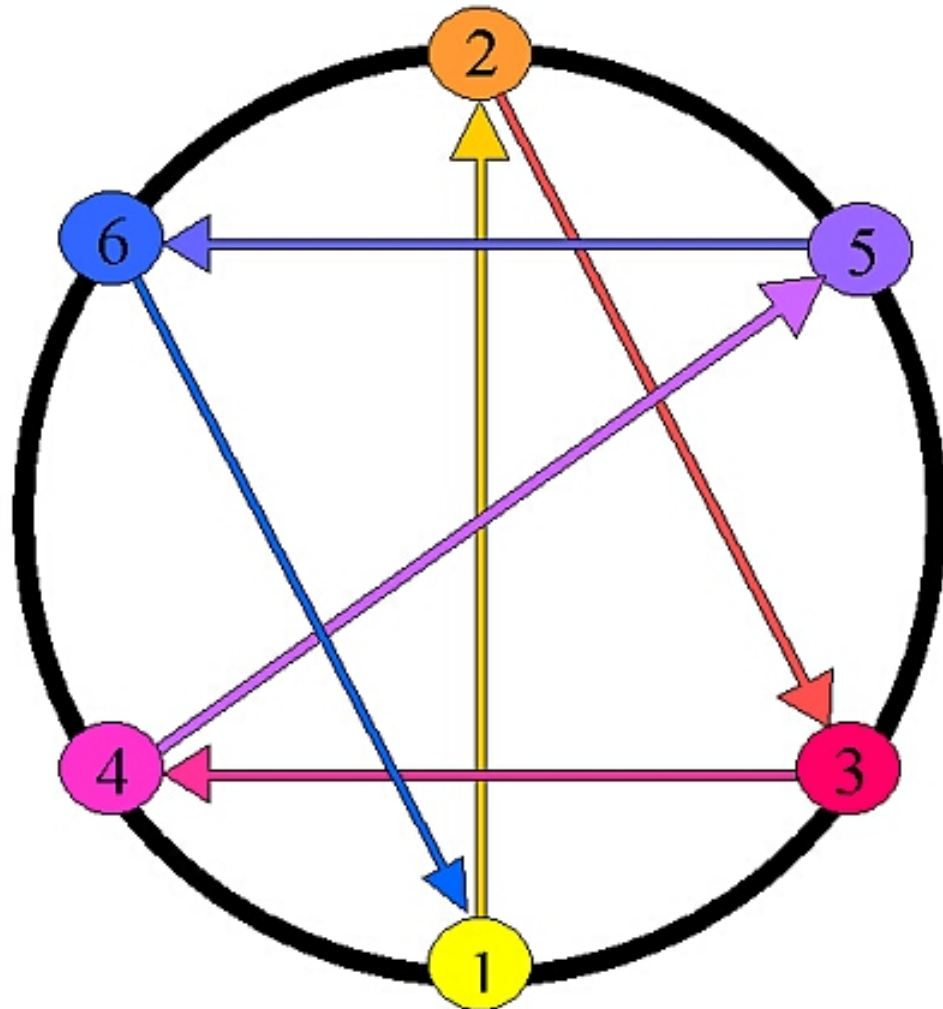
Install Coupler

- Sliding coupler over one end of pipe.



Bolt Torque Pattern

- Bolt torque pattern.



Protecto Caps

- Maxi-fit couplers use Protecto caps.



Support Coupler

- Support coupler with treated blocks



Hydrant Installation



Check Hydrant Rubber

- Check the hydrant rubber.



Grease with Lubricant

- Grease pipe and hydrant with lubricant.



Hydrant Lifting Apparatus

- Connect the new hydrant to the hydrant lifting apparatus.



Lower Hydrant

- Lowering hydrant.



Aligning Hydrant

- Aligning Hydrant with the new pipe.



Check Hydrant

- Check level and position



Hydrant Breakaway Flange

- Set the height of the hydrant breakaway flange.



Open Hydrant

- Open hydrant port & attach hose.



Connect Pipe and Hydrant

- Connecting pipe and hydrant.



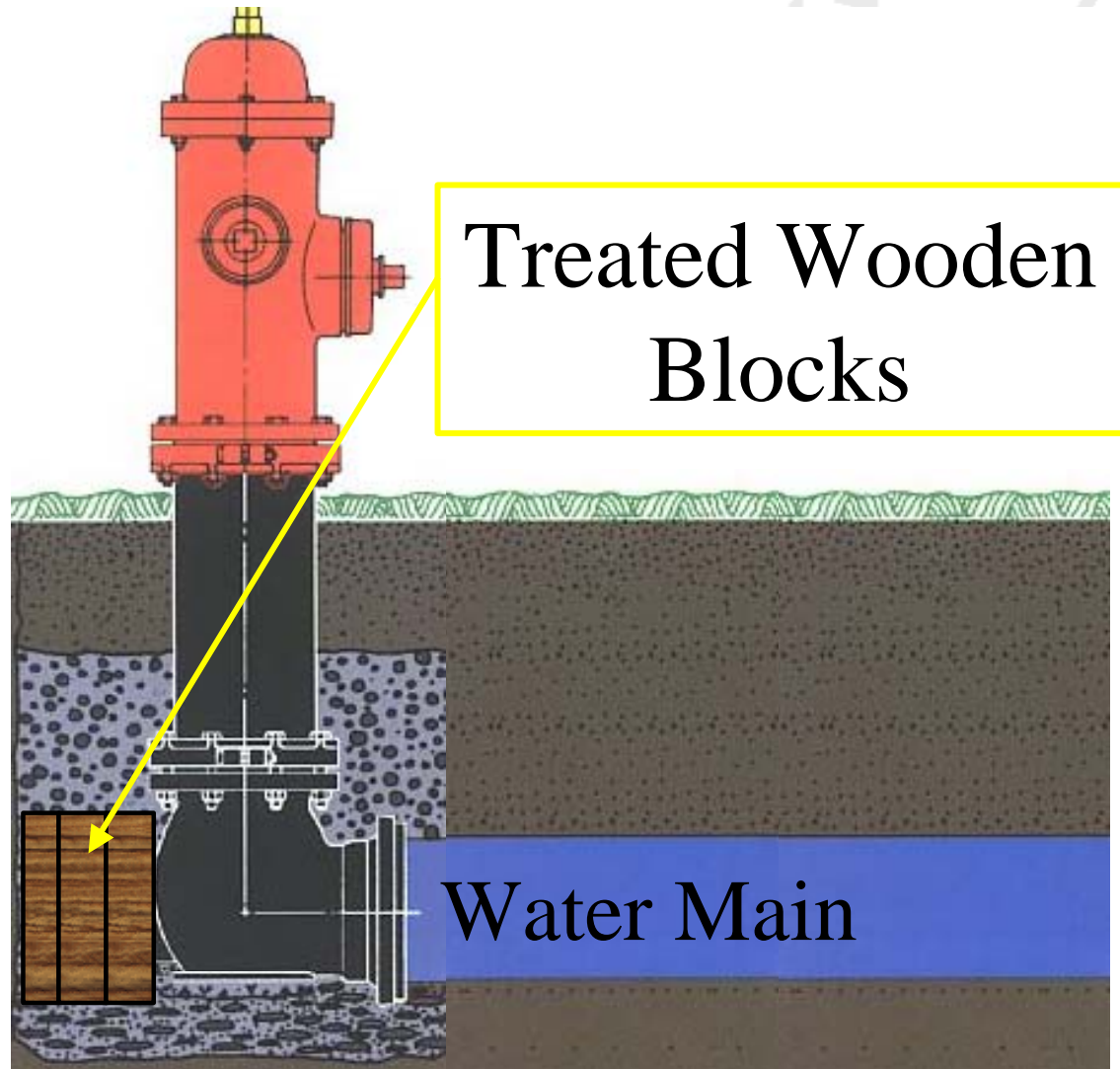
Install Blocks

- Install treated wooded thrust block behind the hydrant.

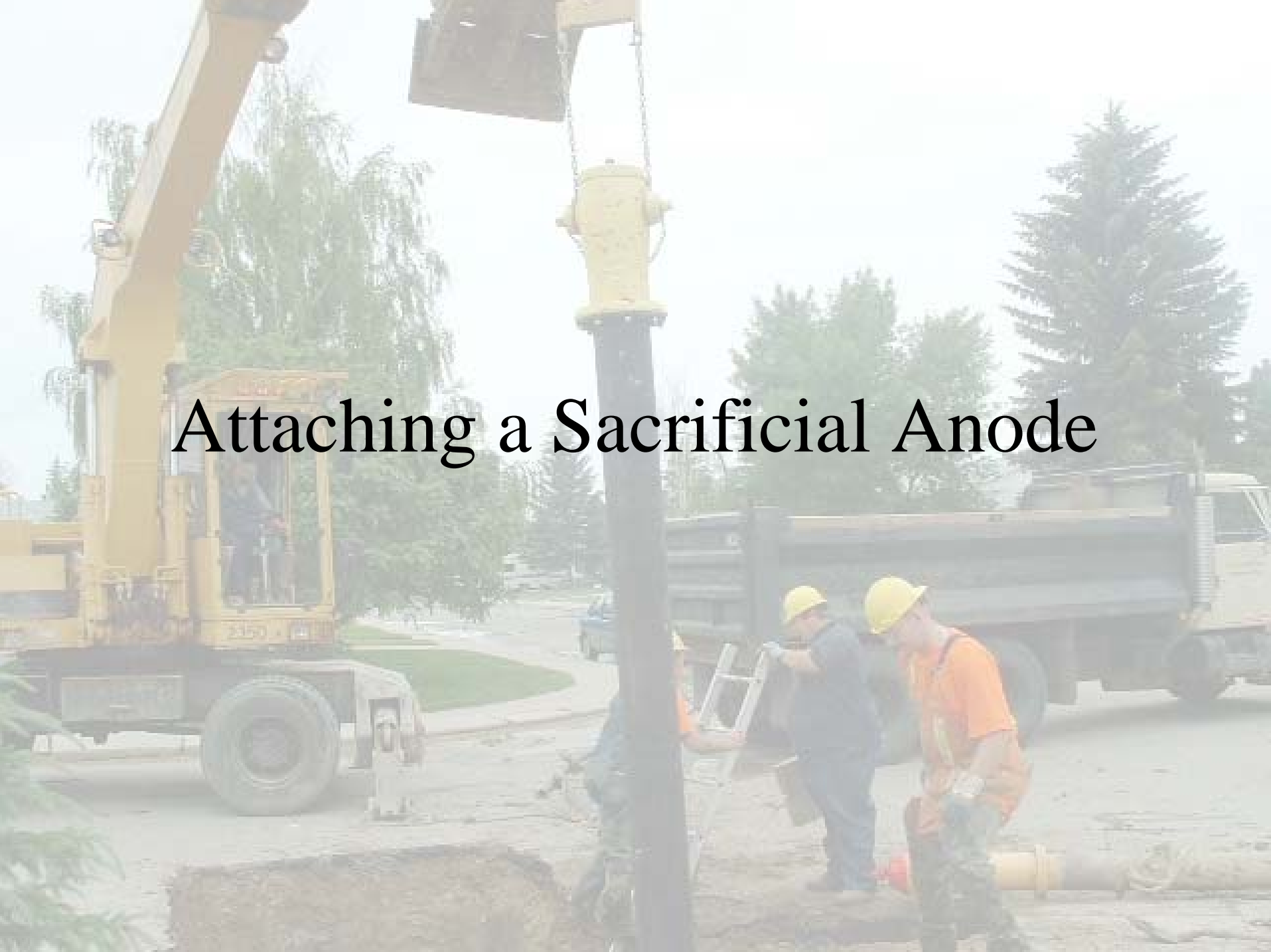


Treated Wooden Blocks

- Prevent the hydrant from pushing back new pipe when under pressure.



Attaching a Sacrificial Anode



Anodes

- The 36-lb. sacrificial anode must be installed on metallic pipe



Preparation for Anode Installation

- File pipe to bare metal at the point of anode wire attachment.



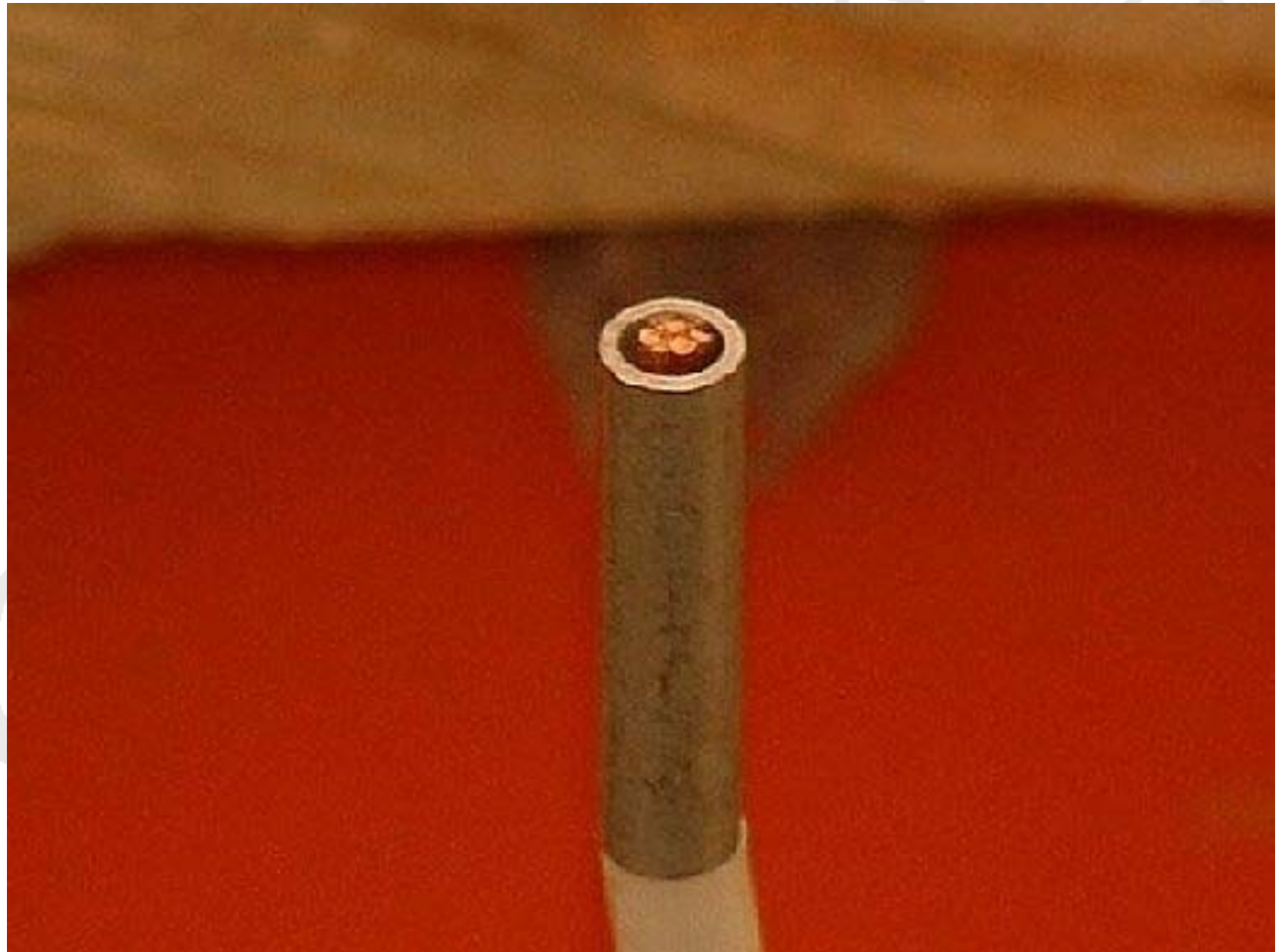
Cadweld Charge

- Prep Cadweld with charge.



Sleeve on Anode Wire

- Insert stripped anode wire into sleeve.



Attach Wire to Pipe

- Attach the anode's wire to pipe, with the Cadweld connector.



Lighting Cadweld

- Prepare to light Cadweld.
- A face shield and goggles must be worn when igniting the Cadweld.



Ignite Charge

- Cadweld lit.



Check Weld

- Check that weld is attached.



Protect Weld

- Protect the weld from corrosion.



Wet Anode

- Soak anodes with water before backfilling.



Post-Repair



Exit Excavation

- Remove all hand tools from excavation.
- Exit and remove ladder.



Throttle Valve

- Attach throttle valve and hose.



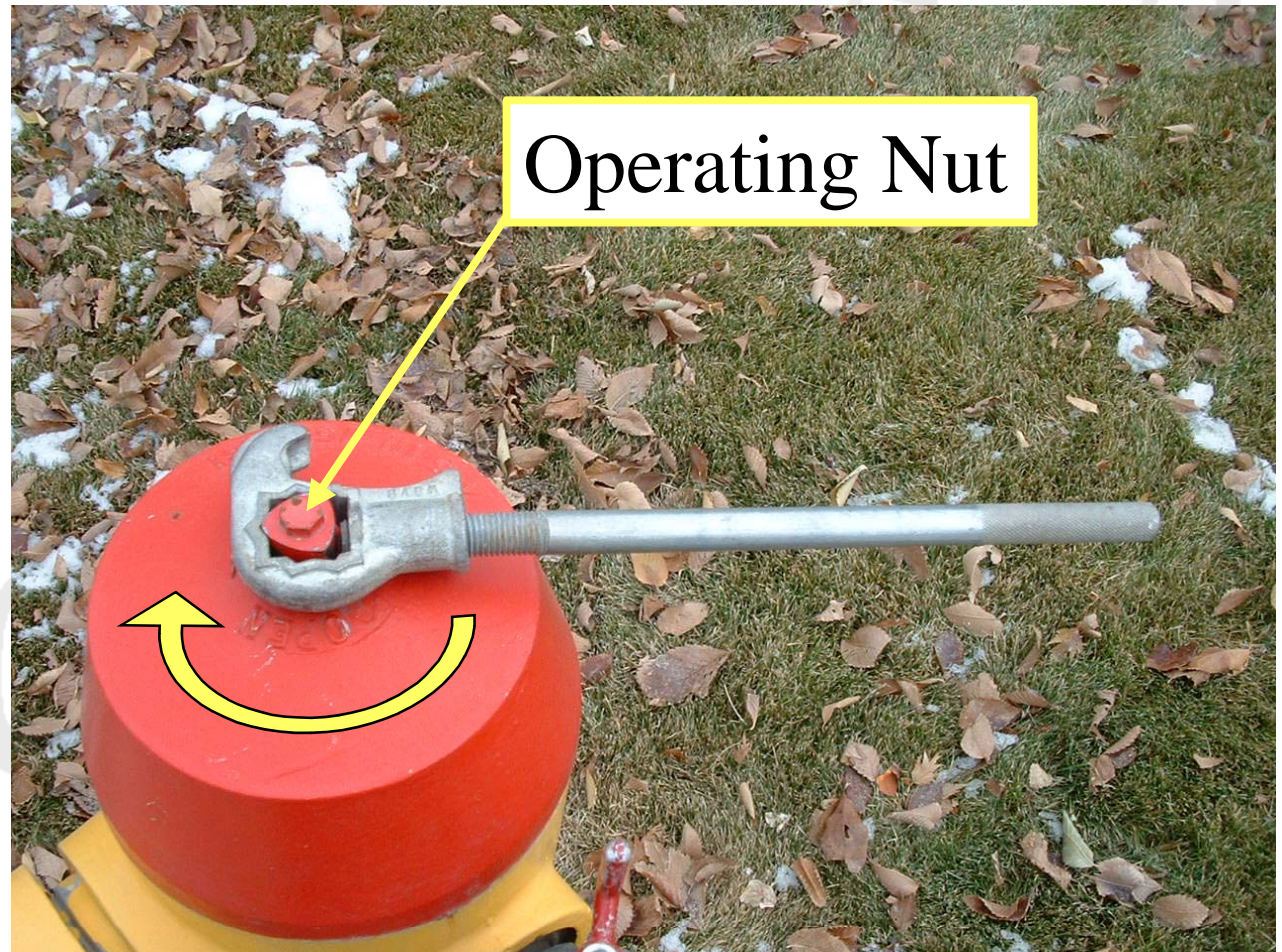
Throttle valve

- Disinfect throttle valve.



Open Hydrant

- Opening hydrant.



Hydrant Flushing

- Open valve and and hydrant.



Water Testing

- Test water for turbidity, chlorine and bacteria.



Close Hydrant

- Close the hydrant slowly.

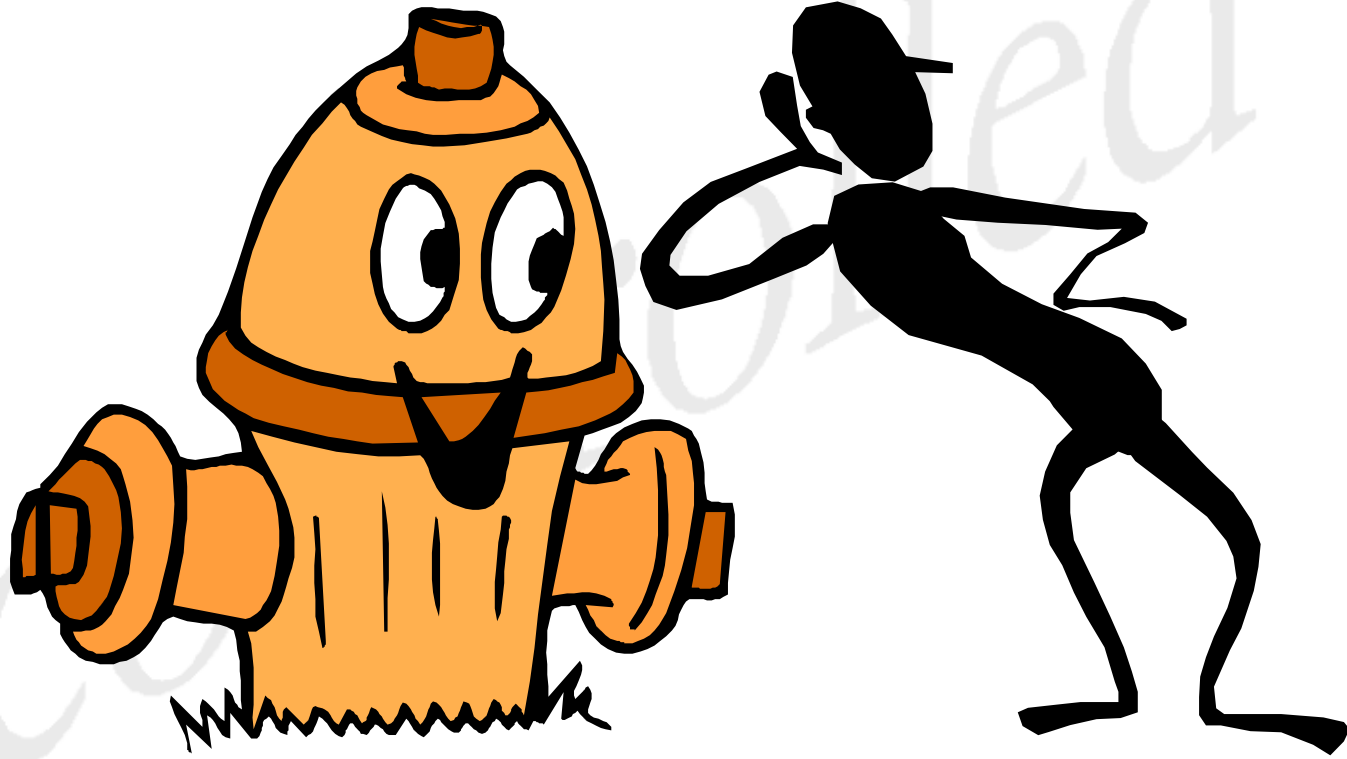


- 4



Ensuring Hydrant Closure

- Ensure hydrant is closed.



If Hydrant will not Close

- If hydrant is not closing down properly, re-flush.



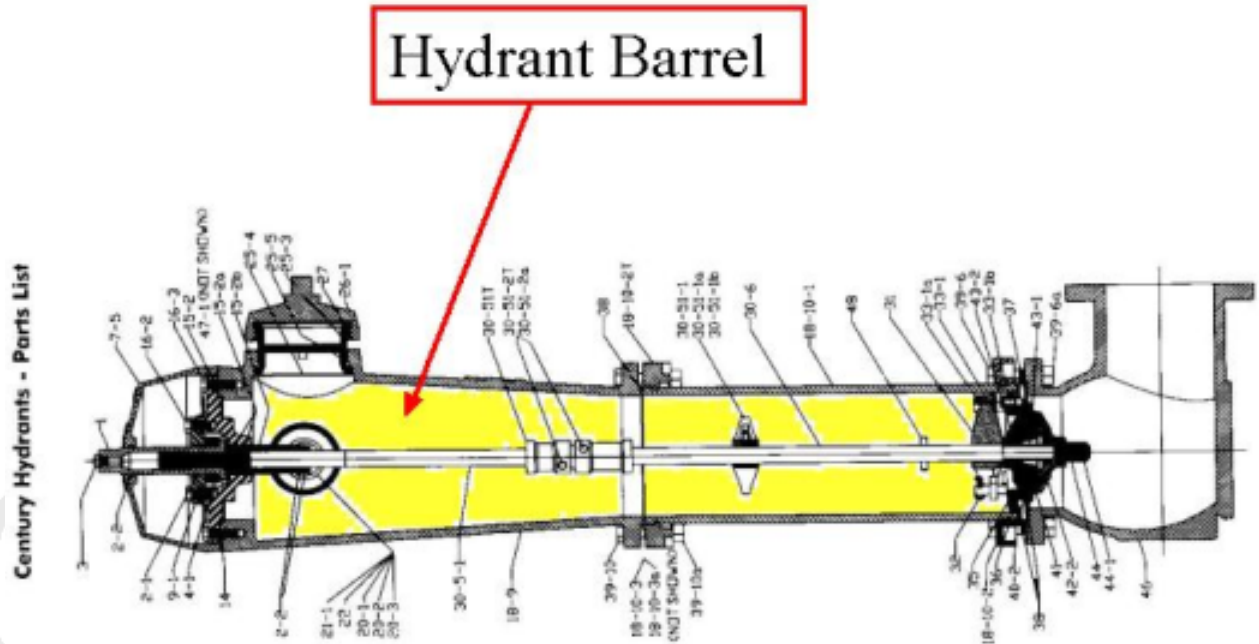
When Hydrant is Closed

- When the water flow has stopped.



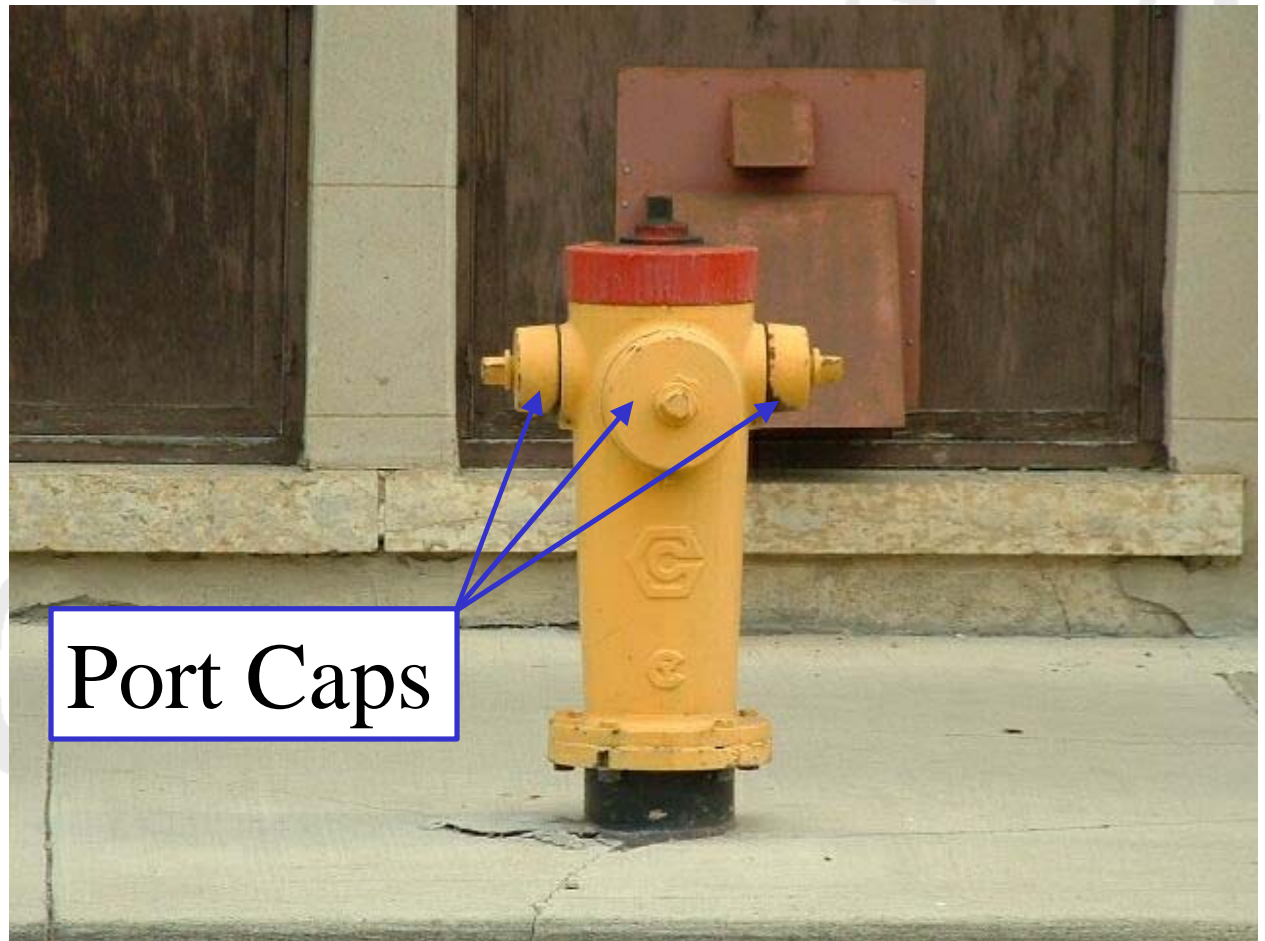
Hydrant Barrel

- Check for proper drainage from the barrel.



Port Caps

- Replace the port cap.



Closing Caps

- Once the hydrant has drained completely, tighten the port caps with a hydrant wrench.



Checking for Leaks

- Check repair for leaks.



Shoring Removal

- Excavator/Backhoe operator removes shoring from excavation, placing it on a trailer.



Backfilling



Add Crushed Rock

- Install crushed rock.



Excavation Backfilling

- Remove unsuitable material below pipe.



Hydrant alignment

- Check alignment.



Backfilling

- Use clean backfill material.



Non-shrink Backfill

- Non-shrink backfill shall be used where concrete or brick will be replaced.



Backfilling Other Utilities

- Ensure utilities are supported according to the specifications of the owner of the utility.



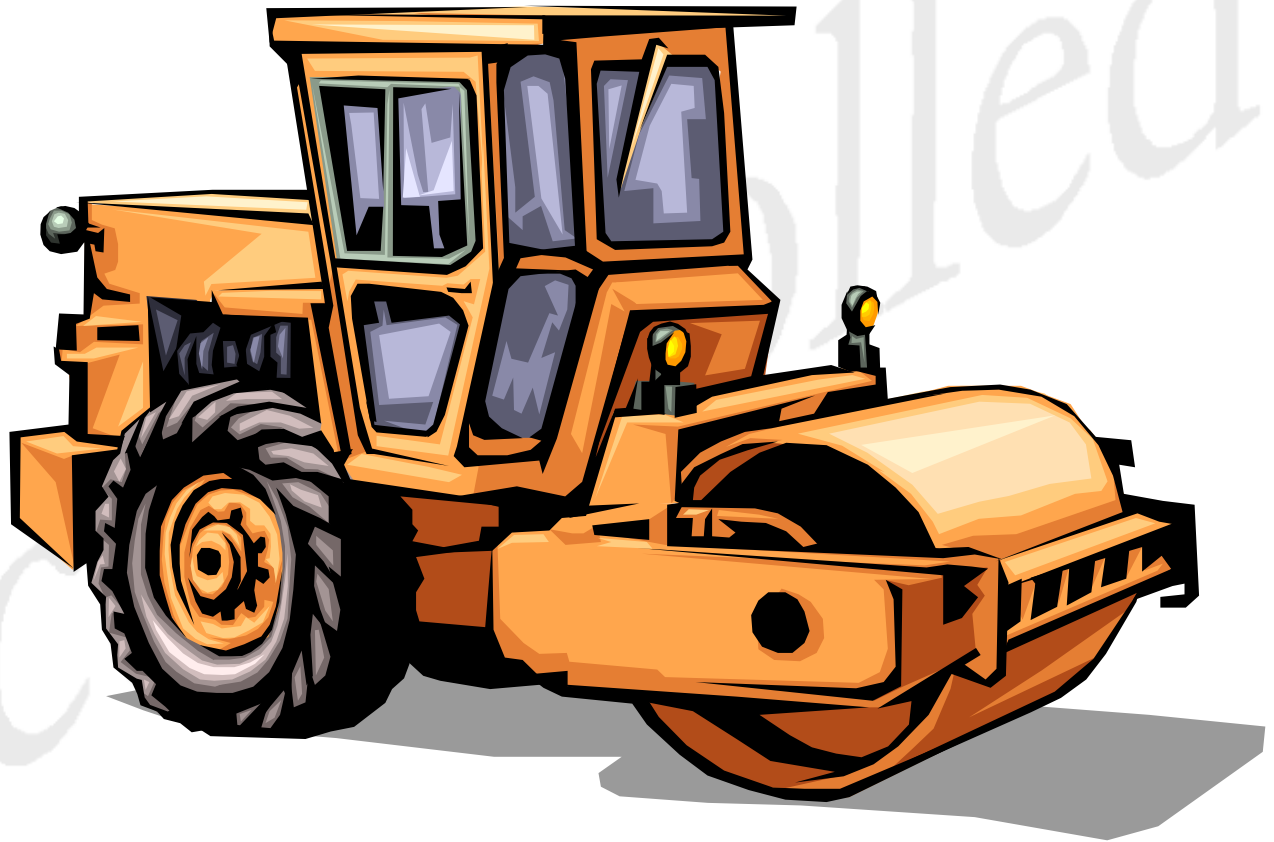
Acceptable Backfill Material

- Acceptable quality of backfill material



Methods of Compaction

- Mechanical Methods of compaction are required.



Hydraulic Tamper

- Hydraulic tamper [excavator attachment] cannot be used closer than 1m [3ft.] directly above pipe or service.



Walk Behind Tamper

- Walk behind vibratory compactor.



Handheld Plate Tamper

- Backfill is 150mm [6inch.] lifts.



Vibratory Roller

- Vibratory roller is best suitable for larger excavations and should be used in 150mm [6 inch.] lifts.



Bucket Tamping

- Bucket tamping should be avoided.



Finished Backfill

- Leave adequate room for asphalt or concrete as per the Roadway Section's instruction.



Road Signs

- Remove unnecessary road signs.



Site Restoration

- Others will perform the site restoration.





Are there any Questions?