CITY OF LIVE OAK

SUTTER COUNTY, CALIFORNIA

ENGINEER'S REPORT

DOWNTOWN HISTORIC BUSINESS DISTRICT INFRASTRUCTURE NEEDS ASSESSMENT

SEPTEMBER 2013

FUNDED BY:

STATE OF CALIFORNIA
COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM
PLANNING AND TECHNICAL ASSISTANCE GRANT
NO. 11-PTEC-7632

FINAL REPORT
ADOPTED BY THE LIVE OAK
CITY COUNCIL
SEPTEMBER 18, 2013

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1. Background

Historic Downtown Live Oak is the oldest commercial district in the city dating back to the founding of the community in the late 19th century. The mixed-use area is bounded on the east by the Union Pacific Railroad tracks, Elm Street on the south, Pennington Road on the north and N Street on the west (Figure 1). One and two-story buildings line Broadway Street in the center of the area. Some of the properties have experienced deferred maintenance or are currently vacant, while others are in good condition with viable businesses. The occupancy of the available vacant buildings would have an immediate impact on the community and create jobs for members of the Target Income Group (TIG).

Figure 1 - Historic Core Revitalization Area

In April 2009, the City of Live Oak completed a retail market assessment as a first-step in an economic development effort designed to increase commercial investment leading toward both job creation and growth in the city's retail tax base.

The report clearly demonstrated that Live Oak is struggling. With a population of over 8500, Live Oak is a larger community than most of the small communities in the upper Sacramento Valley counties (Butte, Colusa, Glenn, Sutter, Tehama and Yuba). Live Oak's Median Household Income (MHI) was reported at $31,663, less than half of the statewide number. (Source: Live Oak Retail Market Analysis, Marketek, April 2009)

The community's annual retail sales tax of approximately $150,000 is less than one third of the amount generated in neighboring communities with smaller populations.

Comparison of Retail Sales Tax Generation:

Colusa	$754,000
Corning	$1,600,000
Gridley	$630,000
Live Oak	**$155,788**
Orland	$723,098
Willows	$1,086,061

(Source: City of Live Oak Finance Department)

The retail market assessment calculated an estimated $25.3 million in annual retail sales leakage, which if captured locally, could support approximately 106,500 square feet of new retail space. This leakage represents potential local spending from residents only and does not include spending from visitors and employees working or traveling through the community. SR99 through Live Oak carries approximately 17,000 to 20,000 vehicles per day representing additional market potential. Live Oak's ability to recapture some of this retail leakage will generate jobs for residents within the Targeted Income Group (TIG) and generate sales tax revenue for city services. (Source: Live Oak Retail Market Analysis, Marketek, April 2009)

The age of the infrastructure in Historic Downtown Live Oak poses problems for making new investments. Improvements to the buildings are linked to updates to the infrastructure. In order to improve the area and make it more marketable to new businesses, the aged infrastructure must be evaluated to determine the interrelationships between the various elements of the public infrastructure and then create a clear plan for required improvements.

2. Objectives

Evaluate the design constraints that exist relative to improving the mixed-use area infrastructure while complying with the accessibility requirements of the Americans with Disabilities Act, the requirements of the City's Public Works Improvement Standards, and generally accepted engineering practice. Infrastructure evaluated will include rights-of-way, streets, alleys, curbs, gutters, sidewalks, parking, water system, sanitary sewer, and drainage facilities. Present the findings of the evaluation along with potential design concepts in a draft report as a community outreach to allow public comment. Following public comment, the design concepts will be modified and a revised draft prepared for additional public comment. The final report will incorporate the preferred design concepts and provide an estimate of probable construction costs. The preferred design concepts and the identified constraints will guide the final design process for the mixed-use area.

3. Data Collection

A. Topographic Survey

During March and April of 2012, a detailed topographic survey was conducted of the project area utilizing a robotic total station, positioned over survey control established by Rolls, Anderson & Rolls. Horizontal angle, vertical angle and slope distance were recorded electronically from the total station by a hand held data collector. Vertical angles and slope distances were reduced to horizontal distances and elevations by the data collector software. The data was downloaded from the data collector and imported into AutoCAD Civil 3D 2012 and the final topographic survey was then drafted within AutoCAD. The topographic survey is presented in Appendix A.

B. Record Maps

The recorded subdivision and parcel maps for the downtown area were obtained from the records of the Sutter County Recorder. These maps were drafted into AutoCAD, resolved and positioned within the AutoCAD drawing based on monuments which had been found during the field survey and whose positions had been “tied” to the field survey control. The right-of-way lines and lot lines from these maps are displayed on the topographic survey.

C. City Utility Maps

The City has maintained maps of the location, size, and in some cases material types, of the City's underground utilities (water system, sanitary sewer system and storm drainage system) for several decades. It is believed that the original maps were compiled by City interns in the early 1980's from construction plans on file at City Hall. The data from these maps was drafted into the topographic survey.

Experience over the years has indicated that these maps are not entirely accurate, however they represent the best available data on general location and size of the facilities. In the historic downtown area there is sufficient physical evidence to confirm the general locations shown on the utility maps. Where necessary, the details of a facility's location were modified to conform with the data obtained in the field.

D. As-Built Plans

Few as-built plans for construction projects in the historic downtown area are still available. However, two sets of as-built plans for recent projects were reviewed and the relevant information drafted into the topographic survey. Both of the projects reviewed were water system improvements. The first installed a 4-inch main on Fir Street from N Street to Center Street (2002) and the second installed 8-inch mains on N Street, Gum Street and Elm Street (2007).

E. Technical Studies

A number of technical studies have been completed over the past 50 years studying various aspects of the City's water, sanitary sewer and storm drainage systems. These include a sanitary sewer and water distribution study conducted by GDA in 1967, a master water plan prepared by MHM in 1995, a wastewater master plan prepared by Winzler & Kelly in 1999, a water master plan prepared by ECO:Logic in 2009, a wastewater collection system master plan prepared by ECO:Logic in 2009, and a master drainage study completed by West-Yost in 2011. These studies were reviewed and the information relevant to the historic downtown area has been incorporated into this report.

4. History

A. Recorded Maps

The majority of the historic downtown area was created by a map recorded at the request of A.M. McGrew on June 7, 1879, in Book "O" of Deeds at Page 495. This map

is commonly referred to as the “McGrew Addition”. The map identifies the Union Pacific Railroad as the California and Oregon Railroad, Broadway as 1st Street, California Street as 2nd Street and N Street as 3rd Street. Similarly, the east-west streets are named alphabetically, Pennington Road being identified as A Street, Gum Street as B Street and Fir Street as C Street.

The map indicates that street widths are 60-feet, with the exception of Broadway which has a width of 66-feet, and alleys are 20-feet wide. Individual rectangular lots are 50-feet wide and 140-feet deep. Two oversized trapezoidal lots are present in the wedge area between California and N Streets where the north-south street alignment shifts from parallel with the railroad (Broadway and California) to a roughly north-bearing alignment (N, O and P Streets).

The remainder of the area was created by two additional maps, the Channon Addition, recorded in Book 2 of Maps at Page 7 on December 8, 1909, and Channon Second Addition, recorded in Book 2 of Maps at Page 11 on May 25, 1910. These maps likewise indicate street widths as 60-feet and alley widths as 20-feet with Broadway having a width of 66-feet.

Subsequent parcel maps and lot line adjustments have reconfigured many of the original lots indicated on these maps but have not effected the street or alley rights-of-way with the exception of Parcel Map 426, recorded in Book 2 of Parcel Maps at Page 176 on April 6, 1978, which modified the north line of Block 5 of the McGrew Addition and may have slightly reduced the amount of public right-of-way in the California/N Street triangle.

The blocks and rights-of-way delineated on the drawings in this report are based on and are consistent with the above referenced record maps.

B. Existing Underground Infrastructure

At the time that the McGrew and Channon maps were recorded, Live Oak was an unincorporated area within Sutter County. With the exception of county and reclamation district drainage facilities, there were no government maintained public utilities.

In June of 1947, the City of Live Oak was incorporated as a Municipal Corporation of the Sixth Class with an initial City boundary as shown in Figure 2. This initial boundary included all of the areas encompassed by the McGrew and Channon maps.

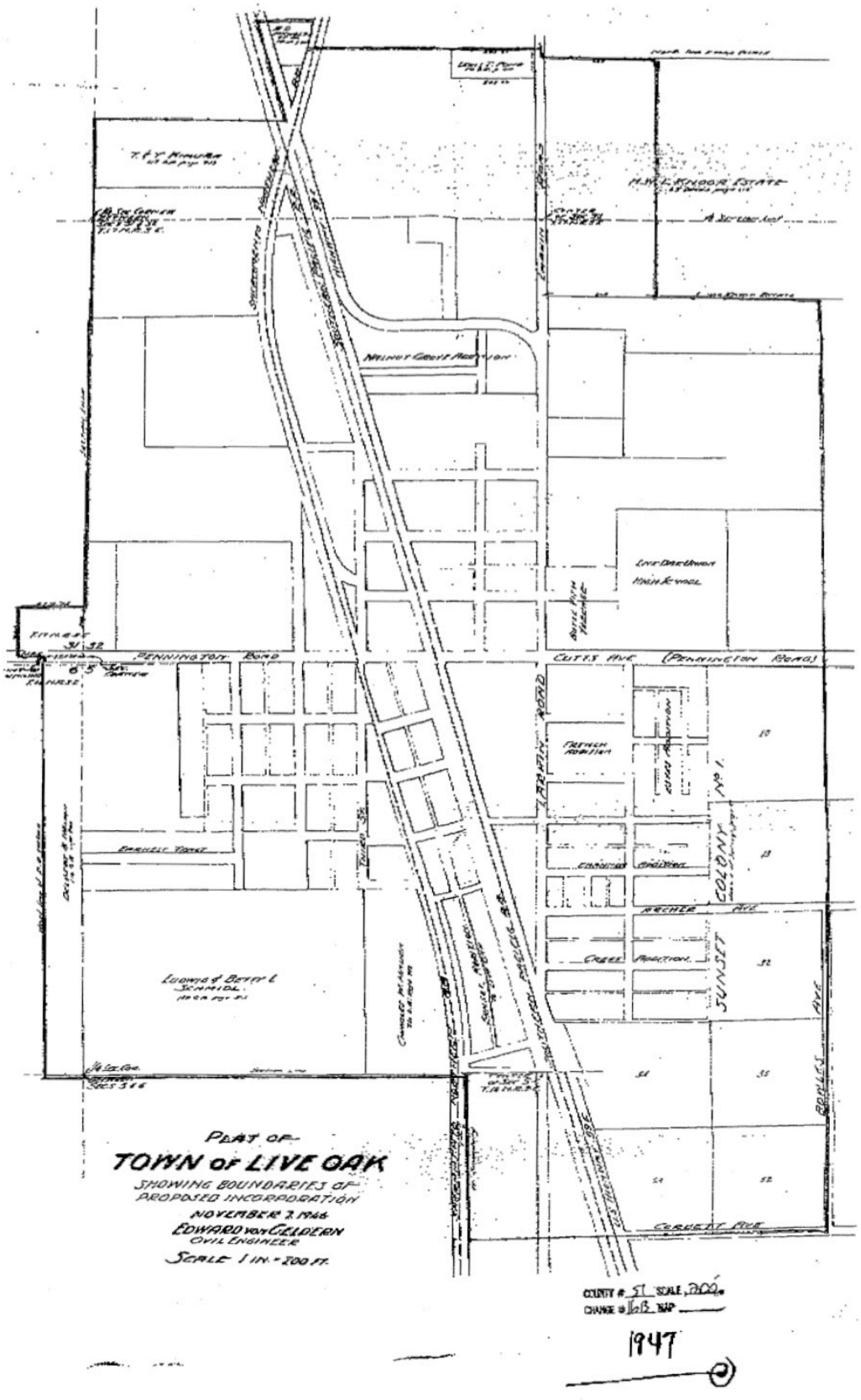

Figure 2 - 1947 City of Live Oak Boundary

Following incorporation, the City Council moved quickly to issue revenue bonds to finance the construction of a water distribution system and a sanitary sewer system. The bond issuances were approved in April 1950 for construction of the water system and in November 1951 for construction of the sanitary sewer system. Both systems were operational by 1953. The sewer system was constructed primarily of vitrified clay pipe while the water system was constructed primarily of ductile iron pipe and welded steel pipe.

In the downtown area between Broadway and California Street, the sewer and water mains were installed in the alley (Center Street). Pennington Road, N Street and Elm Street had water and sewer mains installed within the street right-of-way. The majority of these original mains remain in service today and are over 60 years old. Exceptions are the water main in N Street which was replaced in 2007, new water mains in Gum Street and Elm Street which were installed in 2007, and a new water main in Fir Street which was installed in 2002.

The performance of the sewer system appears to have been a concern to both the City and the State since shortly after its completion. According to an April 22, 1955, report by the Bureau of Sanitary Engineering, “this entire system was laid with considerable difficulty”. The high groundwater table resulted in many sections of the system being laid under free standing groundwater in the trenches. The report states that, “Persons who witnessed the pipeline procedure noted that many of the construction's joints were made under water and 'by feel only'”. As a result, the system has experienced high levels of infiltration and inflow (I/I) from the very beginning. At the time of the report, wet weather flows were three times the original design capacity of the treatment plant.

According to the City’s 1999 Wastewater Master Plan, several attempts have been made over the years to alleviate the I/I problem including replacing the original gravity outfall line to the treatment plant with a forced main in 1974, rehabilitating manholes and cleanouts, and sealing joints and repairing pipeline sections in 1978 and 1986, and sealing or resealing much of the original system with chemical grout in 1988. While these projects undoubtedly helped reduce the amount of infiltration and inflow, the system still experiences elevated I/I levels.

The storm drain system within the downtown area is primarily at the periphery and is likely not entirely adequate. Storm drain mains exist in Pennington Road, N Street south

of Fir Street, and Broadway at Elm Street. It may be possible to extend this existing infrastructure into the core downtown area however, some of the infrastructure may be undersized. The City's Master Drainage Study indicates the majority of the downtown area draining to the N Street main. Physical constraints may require more of the drainage to be directed toward the Broadway main.

C. Existing Surface Infrastructure

Determining the age of much of the existing surface infrastructure is difficult. Most of the improvements likely date from the 1940's or 1950's though some are newer. The improvements along Pennington Road were completed in the mid 1990's and improvements along Elm Street appear to date from the late 1970's to early 1980's. Broadway, Gum Street and Fir Street (east of California) are the oldest. These consist mainly of tall concrete curbs with or without gutters and wide sidewalks. Street surfaces are largely in good shape as Broadway, Gum, Fir, Elm and California Streets were overlayed in 2011. A portion of N Street was overlayed in 2007.

Figure 3 - Pennington Rd. looking east from N St.

Pennington Road is in poor condition, as shown in Figure 3. A federal-aid complete streets rehabilitation of Pennington is planned for the 2014/15 federal fiscal year.

Due to their age, most of the existing improvements do not comply with the requirements of the American's with Disabilities Act. Curb ramps, driveways and sidewalk cross-slopes are of particular concern. Accessible parking appears inadequate and likely non-compliant where it exists.

Much of California Street and N Street within the downtown area lack curb, gutter and sidewalk improvements. Pavement surfaces are narrow. California Street was the alignment for the Northern Electric Railroad (later Sacramento Northern and then Western Pacific) which eventually ran from Chico to San Francisco. Western Pacific abandoned their right-of-way in the 1970s and the tracks were eventually removed. The Northern Electric Railroad built a depot in Live Oak on California Street north of Fir Street around 1910. Figure 4 shows the depot in operation toward the end of Sacramento Northern Railroad passenger service, around 1940. The depot was torn down in the early 1970s.

Figure 4 - Sacramento Northern Railroad Depot at Live Oak

Figure 5 shows the area today. The depot was located on the empty lot beyond the palm trees.

Figure 5 - California St. looking N/W across Fir St.

Figure 6 - California St. looking N/W at Gum St.

Since the departure of the railroad, little has been done to reclaim this largely under utilized portion of the downtown area. Plans are underway to build a multi-use community trail along the old railroad right-of-way, possibly creating a park on the old depot site. Providing complete streets infrastructure would enhance pedestrian access. The awkward intersection of N Street, California Street and Gum Street results in a very large expanse of public right-of-way which could present challenges and opportunities in the design phase.

Figure 7 - Broadway looking N/W at Elm Street

Broadway is the face of the historic downtown business district as it is visible from State Route 99 even though it is on the opposite side of the Union Pacific Railroad tracks. Since the Broadway right-of-way is contiguous with the UPRR right-of-way on the east side of the street, the streetscape is asymmetrical; buildings on the west, facing the tracks and open railroad right-of-way on the east. The ground elevation at the edge of the railroad right-of-way and the east side of Broadway is significantly lower than finished floor elevations of the buildings along the west side of the street. As Figure 7 shows, this results in a noticeable “roll-off” of the east third of the street. As the west

side elevations are fixed by the buildings, raising the east side of the street must be explored as part of the overall ADA solution.

Figure 8 - Center Street looking north toward Broadway

Center Street is generally in poor condition, as shown in Figure 8. A lack of adequate drainage infrastructure, less than ideal design and deferred maintenance all appear to be culprits. This alley serves as the primary utility trunk for the downtown area. Electricity, gas, sewer and water are all located in Center Street. In addition, the alley serves as off-street access for many of the buildings and as the garbage pick-up route. Reconstruction of Center Street may have a more disruptive impact on downtown businesses and residents than reconstruction of other downtown streets.

Figure 9 shows Gum Street looking west from Broadway and displays a few different issues that must be addressed. The building faces are at the edge of the right-of-way on both Broadway and Gum Street. Since ADA regulations do not allow sidewalk cross-slopes to exceed 2%, grading options are limited. The tall curb and long pedestrian ramp along Broadway is visible to the left. The on-street diagonal accessible parking on the north side of the street likely doesn't meet slope requirements or fit any accepted standard for accessible parking.

Figure 9 - Gum St. looking west from Broadway

Figure 10 - Fir St. looking west from Broadway

Fir Street between Broadway and California Street is shown in Figure 10. The poor condition of the curb and gutter is evident. Much of the original 9’ wide sidewalk (some is still present in front of the buildings on the left) was replaced in 2007 due to safety concerns. A narrower parkway style sidewalk was installed in order to match the existing buildings while maintaining a maximum 2% cross-slope. If the sidewalk had been extended to the curb at 2%, the sidewalk would have been substantially higher than the top of curb. Raising the grade of the street will likely be required if a return to the wider sidewalk widths is desired.

Figure 11 - Elm St. looking west from Broadway

Elm Street is largely in decent condition as shown in Figure 11, although the existing driveway cuts do not meet ADA standards. The curb, gutter and sidewalk improvements appear to have been installed more recently than many of those on Broadway, Fir and Gum.

5. Data Analysis

In order to more easily analyze a wide range of data and understand the relationships between elements, plan and profile sheets of the streets and cross-sections of the blocks were prepared. These drawing sheets are presented in Appendix B and Appendix C, respectively.

Additionally, cross-slopes were calculated for all existing sidewalks within the project area to determine compliance with the Americans with Disabilities Act (ADA) requirements that path-of-travel cross-slopes not exceed 2%. Tables 1 and 2 present the results.

STREET	STATION	BS	FS	BC	DISTANCE	CROSS SLOPE
PENNINGTON NORTH	11+07	77.78		77.68	3.89	2.57%
	11+78	77.64		77.59	3.92	1.28%
	12+76	77.5		77.43	3.9	1.79%
	13+15	77.4		77.22	3.5	5.14%
	14+12	77.05		76.86	3.84	4.95%
PENNINGTON SOUTH	11+30	77.77		77.64	3.92	3.32%
	11+79	77.59		77.5	3.97	2.27%
	12+35	77.45		77.3	3.81	3.94%
	13+19	77.39		77.18	6.34	3.31%
	13+74	77.27		77.09	6.25	2.88%
GUM NORTH	00+29	77.38		77.27	4.52	2.43%
	01+33	77.55		77.47	4.69	1.71%
	02+15	77.83		77.74	5.12	1.76%
	02+68	78.12		77.96	4.72	3.39%
	03+30	78.46		78.35	4.84	2.27%
GUM SOUTH	00+30	77.46		76.78	4.96	13.71%
	00+95	77.61		77.51	4.95	2.02%
	01+72	77.79		77.72	4.78	1.46%
	02+23	77.94		77.8	4.93	2.84%
	02+68	78		77.9	5.06	1.98%
	03+22	78.78		78.6	5.37	3.35%
FIR NORTH	00+31	78.89	78.8	78.78	5.81	1.55%
	00+85	78.91	78.86	78.48	5	1.00%
	01+65	78.82	78.79	78.62	5	0.60%
	01+94	78.92	78.79	78.73	5.78	2.25%
	02+75	78.96	78.88	78.92	4.95	1.62%
	03+14	78.96	78.98	78.88	4.9	-0.41%
FIR SOUTH	00+26	77.97		77.98	11.2	-0.09%
	00+93	78.32		78.03	10.89	2.66%
	01+34	78.66		77.66	10.41	9.61%
	01+91	77.76	77.74	77.59	4.82	0.41%
	02+29	77.89	77.83	78	4.77	1.26%
	03+20	78.46	78.34	78.11	4.74	2.53%

Table 1 - Sidewalk Cross-Slopes - Pennington, Gum, Fir

STREET	STATION	BS	FS	BC	DISTANCE	CROSS SLOPE
ELM NORTH	01+35	76.19		76.06	4.35	2.99%
	02+42	77.35		77.24	5.01	2.20%
	03+08	77.65		77.53	4.92	2.44%
	04+09	77.81		77.65	3.92	4.08%
	04+50	77.58		77.54	3.94	1.02%
	05+28	77.55		77.45	4.17	2.40%
	05+89	77.4		77.23	8.88	1.91%
	06+88	77.3		77.04	8.8	2.95%
ELM SOUTH	01+42	75.94		75.89	3.78	1.32%
	02+68	77.14		76.97	4.5	3.78%
	03+64	77.47		77.4	3.98	1.76%
	04+49	77.61		77.54	4.04	1.73%
	05+29	77.53		77.41	4.06	2.96%
	05+88	77.35		77.28	3.9	1.79%
	06+35	77.25		76.82	4.04	10.64%
	06+88	77.21		77.04	4	4.25%
BROADWAY	00+50	77.81		77.31	6.4	7.81%
	01+24	77.77		77.66	6.2	1.77%
	01+73	78.05		77.82	6.2	3.71%
	02+34	77.91		78	8.3	-1.08%
	03+20	78.45		78.33	7.6	1.58%
	04+10	78.94		78.9	9.5	0.42%
	04+57	79.11		78.97	9.6	1.46%
	05+08	79.52		78.95	9	6.33%
	05+53	79		78.94	9.5	0.63%
	05+98	79.04		79	9.4	0.43%
	06+36	78.32		78.99	9.2	-7.28%
	07+05	78.45		78.07	9.6	3.96%
	08+05	78.32		77.83	9.5	5.16%
	08+51	78.14		77.81	9.5	3.47%
	08+98	77.98		77.74	9.5	2.53%
	10+10	77.7		77.26	9.4	4.68%
CALIFORNIA	07+58	78.5		78.37	4.8	2.71%
	08+32	78.29		78.17	4.96	2.42%
	09+20	78.1		77.94	4.95	3.23%
	10+21	78.18		78.06	4.98	2.41%
	10+80	77.91		77.73	4.97	3.62%
N	08+58	77.37		77.18	4.95	3.84%
	09+29	77.16		76.98	5.06	3.56%
	09+74	77.02		76.86	4.88	3.28%
	10+25	76.91		76.73	4.95	3.64%
	10+61	76.85		76.67	4.84	3.72%
	11+60	76.41		76.26	3.96	3.79%

Table 2 - Sidewalk Cross-Slopes - Elm, Broadway, California, N

In these tables, BS = Back of Sidewalk, FS = Front of Sidewalk and BC = Back of Curb. Front and back are relative to a perspective from the center of the street.

The majority of the calculated cross-slopes exceed the maximum 2%. Where the sidewalks are at or near buildings, raising the front of the sidewalk is one of the few solutions available. This will also require raising the curb and gutter and likely the centerline of the street unless a parkway landscape strip is utilized as was done on Fir Street.

A. Rights-of-Way

With a few exceptions, the rights-of-way within the project area appear to be adequate. The locations where additional right-of-way may be required are along the south side of Pennington Road from N Street to Broadway and the south side of Fir Street between California Street and Center Street where the existing back of sidewalk extends beyond the right-of-way onto private property. The primary reason this situation exists is that the building faces sit back slightly from the right-of-way line but the sidewalk has been constructed to the building face. These uses have been ongoing for decades and the City's right to continued use of the properties may be prescriptive. However, acquisition of narrow public services easements between the right-of-way lines and the faces of the buildings may be appropriate to avoid conflicts during future construction and to satisfy right-of-way certification requirements of certain possible funding sources. A small amount of additional right-of-way may also be required at the northwest corner of Elm Street and California Street to accommodate the wider Community Trail path.

There are buildings which appear to encroach into the rights-of-way of both Broadway and Center Street. On Broadway, the facades of nearly every building encroach into the right-of-way. Some are fractions of inches, others are as much as a foot. Similarly along Center Street, each block has at least one encroachment. The worst are along the west side of Center, south of Fir Street. The Live Oak Locker building, the building immediately south of Live Oak Locker and a building further south, across from the former Sunny's Market, all encroach about a foot. The encroachments on Broadway are not likely to have a material impact on the design of improvements, however the encroachments on Center Street could be more significant.

B. Streets

Of the streets within the project area, Broadway has the most serious constraints to improvement. The cross-sections presented in Appendix C clearly demonstrate the extreme grade disparity between the west side and the east side of the street. For example, cross-section #CS19 indicates the west side elevation at the building at about

79.5 feet while the ground elevation on the east is around 76.8 feet (the gutter lip is even lower, at 76.2 feet). With an elevation of 77.5 at the centerline stripe (the centerline stripe is not the center of the street but it is the crown of the street), the cross-slope on the east side of the street exceeds 7.5%. The maximum ADA path of travel slope for a crosswalk is 5%. If the centerline remained unchanged, the east side curb and gutter would need to be raised more than 0.5-feet to bring the cross-slope comfortably below the 5% threshold. The curb and gutter would need to be raised a foot to achieve a standard 2% cross-slope.

This appears extreme, however to achieve a fully ADA compliant cross-section one must start at the building (elev. 79.5). In the current curb configuration, a 1.7% sidewalk cross-slope (must be less than 2%) for 10 feet yields a top of curb elevation of 79.3. City standard barrier curb and gutter would have a corresponding lip elevation of 79.0. A street cross-slope of 2% for 25.5 feet yields a centerline elevation of 79.5, a full 2-feet higher than the existing centerline. A 2% cross-slope east for 17 feet yields a lip elevation of 79.2 which is 3-feet higher than the existing curb lip. Moving the crown of the street to the west could lessen the severity of the centerline and east lip grades by one or two tenths of a foot but since the building floor elevation controls, the end result will be raising the center of the street 2-feet and the east curb and gutter 3-feet.

Changes of this magnitude will obviously have consequences. Grades on Gum Street, Fir Street, and to a lesser extent, Elm Street must match the grades of a redesigned Broadway. Raising the curb and gutter on the east side of Broadway 3-feet above the elevation of the existing ground will likely require construction of a retaining wall, which in turn will create new drainage issues. A retaining wall would also require construction of ADA compliant access points if continued access to the park area is desired.

The remaining project area streets do not have the level of development constraint associated with Broadway. As the profiles and cross-sections indicate, the entire area is relatively flat, with the obvious exceptions of Broadway and California Street. California Street appears as a peak on the cross-sections most likely because it was originally the grade for the Northern Electric Railroad. Reconstruction of California Street with full curb, gutter and sidewalk improvements will require lowering the centerline peak to maintain acceptable cross and path of travel slopes. Gum and Fir Streets are constrained by the redesign of Broadway, buildings which front the right-of-way and the

crossings of Center Street. The primary challenge will be building in longitudinal centerline slope while maintaining ADA sidewalk cross-slopes.

On Elm Street and N Street, P.G.&E. electric, A.T.&T. phone and Comcast Cable are overhead on joint utility poles. Placing these facilities underground would be ideal if adequate funding can be identified. As a rule of thumb, undergrounding utilities is estimated to cost roughly $3 million per mile. Estimated completion time for an undergrounding project is between three and seven years.

Street lighting coverage within the project area is generally adequate. Broadway in particular is well lit, although all of the lighting is on the east side of the street. Consideration should be given to staggering the lighting between the east and west sides of the street to allow improved illumination along the west side sidewalk. Lighting along N and California Streets is sparse with lights primarily at intersections. Mid-block lights should be considered in conjunction with complete streets improvements.

C. Alleys

Center Street is the only alley within the project area. As mentioned previously, this alley serves as the primary utility corridor for the most of the historic downtown area between Broadway and California Street from Pennington Road to Elm Street. Within the 20-foot right-of-way are P.G.&E. electric and gas, A.T.&T. phone, Comcast cable, City water, City sewer and even some City storm drain at Gum Street. Electricity, phone and cable are overhead on joint utility poles while the remainder are underground. Ideally, the overhead utilities would be placed underground in a joint utility trench, although the limited right-of-way width, proximity of buildings to the right-of-way, and necessity to replace the aerial service drops will make this difficult and likely generate strong resistance from the utility companies. Providing adequate space for transformer pads, service vaults, and service pedestals will likely require the utility companies to acquire additional property rights from the abutting property owners. While none of this is technically infeasible, it is expensive and complicated and will take years to accomplish.

Drainage infrastructure within Center street is nonexistent, with the exception of a lone drainage inlet south of Gum Street. Providing proper positive drainage will be the primary challenge involved with redesigning Center Street. The proximity of many of the buildings to the alley right-of-way complicates the matter because the building elevations fix the elevation of the alley surface and the alley surface must drain away

from not toward the buildings. One approach to solving this problem is routinely applied to alleys in other jurisdictions. This approach essentially turns the alley into a large valley gutter with the center of the alley graded lower than the edges. This can be combined with drainage inlets to insure that water is directed away from buildings and carried out of the alley.

Another approach would be to design the alley in a similar fashion to a standard street cross-section with curb and gutter (and potentially sidewalk) along the edges to contain and direct runoff. Again, the building elevations will control the elevation of the curb and the resulting gutter flowline elevations will be lower than the center of the alley would be with a valley approach. This could present sever grading challenges where Center Street intersects with Pennington, Gum, Fir and Elm. The existing 20-foot right-of-way is not wide enough to comfortably accommodate curb and gutter on both sides and certainly not to accommodate sidewalk on one or both sides. Additional right-of-way would be required as well as relocation of existing improvements and removal of at least one building. The maximum amount of additional right-of-way that could be acquired without interfering with historic buildings appears to be 6-feet which could allow for curb and gutter but would not likely allow for sidewalk.

D. Curbs, Gutters and Sidewalks

As noted above, the majority of the cross-slopes of the existing downtown sidewalks exceed the 2% maximum allowed by ADA standards. Existing driveways are the “warped” style driveways in which the back of sidewalk grade remains constant but the curb is depressed. This results in sidewalk cross-slopes at driveways of 13% or more. In some cases these driveways access buildings which precludes the use of conventional ADA compliant depressed driveways. In order to maintain the sidewalk at the correct elevation and slope, it will be necessary to place the driveway approach in front of the sidewalk. This can be accomplished by moving the curb alignment toward the street centerline at these driveways, effectively widening the available space to accommodate the driveway and the ADA compliant sidewalk.

The street profiles and cross-sections clearly show one of the reasons that these problems exist and what will be one of the greatest challenges in producing a fully ADA compliant design of the project area; existing finished floor elevations. The finished floor elevations of the existing buildings may best be described as a hodgepodge where no one floor elevation bears any relevant relationship to those of the adjacent buildings nor

to the street grade itself. On Broadway, the finished floor elevations range from 77.94 to 79.56 from Pennington Road to about mid-block between Gum Street and Fir Street while the grade of the street centerline only varies from about 77.7 to around 78. Longitudinal slope can be designed into a reconstructed Broadway but it will be difficult if not impossible to fully address this issue by adjusting the slope of the street alone.

This problem will be most acute at building entry points. Steps up into buildings from the sidewalk will not be allowed. The maximum elevation difference across the threshold is 1/2-inch. Ramps at entry points are not recommended due to the requirement for a 4-foot by 4-foot level landing and a clear swing zone for doors, which could result in ramps extending 10 feet or more from the face of buildings. A multi-level sidewalk approach may be necessary with sloped paths-of-travel (less than 5% longitudinal slope) to transition between different floor elevations. This will create a situation where the sidewalk elevation and slope are different than the elevation and slope of the street. One approach to deal with this problem is to place planter areas between the sidewalk and street to disconnect the sidewalk and street grades. Another approach may be to "hinge" the street cross-slope at the edge of the on-street parking, producing a low point with a valley gutter, then sloping the parking up toward the curb.

Curb heights vary from about 5-inches (current City Standard) to about 8-inches. The tallest curbs are on Broadway south of Gum Street and south of Fir Street, parts of Fir Street near Broadway and parts of Gum Street near Broadway. Curb and gutter conditions range from good to poor with portions of Fir Street and Broadway displaying curb and gutter that is broken and displaced. The tall curbs present significant and unnecessary grading issues when designing and constructing pedestrian ramps at intersections. Since ramp slopes may not exceed 8.33%, a taller curb means a longer ramp. The tall curbs can also damage bodywork and doors of smaller vehicles. Reconstruction should install City Standard 6-inch (5-inch tall) barrier curb throughout the project area.

E. Parking

Parking within the project area consists of spaces marked on the street pavement with traffic paint or thermoplastic markings (marked spaces) and undefined spaces along streets which either do not have curb, gutter and sidewalk improvements or have improvements but lack parking space markings (unmarked spaces). There are currently 104 marked spaces and an estimated 104 unmarked spaces. The number of unmarked

spaces was estimated by using a standard parallel parking stall template (24-feet long by 9-feet wide) placed along the street sections in the topographic survey to determine where adequate room exists for standard passenger vehicles to park parallel out of the traveled way and clear of driveways, hydrants and curb ramps. How many of these “available” unmarked spaces are routinely utilized is unknown.

There are currently three on-street handicapped accessible parking spaces, two on Gum Street at Broadway and one on Broadway at Fir Street. On Gum Street, the two stalls are separated by a van accessible loading zone, however the survey data indicates that slopes in some directions exceed the 2% maximum. There is a curb ramp aligned with the loading zone but the curb at the landing has a lip which does not comply with current ADA standards. On Broadway, the single stall has a loading zone to the left and the slopes exceed the 2% maximum. There is no curb ramp at the loading zone so the disabled person would have to make their way around the back of the vehicle (in traffic) to the pedestrian ramp at the corner. While the effort to provide accessible parking is commendable, none of the existing spaces are ADA compliant.

Off-street accessible parking spaces are very limited. There is one fully compliant space at the Post Office, one questionable space in the parking lot off Center Street behind 9910 Broadway and it appears that there was at least one space at the former Sunny’s Market. Off-street parking, in general, is very limited within the project area and there is no public off-street parking. The vacant properties at the southwest corner of Broadway and Fir Street might make an excellent City parking lot. Access could be from Fir Street and Center Street to allow for a continuous streetscape on Broadway while adding convenient downtown parking. Public off-street parking could allow for greater design options on Broadway (less need to provide maximum on-street parking) and the ability to provide fully ADA compliant accessible parking.

F. Water System

Of the three City utility systems in the historic downtown area, the water system is the most modernized. A water main replacement project completed in 2007 installed new 8-inch water mains on N Street from Elm Street to Pennington Road, Gum Street from N Street to Center Street, and Elm Street from Center Street to Broadway. In addition to the new mains, new commercial fire hydrants were installed on N Street at Fir Street and on Center Street at Gum Street. A new residential fire hydrant was installed on Elm Street at Broadway. The original 6-inch main in Center Street was also replaced with 8-

inch main where it crossed Gum Street and Elm Street with connections to the original main made well behind the sidewalk.

The 2009 Water Master Plan indicates that all of the hydrants within the downtown area passed the fire flow model run. This is due to the close proximity of the booster pump station and was likely aided by the new 8-inch loop from N Street to Center Street. Since the system currently passes this critical test, immediate replacement of the 6-inch main in Center Street is not necessary. However, the age of the original pipe and fittings within Center Street may predate the construction of the City water system in the early 1950's. According to a Sanitary Sewerage and Water Supply and Distribution Study completed by Gillet-Harris-Duranceau/Associates in 1967, following the passage of the revenue bond issue in 1950, the City purchased an existing water distribution system from Mr. W. R. Shannon. No additional details are provided such as when the Shannon system was built or which areas it served however, assuming this system served the historic downtown area is not unwarranted. Due to this uncertain history, replacement of the main with an 8-inch pipe should be considered in conjunction with any major work conducted in Center Street.

G. Sanitary Sewer System

The original sanitary sewer collection system has been in service since 1953. With a few exceptions, all of the original piping is still in operation. There have been attempts over the years to seal the pipe joints and manholes to reduce the I/I problem but replacement of the pipes has not been undertaken.

In the area laid out on the McGrew Addition map, the mains were installed in the alleys, where they were available. This was a standard design practice at the time. In the historic downtown area, Center Street is the alley between Broadway and California Street and the sewer main serves the lots which front Broadway and the east side of California. DeVilbiss Way is the alley between N Street and O Street and the main there serves the lots on the west side of N Street. The lots on the east side of N Street between Elm Street and Fir Street are served by a main within the N Street right-of-way.

Elm Street has the sewer main installed within the street right-of-way. Originally, this main not only served the lots fronting on Elm Street but also carried flow from the east side of Highway 99 toward the P Street lift station. This westerly flow was cut off at the highway and reversed toward L Street when the Ash Street lift station was installed.

The 2009 Wastewater Collection System Master Plan indicates that the system in the downtown area still appears to have excessive I/I with an inflow peaking factor greater than 3.0 and an infiltration ratio greater than 5%. However, the mains in Center Street, Elm Street and N Street were not identified as mains having capacity issues and were not recommended for replacement.

As with the water main, replacement of the sewer main in Center Street should be considered in conjunction with any major work conducted in Center Street. Replacement of the sewer mains in Elm Street and N Street should be considered if significant reconstruction work is to be undertaken on these streets and the available funding and budget allow.

H. Storm Drainage System

The storm drainage system within the historic downtown area is mainly at the edges of project area. There are substantial mains within Pennington Road, Broadway south of Elm Street and N Street south of Fir Street. Figure 12 presents a section of the City Storm Drain Map which shows the downtown area.

The main on Pennington flows west to O Street where it connects to a larger main which eventually flows to P Street and then south to Date Street. The main on N Street flows south to Date Street and eventually to P Street. Both of these mains flow to the easement west of P Street and south to the Apricot Street pumping station which discharges into Lateral No. 2. The main on Broadway flows south to the pumping station on the east side Broadway/Larkin Road at Apricot Street which discharges to Lateral No. 6. It appears that all of these mains can be utilized in designing an improved downtown drainage infrastructure.

In addition to these mains, there appears to be an 18-inch diameter pipe stub to the north on the west side of N Street, mid-block between Fir Street and Elm Street. This stub is not shown on the City Storm Drain Map but is shown on Drawing 14 of the plan and profiles in Appendix B. The pipe has sufficient cover (6-feet) to be extended north to Gum Street which the 18-inch pipe on the west side of the street does not. However, overall the pipe is too low as the 18-inch invert elevation at the Elm Street manhole is a foot below the 30-inch pipe flowing south out of the manhole. Fortunately, replacing the 18-inch pipe with a 24-inch pipe and correcting the adverse grade condition at the

manhole could be accomplished while maintaining 4-feet to 5-feet of cover which should allow the main to reach Gum Street. This is important because reconstruction of N Street with the addition of curb, gutter and sidewalk will eliminate the shallow ditch on the east side of N Street north of Fir Street which will make the shallow 18-inch pipe on the east side of N Street unusable for draining the area north of Fir Street. This shallow pipe may be removed altogether with the reconstruction of N Street.

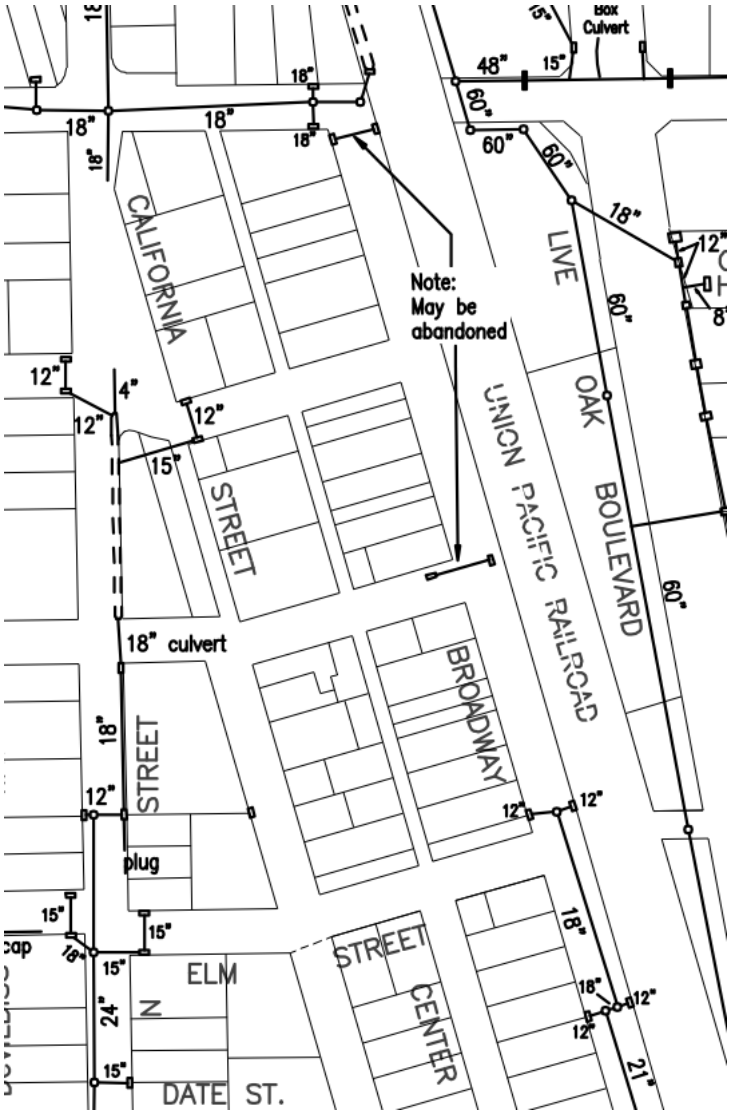

Figure 12 - City Storm Drain Map in Downtown Area

With the reconstruction and raising of Broadway, Gum Street, Fir Street and Elm Street will naturally drain west toward California Street and N Street. This means that the majority of the downtown area will indeed flow to the N Street storm drain mains as the Master Drainage Study anticipated. Broadway and N Street between Pennington Road

and Gum Street could be routed north to the Pennington Road mains to avoid overloading the N Street mains. Broadway south of Gum Street will be routed south to Elm Street. This will require extension of the 18-inch pipe in Broadway at Elm Street north to a point mid-block between Gum Street and Fir Street. It should be possible to accomplish this while maintaining approximately 5-feet of cover.

6. Design Concepts

On the following pages, four alternative design concepts are presented. These are not either/or concepts but rather a convenient way to display different potential approaches to the design of various areas within the downtown area. Specific elements can be mixed and matched to create a preferred concept. New elements may be introduced through the public outreach process. Revised concepts will be prepared following the public outreach for further discussion and a preferred concept will be identified.

SCALE: 1"=40'

RAILROAD
PACIFIC
UNION
BROADWAY
GUM
FIR
STREET
ELM
STREET
STREET
STREET
STREET
STREET
STREET
ROAD
PENNINGTON
CENTER
CALIFORNIA
N

DRAFT

APPROVED

DATE
MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

RAR
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

CONCEPT A

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	1 OF 3
JOB NO.	11032

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SCALE: 1"=40'

RAILROAD
PACIFIC
UNION
BROADWAY
STREET
ELM
FIR
GUM
STREET
STREET
STREET
CENTER
ROAD
PENNINGTON
STREET
CALIFORNIA
STREET
N

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DOWNTOWN INFRASTRUCTURE

CONCEPT B

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	2 OF 3
JOB NO.	11032

SCALE: 1"=40'

UNION PACIFIC RAILROAD

BROADWAY

GUM STREET

FIR STREET

ELM STREET

CENTER STREET

PENNINGTON ROAD

CALIFORNIA STREET

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DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CONCEPT C

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	3 OF 3
JOB NO.	11032

SCALE: 1"=40'

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DOWNTOWN INFRASTRUCTURE

CONCEPT D

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	4 OF 4
JOB NO.	11032

7. Preferred Concept Alternative

Public Outreach meetings were held in the City Council chambers on July 30 and September 10, 2013. Three design concepts were presented at the first meeting. Feedback from the public at this meeting resulted in the creation of a fourth design concept to incorporate the preferred elements from the original three concepts and address concerns expressed by merchants along Broadway. This fourth design concept, Concept D, was presented at the second outreach meeting and confirmed as the preferred design concept.

8. Engineer’s Opinion of Probable Cost

Table 3 presents the Engineer’s Opinion of Probable Construction Quantities & Costs for the preferred design concept. This should be considered a planning level estimate as many of the project specifics have not yet been determined in sufficient detail to allow a more precise estimation of project costs.

DOWNTOWN ASSESSMENT INFRASTRUCTURE IMPROVEMENTS

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION QUANTITIES & COSTS

SEPTEMBER, 2013

ITEM	DESCRIPTION	QUANTITY	UNIT COST ($)	AMOUNT ($)
1.	Mobilization	1 LS	100,000.00 /LS	100,000.00
2.	Traffic Control	1 LS	200,000.00 /LS	200,000.00
3.	Demolition (including roadway excavation)	1 LS	350,000.00 /LS	350,000.00
4.	Asphalt Pavement and Structural Section	5,000 LF	135.00 /LF	675,000.00
5.	Concrete Vertical Curb and Gutter	7,600 LF	30.00 /LF	228,000.00
6.	Concrete Sidewalk	36,000 SF	7.00 /SF	252,000.00
7.	Driveway (Residential and Commercial)	9,600 SF	10.00 /SF	96,000.00
8.	Pedestrian Curb Ramp	43 EA	3,500.00 /EA	150,500.00
9.	Class 1 Bike Path	10,100 SF	10.00 /SF	101,000.00
10.	Round-a-bout	6,000 SF	30.00 /SF	180,000.00
11.	Pavement Delineation, Striping and Markings	1 LS	50,000.00 /LS	50,000.00
12.	Storm Drainage Improvements	1 LS	450,000.00 /LS	450,000.00
13.	Water Main Improvements	1,100 LF	180.00 /LF	198,000.00
14.	Sewer Main Improvements	1,100 LF	200.00 /LF	220,000.00

BASE BID SUBTOTAL:	$3,250,500.00
CONTENGENCY (30%):	$975,150.00
CONSTRUCTION ENGINEERING (15%):	$487,575.00
PLANS, SPECIFICATIONS & ESTIMATE (15%):	$487,575.00
GRAND TOTAL:	$5,200,800.00

Table 3 - Engineer’s Opinion of Probable Cost

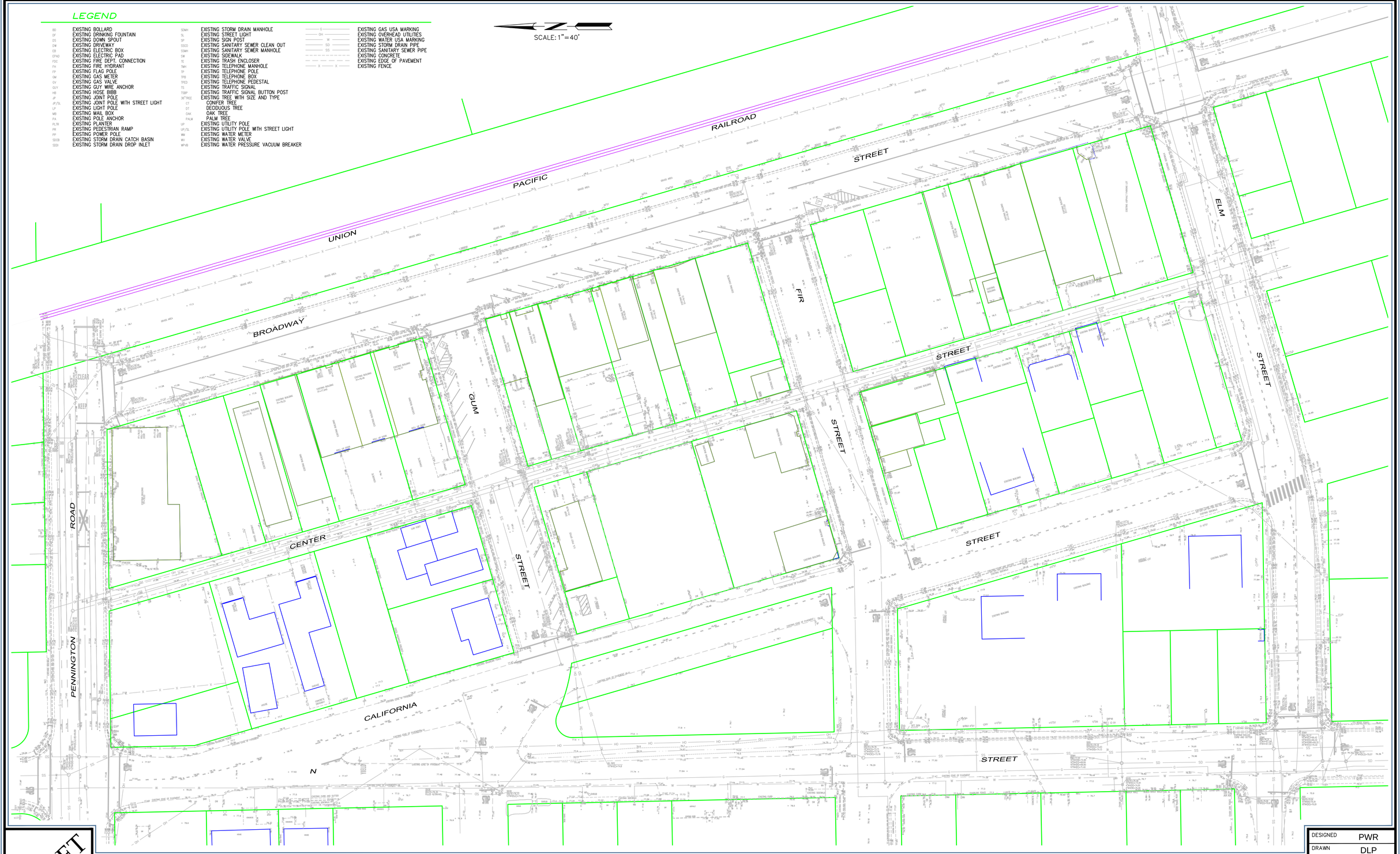
APPENDIX A

TOPOGRAPHIC SURVEY

LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TC	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

SCALE: 1"=40'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

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DOWNTOWN INFRASTRUCTURE

TOPOGRAPHIC SURVEY

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	1 OF 1
JOB NO.	11032

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APPENDIX B

PLAN AND PROFILE

DRAWINGS

UNION PACIFIC RAILROAD

2 BROADWAY 3 4 STREET

5 CENTER STREET 6 7 STREET

8 CALIFORNIA 9 10 STREET

11 12 13 STREET

PENNINGTON ROAD

GUM STREET

FIR STREET

ELM STREET

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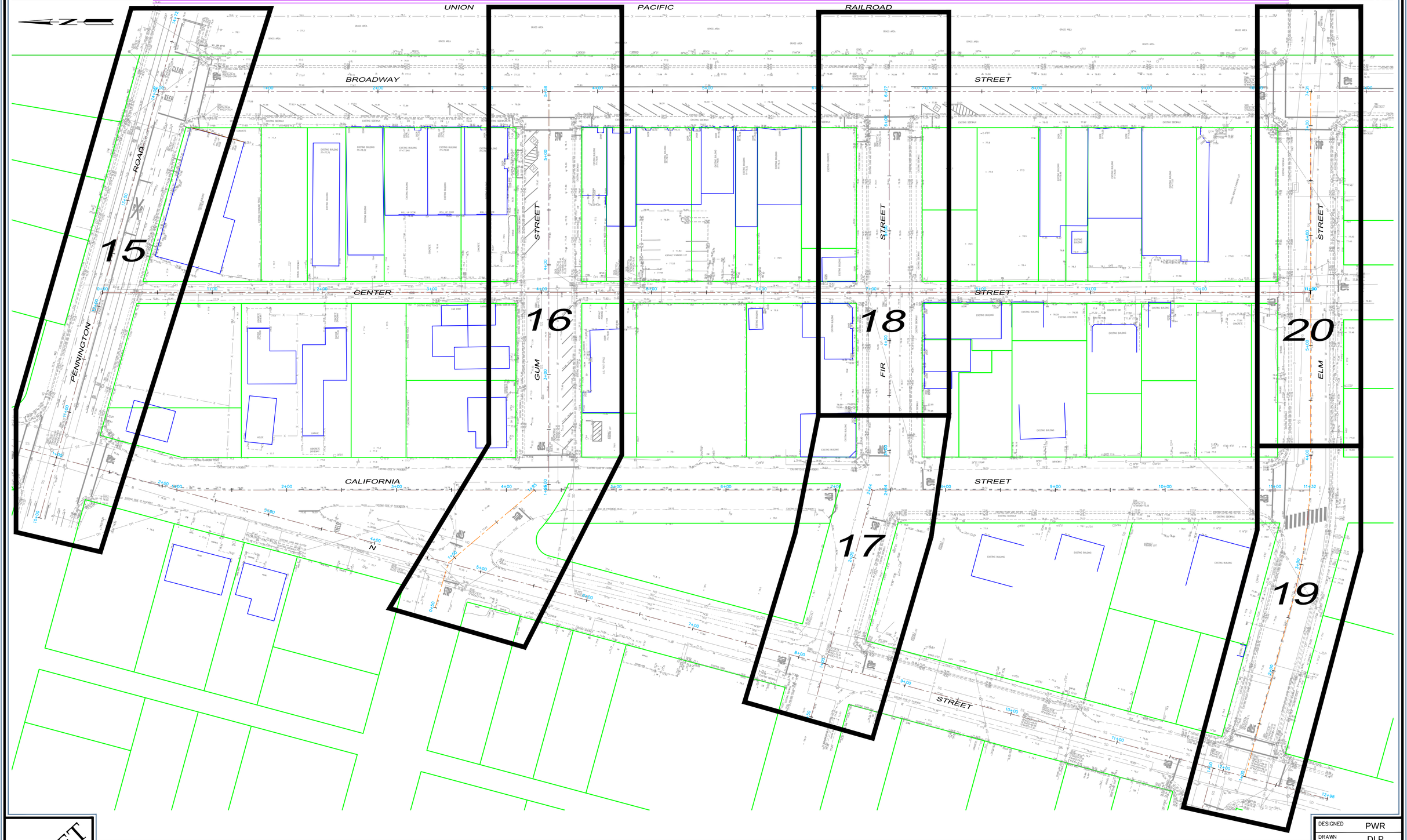
DOWNTOWN INFRASTRUCTURE

PROFILE LAYOUT

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	1 OF 20
JOB NO.	11032



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DOWNTOWN INFRASTRUCTURE

PROFILE LAYOUT

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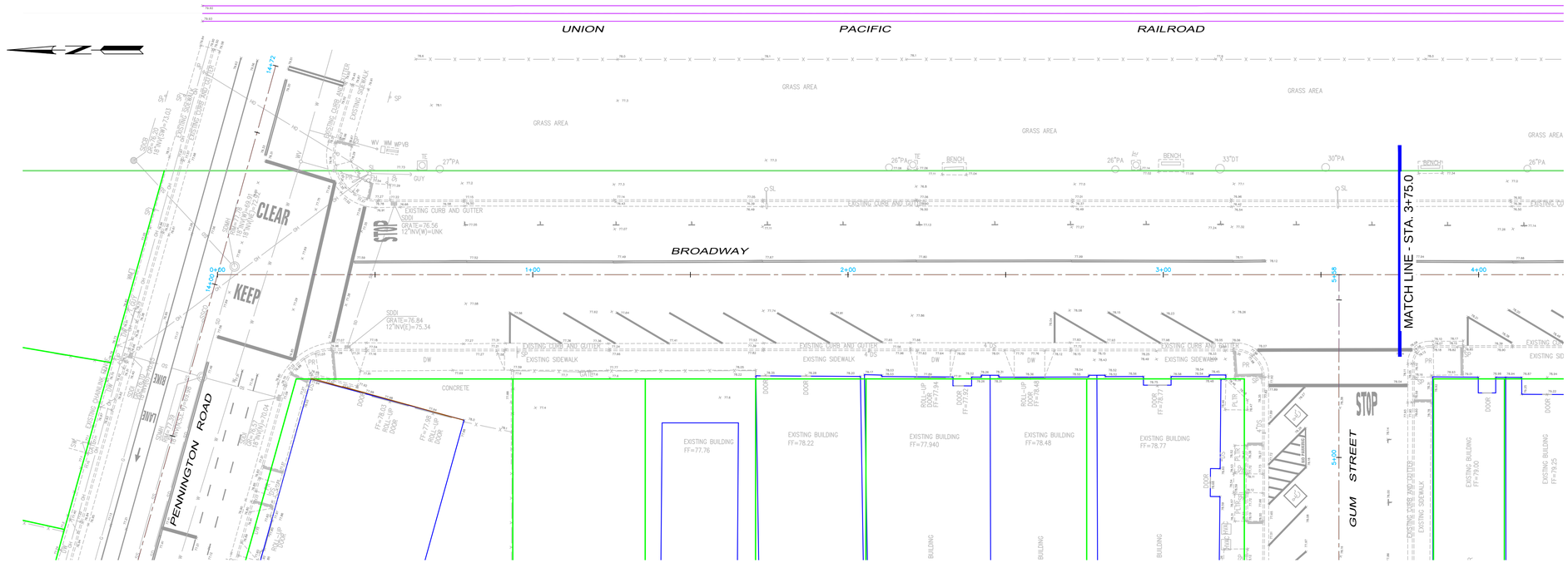
JOB NO.	11032



LEGEND

- EXISTING BOLLARD
- EXISTING DRINKING FOUNTAIN
- EXISTING DOWN SPOUT
- EXISTING DRIVEWAY
- EXISTING ELECTRIC BOX
- EXISTING ELECTRIC PAD
- EXISTING FIRE DEPT. CONNECTION
- EXISTING FIRE HYDRANT
- EXISTING FLAG POLE
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- EXISTING GAS VALVE
- EXISTING GUY WIRE ANCHOR
- EXISTING HOSE BIBB
- EXISTING JOINT POLE
- EXISTING JOINT POLE WITH STREET LIGHT
- EXISTING LIGHT POLE
- EXISTING MAIL BOX
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- EXISTING SIGN POST
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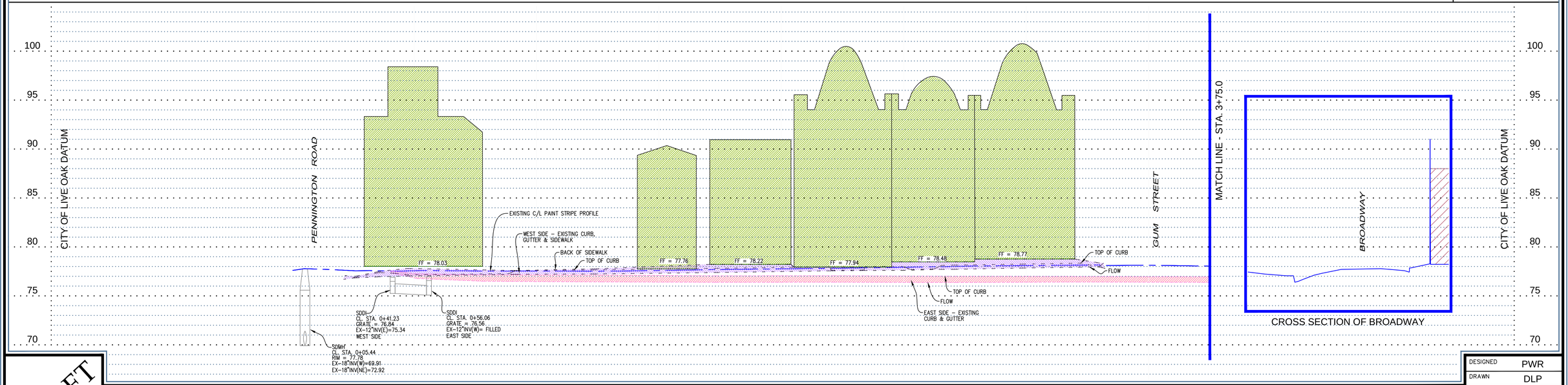
- EXISTING STORM DRAIN PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING CONCRETE
- EXISTING EDGE OF PAVEMENT
- EXISTING FENCE

STATIONING: 0+00 | 0+50 | 1+00 | 1+50 | 2+00 | 2+50 | 3+00 | 3+50

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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CIVIL ENGINEERS
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DOWNTOWN INFRASTRUCTURE

BROADWAY - STA. 0+00 TO 3+75

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	3 OF 20
JOB NO.	11032

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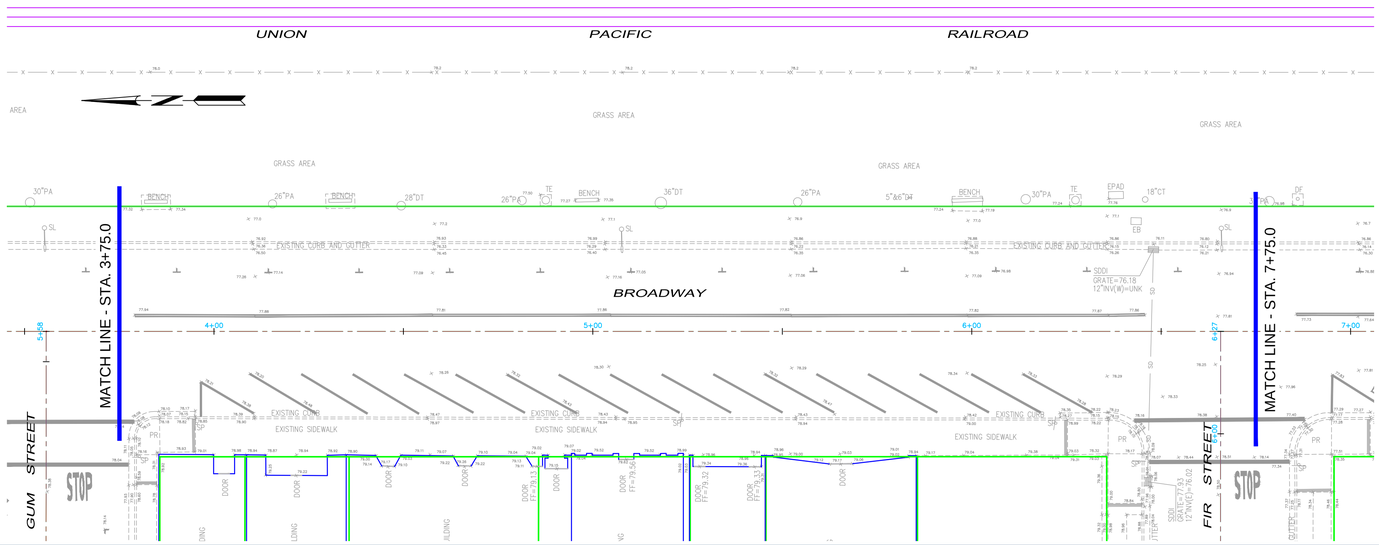

LEGEND

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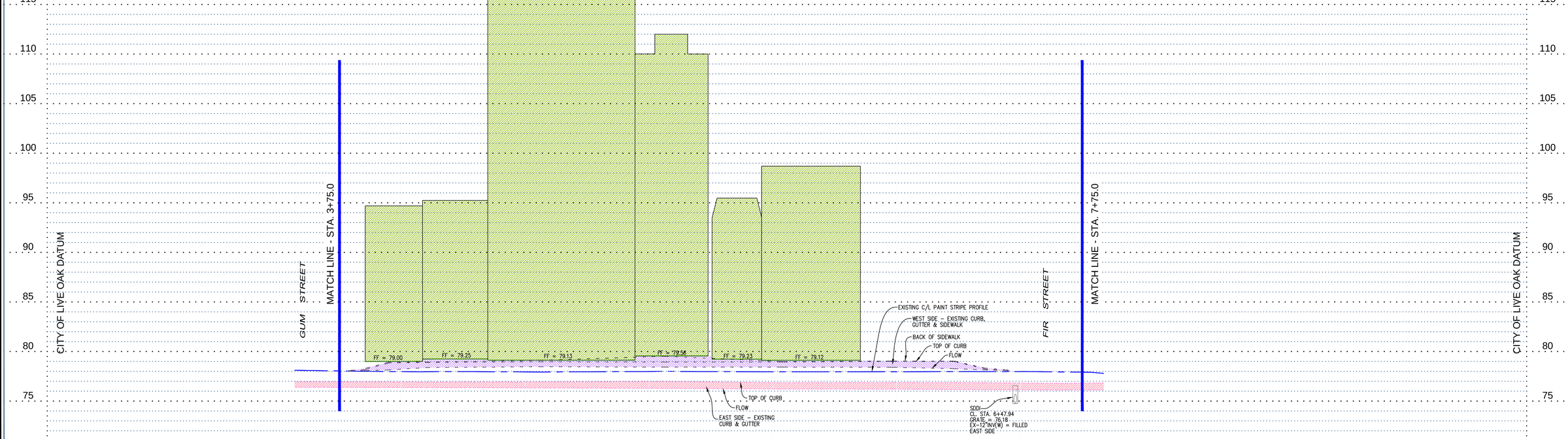
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING 4+00 4+50 5+00 5+50 6+00 6+50

CL ELEV.
(FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

RAR
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

BROADWAY - STA. 3+75 TO 6+75

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	4 OF 20
JOB NO.	11032

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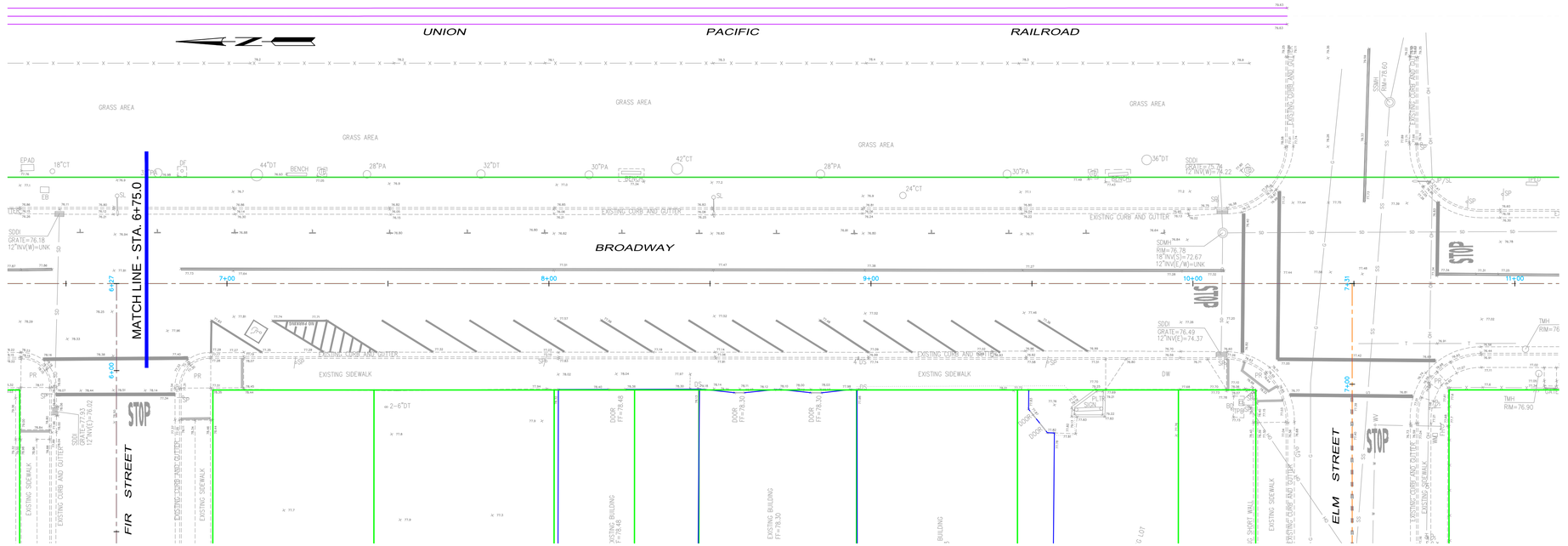


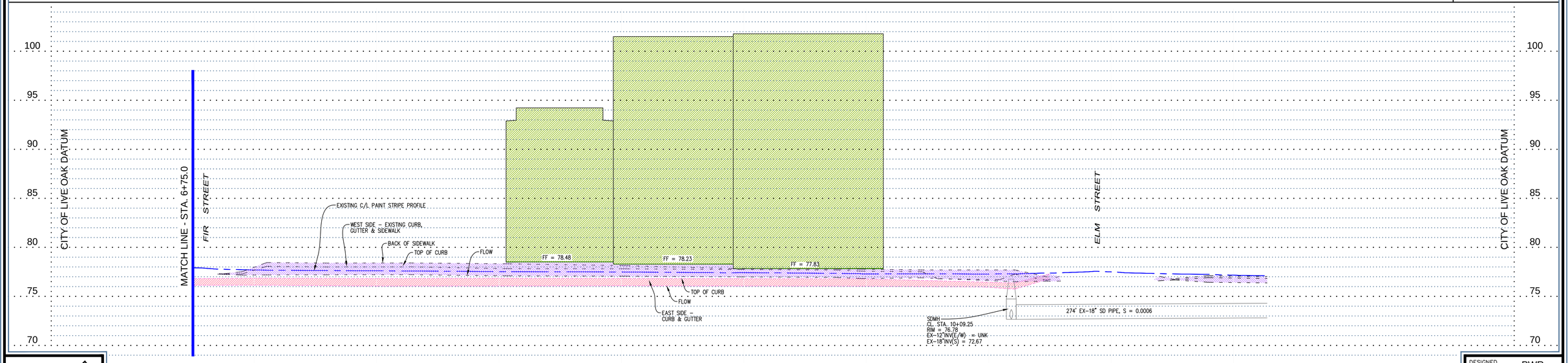
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
XXTREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
C	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X	EXISTING FENCE

STATIONING: 7+00 | 7+50 | 8+00 | 8+50 | 9+00 | 9+50 | 10+00 | 10+50 | 11+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5



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DOWNTOWN INFRASTRUCTURE

BROADWAY - STA. 6+75 TO 11+00

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	5 OF 20
JOB NO.	11032

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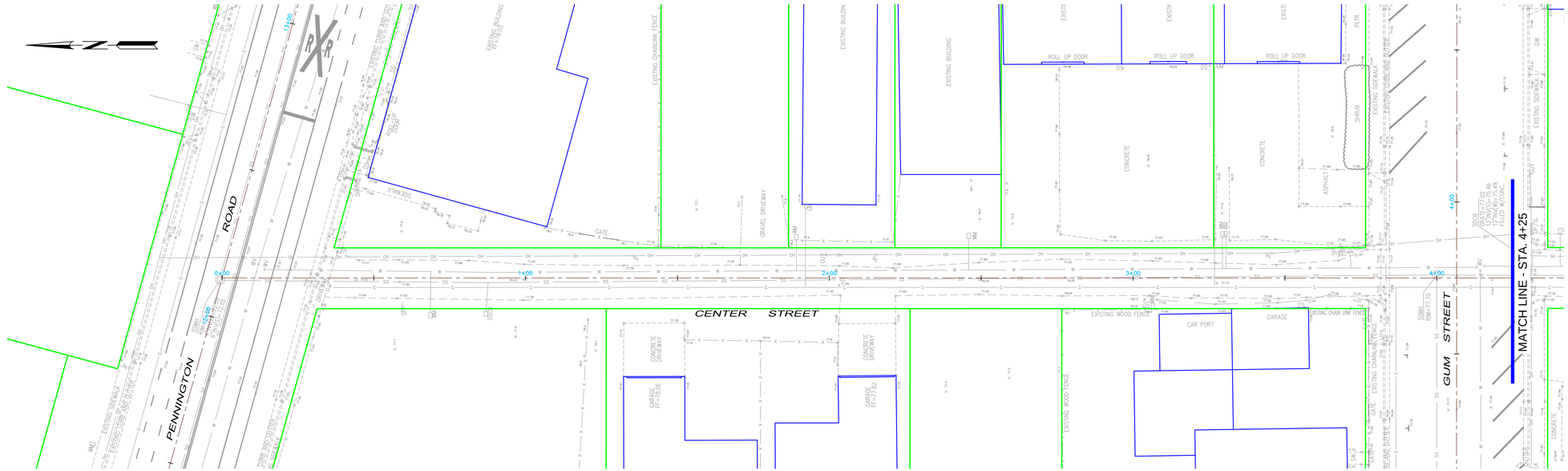
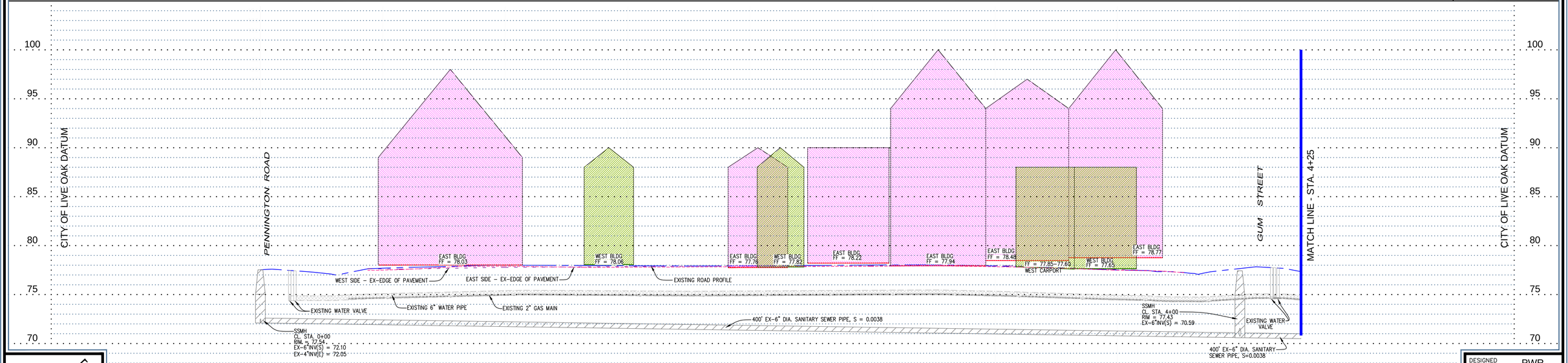


LEGEND

- BD EXISTING BOLLARD
- DF EXISTING DRINKING FOUNTAIN
- DS EXISTING DOWN SPOUT
- DW EXISTING DRIVEWAY
- EB EXISTING ELECTRIC BOX
- EPAD EXISTING ELECTRIC PAD
- FDC EXISTING FIRE DEPT. CONNECTION
- FH EXISTING FIRE HYDRANT
- FP EXISTING FLAG POLE
- GM EXISTING GAS METER
- GV EXISTING GAS VALVE
- GUY EXISTING GUY WIRE ANCHOR
- HB EXISTING HOSE BIBB
- JP EXISTING JOINT POLE
- JP/SL EXISTING JOINT POLE WITH STREET LIGHT
- LP EXISTING LIGHT POLE
- MB EXISTING MAIL BOX
- PA EXISTING POLE ANCHOR
- PLTR EXISTING PLANTER
- PR EXISTING PEDESTRIAN RAMP
- PP EXISTING POWER POLE
- SDCB EXISTING STORM DRAIN CATCH BASIN
- SDDI EXISTING STORM DRAIN DROP INLET
- SDMH EXISTING STORM DRAIN MANHOLE
- SL EXISTING STREET LIGHT
- SP EXISTING SIGN POST
- SSCO EXISTING SANITARY SEWER CLEAN OUT
- SSMH EXISTING SANITARY SEWER MANHOLE
- SW EXISTING SIDEWALK
- TE EXISTING TRASH ENCLOSER
- TMH EXISTING TELEPHONE MANHOLE
- TP EXISTING TELEPHONE POLE
- TPB EXISTING TELEPHONE BOX
- TPED EXISTING TELEPHONE PEDESTAL
- TS EXISTING TRAFFIC SIGNAL
- TSBP EXISTING TRAFFIC SIGNAL BUTTON POST
- XXTREE EXISTING TREE WITH SIZE AND TYPE
  - CT CONIFER TREE
  - DT DECIDUOUS TREE
  - OAK OAK TREE
  - PALM PALM TREE
- UP EXISTING UTILITY POLE
- UP/SL EXISTING UTILITY POLE WITH STREET LIGHT
- WM EXISTING WATER METER
- WV EXISTING WATER VALVE
- WPVB EXISTING WATER PRESSURE VACUUM BREAKER
- G EXISTING GAS USA MARKING
- OH EXISTING OVERHEAD UTILITIES
- W EXISTING WATER USA MARKING
- SD EXISTING STORM DRAIN PIPE
- SS EXISTING SANITARY SEWER PIPE
- EXISTING CONCRETE
- EXISTING EDGE OF PAVEMENT
- X X EXISTING FENCE

CL ELEV.
(FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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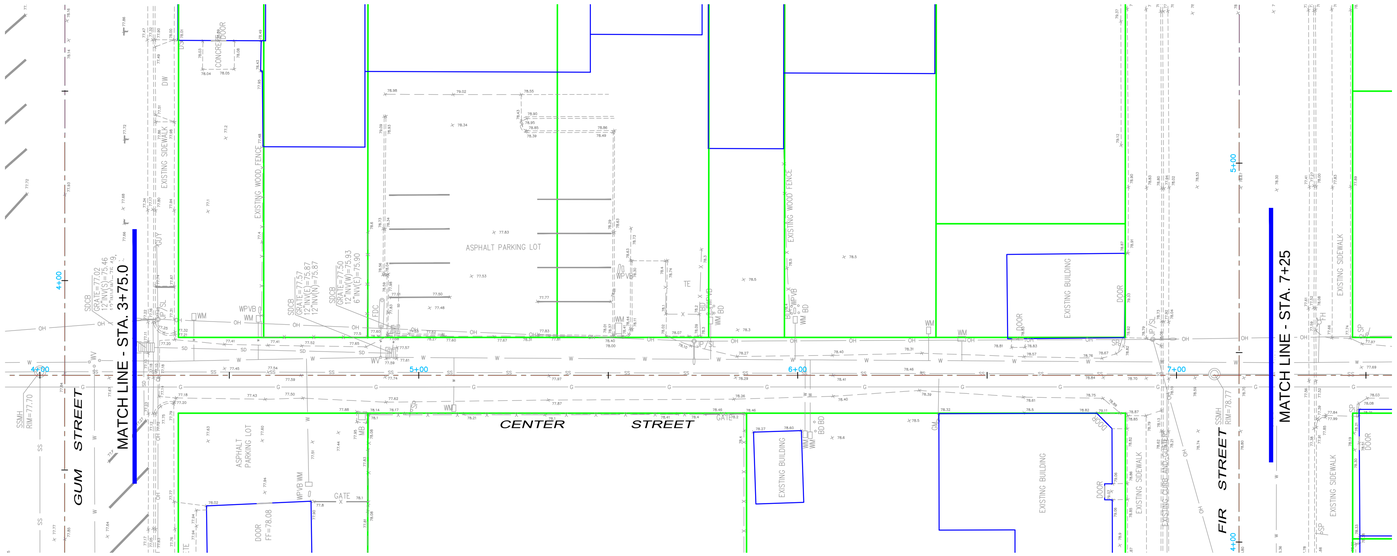
DOWNTOWN INFRASTRUCTURE

CENTER STREET - STA. 0+00 TO STA. 4+25

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	6 OF 20
JOB NO.	11032



LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
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SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
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SW	EXISTING SIDEWALK
TC	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
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36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
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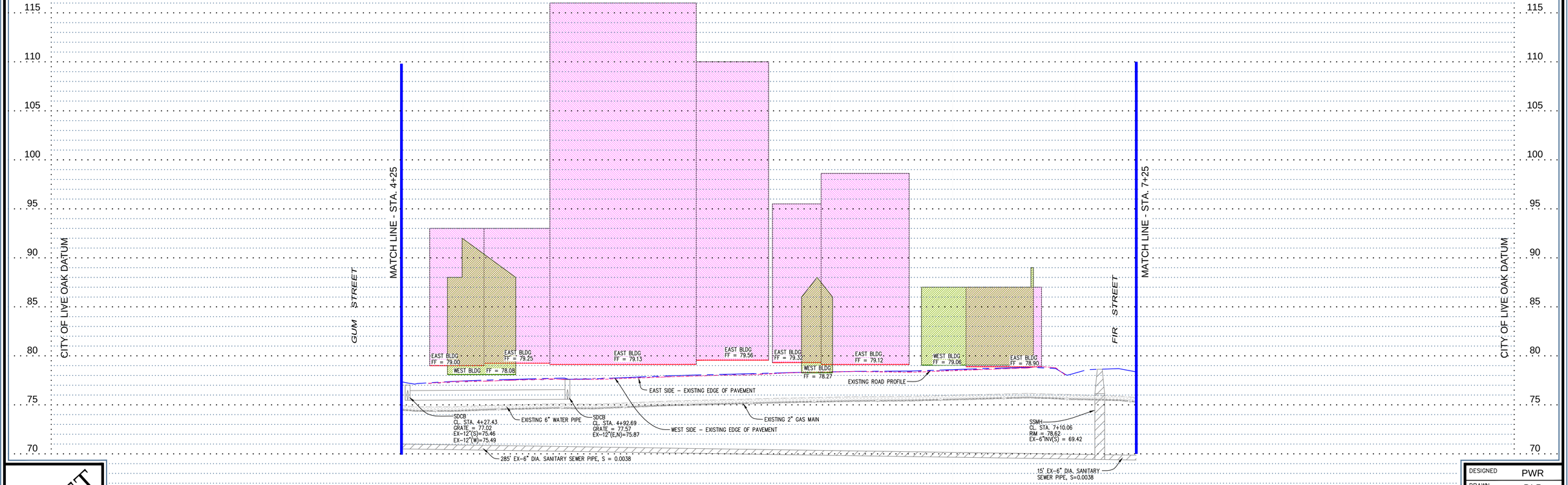
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING 4+50 5+00 5+50 6+00 6+50 7+00

CL ELEV.
(FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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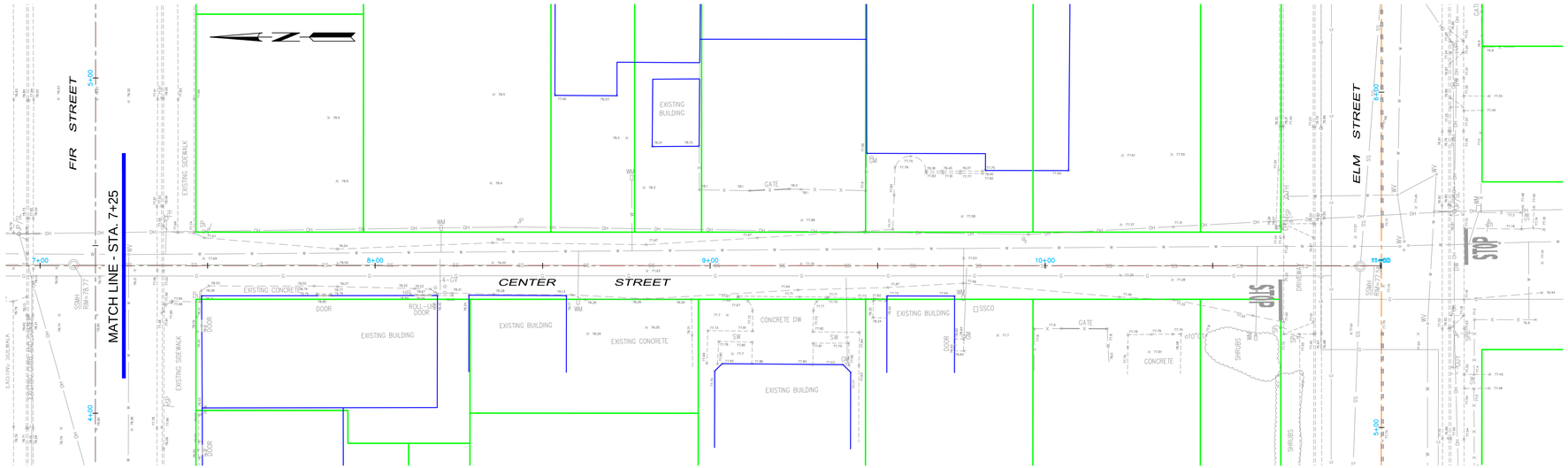
DOWNTOWN INFRASTRUCTURE

CENTER STREET - STA. 4+25 TO STA. 4+75

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	7 OF 20
JOB NO.	11032



LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
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TMH	EXISTING TELEPHONE MANHOLE
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36"TREE	EXISTING TREE WITH SIZE AND TYPE
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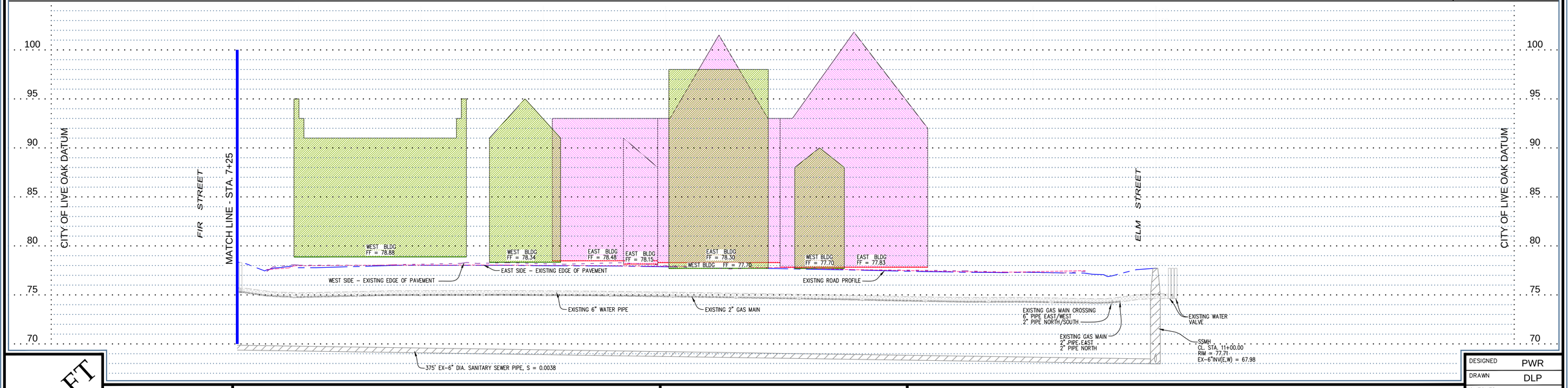
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
X X	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 7+50 | 8+00 | 8+50 | 9+00 | 9+50 | 10+00 | 10+50 | 11+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CENTER STREET - STA. 7+25 TO STA. 11+00

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	8 OF 20
JOB NO.	11032

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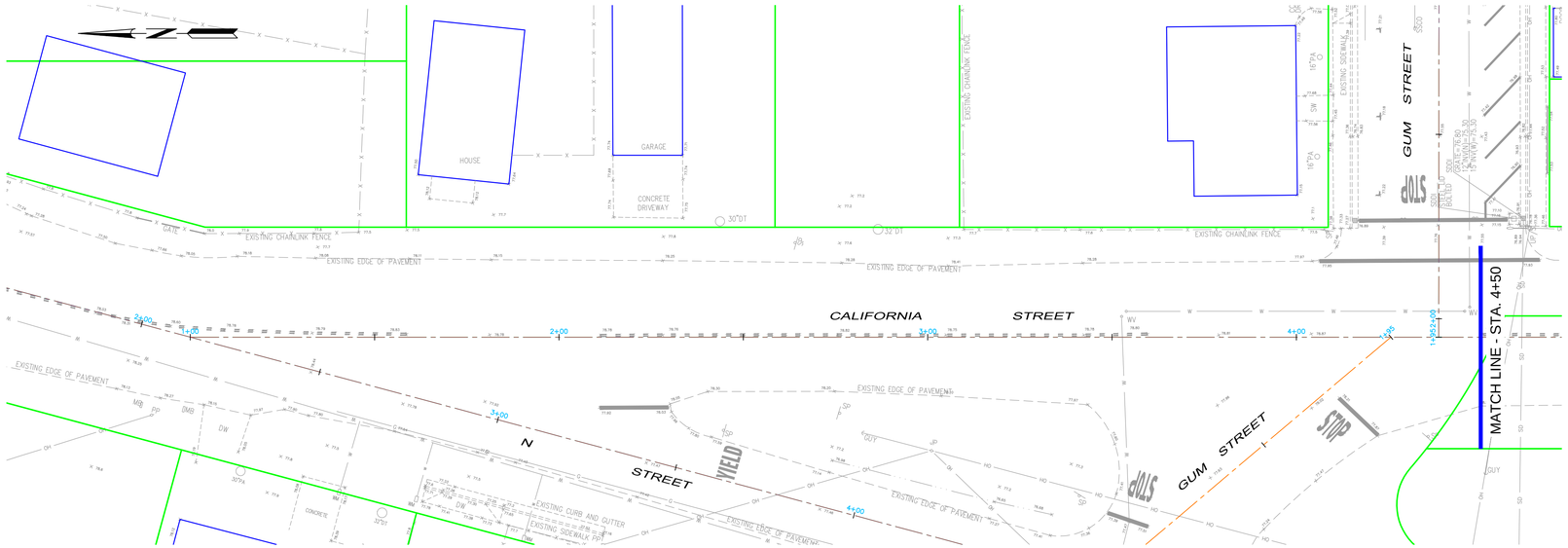

LEGEND

- EXISTING BOLLARD
- EXISTING DRINKING FOUNTAIN
- EXISTING DOWN SPOUT
- EXISTING DRIVEWAY
- EXISTING ELECTRIC BOX
- EXISTING ELECTRIC PAD
- EXISTING FIRE DEPT. CONNECTION
- EXISTING FIRE HYDRANT
- EXISTING FLAG POLE
- EXISTING GAS METER
- EXISTING GAS VALVE
- EXISTING GUY WIRE ANCHOR
- EXISTING HOSE BIBB
- EXISTING JOINT POLE
- EXISTING JOINT POLE WITH STREET LIGHT
- EXISTING LIGHT POLE
- EXISTING MAIL BOX
- EXISTING POLE ANCHOR
- EXISTING PLANTER
- EXISTING PEDESTRIAN RAMP
- EXISTING POWER POLE
- EXISTING STORM DRAIN CATCH BASIN
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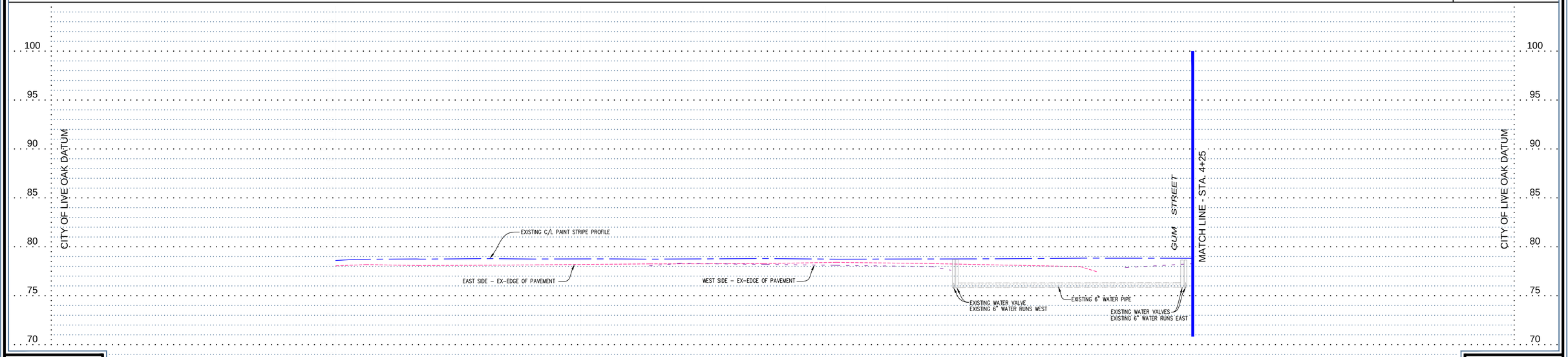
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIDEWALK
- EXISTING TRASH ENCLOSER
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE POLE
- EXISTING TELEPHONE BOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRAFFIC SIGNAL
- EXISTING TRAFFIC SIGNAL BUTTON POST
- EXISTING TREE WITH SIZE AND TYPE
  - CONIFER TREE
  - DECIDUOUS TREE
  - OAK TREE
  - PALM TREE
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE WITH STREET LIGHT
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING WATER PRESSURE VACUUM BREAKER
- EXISTING GAS USA MARKING
- EXISTING OVERHEAD UTILITIES
- EXISTING WATER USA MARKING
- EXISTING STORM DRAIN PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING CONCRETE
- EXISTING EDGE OF PAVEMENT
- EXISTING FENCE

STATIONING: 1+00 | 1+50 | 2+00 | 2+50 | 3+00 | 3+50 | 4+00 | 4+50

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

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CIVIL ENGINEERS
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DOWNTOWN INFRASTRUCTURE

CALIFORNIA STREET - STA. 0+00 TO STA. 4+50

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	9 OF 20
JOB NO.	11032

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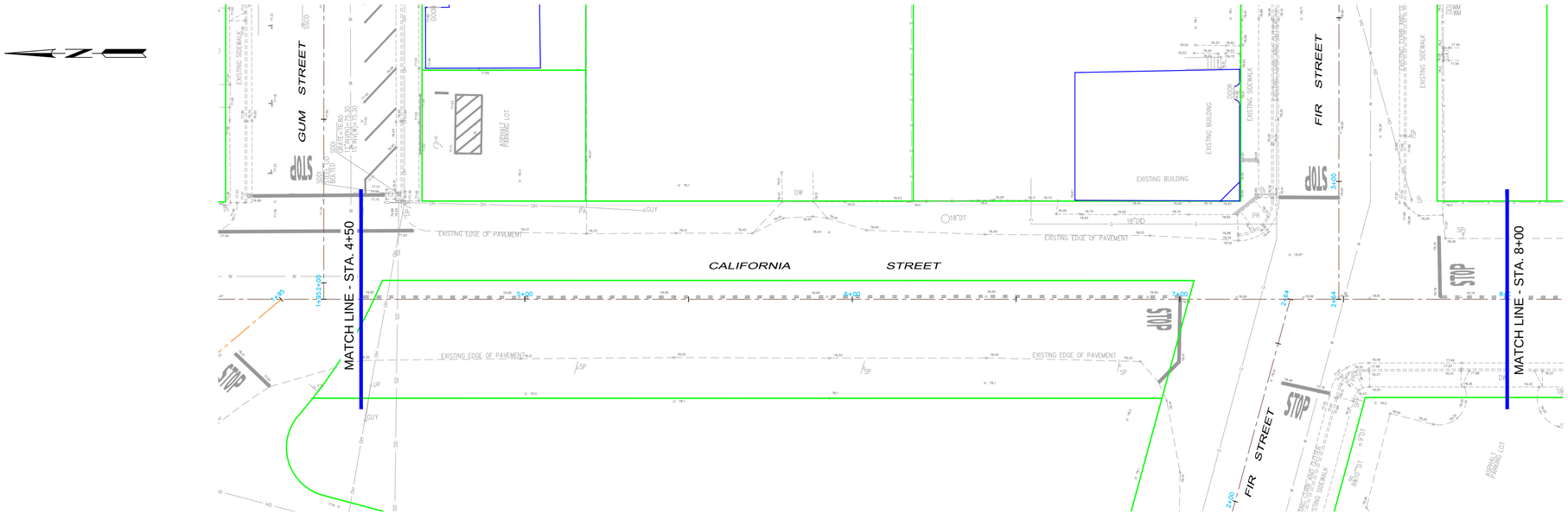

LEGEND

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DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
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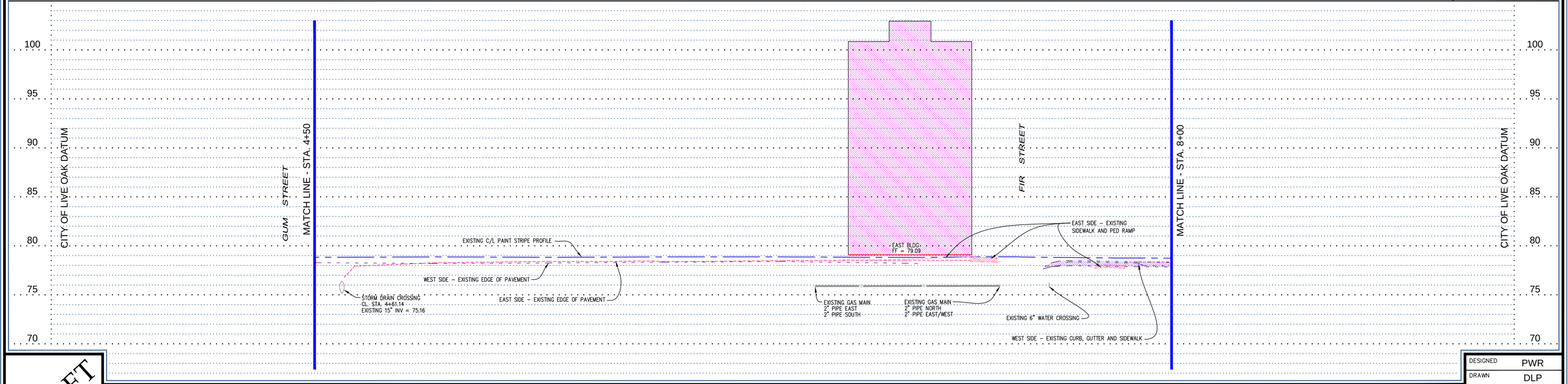
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 4+50 | 5+00 | 5+50 | 6+00 | 6+50 | 7+00 | 7+50 | 8+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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DATE MAY, 2013

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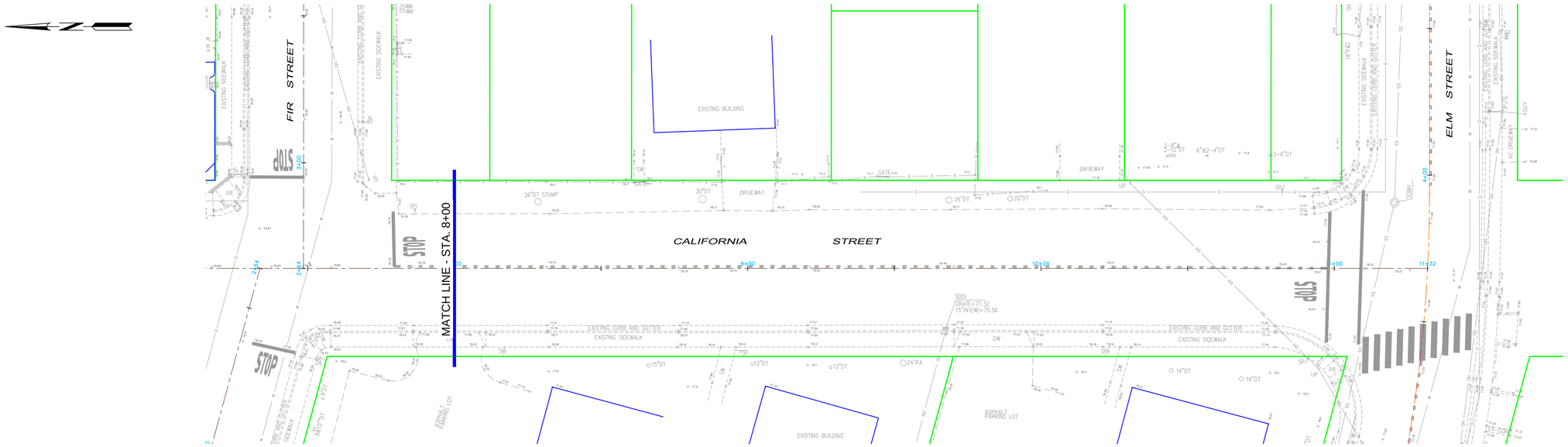
DOWNTOWN INFRASTRUCTURE

CALIFORNIA STREET - STA. 4+50 TO STA. 8+00

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	10 OF 20
JOB NO.	11032



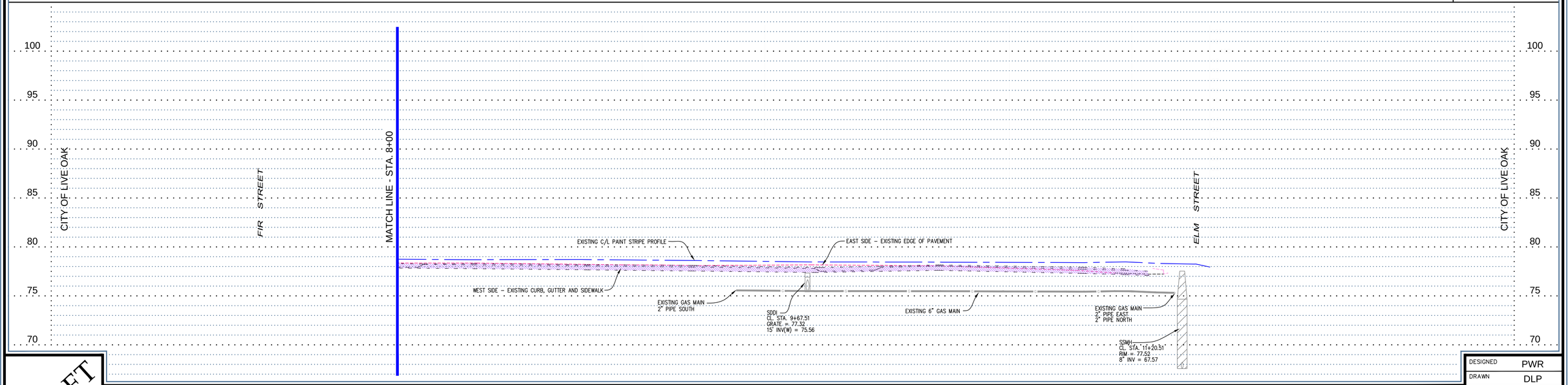
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
W"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

RAR
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

CALIFORNIA STREET - STA. 8+00 TO STA. 11+32

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	11 OF 20
JOB NO.	11032

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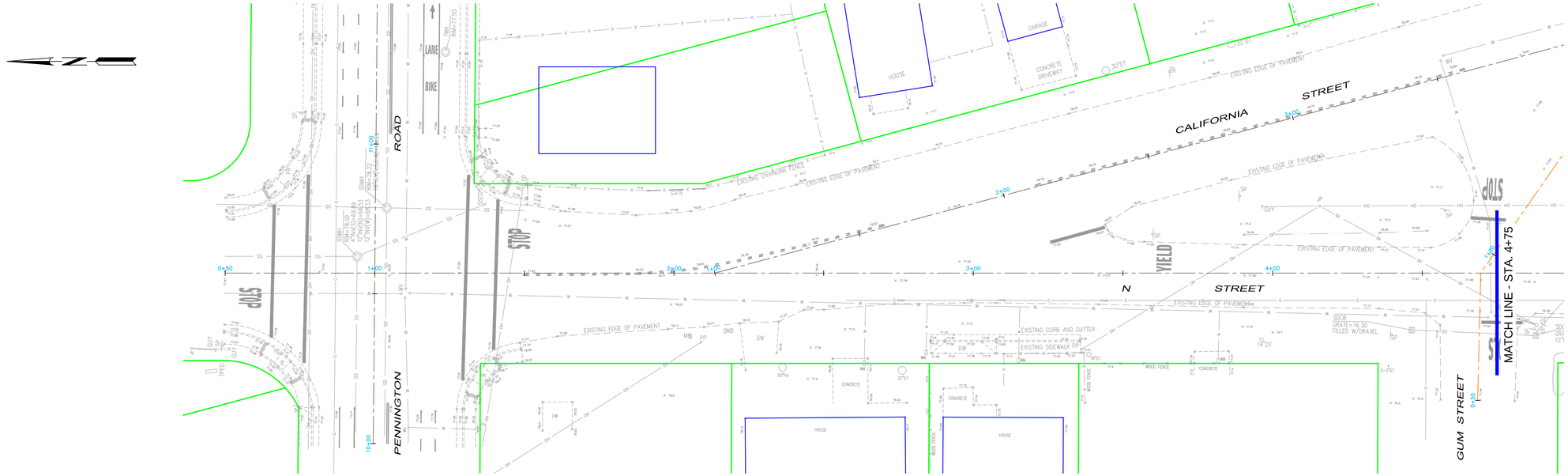


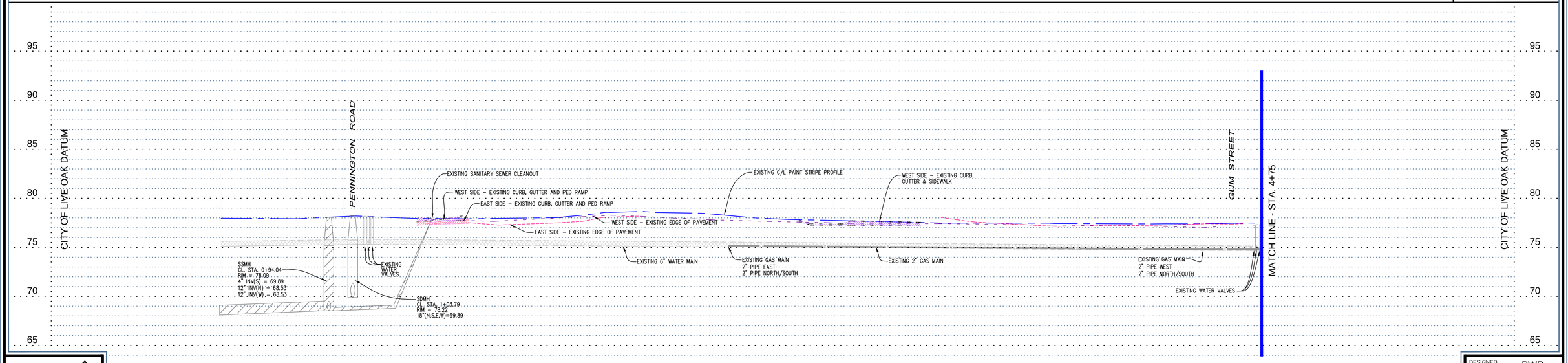
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
XX"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

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ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

N STREET - STA. 0+00 TO STA. 4+75

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	12 OF 20
JOB NO.	11032

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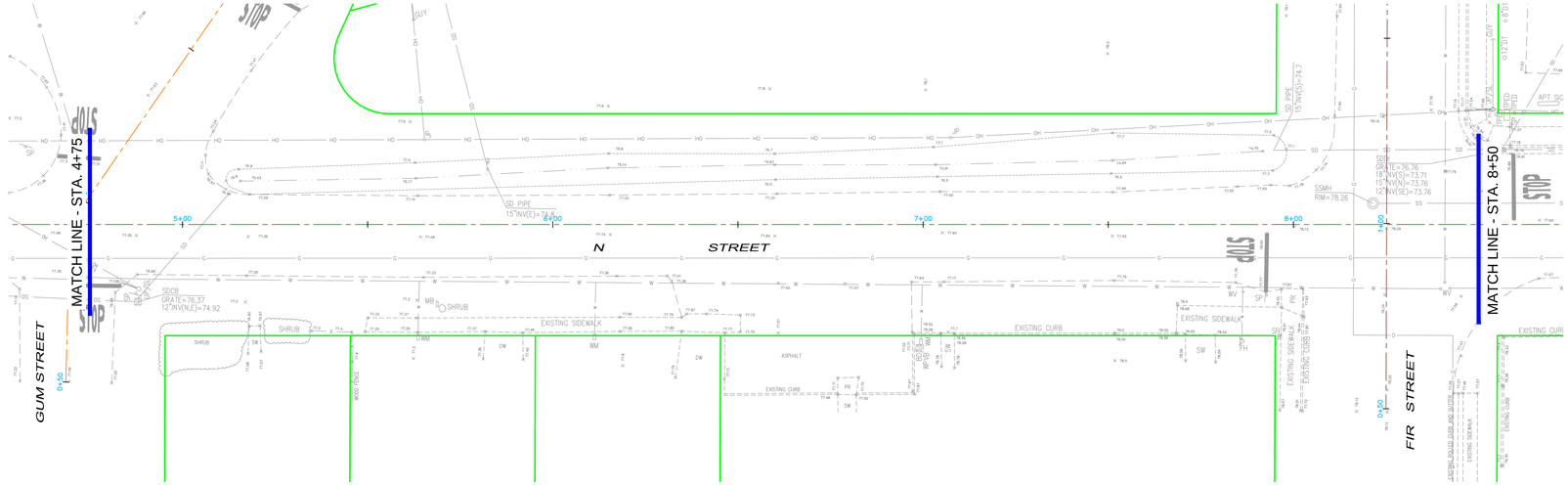


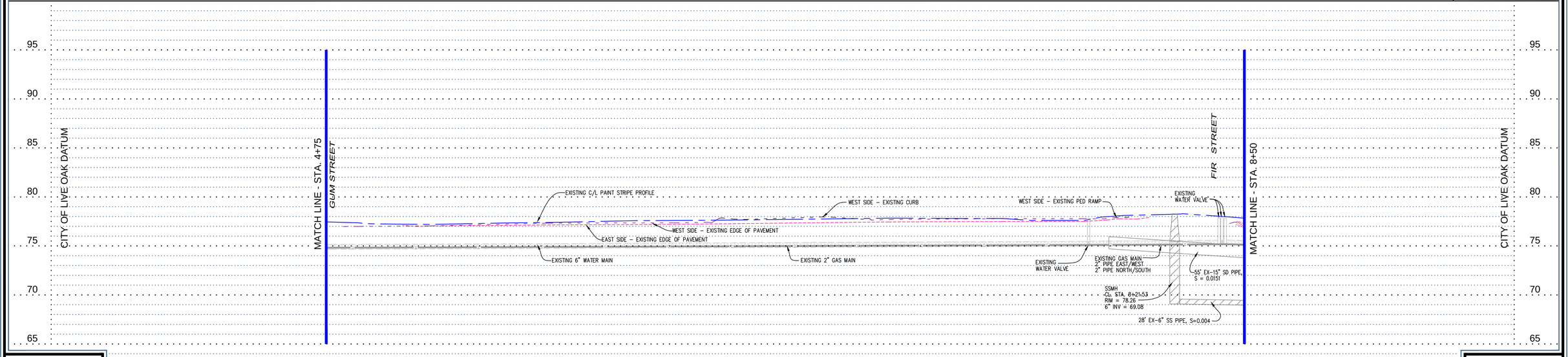
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TC	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
XX"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 5+00 | 5+50 | 6+00 | 6+50 | 7+00 | 7+50 | 8+00 | 8+50

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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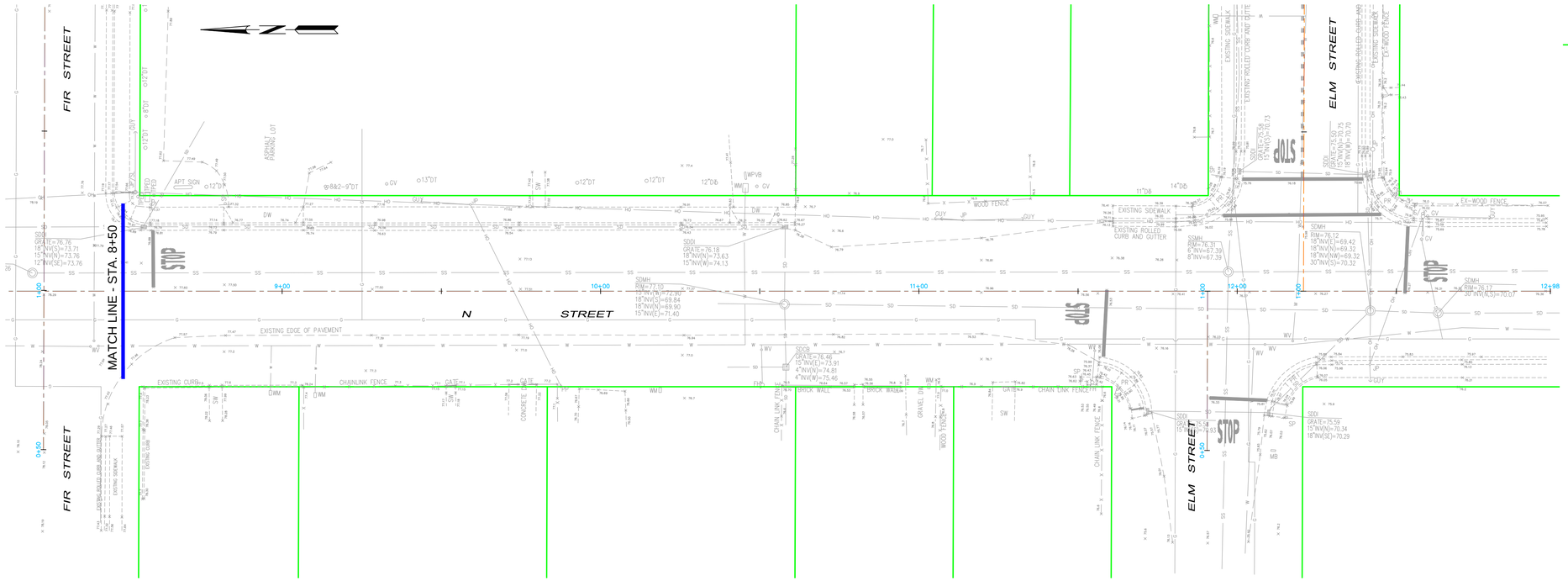
DOWNTOWN INFRASTRUCTURE

N STREET - STA. 4+75 TO STA. 8+50

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	13 OF 20
JOB NO.	11032



LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
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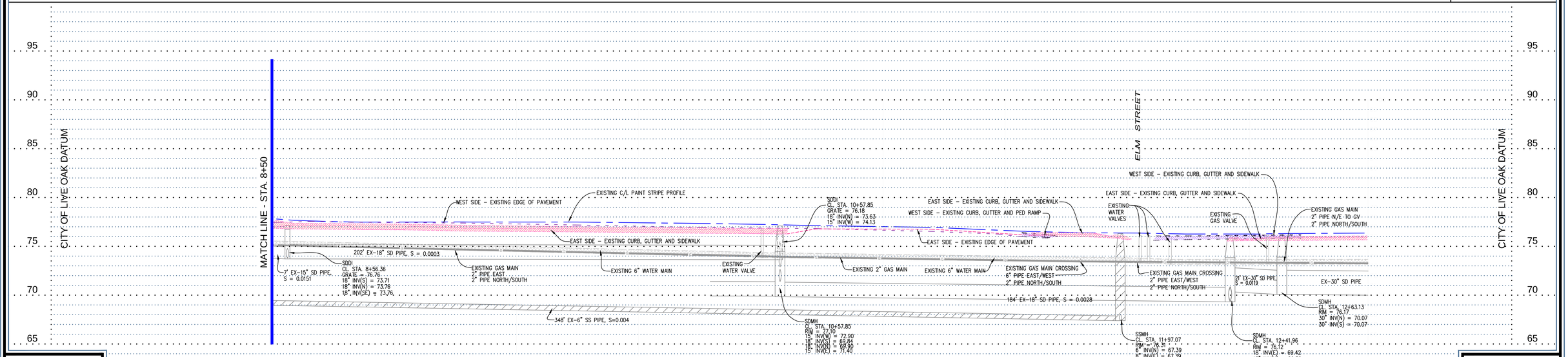
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
34"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
C	EXISTING CONCRETE
X — X	EXISTING EDGE OF PAVEMENT
X — X	EXISTING FENCE

STATIONING: 8+50 | 9+00 | 9+50 | 10+00 | 10+50 | 11+00 | 11+50 | 12+00 | 12+50 | 13+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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DATE MAY, 2013

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CIVIL ENGINEERS
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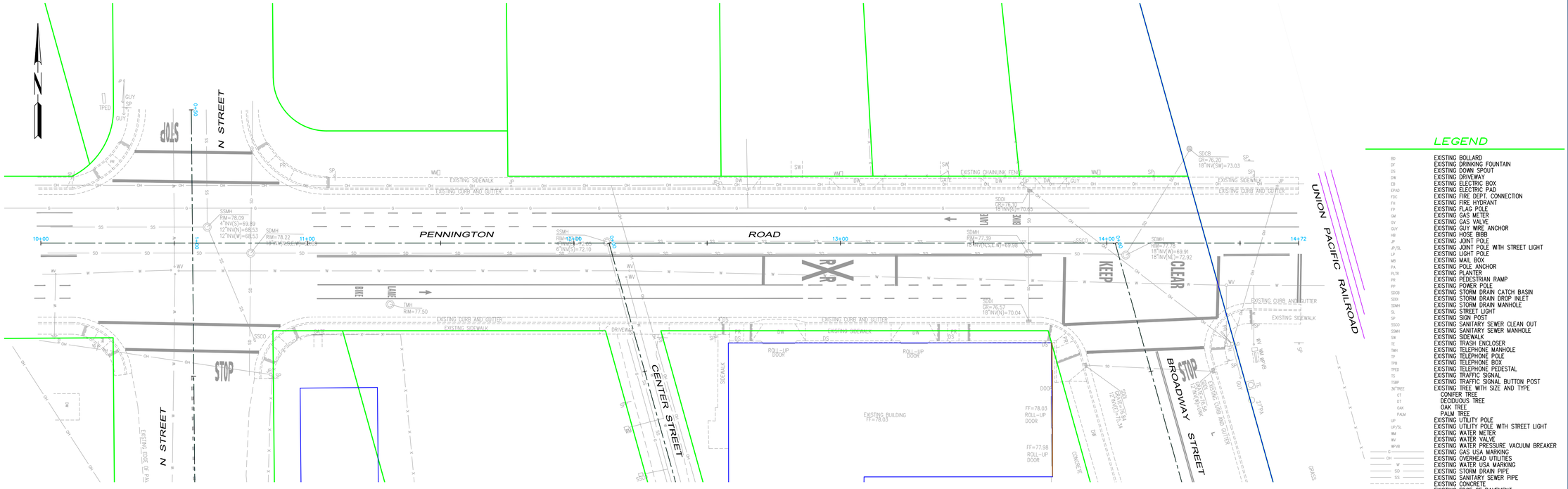
DOWNTOWN INFRASTRUCTURE

N STREET - STA. 8+50 TO STA. 12+98

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	14 OF 20
JOB NO.	11032

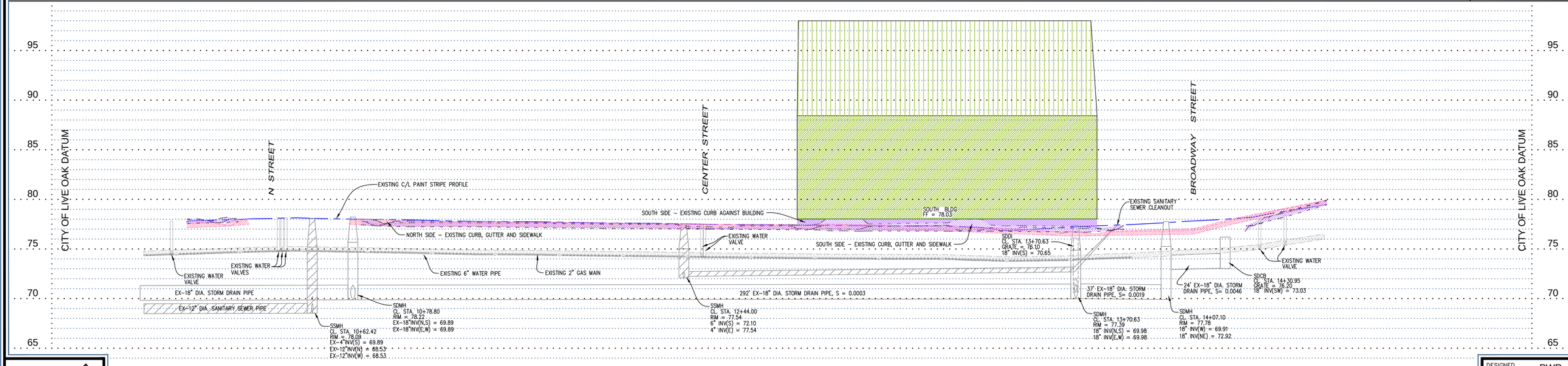


LEGEND

- EXISTING BOLLARD
- EXISTING DRINKING FOUNTAIN
- EXISTING DOWN SPOUT
- EXISTING DRIVEWAY
- EXISTING ELECTRIC BOX
- EXISTING ELECTRIC PAD
- EXISTING FIRE DEPT. CONNECTION
- EXISTING FIRE HYDRANT
- EXISTING FLAG POLE
- EXISTING GAS METER
- EXISTING GAS VALVE
- EXISTING GUY WIRE ANCHOR
- EXISTING HOSE BIBB
- EXISTING JOINT POLE
- EXISTING JOINT POLE WITH STREET LIGHT
- EXISTING LIGHT POLE
- EXISTING MAIL BOX
- EXISTING POLE ANCHOR
- EXISTING PLANTER
- EXISTING PEDESTRIAN RAMP
- EXISTING POWER POLE
- EXISTING STORM DRAIN CATCH BASIN
- EXISTING STORM DRAIN DROP INLET
- EXISTING STORM DRAIN MANHOLE
- EXISTING STREET LIGHT
- EXISTING SIGN POST
- EXISTING SANITARY SEWER CLEAN OUT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIDEWALK
- EXISTING TRASH ENCLOSER
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE POLE
- EXISTING TELEPHONE BOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRAFFIC SIGNAL
- EXISTING TRAFFIC SIGNAL BUTTON POST
- EXISTING TREE WITH SIZE AND TYPE
  - CONIFER TREE
  - DECIDUOUS TREE
  - OAK TREE
  - PALM TREE
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE WITH STREET LIGHT
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING WATER PRESSURE VACUUM BREAKER
- EXISTING GAS USA MARKING
- EXISTING OVERHEAD UTILITIES
- EXISTING WATER USA MARKING
- EXISTING STORM DRAIN PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING CONCRETE
- EXISTING EDGE OF PAVEMENT
- EXISTING FENCE

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

RAR
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

PENNINGTON ROAD - STA. 10+00 TO STA. 14+72

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	15 OF 20
JOB NO.	11032

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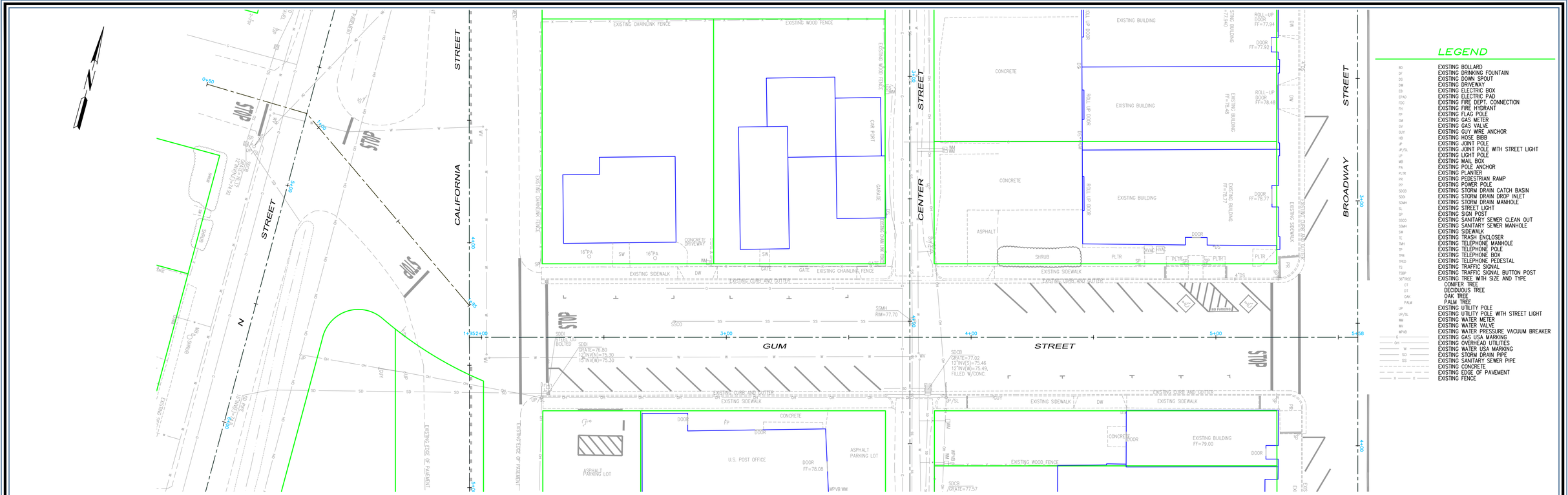


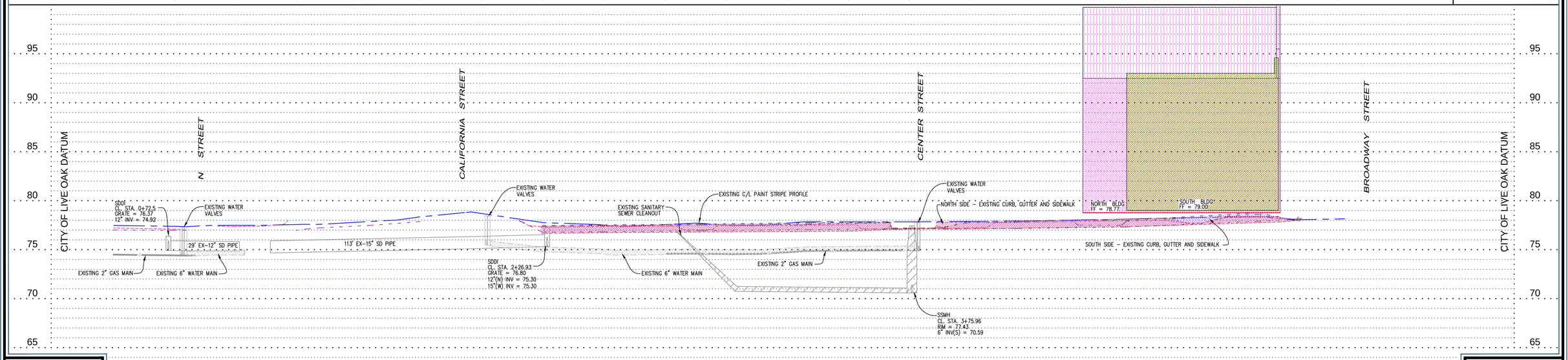
LEGEND

- BD EXISTING BOLLARD
- DF EXISTING DRINKING FOUNTAIN
- DS EXISTING DOWN SPOUT
- DW EXISTING DRIVEWAY
- EB EXISTING ELECTRIC BOX
- EPAD EXISTING ELECTRIC PAD
- FDC EXISTING FIRE DEPT. CONNECTION
- FH EXISTING FIRE HYDRANT
- FP EXISTING FLAG POLE
- GM EXISTING GAS METER
- GV EXISTING GAS VALVE
- GUY EXISTING GUY WIRE ANCHOR
- HB EXISTING HOSE BIBB
- JP EXISTING JOINT POLE
- JP/SL EXISTING JOINT POLE WITH STREET LIGHT
- LP EXISTING LIGHT POLE
- MB EXISTING MAIL BOX
- PA EXISTING POLE ANCHOR
- PLTR EXISTING PLANTER
- PR EXISTING PEDESTRIAN RAMP
- PP EXISTING POWER POLE
- SDCB EXISTING STORM DRAIN CATCH BASIN
- SDDI EXISTING STORM DRAIN DROP INLET
- SDMH EXISTING STORM DRAIN MANHOLE
- SL EXISTING STREET LIGHT
- SP EXISTING SIGN POST
- SSCO EXISTING SANITARY SEWER CLEAN OUT
- SSMH EXISTING SANITARY SEWER MANHOLE
- SW EXISTING SIDEWALK
- TE EXISTING TRASH ENCLOSER
- TMH EXISTING TELEPHONE MANHOLE
- TP EXISTING TELEPHONE POLE
- TPB EXISTING TELEPHONE BOX
- TPED EXISTING TELEPHONE PEDESTAL
- TS EXISTING TRAFFIC SIGNAL
- TSBP EXISTING TRAFFIC SIGNAL BUTTON POST
- 36"TREE EXISTING TREE WITH SIZE AND TYPE
  - CT CONIFER TREE
  - DT DECIDUOUS TREE
  - OAK OAK TREE
  - PALM PALM TREE
- UP EXISTING UTILITY POLE
- UP/SL EXISTING UTILITY POLE WITH STREET LIGHT
- WM EXISTING WATER METER
- WV EXISTING WATER VALVE
- WPVB EXISTING WATER PRESSURE VACUUM BREAKER
- G EXISTING GAS USA MARKING
- OH EXISTING OVERHEAD UTILITIES
- W EXISTING WATER USA MARKING
- SD EXISTING STORM DRAIN PIPE
- SS EXISTING SANITARY SEWER PIPE
- EXISTING CONCRETE
- EXISTING EDGE OF PAVEMENT
- X X EXISTING FENCE

STATIONING 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



DRAFT

APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

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ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
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DOWNTOWN INFRASTRUCTURE

GUM STREET - STA. 0+50 TO STA. 5+58

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	16 OF 20
JOB NO.	11032

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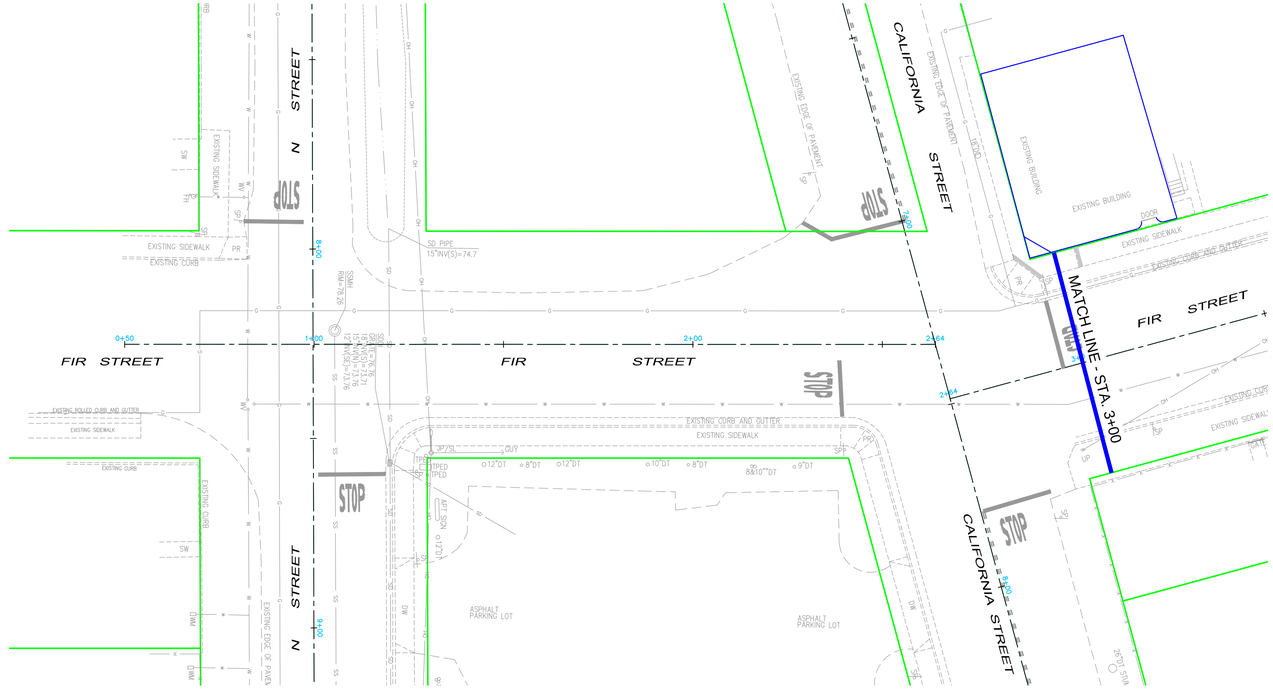

LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
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HB	EXISTING HOSE BIBB
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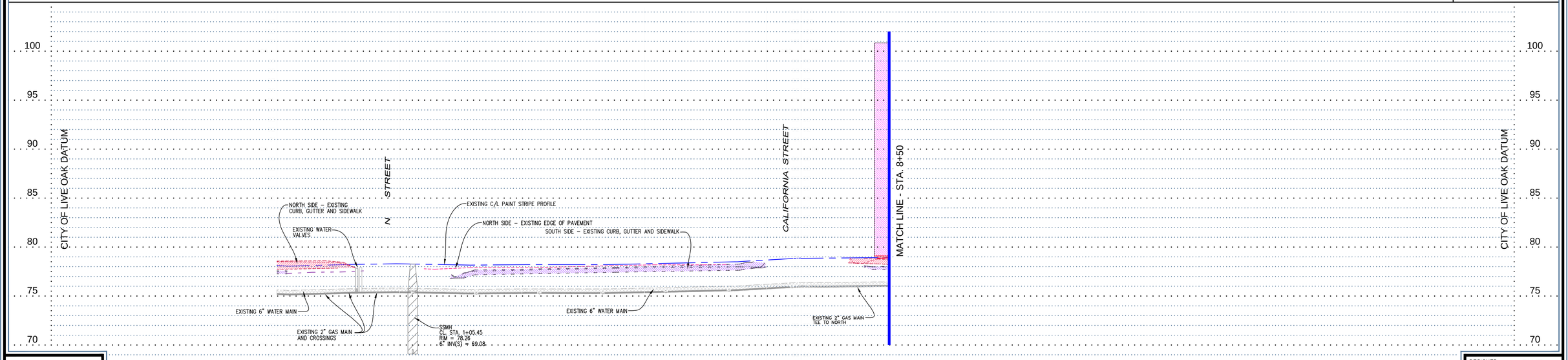
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SCCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 0+50 | 1+00 | 1+50 | 2+00 | 2+50 | 3+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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APPROVED

DATE MAY, 2013

PREPARED FOR :

CITY OF LIVE OAK

RAR
ROLLS ANDERSON & ROLLS
CIVIL ENGINEERS
115 YELLOWSTONE DRIVE • CHICO, CALIFORNIA 95973-5811 • TELEPHONE 530-895-1422

DOWNTOWN INFRASTRUCTURE

FIR STREET - STA. 0+50 TO STA. 3+00

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	17 OF 20
JOB NO.	11032

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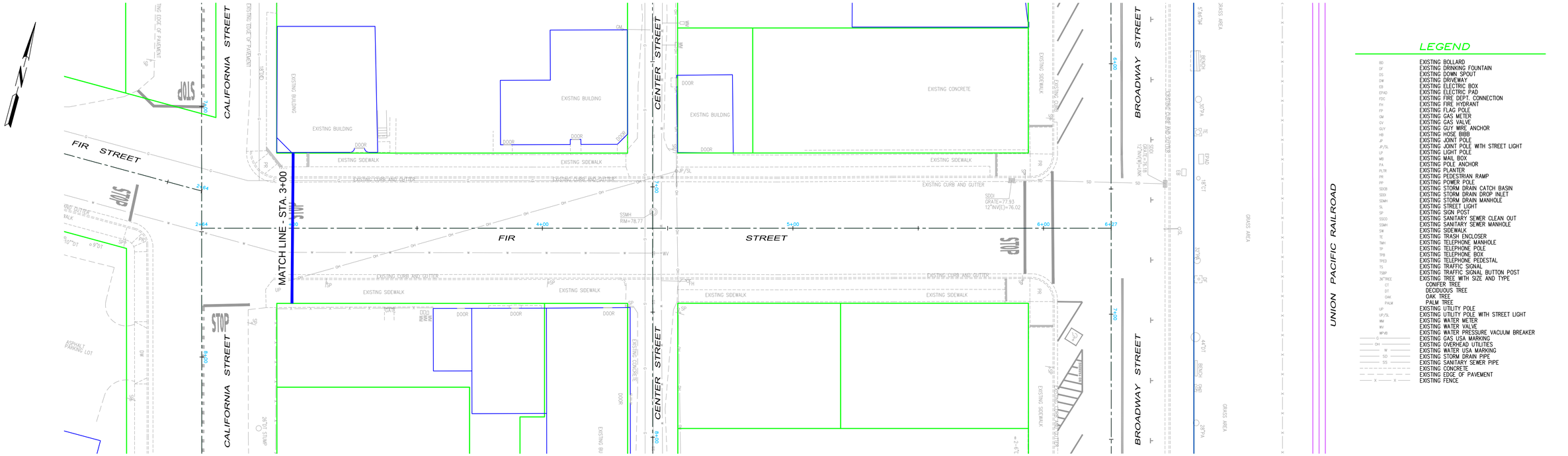


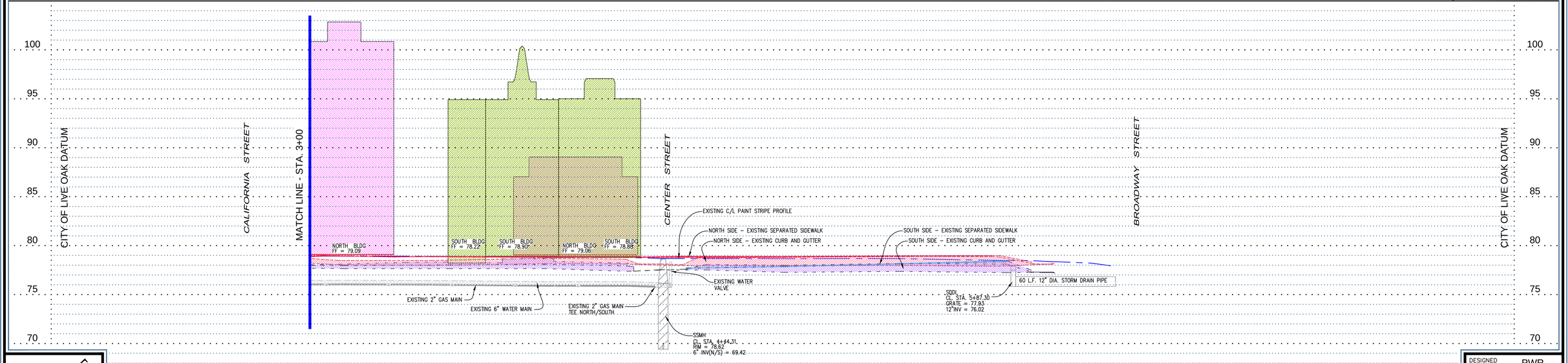
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
XX"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WP-VB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X X	EXISTING FENCE

STATIONING: 3+00 | 3+50 | 4+00 | 4+50 | 5+00 | 5+50 | 6+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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DOWNTOWN INFRASTRUCTURE

FIR STREET - STA. 3+00 TO STA. 6+27

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	18 OF 20
JOB NO.	11032

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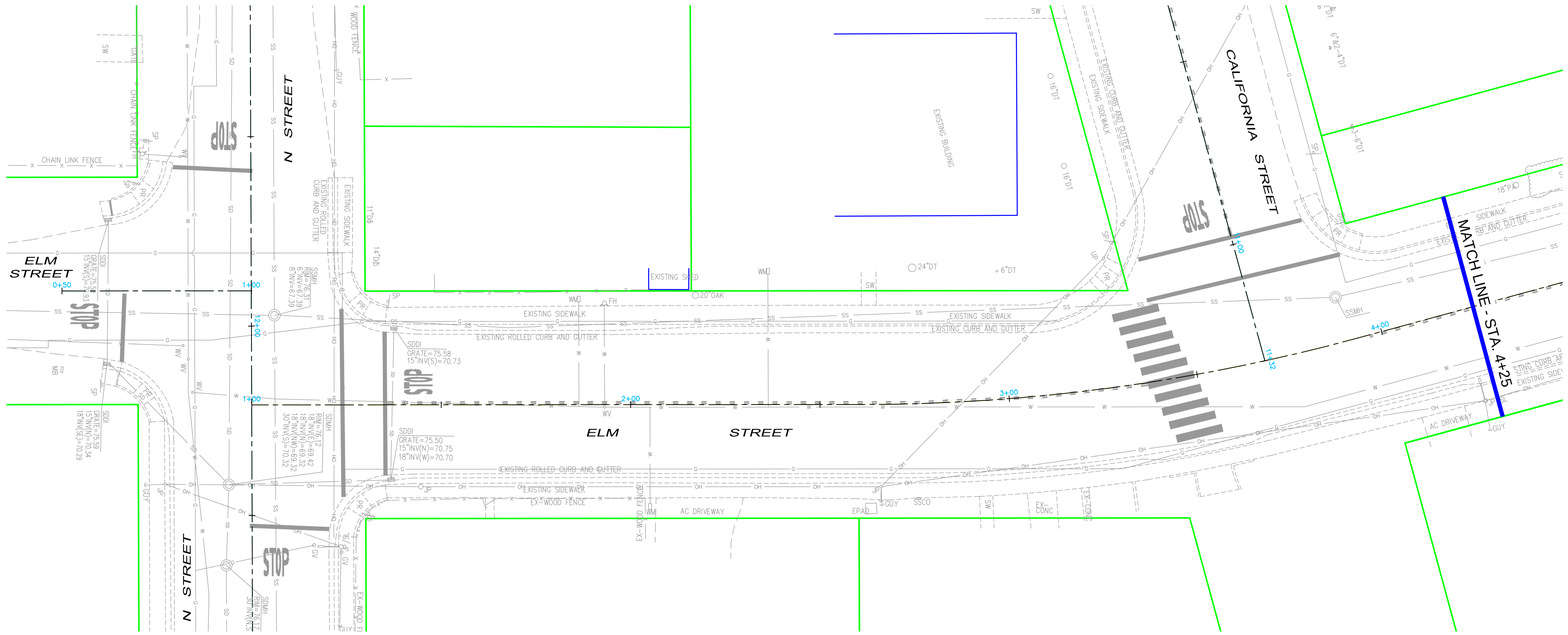


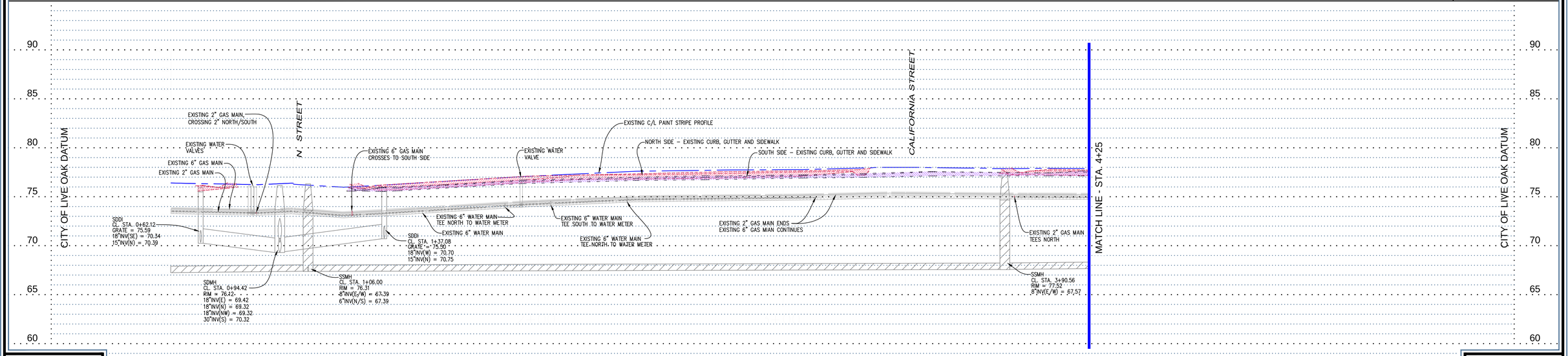
LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PL/TR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDOUS TREE
OAK	OAK TREE
PALM	PALM TREE
UP	EXISTING UTILITY POLE
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
RPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X	EXISTING FENCE

STATIONING: 0+50 | 1+00 | 1+50 | 2+00 | 2+50 | 3+00 | 3+50 | 4+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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DOWNTOWN INFRASTRUCTURE

ELM STREET - STA. 0+50 TO STA. 4+25

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	19 OF 20
JOB NO.	11032

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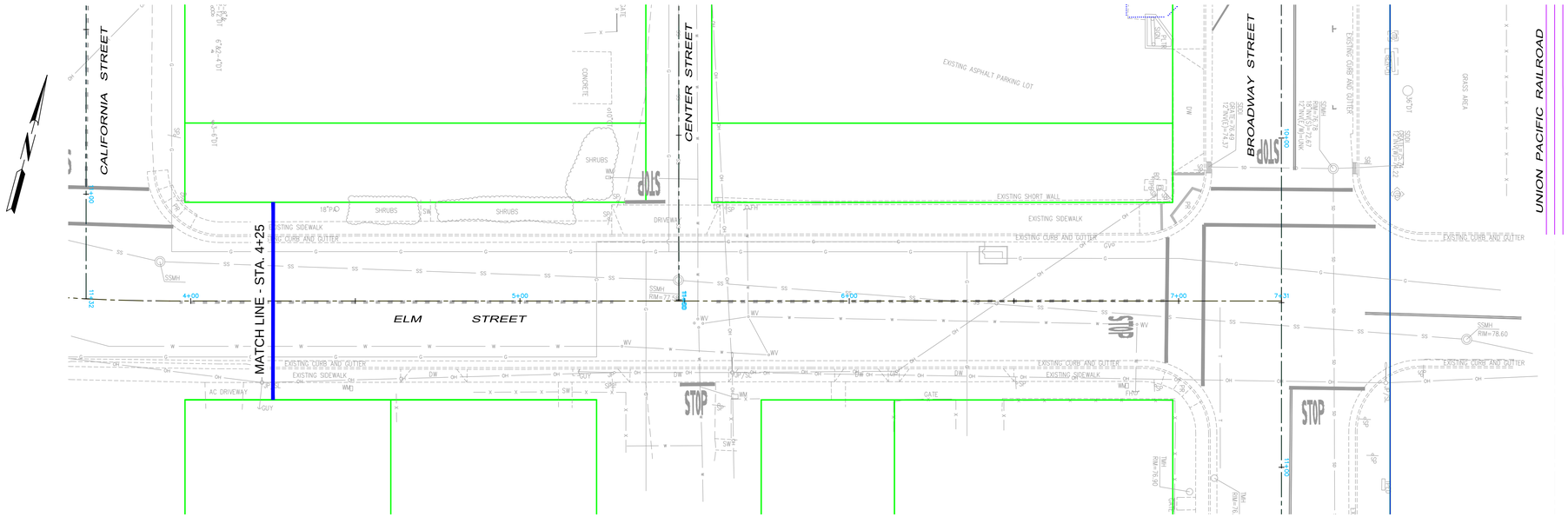

LEGEND

BD	EXISTING BOLLARD
DF	EXISTING DRINKING FOUNTAIN
DS	EXISTING DOWN SPOUT
DW	EXISTING DRIVEWAY
EB	EXISTING ELECTRIC BOX
EPAD	EXISTING ELECTRIC PAD
FDC	EXISTING FIRE DEPT. CONNECTION
FH	EXISTING FIRE HYDRANT
FP	EXISTING FLAG POLE
GM	EXISTING GAS METER
GV	EXISTING GAS VALVE
GUY	EXISTING GUY WIRE ANCHOR
HB	EXISTING HOSE BIBB
JP	EXISTING JOINT POLE
JP/SL	EXISTING JOINT POLE WITH STREET LIGHT
LP	EXISTING LIGHT POLE
MB	EXISTING MAIL BOX
PA	EXISTING POLE ANCHOR
PLTR	EXISTING PLANTER
PR	EXISTING PEDESTRIAN RAMP
PP	EXISTING POWER POLE
SDCB	EXISTING STORM DRAIN CATCH BASIN
SDDI	EXISTING STORM DRAIN DROP INLET
SDMH	EXISTING STORM DRAIN MANHOLE
SL	EXISTING STREET LIGHT
SP	EXISTING SIGN POST
SSCO	EXISTING SANITARY SEWER CLEAN OUT
SSMH	EXISTING SANITARY SEWER MANHOLE
SW	EXISTING SIDEWALK
TE	EXISTING TRASH ENCLOSER
TMH	EXISTING TELEPHONE MANHOLE
TP	EXISTING TELEPHONE POLE
TPB	EXISTING TELEPHONE BOX
TPED	EXISTING TELEPHONE PEDESTAL
TS	EXISTING TRAFFIC SIGNAL
TSBP	EXISTING TRAFFIC SIGNAL BUTTON POST
36"TREE	EXISTING TREE WITH SIZE AND TYPE
CT	CONIFER TREE
DT	DECIDUOUS TREE
OAK	OAK TREE
PALM	PALM TREE
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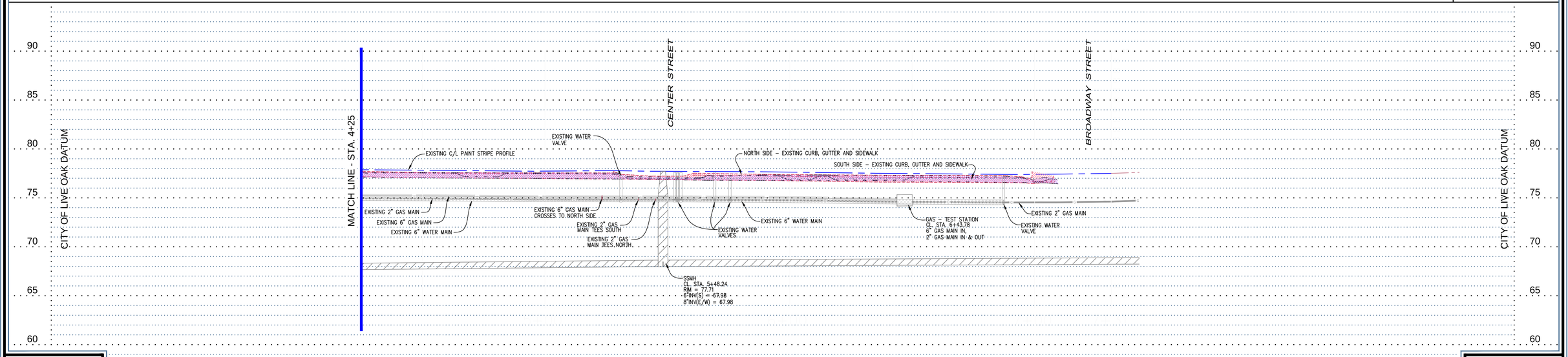
UP/SL	EXISTING UTILITY POLE WITH STREET LIGHT
WM	EXISTING WATER METER
WV	EXISTING WATER VALVE
WPVB	EXISTING WATER PRESSURE VACUUM BREAKER
G	EXISTING GAS USA MARKING
OH	EXISTING OVERHEAD UTILITIES
W	EXISTING WATER USA MARKING
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
	EXISTING CONCRETE
	EXISTING EDGE OF PAVEMENT
X	EXISTING FENCE

STATIONING: 4+50 | 5+00 | 5+50 | 6+00 | 6+50 | 7+00

CL ELEV. / (FL ELEV.)

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 5'



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DOWNTOWN INFRASTRUCTURE

ELM STREET - STA. 4+25 TO STA. 7+31

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	20 OF 20
JOB NO.	11032

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APPENDIX C

CROSS-SECTION DRAWINGS

SCALE: 1" = 40'

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DOWNTOWN INFRASTRUCTURE

CROSS SECTION LAYOUT

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	1 OF 25
JOB NO.	11032

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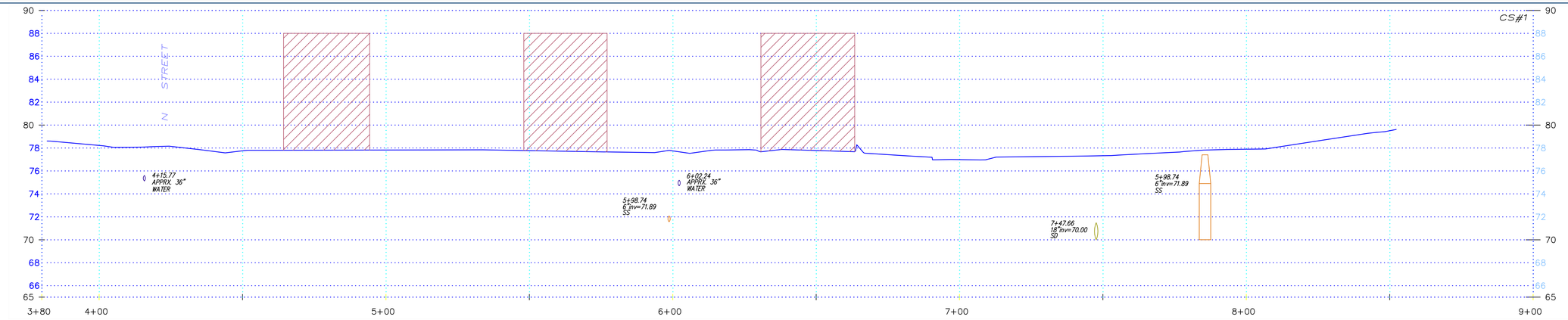

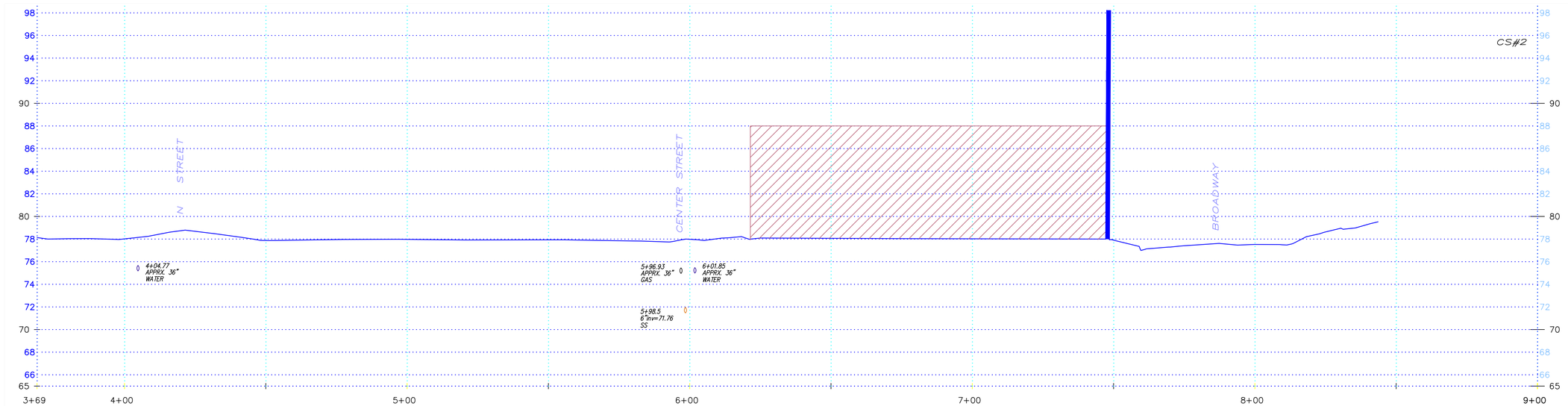

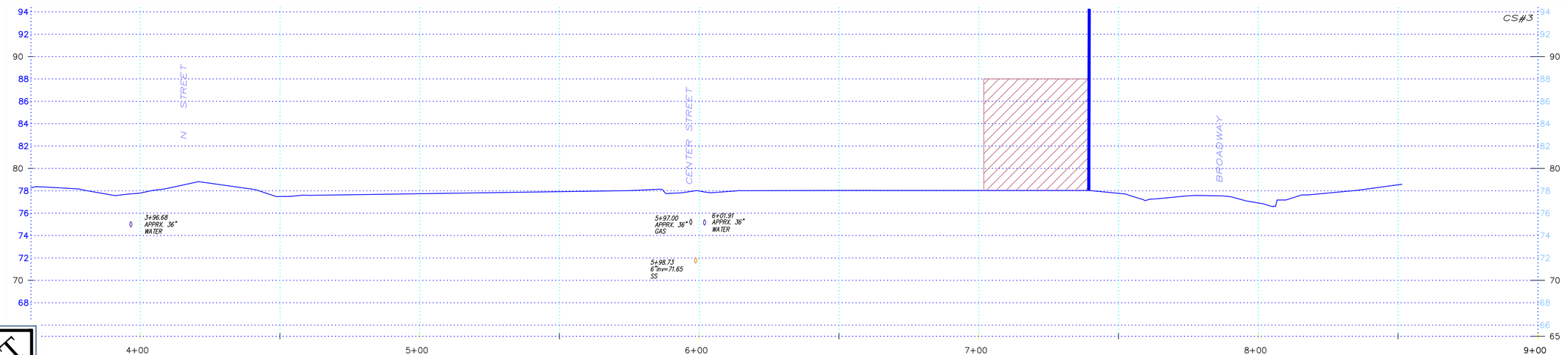

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #1, 2 AND 3

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	2 OF 25
JOB NO.	11032

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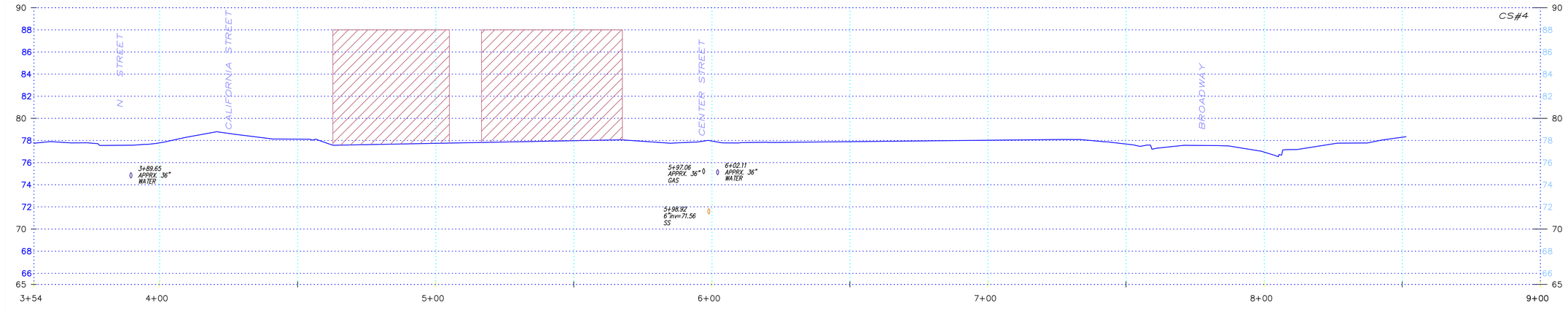

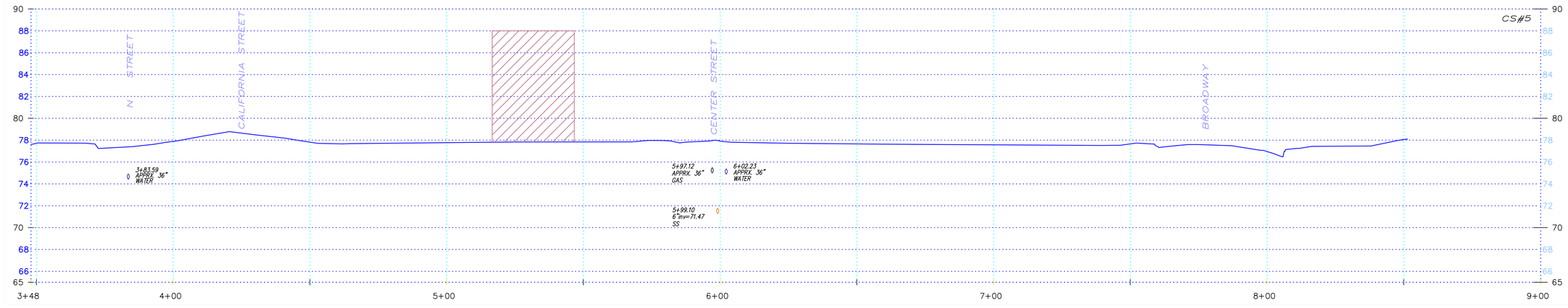

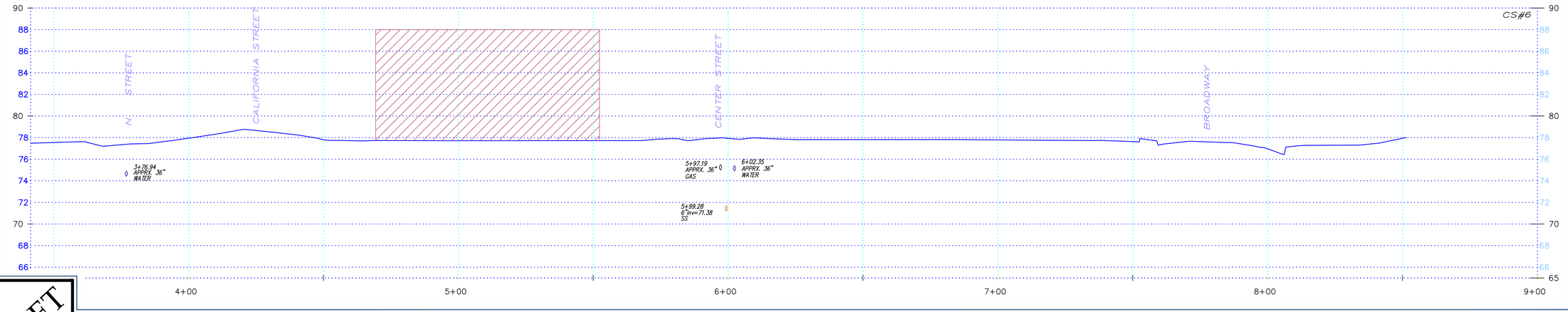

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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DATE MAY, 2013

PREPARED FOR :

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #4, 5 AND 6

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	3 OF 25
JOB NO.	11032

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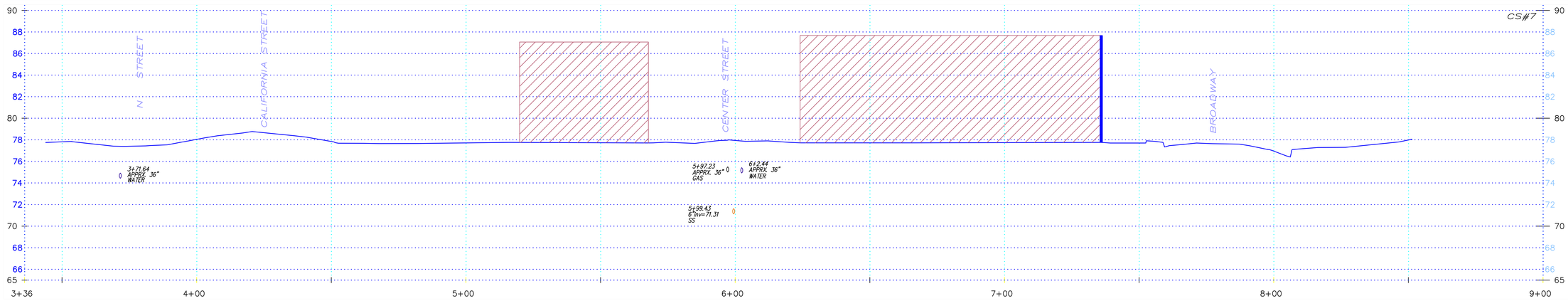

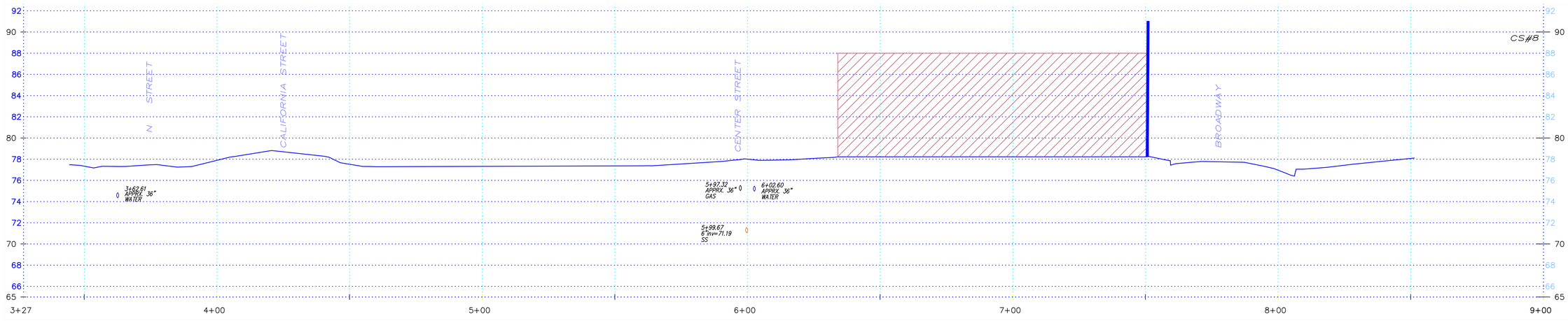

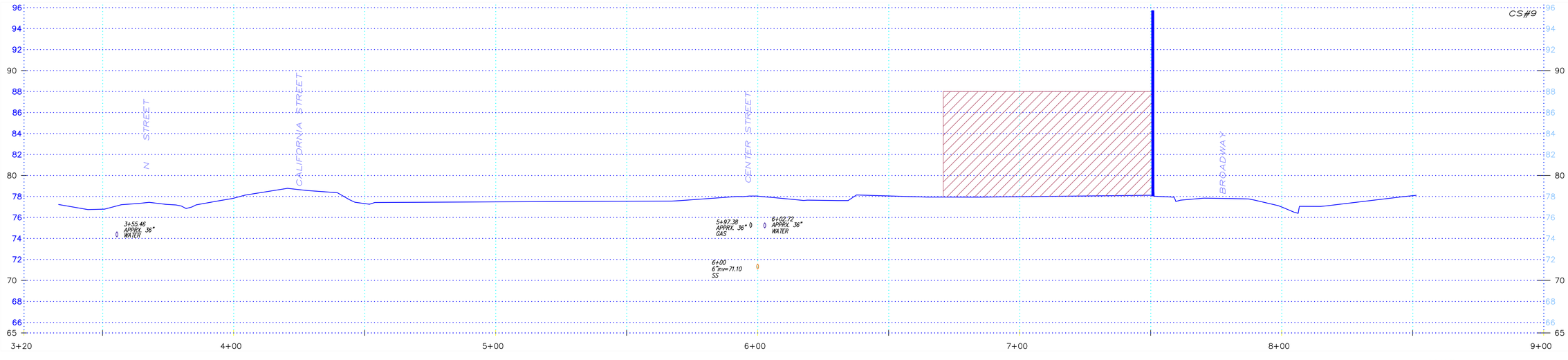

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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DATE MAY, 2013

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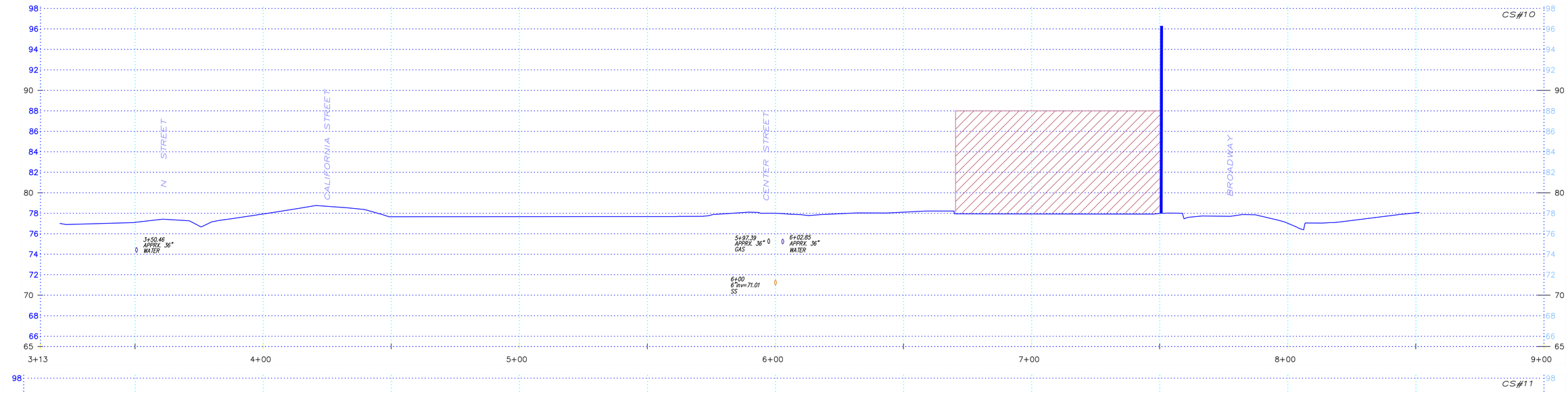
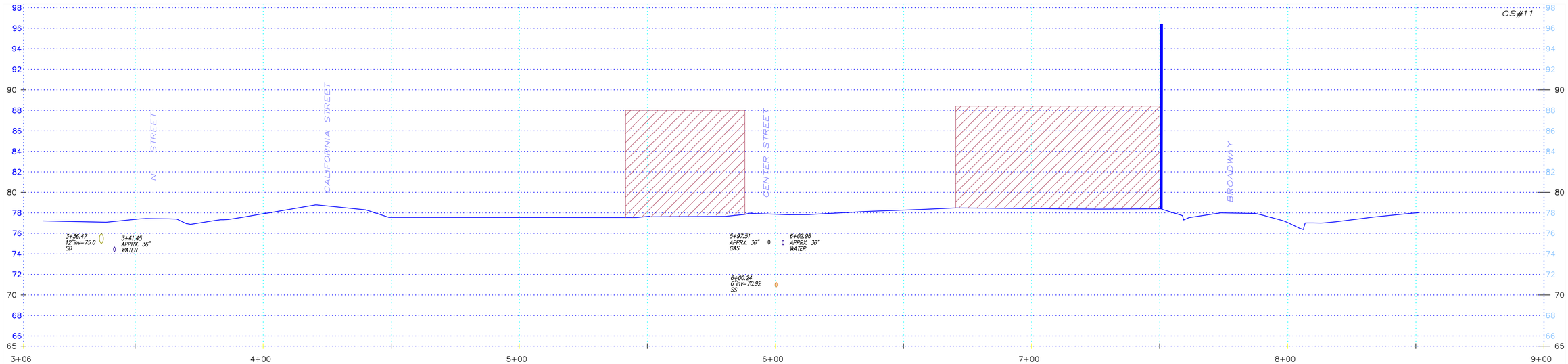
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #7, 8 AND 9

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	4 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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DATE
MAY, 2013

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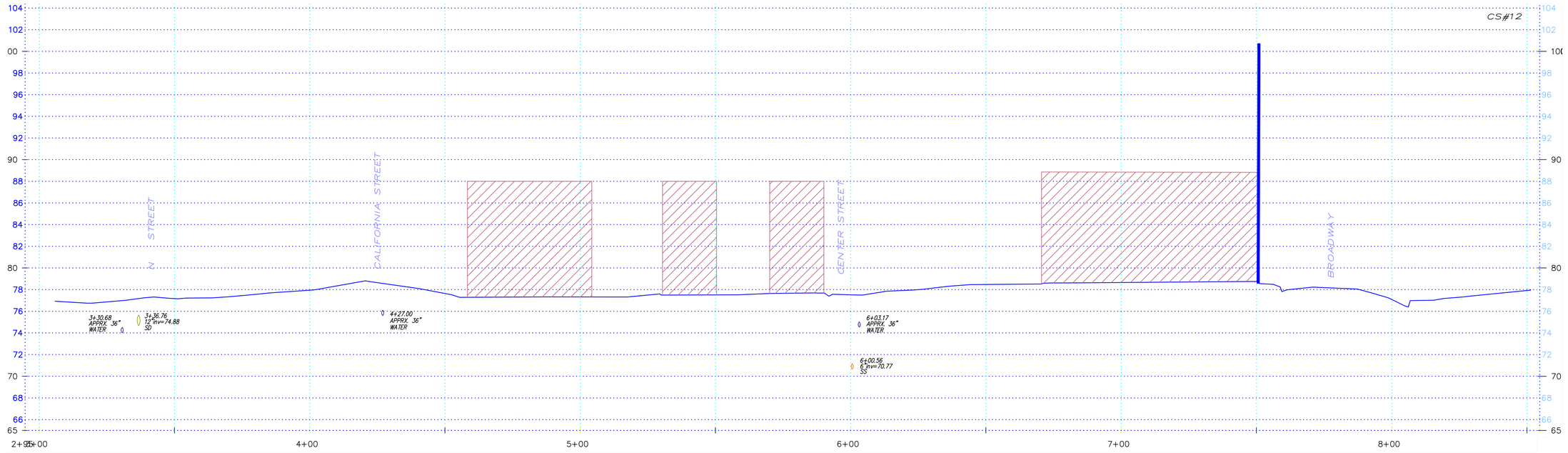
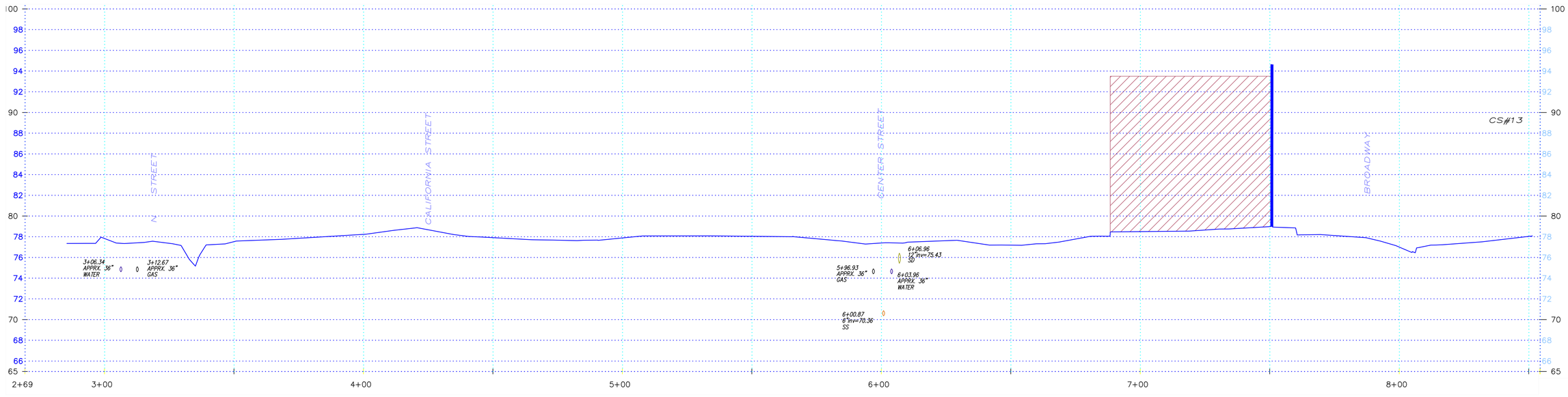
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #10 AND 11

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	5 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #12 and 13

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	6 OF 25
JOB NO.	11032

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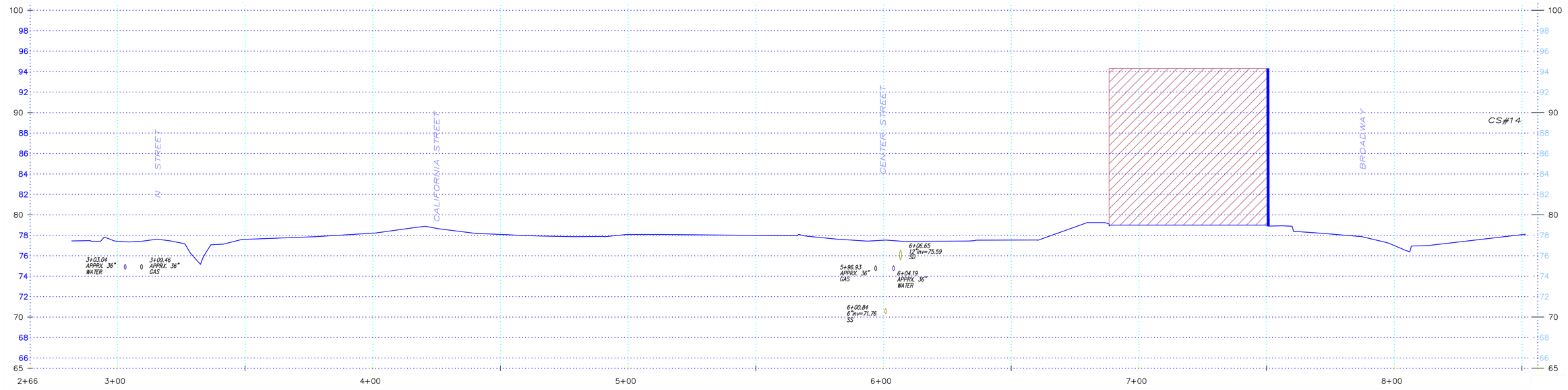

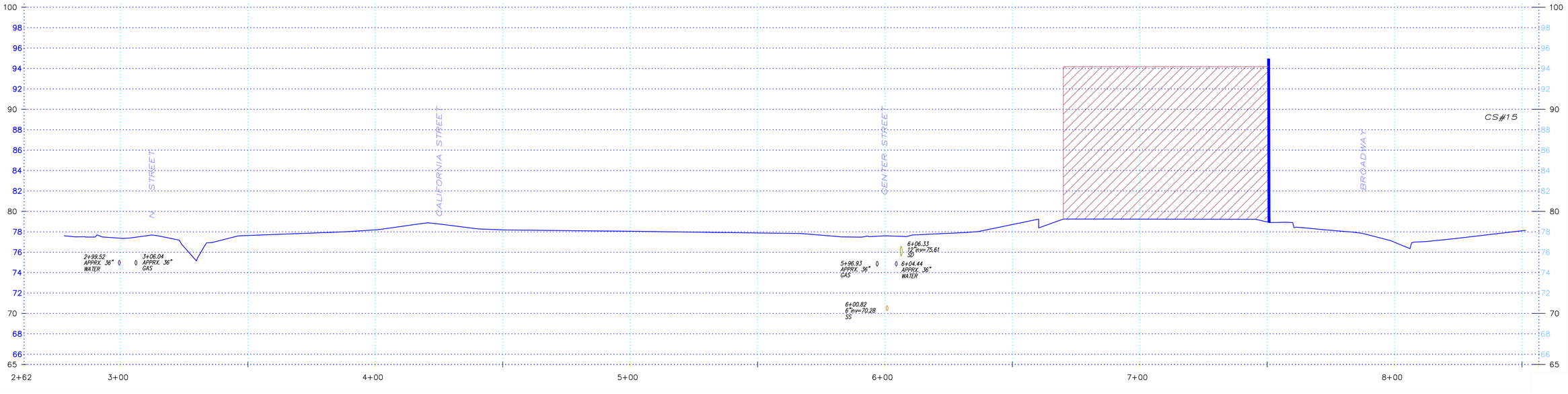

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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DATE MAY, 2013

PREPARED FOR :

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #14 and 15

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	7 OF 25
JOB NO.	11032

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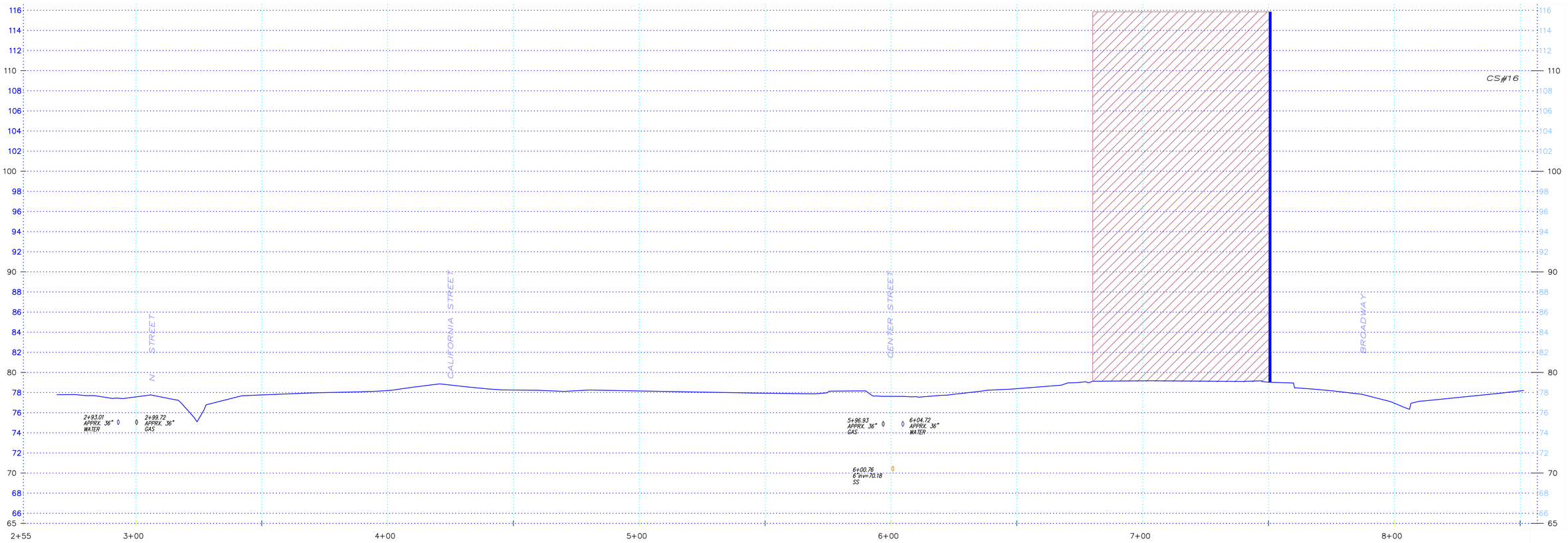

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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MAY, 2013

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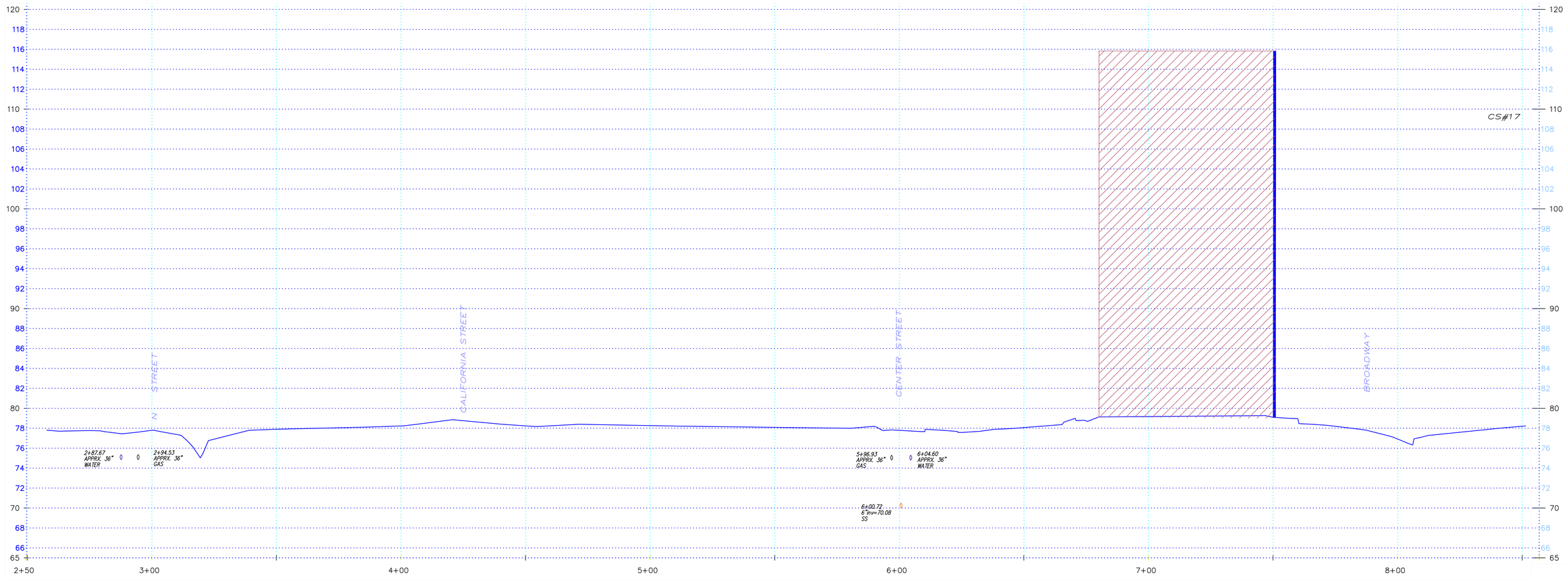
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #16

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	8 OF 25
JOB NO.	11032



SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #17

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	9 OF 25
JOB NO.	11032

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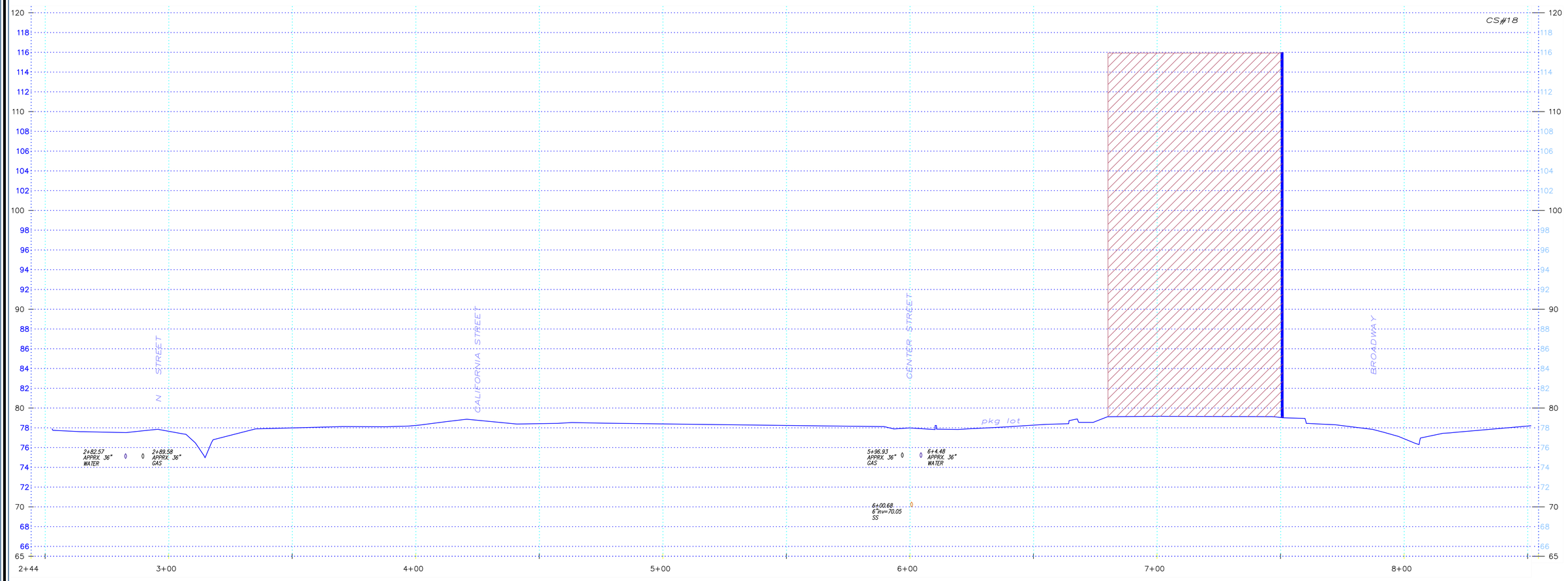

S:\Civil_30 2012 PROJECTS\11032 City of Live Oak - downtown infra\11032_CivilD_cross sections.dwg 07/31/13 3:37:33 PM

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

APPROVED

DATE
MAY, 2013

PREPARED FOR :
CITY OF LIVE OAK

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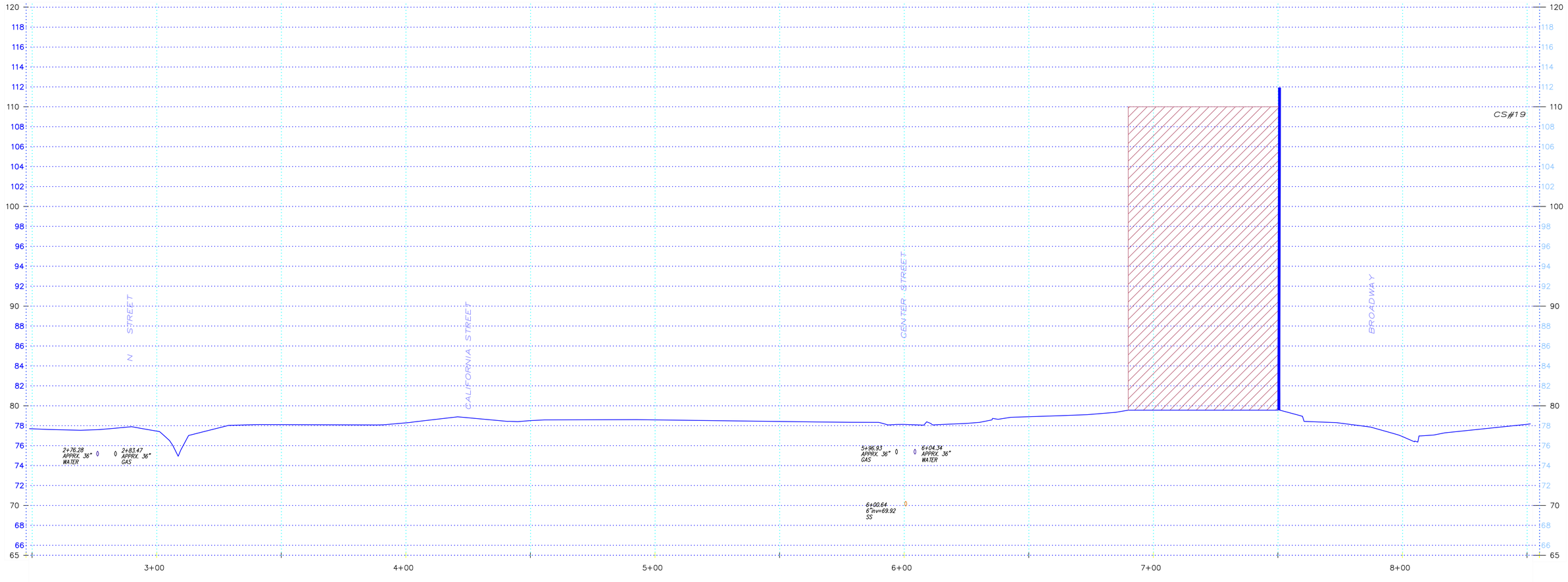
DOWNTOWN INFRASTRUCTURE
CROSS SECTIONS #18

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	10 OF 25
JOB NO.	11032



SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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DATE MAY, 2013

PREPARED FOR :

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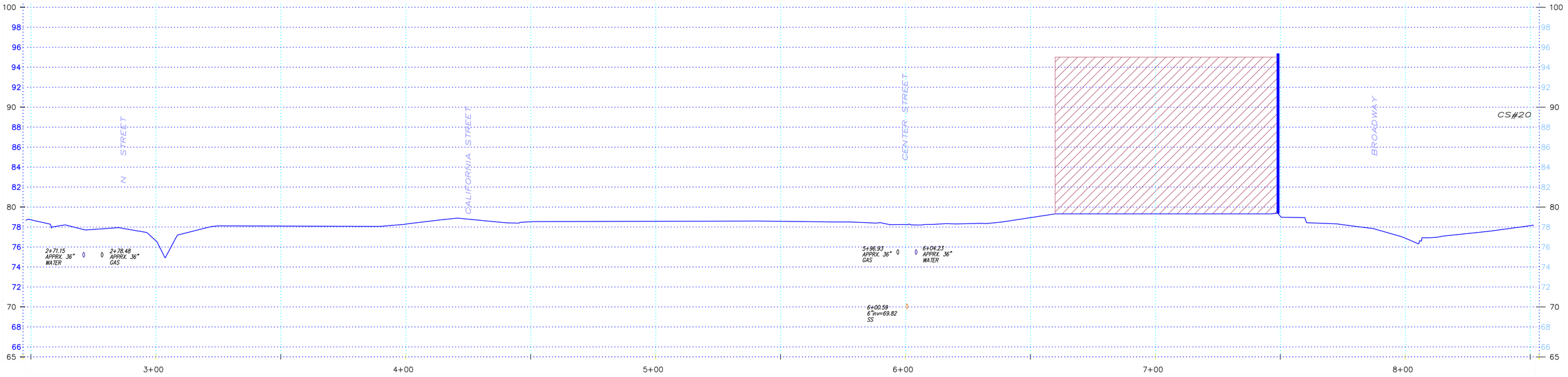
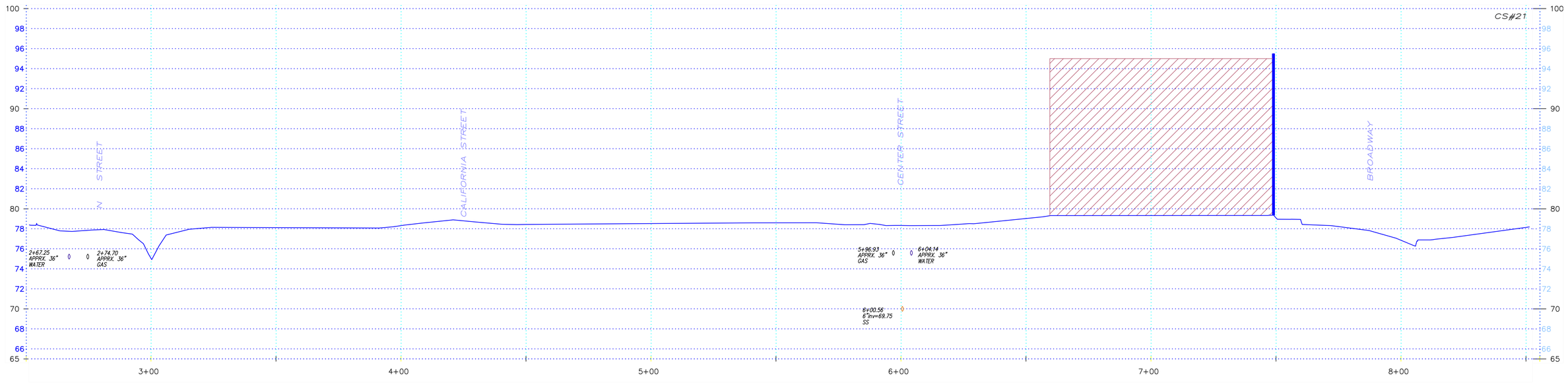
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #19

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	11 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #20 AND 21

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	12 OF 25
JOB NO.	11032

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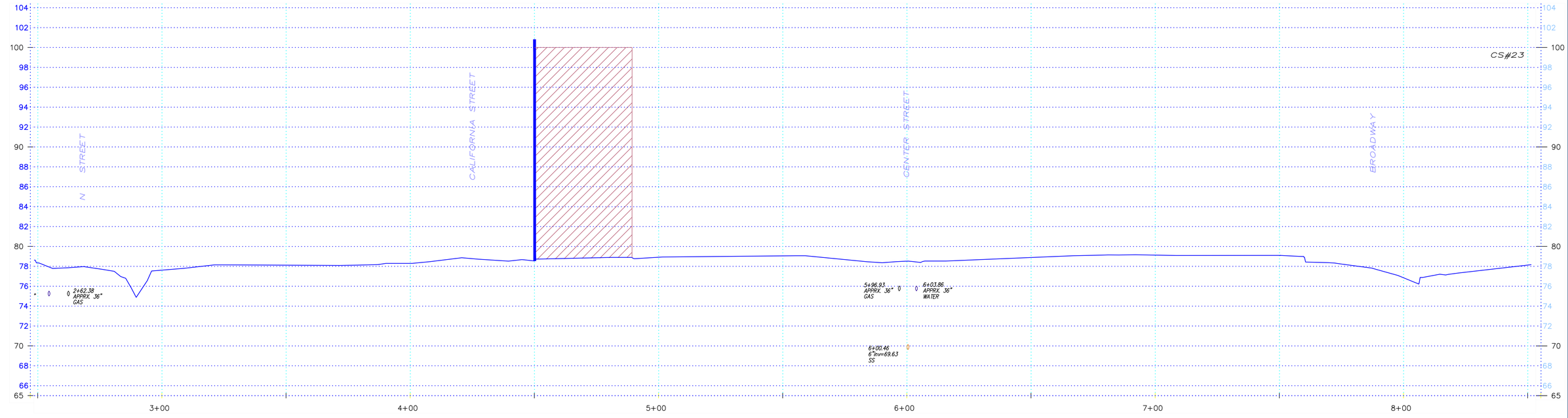

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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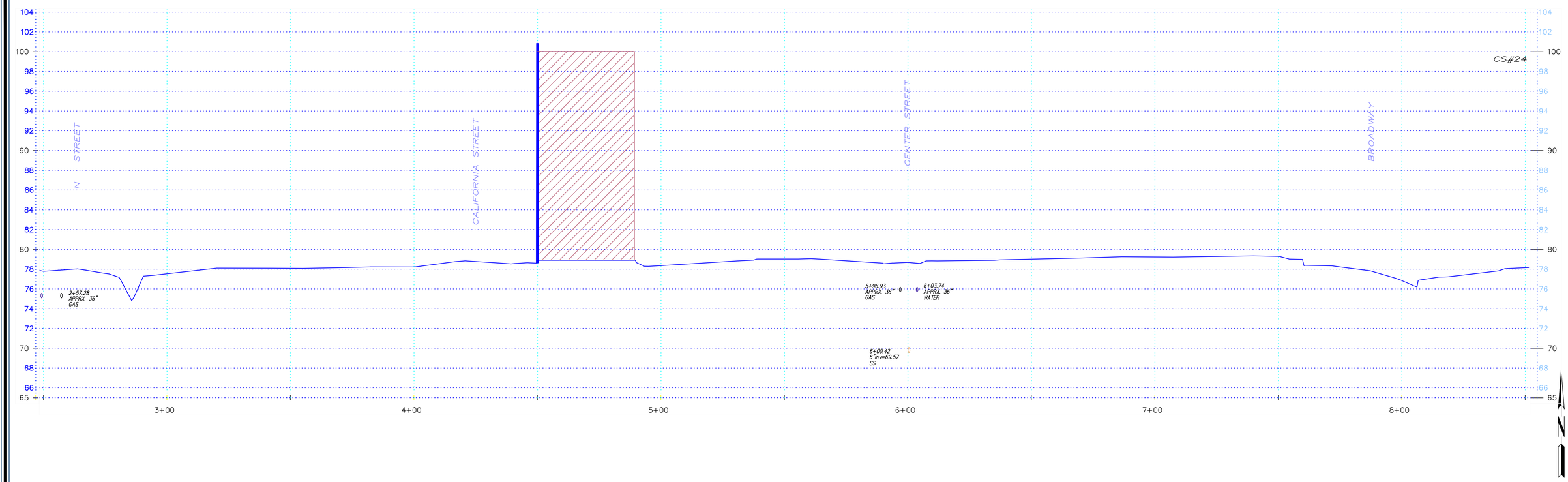
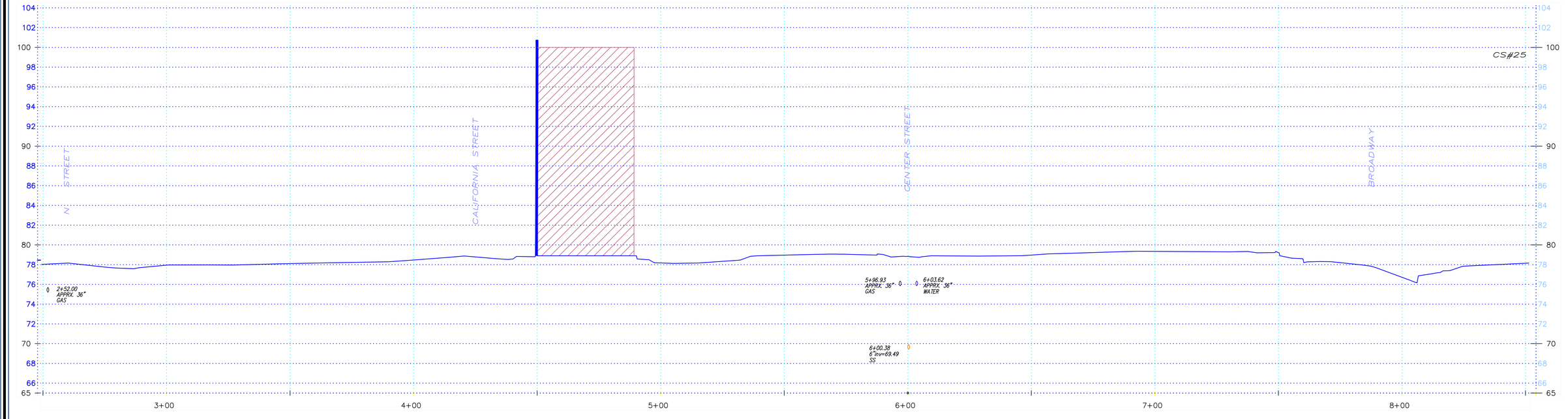
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #22 AND 23

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	13 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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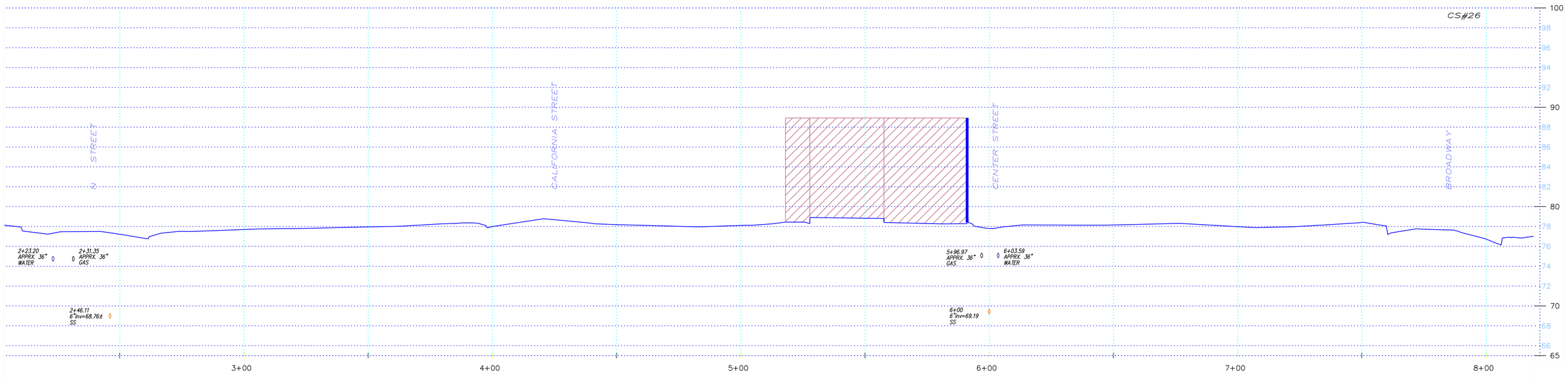
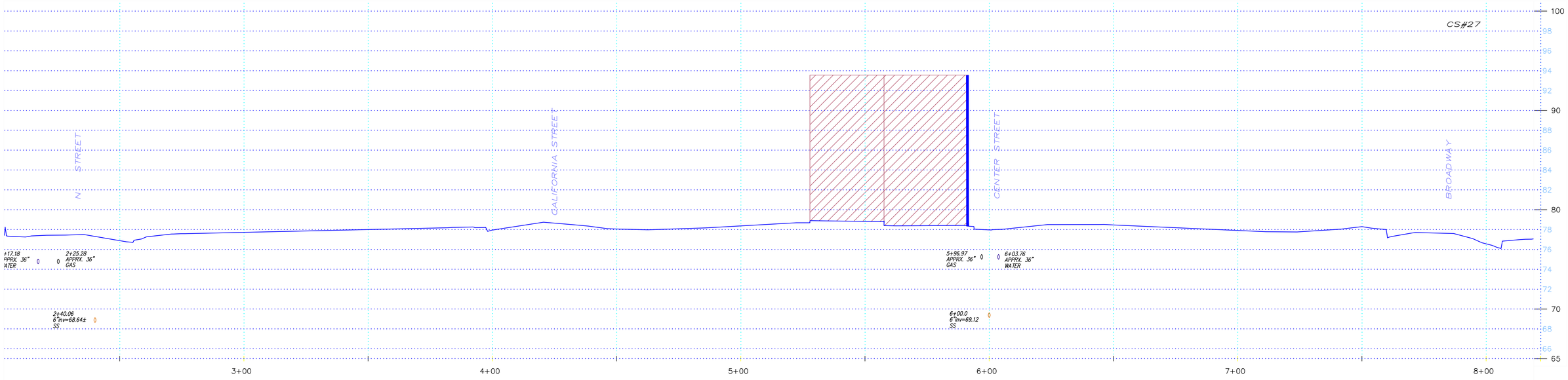
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #24 AND 25

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	14 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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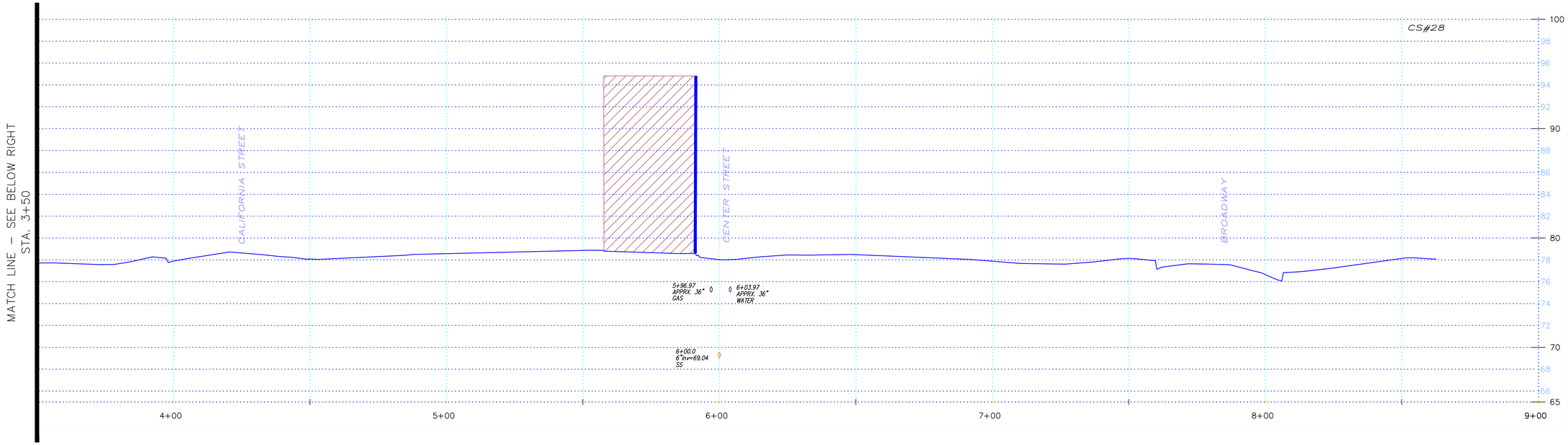
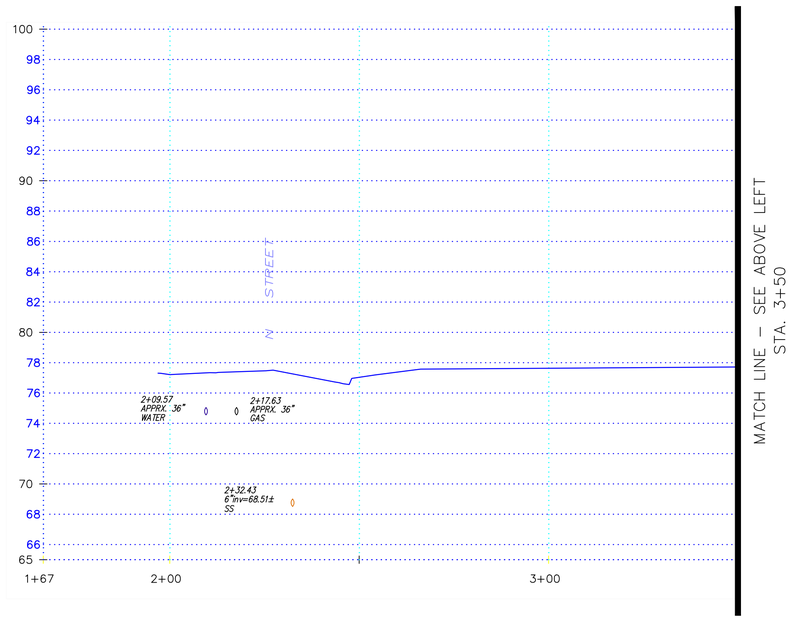
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #26 and 27

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	15 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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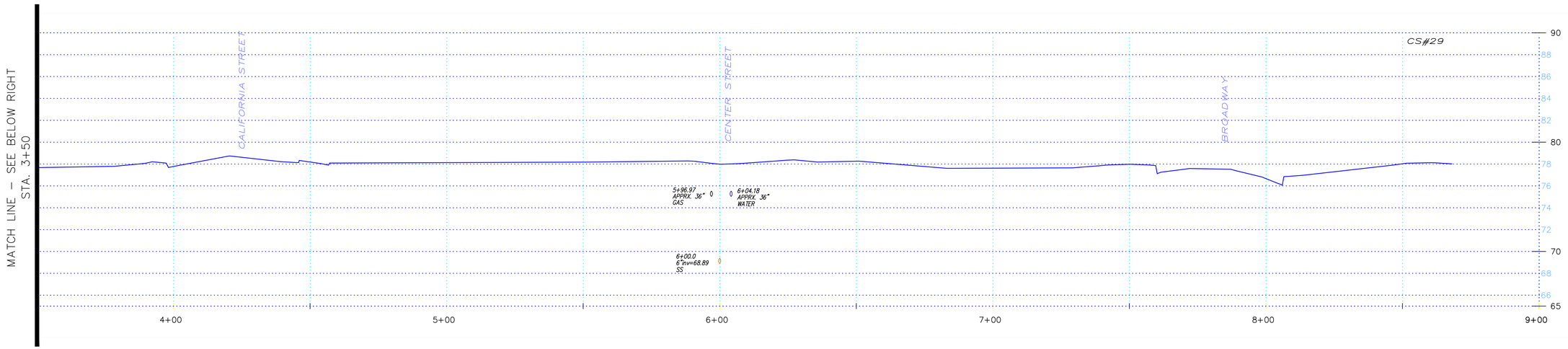
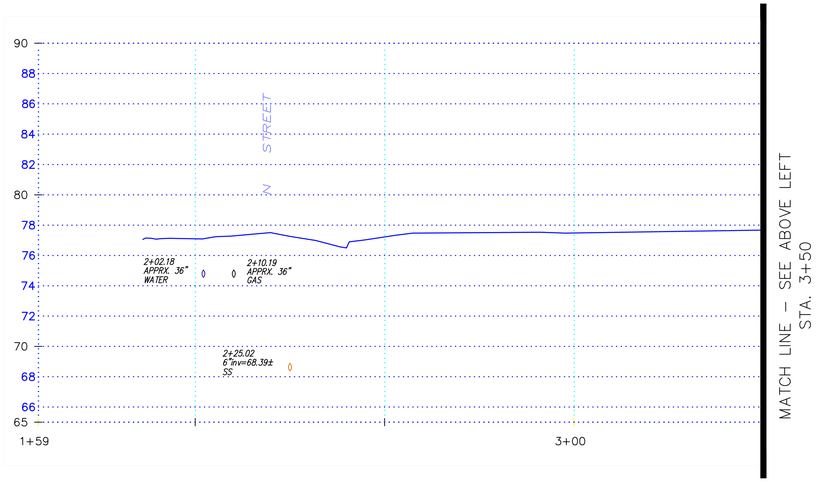
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #28

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	16 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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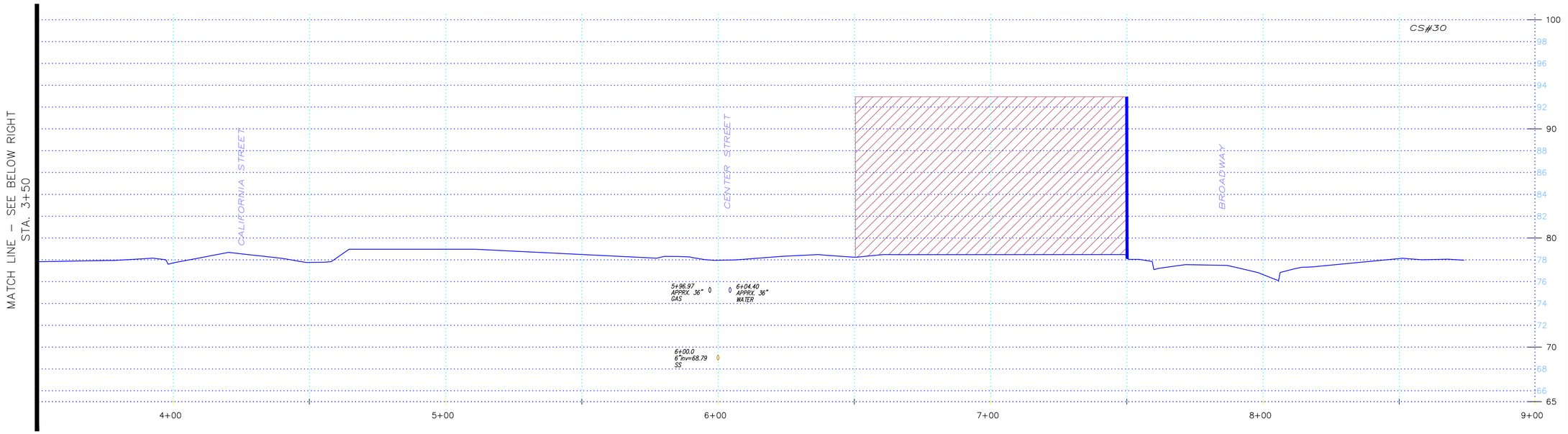
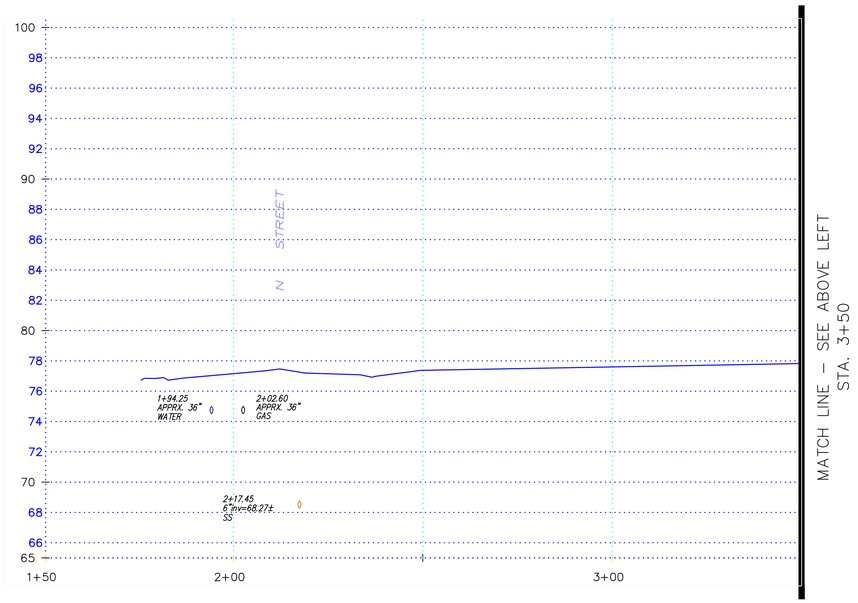
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #29

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	17 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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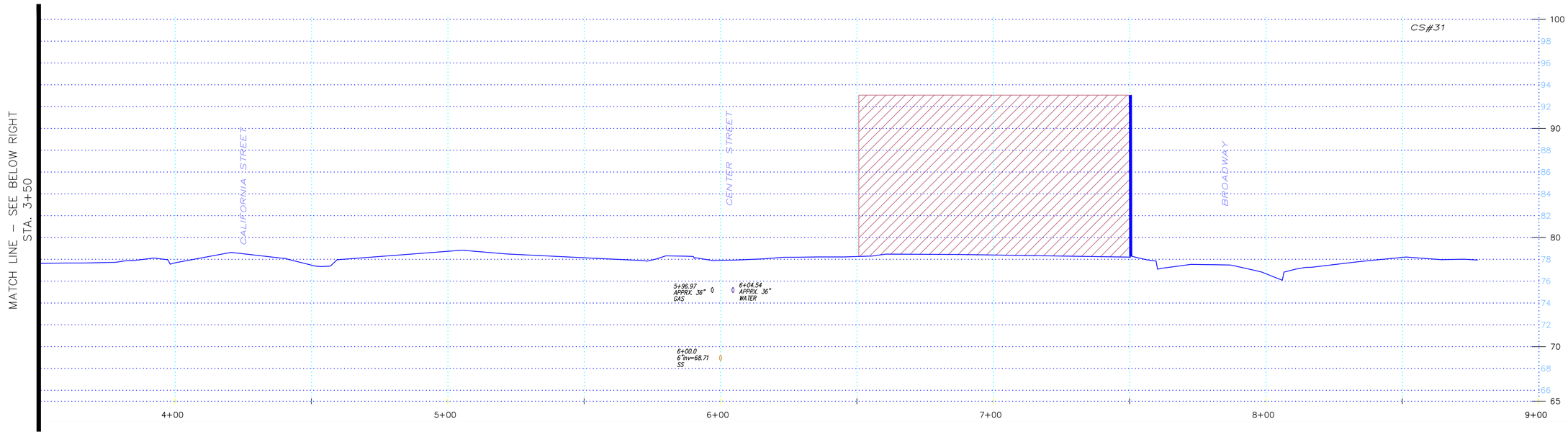
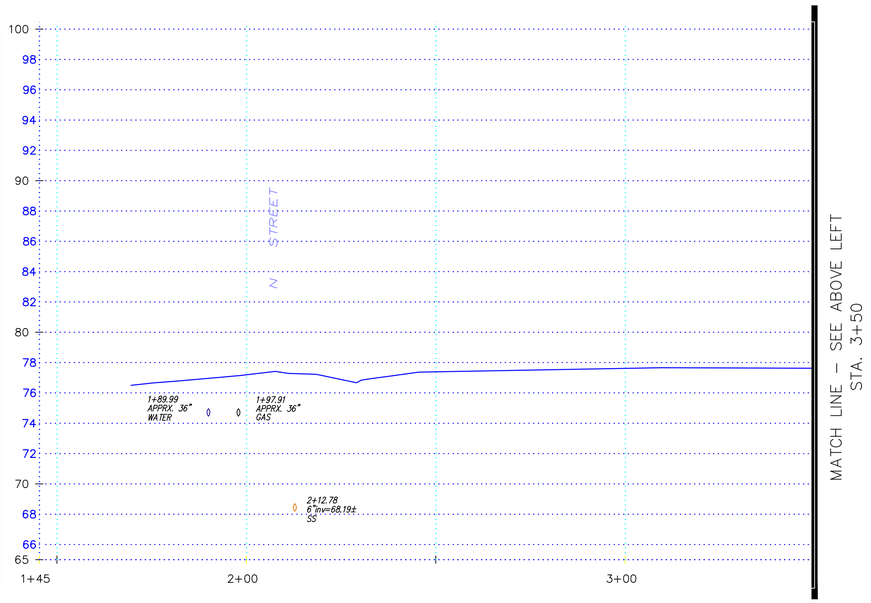
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #30

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	18 OF 25
JOB NO.	11032





SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

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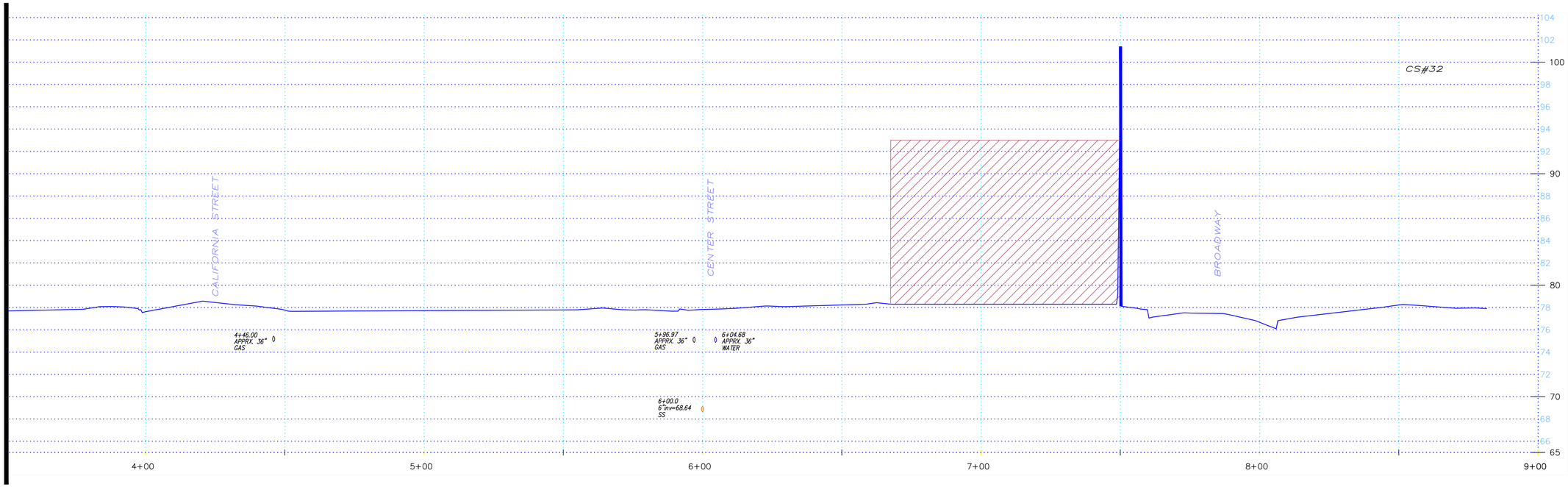
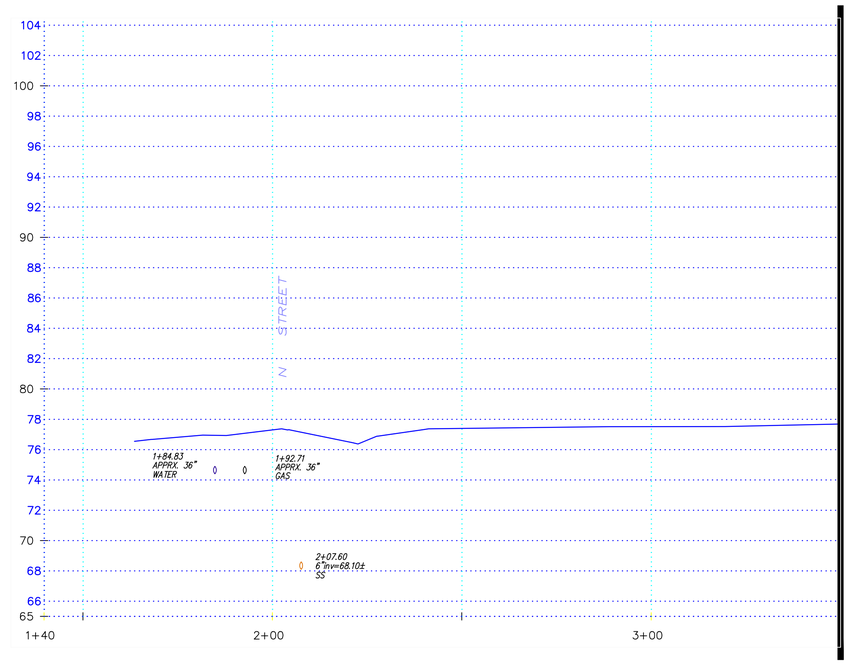
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #31

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	19 OF 25
JOB NO.	11032

MATCH LINE – SEE BELOW RIGHT
STA. 3+50





MATCH LINE – SEE ABOVE LEFT
STA. 3+50

N

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

APPROVED

DATE MAY, 2013

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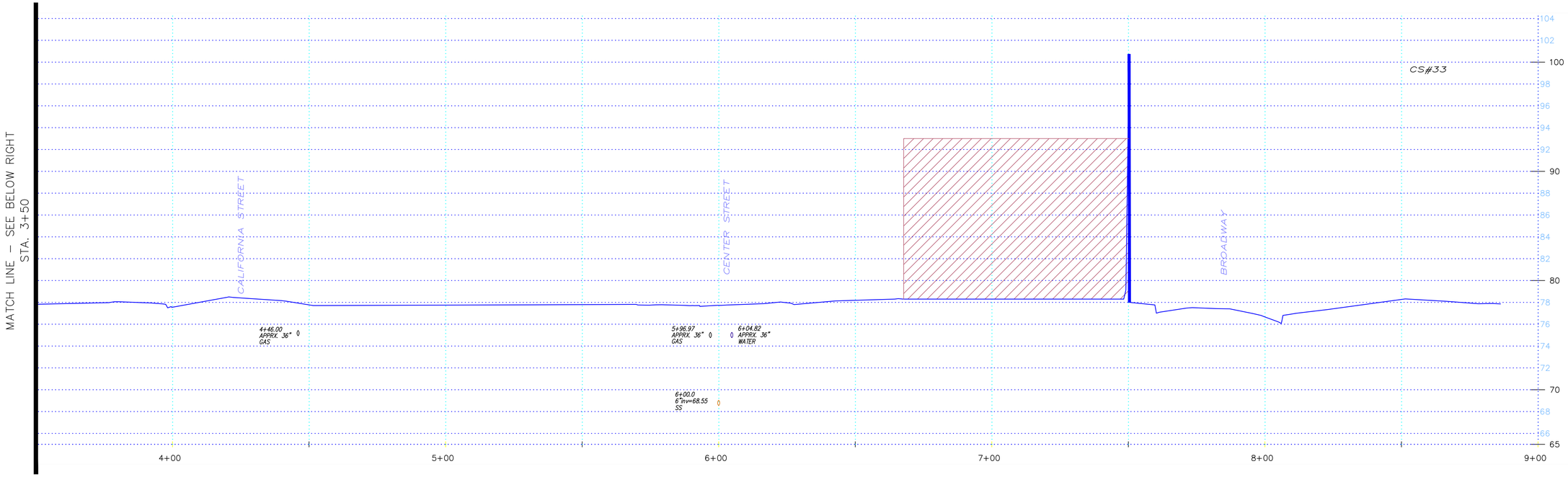
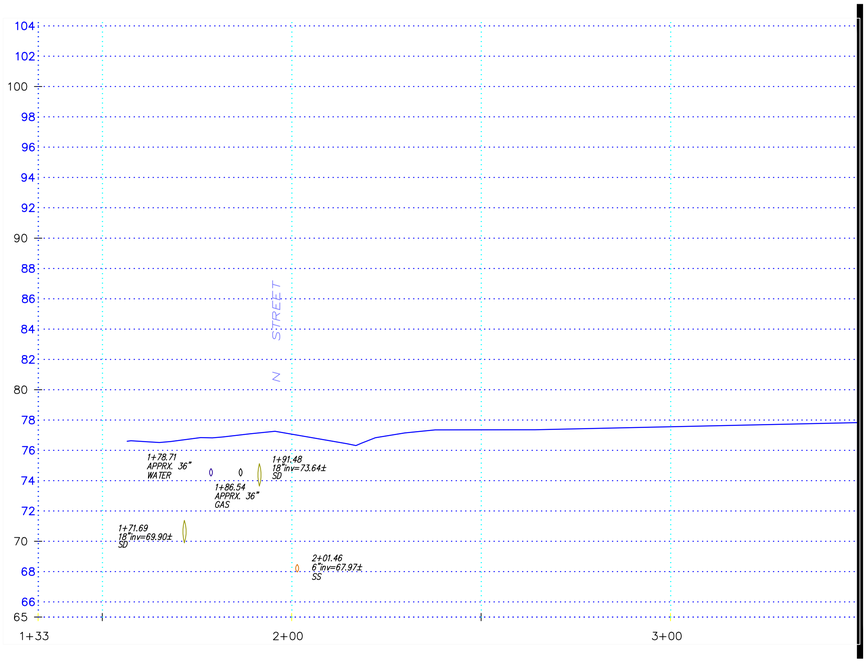
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #32

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	20 OF 25
JOB NO.	11032





MATCH LINE – SEE ABOVE LEFT
STA. 3+50

N

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

APPROVED

DATE MAY, 2013

PREPARED FOR :

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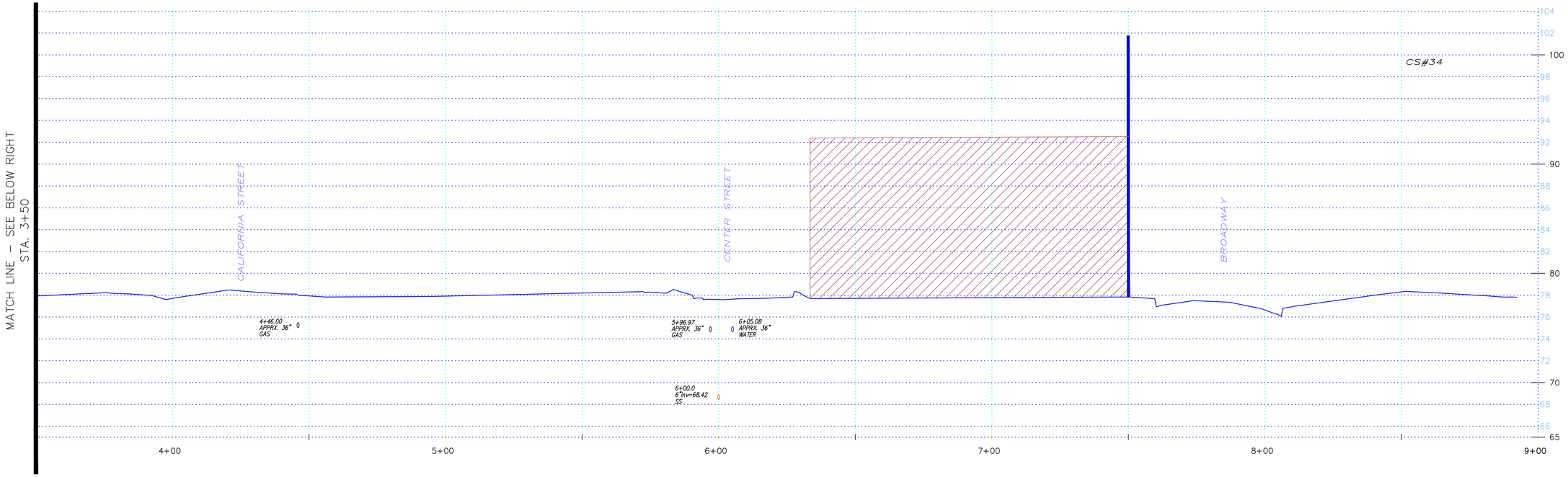
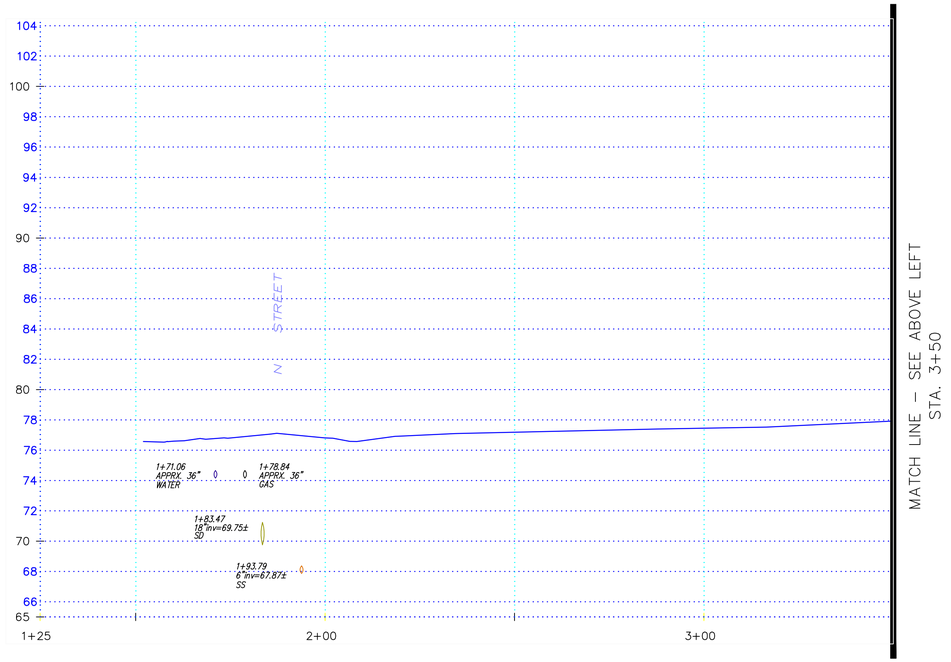
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #33

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	21 OF 25
JOB NO.	11032

S:\LIVE_3D 2012 PROJECTS\11032 City of Live Oak – downtown infra\11032_Cs43_cross sections_2.dwg 07/30/13 1:41:20 PM





MATCH LINE — SEE ABOVE LEFT
STA. 3+50

N

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

APPROVED

DATE
MAY, 2013

PREPARED FOR :
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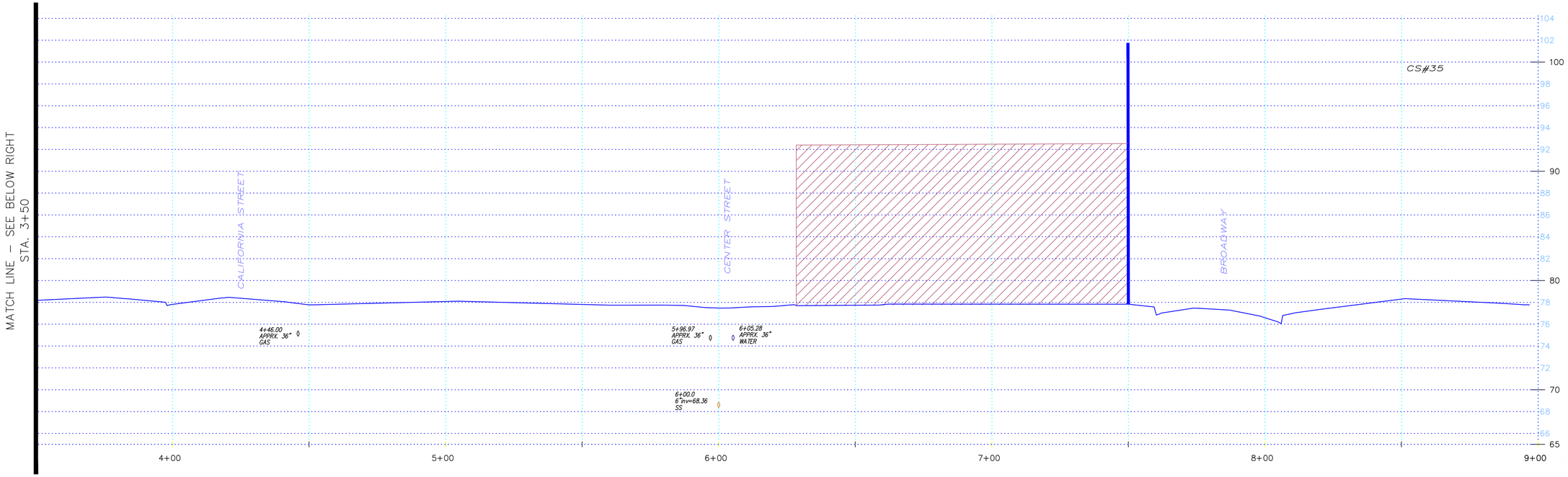
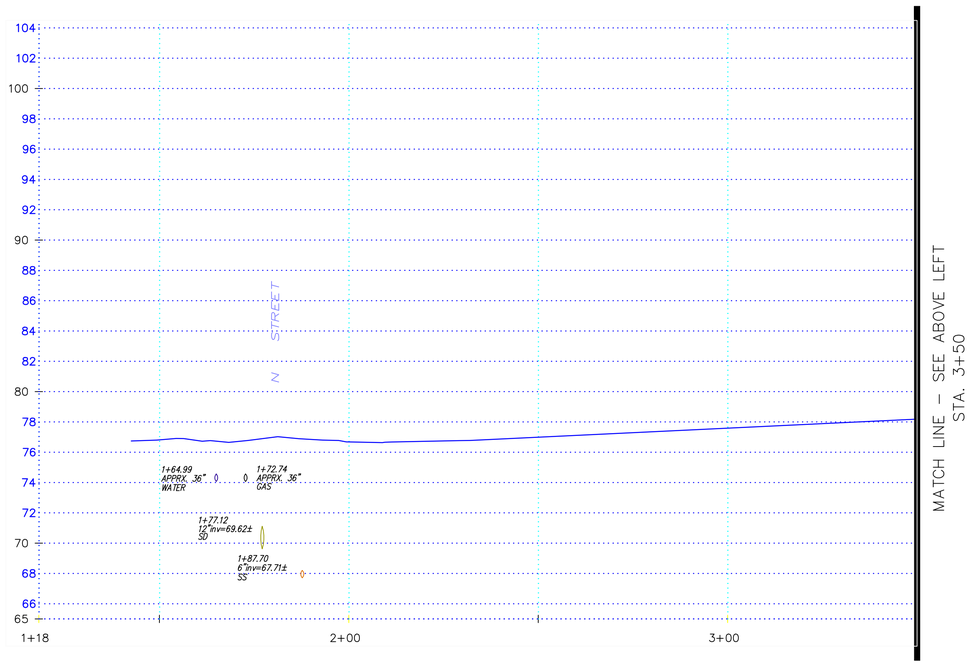
DOWNTOWN INFRASTRUCTURE
CROSS SECTIONS #34

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	22 OF 25
JOB NO.	11032





N

SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

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DATE
MAY, 2013

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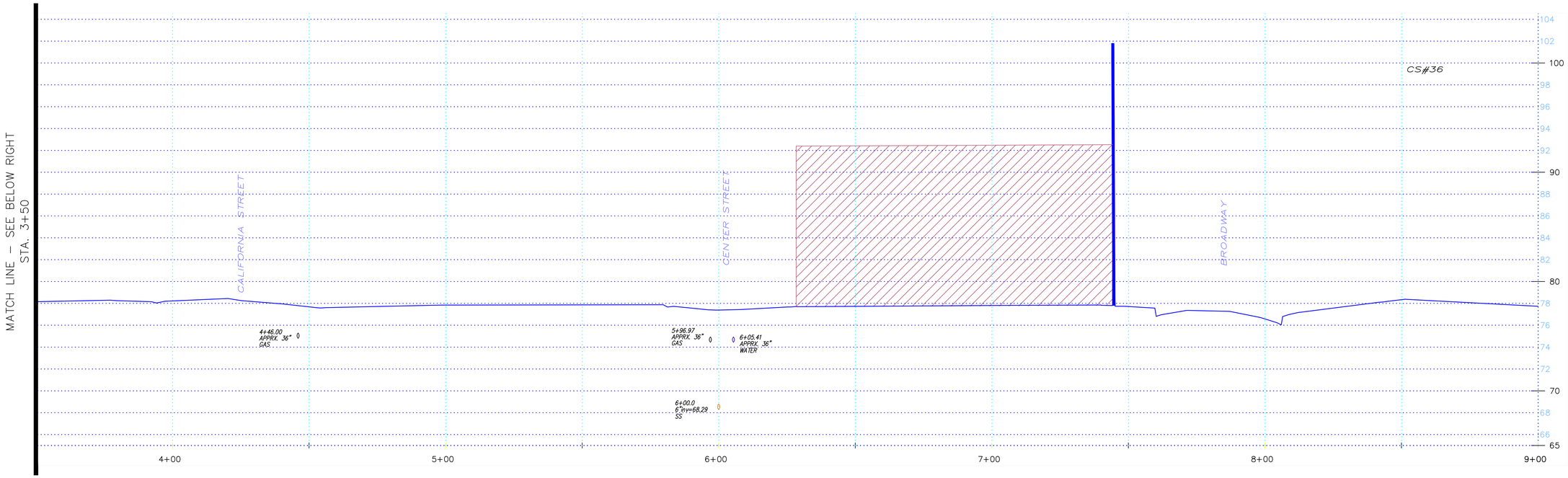
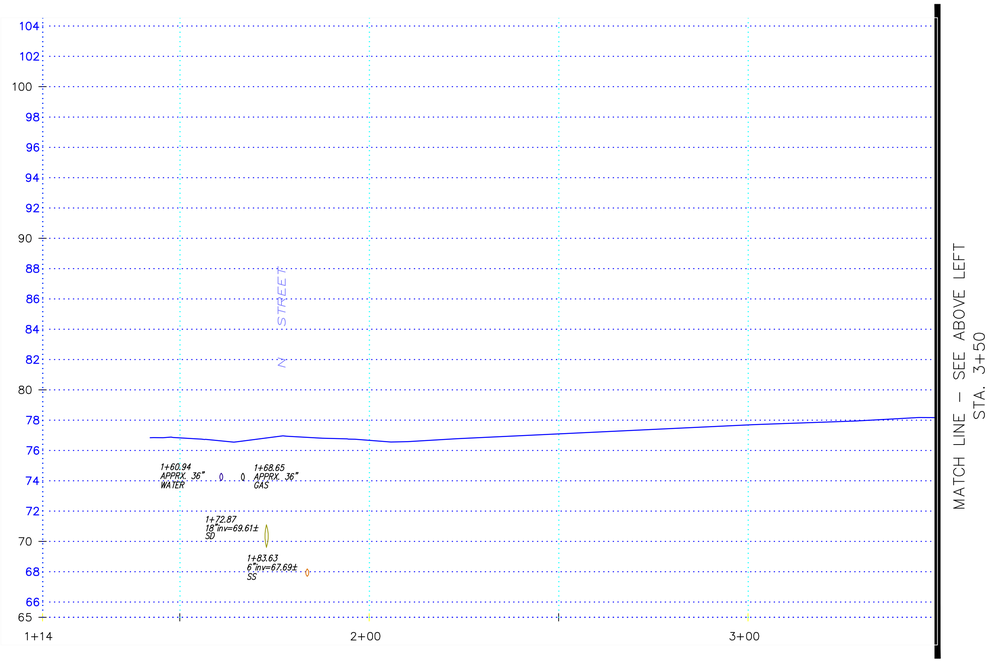
DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #35

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	23 OF 25
JOB NO.	11032





DRAFT

APPROVED

DATE MAY, 2013

PREPARED FOR :

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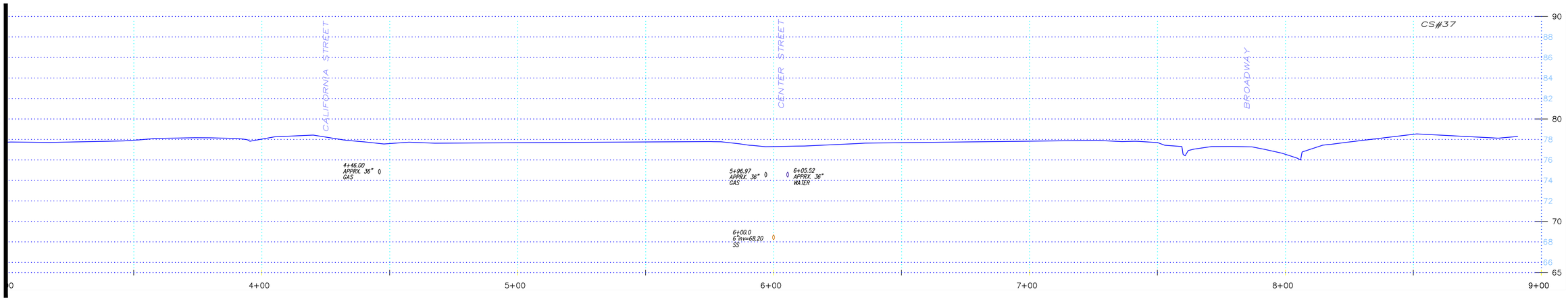
DOWNTOWN INFRASTRUCTURE

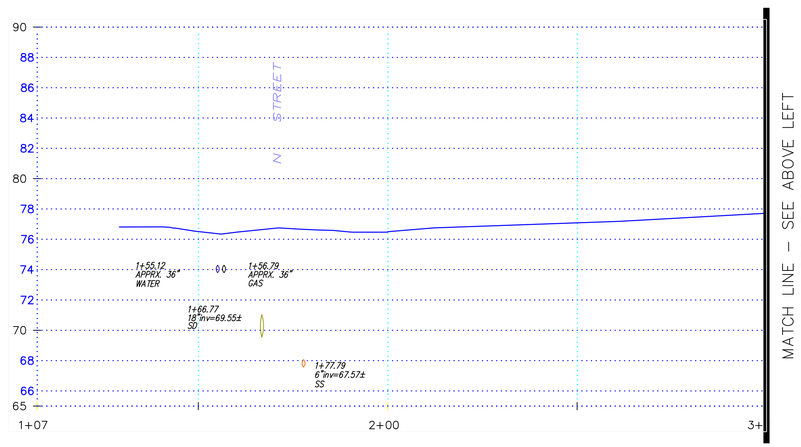
CROSS SECTIONS #36

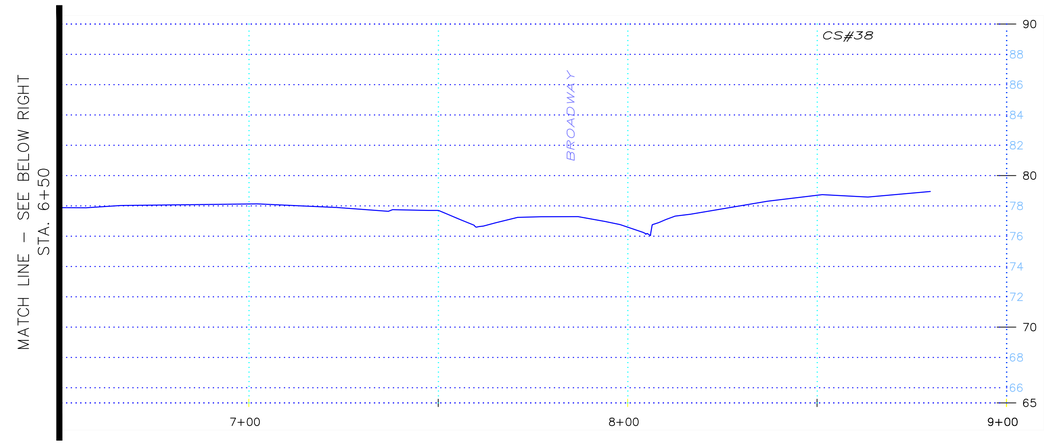
SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

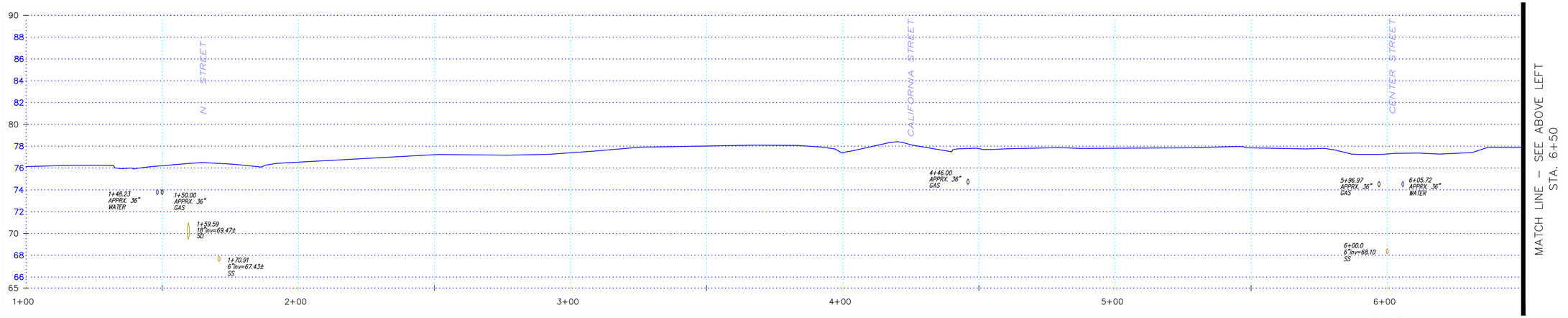
DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	24 OF 25
JOB NO.	11032

S:\LIVOK_30 2012 PROJECTS\11032 City of Live Oak - downtown infra\11032_Cvl-D_cross sections_2.dwg 05/01/13 8:56:00 AM









SCALE:
HORIZONTAL 1" = 20'
VERTICAL 1" = 5'

DRAFT

APPROVED

DATE MAY, 2013

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DOWNTOWN INFRASTRUCTURE

CROSS SECTIONS #37 AND 38

DESIGNED	PWR
DRAWN	DLP
CHECKED	SRR
DRAWING NO.	25 OF 25
JOB NO.	11032