

# Record of Survey Map Checking Process Review for Santa Barbara County Public Works

Carol Knox, PLS 7184

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## **Section 1 – Introduction and Executive Summary:**

This assignment was to review the Santa Barbara County’s Record of Survey checking procedures and costs, to compare said procedures and costs to other jurisdictions with which I am familiar, and to make recommendations for process improvement. I also examined how record of survey checking time within incorporated cities, which are now charged for full cost recovery, compared to the other maps being checked, on first check and total costs.

Examined maps were randomly chosen, considering a mixture of hours and costs. I wanted to examine some maps which recorded very quickly (hours/costs) and some which took many checks and hours over a period of years. Most maps fell within those two extremes. Outliers and anomalies are mentioned and not considered in some statistics.

In performing this review, I saw a lot of fine, thorough, expert work as I examined 123 (out of 192 provided to me) map checks, performed between 2013 and 2022. Most of this report is criticism because that is the purpose of the review. However, the work of the Santa Barbara checkers is for the most part: professional, knowledgeable, polite, and honest, and appears to comply with the Business and Professions Code.

I also want to state that I found absolutely no evidence, in my opinion, of incompetence or negligence in either map preparation or map checking throughout this review. Instances of things missed, or corrections not made, even sloppy drafting or missing elements are noted in the review but do not indicate incompetence or negligence. The professionalism of the maps and map checking falls within my expectations, based on my experience.

I initially divided the maps into groups based first upon their number of sheets, and then how many hours each map took for first check. More information is given in [Section 2 on Page 4](#).

A strong positive here is that the County generally prepares a checkprint and a checklist – but not a check letter. I think this is wise and is a good time-saver. Before most checking went all-digital, checkprints were handwritten and a check letter was typed; some jurisdictions still do that. I believe that, especially for all-digital reviews, that a letter is superfluous and takes up extra time. All of the necessary information can be placed right on the checkprint – and the checklist makes sure nothing is missed. I can’t stress enough the importance of a COMPREHENSIVE checklist which follows the Land Surveyors’ Act, which is already used here for every map check.

Another positive is the very careful record keeping that is done – their database is comprehensive and a great resource. And I believe that Mr. Jevremovic is a “hands on” supervisor, getting involved with individual maps when needed. It is important for him to know and understand what he is signing as County Surveyor – and to assist his employees when requested.

Some jurisdictions with which I am familiar have one checker checking each map from start to finish. Others utilize different checkers throughout the process; the first checker does not necessarily see the map again. I can see the reasoning behind each option. Having the same checker all the way through minimizes the chances of: “checker one told me to add this note, checker two told me to remove it.” Changing checkers can take extra time because a new checker needs time to get familiar with the map; but with less pairs of eyes on each check, the possibility of something getting missed could increase. With only a few checkers on staff, Santa Barbara appears to mix both approaches.

As to the question of whether or not individual map checkers are more or less efficient than other checkers: I do not propose to address this here. Map checking efficiency is difficult to measure. For example, if I see that a checker takes 6 hours to check a map, the only way I could determine if they checked it efficiently would be to check it myself. Each map is different. Many maps have deeds with legals, or adjoiners, or senior rights, etc. which should be analyzed, calculated, and/or plotted and without doing that myself it would be difficult to determine if it was done efficiently. Different checkers might use different software and methods to calc, plot, analyze information. Therefore, I believe that individual checker efficiency cannot be accurately determined.

I do believe, however, that when I see non-highlighted or non-corrected data – that it was likely not checked. Sometimes it gets missed on the first check and sometimes it does not get checked at all. As stated on [Page 17](#) in more detail, I believe that a checker needs to highlight or redline every piece of data on the map, especially on the first check. I did notice, chronologically, that the amount of highlighting generally increased as time went on, which I definitely see as an improvement.

Abbreviations used in this report:

B of B – Basis of Bearings  
CL - Centerline  
LSA – Land Surveyors’ Act  
Maps – Records of Survey in this review  
MC – Map Checker  
MP – Map Preparer  
PIQ – Property in Question  
PRC – Public Resources Code  
RW – Right of Way  
SB – Santa Barbara  
SFN – Searched, found nothing  
SP – Single Proportion  
UC – Maps which are not “City Maps”

Mylar – refers to the map that has been completely checked, and actually records.  
Costs are rounded to the nearest dollar, unless otherwise noted.

## **Section 2 - Overview by Map Groups:**

Group letters (A through K, and OK) correspond to the narrative below and the spreadsheets submitted with this report. In this section, rounded average costs are in green, corresponding to the different groups. Average checking hours for each group are in blue. My average checking estimate for each group is in purple. This data may also be found in the spreadsheets.

There were 22 City maps in this review, 20 of them were one-sheet, one was two-sheets, and one was three-sheets.

City maps are included in the above statistics – and information from these maps will also be discussed separately.

The average costs and hours below are per the groups below. The groups were created using the hours it took for first check, and the number of map pages. For individual map hours and costs, encompassing all reviewed maps, see Section 6 on [Page 18](#).

There is also project administration, scanning, and correspondence time which may be included in the hours charged for each map. Not all maps in the information provided to me show admin time being charged.

### **First Checks:**

Actual overall average first check time for all maps (all number of sheets): 11.0 hours

My overall average first check time estimate for all maps (all number of sheets): 8.5 hours

One-sheet first checks – 80 maps: a range of 2 ½ to 20 hours:

In my estimation, a one-sheet first check should take an average of 5 hours or less to complete. 16 maps fell into this category (“Group OK” in the narrative and spreadsheets).

More than half (54) of the 80 one-sheet first check maps reviewed for this review fell in groups OK, A, and B, which is very positive. These maps are not those which are causing excessive costs and checking time.

Including City maps:

Average cost of Group OK, first check one-sheet maps: \$1075.00

Average hours for Group OK, first check one-sheet maps: 3.8 hours

My average estimated hours for Group OK, first check one-sheet maps: 3.6 hours

Not including City maps:

Average cost of Group OK, first check one-sheet maps: \$1171.00

Average hours for Group OK, first check one-sheet maps: 3.9 hours

My average estimated hours for Group OK, first check one-sheet maps: 3.6 hours

All of these maps fall well within my suggested checking time for 1<sup>st</sup> check and the costs are similar.

Of the remainder:

Group A - 18 maps (including 5 City maps), took 5 to 6 hours

Group A: 5 maps have not recorded. Most of the recorded maps took 2-3 checks. If there are no deeds to read and plot, if the map is just a survey of a lot or a block, it is unclear to me as to where more than 5 hours of checking time comes from, especially if there is no boundary to analyze (unless it is excessive admin time – this goes for any map). What I see in this group is a mix of simple comments and going to mylar quickly, to MPs making more errors as each check continues. I also see that in some instances: legends, ghosted adjoiners, abbreviations, reference data, etc. have not been checked. I understand that this could keep map checking time at a minimum and that checking these items may not fall within the scope of the LSA, but internal policy needs to be standardized where possible. Refer to my suggestion #3 on [Page 16](#). There were a few instances where 2<sup>nd</sup> checks take longer than 1<sup>st</sup> checks. In some instances, unfortunately, a 2<sup>nd</sup> MC asks for something different from what the 1<sup>st</sup> MC wanted (sometimes this happens with the same MC as well.)

Group A, not recorded: One map after 4 checks is still not recorded and though there were a lot of corrections and analysis on the 1<sup>st</sup> check, 6 hours was too much time to check it. Another map check took 6 hours but in that instance, there were several questions asked on the checkprint and extra time could be justified, since so many questions arose.

Including City maps:

Average cost of Group A, first check one-sheet maps: \$1,400.00

Average hours for Group A, first check one-sheet maps: 5.5 hours

My average estimated hours for Group A, first check one-sheet maps: 3.7 hours

Not including City maps:

Average cost of Group A, first check one-sheet maps: \$1,582.00

Average hours for Group A, first check one-sheet maps: 5.5 hours

My average estimated hours for Group A, first check one-sheet maps: 3.6 hours

Group B - 20 maps (including 5 City maps), took 7 to 9 hours

Group B: 9 maps have not recorded. Most recorded maps took 2-3 checks. One simple map with no analysis took 7 hours. One map where 7 hours was charged on the 1<sup>st</sup> check, and a 2<sup>nd</sup>

MC used 13 hours and asked for different things, took 30 hours in all. Another where 7 hours was used to check “not everything” on the 1<sup>st</sup> check and the 2<sup>nd</sup> check should have taken one hour (but took more). Another that went through 7 checks, including new comments on the 5<sup>th</sup> check. Another with just an encroachment shown, no analysis – that took 8 hours.

Group B, not recorded: One 8-hour 1<sup>st</sup> check was a handwritten checkprint with no highlighting so I was unable to determine what was checked. Another had some technical errors but everything was not checked on the 1<sup>st</sup> check so there was no justification for the 1<sup>st</sup> check taking 8 hours. Another, though the submittal was well-prepared, it still took 7 hours on the 1<sup>st</sup> check.

Including City maps:

Average cost of Group B, first check one-sheet maps: \$2,152.00

Average hours for Group B, first check one-sheet maps: 7.8 hours

My average estimated hours for Group B, first check one-sheet maps: 4.6 hours

Not including City maps:

Average cost of Group B, first check one-sheet maps: \$2,263.00

Average hours for Group B, first check one-sheet maps: 7.8 hours

My average estimated hours for Group B, first check one-sheet maps: 4.7 hours

Group C – 12 maps (including 4 City maps), took 10 to 11 hours

Group C, recorded: One map recorded after 2 checks, 3 after 3 checks, 3 after 4 checks, 1 after 5 checks and 1 after 6. One of these maps had over 8 hours of “Training Mary” charged to it, which was excessive. One map took 10 hours and yet the establishment notes were not checked. One submittal appeared to be somewhat incomplete, so maybe that map should have been returned, with a note stating this. On that map, the 2<sup>nd</sup> check was more like a 1<sup>st</sup>. One map had so many corrections that the MP had to redo most of it, and the 2<sup>nd</sup> check’s redline comments were similar to the 1<sup>st</sup>. One map had the 2<sup>nd</sup> check taking more than double the 1<sup>st</sup> check’s time. One map took 10 hours but had no boundary, no deeds, just encroachments. On another, the measured data was not checked but the 1<sup>st</sup> check still took 10 hours. Another took 11 hours but I could not determine whether or not it was completely checked (not all data highlighted or redlined).

Group C, not recorded: 2 of the City maps have not recorded, and their 1<sup>st</sup> check times are greater than my estimates.

Including City maps:

Average cost of Group C, first check one-sheet maps: \$2,887.00

Average hours for Group C, first check one-sheet maps: 10.3 hours

My average estimated hours for Group C, first check one-sheet maps: 4.4 hours

Not including City maps:

Average cost of Group C, first check one-sheet maps: \$3,346.00

Average hours for Group C, first check one-sheet maps: 10.3 hours

My average estimated hours for Group C, first check one-sheet maps: 3.9 hours

Group D - 11 maps, (including 4 City maps) took 12 to 15 hours.

Group D - the UC maps have all recorded. One map took 3 checks, 4 took 4 checks, 2 took 5 checks. I could not see justification for any of these checks taking as long as they did. One map did have some poor cooperation from the MP. Another looked to be deficient and should have been returned, with a note stating this. One took 13 hours on the 1<sup>st</sup> check; some 2<sup>nd</sup> check comments should have been made on the 1<sup>st</sup> check, and I could see that some CS analysis was done. Another I could possibly see 10 hours but 13 was charged. Another took 15 hours on each of the 1<sup>st</sup> and 2<sup>nd</sup> checks – for a one-sheet map and not all of the corrections were made even when the map recorded. One map took 15 hours for 1<sup>st</sup> check - though it is clear that the CS office did a lot of its own research to assist the MP.

Group D, not recorded: 3 of the City maps have not recorded. One map took 12 hours for 1<sup>st</sup> check and 11 hours for 2<sup>nd</sup> check. The others have had only one check.

Including City maps:

Average cost of Group D, first check one-sheet maps: \$3,755.00

Average hours for Group D, first check one-sheet maps: 12.9 hours

My average estimated hours for Group D, first check one-sheet maps: 6.3 hours

Not including City maps:

Average cost of Group D, first check one-sheet maps: \$4,498.00

Average hours for Group D, first check one-sheet maps: 13.1 hours

My average estimated hours for Group D, first check one-sheet maps: 6.9 hours

Group E - 3 maps took 18-20 hours. No City maps in this group.

Group E, recorded: One map took 18 hours on 1<sup>st</sup> check, with only one deed to read and the rest of the references were maps. There is no apparent justification for it having taken so long. The 2<sup>nd</sup> check on this map took 35 hours and though a CS note was generated, the hours were excessive. The other map looks like the 1<sup>st</sup> submittal was poor and the MP continued to make errors with further submittals but there appears to be no justification for the overall process to have taken 45 hours. Group E maps are the outliers.

Group E, not recorded: Just one map and though everything was highlighted on the 1<sup>st</sup> check, it took 2 MCs a total of 18 hours.

Average cost of Group E, first check one-sheet maps: \$6,226.00

Average hours for Group E, first check one-sheet maps: 18.7 hours

My average estimated hours for Group E, first check one-sheet maps: 5.0 hours

Two-sheet first checks – 26 maps: a range of 6 to 30 hours.

In my estimation, a two-sheet 1<sup>st</sup> check should take an average of 9 hours to complete. 5 maps fell into this category (shown as “OK” in the narrative). The only City 2-sheet map fell into this category.

More than half (17) of the two-sheet 1<sup>st</sup> check maps (26) reviewed for this review fell in groups OK, F, and G, which is positive. These maps are not those which are causing excessive costs and checking time.

Including the City map:

Average cost of Group OK, first check two-sheet maps: \$2568.00

Average hours for Group OK, first check two-sheet maps: 7.4 hours

My average estimated hours for Group OK, first check two-sheet maps: 7.4 hours

The City map took 8 hours for 1<sup>st</sup> check (lower than my estimate) and the total fees were \$1,424.00.

Of the remainder:

Group F - 4 maps took 11 to 12 hours. No City maps in this group.

Group F, recorded: One map had most of the data checked with the exception of the line table data, however a total of 7 hours should have sufficed. Another map had red blocks of color on the checkprint with no words - maybe there was a missing communication – but 12 hours was excessive. Another had no deeds to read or analyze so 12 hours was likely excessive.

Group F, not recorded: Only one check completed in 11 hours for one map. The other one had half of one sheet not checked in 12 hours.

Average cost of Group F, first check two-sheet maps: \$2453.00

Average hours for Group F, first check two-sheet maps: 11.4 hours

My average estimated hours for Group F, first check two-sheet maps: 9.2 hours

Group G – 7 maps took 13-15 hours. No City maps in this group.

Group G have all recorded. There were a lot of red comments on the 1<sup>st</sup> check on one map but 13 hours on 1<sup>st</sup> check was excessive. One map had a note stating that it was not a full check - but it took 14 hours. One map was very complicated, the check didn't cover the B of B and establishment notes but had a lot of instructions for the MP, which were complied with. It ended up with a CS note. Another had geodetic data not checked. Another took 15 hours for 1<sup>st</sup> check and it had no boundary or legals to analyze.

Average cost of Group G, first check two-sheet maps: \$6334.00

Average hours for Group G, first check two-sheet maps: 14.1 hours

My average estimated hours for Group G, first check two-sheet maps: 11.3 hours

Group H - 4 maps took 16-19 hours. No City maps in this group.

Group H have all recorded. One map had a lot of geodetic data and several deeds to establish. However 8 hours per sheet was excessive. Others had a lot of data but not 17-18 hours worth on 1<sup>st</sup> check. Another went from one sheet to two but charged 19 hours for 1<sup>st</sup> check.

Average cost of Group H, first check two-sheet maps: \$4096.00

Average hours for Group H, first check two-sheet maps: 17.8 hours

My average estimated hours for Group H, first check two-sheet maps: 10.0 hours

Group I - 4 maps took 21-30 hours. No City maps in this group.

Group I have all recorded: One map had 3 MCs, this could be a problem. But 21 hours on a 1<sup>st</sup> check for just 2 sheets, with the 1<sup>st</sup> just being control/vicinity map is excessive. Another had what looked like an incomplete 1<sup>st</sup> submittal and it took 23 hours to check. Another took 30 hours and it was not a particularly complicated map. Another required the MC to generate some Autocad calcs (several files) but it doesn't look like enough to justify 30 hours. One map in this group showed 7 hours for "Training Mary" charged to it. These maps are the outliers.

Average cost of Group I, first check two-sheet maps: \$7426.00

Average hours for Group I, first check two-sheet maps: 25.8 hours

My average estimated hours for Group I, first check two-sheet maps: 11.3 hours

Three-sheet first checks – 4 maps: a range of 10 to 23 hours, all UC maps in Group J.

In my estimation, a three-sheet first check should take an average of 14 hours to complete.

The only City map fell into Group OK – it has had 1 check and it took 10 hours to check. It has not recorded. My estimate was 15 hours, so this map was well below that.

Group J maps have all recorded. These three 3-sheet maps took between 18 and 23 hours on the 1<sup>st</sup> check; at least 6 hours per sheet, which is excessive. I could only see redlines, not

highlighting on one map. Another 1<sup>st</sup> submittal was poorly prepared; because of this, the MC had to prepare a separate document with the comments, which likely took quite a bit of time.

Average cost of Group J, first check two-sheet maps: \$4777.00

Average hours for Group J, first check two-sheet maps: 20 hours

My average estimated hours for Group F, first check two-sheet maps: 15.3 hours

Four- and five- sheet first checks – 3 maps: a range of 16 to 31 hours. No City maps in this group.

Group K - One map's hours was fine. The other 4-sheet map took 31 hours and was an anomaly, taking 8 checks total.

Seven- and more sheet first checks: All of them have acceptable first check hours, and have all recorded.

### **Section 3 - Summary of Map Checking time, by number of sheets:**

#### **First Checks – all maps:**

In my estimation, a one-sheet 1<sup>st</sup> check should take an average of 5 hours to complete. Of the 80 one-sheet maps I reviewed, SB spent an average of 8.0 hours for 1<sup>st</sup> check.

A two-sheet 1<sup>st</sup> check should take an average of 9 hours. Of the 26 two-sheet maps I reviewed, SB spent an average of 14.8 hours for 1<sup>st</sup> check.

A three-sheet 1<sup>st</sup> check should take an average of 14 hours. Of the 4 three-sheet maps I reviewed, SB spent an average of 17.5 hours for 1<sup>st</sup> check.

For larger maps, an average should be 3-5 hours per sheet. Using 4 hours per sheet as a guide:

A 4-sheet 1<sup>st</sup> check should take 16 hours, one did take 16 hours, and another (an anomaly) took 31 hours.

A 5-sheet 1<sup>st</sup> check should take 20 hours, SB took 21, which is close enough.

Larger maps are more uncommon, and all of the larger maps that SB checked fell within the average acceptable time range above.

#### **Second Checks – all maps:**

It is important to note that just because a map fell into the “OK” category for first check, that does not necessarily mean that subsequent checks were checked in a reasonable amount of hours. Sometimes the second check took more hours than the first check, for various reasons. The narratives and spreadsheets show examples of this. And *vice versa*: some maps which

took more than my acceptable average time on first check, had much faster subsequent checks.

Based on my experience, it is not realistic to estimate an average “rule of thumb” number of hours for a 2<sup>nd</sup> check. Each map must be evaluated separately. 1<sup>st</sup> check map checking time mostly depends on 4 factors: the complexity of the map, how well it was prepared, the thoroughness of the map check, and how many corrections there were. But a 2<sup>nd</sup> check map has additional variables: how well the corrections were made, if other data was added or changed, and if other sheets were added. There are too many factors at play for 2<sup>nd</sup> checks for an overall average estimate (like the 5 hours per sheet 1<sup>st</sup> check average estimate). Ideally, the 2<sup>nd</sup> check should take less time than the first, as long as all corrections are completed and no new mistakes were made, or no new significant data was added or changed. Any of those variables could make the 2<sup>nd</sup> (and subsequent checks) take as long as, or longer than, the 1<sup>st</sup>.

Overall average hours for 2<sup>nd</sup> checks – all groups/sheets: 8.1 hours

One-sheet second checks – 66 maps: a range of (less than one), to 24 hours:

The overall average was 5.0 hours.

A map from Group A which only took 6 hours to check on the 1<sup>st</sup>, took 14 on the 2<sup>nd</sup>. There was a different MC, which could help explain it but I could not see the justification for this.

A map from Group B took 7 hours on the 1<sup>st</sup> and took 13 on the 2<sup>nd</sup>. Comments and corrections were different but that shouldn't have increased the hours like this.

One map from Group C took 10 hours on the 1<sup>st</sup> and 9 on the 2<sup>nd</sup>. All of the 2<sup>nd</sup> check corrections were not noted on the 1<sup>st</sup> and I only saw a non-highlighted print. Another Group C map took 10 hours on the 1<sup>st</sup> check, 8 on the 2<sup>nd</sup>, and 6 on this 3<sup>rd</sup> – for a one-sheet map. Even with a lot of corrections, this is excessive. Another Group C took 10 hours on the 1<sup>st</sup> and 10 on the 2<sup>nd</sup> – some of this was non-billable.

A Group D map took 12 hours for the 1<sup>st</sup> and 10 hours for the 2<sup>nd</sup>. The 2<sup>nd</sup> checkprint had more corrections marked on it than the 1<sup>st</sup> one. Another Group D map took 13 hours for the 1<sup>st</sup> and 12 for the 2<sup>nd</sup>. This is the one where the CS offered an alternate solution but this took too many hours. Another in this group took 15 hours for the 1<sup>st</sup> and 14 for the 2<sup>nd</sup>. 30 hours to check a one-sheet map twice is excessive. The 2<sup>nd</sup> MC did ask for some corrections that the 1<sup>st</sup> did not. Also in this group a map took 15 hours on 1<sup>st</sup> and 10 on the 2<sup>nd</sup>. Many new corrections were on the 2<sup>nd</sup> which were not on the 1<sup>st</sup>.

All of the Group E maps took too long for 2<sup>nd</sup> check. One took 18 hours on the 1<sup>st</sup> check and 24 hours on the 2<sup>nd</sup> – this was not a particularly complex map and there were long time spans between checks, and multiple MCs. The next map took 18 hours on the 1<sup>st</sup> and 10 hours on the

2<sup>nd</sup>. This did have a lot of corrections but this was excessive. The last one took 20 hours on the 1<sup>st</sup> check and 12 hours on the 2<sup>nd</sup> and had several MCs.

Group F was Ok with 2<sup>nd</sup> check time.

Group G had one map which took 14 hours for 1<sup>st</sup> check and 19 for 2<sup>nd</sup> check. This was the map that was not the full check the 1<sup>st</sup> time (14 hours – one sheet – not complete)? Too many hours. Another took 14 for 1<sup>st</sup> check and 24 for 2<sup>nd</sup>. This certainly was a complicated map for 2 sheets but 38 hours to check it twice? The last one in this group took 15 hours for the 1<sup>st</sup> check and 27 hours for the 2<sup>nd</sup> – 2 MCs worked on the 2<sup>nd</sup> check, too many hours.

Group H had one map which took 19 hours for the 1<sup>st</sup> check and 17 hours for the 2<sup>nd</sup>. This changed from 1 sheet to 2 during the checking process, and had multiple checkers, but the hours are excessive.

Group I – the map that took 87 hours to check also took too long on 1<sup>st</sup> (23 hours) and 2<sup>nd</sup> (40 hours) checks. The 1<sup>st</sup> check was incomplete and should have been returned. The next one in this group did not have extensive corrections but I sensed that the MP was uncooperative. It still took too long to check. Another took 30 hours for 1<sup>st</sup> check and 13 for 2<sup>nd</sup> check and that does not include checking some monument and establishment notes on these checks. Again, Group I maps were outliers.

Group J was Ok with 2<sup>nd</sup> check time.

Group K was 1 map which took 31 hours on the 1<sup>st</sup> and 18 hours on the 2<sup>nd</sup>, it was a 4-sheet map and took 99 hours and 7 checks.

### **Second Checks – Just City Maps:**

Out of 11 City one-sheet second checks, there is a broad range: 4 maps took less than 2 hours, 3 took 2 or 2 ½ hours, 2 took 4 or 4 ½ hours, 1 took 6 and 1 took 11 hours. The two-sheet second check map took 3 hours.

### **Section 4 - City Maps vs. UC Maps – Discussion Points:**

#### **City vs. UC Overall Processing Time for Recorded Maps:**

Overall, total average project administration time/cost for City maps is lower than for UC maps for maps reviewed in this review. In order to make a realistic comparison, I calculated the average total map checking cost for 1-sheet City maps, the cost for all 1-sheet UC maps, and the cost for 1-sheet UC maps with anomalies removed (maps which cost more than \$5,000 to check – 8 maps which skew the numbers significantly) and only compared recorded maps. I also compared the City average with the average of the recorded 1-sheet comparable maps (UC maps which are similar in scope and size to the City maps):

Average cost of 1-sheet recorded City maps: \$1,773.00  
Average cost of all 1-sheet recorded UC maps: \$2,675.00

Average cost of 1-sheet recorded UC maps with anomalies removed: \$2,050.00  
Average cost of 1-sheet comparable recorded UC maps (28 maps): \$2,374.00

The City map average cost of \$1,773.00 for recorded one-sheet maps, comprises maps which vary from \$97.00 (total) all the way to \$2,868.00 – this is a large range and with only 10 maps, is a small sample. Even so, it is still worth asking why these took less time and cost to check than the comparable maps. There could be several factors at play:

1. Is the MC preparing a better map checking product for City maps because of the County's full cost recovery?
2. Is the MP preparing a better mapping product for their City maps? If so, why?
3. Are the City surveys less complicated overall?
4. Is there enough difference between the costs to try to track this?

A brief overview of the 20 City one-sheet 1<sup>st</sup> check maps (unrecorded and larger maps are mentioned here but not compared):

(City - 01: Has not recorded so we do not know overall processing cost. Less than one hour was billed for this map but it took 9 ½ hours for 1<sup>st</sup> check. It is one lot in a tract map, described by deed. It has a geodetic basis of bearings. I earlier stated that 9 ½ hours was too long for 1<sup>st</sup> check. Will not delve further into this map here for a comparison because less than an hour was charged, and it has not recorded. Group C - 10.)

(City - 02: is a 2-sheet map and also will not be compared here. However, it was checked in a reasonable time frame and is a one (AP) parcel map, with a road calculated in. Group OK - 20.)

City - 03: This is a survey establishing one grant deed. 8 hours for this map 1<sup>st</sup> check and 6 for 2<sup>nd</sup> seems excessive, and this map falls well above the average processing costs for both City and UC maps, and hours for one-sheet City 1<sup>st</sup> checks. Both 1<sup>st</sup> and 2<sup>nd</sup> check took too long (especially 2<sup>nd</sup> check) for what is presented. Group B- 17.

City - 04: This is also a survey establishing one grant deed. 1<sup>st</sup> check took 12 hours. This is just a lot (deed) in a block and the MP surveyed the block. 2<sup>nd</sup> check made up the time by only taking 2 hours. This map falls well above the average processing costs for both City and UC maps, and hours for one-sheet City 1<sup>st</sup> checks, because 1<sup>st</sup> check took too long. Group D - 08.

City - 05: Though this map took more time than I estimated for 1<sup>st</sup> check (it took 6 hours, I estimated 4) 2<sup>nd</sup> check only took one hour and 3<sup>rd</sup> check was negligible. This map falls well below all average processing costs. One deed is being monumented. Group A - 14.

City - 06: This was in the ballpark for my 1<sup>st</sup> check estimate, and after that the map finished up very quickly. This map falls well below all average processing costs. One deed is being monumented. Group A - 15.

City - 07: This map is a little different than the others, not just a lot in a block. It is a parcel of a parcel map but not rectangular. Both 1<sup>st</sup> and 2<sup>nd</sup> checks took longer than my estimate. 2<sup>nd</sup> check probably should have taken one hour at most. This map falls well above the average processing costs for both City and UC maps, and hours for one-sheet City 1<sup>st</sup> checks, because 1<sup>st</sup> and 2<sup>nd</sup> checks took too long. Group B - 14.

City - 08: One lot in a tract but not a rectangular block, on a curved street (with an oddball radius on the north line). 1<sup>st</sup> check took longer than my estimate and 2<sup>nd</sup> check should have been just a couple of hours – a few corrections. This map falls well above the average processing costs for both City and UC maps, and hours for one-sheet City 1<sup>st</sup> checks, because 1<sup>st</sup> and 2<sup>nd</sup> checks took too long – this map was the costliest City map that I reviewed. Group C - 07.

City - 09: This was one of the simplest maps I reviewed for this review. And it was checked very quickly. Total processing cost was much lower than the average. Group OK - 08.

City - 10: 4 lots in one tract – surveyed the block and had to establish two deeds within those lots. This was simple enough and the total processing cost was much lower than the average. Group OK - 14.

(City - 11: This is a 3-sheet 1<sup>st</sup> check, and it establishes 3 multi-acre lots in 2 tracts so will not be compared here.) Group OK - 32.

(City - 12: A typical City 1-sheet map, some establishment questions, not recorded so will not be compared here) Group A - 16.

(City - 13: A typical City 1-sheet map, a lot in a block - some establishment questions, map fairly clean. Not recorded so will not be compared here) Group C - 11.

(City - 14: A typical City 1-sheet map, a lot in a tract, no need for the entire block- some establishment questions. Not recorded so will not be compared here) Group A - 17.

(City - 15: Simple map establishing a RR RW, so it will not be compared here) Group C - 12.

City - 16: Map is establishing deed parcels – significant establishment questions asked by the MC. Group C - 13.

(City - 17: One parcel, established by record with no mention of sr/jr rights. Not recorded) Group B - 18.

(City - 18: Simple map of some lots in a block. Not recorded.) Group B - 19.

(City - 19: Establishing a parcel without some RW documents, could be challenging to complete. Not recorded) Group D - 09.

(City - 20: City lot split – not recorded or included) Group D - 10.

(City - 21: Lot in a tract, minimal corrections. Not recorded) Group A - 18.

(City - 22: Complicated map, with encroachments. Not recorded) Group D - 11.

### **City vs. UC 1<sup>st</sup> Check Map Checking Time:**

How do these maps compare to similar UC maps in terms of 1<sup>st</sup> check time? For comparison sake, a UC map of a lot (or so) of a tract map or a parcel (or so) of a parcel map – excluding PLSS surveys, lot line adjustments, mergers, encroachment surveys, etc. were compared:

Group OK maps: I found 9 comparable maps. Overall Group OK 1<sup>st</sup> check average was \$1,171.00, actually lower than the City average. The 9 comparable maps average was \$1,203.00.

Group A maps: 9 comparable maps. Overall Group A 1<sup>st</sup> check average cost was \$1,582.00, which is not far from the City average. The 9 comparable maps average was \$1,494.00, a negligible difference.

Group B maps: 3 comparable maps. Overall Group B 1<sup>st</sup> check average cost was \$2,263.00, well above the City average. The 3 comparable maps average was \$3,318.00, a large difference.

Group C maps: 4 comparable maps. Overall Group C 1<sup>st</sup> check average cost was \$3,346.00, well above the City average. The 4 comparable maps average was \$3,873.00, a large difference.

Group D maps: I only found 2 comparable maps. Overall Group D 1<sup>st</sup> check average cost was \$4,498.00, well above the City average. The 2 comparable maps average was \$4,981.00, a large difference.

Group E maps: Only 1 map was comparable and it cost \$6,795.00 to check. The average in Group E was \$6,226.00.

The average of all of the comparable maps was \$2,374.00, well above the City average of \$1,773.00. Again, the City average is calculated from only 20 maps.

Assuming that the sample of 20 City maps is representative, what are the answers to the 4 questions above?

1. From all of the fine, thorough, professional work I have seen throughout this process, I say no. I cannot see any evidence of a MC working on UC maps with any less professionalism than other maps.
2. I also say no to this question.
3. This is entirely possible. However, about half of the map totals are much higher than the City average. My checking time estimates for these maps are considerably lower than the actual checking time for 1<sup>st</sup> check. The City average is lowered by 3 maps which took less than \$1,000.00 each to check. A simple single parcel or lot map is not uncommon, but the maps I used for comparisons make up about one-third of the one-sheet maps. In other words, most of the City maps are not complicated, but a significant number of UC maps are also not complicated.
4. Yes, for sure. I think a larger sampling of City maps going forward will reveal more. The full cost recovery policy has only been in place since 2021.

#### **Section 5 - Suggestions:**

1. Have one supervisor take about ½ hour (for a one-sheet map, maybe longer for larger maps) when each map comes in, and examine it – determine its complexity, and its quality (field work, drafting, local knowledge), quickly review the legal description and purpose statement, possibly glance over the deeds and map references, and give a “not to exceed” estimate for the MC. If the MC needs more time, this can be determined on a case-by-case basis.
2. If a map comes in and is determined by the above supervisor to be incomplete: for example, not all references submitted (where required) or if the map states “Found 1” IP” with no reference given for multiple monuments, or if it does not show any record data where required (etc.) – send the map back to the MP and state that it was not checkable in its current form. I have seen examples of maps which likely fall into this category during my review. A complete and well-prepared<sup>f</sup> submittal goes a long way towards less map checking hours overall.
3. Before the map is assigned to your map checkers, have a technician check non-analytical information on the map, like references, abbreviations, spelling, north arrow, scale, linetypes, map adjoiners, street widths, closures, vicinity map, sheet size, etc. - the hourly rate for this tech work will be much lower than the boundary/mapping experts checking the rest of the map, and everything can get checked. There can even be a new, separate checklist made for these items, for the tech to use.
4. I read almost all of the .msg files in the folders and saw that quite often, the MC was the one who communicated with the MP about deposits, refunds, etc. Are there any of these record-keeping or clerical tasks that a tech could perform, instead of the MCs,

to free up the MCs for map checking? For example, writing and keeping track of the emails for the financially responsible person for records of survey? Even preparing the emails to return the map to the MP? I am not talking about specific map checking-related discussions, but the clerical work for transmittals and such.

5. If the above two suggestions are not feasible or practical, and the main MC must do the clerical/technical work, is it possible to actually have this work charged at a lower hourly rate? There could be a clerical rate, a technical rate, and a map checking rate. Or the clerical and technical duties could be combined into one rate.
6. Are there any “local practice” items which may be added to another checklist, separate from the LSA items? This could help the MCs remember various practice items, and saving them from having to place these corrections on the checkprints. Some examples may be: *tie boundary to centerline, show which record was used for proration, submit grant boundary calculations, verify section of the LSA in your purpose statement, submit closures for all closed polygons* – if you feel that items such as these fall within your purview. Some jurisdictions also use a PRC checklist for maps which feature California Coordinates.
7. Whenever possible, keep one MC on each map and limit “new” corrections on subsequent checks if those items have not changed. Different pairs of eyes see different things and the hours add up when a second MC second-guesses a first.
8. Have your consultants agree to a “not to exceed” amount for each map, and have each map reviewed by the office supervisor when it comes back. Keep that same consultant throughout the map if possible.
9. The same supervisor who does the initial once-over should be the one who reviews it after the MC finishes.
10. I understand that some time in the future, some jurisdictions will be implementing automated map checking - for some items anyway - once the technology is developed. I encourage Santa Barbara to pursue this.
11. If there is any way to streamline the process of communication between the MCs and Aleks, I strongly suggest you consider it. For example, maybe once an MC finishes a map check, he or she could ask questions of Aleks in a different color on the checkprint, send it to Aleks (or notify him that it is ready on the server) and he can see what he needs to look at and deal with it electronically. Then he can delete the questions/comments as necessary. This might not be feasible for every map but if there is anything like this that could save communication time, it is worth pursuing.
12. I believe that a MC needs to highlight or redline EVERY piece of data on the map, especially on the first check. If a new MC gets a second check where there are “blanks”

on the first check, the 2<sup>nd</sup> MC does not know whether or not the 1<sup>st</sup> MC reviewed and approved that information, and they would have to review it (possibly again, thus using more time). That can also lead to the MP asking why that data was overlooked in the first place. Address everything on the first check. I have observed here that not every piece of data is highlighted or corrected or questioned – not on the first check and sometimes not on subsequent checks.

13. Regarding subsequent checks - it is not safe to assume that because a correction on an item was not asked for, that the MP did not change it. A MP can, and will, change something between checks that was NOT corrected or requested, and if the MC does not look at it because it was not marked for correction, then it gets missed. I do not believe that highlighting something you have just read takes more than a few extra seconds. It's *not reading* the item which make the map check incomplete. If something is read, it needs to be marked in some way, so future checkers and the MP knows it was read. And if the MCs do not read every item on every check, things will get missed. It may appear that this approach would take more time but in my experience, I have determined that it can save time in the long run.

### **Section 6 - Detailed Comments on 123 maps reviewed, in random order within groups**

*These comments are written in a less formal style, to accurately reflect my observations.*

*City map number is given when applicable, in orange.*

*Total (or “in progress”) cost for each check is given in green.*

*My rough estimates below of what each map should have taken to check is given in purple. A purple check ✓ indicates the checking time fell within, or within an hour of, my estimate. These estimates have been determined by looking at the checkprints; and without looking at closures, or references such as deeds and maps. I have been working in a home office for 23 years and realize that there are potentially more distractions for someone who is working in business or government offices. There is also clerical/processing time, which varies by jurisdiction.*

#### **Group OK – 1 sheet maps: 5 hours or less on 1<sup>st</sup> check**

Group OK - 01: 1 MC, 1 supervisor. Not everything was highlighted on the 1<sup>st</sup> check, references, legend, and deeds within the lots all not checked. Less than half of it highlighted, maybe that is why it only took 3 hours. Same situation with 2<sup>nd</sup> check – none of the deeds shown were checked. About just as many corrections on this check. I guess the low hourly totals are because the deeds were not checked? Same thing for 3<sup>rd</sup> check, so little was checked I don't see how 3 hours was charged. 4<sup>th</sup> check was just the mylar. So, 10 hours was a good amount of time to charge on this map but the entire map was never checked at all, from what I can see. \$1,585.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓

Group OK - 02: 2 MC, 1 supervisor. Not all of the map was checked on the 1<sup>st</sup> check. This took 4 hours, which is OK, but everything should have been checked. A few minor corrections on the 2<sup>nd</sup> check but why did it take 4 hours? \$1,136.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 03: 1 MC, 1 supervisor. 4 hours on the 1<sup>st</sup> check. Almost everything checked, simple map and minor comments. 2<sup>nd</sup> check was mylar and corrections made. Great! \$737.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓

Group OK - 04: 1 MC, 1 supervisor. 4 ½ hours on the 1<sup>st</sup> check. A “Methods and Reasoning” statement was provided (by the MP I assume). Map fairly simple and some questions were asked. 2<sup>nd</sup> check was less. Most comments were addressed but not all, and one comment (did you search for monuments to the west of a certain lot?) could have been asked previously. I do not see that the mylar was checked. Some of the hours on this map were charged at a lower rate. \$532.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 05: 1 MC (mostly), 1 supervisor. Simple map only showing an encroachment. 4 hours is OK for the 1<sup>st</sup> check. B of B missing and purpose statement incomplete, other technical errors. Scale and north arrow not checked. 2<sup>nd</sup> check – B of B needs modification and other corrections (just a couple). 3 hours – could have been 2. 3<sup>rd</sup> check – corrections made but just 2 small things need to be changed. 1 hour, good. 4<sup>th</sup> check was mylar and corrections made. \$1,413.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓

Group OK - 06: 1 MC. 1<sup>st</sup> check – Everything highlighted except the Vicinity Map. Just a few corrections but nothing major. 4 hours – perfect. Only 2 small corrections on the 2<sup>nd</sup> check, one was repeated. Map recorded after 2 checks (without the 2<sup>nd</sup> check corrections). Simple map and hours are reasonable. \$1,177.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 07: 1 MC, 1 supervisor. Not everything was checked on the 1<sup>st</sup> check (references, abbreviations, legend and some data). MC asked questions about some of the establishment, and which monuments were held/rejected (and why). Nice to see 4 hours on this but I wish everything had been checked. 2<sup>nd</sup> check – same information not checked – now you are asking for the boundary line to be heavier (why not the 1<sup>st</sup> time?) and asked some of the same corrections – there were less this time. Map should have taken less time to check this time but it was the same, 4 hours. 3<sup>rd</sup> check was the mylar and not all corrections were made but I guess they thought it was OK. 9 hours isn't unreasonable but 2<sup>nd</sup> check should have taken less time. Generally, I am not comfortable with references not having been checked. \$1,475.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 08: 1 MC, 1 supervisor. Checked very quickly! Simple map, they just forgot the north arrow and scale. 1<sup>st</sup> check was 2 ½ hours. No purpose statement either. 2<sup>nd</sup> check was mylar and they did not add “OR” to their deeds. Recorded after that (without that correction). Most of the hours on this map were charged at a lower rate. Great! \$339.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓ City 09

Group OK - 09: 1 MC, 1 supervisor. Looks like most everything was checked on the 1<sup>st</sup> checkprint (4 ½ hours). MC asked if other subdivision monuments were searched for (the whole map is tied to monuments on the CL of the adjoining street – how did they establish the rear line or certain corners? I agree with the MC) and a draft CS Note was prepared. MP's response letter states that CL monuments, and occupation, are enough. 2<sup>nd</sup> check asks again if they looked for other monuments and more information on the details. This also took 4 hours but should have taken less. Most of the corrections were made on the 3<sup>rd</sup> check. 4<sup>th</sup> check was mylar and no corrections shown, and no CS note. 10 hours isn't too bad for this map. But I agree with the CS - other subdivision monuments should have been searched for, but the map is the MP's opinion and I did not check the map myself, so my opinion could change if I did. \$1,445.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 10: 1 MC, 1 supervisor. About 1/2 of the data was checked on the 1<sup>st</sup> check. 1<sup>st</sup> check took 4 hours which is OK. 2<sup>nd</sup> check took 2 hours. 2<sup>nd</sup> check had a few minor comments. 3<sup>rd</sup> check was mylar and it recorded that way. \$1,049.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 11: 2 MC. Nothing highlighted on 1<sup>st</sup> check and just some very minor comments. How did this map get checked in 4 hours, 1<sup>st</sup> check? This is how it should be – although without highlighting I can't see what was done. 2<sup>nd</sup> check it looks like the closures were checked (were they the 1<sup>st</sup> time?) and just a very few red comments. And only an hour to check it! 3<sup>rd</sup> check was mylar. Well done! \$873.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 12: 1 MC (mostly), 1 supervisor. 1<sup>st</sup> check took 4 hours but some was non-billable. Almost everything checked (just not interior lot numbers). One monument not tied to survey, some bearings questioned, etc. but not the establishment. Streets had to be put in by SP and then the block they are surveying here. Most corrections were made on the 2<sup>nd</sup> check and 4 hours (again) seems like too much. 3<sup>rd</sup> check was a quick mylar check with no markings. I think this could have been completed in 6-7 hours and not 9 but the total was good anyway. \$983.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group OK - 13: 1 MC, 1 supervisor. Vicinity map not checked but most everything else was checked on the 1<sup>st</sup> check, which took 4 hours. The corrections were mainly technical and there were not many. Next check was mylar and took less than an hour! Well done! \$738.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓

Group OK - 14: 1 MC, 1 supervisor. 1<sup>st</sup> check took 4 hours and there was one non-billable hour after that. Everything checked on the 1<sup>st</sup> check and an establishment note was requested – also to state which of the 2 lots was senior. Everything else was OK. Map was simple and the time is OK. Most of the hours on this map were charged at a lower rate. \$471.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓ City 10

Group OK - 15: 1 MC, 1 supervisor. 4 hours on the 1<sup>st</sup> check. Almost everything was checked and it is a simple map. Corrections made on the 2<sup>nd</sup> check and that took under 2 hours which is OK. 3<sup>rd</sup> check was mylar. There was a comment made about changed distances – I looked at the recorded one and it had the changed distances. Not sure what happened there. \$972.00 total. My 1<sup>st</sup> check estimate: 3 hours. ✓

Group OK - 16: 1 MC mostly. 1<sup>st</sup> check took 4 hours but most was non-billable. I only see 4 checks in the folder. Anyway, 2<sup>nd</sup> check took 10 ½ hours. 1<sup>st</sup> check everything was checked – the purpose statement was questioned, a detail was requested and there are a few other corrections. The purpose was to document a material discrepancy the MP believes was between 2 other maps. Why the 2<sup>nd</sup> check took more than twice as long as the 1<sup>st</sup>, I cannot determine. Detail was provided and the discrepancy note removed (but new note not checked). A few new corrections on this check. All corrections were made on the 3<sup>rd</sup> check but there was a minor issue and a 4<sup>th</sup> check was required. I do not see the charges and dates for the 3<sup>rd</sup> check in the data given to me. Not sure why one CS spreadsheet shows a 5<sup>th</sup> check. 18 hours is excessive for this map. Some hours on this map were charged at a lower rate. \$2287.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

#### Group A – 1 sheet maps: 5-6 hours on 1<sup>st</sup> check

Group A - 01: 2 MCs, 1 supervisor. 5 hours on the 1<sup>st</sup> check. References and legend not checked, nor ghosted lot numbers. Simple map, corners established by SP. Some discrepancies between the closures and the map, and questioning some references. I wonder why the MP does not specify which map was used for the SP (I believe this should always be asked for). There was a methods statement and it wasn't specified there either. 2<sup>nd</sup> check only had one correction and 3 hours was charged for just a little highlighting. 3<sup>rd</sup> check was mylar and that was checked very quickly. Hard to fault an 8-hour total map check but this could have taken less. A few hours on this map were charged at a lower rate. \$1,144.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group A - 02: 2 MCs, 1 supervisor. Everything was highlighted on the 1<sup>st</sup> check. No really significant comments though I do not see how he established his w'ly corners. This took 5 ½ hours. Then a 2<sup>nd</sup> check came in as mylar with the boundary in the wrong place! That took 2 hours. 3<sup>rd</sup> check – now the boundary is in the right place but very light. Some record bearings are being questioned but they were signed off on the 1<sup>st</sup> check. I also see an “email review” which is labeled “3a” – not sure what was going on there. Some of the bearings asked about on the 3<sup>rd</sup> check are still there. No establishment notes for the W'ly property corners – guessing SP per R1 but the map should state that. Also the NE corner, no establishment note. Overall 13 hours isn't bad for this map. \$2,041.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group A - 03: 1 MC, 1 supervisor. 1<sup>st</sup> check took 5 ½ hours but only ½ hour was charged (why?) and everything was checked on the 1<sup>st</sup> check. Some deeds needed to be analyzed and some other questions were asked. 2<sup>nd</sup> check was only 3 hours and the 3<sup>rd</sup> was only 2. All corrections

made on the 2<sup>nd</sup> check except for one parcel's establishment – and the CS explained why. 3<sup>rd</sup> check shows a suggested CS note for that establishment. I don't see the CS note on the 4<sup>th</sup> checkprint or on the 5<sup>th</sup> (mylar) – maybe the note was discussed and not needed. This could have been checked in less time than 12 hours. Some of the hours on this map were charged at a lower rate. \$770.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group A - 04: 1 MC and 1 supervisor. This map had some minor corrections on the 1<sup>st</sup> check. Some requested data was added on the 2<sup>nd</sup> check but closures don't match the map. All of the corrections were made on the 3<sup>rd</sup> check. \$1,724.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group A - 05: 1 MC, 1 supervisor. 6 hours on 1<sup>st</sup> check. Everything was checked but this was not a complicated map. Just 2 lots in a tract (with no corners found, so proportioned in, though it does not state this). Minor corrections. 2<sup>nd</sup> check was mylar with nothing marked, so probably a cursory 2<sup>nd</sup> review (less than an hour). Some of the hours on this map were charged at a lower rate. \$725.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group A - 06: 1 MC throughout. 1<sup>st</sup> check – Adjoiners not checked (lots of deeds) and streets not dimensioned (widths) and some establishment notes missing. Street widths on one street not asked for and not shown on 2<sup>nd</sup> check either! One monument was “accepted” on the 1<sup>st</sup> check and called off on the 2<sup>nd</sup> (but still shows as accepted on map). Adjoiners still not checked, B of B not checked. Measured bearing on one street asked for twice. 3<sup>rd</sup> check – B of B checked finally but not adjoiner documents. Still no width shown or asked for one street. I see no measured E'ly RW bearing on that street either. Looks like the map recorded without that bearing. There are found monuments along that line, what is the bearing between them? How is one monument called off with no bearing on the line? A few corrections asked for on the 3<sup>rd</sup> checkprint were made but not highlighted on the mylar (4<sup>th</sup>). 6 ½ hours for the 1<sup>st</sup> check and 5 ½ for the 2<sup>nd</sup> is a bit much and there shouldn't have been 5 hours for the 3<sup>rd</sup>. There weren't enough corrections to justify this. My 1<sup>st</sup> check estimate includes checking the adjoiner deeds (if they are not too complex; it looks like they are not). \$2,891.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group A - 07: 1 MC, 1 supervisor. 4 ½ hours on the 1<sup>st</sup> check. Everything checked and just a few corrections, very minor. Simple map. 2<sup>nd</sup> check was the mylar, but I see some NEW corrections marked on that. The map recorded without these corrections being made. A few hours on this map were charged at a lower rate. \$802.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓

Group A - 08: 2 MCs, 1 supervisor. 1<sup>st</sup> check - a handwritten checkprint with no highlighting. I cannot tell what was checked and what was not. Looks like a one-parcel map, not complicated. 2<sup>nd</sup> check has highlighting and some new notes. There is a “purpose” statement which was not checked. B of B not checked at all. Corrections were made but brought up new issues, but some corrections should have been marked on the 1<sup>st</sup> check. 4 hours seems OK since new data was added. 3<sup>rd</sup> check – now asking for distances between each monument and to property corners (not asked for before). Some corrections were not completed. I do not see how this check took 6 hours though. 4<sup>th</sup> check – looks like the corrections were mostly

cleared up but again, new information means new corrections. New note on one street was not checked. Don't see the mylar checkprint there. I don't think this map should have taken 22 hours. A few hours on this map were charged at a lower rate. \$3,248.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group A - 09: 2 MCs, 1 supervisor. The MP is out of the area. There are a lot of corrections on what looks like a simple map. Not all monuments were tied to the map. Not enough street dimensions, or establishment notes. References and legend were checked though. This took 6 ½ hours and there were a lot of corrections and analysis. 2<sup>nd</sup> check – looks like the MP addressed most of the comments. More closures asked for. More measured data was added and record data was asked for in those places. But I can't imagine why 2<sup>nd</sup> check was 14 hours, that is too much. It was a different MC which could help explain that. 3<sup>rd</sup> check – not all corrections made (one was repeated). A proportioning question is on this check which could/should have been on the previous check. New closures submitted which did not match the map in all places. This took 5 hours which seems to be too much. 4<sup>th</sup> check – most of the corrections were made, just a couple of small ones still remain. I don't see how that took 5 hours. \$2116.00 (in process). My 1<sup>st</sup> check estimate: 5 hours.

Group A - 10: 1 MC, 1 supervisor. 1<sup>st</sup> check took 5 hours. Everything checked, with some establishment questions and some technical errors. 2<sup>nd</sup> check took 3 hours. All corrections completed and the new data added generated just a couple of minor additions. 3<sup>rd</sup> check was the mylar and it was quick, all corrections addressed. \$672.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group A - 11: 1 MC, one supervisor. 1<sup>st</sup> check took 6 hours. Asked about jr/sr rights vs. proration and asked about one monument. 2<sup>nd</sup> check still shows proration (did they investigate jr/sr rights?) but made the other corrections except for an angle not held that they said they held. \$983.00 (in process). My 1<sup>st</sup> check estimate: 3 hours.

Group A - 12: 2 MCs, 1 supervisor. Everything was highlighted on the 1<sup>st</sup> check. A SBCO monument was found *no reference*, and the MC knew a reference for it. Only 2 maps were referenced (one added by the MC) and there are establishment notes for the two 'set' monuments. Not a complicated map. 2<sup>nd</sup> MC pointed out some easement lines which needed a different linetype. A couple of things that MC 1 had yellowed, MC 2 changed. But 5 hours is excessive. A purpose statement was added on the 3<sup>rd</sup> check and that generated a couple of corrections. Only an hour for this check which makes sense. 4<sup>th</sup> check was mylar and the errors were fixed. \$2,158.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group A - 13: 1 MC, 1 supervisor. Most but not all of the map was checked on the 1<sup>st</sup> check. Establishment notes not checked, nor the legend. A SBCO monument was found *no reference*. And that one boundary line is a creek and it was determined by aerial mapping (file requested). 6 hours on 1st check which is too much but then the other 2 checks were must faster. I see some summation errors on the 2<sup>nd</sup> check, one of which could have been noted

the 1<sup>st</sup> time. But no substantial corrections. Next check was mylar and checked quickly with no corrections. \$1,294.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group A - 14: 1 MC, 1 supervisor. 1<sup>st</sup> check took 6 hours. The map is monumenting one deed. Most boundary monuments were found. Not too many corrections, so probably too many hours. Very minor corrections on the 2<sup>nd</sup> check and the 3<sup>rd</sup> was mylar. Nothing noted on the mylar check. Some of the hours on this map were charged at a lower rate. \$874.00 total. My 1<sup>st</sup> check estimate: 4 hours. City - 05

Group A - 15: 1 MC, 1 supervisor. I see some detailed information in the file about how much time was spent by each person and what they did during that time. 1<sup>st</sup> check took 5 hours. A methods statement was provided by MP. 1<sup>st</sup> check – everything was checked – several deeds had to be read. Some monuments not tied to survey, city limit lines not shown, but corrections not extensive, and establishment method noted. Only 2 small corrections on the 2<sup>nd</sup> check, which was quick. All corrections made on mylar. Most of the hours on this map were charged at a lower rate. \$703.00 total. My 1<sup>st</sup> check estimate: 4 hours. ✓ City - 06

Group A - 16: 1 MC. This can be considered to be a typical 1-sheet City map. There are 2 maps and one deed referenced and the map is establishing one lot. It is not complex. MC is asking about establishing street RW and whether additional monuments have been searched for. North arrow missing. Map is not complicated and should go through quickly. Only 1<sup>st</sup> check complete and it took 6 ½ hours. \$1,057.00 (in process). My 1<sup>st</sup> check estimate: 4 hours. City – 12

Group A - 17: 1 MC. Everything checked on the 1<sup>st</sup> checkprint except data with no closure provided. Very simple map, a lot in a tract. 3 references and there was no need to go around the entire block. Closure requested. Dimensions missing “foot” marks. I think he needs to state that he prorated per reference “R” if that is what he did, and add another establishment note as requested, as well as missing radials. Only 2 monuments were not in. Only 1<sup>st</sup> check complete and it took 5 hours. \$959.00 (in process). My 1<sup>st</sup> check estimate: 4 hours. ✓ City - 14

Group A - 18: Simple lot in a tract map. Everything checked on the 1<sup>st</sup> check. Minimal corrections and comments. All 4 CL block corners found and measured different from record along the RW by 0.3’ or so. Not sure if MP looked for other lot corners within the block. A note stating this would be helpful. Only 1<sup>st</sup> check completed and it took 5 ½ hours. \$1,039.00 (in process). My 1<sup>st</sup> check estimate: 4 hours. City - 21

#### Group B – 1 sheet maps: 7-9 hours on 1<sup>st</sup> check

Group B - 01: 1 MC, 1 supervisor. No highlighting on 1<sup>st</sup> check and several corrections. Looks like adjoiners are missing, most of the errors were technical. I think 7 hours is a bit much with no deeds to read and no real boundary analysis. Just about the same number of technical errors on the 2<sup>nd</sup> check and there is some highlighting but not everything. The MP has some corrections to do before 3<sup>rd</sup> check. I can see this taking about an hour less than 1<sup>st</sup> check

because of the new issues (but not 7 and 6 hours). Most of the hours on this map were charged at a lower rate. \$1,485.00 (in process). My 1<sup>st</sup> check estimate: 4 hours.

Group B - 02: 1 MC, 1 supervisor. Not everything was highlighted on the 1<sup>st</sup> check. Plenty of corrections, including references, wording, and suggestions about documents to use. 1<sup>st</sup> check took almost 8 hours and that seems too much. The MP prepared a short response letter, stating which corrections were made. 2<sup>nd</sup> check looks like every correction was made, no red on it at all. Only 3 hours were charged but it should have been less. 3<sup>rd</sup> check was the mylar, where some new information was provided but I guess it was OK. 13 hours total isn't that unreasonable but still could/should have been less. \$2,041.00 total. My 1<sup>st</sup> check estimate: 5 hours.

Group B - 03: 2 MCs and 1 supervisor. Most of the map was checked on the 1<sup>st</sup> check. Monuments missing references, linetypes wrong, not sure if closures were submitted but they were asked for. The copy of the 2<sup>nd</sup> checkprint I have is blank (no highlighting or corrections) so not sure what happened there. And I don't have a 3<sup>rd</sup> checkprint – guess it was the mylar. It does look like the corrections were completed. 14 hours isn't a huge amount of hours but this is a pretty simple map and I think it should have taken less time. 1<sup>st</sup> check shouldn't have taken 9 hours. A few hours on this map were charged at a lower rate. \$1,930.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group B - 04: 1 MC, 1 supervisor. 1<sup>st</sup> check took 9 ½ hours. MC sent the MP a deed and some highway maps to assist. Having to read several deeds, as well as establishment questions, bumps up this 1<sup>st</sup> check time, but not to 9 hours. The deed helps to address the “deed discrepancy note” on the map. Everything checked and some minor corrections. The deed information was incorporated into the 2<sup>nd</sup> check, which took 4 hours. Other corrections made, just one typo remaining. One quick mylar check with all corrections made. \$2,615.00 total. My 1<sup>st</sup> check estimate: 5 hours.

Group B - 05: 1 MC, 1 supervisor. 1<sup>st</sup> check - 9 hours and 2<sup>nd</sup> only 3. MP wrote a note explaining what they did and why they did it, and the note was helpful. I don't see how this took 9 hours for 1<sup>st</sup> check, there is a lot of data and references but not 9 hours worth. There were some questions on grid/ground, some State RW and some deeds but it was not an extensive survey and not an excessive number of corrections. Corrections made on 2<sup>nd</sup> check except for one angle. Most of the hours on this map were charged at a lower rate. \$1,334.00 (in process). My 1<sup>st</sup> check estimate: 6 hours.

Group B - 06: Only one check and 1 MC – map not recorded. Everything was checked except the legend, and there are numerous corrections, including the B of B, record data, missing radials, etc. This is a one-parcel retracement and I think 9 hours is too much for 1<sup>st</sup> check. \$1,368.00 (in process). My 1<sup>st</sup> check estimate: 5 hours.

Group B - 07: 1<sup>st</sup> check (13 hours) had a vague purpose statement, and some record data was missing. 2 MCs for most of the map. “California” not included in the legal description, which

was missed until the 5<sup>th</sup> check. Adjoiners not checked. 2<sup>nd</sup> check - it looks like MP did not make all of the corrections. A detail was also requested but I think this is reasonable since the MP did not comply with a request for data. 3<sup>rd</sup> check, detail not done but data was provided. This should have been the final check. A mylar was sent in but returned because a deed referenced on the map needed to be recorded before the map records. Over a year went by. On the 5<sup>th</sup> check, 6 years later, the document had recorded but the 5<sup>th</sup> MC added some new comments. Is this acceptable? I agree with the new comments but on the 5<sup>th</sup> check? One was a suggestion for the surveyor's note – but the vague language remained. On the 6<sup>th</sup> check another note was expanded but with typos. The corrections are minor. And the 7<sup>th</sup> was the final check. This would not have taken 22 hours, I believe, if drafting had been more careful, and if new information had not been asked for in later checks. Having seven years between checks is less than satisfactory and certainly contributes to more map checking hours. \$3,109.00 total. I did not do an estimate on this map which had been in process over multiple years. Used 5 for the averaging in the spreadsheet.

Group B - 08: 1 MC and 1 supervisor. Just a few minor corrections on the 1<sup>st</sup> check, no analysis (linetypes, no B of B, etc.) and it took 7 hours. A couple of small typos on the 2<sup>nd</sup> check, 4 hours (should have been 2). \$1,605.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group B - 09: 1 MC. A handwritten print with no highlighting so I do not know what was checked. There are a few corrections but I don't think this should have taken 8 hours. Most of the hours on this map were charged at a lower rate. \$956.00 (in process). My 1<sup>st</sup> check estimate: 4 hours.

Group B - 10: 2 MCs, 1 supervisor. Again, abbreviations and legend not checked, or the adjoiners. Mostly technical errors; record data wrong, descriptions incomplete or wrong, etc. Looks like 8 ½ hours is too much for a not-too-complicated one sheet map. 2<sup>nd</sup> check – most corrections were made but not the City certs requested the 1<sup>st</sup> time. A question about the unrecorded document. 6 hours looks like too much for this one. 3<sup>rd</sup> check – asking for copy of an unrecorded document – and again asking for agency certificates. A few hours on this map were charged at a lower rate. \$1,334.00 (in process). My 1<sup>st</sup> check estimate: 4 hours.

Group B - 11: 2 MCs, 1 supervisor. Some highlighting on the 1<sup>st</sup> check but nowhere near the whole map. Not enough PRC information on this check, and some references/methods questioned. Purpose was stated as resolving gaps/overlaps between the PIQ and its adjoiners. Because of the analysis involved, 7 hours is reasonable. Different MC on 2<sup>nd</sup> check and different things pointed out. Not everything was highlighted again either. Some of the corrections the MP made generated new errors which need to be corrected, including the mapping angle and some wrong bearings. 6 hours on this for a new MC is OK. 3<sup>rd</sup> check – I really think I see the MC asking to change some record bearings on the 2<sup>nd</sup> check, then change them back on the 3<sup>rd</sup>? I hope the MP questions this. 5 hours on the 3<sup>rd</sup> check. 4<sup>th</sup> check – I see something that was on (at least) the previous check and was not addressed until now? Another 6 hours – but this should have been winding down or at least not more than the 3<sup>rd</sup>.

5<sup>th</sup> – still more corrections and one major one regarding the grid/ground information was not corrected. Not much time charged. Same for 6<sup>th</sup> and corrections were made. I don't think 29 hours should have been spent on this. A few hours on this map were charged at a lower rate. \$4,241.00 total. My 1<sup>st</sup> check estimate: 7 hours. ✓

Group B - 12: 1 MC, 1 supervisor. 8 ½ hours on the 1<sup>st</sup> check and this map seems fairly simple. Only a few found monuments and a couple of (not complicated) easements. No statement of purpose but I see a building encroaching. The 2<sup>nd</sup> check pointed out something regarding the easement exception which was on the 1<sup>st</sup> check – why not mentioned then? Also a linetype comment, same situation, and document numbers for the easement. Corrections made. Looks like 3<sup>rd</sup> check could have been avoided if everything had been pointed out on the 1<sup>st</sup> check. Other checks OK. \$2,111.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group B - 13: 1 MC, 1 supervisor. 7 hours on the 1<sup>st</sup> check. I'd say 80% of this was checked the 1<sup>st</sup> time and asks about some of the notes and data. There is a lengthy narrative which has very few corrections but is highlighted (good). By reading the note I realize that the MP did his job well and put a lot of thought into his solutions. MC wrote a long synopsis of the found monuments and his concerns (separately from the checkprint). It is clear that the CS/MP did a lot of research and also mentions another map which was in progress at the time, which is valuable information for the MP. Also some new comments are made regarding the long narrative at the bottom of the map, not sure why these comments were not made before. 2<sup>nd</sup> check took over 4 hours and 3<sup>rd</sup> check took 2 hours (less corrections this time). MC asked MP if he agrees with the comments and if so, to submit mylars. I do not know the outcome except that the map has not recorded. \$2,290.00 (in process). My 1<sup>st</sup> check estimate: 7 hours. ✓

Group B - 14: 1 MC, 1 supervisor. Nearly everything checked on the 1<sup>st</sup> check. 1<sup>st</sup> check took 8 ½ hours. The boundary traverse has a large misclosure. Looks like some more traverses were needed. Other corrections are minor. Geodetic B of B. No deeds to read. 2<sup>nd</sup> check – all corrections made. I don't see how this check took 4 ½ hours. Last check was mylar and quick – 14 total hours was too much. \$2,477.00 total. My 1<sup>st</sup> check estimate: 5 hours. City - 07

Group B - 15: 3 MCs, 1 supervisor. MP provided a narrative, separate from the map, stating what he held and found, and his establishment notes. 1<sup>st</sup> check took 7 hours – I think that's high. Everything was checked. Just a few minor corrections/comments. Different MC on the 2<sup>nd</sup> check and more and different comments and more hours (13) which isn't good. 3<sup>rd</sup> check has some highlighting and one question. That took 3 hours and shouldn't have. A 4<sup>th</sup> check was submitted with data missing from the previous checks and some errors. So that held up the map. I REALLY don't see 8 hours for this 4<sup>th</sup> check! It doesn't seem possible to charge so much for this. 5<sup>th</sup> check was the mylar. 33 hours was too much for this map check. \$5,411.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group B - 16: 1 MC, mostly. 1<sup>st</sup> check took 8 hours and I cannot see why. Only a few monuments shown and a few corrections. 2<sup>nd</sup> check took 3 hours. MP sent a response. Only thing missing from the 2<sup>nd</sup> check is the date. The monument notes in question were cleared up. 3 hours –

how? 3<sup>rd</sup> check was a quick mylar check. 12 hours was too much, no boundary to analyze at all. \$2,115.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group B - 17: 1 MC, 1 supervisor. Everything was checked on the 1<sup>st</sup> check, which took 8 hours. This was to monument a grant deed. The MP needs to state whether they looked for monuments around the boundary, and correct some data, nothing major. Most of the corrections were made on the 2<sup>nd</sup> check but that check took 6 hours and I cannot see why. Only a summation issue and small technical issues – this should have taken two hours at most. 3<sup>rd</sup> check was mylar and all corrections made. I truly cannot see why the 2<sup>nd</sup> check took longer than the 1<sup>st</sup>. \$2,500 total. My 1<sup>st</sup> check estimate: 5 hours. City - 03

Group B - 18: 1 MC. Almost everything checked on the 1<sup>st</sup> check. Simple map establishing one parcel, which was established at right angles and record distances per a deed. I wonder how the boundary lines fit improvements because no boundary monuments were found, just record data held from the street RW. I also wonder about sr/jr rights here. Anyway, there are not too many corrections and comments here. Only 1<sup>st</sup> check completed and it took 7 hours. \$1,101.00 (in process). My 1<sup>st</sup> check estimate: 4 hours. City - 17

Group B - 19: Everything checked on the 1<sup>st</sup> check. This is a simple survey of some lots in a block. The relevant lot corners were established by SP. Not too many corrections, which include asking if other monuments were searched for, removing symbols which do not appear on the map body, some “CF” notations needed. Nothing major. It looks like enough field work was done if the corners the MC asked about were searched for. 2<sup>nd</sup> check submitted and not checked yet. \$1,244.00 (in process). My 1<sup>st</sup> check estimate: 4 hours. City – 18

Group B - 20: 1 MC. 1<sup>st</sup> check took 8.5 hours. MP prepared a Methods and Reasoning Statement, always helpful. Mylars requested after 2<sup>nd</sup> check. This is a lot in a block, by deed. 3 deeds and 6 map references. I glanced at the deeds and they are not complicated. Just a few corrections on the 1<sup>st</sup> check. 2<sup>nd</sup> check looks like all corrections were made. Simple map and if the mylar is clean this should go through quickly. \$1,771.00 (in process) My 1<sup>st</sup> check estimate: 4 hours. City - 13

#### Group C – 1 sheet maps: 10-11 hours on 1<sup>st</sup> check

Group C - 01: 1 MC, 1 supervisor. 1<sup>st</sup> check – lots of red, not much highlighting (handwritten). Some data not checked, maybe one checkprint stayed in-house. Establishment notes are lacking. This took over 10 hours and I do not see why. 2<sup>nd</sup> check – almost everything highlighted (not the references though) and some establishment questions still need to be asked. It looks like more information was checked on this check but it was unclear as to why the 1<sup>st</sup> check took so long. 3<sup>rd</sup> check – references are highlighted now. Some data changed and some new information added (CL establishment notes – the MP should have done this on the 1<sup>st</sup> check) and some inconsistencies between checkprints pointed out. MC found a huge bust in a closure. 4<sup>th</sup> check – looks like minor corrections at this point. And no comments on the 5<sup>th</sup>

(mylar) check. I think that 10 hours is too much for the 1<sup>st</sup> check but the subsequent check times are more reasonable. \$4,560.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group C - 02: 2 MCs and 1 supervisor. Everything was checked on the 1<sup>st</sup> check except all the boundary establishment notes (why?) and there were some corrections noted, some technical and some related to descriptions and references. It is unclear how 10 hours was spent on the 1<sup>st</sup> check without checking the boundary establishment notes. All of the 2<sup>nd</sup> check's corrections were not noted on the 1<sup>st</sup>. And the print I have is in black and white and nothing is highlighted at all. This was nearly 9 hours and it seems excessive. There were only a few corrections and they were made – but 3<sup>rd</sup> check has some new ones. I don't see 4 ½ hours there. There is no record of the 4<sup>th</sup> (mylar) check that I can find. I downloaded the recorded map and see those corrections made and it apparently recorded with no evidence of the boundary establishment notes being read, that I could see anyway. A few hours on this map were charged at a lower rate. \$3,249.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group C - 03: 1 MC, 1 supervisor. 1<sup>st</sup> check – looks like everything was checked except the B of B and the Vicinity Map. 10 hours seems like too much. Response from MP with corrections marked in red (hard to read now) and some penciled comments. Showing record references for the 5' dimensions was asked for again, and a couple more corrections also not done – but most of them were and questions addressed. Were the B of B and the Vicinity Map ever checked? Never highlighted. New data added to the map on the 3<sup>rd</sup> check and it is not highlighted. And a few new comments from MC which should have been done earlier. Anyway I don't see why the 3<sup>rd</sup> check took more time than the 2<sup>nd</sup> and there was no way, I believe, this map should have taken 32 hours to check, and I do not see a 4<sup>th</sup> checkprint folder. \$3,583.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group C - 04: 1 MC, mostly. 1<sup>st</sup> check took 10 hours and I do not see it, there isn't even a boundary to analyze. This was an example of a map that had way too many hours charged for 1<sup>st</sup> check. Map shows some encroachments. Corrections are minor. This should not have taken 10 hours. 2<sup>nd</sup> check was mylar and it was quick, all corrections made. 11 hours is too much. \$1,892.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group C - 05: 1 MC, 1 supervisor. Almost everything was checked. There are many comments including asking if they searched for something, if they accepted something, if there are references for something. It looks like the MP did not do a thorough job. I think that 10 hours for 1<sup>st</sup> check is excessive. 2<sup>nd</sup> check – looks like just as many corrections as on the 1<sup>st</sup>. And a lot of data has changed (some street info, and some distances between found monuments). More proportioning questions. This check took 7 hours which is closer to what the 1<sup>st</sup> check should have taken. New references added were not checked. 3<sup>rd</sup> check – an angle point is now gone, so one note makes more sense (though not checked). Some corrections not made. Less corrections this time though, and it still took 7 hours, seems too long. Only the corrections were checked on the 4<sup>th</sup> check and I do not see how that took 4 hours. New notes not checked. Checks 4 and 5 are mylar checks, both with errors! I don't see 4 hours for this. Finally got it right on the 6<sup>th</sup> check. For this map it looks like the MP bears some of the blame, for so

many continuing errors, but it appears that too many map checking hours were charged. \$5,288.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group C - 06: 1 MC, 1 supervisor. 1<sup>st</sup> check – everything was checked and there are a lot of corrections. Almost every reference/description was questioned. The Surveyor's Note needs more explanation. This took 10 hours. The extra corrections bump this simple map's checking time, but not to 10 hours. Unfortunately the 2<sup>nd</sup> check has just about as much red on it as the 1<sup>st</sup>. This took 8 ½ hours and that seems too much. Most of the corrections were completed on the 3<sup>rd</sup> check – some were not. The MC added an adjoiner which was not requested before. This took 6 hours, too long. 4<sup>th</sup> check was mylar with only highlights. I think 26 hours for this map was excessive. \$4,176.00 total. My 1<sup>st</sup> check estimate: 5 hours.

Group C - 07: 1 MC, 1 supervisor. All data checked on 1<sup>st</sup> check, which took 10 hours. Should not have taken this long. There aren't that many corrections – some questions about measured deltas, line weights, and some technical corrections. Odd radius on the north line so maybe extra calcs needed. Not 10 hours worth. One lot in an old tract. 2<sup>nd</sup> check took 4 hours, which would have been more reasonable for the 1<sup>st</sup> check. Mylar was a quick 3<sup>rd</sup> check. So 10 hours was too much for the 1<sup>st</sup> check but the others are OK. \$2,868.00 total. My 1<sup>st</sup> check estimate: 6 hours. City - 08

Group C - 08: 1 MC, 1 supervisor. Measured data not checked on 1<sup>st</sup> check, which took 10 hours. It is one lot in a block with no deeds to read. Some comments but not close to 10 hours worth. 2<sup>nd</sup> check – all corrections made except for 2 minor ones. I do NOT see 4 hours here. 3<sup>rd</sup> check mylar and it was quick. 13 hours is too much for this map. \$2,395.00 total. My 1<sup>st</sup> check estimate: 3 hours.

Group C - 09: 1 MC. Everything was checked but it took 11 hours. One of the deeds it is establishing had (at map checking time) not recorded, so maybe that is why the map has not recorded. There were several deeds to read. Everything on the map was checked, and more information is requested (jr/sr rights, etc.). Still, I don't see 11 hours for 1<sup>st</sup> check. \$1,626.00 (in process) My 1<sup>st</sup> check estimate: 5 hours.

Group C - 10: 1 MC. 1<sup>st</sup> check took 9 ½ hours but only \$97 was charged. Everything was checked except the B of B and the Vicinity Map. Comments included the boundary possibly extending out to CL (for the MP to investigate). Not a large number of comments, a few deeds to read, summation issues, asking for ties to control, but I think 9 ½ hours is too long. The corrections look doable and this shouldn't take much longer to finish. \$97.00 (in process). My 1<sup>st</sup> check estimate: 6 hours. City - 01

Group C - 11: 1 MC. Everything checked on the 1<sup>st</sup> check. Comments/corrections include the legal, some of the interior recording info, and some establishment questions. This purpose of this map is to establish parcels in a deed. The establishment questions are significant. On the 2<sup>nd</sup> check, all of the establishment notes changed and were mostly approved. After the 2<sup>nd</sup> check, the CS emailed the MP to ask about one establishment in particular. The MP replied

and CS agreed and asked the MP to add a note regarding the establishment. MP put the note on the map and it recorded. \$2,395.00 total. My 1<sup>st</sup> check estimate: 6 hours. City - 16

Group C - 12: 1 MC, 1 supervisor. Almost everything checked on the 1<sup>st</sup> check except some measured data which looks like it could not be checked. Simple map establishing a RR RW and this will not be considered in the City comparison. Only a few corrections and comments on 1<sup>st</sup> check. Most corrections made on 2<sup>nd</sup> check and some minor corrections asked for. All corrections made on the mylar and it recorded. 1<sup>st</sup> check took 11.5 hours. \$2,298.00 total. My 1<sup>st</sup> check estimate: 4 hours. City - 15

#### Group D – 1 sheet maps: 12-15 hours on 1<sup>st</sup> check

Group D - 01: 1 MC, 1 supervisor. Looking through the package, I see some very old notes and abstracts. Someone did an extensive spreadsheet for one of the roads. This is a map that does not look complicated on the surface but with the historical data, it could take some time. A legal in a grant deed is being established. With all of the research for this area, I can see it taking some time to check, however 15 hours for 1<sup>st</sup> check seems excessive. I see many new corrections on the 2<sup>nd</sup> check which were not on the 1<sup>st</sup> and the angle at a section corner was not questioned in the same way on the 1<sup>st</sup> check. The boundary on the 2<sup>nd</sup> check changed – now part of it goes to CL, which was requested on the 1<sup>st</sup>. I don't see 9 hours of time being reasonable here. 3<sup>rd</sup> check presented new data without new closures but most of the corrections were made. Looks like only one small error on the 4<sup>th</sup> check and 2 hours was OK (though probably 1 would have been enough). 5<sup>th</sup> check was the mylar. Without delving into the deed and historical issues it's difficult to determine how long this map should have taken for 1<sup>st</sup> and 2<sup>nd</sup> checks. \$4,509.00 total. I did not do an estimate on this map because of the extensive research in the package. I used 13 hours for the spreadsheet estimate.

Group D - 02: 1 MC, 1 supervisor. Everything was checked except measured data around the boundary. Extensive questions and corrections. I think 12 hours is too much. 2<sup>nd</sup> check – some corrections repeated. MP made the boundary line too light for some reason so that's a new correction. 2 details added and both have a lot of corrections requested. Nearly as much red on this check as on the 1<sup>st</sup> one, but at least it was 5 hours. A response checkprint was provided (2<sup>nd</sup> check) to use on the 3<sup>rd</sup> one. And the 3<sup>rd</sup> checkprint hardly had any corrections needed. 4<sup>th</sup> was mylar and all corrections made. I think 20 hours was too much. \$2,469.00 total. My 1<sup>st</sup> check estimate: 6 hours.

Group D - 03: 1 MC mostly. An interesting Surveyor's Note was not highlighted. 1<sup>st</sup> check took 12 ½ hours and I don't see it. There's absolutely nothing here to justify that, the corrections are not substantial. 2<sup>nd</sup> check took 6 hours, again too much. Just highlighted what was changed, and some small corrections. 3<sup>rd</sup> check was mylar and quick. For sure too much time on this one. \$3,358.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group D - 04: 2 MCs and 1 supervisor. 1<sup>st</sup> and 2<sup>nd</sup> check took about the same hours (15) which seems excessive, especially the 2<sup>nd</sup> check. 30 hours for 2 checks of a 1 sheet map? On the 1<sup>st</sup>

check some of the “CF” distances were not labeled as to which record. Also, the MC noticed that a reference has some errors and asked for a note, and asked some questions. Most of the data on the map was checked (highlighted). A detailed “Surveyor’s Note” was not highlighted on either checkprint. The 2<sup>nd</sup> check now has the “CF” data’s reference but that raised more questions. 2<sup>nd</sup> MC asked for some corrections the 1<sup>st</sup> did not. It looks like the 2<sup>nd</sup> MC did read the “Surveyor’s Note” because a comment was made (but note not highlighted). I definitely don’t see how/why the 2<sup>nd</sup> check took just about the same amount of hours as the 1<sup>st</sup> check. 3<sup>rd</sup> check – Surveyor’s Note still not highlighted but one sentence was. The other discrepancy note was partially highlighted. The Purpose Statement was requested to be modified on each check but still not done. A couple of other corrections were not made. I don’t see 7 hours worth though. The 4<sup>th</sup> check was still asking for a change on the heavy border which had been asked for on the 3<sup>rd</sup>. I don’t see the border change on the recorded map. \$5,889.00 total. My 1<sup>st</sup> check estimate: 5 hours.

Group D - 05: 1 MC, 1 supervisor. Looks like everything was checked on the 1<sup>st</sup> check except for some measured radials and measured data along one road. Some questions in the Surveyor’s Notes (should be plural!) Clarification needed on some of the monument descriptions. Grid/ground information asked for too. I don’t see 13 hours for the 1<sup>st</sup> check. 2<sup>nd</sup> check asks questions about Monument 1, whose explanation changed from the 1<sup>st</sup> check but it looks like the question could have been asked on the 1<sup>st</sup>. A new note was added in the monument 4 area, and some clarification was requested. Calc RW data and radials still not checked – maybe not possible? This check was only 5 hours which might be OK, still seems a little much. 3<sup>rd</sup> check – some more documents were submitted and there was an email exchange. There are no marked-up checkprints for 3<sup>rd</sup> or 4<sup>th</sup> checks but the time spent on those was minimal. \$3,435.00 total. My 1<sup>st</sup> check estimate: 9 hours.

Group D - 06: 2 MC, 1 supervisor. Less than half the 1<sup>st</sup> checkprint was highlighted but there’s lots of red. More data was requested, some per deed. It does look like there are a lot of mistakes/deficiencies on this 1<sup>st</sup> check, but I don’t see it taking 12 ½ hours. 2<sup>nd</sup> check – closures do not match map. And there’s even more red comments on this checkprint. Some are repeated from 1<sup>st</sup> check. And most of the new data is problematic too. This took 10 hours, probably just to write up all the red comments. Big changes on the 3<sup>rd</sup> check including orienting the map differently. Errors on one of the record maps were pointed out and also more questions on their methods. This took 8 hours. Still too much, but the MP is definitely at fault as well. 4<sup>th</sup> check – a new opinion note was added and highlighted, and just a few corrections highlighted as well. Different MC – and took 5 hours. Some method statements changed as well and not highlighted. 5<sup>th</sup> check was mylar and no corrections or highlights. I think 37 hours was too much for this, but again, some of this is due to the MP. \$5,525.00 total. My 1<sup>st</sup> check estimate: 6 hours.

Group D - 07: 2 MCs, 1 supervisor. 1<sup>st</sup> check – some record monuments/ties not searched for, other technical comments. I don’t see why 1<sup>st</sup> check took 13 hours but on the 2<sup>nd</sup> check the CS offered an alternate solution so it is clear that a lot of analysis was done. 1<sup>st</sup> check response letter – agreed about a comment and did more field work. I do notice a comment highlighted

on the 1<sup>st</sup> check which was questioned (the identical comment) on the 2<sup>nd</sup>? Also some things missed on the 1<sup>st</sup>. 3<sup>rd</sup> check presents a CS note – disagreeing with the establishment of City monuments. The MP wrote a polite letter back, explaining why he chose the solution that he did (disagreeing with the CS note). I see that the map did record WITHOUT the CS note. I definitely do not see 44 hours here. \$6,605.00 total. My 1<sup>st</sup> check estimate: 5 hours.

Group D - 08: 1 MC. 1<sup>st</sup> check – everything was checked and it took 12 hours (too long). Geodetic North is the B of B. A few technical errors but mostly asking about the boundary solution (3 deeds had to be analyzed). MC did ask for a document to clarify the MP’s statement of “SP” – which is good. 2<sup>nd</sup> check – only the corrected items were checked. A surveyor’s note was added and it was checked. It makes sense! 3<sup>rd</sup> check was the mylar and the very minor correction was made. My 1<sup>st</sup> check estimate: 6 hours. \$2,589.00 total. City - 04

Group D - 09: 1 MC. Simple map and everything checked on the 1<sup>st</sup> check. I saw an email conversation between the MP and the MC asking about some documents needed for establishment, which appear to be unavailable. Relationship of adjoining not shown – other maps and documents to look at were suggested. I would be curious to see how this develops as the MC couldn’t find some of the documents they were hoping to find. There’s no found monuments on the 2 street CL’s but it also does not state whether there were monuments to search for. Wonder if the survey needs to be expanded. Because of the extra work the MC put in to suggest documents, this normally 3-hour map should take 4 hours. A methods and reasoning statement was submitted with 1<sup>st</sup> check. Only 1 check completed which took 12 hours. My 1<sup>st</sup> check estimate: 4 hours. \$2,299.00 (in progress) City - 19

Group D - 10: 1 MC, 1 supervisor. This was 1 lot within a city lot split and will not be included in the comparison. It established a grant deed and had various establishment notes. There were some significant corrections and comments, including establishment methods. Compass adjustment calcs were requested, this should add to 2<sup>nd</sup> checking time. The 2<sup>nd</sup> check had a lot of corrections as well, and mylar was not asked for. Comments again included establishment methods. 1<sup>st</sup> check took 12 hours and 2<sup>nd</sup> check took 11 hours. Most of the hours on this map were charged at a lower rate. My 1<sup>st</sup> check estimate: 4 hours. \$2,599.00 (in progress). City - 20

Group D - 11: 1 MC. This is a complicated one-sheet map with a lot going on, including encroachments and will not be included in the comparison. It looks like everything was checked and there are a lot of comments. I think a 2<sup>nd</sup> sheet will need to be added to show encroachments. It also looks like the deeds are mislabeled, this would result in extra time needed to be taken by the MC to figure all of this out. Some of the establishment notes are long and complex. Only 1<sup>st</sup> check completed which took 13.5 hours. My 1<sup>st</sup> check estimate: 7 hours. \$2,336.00 (in progress). City - 22

Group E – 1 sheet maps: 18-20 hours on 1<sup>st</sup> check

Group E - 01: 2 MCs and 1 supervisor. 1<sup>st</sup> check was missing references and record data. Vague B of B. Was a poor 1<sup>st</sup> submittal, but I do not see 20 hours to check this map as being

reasonable at all, no boundary analysis at this stage and no deeds to read. 2<sup>nd</sup> check – some of the corrections were made but many more errors as well. All 3 original, tagged monuments on the N’yly RW of one street were called off (why? – what did he hold for the RW? There are no monuments along the S’yly RW and nothing along the S’yly line of the PIQ. How was the PIQ established? Holding record data and calling original monuments off?) And I don’t see how this check took 12 hours. 3<sup>rd</sup> check – Almost all of the corrections were made. One new deed was added. I don’t see how 6 hours was charged for this. 4<sup>th</sup> check – some new data added and it had to be modified. But 4 ½ hours? 5<sup>th</sup> check – finished and only an hour charged. Very hard to see how this map took 45 hours total. \$6,795.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group E - 02: 2 MCs. The 1<sup>st</sup> check took 18 hours. This does not look like a very complex map. Only one deed to read and the rest of the references are maps. Some distances seem to be incorrect. 2<sup>nd</sup> check shows more record data but some of the changes are questioned (unasked for changes from 1<sup>st</sup> check). Another monument to the north is tied in. This 2<sup>nd</sup> check took 24 hours. I see that the CS had to generate a note, but 24 hours? The 3<sup>rd</sup> check adds a new “methods statement” which was not highlighted. And there is data with asterisks but there is no asterisk in the legend. The CS note details an alternate position for the n’yly line of the survey. New data along Hwy 246 is being asked for, which could have been asked for previously.

The 4<sup>th</sup> check (6 months later) removed the un-checked methods statement and adds the data along the highway which was asked for. It does not include the CS note mentioned above. Another monument was found and tied in w’yly of the PIQ. Does not look like data for this monument was checked. This check only took 3 hours. 5<sup>th</sup> check – still no CS note. But now they’ve changed some data significantly – in one area. I don’t believe this is the MC’s fault here. The 1<sup>st</sup> 4 checks showed the R/P line data measured as being less than 0.5’ different than record – this 5<sup>th</sup> check shows measured as being almost 40’ different. I didn’t see anything in the records showing why he made this change. This check took only about 4.5 hours. 6<sup>th</sup> check – there was a drafting error (bearing) which appeared on the 1<sup>st</sup> check and was only caught on the 6<sup>th</sup>. Other bearings were questioned here which were not questioned on the 5<sup>th</sup> check. At least one bearing changed on the 4<sup>th</sup> check was just commented on here. I downloaded the recorded map and can see that it did record without the CS note on it. Not sure why. I definitely think this map took too long to check, even with the problem with one of the references. \$9,727.00 total. My 1<sup>st</sup> check estimate: 4 hours.

Group E - 03: 3 MCs, 1 supervisor. Everything was highlighted on the 1<sup>st</sup> check. I see that 2 MCs took 18 hours on the 1<sup>st</sup> check. There are 11 references, some of them are deeds. Some PRC information is missing. Some establishments are questioned, and some alternate methods mentioned. Still I don’t see 18 hours for 1<sup>st</sup> check on this one-sheet map. 2<sup>nd</sup> check – everything highlighted and some similar comments as on the 1<sup>st</sup>, though not as many – including PRC and establishment. Again, I think 10 hours is too much for 2<sup>nd</sup> check. \$2,158.00 (in process). My 1<sup>st</sup> check estimate: 7 hours.

Group OK – 2 sheet maps: 9 hours or less on 1<sup>st</sup> check

Group OK - 16: 2 MCs, 1 supervisor. 1<sup>st</sup> check was not highlighted at all so I hope there's an office copy – 1<sup>st</sup> check asking for calcs and some technical corrections. 2<sup>nd</sup> check just has a few highlights on it. It looks like most of the corrections were made but closure calcs don't match all of the data. Interesting that 1<sup>st</sup> check was only 6 hours and 2<sup>nd</sup> check was 4 – but the 3<sup>rd</sup> was 7? Different MC and more highlighting. One distance is still wrong after being pointed out twice. DEFINITELY some questions being asked on 3<sup>rd</sup> which were not asked on the 1<sup>st</sup> 2 checks but not 7 hours worth. If the corrections are valid, this should have been addressed with the 1<sup>st</sup> MC (I hope it was). If the 1<sup>st</sup> MC had pointed all of this out on the 1<sup>st</sup> check then this might have gone through more quickly. 4<sup>th</sup> check – calcs still not matching map. Still a closure issue on the 5<sup>th</sup> review. \$3,317.00 total. My 1<sup>st</sup> check estimate: 6 hours. ✓

Group OK - 17: 2 MCs, 1 supervisor. Abbreviations not checked on either sheet. The references and everything else on Sheet 1 were checked and the lengthy surveyor's notes were approved with minor suggestions. Measured data checked (there was a lot) and looks good. Most of the questions on Sheet 2 were asking for establishment notes. This took 6 ½ hours which is good for a 2 sheet map with a lot of data. 2<sup>nd</sup> check – the corrections pointed out on Sheet 1 were all completed with one minor numerical question. A few corrections on Sheet 2 regarding numerical data. This took 4 hours and probably could have been less. 3<sup>rd</sup> check – still discrepant data between sheets – that was the only correction on Sheet 1. Sheet 2's correction asks about control data and asking for a detail. 1 ½ hours is OK here. 4<sup>th</sup> check was the mylar. Corrections made but a spelling mistake was pointed out in the new detail. This map could have been checked in less than 14 hours I believe, but this was OK. Some hours on this map were charged at a lower rate. \$1,913.00 total. My 1<sup>st</sup> check estimate: 7 hours. ✓

Group OK - 18: 2 MCs and 1 supervisor. Looks like some closure issues on the 1<sup>st</sup> check and that everything was checked. Some establishment questions. All maps, no deeds. 9 hours is reasonable here. 2<sup>nd</sup> MC asked for some things not asked for the 1<sup>st</sup> time (linetypes). A new establishment note was added on Sheet 2 and it was not highlighted. 5 hours is OK but 3 would be more reasonable for the small amount of corrections. Then 5 hours again for the 3<sup>rd</sup> check, why? 2<sup>nd</sup> MC said to show adjacent parcel lines as solid. There's confusion as to which adjacent parcel lines are solid and which dashed, and that appears to change between checks. 2<sup>nd</sup> MC asked for comments not asked for on the 1<sup>st</sup> check. MP removed an establishment note which should have been left on. Not seeing why 3<sup>rd</sup> check took about as much time as the 2<sup>nd</sup>. 4<sup>th</sup> check asked for one correction for the 4<sup>th</sup> time which was not done. All other corrections were made. This should take 1 hour at most and it looks like it took 2. \$3,321.00 total. My 1<sup>st</sup> check estimate: 8 hours. ✓

Group OK - 19: 2 MCs, 1 supervisor. 1<sup>st</sup> and 2<sup>nd</sup> check each took 7 hours. Sheet 1 had the control scheme and certificates, corrections requested to the legal, geodetic information and one description. Sheet 2 had quite a few comments – corrections to descriptions/references, RW, and a suggestion that the title company be contacted regarding an error in the legal. 2<sup>nd</sup> check asked for a similar correction to a description/references as the 1<sup>st</sup>. Still some issues on Sheet

2 – requesting a correction deed. 3<sup>rd</sup> check – just one small repeated correction on Sheet 1. 4<sup>th</sup> check was mylar and all corrections made. I don't see 19 hours total on this map. A few hours on this map were charged at a lower rate. \$2,868.00 total. My 1<sup>st</sup> check estimate: 7 hours. ✓

Group OK - 20: 2 MC, 1 supervisor. Looks like everything was checked on the 1<sup>st</sup> check, which took 8 ½ hours. The corrections were not major. One deed to examine and another one suggested, and I see an Autocad file done by the MC for some deed lines. Some linework questioned. 2<sup>nd</sup> check: I see that all of the corrections were made on Sheet 1, and one reference was questioned. 2<sup>nd</sup> check took 3 hours, looks like 2 would have sufficed. I do see one minor description that changed a bit (was not requested) and not highlighted. Different MC on the mylar and the remaining corrections were made. This took less than one hour. Most of the hours on this map were charged at a lower rate. \$1,424.00 total. My 1<sup>st</sup> check estimate: 9 hours. ✓ City - 02

#### Group F – 2 sheet maps: 11-12 hours on 1<sup>st</sup> check

Group F - 01: 1 MC mostly. Only one check completed. The control scheme and other information on Sheet 1 was checked. Some questions asked on Sheet 2 regarding an adjoiner and some other establishments. I think that 11 hours was too much for 1<sup>st</sup> check, as there is not much info on Sheet 1. Some of the hours on this map were charged at a lower rate. \$995.00 (in process). My 1<sup>st</sup> check estimate: 8 hours.

Group F - 02: 2 MCs, 1 supervisor. Some geodetic data not checked, also not the abbreviations. 12 hours seems to be too much. About half of Sheet 2 not checked. Questions on Sheet 2 include asking for clarification of some of the establishment notes. 2<sup>nd</sup> check – the 1<sup>st</sup> check had asked a question about Surveyor's Note #3, which was revised on 2<sup>nd</sup> check – but not highlighted. Was it reviewed? The lengthy descriptions on Sheet 2 were still not reviewed. One question was asked on the 1<sup>st</sup> check about some deed calls, and the data was unchanged on this check. \$2,685.00 (in process). My 1<sup>st</sup> check estimate: 10 hours.

Group F - 03: 1 MC, 1 supervisor. 12 hours on 1<sup>st</sup> check. Some measured and record data not checked on the 1<sup>st</sup> check. Some establishment was questioned. Same thing with Sheet 2, but not all establishments were checked. Several parcels are being established, on different streets. But without deeds to read and analyze, 6 hours per sheet is too much. 2<sup>nd</sup> check – most corrections were made, a couple of new ones added. Still a lot of the map was not checked. 3<sup>rd</sup> check was mylar and an unanswered question was asked again on Sheet 1. It recorded without that question being answered. I think 15 hours was too much. \$2,517.00 total. My 1<sup>st</sup> check estimate: 10 hours.

Group F - 04: 2 MCs, 1 supervisor. Most of the map was checked on the 1<sup>st</sup> check. MP errors like symbols not lining up with text (in the legend) and not all monument references shown. Vicinity map not reviewed. Line table in Sheet 2 not checked – not all of it was checkable but there was missing record data. Sheet 2 was just some details. 1<sup>st</sup> check took 11 hours – there

was one deed to read, and several maps. I think that 3 or 4 hours a sheet would suffice. 2<sup>nd</sup> check – some new closures were requested (why not asked for the 1<sup>st</sup> time? – I don't know if they were submitted with the 1<sup>st</sup> check or not). On sheet 2, the map showed record bearings but not which record (why?) and missed more record distances. 7+ hours for this check. 3<sup>rd</sup> check – 100% of corrections made. A few hours on this map were charged at a lower rate. \$2,961.00 total. My 1<sup>st</sup> check estimate: 8 hours.

Group F - 05: 1 MC, 1 supervisor. Looks like just about everything checkable on the 1<sup>st</sup> check was checked. The map had several establishment notes, which were all checked and OK. The map had red blocks of color on the checkprint with no words - maybe I missed a communication. 2<sup>nd</sup> check added a found monument (survey extended to the south) and changed the B of B (which was in a red block on the 1<sup>st</sup> check). 2 more establishment notes were added. Most of the corrections were made. Minor corrections for the mylar check. I do think the 1<sup>st</sup> check charges of nearly 12 hours was excessive but subsequent checks were less. \$3,110.00 total. My 1<sup>st</sup> check estimate: 10 hours.

#### Group G – 2 sheet maps: 13-15 hours on 1<sup>st</sup> check

Group G - 01: This map only has 2 sheets (1 MC, 1 supervisor) but was very complicated. 1<sup>st</sup> check missed things like basis of bearings, establishment notes, etc. – but had some detailed notes about how to show some of the lines. This all needed to be analyzed, along with several maps and deeds. Some research was performed by the MC (stated on the 1<sup>st</sup> checkprint). There are definitely discrepancies between records. 14 hours for 1<sup>st</sup> check appears to be reasonable here.) 2<sup>nd</sup> check – B of B added now (GPS) and a control schematic. More details added. Many corrections were completed but new information was added so there were new corrections. A note that the MC wrote was added to the map – this is the area of uncertainty. Much of the data is the same so I cannot see why the 2<sup>nd</sup> check took 25 hours? 3<sup>rd</sup> check – a lot more red notes from the MC. Wonder why the large misclosure of the main parcel was just being asked about now? My other question is – the MC used the note that the MC wrote on the 1<sup>st</sup> check – but now the MC has a lot of red all over that note and asks questions. I do not understand this. Also some of the 2<sup>nd</sup> check data which was not questioned before is being questioned on the 3<sup>rd</sup>. Unless NEW issues were brought up on the 2<sup>nd</sup> ck, I don't see why the 3<sup>rd</sup> check is 13 hours. Some sheet 2 corrections were not made, but there are some new corrections to data the MC had seen before. There is a new County Surveyor's note which was provided with the 3<sup>rd</sup> check. 4<sup>th</sup> check has only one small correction on each sheet, with nothing highlighted? I can't tell how 9 hours were spent. 5<sup>th</sup> check was just map sheets with nothing written or highlighted. The Surveyor's Notes changed a lot from 4<sup>th</sup> check to mylar – nothing I was provided to me shows notes or comments. The CS note was added to Sheet 2, along with a new note by the MP. 62 hours total seems excessive. \$8,557.00 total. My 1<sup>st</sup> check estimate: 14 hours. ✓

Group G - 02: Mostly 1 MC, 2 supervisors. Everything was checked on the 1<sup>st</sup> check which took 15 hours. This was for pre-construction monument preservation, so no deeds or boundary to analyze. Some questions about accepted/non-accepted monuments and some missing

bearings, leaders, stations, etc. 2<sup>nd</sup> check took 4 hours which also seems like too much, since corrections were mostly completed (just 2 bearings wrong). 3<sup>rd</sup> was a mylar check and it was quick, with all corrections completed. \$3,453.00 total. My 1<sup>st</sup> check estimate: 11 hours.

Group G - 03: 2 MCs and 1 supervisor. 1<sup>st</sup> check did not highlight record references, measured data – and contains a note to the MP that states this was not a full check. Grid/ground issues prevented a full check from being performed. Needs establishment notes. Sheet 2 is just details and they are missing a lot of info. The fact that 1<sup>st</sup> check was not a full review explains why the 2<sup>nd</sup> check took longer than the 1<sup>st</sup> check – but not why each of those checks took 14-19 hours. Some questions and comments on the 1<sup>st</sup> check were not addressed by the MP on the 2<sup>nd</sup>. Also PRC requirements not met on either check. The 3<sup>rd</sup> check hardly has anything on it except some corrections (most were not asked for previously). There were some emails going back and forth for the 2<sup>nd</sup> check. Nothing from 4<sup>th</sup> or 5<sup>th</sup> checks are in the folder. This map had a lot of issues (grid/ground, and deeds to read, narratives to develop) so this would take longer than a typical 2-sheet map but the hours seem excessive. I downloaded the recorded map and see that the PRC information was added. \$6,628.00 total. My 1<sup>st</sup> check estimate: 11 hours.

Group G - 04: 2 MC, 1 supervisor. Most data was checked except for the legend on the 1<sup>st</sup> check and it took 13 hours. A lot of red including asking for adjoiners, asking for grant or dedication info, detail, etc. and some calcs not matching map. Reference list incomplete. 2<sup>nd</sup> check has very little red on it so they obviously completed the corrections and no new problems arose from the additional data. A detail sheet was added and only one minor correction on it. Only one correction on the 3<sup>rd</sup> check but still over 2 hours was spent on it? 4<sup>th</sup> was mylar, all comments OK. I think 24 hours is excessive but not as much as some other maps. A few hours on this map were charged at a lower rate. \$3,627.00 total. My 1<sup>st</sup> check estimate: 9 hours.

Group G - 05: 1 MC, 1 supervisor. Most data was highlighted on the 1<sup>st</sup> check except for abbreviations and some of the geodetic information for the found monuments on Sheet 1. Sheet 2 has a lot of information on it and a lot of comments. Looks like they called off some monuments other maps held, and vice versa. More information being asked about a CL establishment. Several establishment notes were not checked at all, but some were, and were questioned. 15 hours seems to be too much, 11 would be more reasonable. Also it looks like only one closure was submitted and I see multiple polygons on the checkprint, so more closures were needed. 2<sup>nd</sup> check – MP did a response sheet, which is always helpful. Many corrections were made on Sheet 1, including changing Note 3, but the new language brought up new concerns. Asked how elevations were derived for some control points. New boundary establishment notes were added but not checked. These notes are involved and take some time to understand, I can understand charging extra time. It looks like the MC's comments are relevant and that the map was reviewed carefully (though why not highlight the establishment notes?) 3<sup>rd</sup> check – more comments from MC on a Surveyor's Note and some drafting issues. Notes still not highlighted. Some drafting comments asked over and over again. Very little highlighting on 4<sup>th</sup> check and nothing on sheet 2. I can see this map taking some time to check but 31 hours is excessive. \$4,884.00 total. My 1<sup>st</sup> check estimate: 11 hours.

Group G - 06: This map was checked in 2013-2020 and it had eight checks and multiple MCs. I could only find sheet 2 of the 1<sup>st</sup> scan, and that was in black and white so I couldn't see much highlighting, and it took 13 hours. It looks like MP did not show enough record data, his monument descriptions were incomplete, city tie notes were not submitted, establishment notes incomplete, for example "nothing found or set estab by" notes. 1<sup>st</sup> check was September 2013 and the 2<sup>nd</sup> check was a year later, in October 2014. Again, I could only find the 2<sup>nd</sup> sheet scanned. It looks like most of the corrections were made, and some new data added to the map. But the MC didn't check most of the deeds (a lot of them were new on this check). 3<sup>rd</sup> check finally revealed the 1<sup>st</sup> sheet which was just the statements and vicinity map. Again, record deeds were not checked, and a new establishment note was not checked. I cannot be sure about this because it is possible that the print I am looking at is the one that goes out to the MP, maybe there is a highlighted one that stayed in-house. This was in December 2014. 4<sup>th</sup> check was in August 2015 and the new MC read the establishment note I mentioned above, which needed corrections. Looks like the new MC also read the deeds. From what I see of the 3<sup>rd</sup> and 4<sup>th</sup> checks, I think the 4<sup>th</sup> MC did a more thorough job, and that is unfortunate for the MP. The map still had numerous typos and errors on the 4<sup>th</sup> check and many should have been caught previously. But there was a lot of sloppy and lazy drafting on the map as well, for example, duplicating the Surveyor's Statement with a different title, the Monument Notes so filled with typos it made no sense, other lines missing establishment notes, or having unclear notes. The 5<sup>th</sup> check added some new surveyor's notes on Sheet 1, which were not highlighted. The notes do make sense this time.

On Sheet 2, I see some corrections which were missed (by the MC) the 4<sup>th</sup> time. I mean, they were added to the map on the 5<sup>th</sup> check but could have been added on the 4<sup>th</sup>. The 5<sup>th</sup> check also asked for new closures since much data on the map had changed since the original submittal 4 years prior. There was nearly 2 years in between the 4<sup>th</sup> and 5<sup>th</sup> checks. The 6<sup>th</sup> check was more timely but still 5 months after the previous. The errors I see on the 6<sup>th</sup> check are from the MP. They are minor but careless, like making a change to the legal description on Sheet 1 but not carrying it over to Sheet 2. The 7<sup>th</sup> check and 8<sup>th</sup> checks came in 2020 and it was finished. I think more of the issues on this map were with the MP but the MC had their share. 63 hours is a very large amount of hours for a 2 sheet map (and 8 checks over 7 years is not ideal). This map didn't seem complex enough to me to spend nearly 9K. **\$8,697.00 total.** I did not do an estimate on this map which has been in process over multiple years. Used 14 hours for the averaging in the spreadsheet.

Group G - 07: 2 MC, 1 supervisor. Looks like all was checked on the 1<sup>st</sup> check and there are some questions about SFN notes and the wrong B of B. I don't see why the 1<sup>st</sup> check took 15 hours. There were 2 MCs on the 2<sup>nd</sup> check (which took over a month) and different questions being asked. LOTS more red on this check. Many corrections asked for which it looks like the 1<sup>st</sup> MC missed. Looks like 2 MCs charged 27 hours for the 2<sup>nd</sup> check which is definitely excessive. Many corrections were made on the 3<sup>rd</sup> check. On Sheet 2, some easement notes which were not corrected or highlighted on the 2<sup>nd</sup> check were now marked for corrections on the 3<sup>rd</sup>. I don't see 9 hours for the 3<sup>rd</sup> check. 4<sup>th</sup> check was mylars and most corrections were made but a

couple were requested again. I think 54 hours is too much for this map. \$8,493.00 total. My 1<sup>st</sup> check estimate: 9 hours.

Group H – 2 sheet maps: 16-19 hours on 1<sup>st</sup> check

Group H - 01: 1 MC. The 2<sup>nd</sup> sheet was just the control scheme and abbreviations – which was not completely checked (just the station information was checked, not the control traverse). Looks like everything was checked except the reference list and the abbreviations and the scale. There were 28 monument/establishment notes and they were all checked, some are marked in red with no correction given? Six reference maps and one deed. 1<sup>st</sup> check took 19 hours. 2<sup>nd</sup> check only had one red mark on Sheet 1 and nothing red on Sheet 2. Considering that very few changes were made from the 1<sup>st</sup> check and only corrections were highlighted on this one, the 3 hours was reasonable. 3<sup>rd</sup> check was just the mylar. I don't know if the control traverse or references were ever checked. \$3,612.00 total. My 1<sup>st</sup> check estimate: 8 hours.

Group H - 02: 1 MC. Mostly everything checked on the 1<sup>st</sup> check, not the legend and the R8 note. Some questions about the control scheme and language. A lot was highlighted on Sheet 2 and a lot of corrections/comments, including establishment questions, jr/sr rights. Establishment notes in the upper right corner of Sheet 2 not checked. Since there were several deeds to establish, and a lot of geodetic info, this could take a while to check, but 1<sup>st</sup> check took 16 hours and that is too much. 2<sup>nd</sup> check – an OR was added per the 1<sup>st</sup> check, and another reference, but not reviewed. One (R1) reference highlighted on the 1<sup>st</sup> check was questioned on the 2<sup>nd</sup>. The changed establishment notes in the upper right corner were changed and not reviewed. Some symbols which were highlighted on the 1<sup>st</sup> check are questioned on the 2<sup>nd</sup>. 2<sup>nd</sup> check took 7+ hours, better than the 1<sup>st</sup> but still a little excessive. 3<sup>rd</sup> check – a spike/washer on Sheet 1 was asked about again. A requested tie distance was given but apparently without a closure. No corrections on Sheet 2 and it is all highlighted except the establishment notes in the upper right corner. 3 hours on 3<sup>rd</sup> check. 4<sup>th</sup> check mylar not highlighted or corrected. \$4,626.00 total. My 1<sup>st</sup> check estimate: 12 hours.

Group H - 03: 1 MC, 1 supervisor. 1<sup>st</sup> check took 18 hours, which was too much. Control and certificates on Sheet 1, some questions about the legal and other data. Sheet 2 – most everything checked – asked for some establishment notes and asked about alternate ways to establish some of the lines. I really cannot see 18 hours for this map. 2<sup>nd</sup> check took 9 hours – again I really cannot see this. Sheet 1 corrections all made. Sheet 2 – most made and the corrections shown are not extensive. Now on the 3<sup>rd</sup> check, a CS note may appear. MC disagrees with one of the establishments. The correction had been asked about previously and not changed. Other corrections mostly made the 3<sup>rd</sup> check take 6 hours. 4<sup>th</sup> check was mylar and it looks like MP changed the establishment of the line in question, so no CS note. 37 hours was definitely too much for this map. \$3,453.00 total. My 1<sup>st</sup> check estimate: 10 hours.

Group H - 04: 1 MC, 1 supervisor. 17 hours on the 1<sup>st</sup> check. Looks like everything was checked, there is a lot of data here (but not 17 hours worth). Lots of courses to check against the traverses. There is a long narrative on Sheet 2 which was not highlighted or commented upon.

It is clear that the MP did his job here. 2<sup>nd</sup> check – only some highlighting, and some record data requested on the 1<sup>st</sup> check was not added to Sheet 1. Basically the same for Sheet 2. 3<sup>rd</sup> check was mylar and it has no highlights or markings. Some of the hours on this map were charged at a lower rate. \$2,410.00 total. My 1<sup>st</sup> check estimate: 12 hours.

Group H - 05: 3 MCs. 1<sup>st</sup> check came with a “methods and reasoning” letter from the MP, which is helpful. Not enough arrowing. Some questions were not raised on the checkprint. Should the CL have several these angle points? The South line of the highway and the South line of a block should be labeled as well. Context for one monument? I had to dig and find another map, which shows it as a point on a lot line. The 2<sup>nd</sup> check added a sheet with details about another parcel and how it ties into the boundary, with a long explanation, which was not highlighted. My original concerns/questions about the lines and methods still apply. 45 hours does seem excessive especially because the MP provided long narratives. 19 hours for a 1<sup>st</sup> check of a one-sheet map like this one is excessive. A few hours on this map were charged at a lower rate. \$6,382.00 total. My 1<sup>st</sup> check estimate: 8 hours.

#### Group I – 2 sheet maps: 21-30 hours on 1<sup>st</sup> check

Group I - 01: 3 MCs and 3 years to recordation. The (handwritten) 1<sup>st</sup> check really looks incomplete. Lots of missing data including bearings, descriptions, references, and establishment notes, and data not matching closures. I wouldn't expect this to take 23 hours to check though. The 2<sup>nd</sup> check was over a year later and I see many of the same comments repeated, so they were not completed by the MP. Still see data not matching closures. Some things asked for on the 2<sup>nd</sup> check should have been asked for on the 1<sup>st</sup> – like a detail on Sheet 1 and a bearing and distance on Sheet 2. New data on this sheet along one street, for example, not checked at all. A note on Sheet 2 which was highlighted on the 1<sup>st</sup> check doesn't appear to be correct. I'd say more of the faults lie with the MP at this point. But this took 40 hours to check and this really seems excessive. 3<sup>rd</sup> check – nothing highlighted at all, just redlines. Maybe a highlighted copy stayed in-house. The detail for one street still does not show the street name and the CL is not labeled. The statement of purpose was not corrected. Checkprint asks for calcs for “highlighted linework” but I don't see any. Two details requested twice were not done. One detail has no bearings. Again, many requested corrections not made. This check took about 12 hours and that is more reasonable.

On the 4<sup>th</sup> check, the new details should show the street names. You have to guess from the bearings and descriptions. The note I pointed out as incorrect is still there, at the SE corner of the map. I can't see why this took 18 hours to check for 4<sup>th</sup> check. On the 5<sup>th</sup> check, a radial bearing requested should have been requested previously, the reverse curves there go all the way back to the 1<sup>st</sup> check! That is the only correction on Sheet 1. The 2 questions on Sheet 2 should have been asked earlier (unless calcs changed, I did not look). I cannot see why this map took \$12k to check. A few hours on this map were charged at a lower rate. This was the second most costly map in this review. \$12,190.00 total. My 1<sup>st</sup> check estimate: 14 hours.

Group I - 02: Looks like 3 different MCs here. That could explain the 36 hours. But 21 hours on a 2-sheet 1<sup>st</sup> check? Almost everything was checked, just some measured data not highlighted (maybe no closures). There are 2 sheets but the 1<sup>st</sup> sheet was just the control/vicinity map and statements. Data does not match closures on Sheet 1. Sheet 2 had a lot of corrections but some were just technical/drafting and not time-consuming. An establishment note was added but not checked (2<sup>nd</sup> check). A couple of the corrections generated new data and new corrections. 2 of the corrections to the 1<sup>st</sup> sheet were made incorrectly. A correction to the Vicinity Map should have been pointed out on the 1<sup>st</sup> check but was only done so on the 3<sup>rd</sup>. Each MC had different comments on the B of B information. 3<sup>rd</sup> check shows several new corrections not asked for previously. That can be a problem. Anyway, I don't see 21 hours for the 1<sup>st</sup> check of this map. A few hours on this map were charged at a lower rate. \$5,360.00 total. My 1<sup>st</sup> check estimate: 9 hours.

Group I - 03: 1 MC, 1 supervisor. 1<sup>st</sup> check took 30 hours. The monument and establishment notes do not look like they were checked – most not highlighted at all. A suggestion was made that the MC separate the monument notes from the establishment notes. Sheet 2 has a lot of data and most of it was highlighted (not the adjoiners though) and some major questions asked. An easement within the PIQ was not checked either. There is a lot of data here but I don't think 30 hours worth, and certainly not with most of the notes not checked. 2<sup>nd</sup> check - Many of the monument/establishment notes changed numbers this time (often a bad idea) and still not highlighted. A detail was added to Sheet 2, but missing symbols. It looks like some of the establishment notes were read. There are some complex issues here. I was a little surprised to see “only” 13 hours on this check but again, not everything was read. A few corrections and comments on Sheet 2. On the 3<sup>rd</sup> check, the MP sent a statement regarding one question and an explanation of an error they believe they found on a reference. More of the establishment notes were highlighted this time. Some suggestions made for one note. I think 49 hours was too much for this map. \$4,096.00 total. My 1<sup>st</sup> check estimate: 12 hours.

Group I - 04: One MC and one supervisor throughout. 1<sup>st</sup> check cost \$4400 and took about 30 hours. The corrections were not that extensive – not sure why it took so long to check. 1<sup>st</sup> check comments looked reasonable to me but the MP took issue with some. And 1<sup>st</sup> check should have asked for the radial bearings asked for in the 2<sup>nd</sup>. A few corrections were asked for again on the 2<sup>nd</sup> (the only check the MP approved of). Anyway, Sheet 2 shows the adjustment at the NW'ly portion of the PIQ. MC doesn't seem to have a problem with the methods or data on the 1<sup>st</sup> check – just asked for more information (not all of which was given). I can see why the MC wanted the monuments along the SE'ly RW to be tied to more portions of the survey, but the MP obviously disagreed. The 3<sup>rd</sup> check showed only minor corrections, mostly PRC requirements on Sheet 1. No corrections on Sheet 2. I can see that the MC backed off a lot of what he was asking because the MP was uncooperative. The map still could not record after the 4th check because the MP refused (apparently) to put required PRC information on it. I see that it recorded with a CS note, stating this. However, I do not see how this took 60 hours to check, it was not that complicated. \$8,058.00 total. My 1<sup>st</sup> check estimate: 10 hours.

Group OK – one three-sheet City map (in progress)

Group OK - 32: 1 MC, 1 supervisor. This is not a typical one-sheet one-lot City map, it is 3 sheets, it establishes 3 large (multi-acre) lots in 2 tracts, these are not rectangular lots, and it borders a flood control channel. Everything checkable was checked on the 1<sup>st</sup> check. The symbology used makes it a little difficult to see what was found and what was set (for example a set monument had a filled center but another set monument had an open center). Linetypes were not consistent. I do not see establishment notes for some of the set monuments. Additional closures requested and some record data requested. I can see that because of the symbology, this could take a while to check but there are no deeds to read and only three references. 1<sup>st</sup> check took 10 hours which is less than my estimate. \$4,096.00 (in progress). My 1<sup>st</sup> check estimate: 15 hours. ✓ City - 11

Group J – 3 sheet maps: took 18-23 hours on 1<sup>st</sup> check

Group J - 01: 2 MCs and 1 supervisor, 18 hours on 1<sup>st</sup> check. Nothing highlighted, just redlines. Hoping they just copied the redlines, and checked everything else. No highlighting on the 2<sup>nd</sup> check either, so I don't have many comments. Nothing at all marked or corrected on 3<sup>rd</sup> check. Finally a little highlighting on the 4<sup>th</sup> check. So going back to the 1<sup>st</sup> check, all of the comments are about the control and conversions. How much of this was checked? Corrections are all fairly minor so I don't see nearly 18 hours for the 1<sup>st</sup> check (without the highlighted print anyway). Some hours on this map were charged at a lower rate. \$3,171.00 total. My 1<sup>st</sup> check estimate: 13 hours.

Group J - 02: 1 MC, 1 supervisor. 1<sup>st</sup> check – 23 hours but there is an extensive Legend and Notes on Sheet 1 which was not checked, and procedures not checked on Sheet 2. Railroad curve data not checked on Sheet 3. Truly not seeing evidence of where the 1<sup>st</sup> check 23 hours came from (because so little is highlighted). Same thing on 2<sup>nd</sup> check. Was it reviewed? If so, why not highlighted? 39 hours does not seem realistic for this map. \$5,808.00 total. My 1<sup>st</sup> check estimate: 13 hours.

Group J - 03: 2 MCs, 1 supervisor. There were so many questions on the 1<sup>st</sup> check that the MC had to create a Word document with all the questions. I see the whole 1<sup>st</sup> sheet is covered with questions and some highlighting in the Surveyor's Notes and the Monument Notes. Not all descriptions were checked on Sheet 2 but there are a lot of questions and comments and corrections. Same thing for Sheet 3. For the 20 hours it took to check these 3 sheets, it appears that everything should have been checked. That being said, there is a lot of information here and this map would definitely take more than 4 hours per sheet. 2<sup>nd</sup> check – just about as much red on Sheet 1 as on the 1<sup>st</sup> check. Some Sheet 2 corrections were made but not all, and new ones added. Same situation with Sheet 3. Looks like a supervisor added even more comments to the 2<sup>nd</sup> check. 9 hours for all of this is reasonable. 3<sup>rd</sup> check – hardly any red (and not much highlighting, I hope everything was read and reviewed) on all sheets. 3+ hours is good for this. 4<sup>th</sup> check – minor corrections and mylars requested. 5<sup>th</sup> check – mylars. This was

a map with a lot of data to read and analyze but I feel 36 hours was too much. A few hours on this map were charged at a lower rate. \$5,353.00 total. My 1<sup>st</sup> check estimate: 20 hours. ✓

#### Group K – 4 sheet maps: 16-31 hours on 1<sup>st</sup> check

Group K - 01: A lot of data was not checked on the 1<sup>st</sup> check. Were traverses submitted for this data? 31 hours for this check. I was glad to see that the MP did a response to the 1<sup>st</sup> check (this is always beneficial, I believe). Mostly it just indicated that the corrections were made. 2<sup>nd</sup> check – (non-digital) some numerical info not checked. I see that the MP added some things and these needed comments, so there would be another check. Other data mentioned above was still not checked. A question about whether some ties per another map were searched for was asked in the 1<sup>st</sup> check and the MP did not answer the question. 18 hours for 2<sup>nd</sup> check.

At this stage I was surprised that the map took five more checks.

3<sup>rd</sup> check – (non-digital) – mostly minor corrections. A few corrections were not completed by the MP. 4<sup>th</sup> – (non-digital) – mostly minor corrections and it looks like they were all completed. Should have been ready to record? 5<sup>th</sup> – (non-digital) – MP added some things and they needed to be corrected. But then on Sheet 3, MC added some things which were never asked for before which should have been. Sheet 4 is missing some of the tabled data which was there before. 6<sup>th</sup> – (non-digital) – MC asked for more things which were never asked for before, on Sheet 1 regarding the railroad info, for example. Should have been caught earlier. I really don't think new corrections should be asked for on a 5<sup>th</sup> check, but MP did not always make all of the requested corrections. This was the most costly map in this review. \$14,351.00 total. My 1<sup>st</sup> check estimate: 18 hours.

#### Group OK – 4 or more sheet maps which have acceptable map checking time (varies)

*As stated individually in each case, it was not realistic to estimate first checks in this group. Several of the maps had blank sheets (which they filled in on later checks). Others had sheets of (mostly) numeric data which was not checked at all. One map changed from 2 sheets to 15, so a 1<sup>st</sup> check estimate was not feasible. Another 1<sup>st</sup> check was done on one large sheet, not map sheets. This group should not be judged in the same way as all of the other groups.*

Group OK - 20: 1 MC, 1 supervisor but supervisor time was non-billable. 1<sup>st</sup> check took 17 hours and 2<sup>nd</sup>, 7 ½ which was non-billable. This is another big RW survey, by the same MP who has done a lot of these. Sheet 1 was all checked, which was control, legend, PRC required information, etc. Not much on Sheet 2 was checked, not the abbreviations or references. Sheets 3-5 were the RW sheets and most was checked, with comments made. The last 3 sheets don't show as being checked (control stations, coordinates, etc.) So realistically 18 hours for 5 sheets which is a bit too much, could have been 15. 2<sup>nd</sup> check – the pipe sizes were also on the 1<sup>st</sup> check but not asked to change (was asked on 2<sup>nd</sup>). Sheet 2 – corrections made. Sheets 3 through 5 – most made, some minor new ones. And minor corrections on the other sheets

(most not highlighted at all). \$1,969.00 total. My 1<sup>st</sup> check estimate: 30 hours (this includes items which were not highlighted on the 1st checkprint). ✓

Group OK - 21: 2 MCs, and 11 hours was non-billable for 2<sup>nd</sup> check. 1<sup>st</sup> check was 19 hours. This is another big RW map, most everything on Sheet 1 was checked and very few comments. I have seen several maps like this from this MP. Sheets 3 – 5 are the RW sheets and most are highlighted with a few corrections. Sheet 6 was not checked except for the street names in the control station listings. Coordinates on Sheet 7-8 not checked except for a statement that monument numbers don't match map sheets. Sheet 9 is blank. So basically 19 hours for 6 sheets, which is reasonable. Calcs and record data requested for measured data. Different MC for 2<sup>nd</sup> check. Most corrections made, just a few noted. On Sheet 5, some traverse data did not match the map. Sheets 7 and 8 – some point numbers in the tables are not on the map. Sheet 9 – monument ties, not checked, just sheets and north arrows. 11 hours, non-billable. I don't see a mylar review. Some of the hours on this map were charged at a lower rate. \$2,145.00 total. My 1<sup>st</sup> check estimate: 32 hours (this includes items which were not highlighted on the 1st checkprint). ✓

Group OK - 22: 1 MC. 1<sup>st</sup> check took 21 hours. Most of Sheet 1 (PRC, control, certificates) was checked. Sheet 2 was the index and rancho corners, abbreviations (not checked). Most of Sheet 3 was checked a deed/ establishment question. Minor corrections to descriptions on Sheet 4. All highlighted. Asked if another rancho corner was searched for on one sheet, and most information is highlighted. 2<sup>nd</sup> check took 9 hours and most corrections made, only very minor ones remaining. 3<sup>rd</sup> check was mylar and clean. \$5,428.00 total. My 1<sup>st</sup> check estimate: 20 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 23: 1 MC and one supervisor. There are 7 submittals in the folder but only 4 checks in the “reviews” spreadsheet? I can speak from experience that Caltrans maps can be very complicated and take a long time to check. 1<sup>st</sup> check has a LOT of data which was not highlighted (surveyor's notes, ties from control, purpose statement, legends, etc. This is a portion of a state highway done by Caltrans for monument preservation. Sheets 2 through 7 are details, mostly of street intersections/ties (and not thoroughly checked on the 1<sup>st</sup> check). And sheets 8 and 9 are control/coordinates/found monuments. 23 hours seems excessive for sure, considering what was checked and not checked. 2<sup>nd</sup> check – I see a lot of Caltrans calcs were submitted this time (44 sheets), so checking all that numerical data takes time. This was digital and I see a lot more of it was actually checked this time. Since the control diagram was not checked last time, the changes on this check shouldn't make this check take longer. Some PRC requirements still missing. Moving to the detail sheets – most of this was checked (not the legend again though) and a relevant question was asked about the coordinates being record. But some of the comments in the details should have been asked on the 1<sup>st</sup> check. 1<sup>st</sup> check asked for a lot of data tying detail to detail, not provided on 2<sup>nd</sup> check and not asked for again. Sheet 8 now has coordinates checked but not the descriptions. Many descriptions are not complete (by most common practice standards) and this could have been questioned on the 1st check. 3<sup>rd</sup> check only took 6 hours which is good but I – still see some comments not

made on the previous check. Looks like most of the corrections on the detail sheets were made. A few of the descriptions on Sheet 8 have added references but the “incomplete” descriptions remain. MC asked if certain points were observed (not asked previously). Most of the found monuments on Sheet 9 now have references but not all of them were checked. I would say 6 ½ hours is fair for this check.

Mylars submitted for 4<sup>th</sup> check but mylars not accepted. Not only that, but 4<sup>th</sup> (mylar) check now has unasked for (?) changes in some of the notes. Note #2 has a repeat question. Note #3 had some other changes which sparked the MC to reword the note completely, which really could have been asked for previously. Sheet 5 has a new error on it, which was OK on the 3<sup>rd</sup> check. “Not Observed” was added to the MC’s requested points on Sheet 8. 5<sup>th</sup> check was just sheet 1 and again, a note needs some corrections. But the MC is now satisfied with the note mentioned above. 7<sup>th</sup> check was signed and it recorded. Again, I know what it’s like to check Caltrans maps but this one had no boundary to analyze, no parcels to plot. Records were mostly data sheets, not maps and deeds. I think \$10k/64 hours is too much for this map. \$9,789.00 total. My 1<sup>st</sup> check estimate: 36 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 24: 2 MCs, 1 supervisor – and a lot of time was non-billable, so the hourly totals are misleading. 1<sup>st</sup> check took 15 hours which were billed. 2<sup>nd</sup> check had a lot of non-billable hours. 1<sup>st</sup> check – references not checked, but the rest of Sheet 1 was, and there were a lot of comments and questions. Sheet 2 was checked, Sheets 3 and 4 mostly not. Sheets 5 through 12 – checked mostly, all sheets have corrections. 2<sup>nd</sup> check – most Sheet 1 corrections made. Scrolling through the other sheets I see mostly highlighting (as opposed to red) but certainly not everything highlighted. 3<sup>rd</sup> check was mylar. A lot of data not checked. \$2,712.00 total. My 1<sup>st</sup> check estimate: 44 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 25: 2 MCs. 1<sup>st</sup> check – I see that the MC did not highlight, or mark with red, all of the data on the map. One example is the missing corner along the southerly line, on Sheet 2, established by proportion. This note is not highlighted and as soon as I saw it I asked “proportioned from which document”? None of the AP data on the map is highlighted either. On Sheet 1, the data in one detail was not checked. Some of the surveyor’s notes were not checked. 25 hours on the 1<sup>st</sup> check. On the MP side – I see inconsistencies with annotations, incomplete notes, and drafting errors throughout. One example is not stating which documents they used for their grant boundary adjustments. Incomplete monument descriptions and references. Closures which did not match the map. Establishment notes requiring more explanation. MC rightly asked if they searched for any bearing trees (not stated on map). Missing relevant record data from boundary lines. 2<sup>nd</sup> check – Map jumped from 2 sheets to 15 sheets with the 2<sup>nd</sup> check. The scope and purpose grew as well. Different MC. 77 hours on the 2<sup>nd</sup> check. It is not unreasonable for a 15-sheet map, loaded with documents, to cost over \$10,000 to check. This 2<sup>nd</sup> submittal was, in essence, a 1<sup>st</sup> check. I am still not convinced that having a different 2<sup>nd</sup> MC was a good idea but maybe the other MC was not available. I’m glad to see that the 2<sup>nd</sup> MC continued with subsequent checks.

Another reason this map took so long to check was the line table with 275 lines on it – tabled data like this does take longer to check. Although, after I reviewed all of the checkprints, I do not see that this data was reviewed. Was it reviewed in Autocad? Looking at the 2<sup>nd</sup> checkprint, I still see some data not highlighted or corrected, which again, concerns me. For example, I’m noticing that a portion of the “Note regarding calculated...” still wasn’t completely reviewed. The Purpose Statement changed – was not completely highlighted on either checkprint either. 2<sup>nd</sup> MC did correctly point out that it had changed from the 1<sup>st</sup> check though. Without doing a thorough analysis of all of the deeds and maps here, I can understand why this took so long to check, up until this point. I appreciate that the MCs offered an alternate solution and am curious as to whether the MP addressed this. Same comment as on 1<sup>st</sup> check – Sheet 7 doesn’t state what map was used to proportion in the SE corner shown on this sheet (same corner as on Sheet 2 before). Was not highlighted or asked about. At least this time they asked for overall and partial data for proportioning. On Sheet 10, some establishment notes were not highlighted or questioned. Not sure if a traverse was submitted for the tie line within the PIQ but it should have been asked for (along with record data, and shown as “tie.” On Sheets 13 and 14 – if traverses were submitted for these parcels, why are these sheets still not highlighted? How can you state that the map is “technically correct” if this was not done? 3<sup>rd</sup> check – So for the 3<sup>rd</sup> print in a row – the “calculated points” note was not highlighted or corrected. Was it read? Does it apply? Finally, the proportioning note on Sheet 7 was questioned on this print. This should have been asked for on the 1<sup>st</sup> checkprint. I don’t see that the data within one of the details was checked at all. Was a traverse requested? Establishment notes on another sheet still not highlighted or questioned. Same comment as above on Sheets 13 and 14. A note was added on Sheet 15 (requested on the 2<sup>nd</sup> checkprint) with easement documents listed – but this note was not highlighted or corrected. 4<sup>th</sup> check – So for the 4<sup>th</sup> print in a row – the “calculated points” note was not highlighted or corrected. The proportioning note on Sheet 7 is much different now but not highlighted or corrected. Same with Detail I on Sheet 8 and the notes on Sheet 10. And the parcels on Sheets 14/15. A few corrections were added and the MP made most of them.

5<sup>th</sup> check – So for the 5<sup>th</sup> print in a row – the “calculated points” note was not highlighted or corrected. Sheets 6 and 7 – Notes that were not highlighted on the earlier prints were highlighted here. 6<sup>th</sup> check – Just a mylar review with some line weight issues. Overall this was a complicated map and I was glad to see the same MC from the 2<sup>nd</sup> check onwards. On a map this complicated, there is bound to be fault on all sides. \$23,066.00 total. I did not do an estimate on this map which is an outlier – drastically changing the number of sheets from 1<sup>st</sup> to 2<sup>nd</sup> check. Used “25” for the averaging in the spreadsheet.

Group OK - 26: 2 MCs but one of them non-billable. I see that a lot of time on this map was non-billable (18 hours). 1<sup>st</sup> check was pretty incomplete (statements on map that “xxx would be populated on subsequent submittals”) Maybe half of everything was highlighted. There is a note on Sheet 1 stating that SBCO provided some information for the map. Some red corrections on each sheet and the check took 17 hours – reasonable for 7 sheets – but not billed. On the 2<sup>nd</sup> check there were 2 different MCs who checked in different colors. The check

has both names in the title of the document. The actual 2<sup>nd</sup> check showed checked notes and references and a bit of the map data. Lots of new data (the newly populated sheets) not checked. Looking at the 3<sup>rd</sup> check – a great deal of data not checked at all. \$737.00 total. My 1<sup>st</sup> check estimate: 30 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 27: 2 MC, 1supervisor. 1<sup>st</sup> check took 4 hours per sheet – which might be OK if everything on each sheet was either highlighted or redlined, but this was not the case. Sheet 1 – found monument geodetic data not checked and neither were the boundary notes. Another boundary note was requested. The 2 boundary notes on the map are extensive and require analysis. Also there are 19 references, some of them deeds. Sheet 2 had a lot of corrections/questions and a lot of highlighting. More notes and clarifications were requested. Not much was highlighted on Sheet 4 but some questions asked about M217. A response sheet was done by the MP for the 2<sup>nd</sup> check. Notes requested were done. Some linetype corrections were not made (but addressed by the MP). New corrections are requested, including city limit lines and specifying what is set, and more establishment notes. Sheet 4 corrections are OK. This took 14 hours, seems excessive. 3<sup>rd</sup> check – city limit lines added, most other corrections made – and another set of corrections on Sheet 3. 4<sup>th</sup> check doesn't have any highlighting or red marks. \$5,696.00 total. My 1<sup>st</sup> check estimate: 20 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 28: 2 MCs (one on each check) and all unbillable hours on the 2<sup>nd</sup> check. I noticed a pattern with some of these big maps (prepared by one specific company) where coordinates and control were not checked at all, and a lot of time is non-billable. A lot of data was checked on Sheets 1-5 and there are some corrections/requests (grant boundary data, more closures, etc.) 3 of the 5 Surveyor's Notes were checked and so was the overview (Sheet 1) and the establishment notes on Sheet 2. 1<sup>st</sup> check was 21 hours and 2<sup>nd</sup> was 16 but those 16 were not-billable. Most 1<sup>st</sup> check corrections were completed but closures were requested again. Grant Boundary notes on Sheet 3 were changed between checks and not completely checked. And an 8<sup>th</sup> sheet was added to the 2<sup>nd</sup> check – adding monument ties. There were a few minor corrections to those and not all of them were done before the map recorded. But it looks like the majority of corrections on the other sheets were made before it recorded. Some of the hours on this map were charged at a lower rate. \$2,365.00 total. My 1<sup>st</sup> check estimate: 30 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 29: 1 MC. 1<sup>st</sup> check took 36 hours. Sheet 1 – control station and certificates. PRC required information missing and requested. Everything checked on Sheet 1 and 2, Sheet 2 has a lot of corrections and comments. Sheets 3 -5 – same thing, a lot checked and a lot of corrections. Sheet 6 – references not checked but all the notes were commented on. Sheet 7 was all coordinates and not checked but the descriptions/references were checked – a lot of corrections. I see that the MC gave the MP a sample map to look at before 2<sup>nd</sup> check, which was a good idea. 2<sup>nd</sup> check was 20 hours. Sheet 1 – all corrections made. Sheets 2-6, almost all corrections made, a few repeated. 2 new sheets added. New sheets checked and very few

corrections. Notes (with a new note added) and references on Sheet 8 not checked. Most data on last sheet checked now with a few comments. With the new sheets, 20 hours isn't unreasonable. 3<sup>rd</sup> check – very minor corrections noted on only one sheet. 4<sup>th</sup> check was mylar and quick. I do think the 1<sup>st</sup> check time was excessive, but not the rest, and the MP did a great job with corrections. Most of the hours on this map were charged at a lower rate. \$7,511.00 total. My 1<sup>st</sup> check estimate: 34 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

Group OK - 30: 1 MC. 1<sup>st</sup> check took 8 hours and 2<sup>nd</sup> check took 18 hours. [I see that the 1<sup>st</sup> check wasn't on an actual map, but a large sheet. I will assume that this had been arranged beforehand.] So on that sheet, references and descriptions and drafting was checked (not on map sheets) and plenty of corrections. 2<sup>nd</sup> check – now the map is 13 sheets. Control scheme on Sheet 1 not checked, and not the B of B and coordinates either, or the legend. Most everything else was. Sheet 2 – most not checked, just some of the references and some notes. Sheets 3-7 were the RW/streets and they were checked, with corrections noted. Not sure if corrections from the 1<sup>st</sup> review were made or not. Sheets 8 through 11 were coordinates, control, etc. and not checked. Sheets 12 and 13 were monument tie diagrams which were not checked. I don't see a mylar check but it recorded. Most of the hours on this map were charged at a lower rate. \$2,932.00 total. I did not do an estimate on this map which is an outlier – the 1<sup>st</sup> check was not done using map sheets. Used “25” for the averaging in the spreadsheet.

Group OK - 31: 2 MCs. 8 hours 1<sup>st</sup> check. I am puzzled as to how and why they checked a 9 sheet map in 8 hours for 1<sup>st</sup> check. Not much was checked! What was checked was some of the notes (not the survey overview though) and some geodetic info, as well as some data on Sheet 3. No coordinates or control stations checked – nothing on Sheet 6-8 (9 is blank). 2<sup>nd</sup> check took 13 hours and had a lot more highlighted and commented on Sheets 3 and 4. Curve data on Sheet 5 checked also. Then it recorded with so much not checked. I don't understand. Some of the hours on this map were charged at a lower rate. \$2,811.00 total. My 1<sup>st</sup> check estimate: 34 hours (this includes checking items which were not highlighted on the 1st checkprint). ✓

**Conclusion:**

Regarding the Business and Professions Code: I believe that Santa Barbara County is compliant with state law.

I am confident that the comments and analysis provided in this review report will be beneficial for the fine Santa Barbara County Surveyor’s staff to streamline and improve their map checking processes, and provide their best and most efficient service to the public.

**About me:**

I began surveying in 1988 and worked for Adkan Engineers in Riverside. I started working for the map checking department at the Orange County Surveyor’s Office in 1991, and obtained my LSIT and my PLS whilst working there. I left County employment in late 1998 to start my own company, focusing on map checking, and continue to do so. I have had several map checking contracts in Southern California counties. As a sub-contractor, I have checked maps for two cities in Southern California. I also perform occasional work for the Board of Registration.



Carol Knox, PLS 7184  
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