

Fraud Analytics

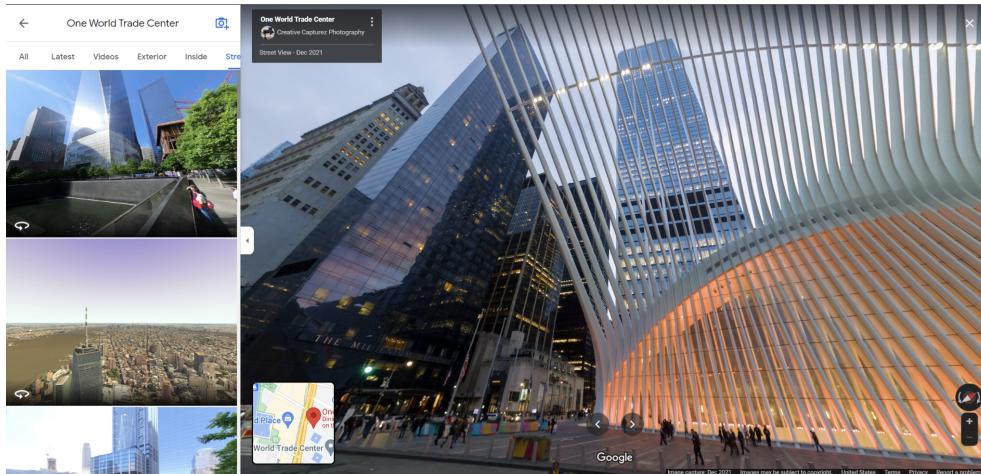
HW 4

Songqiao Li

1.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
7054	1000580001		1	58	1	THE PORT AUTHORITY	4		950
LTDDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
750			650000000	221850000	292500000	221850000	292500000	6120	1 WORLD TRADE CENTER
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
10007			0	0	219312000	289962000	219312000	289962000	FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046462	1046454	1046458					

Stories empty, building dimension both 0.



1,368 feet

Until the 2001 attack, it was notable for its huge twin towers, each of which had 110 stories, that formed a distinctive feature of the New York skyline. The roof of One World Trade Center reached to 1,368 feet (411 metres), and Two World Trade Center was 1,362 feet (411 metres) tall.

<https://www.britannica.com> > ... > Leisure & Nightlife
World Trade Center | History, Height, Memorial, & Facts



Westfield World Trade Center - Mall/Shopping center in New York

Westfield World Trade Center address: 185 Greenwich Street, New York, New York - NY
NY 10007

Number of stores: 111

www: <https://www.westfield.com/westfieldworldtradecenter>

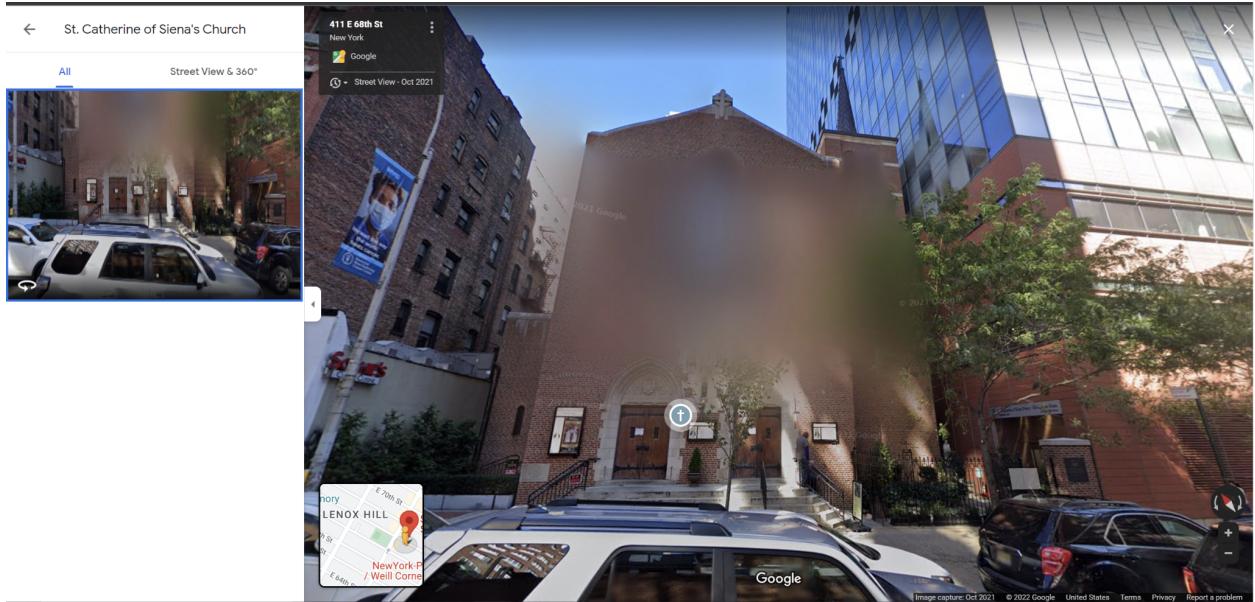
www-source: www.mallscenters.com/malls/new-york/westfield-world-trade-center

Reasoning:

- The property with record 7054 owned by The Port Authority of has unusual low values of building dimensions and recording error in stories amount.
- The World Trade Center located at NY 10007 is a huge commercial building that is 1,368 feet in height.
- The World Trade Center has a total of 111 stores. This should be a recording error.
- R8, r9 are extremely high, and almost all zip3, zip5, boro variables are a lot higher than others
- Number of stores is the main trigger of unusually high values of newly created variables, to obtain more accurate results, the number of stories needs to be updated.

2.

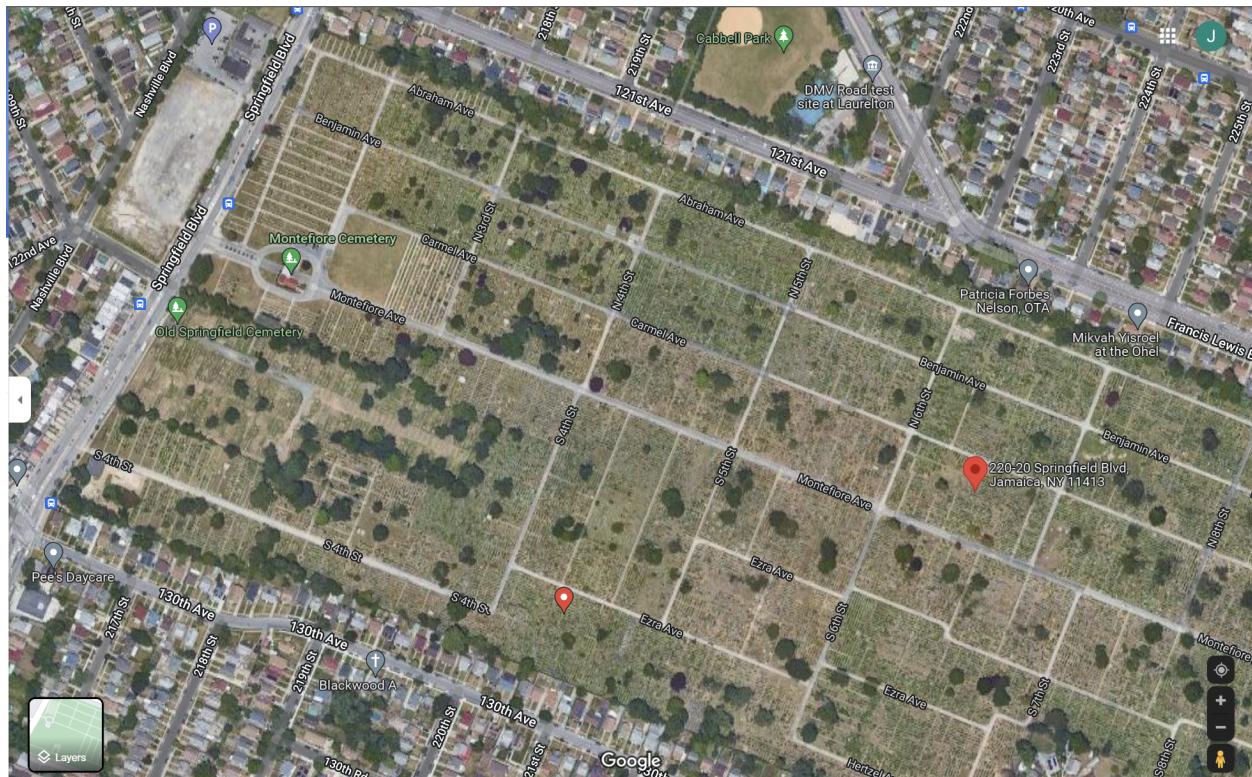
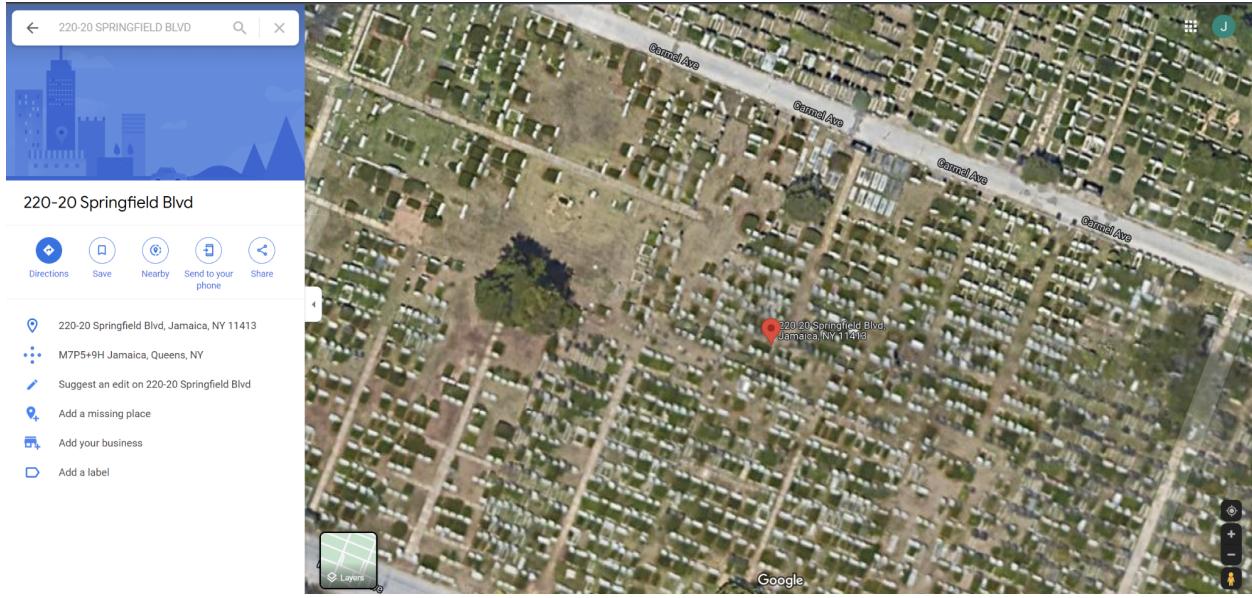
RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
107564	1014631001	1	1463	1001		R5	4	0	
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
0		22	237600000	4274999	106920000	4206936	102652791	1401	411 EAST 68 STREET
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
10065			0	0	4178242	104443337	4111719	100275029	FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1045929	1045744	1045836.5					



- The Property with record 107564 owned by unknown has unusual property & building dimensions and extremely high full values.
- According to Google Maps, the building located on the actual location is a church. Thus, it does not make sense for a regular church to have 22 stories and such high property value.
- Moreover, the dimensions of this property were recorded as 0 for both property and building. It's suspicious.

3.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
895193	4128250640	4	12825	640		ROBERT SCHWAI Z8	4		792
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
400		1	22226000	9675000	10001700	9675000	10001700	1700	220-20 SPRINGFIELD BLVD
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11413 X5		31	26	8766000	9061740	8766000	9061740		FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046333	1046375	1046354					

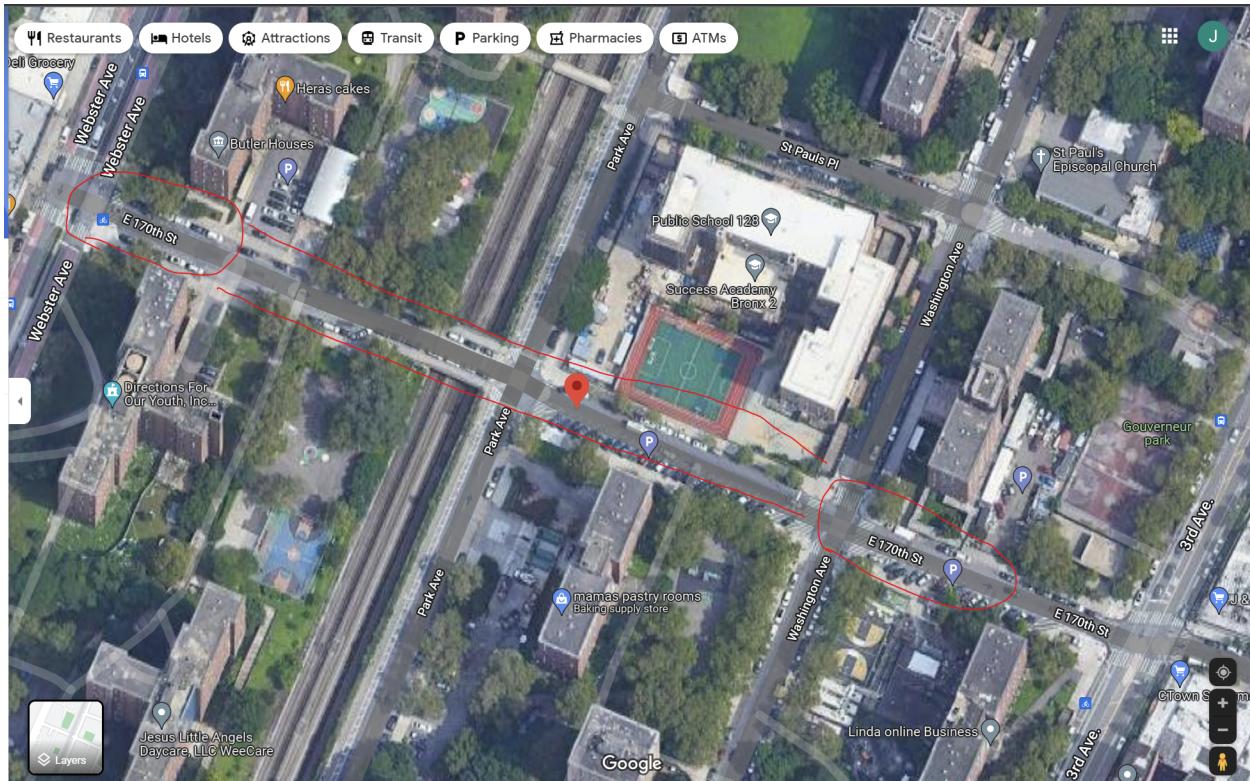


- The property on record 895193 owned by Robert Schwaize has an unusually high amount of FULLVAL and AVALAND, also with an unusual number of building dimensions.
 - Its R2, r3, r5, r6, r9 are also higher than normal ($r2 = 26.62033513$, $r3 = 56.17068133$, $r6 = 69.13214356\dots$) so are then relevant zip (r3_zip) and taxclass (r3_taxclass) variables generated from r2, r3.... This further indicates the high value of property value/price does not align with its other attributes.

- More convincingly, from the google map, we can tell this property is a small part (tomb) of a cemetery. Therefore, it's not possible for it to have such high value nor any value in building dimension.

4.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
159638	2028330045		2	2833	45	STANDY ONE AS: VO	1B		18
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
69			119700	10	10	0	0		EAST 170 STREET
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
			0	0					FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	2010/11	AC-TR	1045836.5					



- The property with record 159638 owned by Standy One Associate has high FULLVAL but low AVLAND and no stories.
- From the maps, it appears to be a street, thus no stories make sense. However, it's suspicious that its FULLVAL is too large compared to the AVLAND.
- Its R8inv, R9inv and some other tax inversed variables are unusually high, indicating that the AVLAND are actually smaller than expected, which aligns with our observation.
- It has the suspicion of underreporting

5.

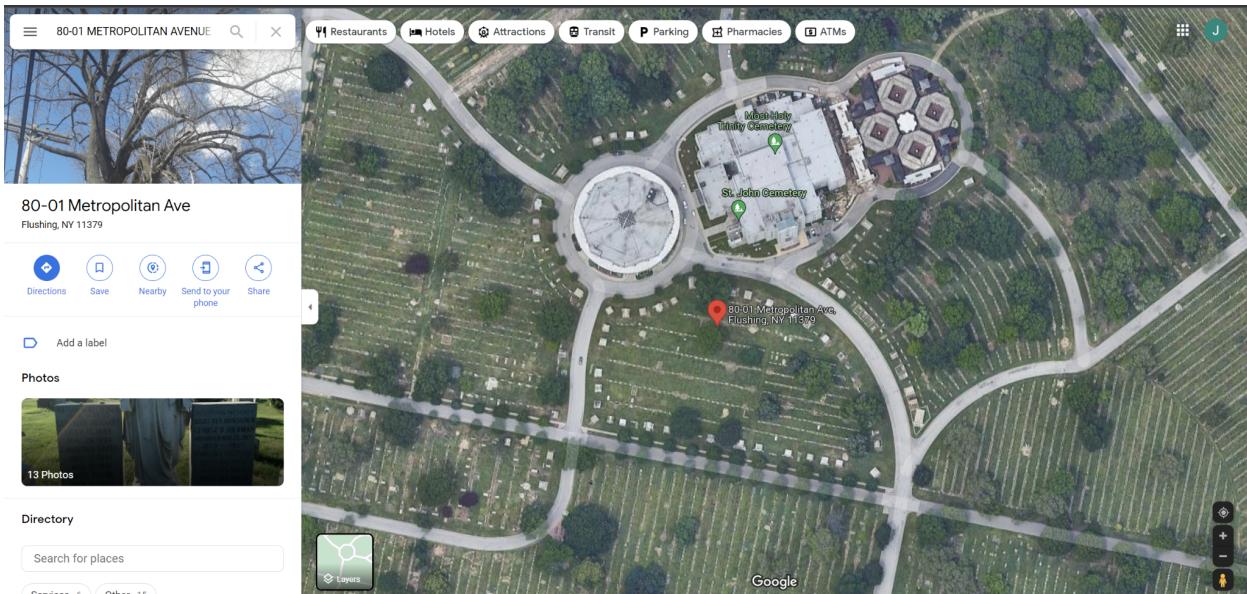
RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
658933	4029060054	4	2906	54		WAN CHIU CHEL CO	1	25	
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
100		3	776000	26940	46560	1620	1620	1017	54-76 83 STREET
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11373		2500	5600						FINAL 2010/11
YEAR	VALTYPE	score1 rank	score2 rank	final					
AC-TR		1046510	1046510	1046510	1045836.5				



- The property with record 658933 owned by Wan Chu Cheuco has unusually high building dimensions as it's only a three floor apartment.
- The inverse tax class variables ($r2inv_taxclass = 447.8005094$, $r3inv_taxclass = 520.4992627\dots$) are hundreds times more than the regular property closeby, indicating the effect of unusual building dimensions involved in our calculation.
- From the Google map, we can tell it's a regular three floor apartment building and has no distinct dimension differences from other buildings in this neighborhood. Thus, it's either a recording error or it's a fraudulent property.

6.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
665157	4030710001	4	3071	1		ST JOHNS CEME' Z8	4		981
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
2663		1	106100000	35010000	47745000	35010000	47745000	1700	80-01 METROPOLITAN AVENUE
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11379 X5		40	25	31410000	44145000	31410000	44145000		FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046484	1046484	1046484					
RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
665158	4030720001	4	3072	1		ST JOHNS CEME' Z8	4		1412
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
2532		1	29355000	13140000	13209750	13140000	13209750	1700	80-01A METROPOLITAN AVENUE
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11379 X5		12	18	11745000	11807640	11745000	11807640		FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046505	1046506	1046505.5					



- The property with record 665157 & 665158 owned by ST Johns Ceme'zs both has unusually high FULLVAL And AVLAND.
- These two adjacent properties both have high r2, r3, r6, r9, r3zip...(zip variables generated by r3...), r3_taxclass...(taxclass variables generated by r3...) values in hundreds. This indicates the overrecord of its property value/price, causing the extreme value of r2, r3...
- From the Google map, we observed that it's a cemetery. The dimensions and number of stores match but should not have this high amount of FULLVAL and AVLAND, this is suspicious.
- This is the second cemetery case we've observed from the data. We suspect that faking the cemetery data is a method of fraudulent property, thus requiring more investigation in recording cemetery related properties.

7.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
782703	4084010001		4	8401	1	PEOPLE OF THE S11	4		738
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
718 G		2	92000000	25785000	41400000	21607542	37222542	3380	73-50 LITTLE NECK PARKWAY
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11004 X2		85	24	21780000	36468000	18251396	32939396		FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046218	1046159	1046188.5					



- The property on record 782703 owned by People of the State O has an unusually high property value and high building dimensions.
- Its r2, r3, r5, r6, r9 are all a lot higher than usual ($r2 = 43.8710965$, $r3 = 45.8401659\dots$), so are the relativent r2_zip and r2_taxclass variables. This further indicates the over-recording of the property price.
- Moreover, from the google map, the property appears to be an old farm warehouse in a non-commercial area. Thus, it's more suspicious to have such high property values and high building dimensions.

8.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
917942	4142600001		4	14260	1	LOGAN PROPERTY INC.		4	4910
LTDDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
0		3	374019883	1792808947	4668308947	1792808947	4668308947		2198 154-68 BROOKVILLE BOULEVARD
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
11422 X4			0	0	1644454002	4501180002	1644454002	4501180002	FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046516	1046516	1046516					

AJ	AK	AL	AM	AN	A0	AP	AQ	AR
r1	r2	r3	r4	r5	r6	r7	r8	r9
-0.403746	-0.527837	-0.501281	-0.149791	-0.060705	-0.057437	-0.132579	-0.054065	-0.058664
-0.401225	-0.527784	-0.501240	-0.150124	-0.060804	-0.057474	-0.132694	-0.054105	-0.058684
0.756214	68.24484	47.35307	42.18321	896.5593	643.2874	37.82549	937.3068	898.5515
18.50146	2.667447	0.707622	64.61122	3.850177	1.468326	22.16758	1.516108	0.759779
21.14722	0.772987	-0.00912772	674441	1.521444	0.562712	0.25	28846	0.585164
-0	-0	-0	-0	-0	-0	-0	-0	-0

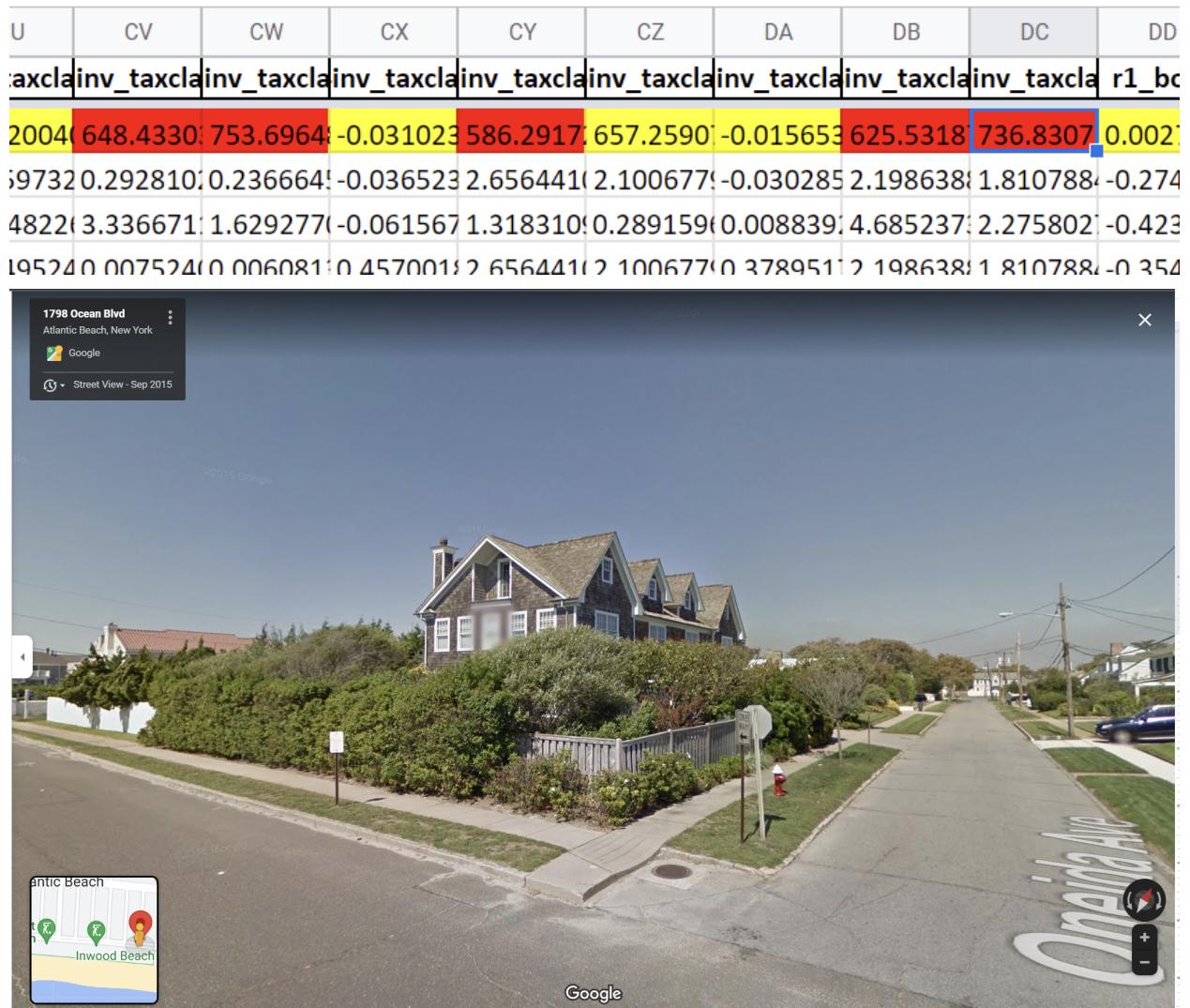


- The property on record 917942 owned by LOGAN PROPERTY, INC. has an unusually high FULLVAL and even higher AVLAND, basically all property value/evaluation attributes are extremely high, and it has inconsistent property dimension numbers.
- The r5, r6, r8, r9 are thousands times more than usual, reaching over 800. This also caused the r_zip and r_taxclass variables generated from the r values. Finally indicating the over-recording of property values.

- From the google map, we can observe that it's a stone material warehouse. It has building dimensions but is not recorded; it definitely is not worth the property value on the record.

9.

RECORD	BBL#	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
956520	5006590012		5	659	12	TROMPETA RIZA A1	1		25
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
91 G		3	348200	15600	20892	1620	1620	1017	12 ONEIDA AVENUE
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
10301			1812	5020					FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046513	1046513	1046513					

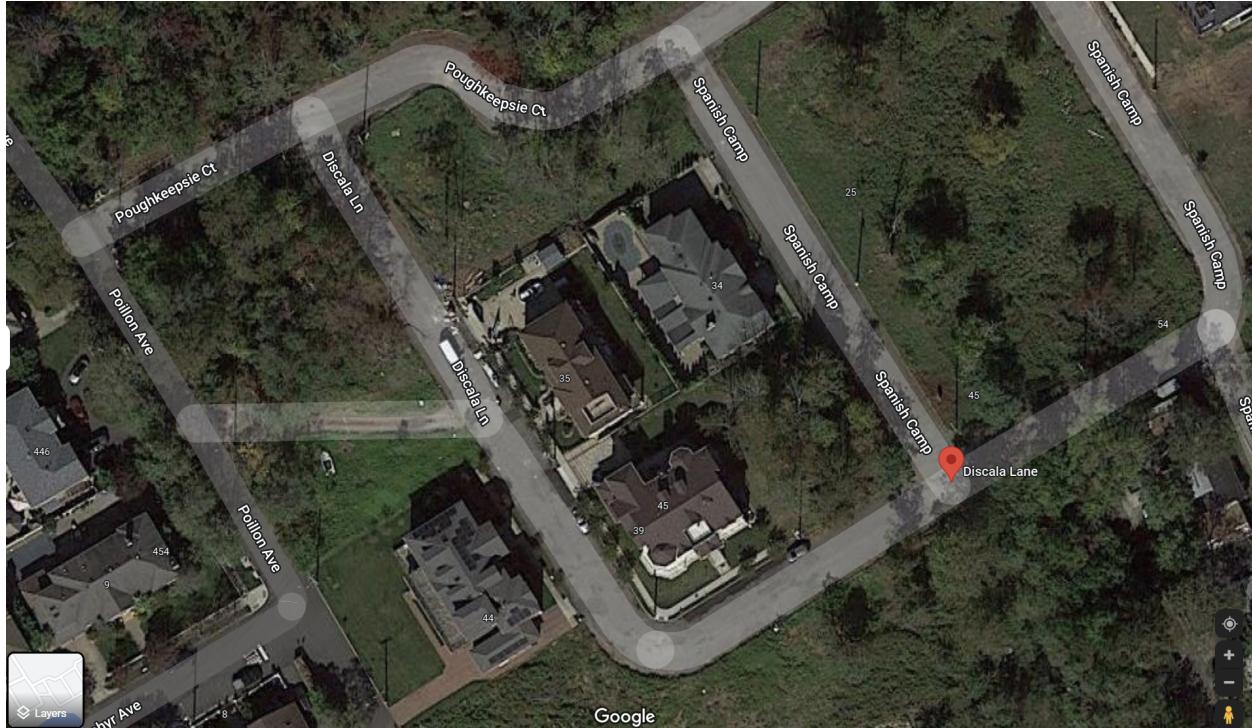


- The property on the record 956520 owned by Trompeta Rizalina, has inconsistent building dimensions in comparison with other attributes.

- This is also reflected in the extreme amount of the inversed tax r value variables, which represents the unusual size of the building dimensions.
- From the google map, we can see it's a personal house and has regular size compare to others. Since the variables generated from taxclass are extreme, we are reasonably suspecting that the owner is faking the building size in order to get a lower tax rate. Therefore, it's suspicious.

10.

RECORD	BBLE	BORO	BLOCK	LOT	EASEMENT	OWNER	BLDGCL	TAXCLASS	LTFRONT
1053859	5064310100	5	6431	100			Z7	4	1000
LTDEPTH	EXT	STORIES	FULLVAL	AVLAND	AVTOT	EXLAND	EXTOT	EXCD1	STADDR
1000			450	203	203	0	0		DISCALA LANE
ZIP	EXMPTCL	BLDFRONT	BLDDEPTH	AVLAND2	AVTOT2	EXLAND2	EXTOT2	EXCD2	PERIOD
			0	0	139	139			FINAL
YEAR	VALTYPE	score1 rank	score2 rank	final					
2010/11	AC-TR	1046503	1046505	1046504					





- The property on record 1053859 owned by unknown has inconsistent building dimension, property value/price, and stories number.
- Properties with boro 5 are on the staten island, thus should have relatively higher value. However, these properties/houses are recorded hundreds times less than other similar properties.
- Also, the size of the buildings are recorded as both 0, which is inconsistent with the houses on this lane.
- The inversed zip r value variables and inversed taxclass r value variables have few that reaches hundreds in value ($r1inv_zip3 = 266.6350181$, $r7inv_taxclass = 268.0600866...$), which further indicate the inconsistency in building sizes, and thus giving this record a high fraudulent score
- According to the google map, there should be at least three houses/stories for this record but the value is missing.