



Technical Education, Vocational and Entrepreneurship
Training Authority (TEVETA)

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY

YEAR III

CONSTRUCTION MATERIAL TESTING

Record of Practical Assessment

Learner`s Name:_____

Learner`s NRC no.:_____

Learner`s TEVETA No.:_____

Assessment Period:_____

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PREFACE

The Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) is an institution created under the Technical Education, Vocational and Entrepreneurship Training Act Number 13 of 1998, as amended by the Technical Education, Vocational and Entrepreneurship Training (Amendment) Act Number 11 of 2005.

The Act among other things provides that TEVETA shall:

- (a) regulate and conduct national examinations and assessments relating to technical education, vocational and entrepreneurship training;
- (b) charge and collect fees in respect of examinations, assessments and other services provided by the Authority;
- (c) award certificates to persons who succeed in examinations and assessments undertaken under this Act
- (d) do all such things connected with or incidental to the functions of the Authority under this Act.

Through this mandate, the Assessment and Qualifications Division of TEVETA has developed Practical Assessment Tool Kits to enable learners achieve the competences that are congruent with the demand of the workplace tasks. These tool kits in part are also intended to ensure that similar conditions under which all students in TEVET are assessed and examined apply wherever the course is undertaken in Zambia.

The Trainers shall work with the Learners to collect evidence of competence, using the benchmarks provided by the unit standards. During the year, the Learners shall be required to undertake a series of practical assessment tasks. It is the sum of all these assessments tasks that deems a Learner to be competent (or not).

This approach to assessment is not a one-off event but one that gives learners many opportunities to demonstrate skill and allow for the capturing and recording of these demonstrations.

For the Learner to be deemed competent, they must demonstrate competency in every aspect of the practical tasks being undertaken. It must however be understood by the Trainer that Competency does not mean expert. It means that the candidate has attained sufficient skill and knowledge to perform the activity or service to a degree and quality that is acceptable to the industry and the customer in a time within which a competent person at the level could reasonably be expected to perform the task.

While this will be undertaken at institutional level, it is therefore envisaged that the Assessment principles of VALIDITY, RELIABILITY, FAIRENESS and FLEXIBILITY shall at all times be adhered to.



Observation Checklist

Pre-Assessment

Assessment process explained to the employee (✓ if Yes).	<input type="checkbox"/>
Any appeal relating to the outcome of the assessment or the way in which the assessment was conducted shall be made through the company's <u>fair treatment policy</u> as explained to the employee (✓ if Yes).	<input type="checkbox"/>

Employee/Trainee Employee/Trainee name: _____ (Print) Employee/Trainee comments:	Assessor Assessor name: _____ (Print) Assessor comments:	
I fully understand the assessment and appeals process.	Theory assessment sighted and checked as satisfactory.	<input type="checkbox"/>
Signature: _____ Date: _____	Signature: _____ Date: _____	

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Preparing for the practical assessment

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Work Health and Safety

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Customising the assessment

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Carrying out the assessment

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Completing the assessment

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Assessor qualifications

Add text here

Expiry status of assessment

Add text here

Resources required

Add text here

Range of variables

Add text here



1. DETERMINATION OF MOISTURE CONTENT OF SOIL/TIMBER – OVEN DRYING METHOD	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Carry out the correct moisture content on soil. This includes: <ul style="list-style-type: none"> <input type="checkbox"/> Randomly collect Mixing quarter and riffle soil Sampling. <input type="checkbox"/> Store Sampling correctly if Testing to be done on another day. <input type="checkbox"/> Weighing Sampling holders (pans). <input type="checkbox"/> Preparing multiple Samplings for Testing and spReading on Sampling holder (pans) <input type="checkbox"/> Weighing Sampling holder (pans) with soil. <input type="checkbox"/> Set correct oven temperature (and timer). <input type="checkbox"/> Weighing Sampling holder with dry soil. <input type="checkbox"/> Calculating moisture content (and average moisture content). <input type="checkbox"/> State correctly the field moisture content range. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:

2. DETERMINATION OF PARTICLE SIZE DISTRIBUTION OF COMMON SOIL	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3



<p>a) Correctly Determining the particle size distribution of soil particles that can undergo dry sieving.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sieving correct particle size for dry sieving. <input type="checkbox"/> Weighing all Sievings in range of dry sieving correctly. <input type="checkbox"/> Nest the Sievings correctly and place Sampling on correct Sieving in the Sieving stack. <input type="checkbox"/> Agitate the Sieving stack using proper means or equipment. <input type="checkbox"/> Weighing all Sievings with returned soil correctly. <input type="checkbox"/> Calculating mass returned correctly. <p>b) Correctly Determining the particle size distribution of soil particles that can undergo dry sieving.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sieving correct particle size for wet sieving. <input type="checkbox"/> Correctly Applying water to soil Sampling. <input type="checkbox"/> Wash soil Sampling on correct Sieving. <input type="checkbox"/> Dry washed soil Sampling at a correct temperature setting and correct duration. <input type="checkbox"/> Weighing all Sievings in range of wet sieving correctly. <input type="checkbox"/> Nest the Sievings correctly and place Sampling on correct Sieving in the Sieving stack. <input type="checkbox"/> Agitate the Sieving stack using proper means or equipment. <input type="checkbox"/> Weighing all Sievings with returned soil correctly. <input type="checkbox"/> Calculating mass returned correctly. <p>c) Correctly Determining the particle size distribution of soil particles that can undergo Hygrometer Method.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sieving correct particle size for Hygrometer Method. <input type="checkbox"/> Weighing the correct amount of soil for Hygrometer method and place in correct container. <input type="checkbox"/> Correctly Preparing the soil for dispersion. <input type="checkbox"/> Correctly perform the sedimentation process and within the correct time. <input type="checkbox"/> Take correct hygrometer Readings at a correct time interval. <input type="checkbox"/> Calculating the percentage mass of soil for each diameter value using the correct equation. <p>d) Correctly analyse data from any of the methods or a combination of methods.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Plotting values on an appropriate graph correctly. <input type="checkbox"/> Use graph interpret soil classification and recommend use of soil. <input type="checkbox"/> Reading off values required to Calculating Coefficient of Uniformity (C_u) and Coefficient of gradation. <input type="checkbox"/> Calculating Coefficient of Uniformity (C_u) and Coefficient of gradation. 						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



3. DETERMINATION OF SOIL PARTICLE DENSITY (Small Pyknometer Method)	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the density of gravel correctly. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Sieving the right soil Sampling. <input type="checkbox"/> Crush larger particles (if any) by appropriate means. <input type="checkbox"/> Place soil Sampling in density bottle (Pyknometer) and Weighing to correct number of decimal places. <input type="checkbox"/> Add water to correct level. <input type="checkbox"/> Removing trapped air by correct means (Desiccators' or otherwise). <input type="checkbox"/> Place in water bath for a correct time period and Weighing again. <input type="checkbox"/> Calculating the density of soil particles correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:

4. DETERMINATION OF DENSITY OF GRAVEL BY SAND REPLACEMENT METHOD	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the density of gravel by Sand replacement. This involves: <ul style="list-style-type: none"> <input type="checkbox"/> Correctly calibrate the sand density using correct equipment. <input type="checkbox"/> Correctly excavated pit using correct equipment. <input type="checkbox"/> Perform correct procedure to obtain both mass of soil and volume of soil. <input type="checkbox"/> Perform moisture content correctly on excavated soil. <input type="checkbox"/> Calculating the soil density correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



3. DETERMINATION OF ATTERBERG LIMITS (LIQUID LIMIT AND PLASTIC LIMIT)	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
<p>a) Determining the liquid limit of gravel Sampling via Cone Penetrometer or Cassagrande Method). This involves the following</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sieving the soil using a correct Sieving and collect the right amount of Sievingd soil. <input type="checkbox"/> Correctly Mixing the soil with water varying moisture content. <input type="checkbox"/> Use the Cone Penetrometer correctly on different PreparingdSamplings. <input type="checkbox"/> Reading penetration values correctly and Recording. <input type="checkbox"/> Testing soil Samplings for moisture content. <input type="checkbox"/> Plotting a graph of Cone Penetration against Moisture content. <input type="checkbox"/> Reading off the Liquid limit of the soil and Recording it. <p>[Part 1.Optional apparatus is the Cassegrande Apparatus with which part 1.4 should then Reading “Reading Number of blows required for each Sampling and Recording”.</p> <p>b) Determining the plastic limit of gravel Sampling. This involves</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sieving the soil using a correct Sieving and collect the right amount of Sievingd soil. <input type="checkbox"/> Perform the plastic limit procedure correctly. <input type="checkbox"/> Recording plastic limit and Calculating the plastic index. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



4. DETERMINATION OF MAXIMUM DRY DENSITY (MDD) AND OPTIMAL MOISTURE CONTENT (OMC)	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Maximum Dry Density and Optimal Moisture content. This involves <ul style="list-style-type: none"> <input type="checkbox"/> Preparing the soil by correct sieving and application of moisture for various Samplings. <input type="checkbox"/> Perform the correct procedure to obtain the moisture content and bulk density for each Sampling. [Practical can be performed for either BS Light or BS Heavy] <input type="checkbox"/> By calculation obtain the values of Dry Density for each value of Moisture Content. <input type="checkbox"/> Plotting an appropriate graph. <input type="checkbox"/> From graph Determining Maximum Dry Density and Optimal Moisture Content. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed:

Assessor:

Trainee:

5. DETERMINING THE VALUES OF CALIFORNIA BEARING RATIO (CBR)	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
<p>a) Determining the CBR vales of soil. This involves</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sampling, riffle and Sieving using a correct Sieving. <input type="checkbox"/> Collect the right amount of soil to use in a Testing. <input type="checkbox"/> Perform moisture content [if not done prior to this Testing] <input type="checkbox"/> Correctly add water to Making soil reach Optimal Moisture Content. <input type="checkbox"/> Divide the Preparingd soil Sampling into the right number and store the soil correctly and for the right duration of time. <input type="checkbox"/> Compacting the soil Samplings correctly using the right equipment. <input type="checkbox"/> Weighing the moulds with soil correctly. <input type="checkbox"/> Fit collar and swell gauge correctly and soak in water for a specified time period. <input type="checkbox"/> Reading the swelling every day correctly. <input type="checkbox"/> Operating the CBR machine correctly and Reading values of Load and Penetration. <input type="checkbox"/> Plotting a graph of Load against Penetration. <input type="checkbox"/> Reading values of Load at 2.5mm and 5.00mm and Calculating the CBR values correctly. <p>[NB: For three point TestingCompacting layers and rammer Weight varied]</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Assessor comments:

Signed:

Assessor:

Trainee:

6. DETERMINING THE UNCONFINED COMPRESSION STRENGTH (UCS) – FOR COMPACTING STABILISED OR UNSTABILISED SOIL	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
<p>a) Preparing Samplings for UCS. This includes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sampling, riffle and Sieving a correct amount of soil Sampling passing through a 20mm Sieving. <input type="checkbox"/> Divide the soil Sampling into 5 parts and Calculating the stabilizer (lime or cement) amount for each part such that percentage by dry mass in steps 2%, 4%, 6%, 8% correctly. <input type="checkbox"/> Calculating the amount of water required to bring the soil to its Optimal Moisture Content correctly. <input type="checkbox"/> Thoroughly Mixing soil with stabilizer, followed by water and cover with damp cloth or plastic Mixing further every half-hour for four (4) hours. <input type="checkbox"/> Compacting the soil using a prescribed rammer, layers and number of blows using the correct mould. <input type="checkbox"/> <p>b) Perform a UCS Testing. This includes.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Operating the UCS machine correctly. <input type="checkbox"/> Reading and Recording values of Load and Deformation correctly. <input type="checkbox"/> Calculating values of Stress and Strain correctly. <input type="checkbox"/> Draw a graph of Stress against Strain. <input type="checkbox"/> Recording the UCS of the soil. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Assessor comments:

Signed: Assessor: Trainee:

7. DETERMINING THE BITUMEN PENETRATION	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the penetration of Bitumen. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Correctly pour Bitumen Heated to a correct temperature in a Bitumen Penetration cups. <input type="checkbox"/> Reset Dial Reading to zero (0). <input type="checkbox"/> Operating correctly the Bitumen Penetration Equipment. <input type="checkbox"/> Reading the penetration at the correct time. <input type="checkbox"/> Calculating the average penetration: 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



8. DETERMINING THE BITUMEN SOFTENING POINT	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No		Attempt No		Attempt No	
	1	2	2	1	2	3
a) Determining the Bitumen Softening Point. This includes; <ul style="list-style-type: none"> <input type="checkbox"/> Heating Bitumen and rings to the correct temperature and for the correct time. <input type="checkbox"/> Assembling the apparatus correctly. <input type="checkbox"/> Turn on Heating and Recording the temperature at which the bitumen touches metal pate correctly. <input type="checkbox"/> Recording the temperature as Bitumen Softening Point. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: Trainee:

9. DETERMINING THE MASHALL STABILITY OF BITUMEN	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Marshall Stability of Bitumen. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Heating both aggregates and bitumen at the correct temperature and Mixing thoroughly. <input type="checkbox"/> Pre-Heating the specimen holder and transfer the HeatingedMixing into the specimen holder correctly. <input type="checkbox"/> Compacting to the right number of blows and allow Mixing to cool. <input type="checkbox"/> Measuring correctly the thickness and place in water bath at a correct pre-set temperature. <input type="checkbox"/> When temperature equilibrium sets, Removing specimen and place correctly in the Marshall Testing Equipment. <input type="checkbox"/> Applying the load on the specimen until the maximum load is reached. <input type="checkbox"/> Recording the maximum load and flow. <input type="checkbox"/> Calculating the Marshall Stability value by multiplying with the correct correction factor. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



10. DETERMINING THE BITUMEN BINDER CONTENT AND AGGREGATE GRADING BY EXTRACTION	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Binder Content and Aggregate Grading of Bitumen. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Weighing the empty wire cloth basket and Recording mass correctly. <input type="checkbox"/> Add the Sampling and Weighing again to correct accuracy. <input type="checkbox"/> Operating the Extraction Cylinder correctly. <input type="checkbox"/> When extraction is complete, Weighing the basket with aggregates. <input type="checkbox"/> Calculating the Binder Content correctly. Sieving aggregates and find the aggregate grading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: Trainee:

11.DETERMINING THE QUALITY OF BITUMEN BINDER BY SAYBOLT COLOUR TESTING	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Quality of Bitumen via the SayboltTesting. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Preparing correctly bitumen Samplings for Testing. <input type="checkbox"/> Operating the Saybolt Equipment correctly. <input type="checkbox"/> Makingcolour comparison with standard chart correctly. <input type="checkbox"/> Recording Bitumen constituents based on colour comparison. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: _____ Trainee: _____



12. DETERMINING THE DENSITY AND WATER ABSORPTION OF AGGREGATES	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Density of Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Soak aggregates to water to saturation correctly. <input type="checkbox"/> Place aggregates again in Measuringd amount of water. <input type="checkbox"/> Weighing the Sampling holder, then Weighing it with aggregates and last Weighing it with aggregates and water correctly. <input type="checkbox"/> Oven dry aggregates at the correct temperature. <input type="checkbox"/> Calculating the density of aggregates. <input type="checkbox"/> Calculating the water absorption of aggregates. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: Trainee:

13.DETERMINING THE PARTICLE SIZE DISTRIBUTION OF AGGREGATES	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Particle Size Distribution of Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Heating aggregates to the correct temperature. <input type="checkbox"/> Stacking Sievings accordingly and place aggregates in correct Sieving. <input type="checkbox"/> Sieving by hand or Mechanical Saker correctly. <input type="checkbox"/> Compute the Cumulative Particle Returned for each Sieving. <input type="checkbox"/> Draw the correct graph of Percentage Passing against Particle size. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



14. DETERMINING THE SOUNDNESS OF AGGREGATES BY THE USE OF SODIUM SULPHATE	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Soundness of Aggregates by use of Sodium Sulphate. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Correctly Preparing saturated solution of Sodium Sulphate. <input type="checkbox"/> Wash and then dry aggregates at the correct temperature. <input type="checkbox"/> Immerse aggregates in solution of Sodium Sulphate for correct time. <input type="checkbox"/> Removing from Solution and place in Oven set to a correct temperature. <input type="checkbox"/> Repeat the immersion and drying process for a required number of times. <input type="checkbox"/> Wash aggregates correctly with Barium Chloride and then Sieving the aggregates using appropriate Sievings. <input type="checkbox"/> Weighing correctly mass returned on each Sieving. <input type="checkbox"/> Calculating the loss by mass of aggregates correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: Trainee:

15.DETERMINING THE FLAKINESS OF AGGREGATES	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Flakiness of Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Correctly carry out Sieving analysis to obtain aggregates of between 63mm and 6.3mm. <input type="checkbox"/> Weighing aggregates returned on each Sieving correctly. <input type="checkbox"/> Gauge aggregates on the thickness gauge and Recording values. <input type="checkbox"/> Calculating the Flakiness Index correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



16. DETERMINING THE ELONGATION INDEX OF AGGREGATES	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Elongation Index Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Reduce Sampling to get Testing requirement correctly. <input type="checkbox"/> Wash and oven dry correctly. <input type="checkbox"/> Sieving aggregates and Weighing mass returned on each Sieving. <input type="checkbox"/> Gauge aggregates from each Sieving using a Length Gauge. <input type="checkbox"/> Calculating and Recording the Elongation Index correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:

17.DETERMINING THE AGGREGATE CRUSHING VALUE (ACV)	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Aggregate Crushing Value. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Sieving aggregates between 10mm and 14mm to Removing undersized and oversized aggregates. <input type="checkbox"/> Place in the crushing cup, tamper with a rod and place correctly on the crushing machine. <input type="checkbox"/> Operating the machine correctly. <input type="checkbox"/> Sieving contents of cup on a 2.35mm Sieving and Recording mass passing and mass returned. <input type="checkbox"/> Calculating the Aggregate Crushing value. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



18.DETERMINING THE TEN PERCENT FINE VALUE (TFV) OF AGGREGATES	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Ten Percent Fine Value of Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Sieving between 10mm and 14mm. <input type="checkbox"/> Place on apparatus and Operating correctly. <input type="checkbox"/> Sieving the material afterwards and Recording mass. <input type="checkbox"/> Calculating the Ten Percent Five Value of aggregates. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor: Trainee:

19.DETERMINING THE HARDNESS OF AGGREGATES VIA THE LOSS ANGELES ABRASION TESTING	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the Hardness of Aggregates of Aggregates. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Wash and oven-dry aggregates at the correct temperature. <input type="checkbox"/> Weighing the aggregates and load them into the Los Angeles Abrasion machine. <input type="checkbox"/> Operating machine correctly. <input type="checkbox"/> Sieving on 1.7mm Sieving and Recording masses returned and passing through. <input type="checkbox"/> Calculating the Loss Angeles Abrasion value correctly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



20. SLUMP TESTING ON FRESH CONCRETE	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Determining the slumping of Fresh Concrete. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Sampling fresh concrete. <input type="checkbox"/> Fill the slump mould in three layers tampering the concrete 25 times per layer. <input type="checkbox"/> Removing mould and Measuring the Slump. <input type="checkbox"/> By observing state the type of slumping. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed:

Assessor:

Trainee:

21.DETERMINING THE COMPRESSIVE STRENGTH OF CONCRETE/MASONRY	Satisfactory			Not Satisfactory		
During observation of work activities, the candidate demonstrated that they can:	Attempt No			Attempt No		
	1	2	2	1	2	3
a) Cure Concrete cubes. <ul style="list-style-type: none"> <input type="checkbox"/> Fill the concrete cube mould with fresh concrete up to 50mm. <input type="checkbox"/> Compacting with a Compacting bar or vibrating table. <input type="checkbox"/> Cover mould with concrete with plastic for 24 hours. <input type="checkbox"/> Submerge mould with concrete in water. b) Determining the Compressive Strength of Concrete. This includes <ul style="list-style-type: none"> <input type="checkbox"/> Measuring mass, dimensions and Calculating density. <input type="checkbox"/> Place cured concrete cubes on compressing machine. <input type="checkbox"/> Operating machine until cube fails. <input type="checkbox"/> Recording the force at failure. <input type="checkbox"/> Calculating the Compressive Strength. [NB: For Masonry only Part 2 is worked out]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assessor comments:

Signed: Assessor:

Trainee:



Final Assessment Summary

Practical assessment summary

Note: refer to mapping document if required

		Satisfactory	Not Satisfactory
1.	Determination of Moisture content of Soil by Oven-Dry Method.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Determination of Moisture content of Soil by Calcium Carbide Method.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Determination of Particle Size Distribution of Soil.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Determination of Soil Particle Density (Small Pyknometer Method)	<input type="checkbox"/>	<input type="checkbox"/>
5.	Determination of Bulk Density of Soil by Sand Replacement Method	<input type="checkbox"/>	<input type="checkbox"/>
6.	Determination of Atterbeg Limits (Liquid Limit and Plastic Limit) of Soil.	<input type="checkbox"/>	<input type="checkbox"/>
7.	Determination of Maximum Dry Density and Optimal Moisture Content	<input type="checkbox"/>	<input type="checkbox"/>
8.	Determination of the California Bearing Ratio (CBR) of Soil	<input type="checkbox"/>	<input type="checkbox"/>
9.	Determination of Unconfined Compressive Strength (UCS) of Soil.		
10.	Determination of Bitumen Softening Point		
11.	Determination of Bitumen contents by Extraction		

12.	Determination of Bitumen Quality by Saybolt Method		
13.	Determination of Density and Water Absorption of Aggregates.		
14.	Determining The Particle Size Distribution Of Aggregates		
15.	Determining The Soundness Of Aggregates By The Use Of Sodium Sulphate		
16.	Determining The Flakiness Of Aggregates		
17.	Determining The Elongation Index Of Aggregates		
18.	Determining The Aggregate Crushing Value (ACV)		
19.	Determining The Ten Percent Fine Value (TFV) Of Aggregates		
20.	Determining The Hardness Of Aggregates Via The Loss Angeles Abrasion Testing		
21.	Slump Testing On Fresh Concrete		
22.	Determining The Compressive Strength Of Concrete/Masonry		

[illegible]

Assessment Outcome

Satisfactory ☐

Not Satisfactory ☐

Employee/Trainee	Assessor
Employee/Trainee name: _____ (Print)	Assessor name: _____ (Print)
Employee/Trainee comments:	Assessor comments:
Signature: _____ Date: _____	Signature: _____ Date: _____



VALIDATION OF THE ASSESSMENT

NAME:..... DATE:.....

POSITION: **PRINCIPAL/HEAD OF INSTITUTION** SIGNATURE:.....

NAME INSTITUTION:.....

STAMP: