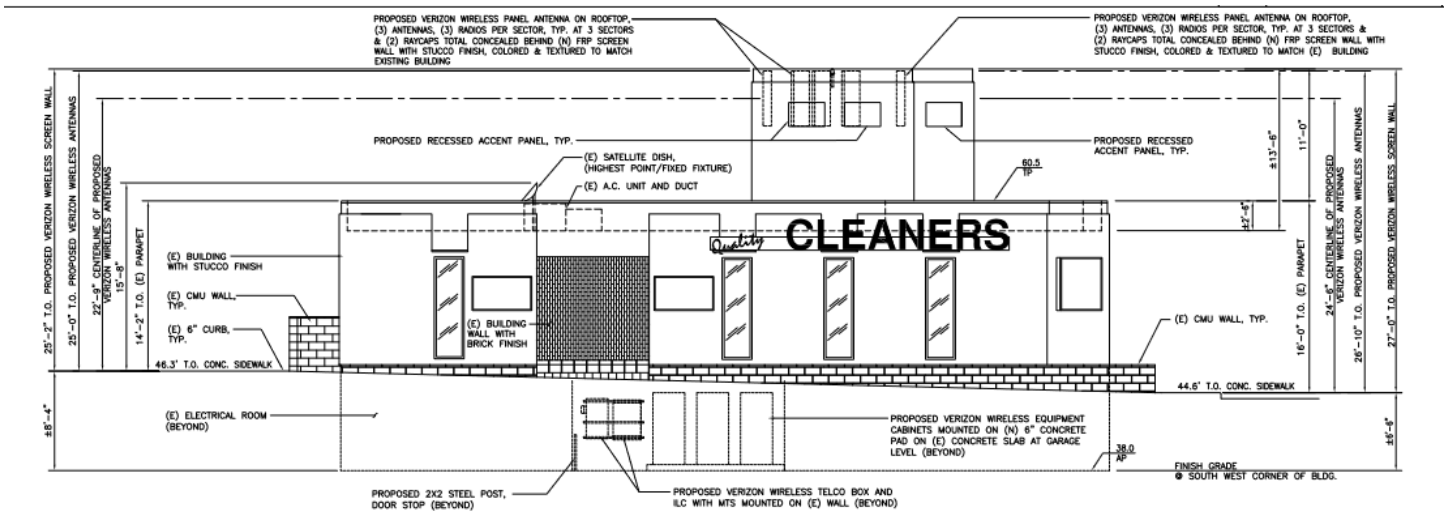


Alternative Candidate Analysis

Verizon Wireless
Ozone
2629 Manhattan Avenue
Hermosa Beach, CA 90254



4/27/20

Summary of Design Evaluations
Conducted by: Delta Groups Engineering

GREENWICH VILLAGE

PROPOSED VERIZON WIRELESS PANEL ANTENNA ON ROOFTOP. (3) (NNH4-BSA) ANTENNAS, (3) RADIOS & (1) RAYCAP AT SECTION 2 & 3, CONCEALED BEHIND (N) TYP SCREEN WALL WITH STUCCO FINISH, COLORED & TEXTURED TO MATCH EXISTING BUILDING.

PROPOSED VERIZON WIRELESS HYBRID CABLE CONDUIT STRIP-UP AT (N) ROOF PENETRATION (V.I.F.)

(E) CONCRETE SIDEWALK, TYP.

(E) CMU WALL, TYP.

PROPOSED VERIZON WIRELESS UNDERGROUND FIBER ROUTE (850'-0")

PROPOSED VERIZON WIRELESS 1230 MAP CITY BLOCK PROPERTY LINE.

(E) D/W

PROPOSED VERIZON WIRELESS 12'-0" WIDE ACCESS ROUTE FROM GREENWICH VILLAGE

PROPERTY LINE

UTILIZE EXISTING TIELO CONDUIT INTO WIRE CIVITY AND POWER OPTION 2: PROPOSED OVERHEAD POWER DISB. POWER OPTION 3: PROPOSED UNDERGROUND POWER ROUTE.

(E) SATELLITE DISH (HIGHEST POINT/FIXED FIXTURES)

(E) OVERHANG

(E) SATELLITE DISH

(E) VENT PIPE

(E) DUCT

(E) AC

(E) ROOFTOP

(E) BOLLARD

(E) GAS METER

(E) 3'-0" UTILITY EASEMENT

(E) CMU WALL, TYP.

PROPERTY LINE

OPTIONAL: (E) POLE 1863MOIF, PROPOSED

SCREEN D & DING.

1. ANTENNA ON AS, (3) RADIOS & CONCEALED BEHIND O FINISH, COLORED & DING.

PROPOSED VERIZON WIRELESS GPS ANTENNA

PROPOSED 4'-0" WIDE GATE WITH SIGNAGE

PROPOSED VERIZON WIRELESS PANEL ANTENNA ON ROOFTOP, (3) (NNH4-BSA) ANTENNAS, (3) RADIOS & (1) RAYCAP AT SECTION 2 & 3, CONCEALED BEHIND (N) TYP SCREEN WALL WITH STUCCO FINISH, COLORED & TEXTURED TO MATCH EXISTING BUILDING.

(E) SATELLITE DISH (HIGHEST POINT/FIXED FIXTURE)

7'-6" ±10'-0"

12'

PROPOSED VERIZON WIRELESS APPLITION RECEPTACLE, (BEYOND)

PROPOSED VERIZON WIRELESS EQUIPMENT CABINETS MOUNTED ON (N) 6" CONCRETE PAD ON (E) CONCRETE SLAB AT GARAGE LEVEL (BEYOND)

PROPOSED VERIZON WIRELESS TIELO BOX, ILC AND SERVICE LIGHT MOUNTED ON (E) WALL (BEYOND)

(E) COLUMN (BEYOND)

PROPOSED 2x2 STEEL POST, DOOR STOP (BEYOND)

PROPOSED VERIZON WIRELESS 6" BOLLARD, TYP. OF (3) (BEYOND)

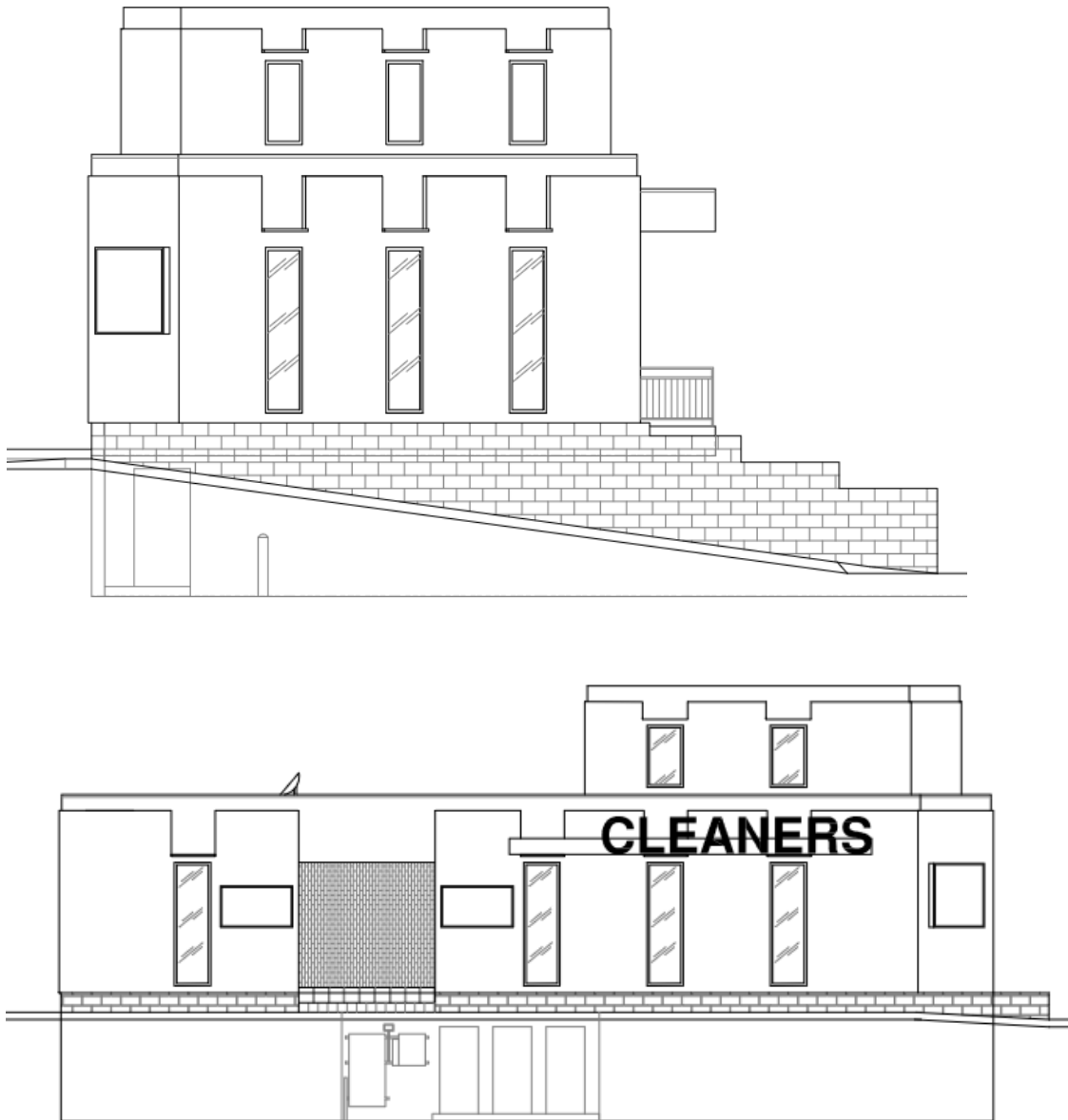
(E) BU

(E) EU (BEYOND)

FINISH

Alternative Design 1

At the City's request, efforts were made to make the design look more like a second story. The first effort attempted to screen the entire roof area. The significant increase in structural loads from this design proved structurally infeasible so a scaled-back faux second story addition was developed as seen below.

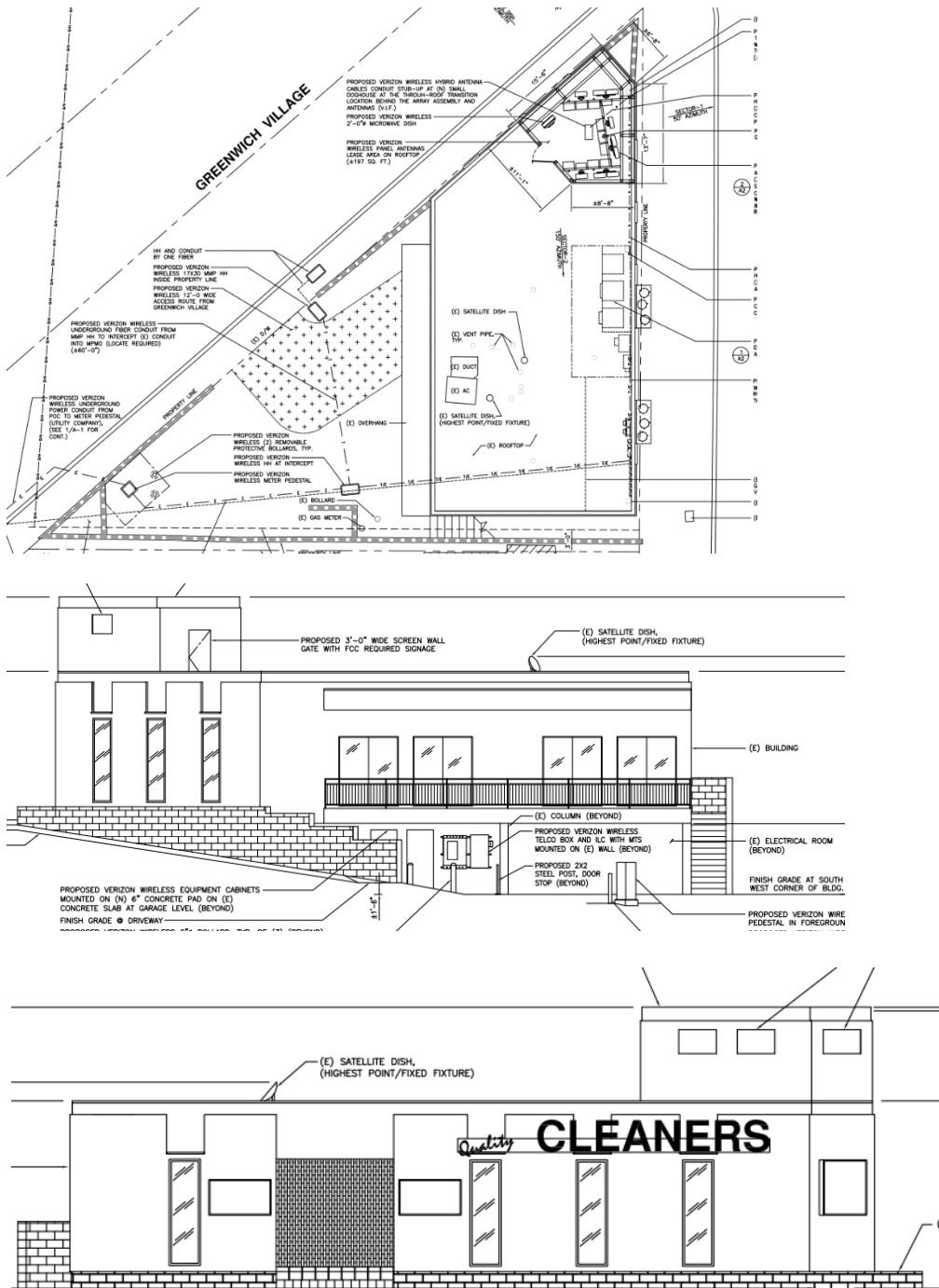


The proposed faux second story design failed structural analysis as well due to the soft story design of the existing building. It would require at least 5 new structural columns to extend all the way to grade, which was not feasible due to the time required shutting down existing businesses and functional disruptions to their spaces. In addition, FCC development standards state that wireless facilities must be “the most compatible and least intrusive” design. To make the screening larger and further obstruct views of nearby properties (while not legally protected) presented a more intrusive solution, even had it been structurally feasible, which it was not. For these various reasons, this design approach was abandoned. You may note that with this added increased footprint we proposed faux windows as we had the space to place antennas between the windows and avoid RF interference.

Alternative Design 2

We considered windows for this site design, however, due to its size we were unable to place windows and antennas in a manner that would work from an RF performance perspective. Antennas cannot have metal surfaces in front of the as is creates PIM (passive intermodulation), which distorts the signal. Any reflective coatings for the windows have metal components in them, which are, likewise, are not compatible with wireless signals. Without reflective coatings the antennas would be visible through windows defeating the screening element.

We then reduced the size of the screening to minimize the structural impacts to this building and the existing tenants. and recessed accent panels in place of the faux windows. This design did not meet prescribed setback requirements, an issue that had not been raised previously, but one which made the design infeasible for entitlement Staff liked the proposed accent panels in lieu of the windows.



Alternative Design 3

Current proposal, set back 5' from property line with recessed accent panels on screening. Due to the required setbacks, the screen height needed to be raise the antennas above the existing parapet to avoid unacceptable "shadowing", a condition that results in decreased RF propagation due to increased obstruction of the signal as the antennas move back from the parapet. Shadowing can only be avoided by raising the antenna to "see" over the parapet and provide signal the immediately surrounding area. It is the most functional and least intrusive design that remains architecturally and structurally compatible for this building.

This design has the decorative element requested by the City, meets zoning code and RF requirements.

