 <p>HEALTH, SAFETY & ENVIRONMENTAL PROGRAM</p>	Section: Safe Job Practices and Procedure – Watermain Work					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Installation and repair of watermains		# OF PAGES:	4

SAFE WORK PRACTICES

The protection of municipal drinking water is obviously a top priority when working with and connecting to existing watermain structures. J-AAR employees must strictly follow all provincial and municipal regulations and procedures.

Water systems can only be operated by authorized and appropriately licensed personnel.

To be clear, employees of J-AAR or their subcontractors are not permitted to operate water valves or any other components of the drinking water system at any time. Only authorized municipal or appointed personnel may operate drinking water systems.

Pressurized Watermains

Because of the high risk and potential injury hazards related to working on live or pressurized watermains, the following policy will be strictly enforced.

J-AAR’s policy is that NO work is allowed to be conducted on live or pressurized watermain systems unless direct approval has been given. Approval will come from Senior Management.


Workers must get approval from their Supervisor for any work on live watermains and Supervisors must get approval from Senior Management.

General

- Typically, watermain work requires trenching and/or work in confined spaces. General safe work practices are outlined below. Consult the relevant supplemental SWP’s for more detail on the work being undertaken
- Follow all torque specs and bolt patterns in the manufacturer's instructions

Trenches


- Before work begins on a trench or excavation soil type must be determined and valid locates must be obtained
- Operators who are digging in the vicinity of utilities must complete a J-AAR “Pre-Dig and Post Dig” hazard assessment
- Mechanical excavation must not be used closer than 0.3M (1’) in any direction of a utility line. It must be hand dug or completed with a hydrovac

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- There are four soil types
 - o Type 1 is hard, very dense and is only able to be penetrated manually with a small sharp object. It has low moisture content and has no signs of seepage. It can only be excavated by mechanical equipment
 - o Type 2 is very stiff, dense and is difficult to penetrate manually. It has low – medium moisture content and has a damp appearance after it is excavated
 - o Type 3 soil is soil that has previously been excavated; or soil that is stiff to firm or compact to loose consistency and has one or more of the following: signs of surface cracking; signs of water seepage; if it is dry, it may run easily into a well-defined conical pile; exhibits a low degree of internal strength
 - o Type 4 soil is soft – very soft and very loose in consistency. It is sensitive to disturbance and runs easily or flows/is wet muddy. Type 4 soils will also exert fluid pressure on structures.
- Trench safety depends greatly on the type of soil being disturbed. Trenches not protected by and engineered shoring system or box must be dug in different ways depending on soil type (no trench can have a vertical wall greater than 1.2m unless it is made of stable rock)
- Type 1 and 2 soils may have a vertical wall of 1.2m. a 1:1 slope is required once this height is reached
- Type 3 soils must be sloped at 1:1 from the floor of the trench upwards
- Type 4 soils must be sloped at least 1:3 from the floor of the trench
- Every trench must be kept reasonably clear of water

Confined Spaces

- Confined space work requires specialized training. Do not carry out this work if you are not properly trained
- Any worker required to wear fall protection equipment must be trained in its use and care. J-AAR sends all workers who are required to wear fall protection equipment to an approved Working at Heights course
- Complete J-AAR's Confined Space Entry Permit and hazard assessment. Confined space work is considered a critical task by J-AAR
- Never enter a confined space without taking the proper precautions first
- Test the atmosphere inside the space with a calibrated and bump tested gas monitor. Oxygen should be between 19.5% and 23%. If it is not, do not enter

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- Each atmospheric test should be recorded, and time stamped on the confined space entry permit
- Ensure there are no biological or chemical agents in the space
- Purge or ventilate as required
- Continually test the air in the space
- There must be an attendant who is also trained in confined space entry/hazards at the access point the entire time work is being done
- Ensure that all workers involved are wearing the correct PPE for the task/retrieval if necessary
- Inspect all PPE/equipment involved before commencing work. If anything is found to be defective, tag it and remove it from service immediately
- If hot work will be undertaken in the space a hot work permit must be completed
- If conditions in the space become hazardous stop work immediately and exit

JOB HAZARD RISK ASSESSMENT			
Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	Lack of Training	<ul style="list-style-type: none"> Specialized training is required for entry/work in a confined space ensure workers involved are all competent before commencing work All equipment operators should be competent 	5
20	Lack of Inspection	<ul style="list-style-type: none"> A confined space entry permit, including hazard assessment, must be completed before entry All tools and equipment should be inspected before work commences. If anything is found to be defective, tag it and remove from service immediately 	5
15	Lack of communication	<ul style="list-style-type: none"> Ensure all workers involved understand the tasks assigned to them Have site-specific procedures in place to ensure no worker interacts with a pressurized system 	5



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