

Backhoe Operator Assessment

Assessment	<p>This document can be used:</p> <ul style="list-style-type: none"> • For gathering evidence in a training environment, • As a competency check of knowledge on an existing worker; or • As part of a summative assessment.
Candidate Name	
Assessor Name	
Date of Assessment	
Summary of Assessment	<p><input type="checkbox"/> The candidate met all outcomes of the worker assessment</p> <p><input type="checkbox"/> The candidate has NOT met all outcomes of the worker assessment</p> <p><input type="checkbox"/> Gap training plan developed</p>
Date of Reassessment	
Summary of Reassessment	<p><input type="checkbox"/> The candidate met all outcomes of the worker assessment</p> <p><input type="checkbox"/> The candidate has NOT met all outcomes of the worker assessment</p>
Instructions	<ul style="list-style-type: none"> • Complete the assessment with the candidate, adding notes to justify your decisions. • Ensure the first page of this document is completed (all fields). • Develop a gap training plan for practical deficiencies if required. • Use the same form for reassessment (if applicable), only reassessing the areas where gaps exist. • Conduct the competency conversation before conducting the practical assessment.

Note: This worker assessment covers the technical components of a specific role. For general knowledge and a complete picture of a worker's competency, BC Forest Safety recommends the optional Basic Forest Worker competency profile and assessment tools that can be found at www.bcforestsafesafe.org.

Part 1 - Competency Conversation

General Instructions	
<p>To conduct a competency conversation, ask the worker the questions in this first part of the assessment to determine if they understand the knowledge components of their role.</p> <p>It is acceptable to rephrase the question in a way that the worker understands, but the worker cannot be given hints to the correct answer.</p> <p>The assessment should not be used as a training opportunity; instead, any deficiencies identified in this assessment should be collected into a gap training plan and addressed with the worker later.</p> <p>Important Note: Do not conduct competency conversation while operating equipment.</p>	
Assessment Instruction	<p>S - This means that the candidate must supply all responses listed, as the knowledge is safety critical or important.</p> <p>B - This means the candidate must at a minimum verbalize the bolded responses, and additional responses are further proof of competence.</p> <p>P - The candidate must give a percentage of responses correctly to reasonably show competence in the area.</p>

1081 – Describe Tools and Equipment for Heavy Machinery

Locator	Questions			
Mechanized Harvesting/Road Building				
1.1	<p>What are nine common and specialty tools used on heavy equipment?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Multi-testers <input type="checkbox"/> Inspection mirrors <input type="checkbox"/> Pick up magnets <input type="checkbox"/> Easy outs <input type="checkbox"/> Wrenches <input type="checkbox"/> Taps and dies <input type="checkbox"/> Hammers <input type="checkbox"/> Shovels <input type="checkbox"/> Drift and pry bars <input type="checkbox"/> Chisel <input type="checkbox"/> Files <input type="checkbox"/> Jack <input type="checkbox"/> Air tools <input type="checkbox"/> Impact wrenches <input type="checkbox"/> Ratchets <input type="checkbox"/> Die Grinder <input type="checkbox"/> Greaser <input type="checkbox"/> Hose press <p style="color: red;">Assessment Instruction: P – 9 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		

2.1	Name eight pieces of welding equipment and supplies use on heavy equipment <input type="checkbox"/> Oxy acetylene cutting systems <input type="checkbox"/> Air arc <input type="checkbox"/> Chip hammers <input type="checkbox"/> Propane gas torch 'tiger torch' <input type="checkbox"/> Wire brush <input type="checkbox"/> Chalk <input type="checkbox"/> Tip cleaner <input type="checkbox"/> Grinder <input type="checkbox"/> Drill <input type="checkbox"/> Cut off saw <input type="checkbox"/> Air tools <input type="checkbox"/> Flux chippers <input type="checkbox"/> Grinders <input type="checkbox"/> Vice <input type="checkbox"/> Cutting table <input type="checkbox"/> Plasma cutter Assessment Instruction: P – 8 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.2	What are three types of welding commonly used on heavy equipment? <input type="checkbox"/> Stick <input type="checkbox"/> Wire feed <input type="checkbox"/> Brazing Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

2.3	What PPE is mandatory when using welding equipment? <input type="checkbox"/> Gloves <input type="checkbox"/> Welding helmet <input type="checkbox"/> Cutting goggles <input type="checkbox"/> Fire-proof clothing <input type="checkbox"/> Safety glasses Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
3.1	What are common gas-powered tools used on heavy equipment? <input type="checkbox"/> Cut off saw <input type="checkbox"/> Pressure washers <input type="checkbox"/> Gas or electric compressors <input type="checkbox"/> Gas or diesel generators <input type="checkbox"/> Pumps <input type="checkbox"/> Plate compactor Assessment Instruction: P – 4 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

1082 – Describe General Heavy Equipment Inspection and Maintenance Procedures

Locator	Questions			
Mechanized Harvesting/Road Building				
1.1	<p>What are the major mechanical components or systems that require maintenance and inspection?</p> <p><input type="checkbox"/> Engine systems</p> <p><input type="checkbox"/> Hydraulic systems</p> <p><input type="checkbox"/> Electrical systems</p> <p><input type="checkbox"/> Attachments</p> <p><input type="checkbox"/> Undercarriage</p> <p>Assessment Instruction: S</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 40%;">Assessment</td> <td style="width: 30%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 30%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.2	<p>What are common symptoms or indicators of failure?</p> <p><input type="checkbox"/> Noise</p> <p><input type="checkbox"/> Vibration</p> <p><input type="checkbox"/> Smells</p> <p><input type="checkbox"/> Leaks</p> <p><input type="checkbox"/> Cracks</p> <p><input type="checkbox"/> Lack of power</p> <p><input type="checkbox"/> Improper function</p> <p><input type="checkbox"/> Exhaust colour</p> <p><input type="checkbox"/> Gauges</p> <p><input type="checkbox"/> Warning lights</p> <p>Assessment Instruction: P – 7 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 40%;">Assessment</td> <td style="width: 30%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 30%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		

2.1	What are the three main pre-start procedures? <input type="checkbox"/> External visual equipment checks <input type="checkbox"/> Fluid checks <input type="checkbox"/> Operational (in cab) checks Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.2	What are the main considerations for shut down procedures? <input type="checkbox"/> Parking position <input type="checkbox"/> Attachments grounded <input type="checkbox"/> Cool down time <input type="checkbox"/> Maintenance log Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.3	What are common maintenance procedures on heavy equipment? <input type="checkbox"/> Lock out or zero energy state <input type="checkbox"/> Greasing <input type="checkbox"/> Adding fluids and fuel <input type="checkbox"/> Draining fuel sumps and water separators <input type="checkbox"/> Tightening loose hardware <input type="checkbox"/> Repair leaks <input type="checkbox"/> Replacing O-rings <input type="checkbox"/> Replacing hoses <input type="checkbox"/> Replacing filters <input type="checkbox"/> Bleeding air from fuel systems <input type="checkbox"/> Adjust track tension <input type="checkbox"/> Adjust belt tension <input type="checkbox"/> Maintain tire pressure <input type="checkbox"/> Clean and maintain batteries Assessment Instruction: P – 10 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

1083 – Describe Heavy Equipment Mechanical Systems

Locator	Questions			
Mechanized Harvesting/Road Building				
1.1	<p>What are two basic components of an engine and their function?</p> <p><input type="checkbox"/> Turbo charger – increases power on an engine</p> <p><input type="checkbox"/> Air compressor – builds up air supply</p> <p><input type="checkbox"/> Cylinder head – allows air / fuel into / out of combustion chamber</p> <p><input type="checkbox"/> Piston – creates compression</p> <p>Assessment Instruction: P – 2 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.2	<p>Name two things a driver should check in an engine lubrication system</p> <p><input type="checkbox"/> Oil level</p> <p><input type="checkbox"/> Oil pressure</p> <p><input type="checkbox"/> Grade of oil required</p> <p>Assessment Instruction: P – 2 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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1.3	<p>What are two components of a cooling system and their function?</p> <p><input type="checkbox"/> Radiator – allows air and water flow to cool engine</p> <p><input type="checkbox"/> Hoses – water to circulate</p> <p><input type="checkbox"/> Fan – draw air into radiator</p> <p><input type="checkbox"/> Fan belts – drive the fan</p> <p>Assessment Instruction: P – 2 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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1.4	<p>What are three components of a fuel system and their function?</p> <p><input type="checkbox"/> Tanks – holds fuel</p> <p><input type="checkbox"/> Lines – delivers fuel from tank to engine</p> <p><input type="checkbox"/> Filters – removes foreign debris from fuel</p> <p><input type="checkbox"/> Pump – delivers fuel to engine</p> <p>Assessment Instruction: P – 3 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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1.5	<p>What are three component of air induction and exhaust systems and their function?</p> <p><input type="checkbox"/> Pre-cleaner – takes coarse particulates from air supply</p> <p><input type="checkbox"/> Air filter – removes fine particulates from</p> <p><input type="checkbox"/> Air to air – delivery system of air to the turbo charged engine</p> <p><input type="checkbox"/> After treatment (DEF) – system that minimizes air pollution in exhaust</p> <p>Assessment Instruction: P – 3 from list</p> <table border="1"> <tr> <td>Assessment</td> <td><input type="checkbox"/> Outcome met</td> <td><input type="checkbox"/> Outcome not met</td> </tr> </table>			Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met				
2.1	<p>What are three component of hydraulic systems including function?</p> <p><input type="checkbox"/> Pumps – pump fluid</p> <p><input type="checkbox"/> Motor – propulsion on components</p> <p><input type="checkbox"/> Cylinders – moves attachments or implements</p> <p><input type="checkbox"/> Hoses – delivers fluid or motors or cylinders</p> <p><input type="checkbox"/> Valves – controls flows</p> <p><input type="checkbox"/> Tank and fluid level indicator – identifies levels of fluids</p> <p>Assessment Instruction: P – 3 from list</p> <table border="1"> <tr> <td>Assessment</td> <td><input type="checkbox"/> Outcome met</td> <td><input type="checkbox"/> Outcome not met</td> </tr> </table>			Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met				
3.1	<p>What are three component of a powertrain system including function?</p> <p><input type="checkbox"/> Travel motor – allows machine/component to move</p> <p><input type="checkbox"/> Transmissions – transfers power form engine to drive systems</p> <p><input type="checkbox"/> Differentials – transfers power from transmission to axles</p> <p><input type="checkbox"/> Swing gear – allows machine to rotate</p> <p><input type="checkbox"/> Final drives – drives tracks</p> <p><input type="checkbox"/> Engine – primary source of power</p> <p><input type="checkbox"/> Pumps – secondary source of power</p> <p>Assessment Instruction: P – 3 from list</p> <table border="1"> <tr> <td>Assessment</td> <td><input type="checkbox"/> Outcome met</td> <td><input type="checkbox"/> Outcome not met</td> </tr> </table>			Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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4.1	<p>What are three components of track systems including function?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tracks – enables machine to move <input type="checkbox"/> Idler – allows track to rotate around <input type="checkbox"/> Sprocket – drives track to rotate around <input type="checkbox"/> Bottom and top (carrier) rollers – reduce friction within the undercarriage system <input type="checkbox"/> Track adjuster – keeps track tight <p>Assessment Instruction: P – 3 from list</p> <table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
5.1	<p>What are four types of braking systems?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Air system <input type="checkbox"/> Hydraulic system <input type="checkbox"/> Air / hydraulic system <input type="checkbox"/> Engine braking system (compression, exhaust) <input type="checkbox"/> Hydrostatic system <p>Assessment Instruction: P – 4 from list</p> <table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
6.1	<p>Name three common parts of electrical systems and their function</p> <ul style="list-style-type: none"> <input type="checkbox"/> Alternators – creates electrical current <input type="checkbox"/> Starters – starts the engine <input type="checkbox"/> Batteries – powers the starter <input type="checkbox"/> Fuses – fail safe for system <input type="checkbox"/> Solenoids – an electromagnetic switch <input type="checkbox"/> Switches - turns power on and off <p>Assessment Instruction: P – 3 from list</p> <table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
6.1	<p>What are the two common types of electrical systems?</p> <ul style="list-style-type: none"> <input type="checkbox"/> 12 V and 24 V <p>Assessment Instruction: S</p> <table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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7.1	Name three types of ground engaging systems and their function <input type="checkbox"/> Blades – pushes material <input type="checkbox"/> Buckets – carries material <input type="checkbox"/> Scarifiers – digs up ground <input type="checkbox"/> Grapples – grabs logs <input type="checkbox"/> Rock hammer – breaks rocks <input type="checkbox"/> Compactors – compresses material <input type="checkbox"/> Drill hammer – drills holes in rocks Assessment Instruction: P – 3 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

1077 – Describe Job Control and Engineering Basics

Locator	Questions			
Road Building				
2.1	<p>What are common instruments used in road building?</p> <p> <input type="checkbox"/> Levels <input type="checkbox"/> Rotary laser <input type="checkbox"/> Pipe laser <input type="checkbox"/> Electronic measurement systems <input type="checkbox"/> Chain (tight chain, string box) <input type="checkbox"/> Clinometers <input type="checkbox"/> Compass <input type="checkbox"/> GPS </p> <p>Assessment Instruction: P – 6 from list</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
3.1	<p>What can an operator do to confirm that identified slope is correct?</p> <p> <input type="checkbox"/> Station mark on map matches the field <input type="checkbox"/> Read the cross section and profiles </p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
3.2	<p>How is slope expressed?</p> <p><input type="checkbox"/> Percentage/degrees</p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
3.3	<p>How is slope stability maintained during road construction?</p> <p><input type="checkbox"/> A ratio that is dependent on the type of material excavated</p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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3.4	<p>What are the main causes of road constructed initiated slides?</p> <p><input type="checkbox"/> Over steepened fill slopes</p> <p><input type="checkbox"/> Not maintaining water control</p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
3.4	<p>How is this risk mitigated?</p> <p><input type="checkbox"/> End haul</p> <p><input type="checkbox"/> Maintain original water courses</p> <p><input type="checkbox"/> Maintain ditches and culverts concurrent with construction</p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
4.1	<p>Where are instructions on working in proximity to utilities found?</p> <p><input type="checkbox"/> Operational map</p> <p>Assessment Instruction: S</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
4.2	<p>What are techniques used to expose existing utilities?</p> <p><input type="checkbox"/> Take small amounts of material away at a time</p> <p><input type="checkbox"/> Vacuum trucks</p> <p><input type="checkbox"/> Clean up bucket (no teeth)</p> <p><input type="checkbox"/> Expose by hand</p> <p>Assessment Instruction: P-3 from list</p>			
	<table border="1"> <tr> <td>Assessment</td><td><input type="checkbox"/> Outcome met</td><td><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
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1078 – Describe Soils and Aggregates

Locator	Questions			
Road Building				
1.1	<p>What are common types of soil?</p> <p><input type="checkbox"/> Cohesive (hard panned clay)</p> <p><input type="checkbox"/> Granular (sand or gravel types)</p> <p><input type="checkbox"/> Organic (topsoil or layers)</p> <p>Assessment Instruction: S</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">Assessment</td><td style="width: 33%;"><input type="checkbox"/> Outcome met</td><td style="width: 33%;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.2	<p>What determines suitability of soil types for road construction?</p> <p><input type="checkbox"/> Drainage characteristics</p> <p><input type="checkbox"/> Compactibility</p> <p>Assessment Instruction: S</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">Assessment</td><td style="width: 33%;"><input type="checkbox"/> Outcome met</td><td style="width: 33%;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.3	<p>Name four characteristics of soil</p> <p><input type="checkbox"/> Load bearing</p> <p><input type="checkbox"/> Density</p> <p><input type="checkbox"/> Adhesion</p> <p><input type="checkbox"/> Shearing resistance</p> <p><input type="checkbox"/> Permeability</p> <p><input type="checkbox"/> Plasticity (water retention)</p> <p><input type="checkbox"/> Elasticity</p> <p><input type="checkbox"/> Gradation</p> <p>Assessment Instruction: P – 4 from list</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">Assessment</td><td style="width: 33%;"><input type="checkbox"/> Outcome met</td><td style="width: 33%;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		

1.4	How are soils classified? <input type="checkbox"/> Texture <input type="checkbox"/> Structure <input type="checkbox"/> Consistency <input type="checkbox"/> Colour Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
1.6	What are common sediment control techniques? <input type="checkbox"/> Silt fences/geotextile <input type="checkbox"/> Hay bales <input type="checkbox"/> Water management <input type="checkbox"/> Sumps <input type="checkbox"/> Hydro seeding <input type="checkbox"/> French drains <input type="checkbox"/> Culvert placement <input type="checkbox"/> Water bar Assessment Instruction: P – 6 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.1	What are types of rippable rocks? <input type="checkbox"/> Shale <input type="checkbox"/> Rotten <input type="checkbox"/> Conglomerate Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.1	What are types of non-rippable rocks? <input type="checkbox"/> Granite <input type="checkbox"/> Limestone <input type="checkbox"/> Basalt Assessment Instruction: S		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

2.2	What are the characteristics of aggregates? <ul style="list-style-type: none"> <input type="checkbox"/> Permeability <input type="checkbox"/> Load bearing <input type="checkbox"/> Resistance to shearing <input type="checkbox"/> Gradation <input type="checkbox"/> Plastic limit <input type="checkbox"/> Liquid limit <p style="color: red;">Assessment Instruction: P – 4 from list</p>		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.3	What are the three steps in aggregate processing? <ul style="list-style-type: none"> <input type="checkbox"/> Screening <input type="checkbox"/> Crushing <input type="checkbox"/> Processing <p style="color: red;">Assessment Instruction: S</p>		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
2.4	What are common products or uses for aggregates? <ul style="list-style-type: none"> <input type="checkbox"/> Pit runs <input type="checkbox"/> Screened road base 3" minus <input type="checkbox"/> Bedding sand <input type="checkbox"/> Crushed road mulch <input type="checkbox"/> Asphalt aggregates <input type="checkbox"/> Drain rock <input type="checkbox"/> Chips, driveway chips <input type="checkbox"/> Recycled asphalt <input type="checkbox"/> Concrete sand, C 33 <input type="checkbox"/> Stucco sand <p style="color: red;">Assessment Instruction: P - 6 from list</p>		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

3.1	What are principles of compaction in relation to effects of moisture? <input type="checkbox"/> Dry soils resistant to compaction <input type="checkbox"/> Water acts as lubricant to help overcome the cohesive nature of soil particles <input type="checkbox"/> Moisture increases density Assessment Instruction: P – 1 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
3.2	What types of equipment are used for compaction? <input type="checkbox"/> Water trucks <input type="checkbox"/> Plates <input type="checkbox"/> Rollers <input type="checkbox"/> Hoe packs <input type="checkbox"/> Rammers <input type="checkbox"/> Tamping bars <input type="checkbox"/> Dynamic compaction Assessment Instruction: P – 4 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
3.3	What are methods to test compaction? <input type="checkbox"/> Nuclear density testing <input type="checkbox"/> Sand cone test <input type="checkbox"/> Probing <input type="checkbox"/> Cone penetrometer <input type="checkbox"/> Deflectometer <input type="checkbox"/> Clegg impact soil tester <input type="checkbox"/> Load testing/roll test Assessment Instruction: P – 4 from list		
	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met

1079 – Describe Environmental Awareness, Protection and Enhancement

Locator	Questions			
Road Building				
1.1	<p>Why is public perception of forestry activities important?</p> <p><input type="checkbox"/> Can result in protests</p> <p><input type="checkbox"/> Public pressure</p> <p><input type="checkbox"/> Public perception drives politics</p> <p>Assessment Instruction: P – 1 from list</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.2	<p>What impact on fish can road building have?</p> <p><input type="checkbox"/> Effect of silt</p> <p><input type="checkbox"/> Effect of water temperature</p> <p><input type="checkbox"/> Drainage effect</p> <p><input type="checkbox"/> Effect of increased flows</p> <p>Assessment Instruction: P – 2 from list</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
2.2	<p>What are potential sources of spills related to constructing resource roads?</p> <p><input type="checkbox"/> Broken lines/mechanical failure</p> <p><input type="checkbox"/> Refuelling</p> <p><input type="checkbox"/> Fuel storage</p> <p><input type="checkbox"/> Storage of other products</p> <p><input type="checkbox"/> Sewage</p> <p>Assessment Instruction: P – 4 from list</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
2.3	<p>What can be used to reduce risk of petroleum spills?</p> <p><input type="checkbox"/> Security</p> <p><input type="checkbox"/> Safe storage facilities</p> <p><input type="checkbox"/> Spill kits</p> <p><input type="checkbox"/> Training</p> <p>Assessment Instruction: P – 2 from list</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td><td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td></tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		

1087 – Describe and Operate Backhoe

Locator	Questions			
Road Building				
1.1	<p>Name two places that an operator can look to find information on operation capabilities, limitations and restrictions of road building equipment</p> <p><input type="checkbox"/> Operator manuals</p> <p><input type="checkbox"/> Standard operating procedures</p> <p>Assessment Instruction: S</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		
1.2	<p>What are common hazards related to operating road building equipment?</p> <p><input type="checkbox"/> Slips and falls</p> <p><input type="checkbox"/> Pinch points</p> <p><input type="checkbox"/> Roll over</p> <p><input type="checkbox"/> Crush injuries</p> <p><input type="checkbox"/> Other worker in work area</p> <p><input type="checkbox"/> Energized machines</p> <p><input type="checkbox"/> Communication failure</p> <p><input type="checkbox"/> Unstable soil</p> <p><input type="checkbox"/> Slippery machine surfaces</p> <p><input type="checkbox"/> Equipment fire</p> <p><input type="checkbox"/> Debris entering operator's area</p> <p><input type="checkbox"/> Logs entering cab</p> <p><input type="checkbox"/> Jill pokes</p> <p><input type="checkbox"/> Other road users</p> <p>Assessment Instruction: P - 10 from list</p>			
	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;">Assessment</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome met</td> <td style="width: 33%; text-align: center;"><input type="checkbox"/> Outcome not met</td> </tr> </table>	Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met
Assessment	<input type="checkbox"/> Outcome met	<input type="checkbox"/> Outcome not met		

Part 2 – Practical Assessment

General Instructions	
<p>To conduct the practical assessment, monitor the worker in a variety of situations to determine if they can consistently perform the skill components of their role in a safe and effective manner. Once confident that the worker can conduct the skills consistently, mark the outcome met. If the worker cannot consistently perform the skills required, add this component to the gap training plan.</p> <p>Remember not to distract the operator when conducting the practical assessment.</p>	
Training and Assessment Rubric	
Outcome Not Met (ONM)	<p>Skills: Can complete the task but only with direct instruction and supervision, may lack consistency in application.</p> <p>Knowledge: Does not understand what they are doing, or are not aware of a knowledge deficiency, or need guidance and support.</p> <p>Attributes: Displays limited or no professional attributes including being fit for work, prepared for the day, working in an organized manner, achieving work outcomes, or lacks in consistency.</p>
Outcome Met (OM)	<p>Skills: Consistently completes the task using safe work practices multiple times in a variety of contexts.</p> <p>Knowledge: Has a solid grasp of underpinning knowledge, consistently applies it, and can explain it.</p> <p>Attributes: Consistently displays professional attributes including being fit for work, prepared for the day, working in and organized manner and achieving work outcomes.</p>

A) PREPARE FOR THE DAY	OM	ONM	N/A
Arrived on time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clothing for conditions <ul style="list-style-type: none"> Layered clothing appropriate to the elements for working and transport conditions 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition and water <ul style="list-style-type: none"> Adequate food for the day Sufficient hydration for work and weather conditions 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fit for work <ul style="list-style-type: none"> Candidate is physically able to do the task 3-point contact on and off machine Able to get up and down machine Able to perform simple maintenance Able to change attachments Can fit through escape hatch 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not noticeably impaired <ul style="list-style-type: none"> Candidate is not obviously physically or mentally impaired (by drugs, alcohol, personal situations, fatigue) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knows where ERP is located	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B) PERSONAL PROTECTIVE EQUIPMENT (where applicable)	OM	ONM	N/A
Hard hat <ul style="list-style-type: none"> CSA – less than 3 years old / ANSI – less than 5 years old No dents/cracks, modifications Suspension maintained (4-point min) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hi-Vis <ul style="list-style-type: none"> Minimum 120 square inches front and back Not faded, discoloured, torn or permanently dirty Contrasts with the work environment 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leg protection <ul style="list-style-type: none"> Minimum 3600/4100 FPM rating Kevlar not compromised or exposed Pants maintained and repaired (no loose tears to outer layer) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Face/Eye protection <ul style="list-style-type: none"> • Face screen free of holes • Moves freely between down and raised position • Safety glasses used when appropriate 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hand protection <ul style="list-style-type: none"> • Not damaged and free of holes • Appropriate to weather conditions • Sized correctly for hands 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing protection <ul style="list-style-type: none"> • Minimum 24 NRR • Maintained and in working condition 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Footwear <ul style="list-style-type: none"> • Good condition including sole tread pattern • Must be laced 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has fire extinguisher in cab	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dust mask <ul style="list-style-type: none"> • NIOSH N95 compliant 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PPE inspected and maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PPE used consistently as required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C) PRE-WORK ACTIVITIES	OM	ONM	N/A
Equipment manuals available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-start equipment checks <ul style="list-style-type: none"> • Walk around and check for leaks • Check for loose components • Check for cracks, loose, missing bolts • Check for damage to machine • Obstructions • Fluid levels • Water / Coolant • Hydraulic • Engine • Night switch • Check track pads (where applicable) • Tire pressure (where applicable) • Check for tire damage (where applicable) • Wheels and wheel nuts (where applicable) • Close air reservoir (where applicable) • Safety equipment check 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Start-up procedures <ul style="list-style-type: none"> • Maintain 3-point contact on and off machine • Find key • Check gauges • Warning systems • Start and warm up hydraulics • Check transmission • Warning lights • Wipers • Seatbelt • Lock out • Parking brake • All controls and major systems • Escape hatch • Housekeeping • Radio operational 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D) COMMUNICATION	OM	ONM	N/A
Attend pre-work meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensures hazards are understood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicates hazards throughout workday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uses signals as required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consistently communicates work plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Professional communication throughout workday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E) ERGONOMICS	OM	ONM	N/A
Lifts correctly (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Best practice for body position while operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walks safely in the bush (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F) COMPLETE TASKS	OM	ONM	N/A
Shut down procedures <ul style="list-style-type: none"> • Safe parking location • Brake on (where applicable) • Lower boom / blade / attachments • Position for ease of access and egress • Level position for fluid checks • Cool down before shut-down • Walk around and general check • Secure / lock machine • 3-point contact on and off • Turn off night switch • Close air reservoir access (where applicable) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Daily maintenance tasks <ul style="list-style-type: none"> • Lubrication systems • Air intake systems • Air system reservoir • Fuel tank sump • Drain air system / water separator • Drain fuel filters / water separator • Inspect and clean components • Housekeeping • Track tension (where applicable) • Tire pressure (where applicable) • Greasing • Fueling • Check for leaks 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Basic repairs <ul style="list-style-type: none"> • Hydraulic hoses / fittings / O-rings • Fuel / air filter • Engine oil change • Belt tension • Battery terminals • Change lights • Repair wiring 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G) OPERATE BACKHOE	OM	ONM	N/A
Maintains 3-point contact on and off machine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to use multiple functions while operating equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitors equipment performance while operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Load trucks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Operator functions on backhoe <ul style="list-style-type: none"> • Raise and lower • Curl and dump • Move forward • Stop • Lower bucket • Apply brake • Lock out transmission • Raise and lower backhoe boom • Extend and retract stick • Position stabilizers • Swing left and right • Smooth operation • Multiple functions/task at same time • Safe coordination with other equipment • Monitor equipment while operating • Situational awareness at all times 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dig, Carry, Stockpile Materials <ul style="list-style-type: none"> • Fill and maintain grade • Carry a stable load at safe speeds • Stockpile surface materials with control • Create ramp • Remove material to approved location 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Place the spread / grade material in lifts <ul style="list-style-type: none"> • Carry a stable load at safe speeds • Place surface materials with control • Place where accessible to spreaders or other equipment 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavate trenches and ditches <ul style="list-style-type: none"> • Shallow trench (water bar or cross ditch) <ul style="list-style-type: none"> ○ drivable (where applicable) ○ sloped in the direction water flow ○ grade work to slope • Deep trench (installed culvert or deadman) <ul style="list-style-type: none"> ○ correct depth for ballast • Make stable trenches (shored/sloping requirements) • Place bedding or drain rock • Backfill - place material, fill all voids to level 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Use attachments - Backhoe <ul style="list-style-type: none"> • Use safely and with operational control to manufacturer specifications • Perform inspections • Take on and off safely to specifications • 4-in-1 bucket • Regular bucket • Hoe pack • Rock breaker • Hydraulic stick extension • Brush cutter • Front and rear buckets 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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This is the last page of the assessment.

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