TRACK & STARTING GATE SPECIFICATIONS

Clark Public Utilities has designed a starting gate for the Solar Car Challenge using repurposed materials. The following outline will assist you in constructing a starting gate tailored to your school's needs for preliminary races. Similar to the experience your students will have as they design and engineer their solar cars, this process will require adaptability, problem- solving, and collaboration. Embrace the opportunity of adapting these plans to create a starting gate that reflects your school's vision and enthusiasm for Clark Public Utilities Solar Car Challenge!

Constructing a gate and holding preliminary races is not a requirement for participation in Clark Public Utilities Solar Car Challenge. Details for the starting gate and track are provided as reference only.

TRACK

- ❑ ~6 meters long
- ❑ 31.75 centimeter-wide lanes
- ❑ Starting gate at 40 centimeters
- ❑ Lights positioned 24 inches above the track
- ❑ PVC Pipe

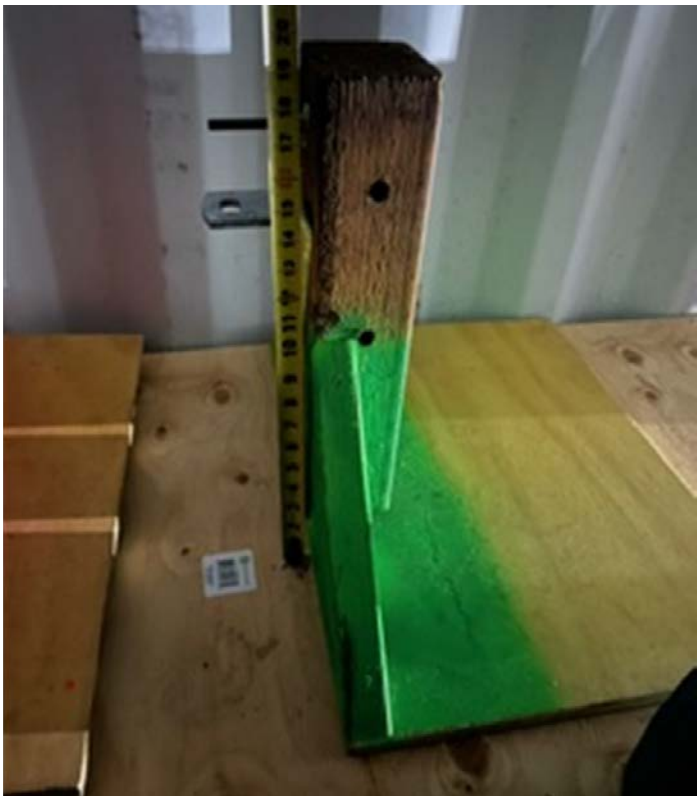
TRACK MATERIALS

- ❑ PVC Sides (1 inch diameter)
- ❑ Gym Floor

LIGHTING

- ❑ 23, 72 watt LEDs producing 330,000 lumens, 1,428 watts, placed at 45-degree angles (Similar to items pictured)

Starting Gate



Left gate support

Side view of gate support

FOOTING

- One 4x6 posts 20 inches tall
  - Drill a hole for a ¾ inch bolt
  - Be precise – crooked will impede rotation
- Two 2x6 braces
  - One on each side of the 4x6 post
  - Cut at a 45-degree angle
  - 10 inches on the long side of the cut
- One ½ inch plywood bases/footing
  - 12 inches by 24 inches – extra base helps
- Weight, sandbag, etc. on plywood base
  - Do not want the gates to shift while in use
- Cut out bracket, 90-degree angle
  - 1 3/8 inch bolt into side of 4x6
- Repeat for the opposite side
- Gate handle
  - Can be placed on the right or the left support
  - One ½ inch ground rod bolted to the cross bar and gates

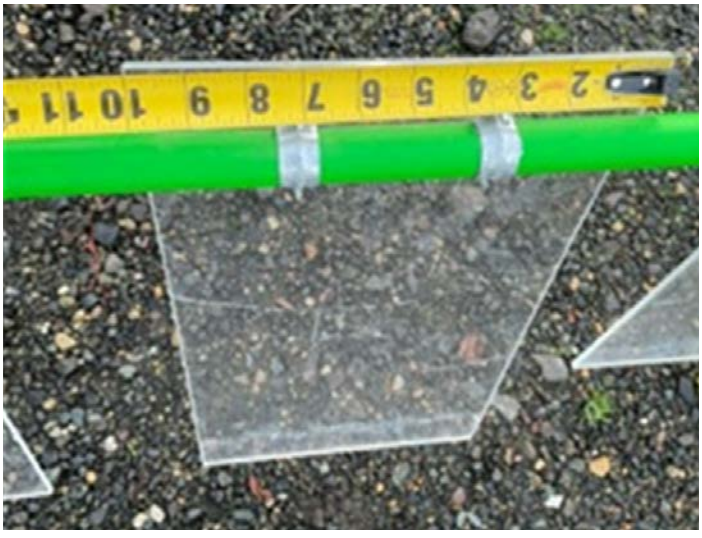
handle and cross bar length

Cross Bar

Cross bar with gates attached

- One ½ inch metal conduit
  - wood dowel will bow
- 100 inches long
- PVC adapter to fit two 3/8 inch bolts that go through the 4x6 post (see photo – orange cross bar)

Plexiglas Gates



- Gate length: 18.5 inches
- Gate width: 10 inches
- Gate spacing:
  - Brackets are 3 inches from Plexiglas edge
  - Gates are spaced 4 inches apart
- Gates are held by 2 metal conduit straps

Light Bases

- Two 2x6 board
  - 30 inches tall
  - One cut at 45-degree angle
- One 2x6 brace 8 inches' long
  - Placed at an angle for the lighting bracket
  - Match 45-degree angle
  - Two ½ inch bolts on each side
- One 2x6 brace 8 inches' long
  - Placed 10 inches below top for support
  - Two ½ inch bolts on each side
- One ½ inch plywood bases/footing
  - 12 inches by 24 inches +
- Repeat for the opposite side
- From one light base (inner post to inner post) is 20 inches' long
- Metal strut used for lighting bracket