QUEENSLAND CRICKET

WICKET BLOCK CONSTRUCTION

SITE CONSIDERATIONS

- SITE EVALUATION
- REGULATORY APPROVAL
- POTABLE WATER SUPPLY

SITE EVALUATION

- IS THE PROPOSED SITE LARGE ENOUGH
- IS THE PROPOSED SITE LEVEL
- IS THE PROPOSED SITE ON RECLAIMED LAND
- SUB SURFACE CONDITIONS YOU ARE CONSTRUCTING ON
- IS THERE EASY ACCESS TO THE WORK SITE
- WILL THERE BE PROBLEMS FROM NEIGHBOURING PROPERTIES
- WHAT EARTHWORKS ARE REQUIRED TO LEVEL THE SURROUNDING OVAL
- ARE THERE SURFACE DRAINAGE ISSUES
- ORIENTATION OF THE WICKET BLOCK I.E. NORTH/SOUTH

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SITE ACCESS

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SHADE PROBLEM FOR WICKET BLOCK

REGULATORY APPROVAL

- IS DEVELOPMENT APPROVAL REQUIRED FOR THE WICKET CONSTRUCTION
- ARE THERE NOISE RESTRICTIONS FOR THE SITE
- ARE THERE EXISTING SUB SURFACE SERVICES EG: ELECTRICTY
- IS THE SITE FREE FROM CONTAMINATION
- WILL THE WICKET BLOCK REQUIRE SUB BASE CAPPING
- IS APPROVAL REQUIRED TO REMOVE TREES, ETC FROM THE SITE
- APPROVAL TO CONNECT WICKET DRAINAGE TO STORMWATER

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CONTAMINATED MATERIAL

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CHINESE ELMS TO BE REMOVED

WATER SUPPLY

- IS THE WATER SUPPLY POTABLE OR NOT POTABLE
- IS THE NOT POTABLE WATER SUPPLY SUITABLE.

  IE: HAVE IT TESTED.
- WHERE IS THE MAINS ACCESS POINT
- ARE THE MAINS SUPPLY PRESSURE AND FLOW RATE SUFFICIENT FOR YOUR NEEDS

WICKET CONSTRUCTION

- SUB BASE CAPPING
- DRAINAGE
- PROFILE
- TURF
- MAINTENANCE

SUB BASE CAPPING

- MATERIAL
  - CLAY
  - ROAD BASE
- DEPTH
  - MINIMUM OF 300MM
- COMPACTION
  - WATER AND ROLL TO ENSURE NO MOVEMENT

SUITABLE SUB BASE CAPPING

DRAINAGE REQUIREMENTS

- LENGTHWISE SLOTTED PVC PIPE
- LATITUDINAL NON-SLOTTED PVC PIPE
- INSPECTION POINT
- OFF FIELD DISCHARGE PIPE
- WICKET BLOCK RING DRAIN

SUB SURFACE DRAINAGE PIPE

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SUB SURFACE DRAINAGE

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LENGTHWISE SLOTTED DRAINAGE PIPE LAYOUT

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NON SLOTTED LATERAL DRAINAGE PIPE

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INSPECTION POINT

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OFF FIELD DISCHARGE PIPE

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WICKET BLOCK RING DRAIN

WATER SUPPLY REQUIREMENTS

FOR THE WICKET BLOCK ONLY

- POTABLE WATER ONLY (MAINS SUPPLY) METERED
- or a PORTABLE WATER METER
- DEDICATED SUPPLY LINE
- 50mm DIAMETER PRESSURE PIPE
- QCV
- BALL VALVE
- VARIABLE SPRAY NOZZLE
- WATER TIMER (BATTERY OPERATED) & SOLENOID

QUEENSLAND CRICKET

POTABLE WATER SUPPLY

PORTABLE METER

DEDICATED WATER SUPPLY LINE

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50MM PRESSURE PIPE

QUICK CONNECT VALVE

BALL VALVE

VARIABLE NOZZLE

TIMER (BATTERY) & SOLENOID

CONSTRUCTING A WICKET BLOCK

- PROJECT COST
- WICKET BLOCK, OVAL PROFILES & DRAINAGE PLANS
- QUANTITIES OF MATERIALS
- MARK OUT WICKET BLOCK DIMENSIONS
- RECORD REFERENCE LEVELS OF WORK SITE
- CONSTRUCTION PHASE
  - ALWAYS CONSTRUCT THE WICKET BLOCK FIRST
  - BUILD THE OVAL AROUND THE WICKET BLOCK
- FALL OF 1:100 AWAY FROM WICKET BLOCK TO THE OVAL PERIMETER

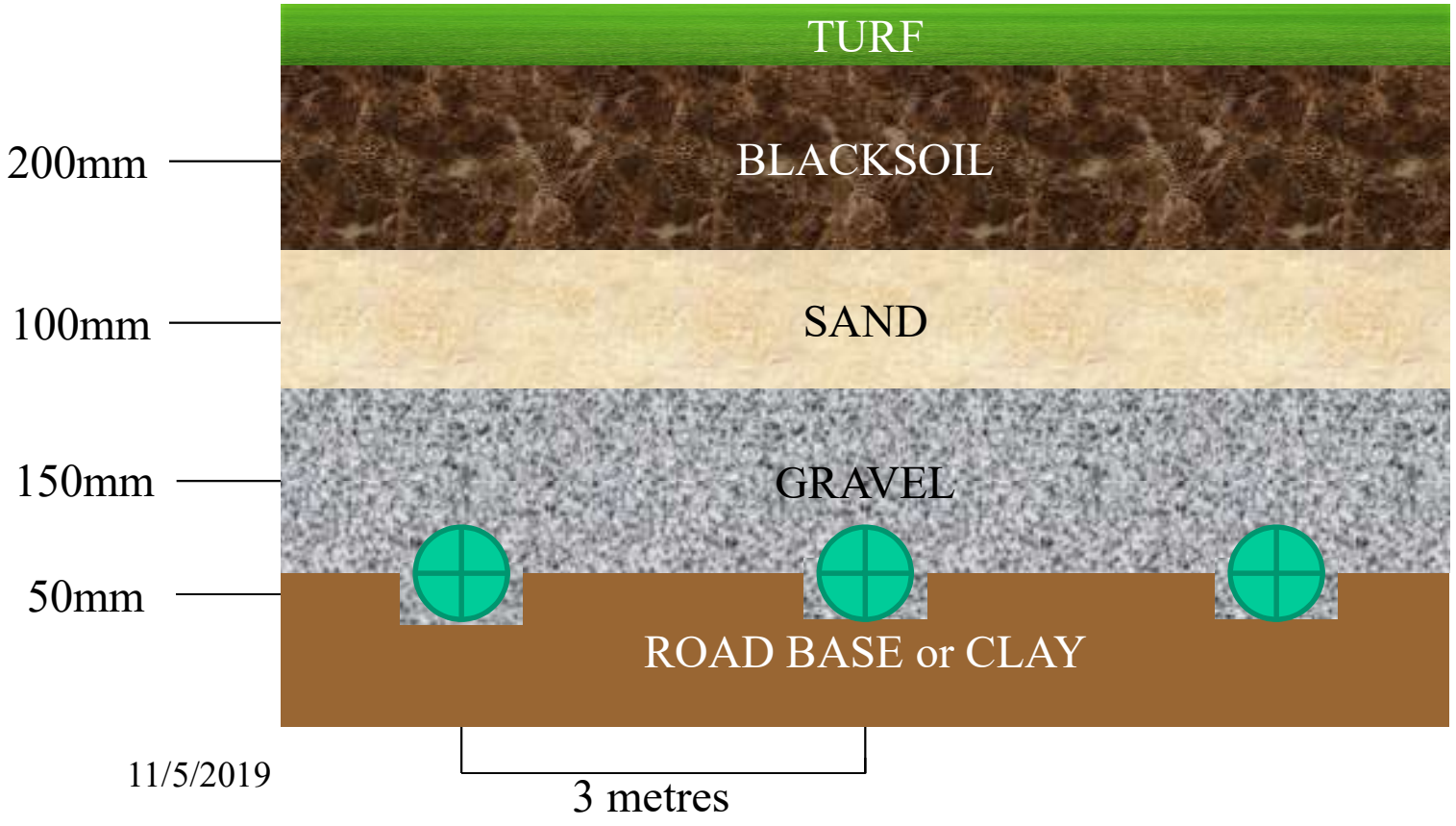
PROJECT COSTS

THINGS TO CONSIDER

- WICKET BLOCK AVERAGES $7,000 - $10,000 PER PITCH
  - CAPPING MATERIAL (ROAD BASE or CLAY)
  - DRAINAGE (PVC PIPES AND FITTINGS)
  - WICKET BLOCK MATERIAL (GRAVEL, SAND AND BLACK SOIL)
  - TURF OR SPRIGS
  - EXCAVATOR AND BOBCAT
- ADDITIONAL FEES TO DUMP EXCAVATED MATERIAL
- ADDITIONAL MACHINERY COST

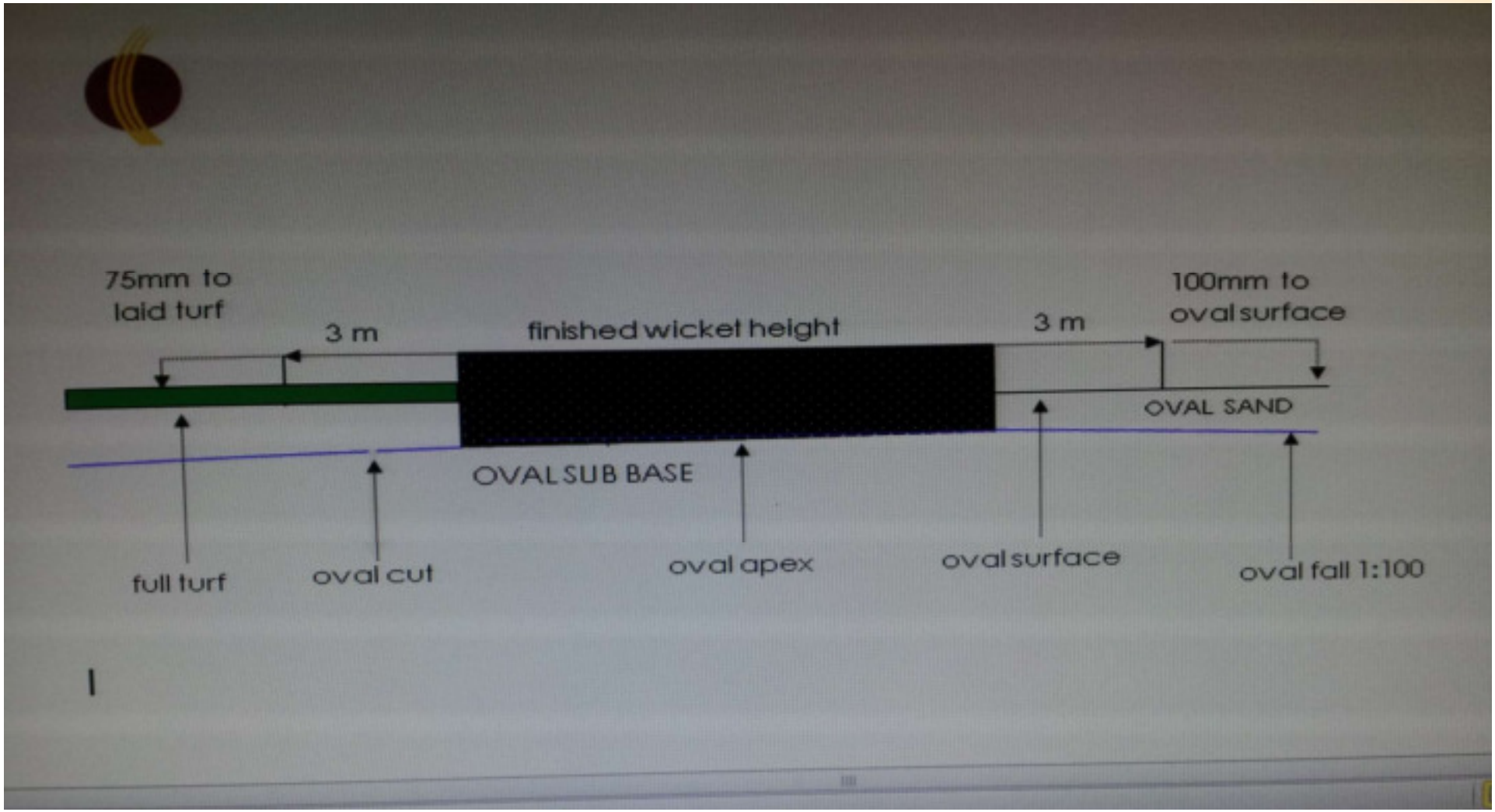
WICKET BLOCK PROFILE

- END CROSS SECTION

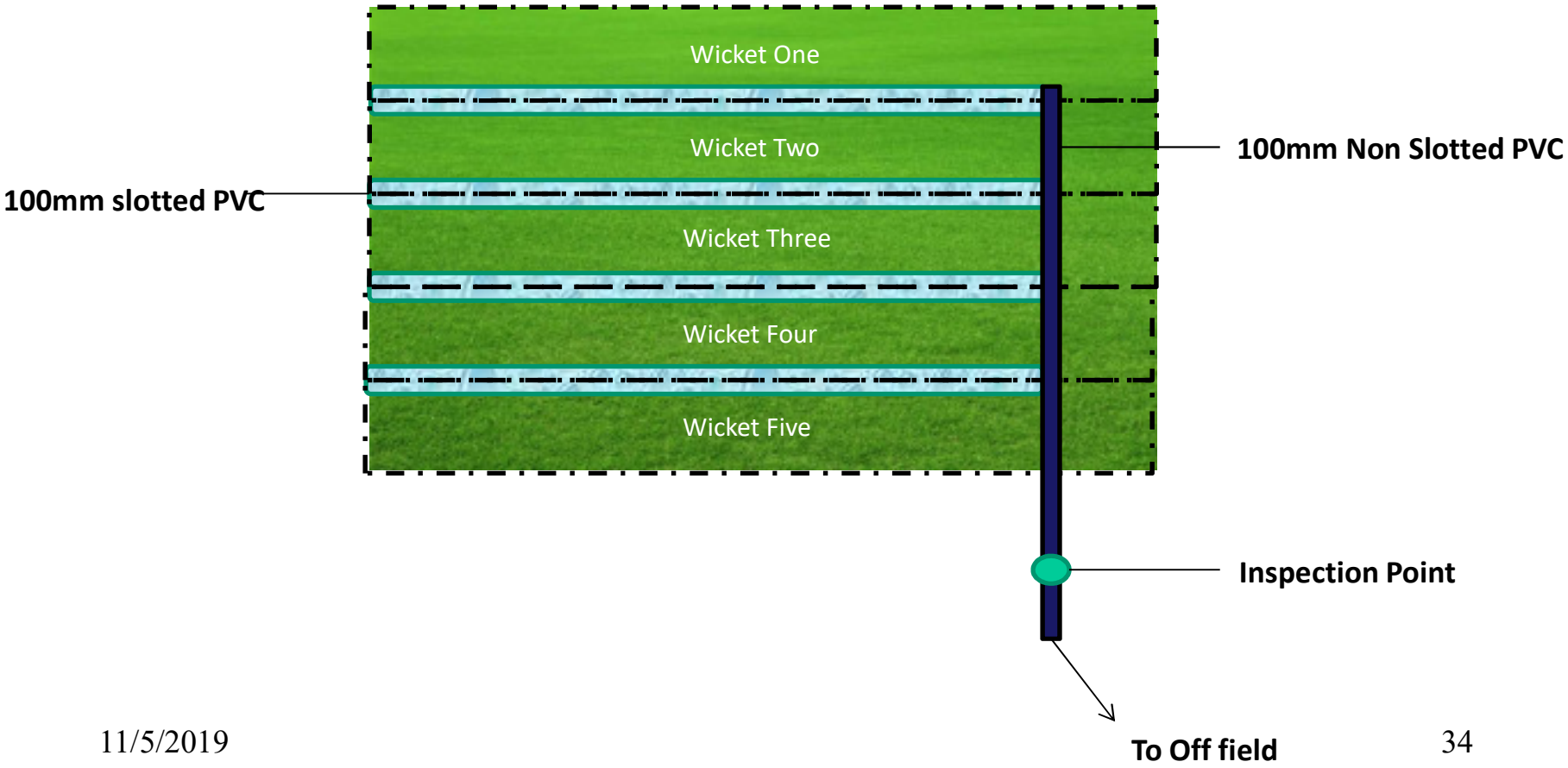


QUEENSLAND CRICKET

OVAL PROFILE



DRAINAGE PLAN



GRAVEL (PERMEABLE DRAINAGE) LAYER

- REQUIREMENTS
  - PEA GRAVEL (10mm) or EQUIVELANT
  - DEPTH a) FILL DRAINAGE TRENCH b) 150mm
  - UNIFORM LEVEL FINISHED (150mm)
- VOLUME
  - HOW TO CALCULATE
    a) EXCAVATED AREA OF GRAVEL LAYER (Length x Width x Depth)
    b) SUB SURFACE DRAINAGE TRENCH (Length x Width x Depth)
    c) DRAINAGE PIPE VOLUME (3.142 x R2 x Length)
  - TOTAL GRAVEL REQUIRED
    - (a + b) - c

SAND LAYER

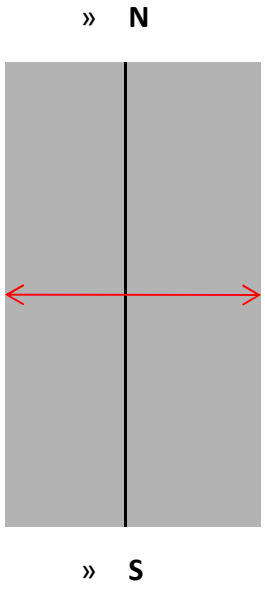
- REQUIREMENTS
  - SIZE (MEDIUM WASHED GRANULATE SAND)
  - DEPTH (100mm WET COMPACTED FINISHED)
  - UNIFORM LEVEL FINISHED (100mm)
- VOLUME
  - HOW TO CALCULATE
    - (Length x Width x Depth) x 1.2 Compaction Factor
    - Uniform Depth Across Profile

BLACK SOIL LAYER

- REQUIREMENTS
  - SIZE (BULK RAW OR CRUSHED TO 10mm)
  - DEPTH (150-200mm COMPACTED)
  - UNIFORM FINISHED 100mm ABOVE OVAL SURFACE
- VOLUME
  - HOW TO CALCULATE
    - (L x W x D) x 1.4 compaction factor
    - Uniform Depth Across Profile

BLACK SOIL SURFACE FOR TURF

- PREFERENCE SHOULD BE TO USE CRUSHED BLACK SOIL TO LEVEL THE FINISHED SURFACE.
- FINAL SURFACE SHOULD BE CROWNED TO AID WATER RUN OFF



- WICKET BLOCK SHOULD BE ROLLED BEFORE LAYING TURF.

MARK OUT WICKET BLOCK

- CHECK NORTH/SOUTH ORIENTATION
- ACCURATELY MEASURE LENGTH & WIDTH WITH TAPE MEASURE & LAY STRINGLINES FOR BLOCK OUTLINE
- CHECK THE AREA WILL BE SQUARE (3-4-5 TRIANGLE)
- MARK ALONG STRINGLINES WITH BRIGHT TURF PAINT
- HAVE ANOTHER PERSON CHECK YOUR CALCULATIONS
- REMEMBER THAT A PITCH IS 3.05 METRES WIDE (10')
- ALLOW 300MM EACH SIDE OF YOUR ACTUAL WICKET BLOCK SIZE

RECORDING REFERENCE LEVEL

- SET UP DUMPY LEVEL AT LEAST 15 METRES FROM THE WORK SITE
- DRIVE A REFERENCE PEG INTO THE GROUND & MARK THE WICKET BLOCK FINISHED HEIGHT ON IT.
- SET THE LASER RECEIVER TO FINISH HEIGHT ON THE MEASURING STAFF
- ALL EXCAVATIONS & CONSTRUCTION WILL BE RELATIVE TO YOUR REFERENCE POINT.

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SET UP LASER LEVEL

QUEENSLAND CRICKET

CHECK PROFILE DEPTH

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CHECK DEPTH (LASER)

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CHECK DEPTH OF EACH LAYER

CONSTRUCTION PHASE

- EXCAVATION OF SITE
- LAYING SUB BASE CAP (IF REQUIRED)
- TRENCH DRAINAGE LINES
- LAY & CONNECT DRAINAGE PIPES
- LAY GRAVEL
- LAY, LEVEL & COMPACT SAND
- LAY, LEVEL & COMPACT BLACK SOIL
- LAY TURF SURFACE
- MAINTAIN NEW WICKET BLOCK

QUEENSLAND CRICKET

SUB BASE CAP

QUEENSLAND CRICKET

EXCAVATING WICKET SITE

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TRENCHING SUB BASE WICKET DRAINAGE

LAY & CONNECT DRAINAGE LINES

QUEENSLAND CRICKET

LAYING GRAVEL

QUEENSLAND CRICKET

FINISHED GRAVEL LAYER

QUEENSLAND CRICKET

SPREADING SAND

QUEENSLAND CRICKET

LEVELLING SAND

QUEENSLAND CRICKET

COMPACTING SAND LAYER

QUEENSLAND CRICKET

LAYING BLACK SOIL

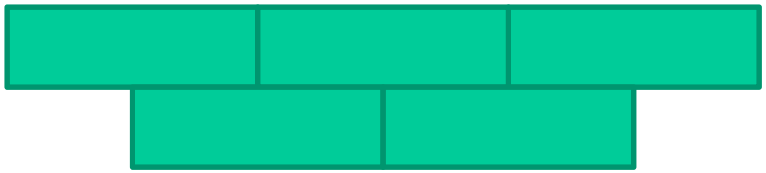
QUEENSLAND CRICKET

SPREADING BLACK SOIL

WASHED TURF

- LAYING TURF
  - USE WASHED TURF ONLY
  - PREFERENCE SHOULD BE GIVEN TO COMMON GREEN COUCH (Cynodon Dactylon) Note: Other acceptable cultivars include:

    Legend **Winter Green** **Grand Prix**
  - TURF PIECES/ROLLS MUST BE BUTTED UP TOGETHER AND LAID IN AN OFFSET STYLE.



  - ENSURE ALL SOIL, STONES & FOREIGN OBJECTS ARE REMOVED BEFORE LAYING
  - EXCESSIVE ROOTS SHOULD BE CUT OFF BEFORE LAYING
  - ORDER ENOUGH TO PLANT A TURF NURSERY FOR FUTURE NEEDS

TURF SURFACE (WASHED TURF)

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WASHED TURF

QUEENSLAND CRICKET

WASHED TURF

SPRIGGING

ADVANTAGES

- CHEAP
- STRONG UNIFORM SPREAD
- NO THATCHING
- CAN LIGHTLY TOPDRESS LOW BARE AREA TO LEVEL BLOCK

DISADVANTAGES

TAKES LONGER TO COVER WICKET BLOCK

TIME NEEDED TO HARVEST & PLANT

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SPRIGS STARTING TO RUN

QUEENSLAND CRICKET

SPRIGGING

UNIFORM COVERAGE FROM SPRIGGING

QUEENSLAND CRICKET

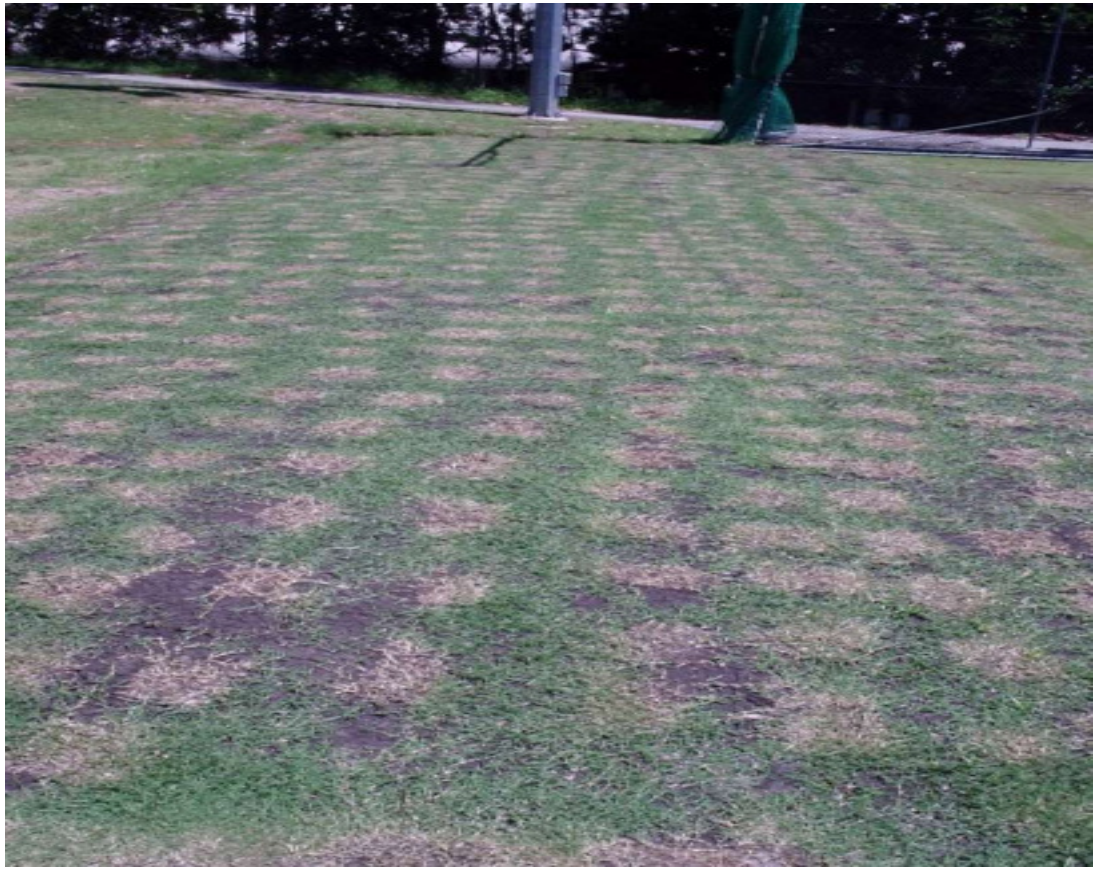
TURF SODDING

QUEENSLAND CRICKET

TURF SODDING (NOTE THATCHING)

QUEENSLAND CRICKET

TURF SODDING



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THATCH FROM SODDING

QUEENSLAND CRICKET

FINISHED WICKET BLOCK

MAINTAIN NEW WICKET BLOCK

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ROLL WICKET BLOCK

CONSTRUCTION SUMMARY

- CHECK SIZE, ORIENTATION, FOUNDATIONS, DRAINAGE
- MARK WICKET PERIMETER, REFERENCE HEIGHTS
- EXCAVATE
- INSTALL SUB BASE CAPPING
- INSTALL DRAINAGE SYSTEM
- INSTALL WICKET BLOCK LAYERS (GRAVEL, SAND, SOIL)
- SPRIG OR LAY WASHED TURF SURFACE
- BUILD OVAL UP TO WICKET BLOCK
- CARRY OUT ONGOING MAINTENANCE
- PLAY CRICKET

SELECTION OF BLACK SOIL

PHYSICAL PROPERTIES	IDEAL RANGE
• pH	6.5 – 7.5
• Clay content	65% - 75%
• Organic matter content	less than 3%
• Emerson Class No.	Above 3
• Crushing strength	0.8 – 1.6Mpa
• Cracking Pattern	2 – 14 pieces

SELECTION OF BLACK SOIL

FIRST SIMPLE TEST

Roll a sample of soil into a ball about 30mm in diameter. Place into a glass of water and let it sit for several hours.

RESULT

A suitable sample should settle into three distinct layers; clay, fine silt and medium silt. It should reduce in size gradually and evenly. If your sample decays quickly, you can be sure it has too much silt and too little clay. It is therefore unsuitable for use in a wicket

SELECTION OF BLACK SOIL

SECOND SIMPLE TEST

Roll the sample into a small ball and let it dry naturally in the atmosphere out of the sun.

RESULT

If it holds together it is probably OK. If it crumbles when handled you know that the silt content is too high.

POST CONSTRUCTION MAINTENANCE
(WASHED TURF)

- Fertilise
- Water daily for first week following planting (no other work)
- Roll entire block (approx. weekly) to aid compaction (not wet roll)
- Mow after turf has established (approximately 6-8 weeks)
- Scarify turf surface no sooner than 8 weeks
- Light top dress after scarification to adjust levels
- Weekly deep watering to encourage root depth
- Cross roll entire block to flatten any un-evenness
- Wicket block will be playable between 6 and 12 months after construction depending on climatic conditions.

QUEENSLAND CRICKET

SOIL TEST DEFINITIONS

pH: measure of the acidity or alkalinity in a sample of water.

ORGANIC MATTER: the amount of dead plant material in the soil of the wicket block. Will have a detrimental affect on producing good wickets if high.

CLAY CONTENT: the % of clay particles in a black soil sample. Higher clay content produces harder wickets.

EMERSON CLASS No: classifies (*gravel, sand, silt, clay*) soil aggregate (*total soil mass*) when immersed in water.