



Designing Courses & Obstacles

The Why's & How's Of Designing Safe, Challenging Marathon Obstacles & Cones Courses



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Date: December 2013

Who is the Course Designer?

Many times the
course designer
will be the
land owner.



Brian Jensen at The Ranch CDE, Pritchard, BC Ellen Hockley Course Designer



Who is the Course Designer?

How It Starts

You missed the last club meeting.

Now you are told that the club volunteered you to design the Marathon or Cones course or build the Dressage Arena and you're not sure if you know enough about Course Design to tackle the job.

This power point will help relieve your doubts and give you some pointers so you can enjoy the course design job and the drivers will enjoy your course.

**A publication you will find helpful is the
FEI Driving Guidelines for Organizers and Officials.**

<http://www.horsesport.org/sites/default/files/2009%20FEI%20Driving%20Guidelines%20vdef2.pdf>

Who is the Course Designer?

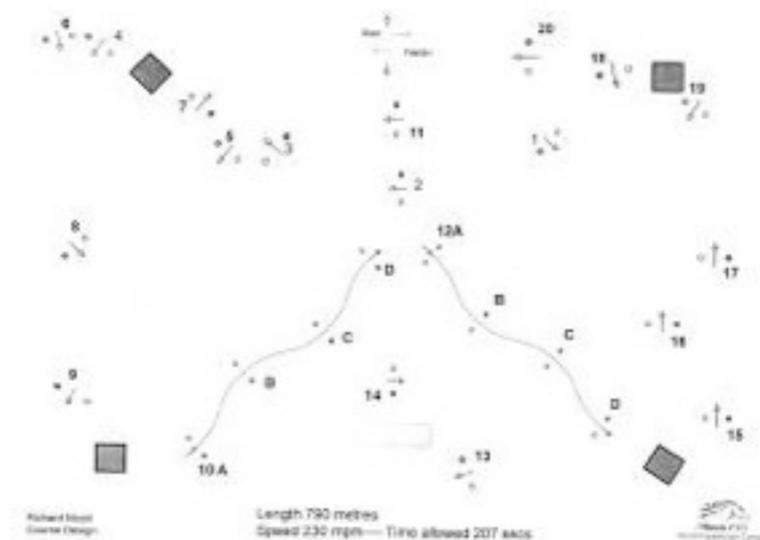
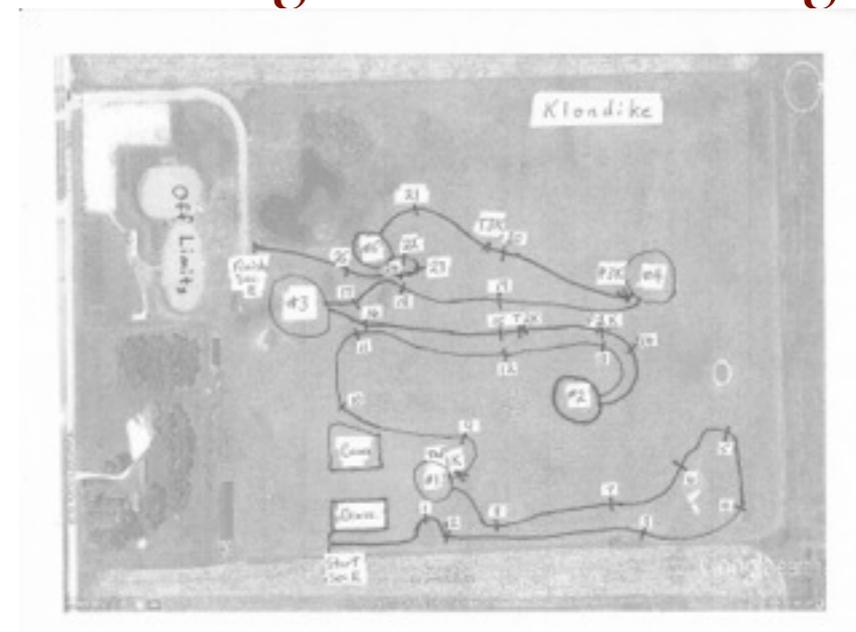
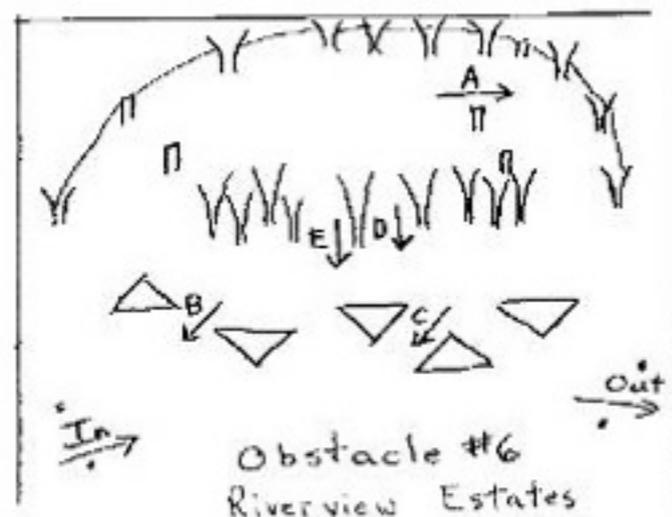
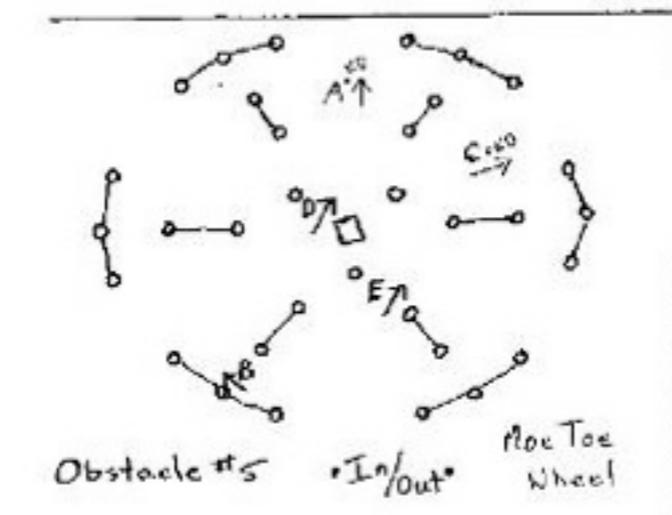
Responsibilities

The Course Designer is responsible for:

1. the overall layout of the event under the supervision of the Technical Delegate.
2. layout for stabling, parking, exercise areas and competition rings.
3. design, measurement, gating and supervision of construction of the marathon obstacles and the marathon track.
4. design, measurement and supervision of construction of the Cones competition course.
5. working with the organizer to know the abilities of the competitors.
6. working with the course builder to design obstacles that won't bankrupt the competition.
7. producing diagrams of all Cones Courses, Marathon Obstacles and Marathon Maps, including their lengths, for the TD and Organizer.

COURSE DESIGN PHILOSOPHY

It is the responsibility of the course designer to produce the course map, obstacle diagrams and cones course diagram for the organizer.



GOALS & GUIDELINES

The Course Designers' goal is to design a course that is:

- ◆ **safe**
- ◆ **appropriate for all divisions & classes being offered**
- ◆ **challenging for all divisions & classes being offered**
- ◆ **FUN!**



GOALS & GUIDELINES

Where do you find the course design guidelines for each Division?
You go back to the beginning. You go to the Dressage Tests.

The American Driving Society
TRAINING LEVEL TEST 3 (1994)

ENTRY NUMBER: _____

FOR USE BY SCRIBE ONLY:

Color of horse _____
Distinguishing markings _____

GAITS AND MOVEMENTS
Working walk
Free walk on long rein
Working trot
Halt through walk
Rein back
40m circle

INSTRUCTIONS
Transitions are made through the walk. Longitudinal stretch and moderate lateral bend are required.

MOVEMENT	TEST	DIRECTIVE IDEAS	MAX PTS	POINTS	REMARKS
1	A X	Enter working trot Halt, salute	10		
2	X C C to A	Proceed working trot Track right Working trot	10		
3	A	Circle right 40m.	10		
4	KXM	Change rein across diagonal	10		
5	C	Circle left 40m.	10		
6	Bet. C & H H to B B	Working walk Free walk on long rein Working walk	10 x 2		
7	Bet. B & F F to K	Develop working trot Continue working trot	10		
8	Bet. K & E E to M M	Working walk Free walk on long rein Working walk	10 x 2		
9	C	Halt 3 to 5 sec. Proceed working trot	10		
10	HXF	Change rein across diagonal	10		
11	A X	Down centerline Halt, rein back 2 to 4 steps Proceed at working walk	10		
12	X to G G	Working walk Halt, salute	10		

LEAVE ARENA AT WORKING TROT

COLLECTIVE REMARKS

GAITS	Freedom and regularity. If team or pair: maintenance of even pace and equality of work.	10 x 2	
IMPULSION	Desire to move forward. Elasticity of steps. Relaxation of back. Engagement of hindquarters.	10 x 2	
SUBMISSION	Acceptance of the bit. Correctness in lateral bend. Attention and confidence. Calmness, lightness and ease of movements.	10 x 2	
DRIVER	Use of aids, handling of reins, whip and voice. Driver's position.	10 x 2	

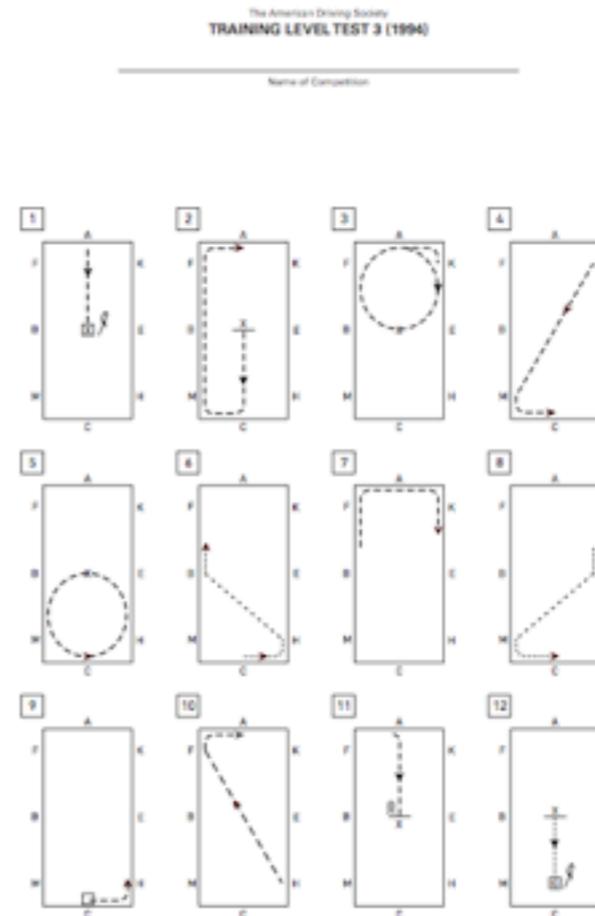
Points Errors Maximum Points: 220
Total points given: _____
Factor: x 0.682
Factored points: 150 minus _____ = _____ Penalties
+ _____ Errors

10 Excellent
9 Very Good
8 Good
7 Fairly Good
6 Satisfactory
5 Marginal
4 Insufficient
3 Fairly Bad
2 Bad
1 Very Bad
0 Not Executed

Error in course or groom dismounting:
1st incident = 5 points
2nd incident = 10 points
3rd incident = Elimination

Disobedience:
1st incident = 5 points
2nd incident = 10 points
3rd incident = Elimination

Judge's Signature: _____ Position: _____



PURPOSE
To establish that the correct foundation is being laid for the training of the driving horse requiring the green horse to move freely and energetically forward in a steady rhythm in the working walk and the working trot, while accepting the bit with relaxation, through transitions and 40-meter circles. Increased engagement of the hindquarters (impulsion) cannot be exceeded yet. This level is also intended to encourage the inexperienced driver.

CONDITIONS
40 x 80 meter arena (exception Tandems and Four-in-Hands)
Average driving time: 7-12 minutes

FOR JUDGING PURPOSES ONLY
If not clearly defined, each movement ends at the beginning of the next movement.

GOALS & GUIDELINES

For Training Level:

PURPOSE

1. To establish that the correct foundation is being laid for the training of the driving horse requiring the green horse to move freely and energetically forward in a steady rhythm in the working walk and the working trot, while accepting the bit with relaxation, through transitions and 40 meter circles.
2. Increased engagement of the hindquarters (impulsion) cannot be expected yet.
3. This level is also intended to encourage the inexperienced driver.

GAITS AND MOVEMENTS

- ◆ Working walk
- ◆ Free walk on long rein
- ◆ Working trot
- ◆ Halt through walk
- ◆ 40 m. circle

INSTRUCTIONS

- ◆ Transitions are made through the walk.
- ◆ Longitudinal stretch and moderate lateral bend are required.

GOALS & GUIDELINES

For Preliminary Level:

PURPOSE

- ◆ To establish that the horse has acquired a greater degree of balance and suppleness in addition to the rhythmical, free forward movement expected at the Training Level.
- ◆ While consistently working towards the bit the horse exhibits more activity of the haunches in his movement.
- ◆ To be demonstrated in: Lengthened walk and lengthened trot
- ◆ The rein back should show a greater degree of submission than expected at Training Level.

GAITS AND MOVEMENTS

- ◆ Working walk and trot
- ◆ Lengthened walk
- ◆ Lengthened trot
- ◆ Halt from walk or trot
- ◆ 20 m. half circle
- ◆ Rein back

INSTRUCTIONS

- ◆ Transitions may be made through the walk.
- ◆ Horse must show correct longitudinal & lateral bend & increased activity of haunches.

GOALS & GUIDELINES

For Intermediate Level:

PURPOSE

- ◆ To establish that the horse has acquired a greater degree of balance and suppleness in addition to the rhythmical, free forward movement expected at the Training Level.
- ◆ While consistently working towards the bit the horse exhibits more activity of the haunches in his movement.
- ◆ To be demonstrated in: Lengthened walk and lengthened trot
- ◆ The rein back should show a greater degree of submission than expected at Training Level.

GAITS AND MOVEMENTS

- ◆ Collected trot
- ◆ 10 m. deviation
- ◆ 5 loop serpentine
- ◆ 20 m. circle
- ◆ Rein back 2 m.
- ◆ Halt 5 seconds

INSTRUCTIONS

- ◆ Transitions no longer through the walk.
- ◆ Horse must show increased amount of suppleness, responsiveness, activity of haunches and accuracy.

GOALS & GUIDELINES

Each Dressage Test clearly states what the expectations are for the horses and drivers in each division.

A training level horse should not be asked to perform a tight turn within an obstacle or in a cones course. They should always be able to take a large circle route and continue at a working trot.

A preliminary level horse should be able to proceed at a working or lengthened trot. They may be asked to perform a slightly tighter turn.

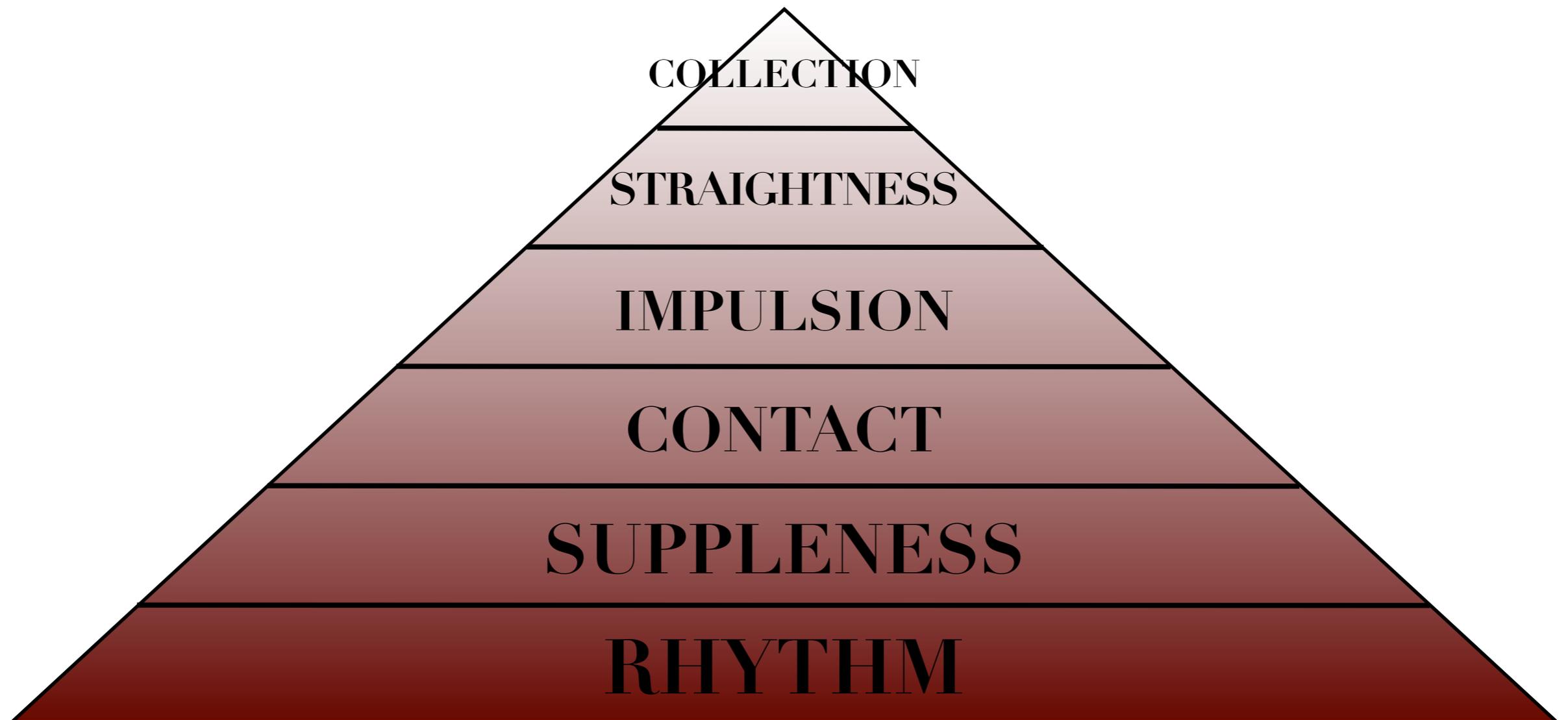
An intermediate level horse can perform a collected trot and may be asked to perform even tighter turns.

One thing you will soon realize is that no matter how you thought the marathon obstacles or cones course you designed would be driven, that is not necessarily the way the drivers will drive it.

GOALS & GUIDELINES

WHY IS THE TRAINING SCALE IMPORTANT TO COURSE DESIGN?

A Course Designer should not ask a horse and driver to perform a manoeuvre beyond their training.





GOALS & GUIDELINES

The Training Scale Elements in Brief

1- Rhythm: It is the result of mental and physical relaxation. When the horse is relaxed, he is able to step into the natural rhythm of the four natural gaits: walk, trot, canter, and the rein-back. The walk is a 4-beat movement, the trot 2-beat, the canter 3-beat, and the rein-back 2-beat. A horse that trots in rhythm is trotting in a clear 2-beat rhythm in a steady tempo. There is good rhythm and bad rhythm: Good rhythm is when the horse's canter is a true 3-beat, bad or incorrect rhythm is when it becomes a lazy 4-beat. Rhythm faults in the walk are when it comes close to 2-beat, and in the trot when it resembles a lame, hopping horse.

2- Suppleness: A driving horse is ultimately an athlete, and every athlete requires a certain degree of flexibility. Suppleness is the looseness and flexibility of the horse's body. There are two types of suppleness: longitudinal and lateral. Longitudinal suppleness is the looseness of the horse's haunches, back, neck, poll, and jaw, giving him the ability to swing forward while remaining fairly on the bit. Lateral suppleness is the degree to which a horse can bend his body and neck sideways, either to produce a circle or to move sideways.

3- Contact: When the horse is accepting the drivers' hands and aids, it is said that he is offering good contact. Good contact is when the horse accepts and responds to all aids while maintaining a round outline with a mouth that is relaxed and accepting the bit. You can point out good contact when the horse's back is raised, his quarters engaged, his poll the highest point, his jaw relaxed, and his nose a hint in front of the vertical (That is also a sign of good training).

GOALS & GUIDELINES

The Training Scale Elements in Brief

4- Impulsion: Free-flowing energy initiated by the driver, causing the horse's back to swing, his quarters to engage, and his forelegs to articulate is impulsion. Good impulsion is mirrored through a horse that appears to have an innate desire to go forward with active, lively steps. How far the horse steps underneath his barrel and how much he engages his hocks are both measures of impulsion. Basic training regulates the horse's engine so that impulsion becomes second nature to the horse and the driver does not have to push all the time.

5- Straightness: Horses are naturally crooked, so straightening them is the job of the driver/trainer. For example, many horses canter with their quarters slightly in. Crookedness is caused by uneven lateral suppleness, i.e. one side stiffer than the other, and a weaker hind leg. Good training focuses on developing both sides and hind legs of the horse equally, which eventually leads to absolute straightness. A horse is truly straight when the hind foot steps in the line of the front foot (or sometimes a little deeper to the inside in the event of collection).

6- Collection: The pinnacle of the Training Pyramid, collection is the ultimate goal for the driving horse. When all the previous elements are present, collection just happens! Collection involves the lowering of the croup, lightness of the forehand, and shorter and higher steps. Collection is possible in the walk, trot and canter, and is achieved by collecting exercises and refined by little half-halts.

COURSE DESIGN PHILOSOPHY

Each course designer has his or her own philosophy and style.

As long as you stay within the rules and you are designing appropriately for each level those differences are what make the sport of driving interesting.

Websites for World Championships are a great place to get some ideas, but remember those obstacles are designed for advanced level competitions.



COURSE DESIGN PHILOSOPHY

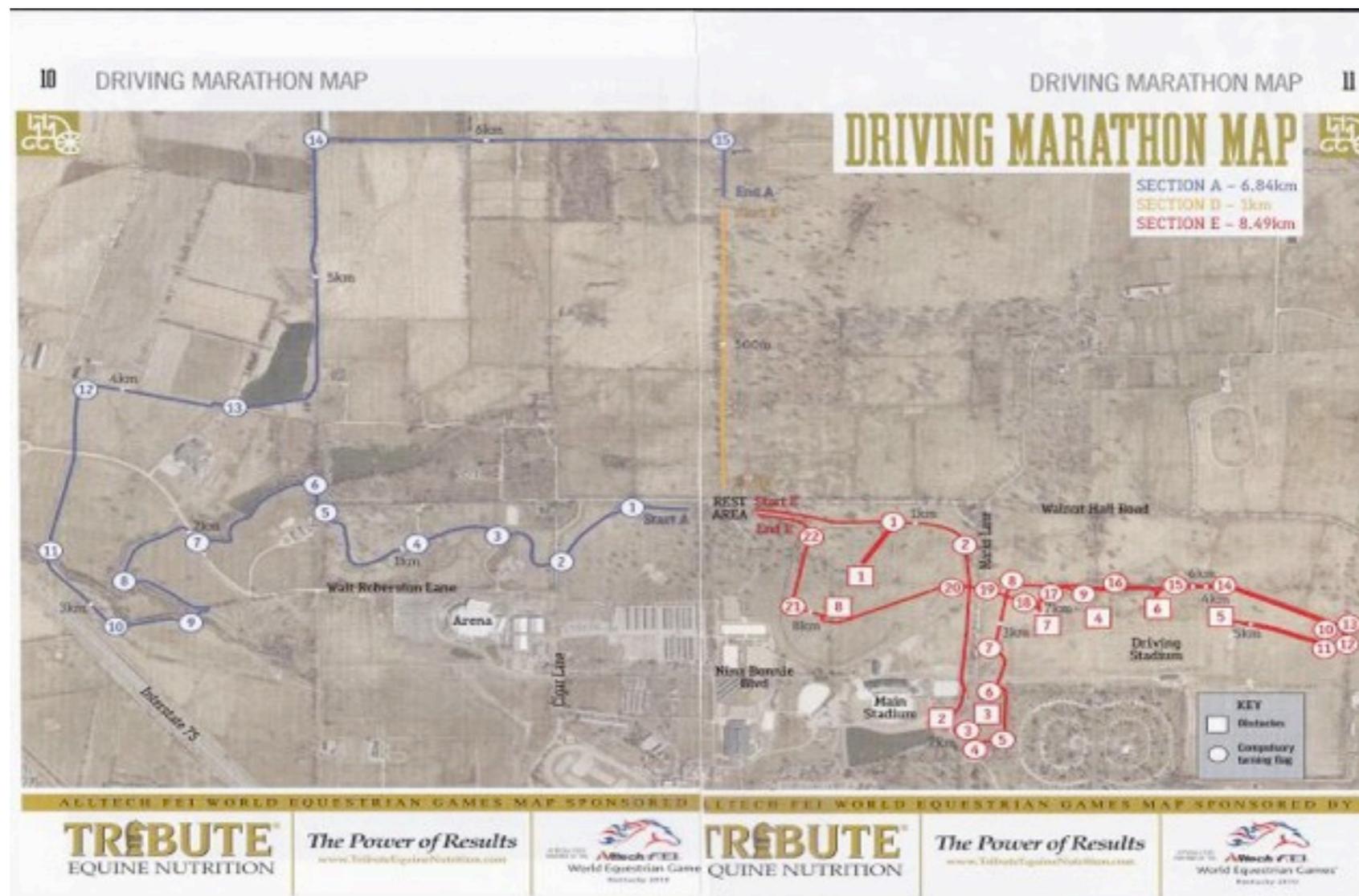


Sometimes drivers look a little perplexed when they are trying to decipher the course designer's philosophy!

MARATHON COURSE DESIGN

THE MARATHON

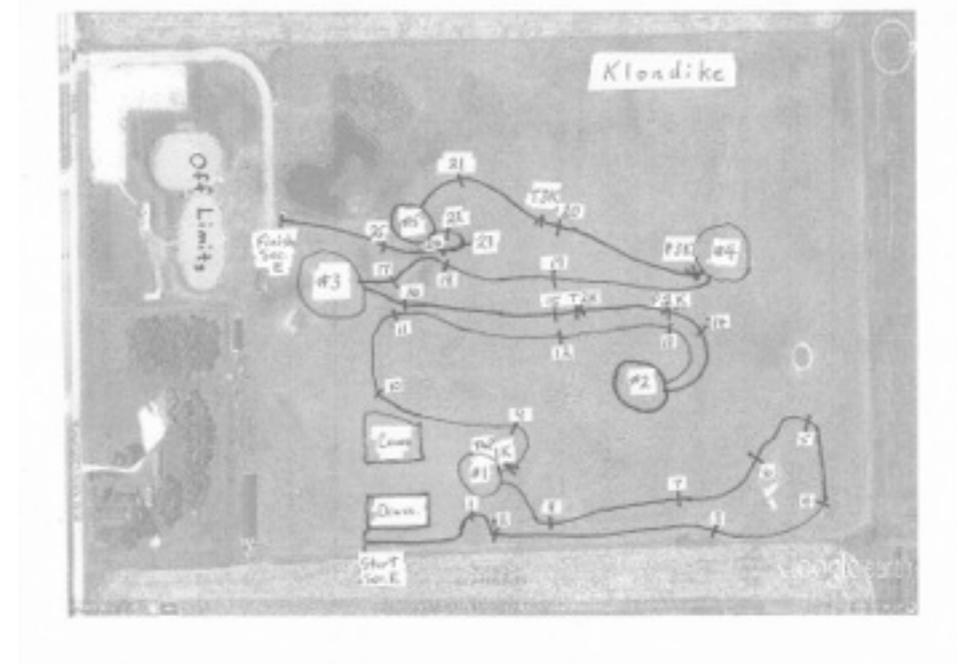
The sport is evolving and soon the Marathon may be focusing more on Section E.



MARATHON COURSE DESIGN

THE MARATHON COURSE

- ◆ The Marathon Course needs to be clearly marked with red and white compulsory turning flags to ensure drivers stay on the track.
- ◆ Compulsory turning flags are used to keep drivers from entering an area the course designer or other officials feel is unusable and to make sure everyone travels the entire distance.
- ◆ The red and white compulsory turning flags are numbered in sequence with the appropriate coloured and shaped signs for each division.
- ◆ Check the rule book for minimum and maximum distances.





MARATHON COURSE DESIGN

THE MARATHON COURSE

- ◆ The obstacles are measured for each division.
- ◆ Training – Compulsory Gates A, B, C (remember to measure training division as a training level driver should drive it)
- ◆ Preliminary – Compulsory Gates A, B, C, D
- ◆ The length of the track in the obstacle is added to the distance between the obstacles.
- ◆ These distances must be marked on the marathon course map.
- ◆ The start and finish of each section, compulsory turning flags and the location of the obstacles must also be marked on the marathon map.

Event: Fictional Driving Trial					Date: March 17, 2013						
DISTANCE	TRAINING				A, B, C	DISTANCE	PRELIMINARY				A, B, C, D
Start to Ob. 1	1	3	4	3	1K 30m before Ob#1	Start to Ob. 1	1	3	4	3	1K 30m before Ob#1
Obstacle 1		1	2	5		Obstacle 1		1	3	5	
Total	1	4	6	8		Total	1	4	7	8	
Ob. 1 to Ob. 2		8	0	0	2K 50m after Ob#1	Ob. 1 to Ob. 2		8	0	0	2K 50m after Ob#1
Total	2	2	6	8		Total	2	2	7	8	
Obstacle 2		1	3	0		Obstacle 2		1	6	5	
Total	2	3	9	8		Total	2	4	4	3	
Ob. 2 to Ob. 3		9	8	0	3K 60m after Ob#2	Ob. 2 to Ob. 3		9	2	2	3K 60m after Ob#2
Total	3	3	7	8		Total	3	3	6	5	
Obstacle 3				0	Training misses Ob#3	Obstacle 3		1	4	1	0 on side of A, B, C only
Total				0		Total	3	5	0	6	
Ob. 3 to Ob. 4				0		Ob. 3 to Ob. 4		7	9	8	
Total	3	3	8	8		Total	4	3	0	4	4K 40m after Ob#3
Obstacle 4		1	0	5	need arrow at exit	Obstacle 4		1	3	0	
Total	3	4	8	3		Total	4	4	3	4	
Ob. 4 to Ob. 5		5	1	0		Ob. 4 to Ob. 5		5	1	0	
Total	3	9	9	3	4K in Ob#5	Total	4	9	4	4	5K in Ob#5
Obstacle 5		1	1	2	hole at A	Obstacle 5		1	3	1	Jape at (Creek) D
Total	4	1	0	5		Total	5	0	7	5	
Ob. 5 to Ob. 6		4	9	0	Finish	Ob. 5 to Ob. 6		4	9	0	Finish
Total	4	5	9	5		Total	5	5	6	5	
Obstacle 6						Obstacle 6					
Total						Total					
Ob. 6 to Ob. 7						Ob. 6 to Ob. 7					
Total						Total					
Obstacle 7						Obstacle 7					
Total						Total					
Ob. 7 to Finish						Ob. 7 to Finish					
Total						Total					

MARATHON COURSE DESIGN

THE MARATHON OBSTACLES



- ◆ **Marathon Obstacles may be permanent or portable.**
- ◆ **If they are portable it is best to secure them so they can not be moved.**
- ◆ **If you cannot secure them use knockdowns to discourage drivers from running into them. This will save rebuilding obstacles and may save a wreck.**

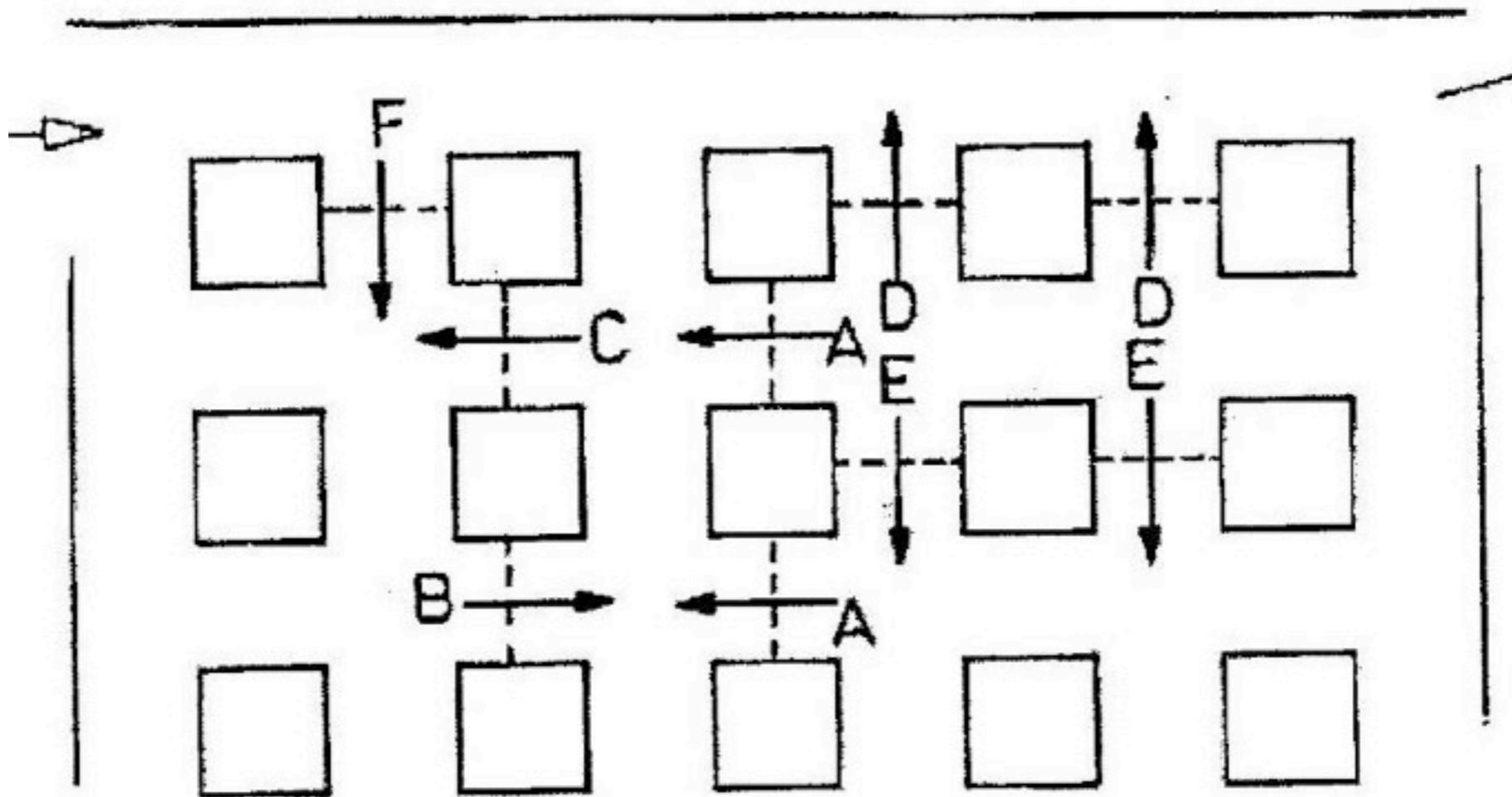
MARATHON COURSE DESIGN

If the obstacles are permanent make sure the fasteners are recessed and the corners are rounded.



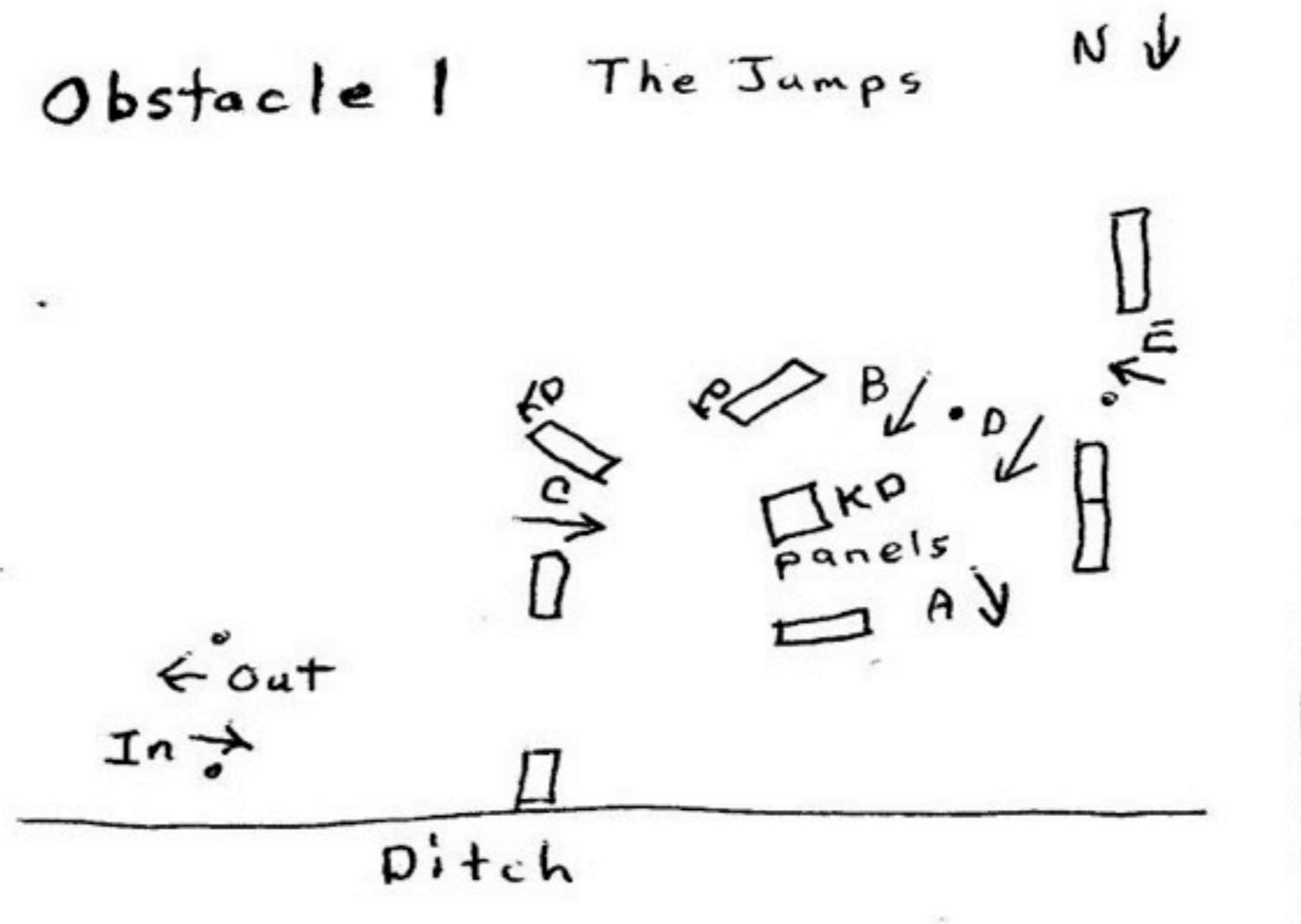
MARATHON COURSE DESIGN

Some Obstacles are very symmetrical...



MARATHON COURSE DESIGN

...some are not.





MARATHON COURSE DESIGN

A few general things about Marathon Obstacles

- ✦ **Designing Marathon Obstacles is about gaps.**
- ✦ **The more gaps you create, the more options you have for compulsory gates.**
- ✦ **There should be at least 2 viable routes to each gate.**
- ✦ **Although the rule book states that the minimum width of a gate for horses and ponies is 2.5 m, that is the minimum at the FEI level and should not be considered the standard width for all gaps. A 3 m gap is friendlier and is recommended.**
- ✦ **Remember that the distance from the end of the pole to the front axle of the carriage for horses is about 3.3 metres. If you are designing an obstacle for pairs and 4s of horses you must leave at least one route to accommodate that length of vehicle.**
- ✦ **When you are designing and building a Marathon Obstacle make sure you have a copy of the current rule book with you and refer to it for minimum/maximum distances to the entrance and exit, maximum lengths etc.**
- ✦ **Many competitions are being hosted on property where there are no permanent obstacles. Make sure that the materials being used for portable obstacles will not break or bend and become a hazard.**



MARATHON COURSE DESIGN

And A Few More Things About Marathon Obstacles

- ✦ **Don't be afraid to use knockdowns to discourage drivers from hitting portable elements.**
- ✦ **If you are decorating your obstacle remember that you must not use decorations that will frighten a horse.**
- ✦ **The TD and judges will decide if an element or decoration may frighten a horse and they will ask you to provide an alternate route.**
- ✦ **If you have classes for VSEs, Ponies and Horses it is important to not design all of your obstacles to favour one size.**
- ✦ **Horses have an advantage in an obstacle that has distance between the gates.**
- ✦ **VSEs and ponies have an advantage in an obstacle where there are short cuts requiring tighter turns.**
- ✦ **Groves of trees make interesting and challenging obstacles. However, trees grow and a gap that is 2.5 meters this year will be less than 2.5 meters within a couple of years.**
- ✦ **If the trunk of the tree blocks the compulsory gate sign, it is recommended that you wrap the tree trunk with red and white wrapping.**

MARATHON COURSE DESIGN

Marking Compulsory Gates In Obstacles

It is an advantage for competitors, obstacle observers and spectators to have the letters on the gates marked on the reverse side (in lower case) and marked all round posts or trees.

(FEI Guidelines for Driving Organizers and Officials)





MARATHON COURSE DESIGN

Important things to remember for the Training Division Marathon

- ◆ **Training division drivers are not penalized for the time taken in an Obstacle.**
- ◆ **The distance in the Obstacles is included in the total distance in Section E.**
- ◆ **Training Division drivers are not allowed to canter in Section E.**
- ◆ **The speed for a horse in Section E is 13 km/hr (217 m/min). That's a forward working trot.**
- ◆ **If the obstacle is measured too tight or is designed so a driver must walk or stop to make a turn in the obstacle there is nowhere for them to make up the lost time.**
- ◆ **If there is water in an obstacle there must be an alternate dry route for the training division drivers.**
- ◆ **Compulsory gates are not permitted where they will force the driver to turn on a significant slope.**



MARATHON COURSE DESIGN

Important things to remember for the Preliminary Division Marathon

- ◆ **Preliminary division drivers are penalized for every second they are in the obstacle.**
- ◆ **They need safe routes where they can move out without taking tight turns.**
- ◆ **Compulsory gates are not permitted where they will force the driver to turn on a significant slope.**

CONES COURSE DESIGN

CONES

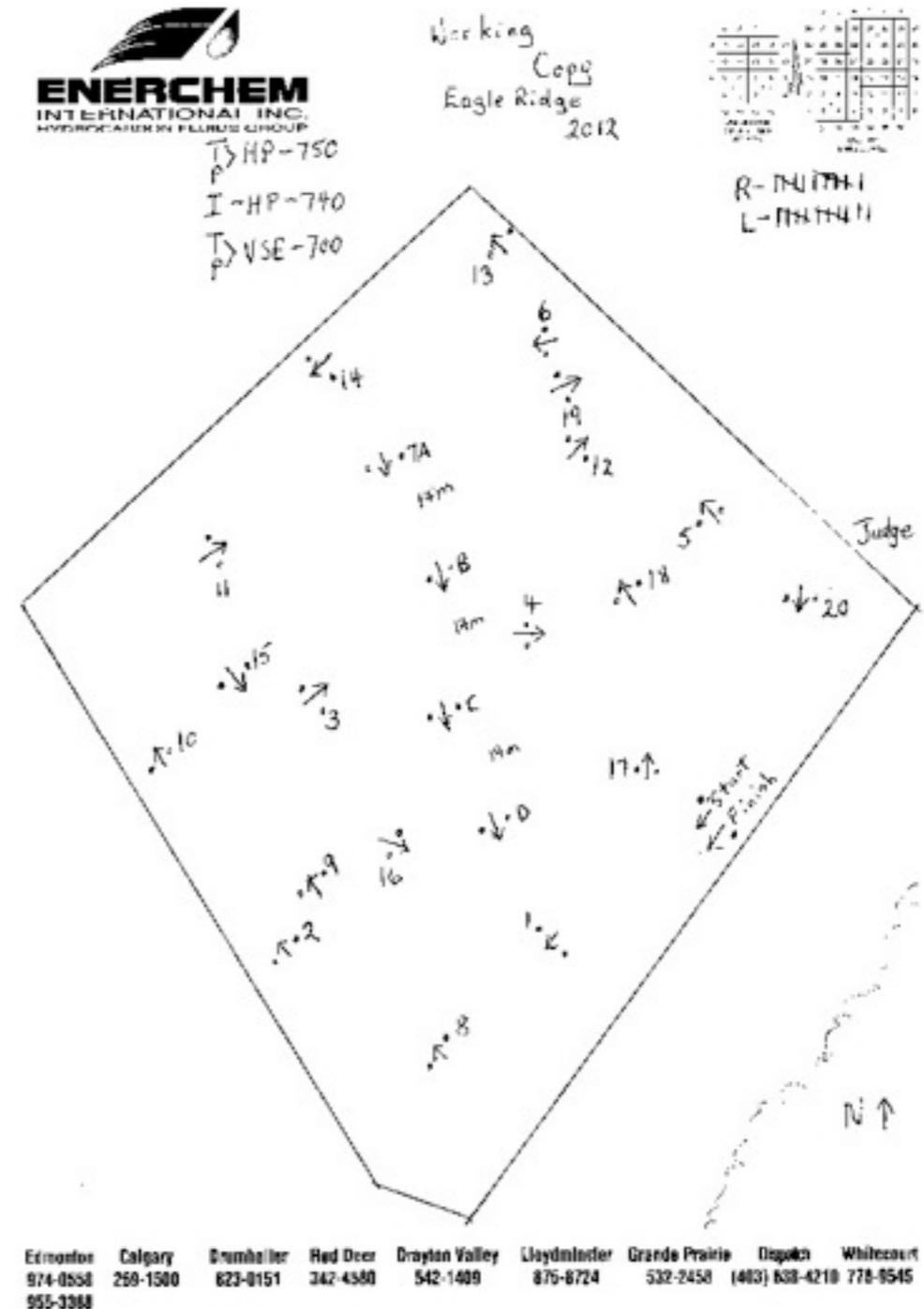
- ◆ **When designing a Cones Course remember the Dressage test:**
 - ◆ Training is not asked to perform a circle smaller than 40 m.
 - ◆ Training is asked to do a working trot and a free walk.
 - ◆ Preliminary is not asked to perform a circle smaller than 30 m or a half circle smaller than 20 m.
 - ◆ Preliminary is asked to do a working trot and walk as well as a lengthened trot and walk.
 - ◆ Intermediate is asked to perform a 20 m circle and is asked to do a collected trot.
- ◆ **At a competition with Training, Preliminary and Intermediate, singles, pairs and 4s, horses, ponies and VSE's it can become a challenge to design a fair, drivable Cones Course.**
- ◆ **You must first design for the lowest level and largest turnout.**
- ◆ **Then incorporate potential shortcuts that will require a higher level of training for the higher divisions and smaller turnouts.**

CONES COURSE DESIGN

For this to work properly you must measure different routes for the levels and turnouts.

Usually the Training and Preliminary, single/pair, horse/pony turnouts will drive a similar route. However the VSEs will usually take a shorter route and the 4s of horses/ponies/ VSEs will definitely take a longer route.

If the competition has a wide variety of entries you will get your exercise walking and measuring the courses but please don't fall into the trap of adding or subtracting distances without physically measuring them.



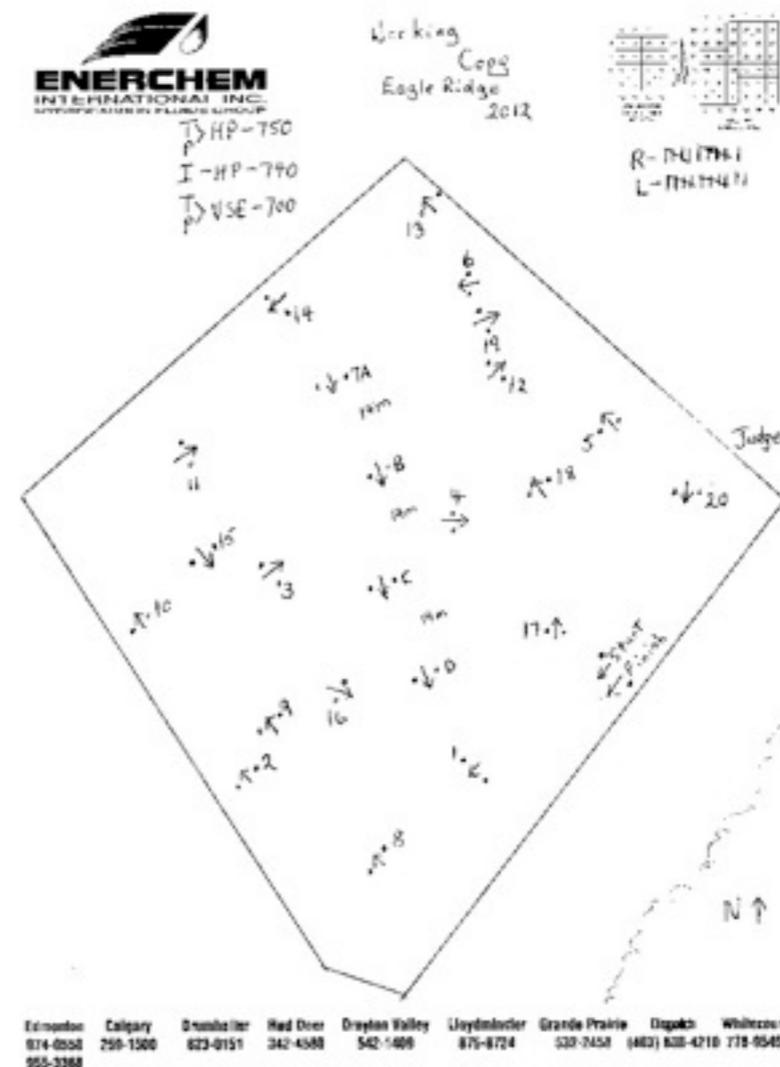
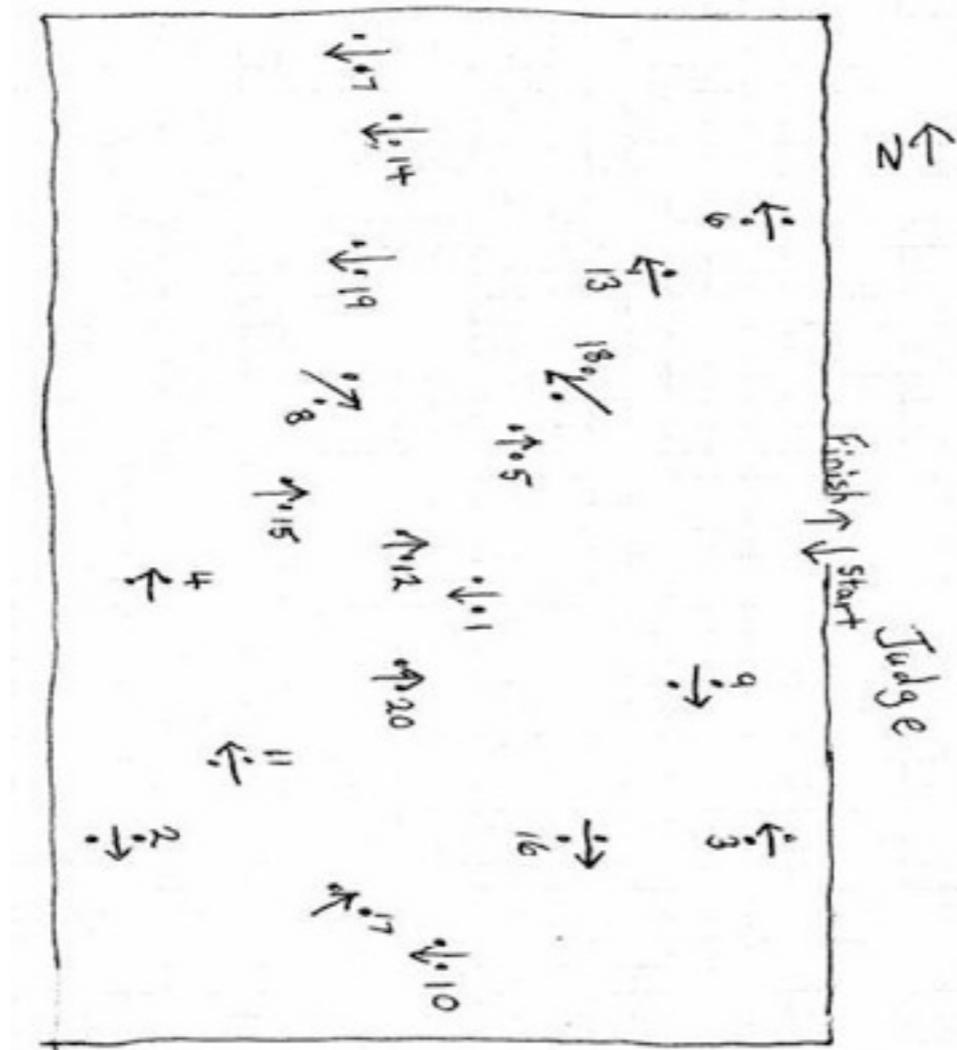
CONES COURSE DESIGN

QUESTIONS TO ASK THE ORGANIZER WHEN YOU VOLUNTEER TO DESIGN THE CONES COURSE

- ◆ **How many cones do you have?**
 - ◆ You are permitted up to use up to 3 multiples (not including a bridge or water). If you use the maximum and are fortunate enough to have a bridge you will need 40 sets of cones plus 2 sets of practice cones. Very few organizers have those many cones.
- ◆ **What numbers and letters do you have?**
 - ◆ Potentially you could need red and white numbers 1-20, 3 sets of red and white A,B,C,D and another 2 sets of red and white A,B. Very few organizers have those many letters.
- ◆ **Do you have equipment to set up an L or U?**
 - ◆ Closed multiples are rarely used due to the various turnouts being entered at most competitions so most organizers do not have the equipment to build one.
- ◆ **What turnouts do you expect and at which divisions are they driving?**
 - ◆ There is no sense designing for a Training 4-in-hand of horses if there are no entries.

CONES COURSE DESIGN

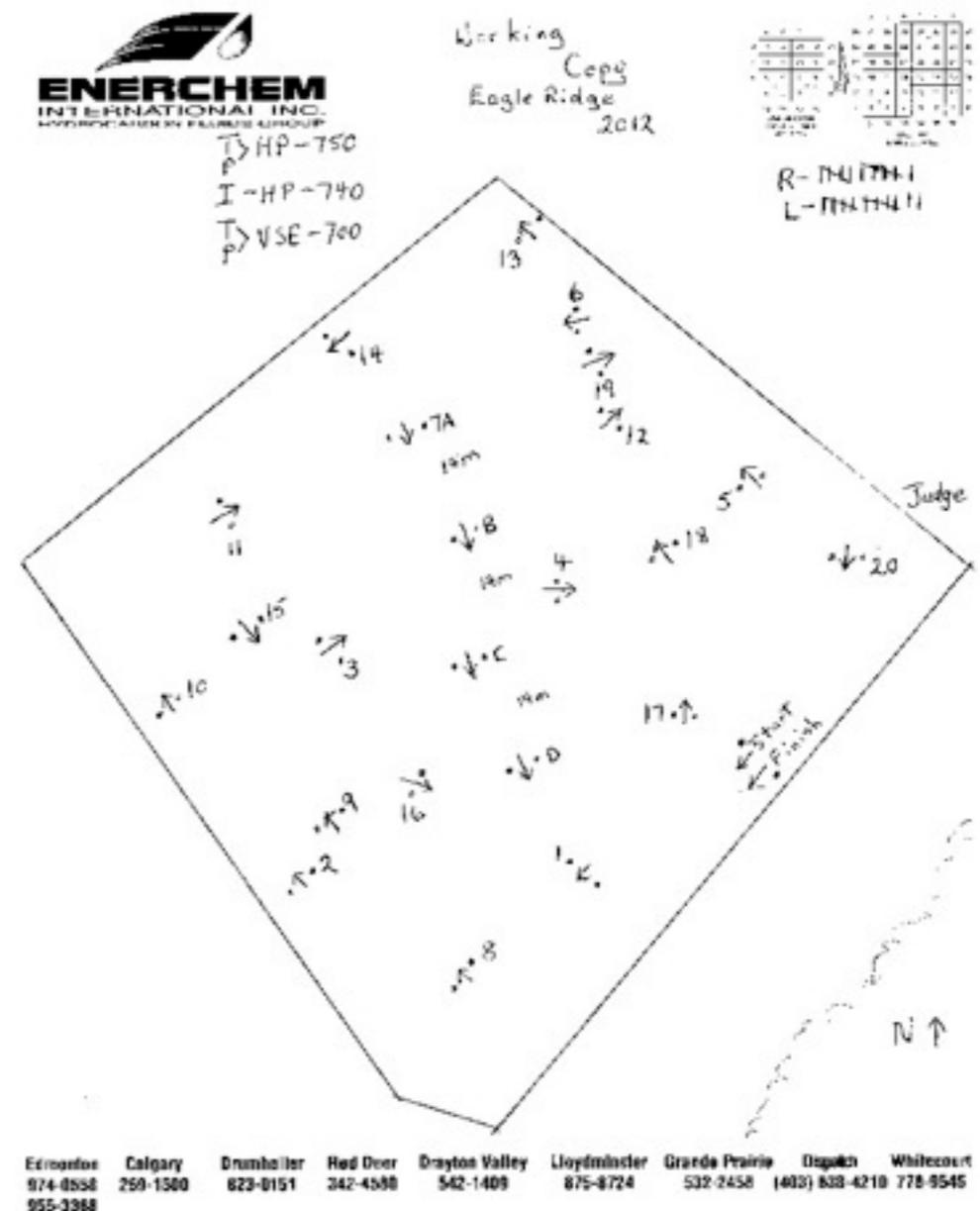
When designing a cones course it is important to know the dimensions and shape of the area you have to work with. These two courses are the same area. We had measured the dimensions for the course on the left with a wheel but it wasn't until we GPS'd the perimeter that we knew the true shape. It was easier to design and fit the course when we knew the real shape.



CONES COURSE DESIGN

Some general things about designing Cones courses.

- ◆ Keep your rule book with you.
- ◆ Have an accurate wheel and several different length measuring tapes.
- ◆ Be generous with your distance between the cones.
- ◆ The rule book minimums are for FEI Advanced competitions.
- ◆ The length of the course must be between 500 and 800 meters. If you use the rule book minimum distances your course will be too short.
- ◆ A cones course should contain as many right rein turns as there are left rein turns.



REMEMBER

For both Marathon and Cones it is important to have a backup plan for inclement weather.

Know which areas of your course may become slippery or soft. Sometimes the best plans and backup plans don't cover every possibility so don't be afraid to recommend that part of, or all of, the course be closed or cancelled.



COURSE DESIGN: DRESSAGE

And what about that Dressage Arena?

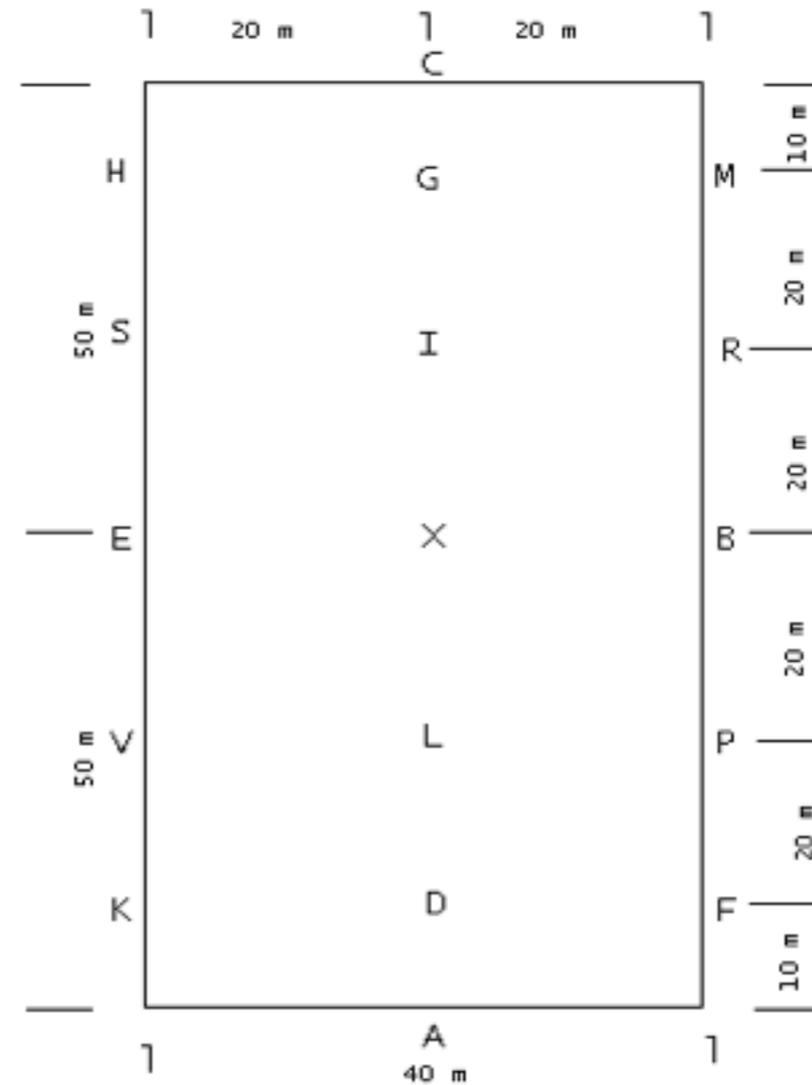
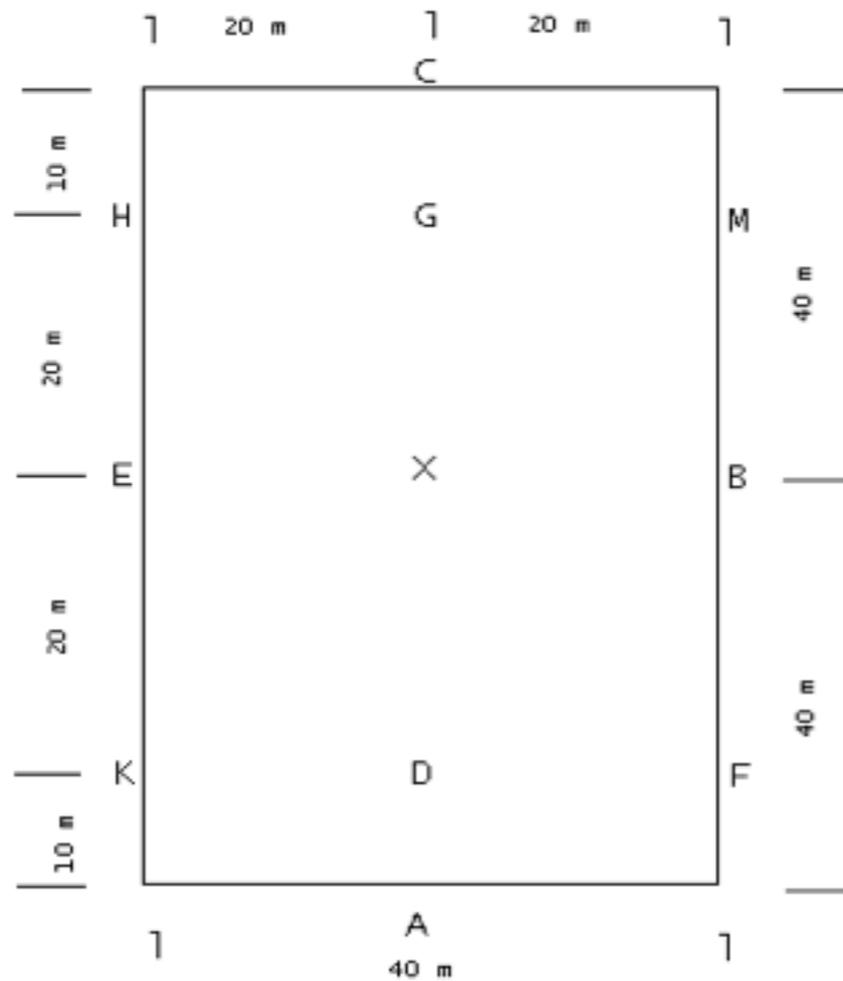
- ◆ All you need to do is make a rectangular box right?
- ◆ The construction of the Dressage Arena can help the competitors drive an accurate dressage test and help the Judges evaluate the dressage tests.
- ◆ Many dressage arenas use white chain and posts. It is important that the posts are placed at the 5 metre or 2.5 metre marks around the arena. This makes it possible for the drivers to position themselves properly for circles, half circles, serpentines etc. It also makes it easier for the judge to see the turnout's position in the arena.
- ◆ It is recommended that X, G and D be marked and that the same material that is used to mark X, G and D be placed in the warm up area. This helps the drivers locate where X, G and D are and the judge to evaluate the movements that use X, G and D.
- ◆ Sometimes the footing and terrain available for a Dressage Arena are not ideal. You can only design and build with what is available.

COURSE DESIGN: DRESSAGE

Small Arena
40 m x 80 m
Diagonal
89.44 m

Dressage Arenas

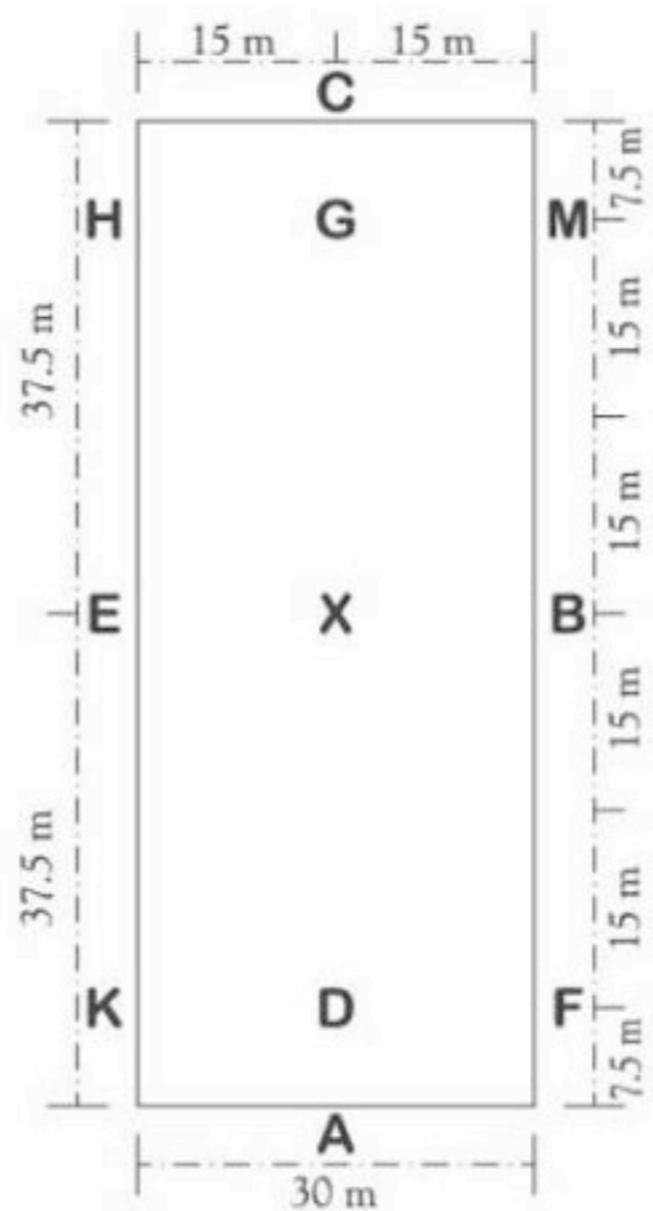
Large Arena
40 m x 100 m
Diagonal
107.70 m



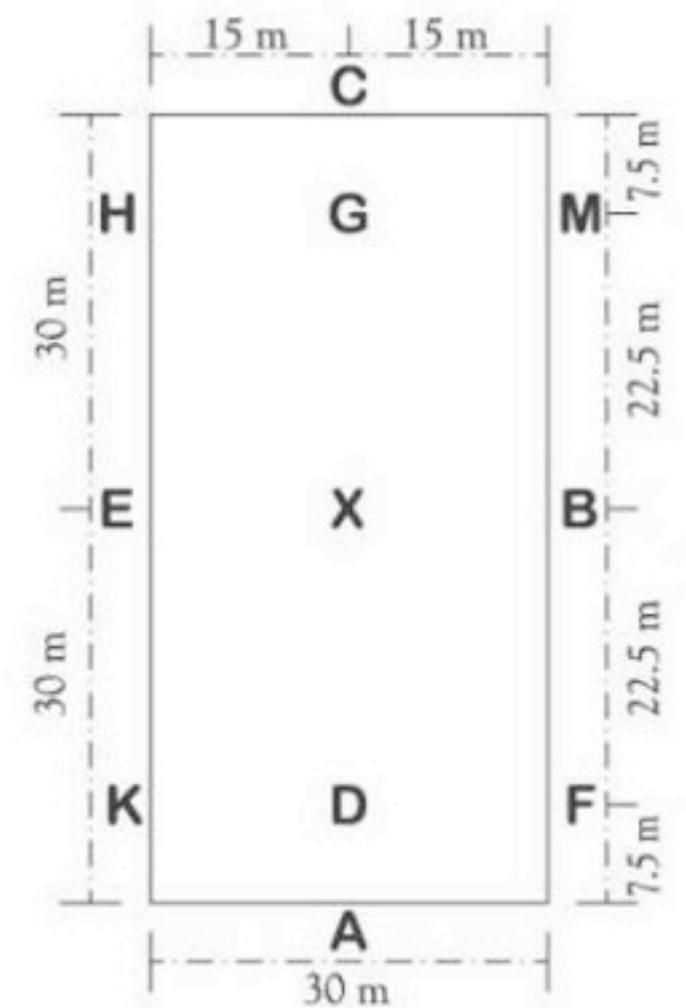
COURSE DESIGN: DRESSAGE

VSE Dressage Arenas

Drivers and Judges find these arenas more appropriate for VSE turnouts than the 20x40 and 20x50 arenas.



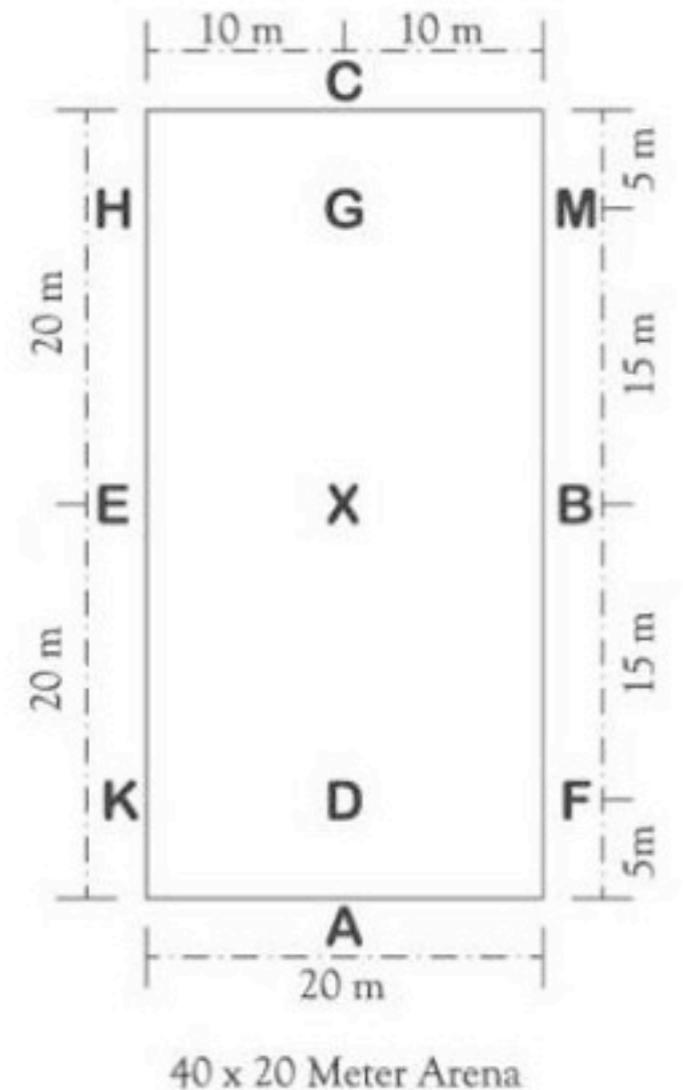
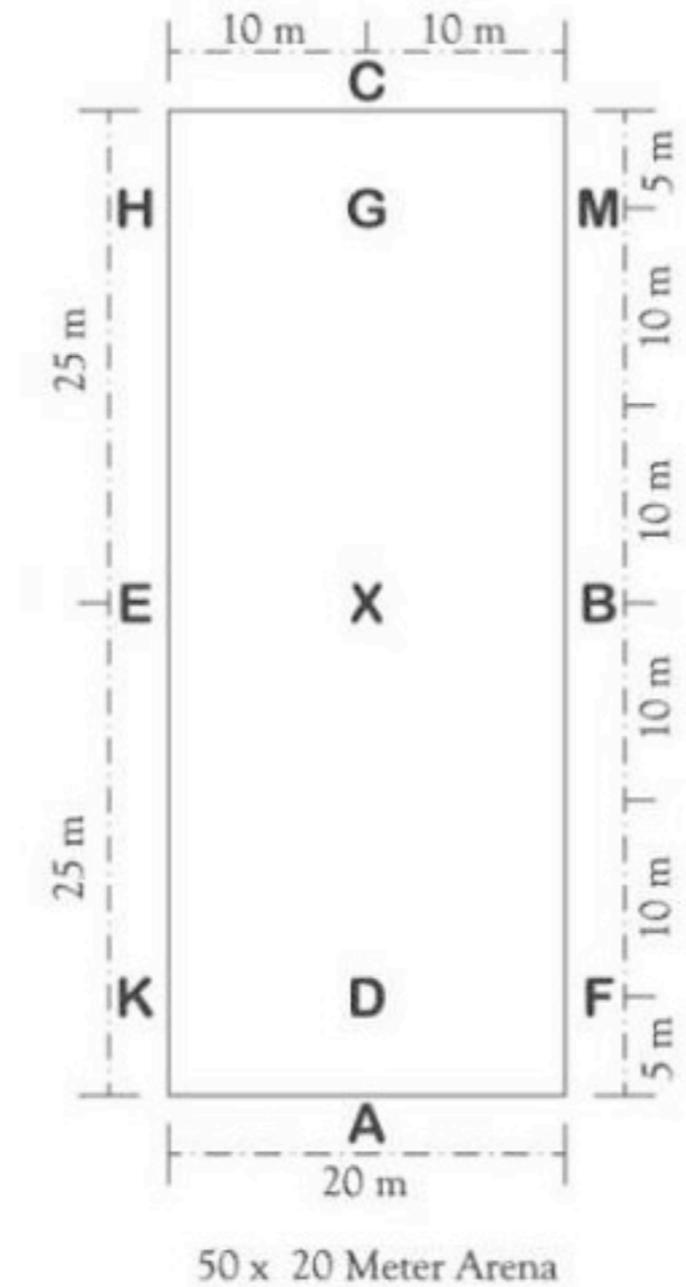
75 x 30 Meter Arena



60 x 30 Meter Arena

COURSE DESIGN: DRESSAGE

More VSE Arenas



COURSE DESIGN

FINALLY

- ◆ Remember that the people you work with are volunteers. You are all doing your best to provide a safe and enjoyable event.
- ◆ Always have your rule book with you and refer to it regularly.
- ◆ Do not rely on your memory of the rules. They are always changing.
- ◆ Use your imagination.
- ◆ Watch the drivers in all of the divisions. This will show you if your options were viable or if there were others you didn't expect.
- ◆ Above all have fun!

