



October 12, 2021

Carla Short
Interim Director
San Francisco Public Works
49 South Van Ness Avenue
San Francisco, CA 94103

Re: Mission Rock Project (“Project”) - Request for Plan Revision Pursuant to Mission Rock - Phase 1 Public Improvement Agreement to Implement Conditions of Approval for Instructional Bulletin (IB) #3 (dated March 10, 2021) and IB#3 Revision 1 (dated March 19, 2021) Proposing Amendments to the Mission Rock Phase 1 Improvement Plans Street Improvement Permit (hereafter collectively “IB#3”)

Dear Interim Director Short:

Mission Rock Horizontal Sub (Phase 1), LLC (“Subdivider”) is a party to that certain Public Improvement Agreement (Mission Rock - Phase 1) recorded on June 12, 2020, as Document No. 2020-K940619 in the Official Records of the City and County of San Francisco (“Official Records”) as amended by that certain First Amendment to Public Improvement Agreement (Mission Rock - Phase 1A), recorded December 2, 2020 as Document No. 2020-061907 of the Official Records (hereafter collectively “PIA”). By this letter, and based on the information below and appended hereto, Subdivider requests approval of a “Plan Revision” to the PIA as defined in Section 4(c) of that agreement.

Pursuant to Section 4(c)(iii) of the PIA:

Any Plan Revision shall be accompanied by (A) a statement explaining the need for or purpose of the proposed revision; (B) drawings and specifications and other related documents showing the proposed Plan Revision in reasonable detail, consistent with the original Plans and Specifications; and (C) revised construction cost estimates.

Each of these requirements is addressed below.

(A) “a statement explaining the need for or purpose of the proposed revision”

The purpose of the requested Plan Revision is to implement conditions of approval associated with IB#3.¹ IB#3 authorizes Subdivider to construct a 12-kilovolt electrical line to provide power to the Project site (“12-kV Line”). The 12-kV Line will be used to provide San Francisco Public Utilities Commission (“SFPUC”) power at first to construction equipment and trailers, and ultimately to two commercial office buildings and two residential apartment buildings within the Project’s initial development phase. Subdivider has completed the installation of the 12-kV Line, including all conductors, transformers, poles and substructures. The permit drawings for the 12-kV Line are appended hereto as Attachment 1. Per the conditions of approval to IB#3, Subdivider is required to offer the 12-kV Line for acceptance by the City as a discrete public improvement separate from other “City Improvements” as defined in the Agreement and conditioned upon Subdivider’s agreement to remove the 12-kV Line. In satisfaction of the conditions of approval for IB#3, Subdivider will replace the 12-kV Line with a permanent underground electrical line in an underground ductbank in the future Bridgeview Street running north from the terminus of the Bay Corridor Transmission Distribution vault at Mission Rock Street and Terry Francois Boulevard within the Project site (“Permanent Power Line”), consistent with the Infrastructure Plan and the SFPUC’s Rules and Regulations for Electric Service, and remove the 12-kV Line, at Subdivider’s sole cost, no later than the date that is ninety (90) days after the date the SFPUC has determined that the Permanent Power Line has been electrified and all other electrical service facilities to the 12-kV Line have been disconnected from the 12-kV Line and transferred to the Permanent Power Line.

Pursuant to the conditions of approval for IB#3, Subdivider will offer the 12-kV Line for acceptance by the City and County of San Francisco pursuant to an irrevocable offer of dedication of improvements. SFPUC is prepared to own and operate the 12-kV Line contingent on Subdivider’s removal of the 12-kV Line and its replacement with the Permanent Power Line consistent with terms described above. The Project’s master developer submitted separate requests for approval of exceptions from the Subdivision Code, the Subdivision Regulations, and the conditions of approval in Public Works Order No. 202,368, and for authorizations from SFPUC pursuant to its Rules and Regulations for Electric Service, to allow for City acceptance of the 12-kV Line notwithstanding that it will be built partially overhead and not within a dedicated public street or utility easement. The conditions of approval for IB#3 contemplate that SFPUC and Public Works will work together to introduce legislation to provide for the City’s acceptance of this facility separate from other public improvements within the Project’s initial phase.

The requested Plan Revision includes the following proposed amendments to the PIA as required by the conditions of approval for IB#3:

1. A revised Exhibit A-1 to the PIA that includes reference to IB#3 and a description of the related work. (See Attachment 2.)
2. A revised Exhibit C to the PIA that includes updated construction cost estimates. (See Attachment 6.)
3. A revised Exhibit D (see Attachment 3) that includes the following:

¹ The conditions of approval for IB#3 require Subdivider to provide a “written request for a Plan Revision as defined in the PIA (which includes revisions, modifications, and amendments to the Plans and Specifications /Street Improvement Permit) and the rationale for same.

- a. Reference to IB#3 and the associated Public Works Permit
 - b. Reference to Instructional Bulletin (IB) #1 Revision 3 (dated 6/14/2021) Proposing Amendments to the Mission Rock Phase 1 Improvement Plans Street Improvement Permit No. 20IE-00486, Approved on July 12, 2021; and
 - c. New Irrevocable Offer of Dedication of Improvements for the 12-kV Line.
4. A revised Exhibit F-1 that includes reference to a separate agreement between the Port of San Francisco (“Port”) and SFPUC pursuant to which SFPUC may own, operate, and maintain the 12-kV Line on the Property, and which does not require SFPUC to compensate the Port for the right to occupy Port property. (See Attachment 4.)

(B) “drawings and specifications and other related documents showing the proposed Plan Revision in reasonable detail, consistent with the original Plans and Specifications”

As described above, Public Works approved IB#3, including modifications to the approved Street Improvement Permit, subject to the subsequent satisfaction of a series of conditions, including a requirement for developer to submit this request for a Plan Revision. The approved permit drawings are appended to this request as Attachment 1.

(C) “revised construction cost estimates”

Attachment 5 hereto is a revised engineer’s cost estimate from BKF Engineers, dated June 23, 2021, that estimates the cost of completing all outstanding improvements contemplated by the PIA, including modifications to the Phase 1 Street Improvement Permit authorized by the Instructional Bulletins. As indicated by Attachment 5, the modified Phase 1 street improvements, including the 12kV Line, have a total estimated cost of \$29,055,421 to complete. Subdivider previously provided performance bonds for Phase 1 street improvements in the amount \$28,788,421 (refer to Exhibit C of the PIA), and the 12kV line is now complete. As such, the total amount of security needed to ensure Subdivider’s completion of outstanding Phase 1 street improvements and to guaranty Subdivider’s warranty obligation specific to the 12kV Line (i.e., 10% of the estimated cost of \$585,000 to complete that line) is \$28,528,921. Thus, the outstanding Phase 1 street improvements and 12kV Line guaranty are covered by existing security.

Thank you in advance for your consideration of this request. Subdivider looks forward to expeditiously completing the Second Amendment to the PIA to address the above-described Plan Revision with the cooperation of Public Works and the Port.

Sincerely,

A handwritten signature in black ink, appearing to read 'Julian', with a long horizontal flourish extending to the right.

Julian Pancoast
Mission Rock Horizontal Sub (Phase 1), L.L.C.

cc Phil Williamson, Port
Shawna Gates, Public Works - Infrastructure Task Force
Christopher Tom, City Attorney's Office
Molly Petrick, SFPUC

Attachment 1

(Approved Permit Drawings)

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5 G1.04 BOUNDARY SURVEY (FOR REFERENCE ONLY)

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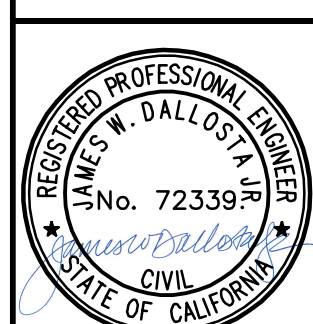
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DRAWING NAME: \\BKF-est\vol4\2008\080006_Mission_Rock\ENG\SP\PLOT\PLOTTED SHEETS\c01_00 - COVER.dwg
PLOT DATE: 03-18-21



MISSION ROCK PHASE 1
STREET IMPROVEMENT PLANS
SHEET INDEX

CALIFORNIA

SAN FRANCISCO COUNTY

SAN FRANCISCO

Revisions table with columns: No., Date, Scale, AS SHOWN, Design, Drawn, KCC/LM, Approved, Job No, and Revision #.

INFORMATIONAL BULLETIN 3 REVISION #1
Drawing Number: G1.01

CONSTRUCTION DRAWING LEGEND

(PROPOSED SFPUC)

- P — PRIMARY OVERHEAD DISTRIBUTION (3/8 WIRE SIZE AS SHOWN)
- P3 — PRIMARY UNDERGROUND DISTRIBUTION (3/8 WIRE SIZE AS SHOWN)
- D — PRIMARY CONDUIT (FOR FUTURE USE)
- R — PRIMARY 600A SWITCHED PRIMARY RISER
- S — PRIMARY 600A AIR SWITCH
- M — PRIMARY METER SET (OVERHEAD) (PTS CTS kWhr METER)
- X WOOD POLE
- - - -> DOWN GUY AND ANCHOR
- o BARRIER POST

(EXISTING) (PG&E)

- PRIMARY OVERHEAD DISTRIBUTION (SIZE AS SHOWN)
- + — PRIMARY UNDERGROUND DISTRIBUTION (SIZE AS SHOWN)
- x — PRIMARY 200A FUSED CUTOUT
- R — PRIMARY 600A SWITCHED PRIMARY RISER
- WOOD POLE (JOINT)
- WOOD POLE (SOLELY OWNED)

(EXISTING) (SFPUC)

- + — PRIMARY UNDERGROUND DISTRIBUTION (SIZE AS SHOWN)
- + — PRIMARY CONDUIT (FOR FUTURE USE)
- BCTD — BCTD VAULT

(FUTURE) (CUST)

- PRIMARY OVERHEAD DISTRIBUTION (3/8 WIRE SIZE AS SHOWN)
- R — OVERHEAD CIRCUIT RECLOSER WITHOUT BY-PASS SWITCH
- R — PRIMARY 600A RISER

SFPUC 12KV ELECTRIC DISTRIBUTION SYSTEM

OVERHEAD DISTRIBUTION LINE - BAE/BCTD INTERCONNECTION

MISSION ROCK - PHASE 1

MISSION ROCK STREET & TERRY FRANCOIS BLVD.

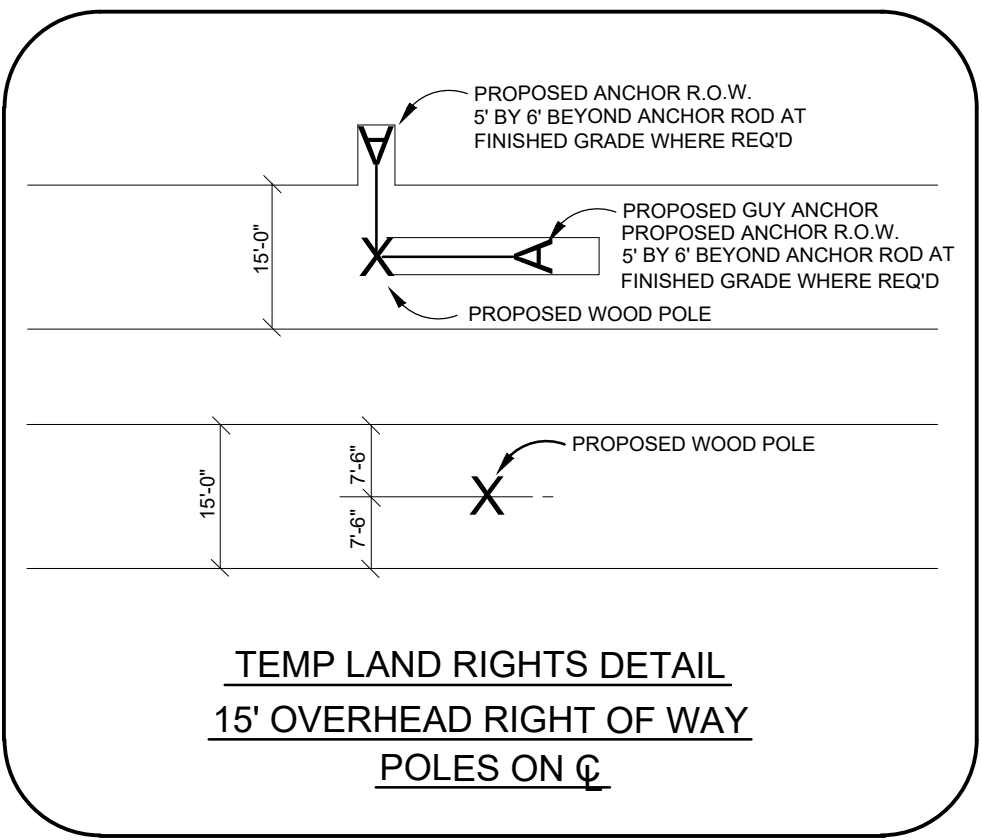
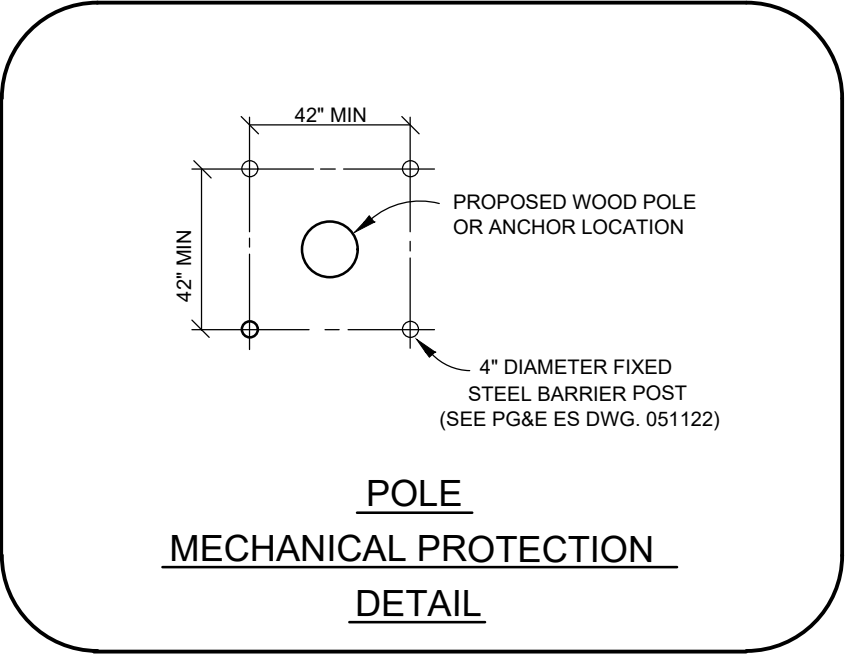
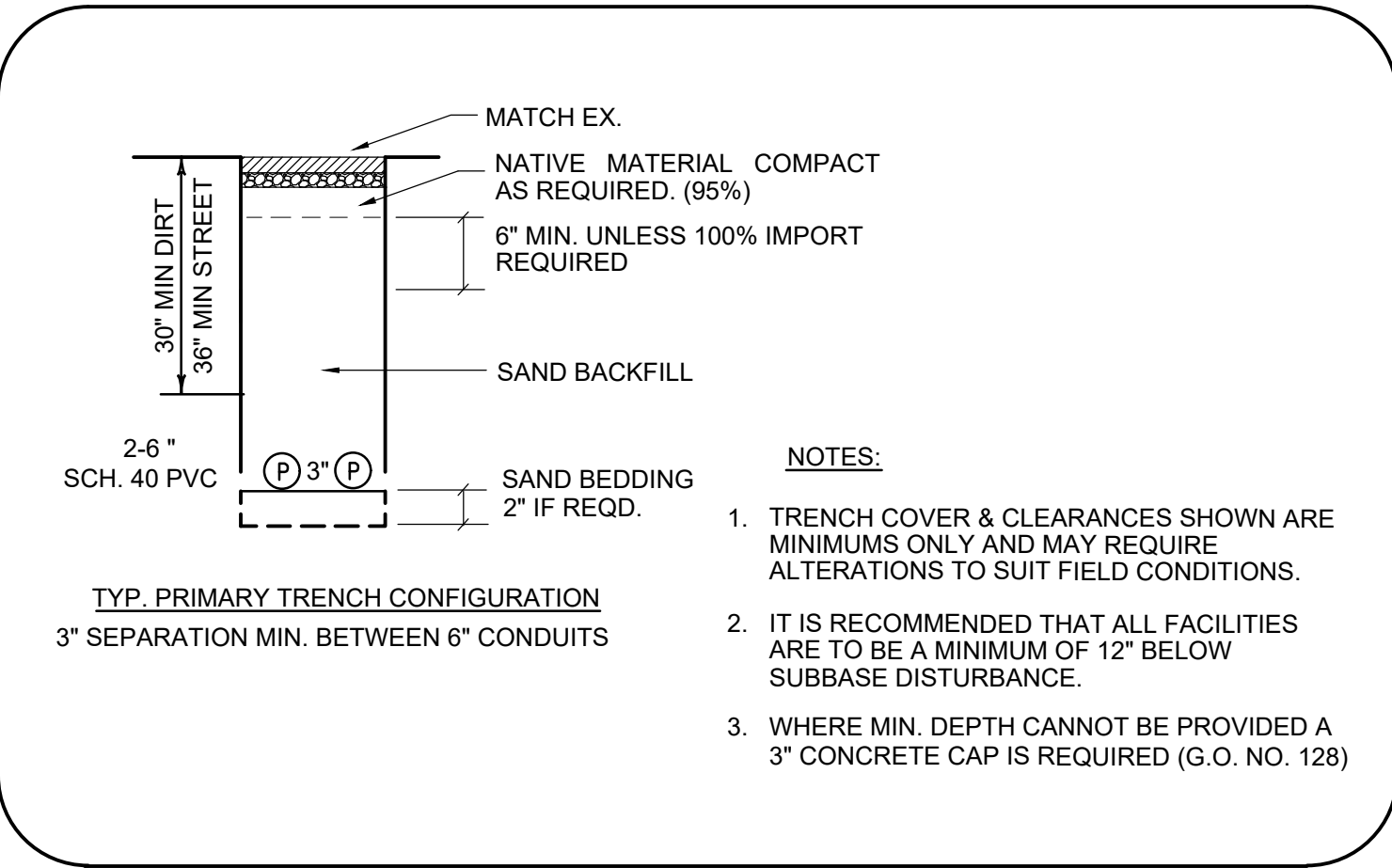
SAN FRANCISCO, CALIFORNIA

DRAWING LIST

EE-2	PRIMARY CIRCUIT SKETCH	SHEET 2
EE-3	CONSTRUCTION DRAWING	SHEET 3

REFERENCE DRAWINGS

- PG&E DWG ES 015221 SAGS AND TENSIONS. CONDUCTORS ON WOOD POLE LINES
- PG&E DWG ES 015116 3-WIRE CROSSARM CONSTRUCTION 12, 17, AND 21KV CIRCUITS
- PG&E DWG ES 015201 REQUIREMENTS FOR BUCKARM CONSTRUCTION ON 3-WIRE CIRCUITS
- PG&E DWG ES 061112 SLACK SPAN CONSTRUCTION FOR DISTRIBUTION LINES
- PG&E DWG ES 027742 INSTALLATION OF CABLE RISERS ON WOOD POLES
- PG&E DWG ES 022168 MARKING NUMBERING AND IDENTIFICATION OF LINE STRUCTURES
- PG&E DWG ES 022178 REQUIREMENTS FOR POLE LINE GUYS
- PG&E DWG ES 066195 25KV UNDERARM SIDE-BREAK SWITCH, MANUAL AND AUTOMATED
- PG&E DWG ES 058779 POLE MOUNTED PRIMARY METERING INSTALLATION (12 OR 21KV LINE)



GENERAL NOTES

- THIS PROJECT PROVIDES 12KV INTERIM PERMANENT DISTRIBUTION FACILITIES TO THE MISSION ROCK PHASE 1, AND PROVISIONS TO ACCOMMODATE THE INSTALLATION OF 12KV METERING AND PROTECTIVE DEVICE FOR PRIMARY SERVICE TO TEMPORARY CONSTRUCTION POWER.
- ALL CONSTRUCTION SHALL COMPLY WITH C.P.U.C. GENERAL ORDERS NO. 95 AND 128, PG&E STANDARDS, AND ANY APPLICABLE LOCAL CODES, ORDINANCES AND AUTHORITY HAVING JURISDICTION. OVERHEAD DESIGN CRITERIA: G.O. 95 LIGHT LOADING, MAX. LOADING, 25" F, 8# WIND.
- POLE LOCATIONS TO BE APPROVED BY SFPUC, AND PORT (STAKING BY BKF ENGINEERS).
- LOCATE ALL EXISTING UNDERGROUND FACILITIES BEFORE SETTING POLES, ANCHORS, TRENCH AND EXCAVATION. CALL U.S.A. 1-800-227-2600.
- STRING ALL CONDUCTORS PER PG&E DWG. ES 061112
- ALL MINOR MATERIAL REQUIREMENTS SHALL BE TAKEN FROM PG&E OVERHEAD CONSTRUCTION MANUAL, ENGINEERING STANDARD DRAWINGS.
- CONTRACTOR TO OBTAIN ANY APPLICABLE PERMITS.
- CONTRACTOR TO PROVIDE BILINGUAL SIGNS, MARKING AND ADEQUATE MECHANICAL PROTECTION TO PROTECT ALL POLES SUBJECT TO VEHICULAR EXPOSURE, PER SFPUC ACCEPTANCE CRITERIA.
- THESE DRAWINGS ARE BASED ON LIMITED INFORMATION AVAILABLE. FACILITY LOCATIONS ARE SHOWN SCHEMATICALLY. CONTRACTOR SHALL LOCATE ALL EXISTING FACILITIES BEFORE SETTING POLES, AND IS RESPONSIBLE FOR CLEARANCES FROM FOREIGN UTILITIES, AND SHALL CONTACT OWNER OF EXISTING FACILITIES TO ASSURE PROPER CLEARANCE REQUIREMENTS BEFORE PLACEMENT OF POLES AS APPLICABLE. **EXISTING FIELD CONDITIONS STATEMENT:** PSD IS NOT RESPONSIBLE OR LIABLE FOR POLES PLACED IN CONFLICT WITH FOREIGN UTILITIES OR FOR CLEARANCE ISSUES DETERMINED SUBSEQUENT TO PLACEMENT.
- FOR ACTUAL TRENCH LOCATION ON MISSION ROCK AND TERRY FRANCOIS, SEE ASSOCIATED CIVIL TRENCHING PLAN PREPARED BY BKF ENGINEERS.
- LAND RIGHTS TO BE DOCUMENTED AND PROCESSED BY CIVIL ENGINEER.
- CONTACT MS. RANJIT PARHAR SFPUC INSPECTION DEPARTMENT AT (415) 554-3101 48 HOURS BEFORE COMMENCEMENT OF CONSTRUCTION. WORK NOT PROPERLY INSPECTED BY SFPUC WILL BE REJECTED.

REVIEWED AND ACCEPTED:

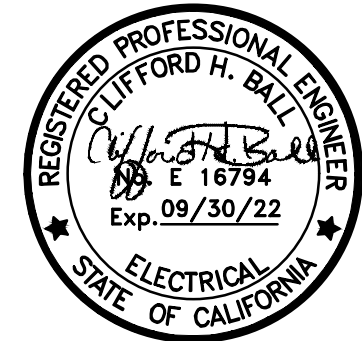
ORGANIZATION: _____

SIGNED: _____ PRINT NAME: _____ DATE: _____

CITY OF SAN FRANCISCO

APPROVED BY: _____ DATE: _____

_____, P.E. RCE NO: _____ EXP DATE: _____



REV	DATE	DESCRIPTION	APPVD
6	2-24-21	REVISED LINE ROUTE TO TFB	GJ
2	6-5-20	REVISED TO ACCOMMODATE TRAILER COMPLEX	GJ
3	9-29-20	ADDED PRIMARY (12KV) METER SET	GJ
4	11-10-20	ADJUSTED POLE LOCATIONS PER CIVIL	GJ

1893 BIDANZA STREET
WALNUT CREEK, CA 94596
TEL: 925-933-9485
WWW.POWERSYSTEMSDESIGN.NET

POWER SYSTEMS DESIGN
PSD
PLANNING • TRANSMISSION • DISTRIBUTION • SUBSTATION • DRY UTILITY DESIGN

JOB#	DRAWN BY	CHECKED BY	SCALE
		CC-0005	N/A

SFPUC ELECTRIC CONSTRUCTION DRAWING

SFPUC 12KV DISTRIBUTION

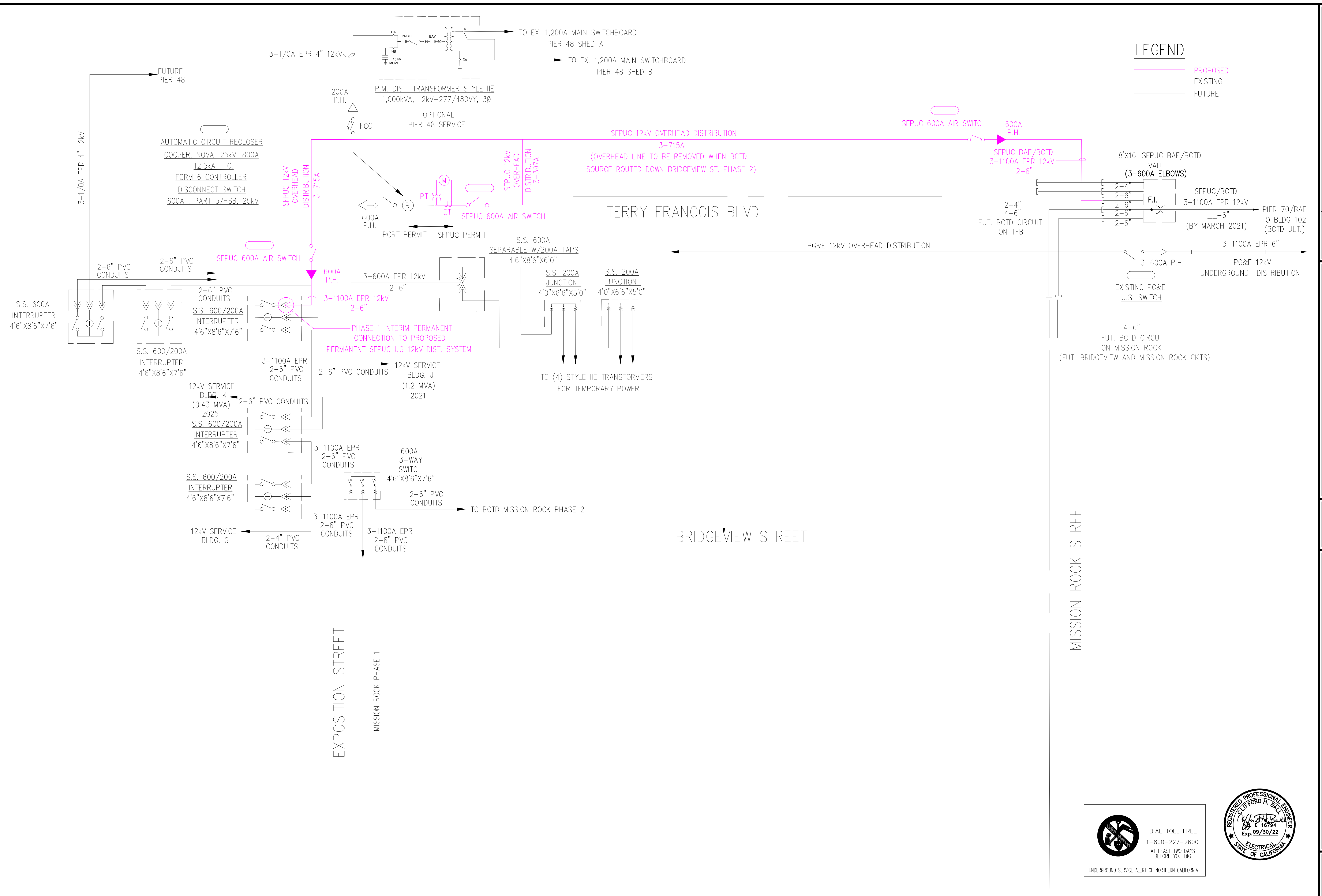
MISSION ROCK PROJECT - PHASE 1 DISTRIBUTION

SAN FRANCISCO CA

SHEET

EE-1

OF 3 SHEETS



REV	DATE	DESCRIPTION

1858 BONANZA STREET
WALNUT CREEK, CA 94596
TEL: 925-938-8485
WWW.POWERSYSTEMSDSIGN.COM

POWER SYSTEMS DESIGN
PSD

PLANNING • TRANSMISSION • DISTRIBUTION • SUBSTITUTION • DRY UTILITY DESIGN

JOB#	
DRAWN BY	
CHECKED BY	
SCALE	N/A

SFPUC ELECTRIC SINGLE LINE DIAGRAM

SFPUC 12kV DISTRIBUTION

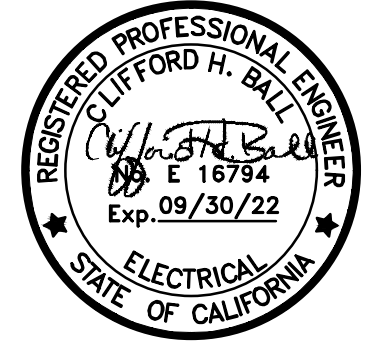
MISSION ROCK PROJECT - PHASE 1 DISTRIBUTION

SAN FRANCISCO CA

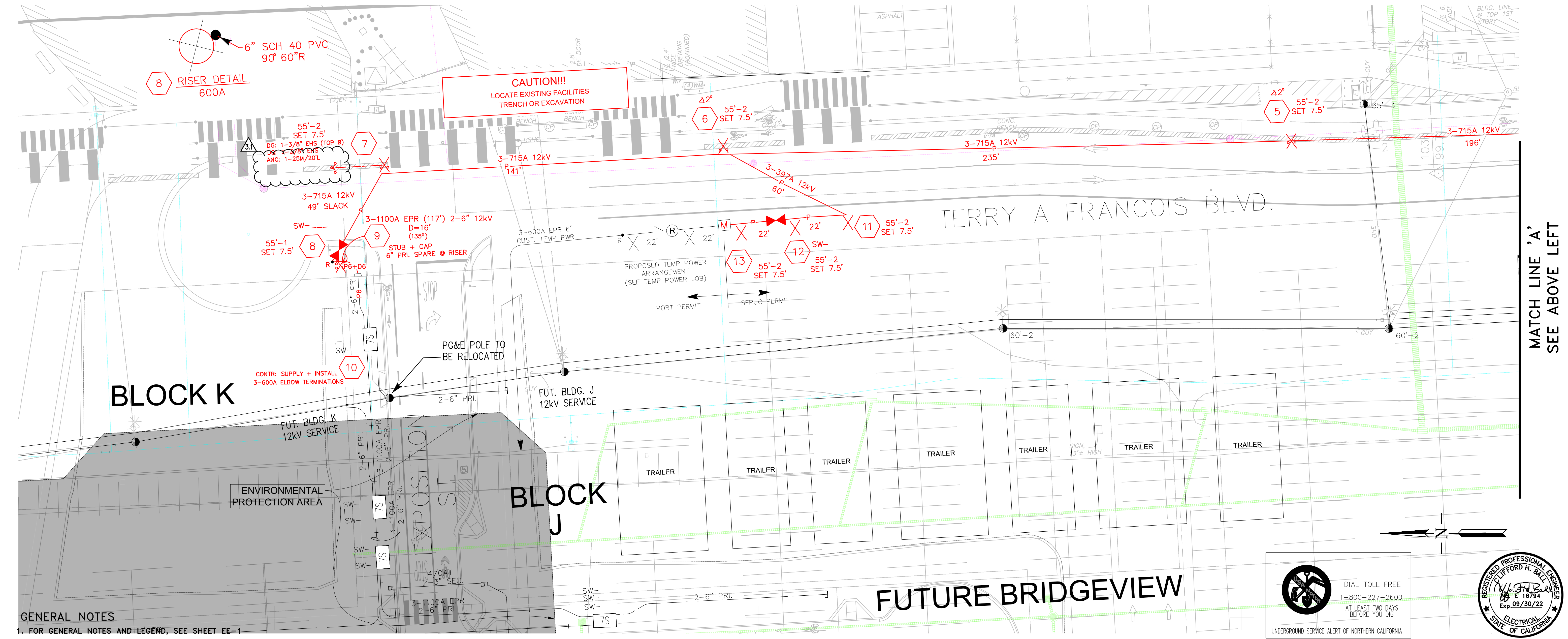
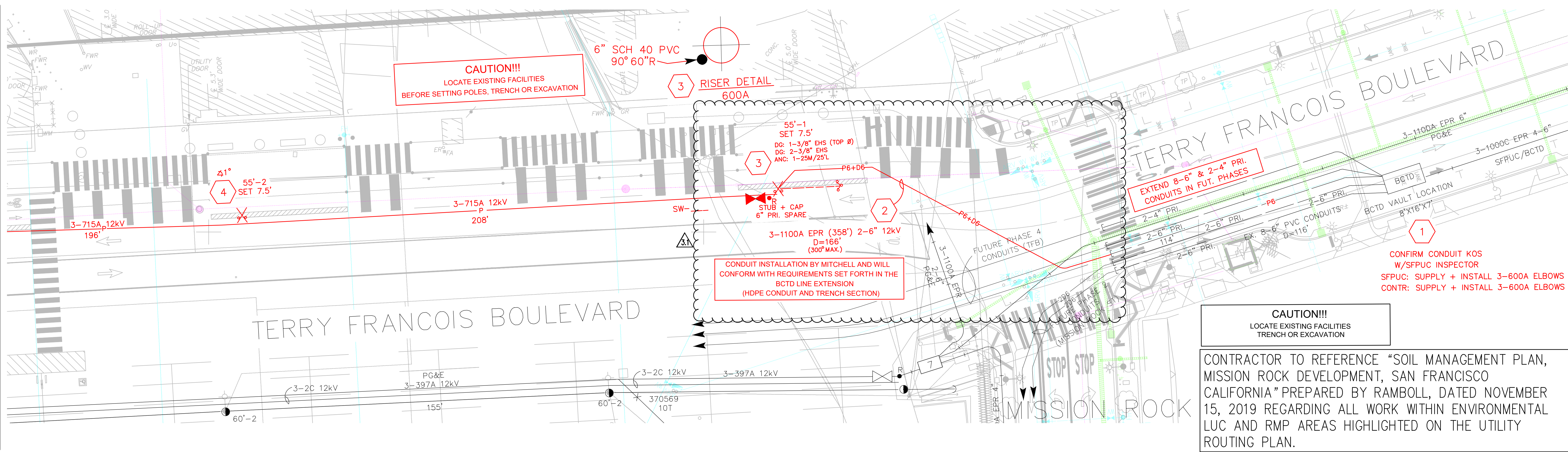
SHEET

EE-2

OF 3 SHEETS

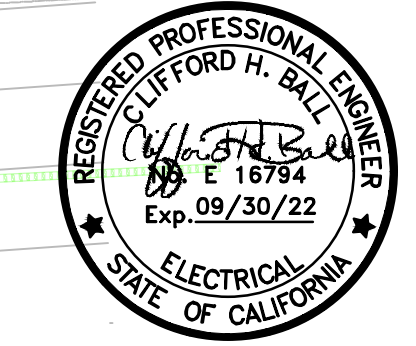


MATCH LINE 'A'
SEE BELOW RIGHT



GENERAL NOTES
1. FOR GENERAL NOTES AND LEGEND, SEE SHEET EE-1

UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG



APPROVED	DATE	DESCRIPTION

POWER SYSTEMS DESIGN
PSD
PLANNING • TRANSMISSION • DISTRIBUTION • SUBSTATION • DRY UTILITY DESIGN

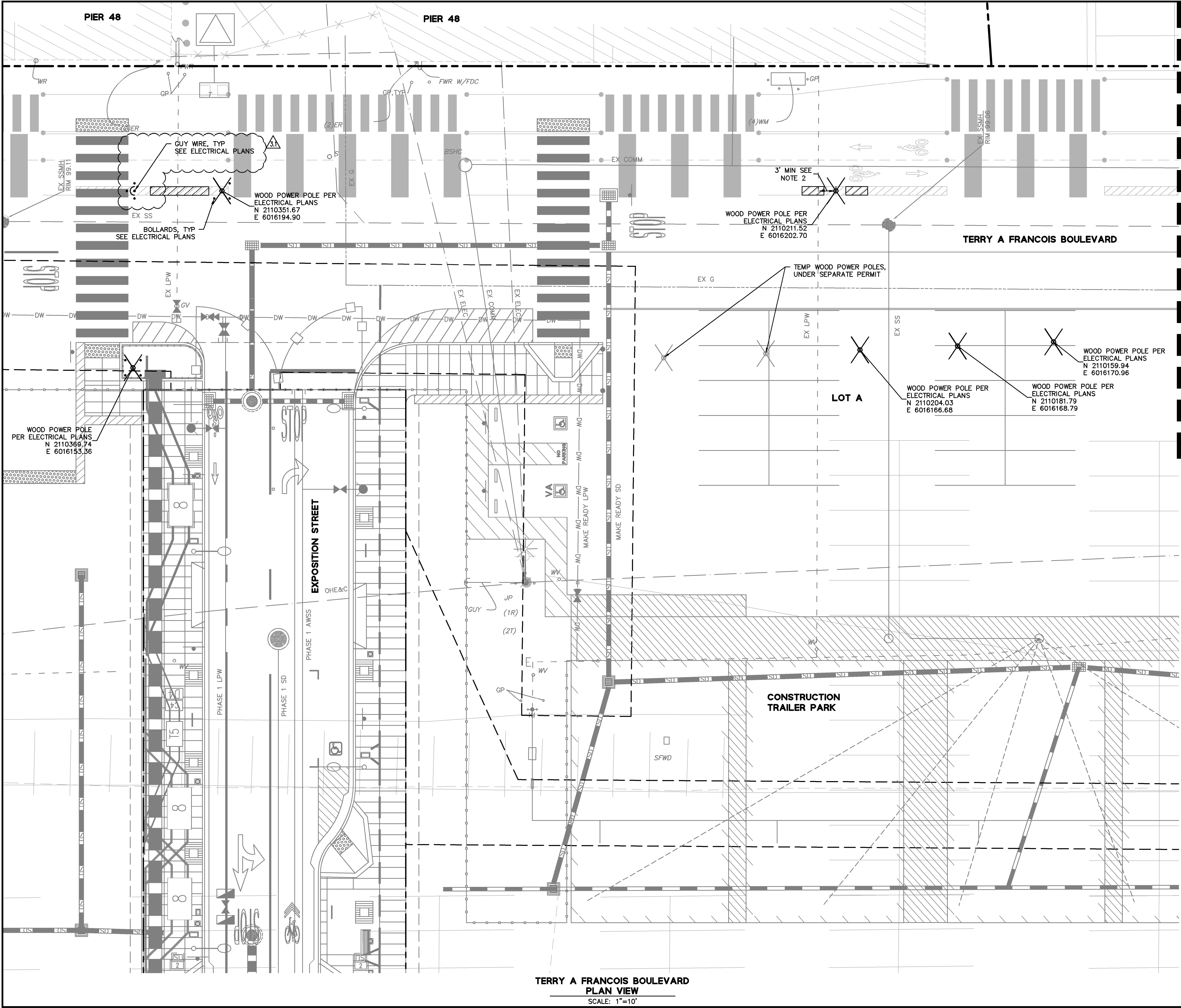
1853 BIDANZA STREET
WALNUT CREEK, CA 94596
TEL: 925-933-8485
WWW.POWERSYSTEMSDSIGN.NET

JOB#	DRAWN BY	CHECKED BY	SCALE

SFPUC ELECTRIC CONSTRUCTION DRAWING
SFPUC 12kV DISTRIBUTION
MISSION ROCK PROJECT - PHASE 1 DISTRIBUTION
SAN FRANCISCO CA

SHEET
EE-3
OF 3 SHEETS

DRAWING NAME: \\BKF-ST\vo14\2008\080006.Mission Rock\ENG\BCTD\Plotted Sheet\C1.0 Plan and Profile - BCTD.dwg
PLOT DATE: 03-19-21
PLOTTED BY: chuk



MATCH LINE SEE SHEET EE-5

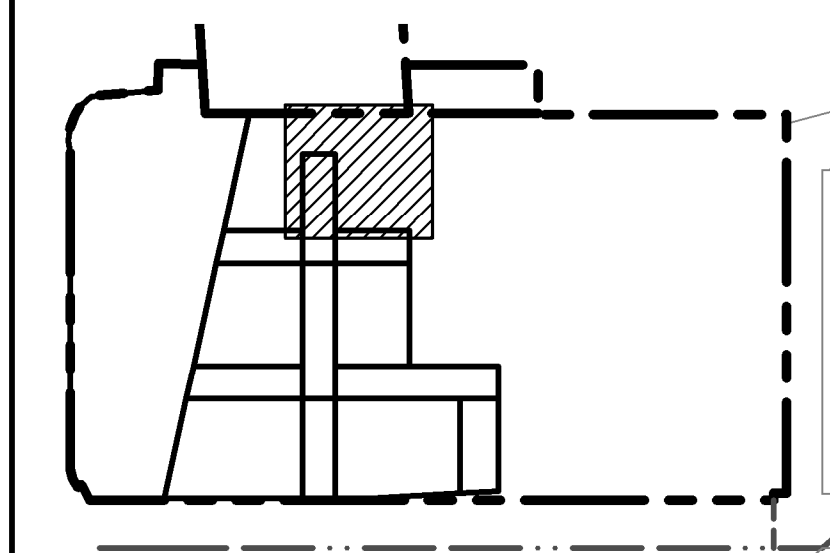
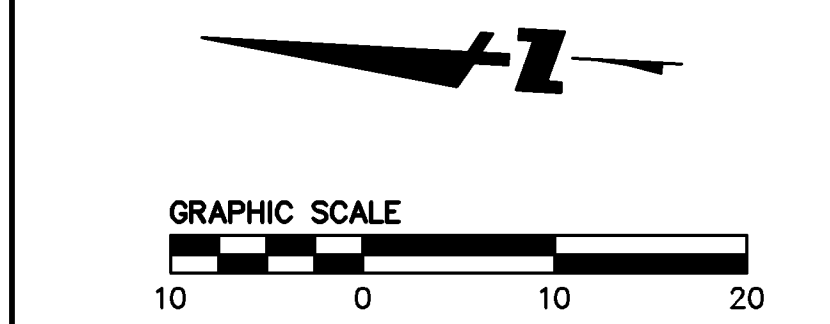
- NOTES:
- REFER TO PSD'S SFPUC 12KV ELECTRIC DISTRIBUTION SYSTEM, OVERHEAD POWER LINE - BAE/BCTD INTERCONNECTION PLANS FOR ADDITIONAL INFORMATION. SEE SHEETS EE-1 TO EE-3.
 - CONTRACTOR TO POTHOLE AND LOCATE EXISTING UTILITIES IN THE VICINITY OF THE POWER POLE PRIOR TO CONSTRUCTION. WOOD POWER POLES TO MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF ONE FOOT TO ALL UTILITIES AND STRUCTURES. IF CLEARANCE IS LESS THAN THREE FEET, CONTRACTOR TO HAND DIG TO REQUIRED DEPTH FOR POLE PLACEMENT.



MISSION ROCK PHASE 1
STREET IMPROVEMENT PLANS
SFPUC ELECTRIC - BAE/BCTD POLE LOCATION
SAN FRANCISCO COUNTY CALIFORNIA

No.	Revisions
2.0	11/20/2020 - IB2
1.1	02/03/2021 - IB1 REVISION #1
3.0	03/10/2021 - IB3
4.0	03/17/2021 - IB4
3.1	03/19/2021 - IB3 REVISION #1

Date: 03/19/2021
Scale: AS SHOWN
Design: JW
Drawn: KCC/JM
Approved: JD
Job No: 20080006



TERRY A FRANCOIS BOULEVARD
PLAN VIEW
SCALE: 1"=10'

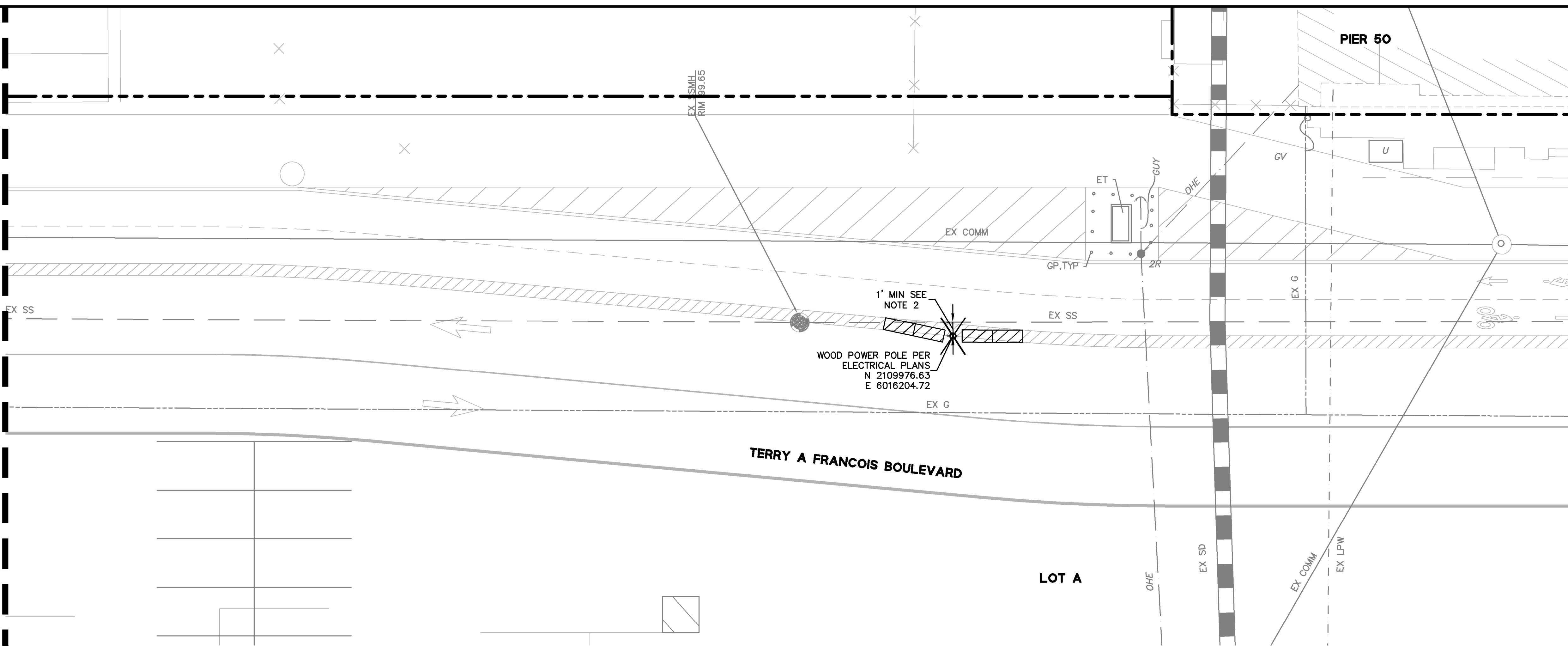
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PLOT DATE: 03-19-21
PLOTTER: BY: chuk

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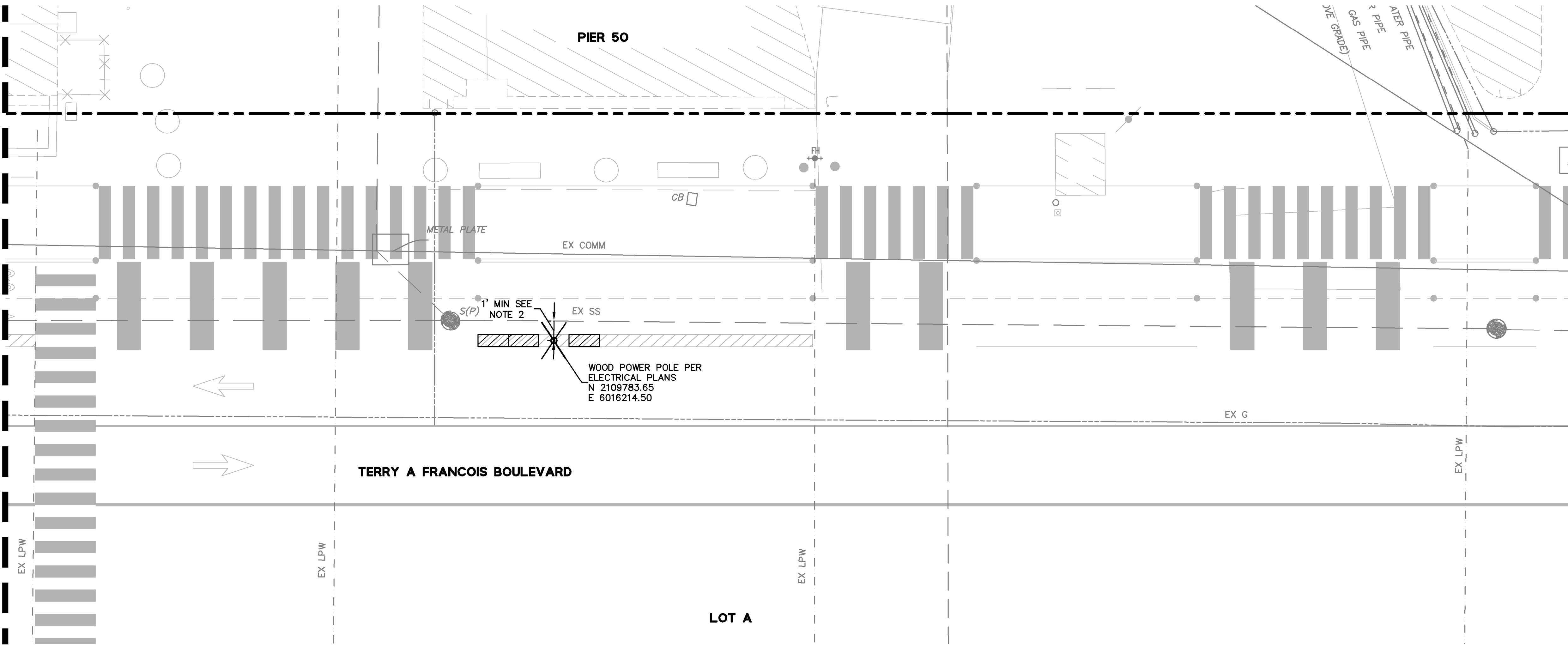
MATCH LINE SEE ABOVE

MATCH LINE SEE BELOW

MATCH LINE SEE SHEET EE-6



TERRY A FRANCOIS BOULEVARD
PLAN VIEW
SCALE: 1"=10'



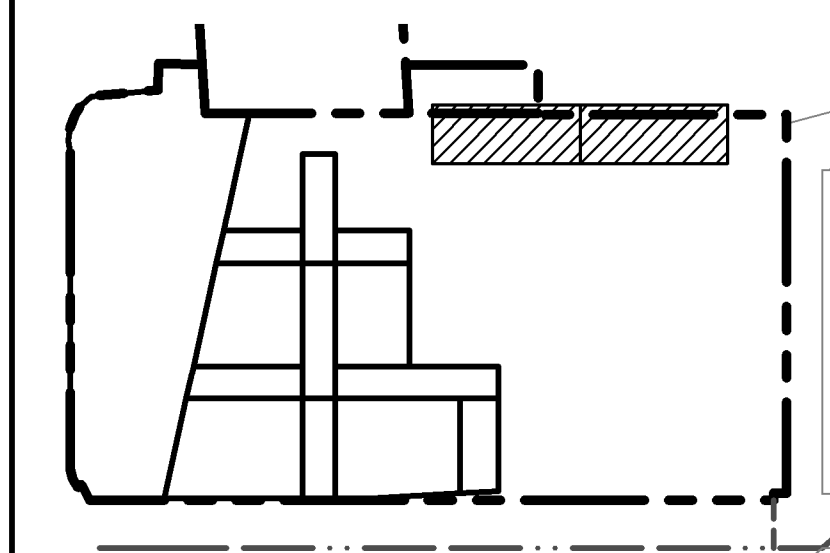
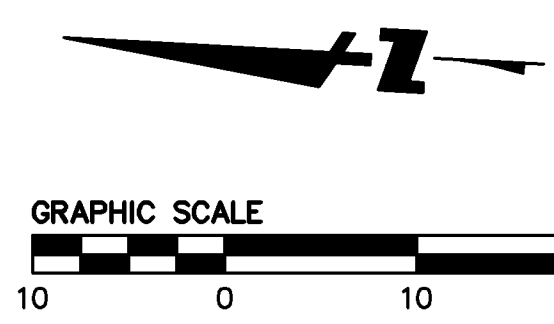
TERRY A FRANCOIS BOULEVARD
PLAN VIEW
SCALE: 1"=10'

NOTES:

- REFER TO PSD'S SFPUC 12KV ELECTRIC DISTRIBUTION SYSTEM, OVERHEAD POWER LINE - BAE/BCTD INTERCONNECTION PLANS FOR ADDITIONAL INFORMATION. SEE SHEETS EE-1 TO EE-3.
- CONTRACTOR TO POTHOLE AND LOCATE EXISTING UTILITIES IN THE VICINITY OF THE POWER POLE PRIOR TO CONSTRUCTION. WOOD POWER POLES TO MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF ONE FOOT TO ALL UTILITIES AND STRUCTURES. IF CLEARANCE IS LESS THAN THREE FEET, CONTRACTOR TO HAND DIG TO REQUIRED DEPTH FOR POLE PLACEMENT.

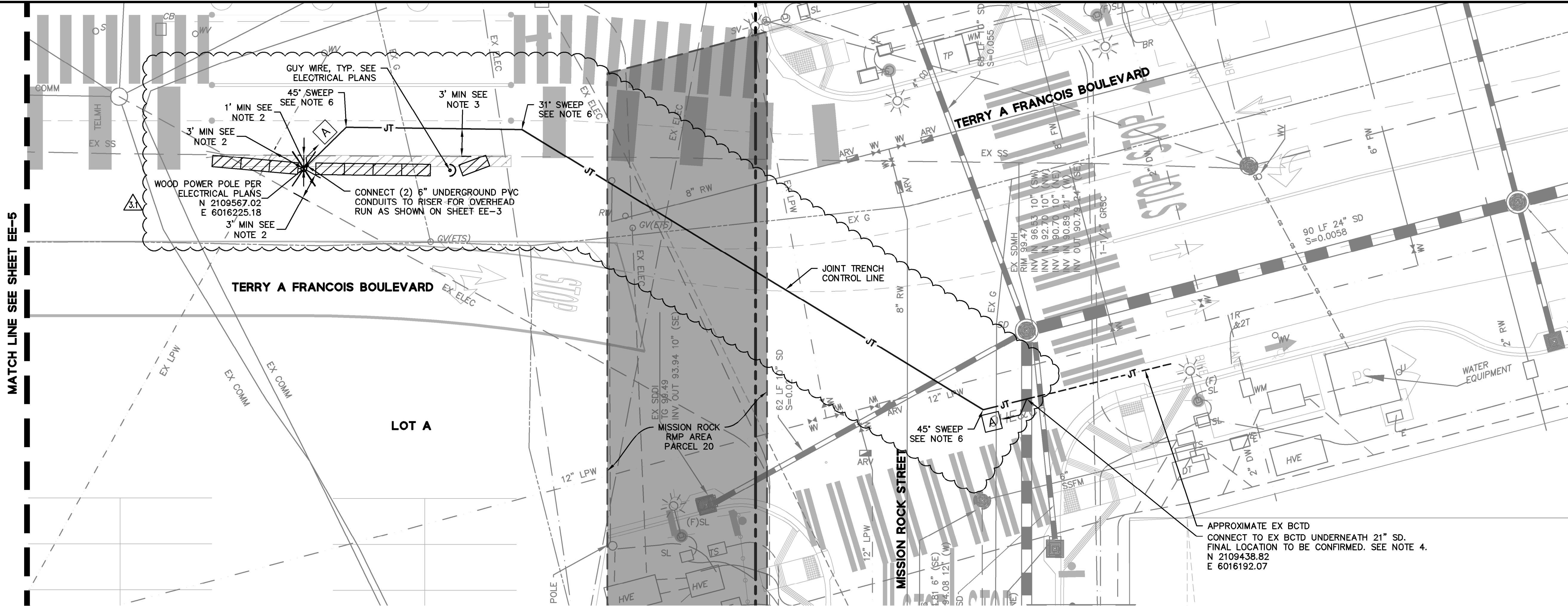


MISSION ROCK PHASE 1
STREET IMPROVEMENT PLANS
SFPUC ELECTRIC - BAE/BCTD POLE LOCATION
SAN FRANCISCO COUNTY CALIFORNIA

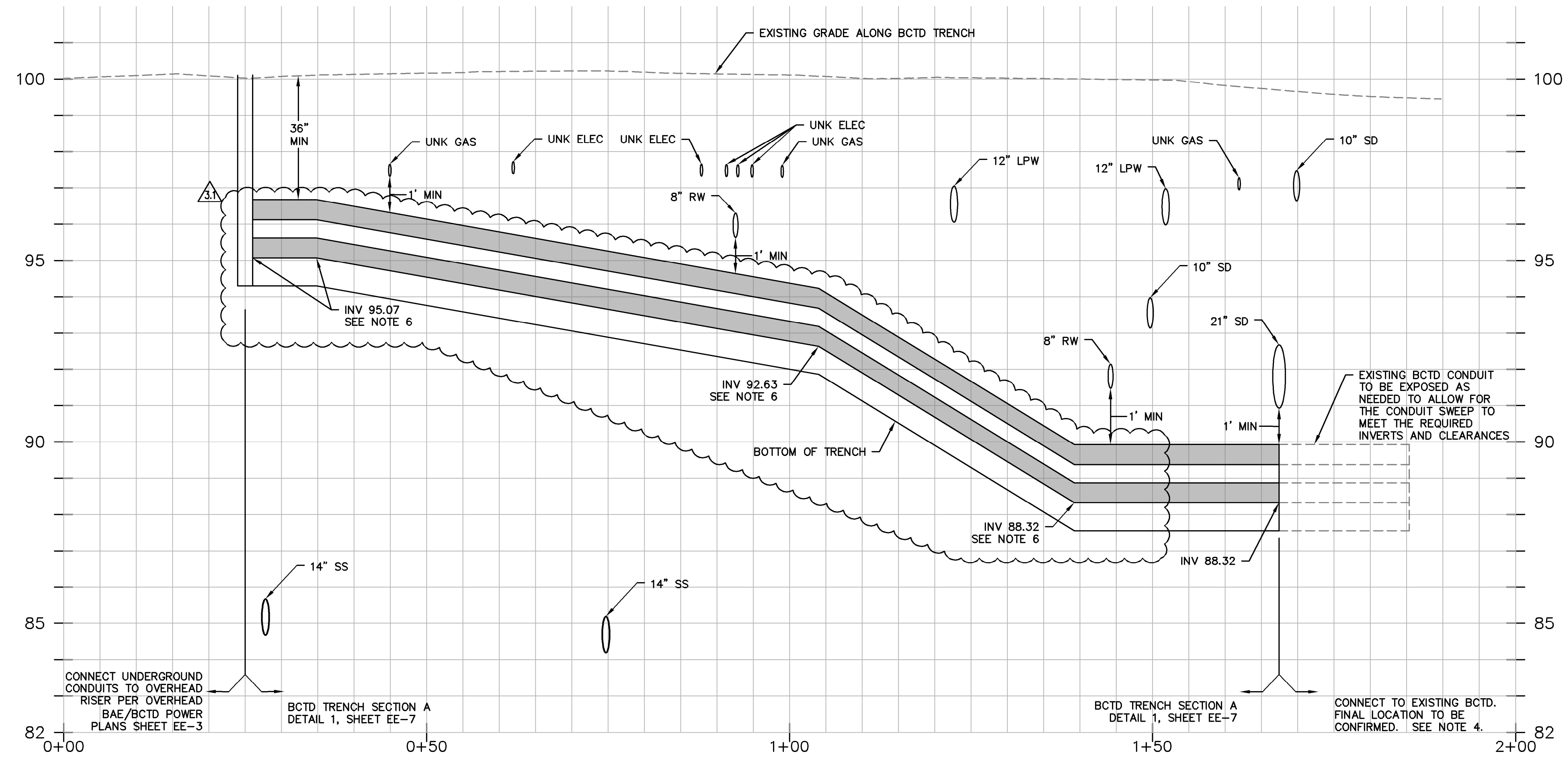


Date	No.	Revisions
03/19/2021	2.0	11/20/2020 - IB2
AS SHOWN	1.1	02/03/2021 - IB1 REVISION #1
Design	3.0	03/10/2021 - IB3
Drawn	4.0	03/17/2021 - IB4
Approved	3.1	03/19/2021 - IB3 REVISION #1
Job No	20080006	

Drawing Number: **EE-5**



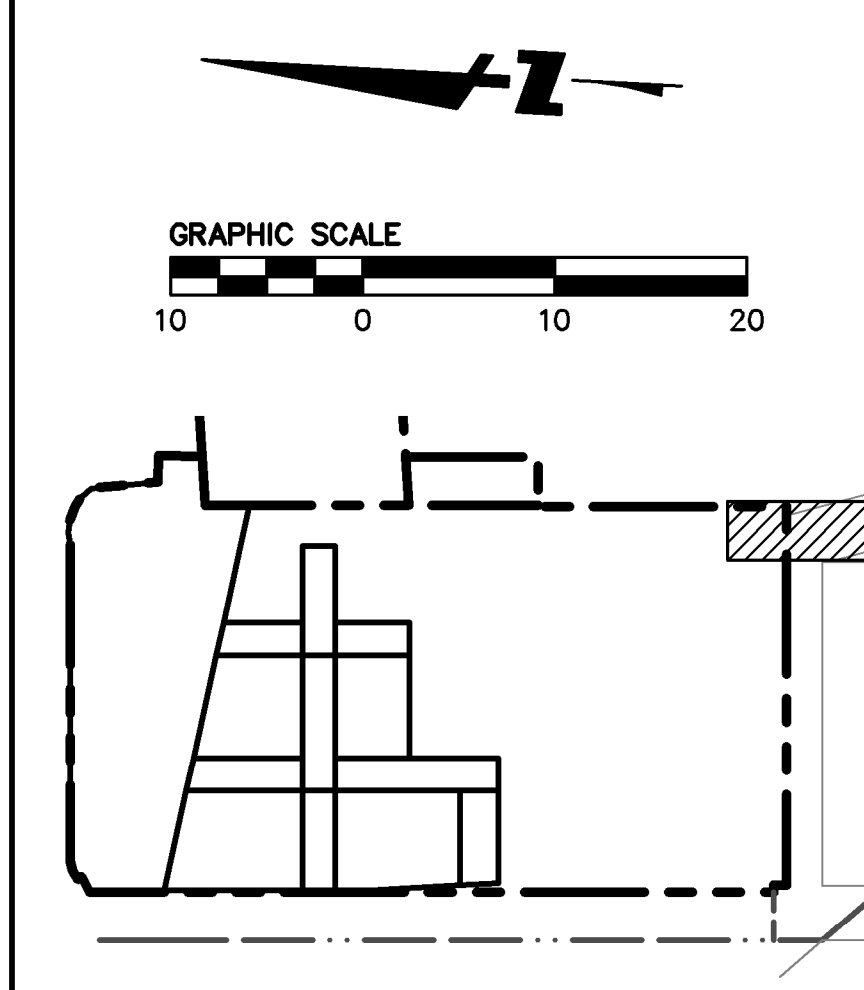
**TERRY A FRANCOIS BOULEVARD
PLAN VIEW**
SCALE: 1"=10'



**TERRY A FRANCOIS BOULEVARD
PROFILE VIEW**
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=2'

- NOTES:**
- REFER TO PSD'S SFPUC 12KV ELECTRIC DISTRIBUTION SYSTEM, OVERHEAD POWER LINE - BAE/BCTD INTERCONNECTION PLANS FOR ADDITIONAL INFORMATION. SEE SHEETS EE-1 TO EE-3.
 - CONTRACTOR TO POTHOLE AND LOCATE EXISTING UTILITIES IN THE VICINITY OF THE POWER POLES PRIOR TO CONSTRUCTION. WOOD POWER POLES TO MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF ONE FOOT TO ALL UTILITIES AND STRUCTURES. IF CLEARANCE IS LESS THAN THREE FEET, CONTRACTOR TO HAND DIG TO REQUIRED DEPTH FOR POLE PLACEMENT.
 - JOINT TRENCH TO MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF THREE FEET TO ALL UTILITIES AND ONE FOOT TO ALL STRUCTURES.
 - EXISTING BCTD SYSTEM TO BE INSTALLED PER BAY CORRIDOR TRANSMISSION AND DISTRIBUTION PHASE 2, NORTH PLAN SET, DATED AUGUST 2020. TO BE INSTALLED BY OTHERS.
 - VERTICAL SEPARATIONS AT CROSSINGS WILL REQUIRE 1' MINIMUM CLEARANCE.
 - CONDUIT ALIGNMENTS SHALL BE CONFIGURED SUCH THAT THE MINIMUM CONDUIT BEND RADIUS IS 15-FEET, BUT NOT LESS THAN THE CABLE MANUFACTURER'S RECOMMENDED INSTALLATION BENDING RADIUS.
 - REFER TO SFPDPW ORDER NO. 187005 ON REGULATIONS FOR EXCAVATING AND RESTORING STREETS IN SAN FRANCISCO.

- LEGEND:**
- MISSION ROCK RMP AREA PARCEL 20
 - TRENCH SECTION PER DETAIL 1, SHEET EE-7



BKF100
150 CALIFORNIA STREET, SUITE 600, SAN FRANCISCO, CA 94111
YEARS OF EXPERIENCE
ENGINEERS, SURVEYORS, PLANNERS

REGISTERED PROFESSIONAL ENGINEER
No. 72339
CIVIL
STATE OF CALIFORNIA

**MISSION ROCK PHASE 1
STREET IMPROVEMENT PLANS**
SFPUC ELECTRIC - BAE/BCTD PLAN AND PROFILE
SAN FRANCISCO COUNTY CALIFORNIA

Revisions	
No.	Date
1	03/19/2021
2	11/20/2020 - IB2
3	02/03/2021 - IB1 REVISION #1
4	03/10/2021 - IB3
5	03/17/2021 - IB4
6	03/19/2021 - IB5 REVISION #1

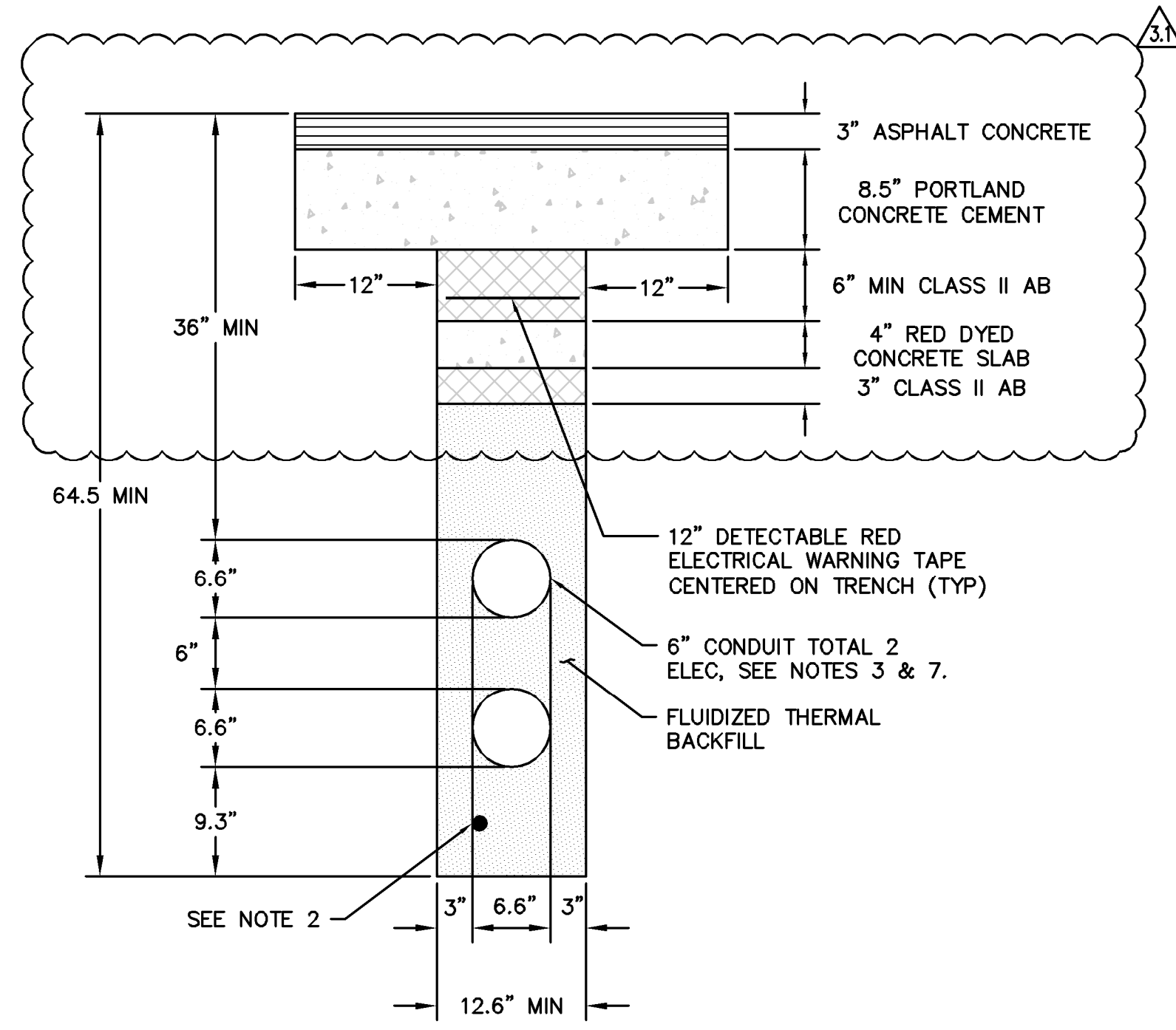
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Scale: AS SHOWN
Design: JW
Drawn: KCC/JM
Approved: JD
Job No: 20080006

Drawing Number: **EE-6**

DRAWING NAME: \\BKF-st\vo\14\2008\080006.Mission Rock\ENG\BCTD\Plotted Sheet\C1.0 Plan and Profile - BCTD.dwg
PLOT DATE: 03-19-21
PLOTTED BY: chuk

Date	No.	Revisions
03/19/2021	2.0	11/20/2020 - IB2
AS SHOWN	1.1	02/03/2021 - IB1 REVISION #1
Design	3.0	03/10/2021 - IB3
Drawn	4.0	03/17/2021 - IB4
Approved	3.1	03/19/2021 - IB5 REVISION #1
Job No	20080006	

Drawing Number: **EE-7**



BTCD TRENCH SECTION A
NTS

NOTES:

- CONDUIT SUPPORTS TO BE INSTALLED AS NEEDED TO MAINTAIN SPECIFIED SPACING. IF NEEDED, PROVIDE AT INTERVALS NOT GREATER THAN RECOMMENDED BY VENDOR AND NOT TO EXCEED 10-FOOT SPACING.
- #4/0 BARE COPPER DUCT BANK GROUND-TYPICAL ALL TRENCHES. CONNECT TO DESTINATION GROUND GRID. WHERE TWO DUCT BANKS ARE JOINED, CONNECT THESE BARE COPPER GROUNDING CONDUCTORS TOGETHER USING EXOTHERMIC-WELDED CONNECTIONS.

WHERE CONDUITS IN A DUCT BANK ARE CAPPED, PROVIDE A MINIMUM OF 3-FOOT GROUNDING CONDUCTOR PIGTAIL EXTENDED FROM THE DUCT BANK FOR FUTURE USE.
- CONDUITS SHALL MEET ALL CONSTRUCTION METHODS AND MATERIALS REQUIREMENTS OF SFPUC.
- TRENCH BACKFILL SHALL BE CONTROLLED DENSITY FLUIDIZED THERMAL BACKFILL. SEE ADDITIONAL INFORMATION ON THIS SHEET.
- CONTRACTOR SHALL PROVIDE BACKFILL, COMPACTION, AND PAVING IN ACCORDANCE WITH SITE CIVIL WORK AND ROAD DESIGNS.
- PROVIDE 3" BACKFILL ON ALL SIDES OF CONDUIT AND MINIMUM 6" SEPARATION AND BACKFILL BETWEEN POWER CONDUITS. BACKFILL MATERIAL SHALL NOT MIX WITH SIDEWALL MATERIALS.
- CONDUIT MATERIAL SHALL BE HDPE FOR STRAIGHT SEGMENTS AND AT ELBOWS.
- SLOPE CONDUITS SUFFICIENTLY TO PROVIDE ADEQUATE DRAINAGE. CONDUIT SLOPE SHALL BE A MINIMUM OF 1%, ALL CONDUITS TO SLOPE TOWARDS PULL BOXES AND AWAY FROM BUILDINGS.
- INSTALL PULL WIRES WITHIN EACH CONDUIT FOR FUTURE CABLE PULLING. CONDUITS SHALL BE CAPPED AT EACH END AND PROVIDED WITH IDENTIFICATION TAGS AT EACH VAULT ENTRY AND EXIT.
- TRENCH DIMENSIONS ARE APPROXIMATE. MAINTAIN MINIMUM DEPTHS AND BACKFILL REQUIREMENTS. BOTTOM OF TRENCH ELEVATION SHALL PROVIDE CONDUIT SLOPE TO PULLBOX FOR DRAINAGE.
- CONDUIT HORIZONTAL AND VERTICAL SPACERS AND SEPARATION SHOWN AS TYPICAL IN TRENCH.
- CONDUIT INSTALLATION SHALL BE COORDINATED WITH OTHER TRADE DISCIPLINES. COORDINATION SHALL INCLUDE PHYSICAL LOCATIONS, INTERFERENCE VERIFICATION, AND SCHEDULE OF WORK.
- SECTION IS REPRESENTATIVE OF A TYPICAL DUCT CONFIGURATION UTILIZED WHERE NARROW HORIZONTAL CLEARANCES ARE AVAILABLE. ACTUAL DUCT CONFIGURATION SHALL BE DETERMINED BASED ON AVAILABLE CLEARANCES TO EXISTING UTILITIES AND STRUCTURES AND MAY VARY FROM SECTION SHOWN.
- PROVIDE THE FOLLOWING MINIMUM DEPTH COVERAGE:
A. 36" FOR POWER CONDUITS
B. 27" FOR COMMUNICATION CONDUITS
C. 27" FOR MISCELLANEOUS CONDUITS
- SFPUC HAS CONFIRMED THAT:
A. THE POWER CONDUITS WILL BE USED FOR 34.5KV CIRCUITS
B. THE COMMUNICATION CONDUITS WILL BE USED FOR FIBER OPTIC CABLES. NO MULTI-PAIR COPPER CABLES WILL BE PULLED IN THESE COMMUNICATION CONDUITS.
C. THE MISCELLANEOUS CONDUITS BE CONSIDERED AS COMMUNICATION CONDUITS.
D. THE 34.5KV POWER DISTRIBUTION SYSTEM WILL NOT BE SOLIDLY GROUNDED SYSTEM AND THE COPPER TAPE SHIELDS IN THE CABLES WILL BE USED AS EQUIPMENT GROUNDING CONDUCTORS. NO SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN THE POWER CONDUITS.
- WHEN APPROACHING PULL BOX, THE CONDUITS SHALL GRADUALLY SPREAD OUTWARD TO MATCH WITH CONDUIT POSITION OF THE DUCT TERMINATORS.

TRENCH BACKFILL (FLUIDIZED THERMAL BACKFILL) NOTES:

- THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS TO PROVIDE FLUIDIZED THERMAL BACKFILL (FTB) IN ACCORDANCE WITH THE PROVISIONS OF THESE NOTES AND SHALL MIX, PLACE, FINISH, AND DO ALL OTHER WORK TO PRODUCE A FREE FLOWING AND NON-SEGREGATING SLURRY THAT PROVIDES CONSISTENT HEAT DISSIPATION ALONG THE FULL LENGTH OF THE UNDERGROUND CONDUITS AS SHOWN ON THE DRAWINGS.
- SUBMITTALS: PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL TO THE SFPUC REPRESENTATIVE FTB MIX DESIGNS THAT SHOW THE PROPORTIONS AND GRADATIONS OF ALL MATERIALS PROPOSED FOR USE. CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL TO THE SFPUC REPRESENTATIVE PROCEDURES, METHODS, AND CALCULATIONS SHOWING THAT THE CONDUIT WILL NOT FLOAT OR BE DISPLACED DURING FTB PLACEMENT.
- MATERIALS: THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF THE FTB SHALL BE 50 PSI, AND THE MAXIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 150 PSI. THE MAXIMUM THERMAL RESISTIVITY OF FTB SHALL BE 100°C-CM/W AT 0% MOISTURE CONTENT AND 40°C-CM/W AT CRITICAL MOISTURE CONTENT.
- FREQUENCY OF FTB SAMPLING AND QUALITY TESTING FOR COMPRESSIVE STRENGTH WILL BE PERFORMED BY THE CONTRACTOR AS FOLLOWS: CAST A MINIMUM OF FIVE (5) CYLINDERS FROM EACH 50 CUBIC YARDS, OR FRACTION THEREOF, OF FTB PLACED IN ANY ONE (1) DAY. SAMPLING AND CURING SHALL CONFORM TO ASTM D4832. FTB SHALL BE TESTED FOR COMPRESSIVE STRENGTH PER ASTM C39. A SET OF TEST CYLINDERS SHALL CONSIST OF FIVE (5) CYLINDERS, ONE (1) TO BE BROKEN AT SEVEN (7) DAYS, ONE (1) TO BE BROKEN AT 14 DAYS, AND TWO (2) AT 28 DAYS WITH ONE (1) SPARE. FREQUENCY OF FTB SAMPLING AND QUALITY TESTING FOR THERMAL RESISTIVITY WILL BE PERFORMED BY THE CONTRACTOR AS FOLLOWS: CAST A MINIMUM OF THREE (3) CYLINDERS FROM EACH 50 CUBIC YARDS, OR FRACTION THEREOF, OF FTB PLACED IN ANY ONE (1) DAY. FTB SHALL BE TESTED PER ASTM D5334.
- PLACING AND SPREADING: CONSTRUCT THE FTB IN AS NEARLY A CONTINUOUS OPERATION AS PRACTICAL AND IN A MANNER TO PRODUCE A MASS WITH SUFFICIENT CONTINUITY SO THAT IT WILL HARDEN AND ACT AS A MONOLITHIC MASS WITH NO DISCONTINUOUS JOINTS OR POTENTIAL PLANES OF SEPARATION OR WEAKNESS. FTB SHALL BE CONTINUOUSLY PLACED AGAINST FRESHLY PLACED FTB, UNLESS OTHERWISE APPROVED BY THE SFPUC REPRESENTATIVE. WHERE NEW FTB MUST BE PLACED AGAINST EXISTING FTB, THE PLACEMENT AREA SHALL BE CLEAN OF ALL LOOSE AND FOREIGN MATERIAL.
- FINISHING: THE FINISHED SURFACE OF FTB SHALL BE RELATIVELY SMOOTH, FREE FROM UNDULATIONS, AND TO THE GRADE SHOWN OR DIRECTED BY THE SFPUC REPRESENTATIVES. FTB SHALL BE PROTECTED FROM RUNNING WATER, RAIN, FREEZING, AND ALL OTHER CONDITIONS THAT COULD DAMAGE THE MATERIAL BEFORE FINAL CURING AND UNTIL THE MATERIAL HAS BEEN ACCEPTED. ANY VOID LEFT BY REMOVAL OF SHORING SYSTEMS SHALL BE FILLED WITH FTB AS APPROVED BY THE SFPUC REPRESENTATIVE TO PROVIDE SOIL SUPPORT BETWEEN THE BACKFILL ZONE AND THE NATIVE SOIL.

DRAWING NAME: \\BKF-st\vo\14\2008\080006_Mission_Rock\ENG\BCTD\Plotted Sheet\C1.0 Plan and Profile - BCTD.dwg
PLOT DATE: 03-19-21
PLOTTER BY: chuk

Attachment 2

(Revised Exhibit A-1 to PIA)

EXHIBIT A-1

Approved Street Improvement Permit Plans and Specifications

1. Public Works Street Improvement Permit (SIP) No. 20IE-00486 (October 1, 2020)
2. Mission Rock Phase 1 Street Improvement Plans and Specifications prepared by BKF Engineers, including “Technical Specifications for Seawall Lot 337 / Mission Rock Phase 1 Street Improvement Plans” (dated September 25, 2020 and approved October 1, 2020 pursuant to SIP No. 20IE-00486)
3. Instructional Bulletin (IB) #3 (dated March 10, 2021) (“**IB#3**”) and IB#3 Revision 1 (dated March 19, 2021) (“**IB#3.1**”) Proposing Amendments to Public Works Street Improvement Permit (SIP) No. 20IE-00486, Conditionally Approved on March 19, 2021
4. Instructional Bulletin (IB) #1 Revision 3 (dated June 14, 2021) Proposing Amendments to the Public Works Street Improvement Permit No. 20IE-00486, Approved on July 12, 2021

Attachment 3

(Revised Exhibit D)

EXHIBIT D

Documentation Required for Public Improvement Agreement

1. Public Works Street Improvement Permit No. 20IE-00486 (October 1, 2020)
2. Irrevocable Offer of Dedication of Improvements (recorded June 12, 2020 as Document No. 2020K940595)
3. Payment and Performance Bonds and Monument Bonds
4. Maintenance Matrix
5. Master Homeowner Association Covenants, Conditions and Restrictions (applies only if Final Map authorizes residential condominiums)
6. Bonding to complete the Mission Rock Improvements
7. Instructional Bulletin (IB) #3, dated March 10, 2021 (“**IB#3**”), and IB#3 Revision 1, dated March 19, 2021 (“**IB#3.1**”), Proposing Amendments to Public Works Street Improvement Permit (SIP) No. 20IE-00486, Conditionally Approved on March 19, 2021
8. Instructional Bulletin (IB) #1 Revision 3 (dated June 14, 2021) Proposing Amendments to the Public Works Street Improvement Permit No. 20IE-00486, Approved on July 12, 2021
9. Irrevocable Offer of Dedication of Improvements (12-kV Line)

Attachment 4

(Revised Exhibit F-1)

EXHIBIT F-1

List of Documents Required by City in Order to issue a Notice of Completion

1. Subdivider's Letter Requesting Notice of Completion
2. Contractor Substantial Completion Letter
3. Civil Engineer Completion Notice
4. Geotechnical Engineer Completion Letter
5. Landscape Architect Completion Notice
6. Construction Manager Completion Notice
7. Record of City's approval of all required infrastructure testing including but not limited to SS/SD post-construction CCTV, SS/SD vacuum/pressure tests, LPW/AWSS hydrostatic tests, mandrel tests, in place density/compaction tests, concrete and LCC tests, irrigation tests, rolling straight edge tests, etc.
8. City's Confirmation that Final Punch-List Items Have Been Completed
9. Utility Conformance Letter
10. As-Built Plan Approval Letter
11. Final Draft of Notice of Completion (to be recorded)
12. Survey Monuments
13. Test Reports
14. Joint Trench Conduits Mandrel Test
15. Confirmation of Removal of all Non-Compliance Reports ("NCR")
16. Confirmation from City that all Change Orders/Instructional Bulletins have been approved
17. Confirmation from City that all required spare parts have been provided
18. Confirmation from City that Infrastructure satisfies all requirements of Public Works Order No. 203,636 and Public Works Order No. 203,637
19. Confirmation from City that all conditions of SIP have been satisfied
20. Operation and Maintenance Manuals
21. Executed Corporate Guaranty for the Extended Warranty Acceptable to the City (due at the time of first request for the final NOC within Phase 1A; Subdivider shall submit a final completed form of the Corporate Guaranty, including all parties and terms, with its first request for any NOC)
22. Final Form of Master Encroachment Permit(s) sufficient for consideration by the Board of Supervisors and associated agreement for Private Utility Improvements and other non-standard public or private improvements in the right-of-way
23. NOC Recommendation from Public Works
24. Separate agreement between the Port and SFPUC pursuant to which SFPUC may own, operate and maintain the 12-kilovolt electrical line authorized by Instructional Bulletin (IB) #3 (dated March 10, 2021) ("**IB#3**") and IB#3 Revision 1 (dated March 19, 2021)

(“**IB#3.1**”) Proposing Amendments to Public Works Street Improvement Permit (SIP) No.20IE-00486, and which does not require SFPUC to compensate the Port for the right to occupy Port property. **This requirement applies only to issuance of a NOC for the 12-kilovolt line authorized by IB#3 and IB#3.1, and not to other improvements contemplated by this Public Improvement Agreement.**

Attachment 5

(June 23, 2021 Letter from BKF)



BKF Engineers

**Preliminary Engineer's Opinion of
Probable Construction Cost**

**Mission Rock Development
Phase 1 Improvements**

December 13, 2019

Revised September 30, 2020

Revised June 23, 2021

By:
BKF Engineers
150 California Street, Suite 600
San Francisco, CA 94111



Client:
Mission Rock Horizontal Sub Phase 1 LLC
One Bush Street Suite 500
San Francisco CA 94104



Introduction

This preliminary engineer's opinion of probable construction costs has been prepared to assess the cost of the proposed infrastructure work at Mission Rock - Phase 1.

The following documents were used in preparation of this opinion:

1. Mission Rock Phase 1 Street Improvement Plans, dated 07/31/2020 with select sheet revisions dated 9/14/2020
2. Mission Rock Phase 1 Street Improvement Plans Information Bulletin 1 Revision #2, dated 04/30/2021 with the Sanitary Sewer Technical Memorandum dated 3/8/2021
3. Mission Rock Phase 1 Street Improvement Plans Information Bulletin 3 Record Drawings, dated 03/19/2021

Executive Summary of Cost Revisions

1. Horizontal Demolition
 - a. Horizontal Demolition was not shown in the original preliminary engineer's opinion of probable construction cost but it carried a cost in the total amount. However, the horizontal demolition was already accounted for under Item 4 - Streetscape - Roadway (Item 20 - Third Street Demolition). Therefore, the horizontal demolition cost has been removed from this revised preliminary engineer's opinion of probable construction cost.
2. Earthwork – No change
3. Roadway
 - a. Revised extents of Mirafi 160N around utility trench sections and removed Mirafi 160N from the interface between the aggregate layer and the top of the LCC per Geotechnical recommendations.
4. Streetscape – No change
5. Low Pressure Water
 - a. Removed metal plate on service laterals since there is no longer any shallow cover.
 - b. Upsized fire service lateral at Bridgeview and added a reducer within Port property.
 - c. Provided additional cathodic protection within Third Street.
6. Non-Potable Water
 - a. Included non-potable water service connection in Third Street.
 - b. Provided additional cathodic protection within Third Street.
7. Storm Drain
 - a. Upsized laterals within Shared Public Way per coordination with MEP.
 - b. Added a manhole in Shared Public Way.



8. Sanitary Sewer
 - a. Modified the gravity sanitary sewer main leaving Block B to a sanitary sewer force main.
 - b. Removed manholes within Exposition and Third Street.
 - c. Upsized sanitary sewer laterals.
9. Auxiliary Water Supply System (AWSS)
 - a. Provided cathodic protection for AWSS system within Third Street.
10. District Energy
 - a. Upsized HHW laterals and mains per coordination with vertical team.
 - b. Included ARV, BOV and recirculation valves.
 - c. Removed wundercovers.
11. Bay Condenser Water – No change
12. Traffic Signal Improvements – No change
13. Joint Trench
 - a. Updated temporary power cost to reflect actual construction cost.

Preliminary Engineer’s Opinion of Probable Construction Cost Notes:

1. This preliminary engineer’s opinion of probable construction costs does not include the Make Ready and Rough Grading permits that are approved separately.
2. This preliminary engineer’s opinion of probable construction costs does not include building costs, foundation costs, foundation shoring costs, China Basin Park costs, Interim Mission Rock Square costs, interim finish costs and on-site development parcels costs.
3. This preliminary engineer’s opinion of probable construction costs does not include indirect costs, including but not limited to contingency costs, markups, OH&P, bonds, insurances, and GRT.
4. BKF Engineers makes no warranty, either expressed or implied, that actual costs will not vary from the amounts indicated, and assumes no liability for such variances.
5. This preliminary engineer’s opinion of probable construction costs does not include agency development and municipal fees.
6. This preliminary engineer’s opinion of probable construction costs does not include consulting, construction staking, general conditions and general contractor fees,
7. Joint trench opinion of probable construction costs have been provided and coordinated by Power Systems Design.
8. This preliminary engineer’s opinion of probable construction costs does include retaining walls for the southern terminus of the Port Bridgeview Street turnaround and the bio-retention planters along Shared Public Way.



9. This preliminary engineer's opinion of probable construction costs does not include additional costs associated with project phasing.
10. This preliminary engineer's opinion of probable construction cost does not include costs associated with environmental cleanup, soil remediation, and ground improvements.
11. This preliminary engineer's opinion of probable construction costs assumes that flexible service connections are a vertical development cost.
12. This preliminary engineer's opinion of probable construction costs does include excavation and off haul for the placement of lightweight cellular concrete.
13. Item 1 - Horizontal Demolition was not shown in the original preliminary engineer's opinion of probable construction cost but it carried a cost in the total amount. However, the horizontal demolition was already accounted for under Item 4 - Streetscape - Roadway (Item 20 - Third Street Demolition). Therefore, the horizontal demolition cost has been removed from this revised preliminary engineer's opinion of probable construction cost.



**MISSION ROCK DEVELOPMENT
PRELIMINARY ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

6/23/2021

COSTS BY PHASE

ITEM	DESCRIPTION	PHASE 1	PHASE 1 W/IB 1 REV#2	PHASE 1 W/IB 1 & IB 3	Total Difference
1	HORIZONTAL DEMOLITION	\$ 152,600	\$ -	\$ -	\$ (152,600)
2	EARTHWORK	\$ 9,755,528	\$ 9,755,528	\$ 9,755,528	\$ -
3	ROADWAY	\$ 2,629,081	\$ 2,662,098	\$ 2,662,098	\$ 33,017
4	STREETSCAPE	\$ 5,886,559	\$ 5,886,559	\$ 5,886,559	\$ -
5	LOW PRESSURE WATER	\$ 997,221	\$ 1,001,049	\$ 1,001,049	\$ 3,828
6	NON-POTABLE WATER	\$ 337,224	\$ 353,804	\$ 353,804	\$ 16,580
7	STORM DRAIN	\$ 1,380,763	\$ 1,391,928	\$ 1,391,928	\$ 11,165
8	SANITARY SEWER	\$ 729,046	\$ 738,664	\$ 738,664	\$ 9,618
9	AUXILIARY WATER SUPPLY SYSTEM (AWSS)	\$ 1,348,600	\$ 1,366,480	\$ 1,366,480	\$ 17,880
10	DISTRICT ENERGY	\$ 2,749,000	\$ 2,970,352	\$ 2,970,352	\$ 221,352
11	BAY CONDENSER WATER	\$ 223,125	\$ 223,125	\$ 223,125	\$ -
12	TRAFFIC SIGNAL IMPROVEMENTS	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ -
13	JOINT TRENCH	\$ 1,540,833	\$ 1,540,833	\$ 1,705,833	\$ 165,000
	SUBTOTAL	\$ 28,729,580	\$ 28,890,421	\$ 29,055,421	\$ 325,841



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF EARTHWORK COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
EARTHWORK					
1	FINE GRADING	170,600	SF	\$ 0.63	\$ 107,478.00
2	LANDSCAPE FILL	735	CY	\$ 30.00	\$ 22,050.00
3	IMPORT (LCC)	50,300	CY	\$ 110.00	\$ 5,533,000.00
4	EXCAVATE TO BOTTOM OF LCC	28,000	CY	\$ 15.00	\$ 420,000.00
5	CUT/EXPORT TO CLASS I FACILITY (ASSUME 10%)	2,800	CY	\$ 180.00	\$ 504,000.00
6	CUT/EXPORT TO CLASS II FACILITY (ASSUME 35%)	9,800	CY	\$ 55.00	\$ 539,000.00
7	CUT/EXPORT TO CLASS III FACILITY (ASSUME 55%)	15,400	CY	\$ 50.00	\$ 770,000.00
8	EROSION CONTROL	7.7	AC	\$ 20,000.00	\$ 154,000.00
9	DEWATERING	170,600	SF	\$ 10.00	\$ 1,706,000.00
EARTHWORK TOTAL				PHASE 1 SUBTOTAL	\$ 9,755,528.00



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
ROADWAY					
1	FLUSH CURB	615	LF	\$ 35.00	\$ 21,525.00
2	2" MOUNTABLE CURB	126	LF	\$ 35.00	\$ 4,400.55
3	4" VERTICAL CURB	126	LF	\$ 35.00	\$ 4,410.00
4	6" VERTICAL CURB	395	LF	\$ 40.00	\$ 15,798.80
5	2" GRIND AND OVERLAY	11,572	SF	\$ 2.00	\$ 23,144.80
6	12-INCH CURB AND GUTTER	1,570	LF	\$ 50.00	\$ 78,506.00
7	24-INCH CURB AND GUTTER	506	LF	\$ 70.00	\$ 35,424.90
8	4" PAVED MEDIAN	442	SF	\$ 5.00	\$ 2,210.40
9	VALLEY GUTTER	272	LF	\$ 40.00	\$ 10,898.40
10	CONCRETE VEHICULAR PAVING (4" AC/8" PCC)	16,307	SF	\$ 18.67	\$ 304,402.63
11	CONCRETE VEHICULAR PAVING (4" AC/8" PCC/4" AB) ON-SITE	31,552	SF	\$ 21.63	\$ 682,457.90
12	CONCRETE VEHICULAR PAVING (4" AC/8" PCC/4" AB) ENHANCED FINISH	2,257	SF	\$ 21.63	\$ 48,813.06
13	CONCRETE VEHICULAR PAVING (4" AC/8" PCC/4" AB) MISSION BAY STANDARD	1,854	SF	\$ 21.63	\$ 40,104.47
14	VEHICULAR UNIT PAVERS (PAVERS/8" PCC/4" AB) TYPE A	10,509	SF	\$ 70.30	\$ 738,724.40
15	AC VEHICULAR PAVING (4"AC/6"AB)	13,700	SF	\$ 9.78	\$ 133,955.56
16	SURVEY MONUMENT	17	EA	\$ 400.00	\$ 6,800.00
17	BIKE LANES - ONE 5' LANES PAINTED GREEN (COST PER SF OF STREET)	7,068	SF	\$ 8.00	\$ 56,544.00
18	STREET SIGNS AND STRIPING	2,480	LF	\$ 22.00	\$ 54,560.00
19	BIO-RETENTION WALL (TO BE DESIGNED BY OTHERS)	182	LF	\$ 200.00	\$ 36,400.00
20	THIRD STREET DEMOLITION	1	LS	\$ 150,000.00	\$ 150,000.00
21	PERMANENT PAVEMENT MARKINGS	1	LS	\$ 180,000.00	\$ 180,000.00
22	MIRAFI LINER	142,864	SF	\$ 0.23	\$ 33,017.46
ROADWAY SUBTOTAL					\$ 2,662,098.31



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
STREETSCAPE					
1	CONCRETE SIDEWALK PAVING (4" PCC/ 4" AB) ENHANCED FINISH	7,714	SF	\$ 15.00	\$ 115,710.10
2	CONCRETE SIDEWALK PAVING (4" PCC/ 4" AB) MISSION BAY STANDARD	19,320	SF	\$ 15.00	\$ 289,802.96
3	PEDESTRIAN UNIT PAVERS (PAVERS/4" PCC/4" AB) TYPE A	28,769	SF	\$ 53.02	\$ 1,525,467.95
4	PEDESTRIAN UNIT PAVERS (PAVERS/4" PCC/4" AB) TYPE B	1,476	SF	\$ 53.02	\$ 78,248.60
5	STONE SETS FOR TREE WELL SURFACE	259	SF	\$ 50.00	\$ 12,925.00
6	STANDARD DETECTABLE SURFACE PAVING	154	SF	\$ 40.00	\$ 6,160.00
7	ALTERNATIVE DETECTABLE SURFACE PAVING	1,771	SF	\$ 55.00	\$ 97,383.62
8	TACTILE STONE PAVER	371	SF	\$ 68.00	\$ 25,220.18
9	HANDICAP ACCESSIBLE RAMP	29	EA	\$ 21,000.00	\$ 609,000.00
10	RAISED INTERSECTION	0	LS	\$ 20,000.00	\$ -
11	RETAINING WALL	0	LF	\$ 250.00	\$ -
12	ARM-MOUNTED LED STREET LIGHT	18	EA	\$ 13,700.00	\$ 246,600.00
13	POLE-MOUNTED LED STREET LIGHT	41	EA	\$ 13,700.00	\$ 561,700.00
14	MISSION BAY STANDARD STREET LIGHT	8	EA	\$ 13,700.00	\$ 109,600.00
15	STREET TREES	98	EA	\$ 7,600.00	\$ 744,800.00
16	TREE GRATE - ROUND	7	EA	\$ 3,000.00	\$ 21,000.00
17	TREE GRATE - SQUARE	56	EA	\$ 3,000.00	\$ 168,000.00
18	ABOVE GRADE PLANTERS	9	EA	\$ 4,200.00	\$ 37,800.00
19	GRAVEL MULCH	2,032	SF	\$ 6.00	\$ 12,192.00
20	STRUCTURAL SOIL	4,366	CY	\$ 100.00	\$ 436,618.81
21	COLLAPSIBLE BOLLARD	10	EA	\$ 1,500.00	\$ 15,000.00
22	FIXED BOLLARD	10	EA	\$ 2,500.00	\$ 25,000.00
23	BENCH	16	EA	\$ 1,475.00	\$ 23,600.00
24	TRASH RECEPTACLE	5	EA	\$ 1,900.00	\$ 9,500.00
25	BIKE RACK	93	EA	\$ 1,000.00	\$ 93,000.00
26	TRENCH DRAIN	410	LF	\$ 200.00	\$ 82,000.00
27	FIRE LANE PAVEMENT MARKERS	96	EA	\$ 30.00	\$ 2,880.00
28	PARKING METER (CITY INSTALL, NO COST)	0	EA	\$ -	\$ -
29	INTERIM MISSION ROCK SQUARE SEAT WALL	0	LF	\$ 200.00	\$ -
30	STEEL PLANT PROTECTION FENCE	727	LF	\$ 50.00	\$ 36,350.00
31	WUNDERCOVER PAVER LID FOR POLE LIGHT BOX	0	EA	\$ 4,500.00	\$ -
32	WUNDERCOVER PAVER LID FOR DES VALVE BOX	0	EA	\$ 4,500.00	\$ -
33	PEDESTRIAN BARRIER	1	EA	\$ 1,000.00	\$ 1,000.00
34	TRUNCATED DOMES	0	LF	\$ 115.00	\$ -
35	TRAPEZOIDAL DETECTABLE WARNING DELINEATOR TILES	0	LF	\$ 57.50	\$ -
36	BIKE RAMP	0	EA	\$ 21,000.00	\$ -
37	LANDSCAPING & IRRIGATION	1	LS	\$ 500,000.00	\$ 500,000.00
STREETSCAPE SUBTOTAL					\$ 5,886,559.21



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
LOW PRESSURE WATER					
1	6" DIP FIELD LOK WATER LINE (3-FEET COVER)	0	LF	\$ 145.00	\$ -
2	6" DIP FIELD LOK WATER LINE (3-FEET COVER) MAKE READY	0	LF	\$ 145.00	\$ -
3	8" DIP FIELD LOK WATER LINE (3-FEET COVER)	0	LF	\$ 185.00	\$ -
4	8" DIP FIELD LOK WATER LINE (3-FEET COVER) MAKE READY	0	LF	\$ 185.00	\$ -
5	10" DIP FIELD LOK WATER LINE (3-FEET COVER)	456	LF	\$ 198.00	\$ 90,347.40
6	12" DIP FIELD LOK WATER LINE (3-FEET COVER)	1,261	LF	\$ 210.00	\$ 264,751.20
7	12" DIP FIELD LOK WATER LINE (3-FEET COVER) MAKE READY	0	LF	\$ 210.00	\$ -
8	CATHODIC PROTECTION FOR ALL DIP LINES OFF-SITE	132	LF	\$ 60.00	\$ 7,920.00
9	1" DOMESTIC WATER SERVICE STUB (ASSUME 40-FEET)	0	EA	\$ 1,200.00	\$ -
10	2" DOMESTIC WATER SERVICE STUB (ASSUME 40-FEET)	1	EA	\$ 1,600.00	\$ 1,600.00
11	4" DIP FIELD LOK DOMESTIC WATER SERVICE STUB W/GATE VALVE (ASSUME 40-FEET)	2	EA	\$ 10,900.00	\$ 21,800.00
12	6" DIP FIELD LOK DOMESTIC WATER SERVICE STUB W/GATE VALVE (ASSUME 40-FEET)	3	EA	\$ 13,300.00	\$ 39,900.00
13	6" DIP CLASS 53 FIRE SERVICE STUB W/GATE VALVE (ASSUME 40-FEET)	0	EA	\$ 13,300.00	\$ -
14	8" DIP CLASS 53 FIRE SERVICE STUB W/GATE VALVE (ASSUME 40-FEET)	8	EA	\$ 16,050.00	\$ 128,400.00
15	4" GATE VALVE MAKE READY	0	EA	\$ 6,500.00	\$ -
16	6" GATE VALVE	0	EA	\$ 7,500.00	\$ -
17	6" GATE VALVE MAKE READY	0	EA	\$ 7,500.00	\$ -
18	8" GATE VALVE	0	EA	\$ 8,650.00	\$ -
19	8" GATE VALVE MAKE READY	0	EA	\$ 8,650.00	\$ -
20	12" GATE VALVE	12	EA	\$ 10,500.00	\$ 126,000.00
21	12" GATE VALVE MAKE READY	0	EA	\$ 10,500.00	\$ -
22	FIRE HYDRANT ASSEMBLY (INCLUDES LATERAL WITH VALVE AT CONNECTION TO MAIN)	8	EA	\$ 15,000.00	\$ 120,000.00
23	FIRE HYDRANT ASSEMBLY ACROSS THIRD ST (INCLUDES LATERAL WITH VALVE AT CONNECTION TO MAIN)	1	EA	\$ 45,000.00	\$ 45,000.00
24	AIR RELEASE VALVE	2	EA	\$ 5,000.00	\$ 10,000.00
25	INTERIM BLOW OFF ASSEMBLY	2	EA	\$ 3,500.00	\$ 7,000.00
26	CAP	2	EA	\$ 350.00	\$ 700.00
27	CAP MAKE READY	0	EA	\$ 350.00	\$ -
28	REDUCER	1	EA	\$ 1,130.00	\$ 1,130.00
29	REDUCER MAKE READY	0	EA	\$ 1,130.00	\$ -
30	REDUCED PRESSURE BACKFLOW PREVENTER	1	EA	\$ 5,000.00	\$ 5,000.00
31	DOUBLE CHECK DETECTOR ASSEMBLY	1	EA	\$ 7,500.00	\$ 7,500.00
32	BYPASS	0	EA	\$ 2,200.00	\$ -
33	WATER METER	1	EA	\$ 4,800.00	\$ 4,800.00
34	12" FLEX-TEND JOINT	2	EA	\$ 12,500.00	\$ 25,000.00
35	8" X 8" X 4" TEE MAKE READY	0	EA	\$ 1,200.00	\$ -
36	8" X 8" X 6" TEE	1	EA	\$ 1,200.00	\$ 1,200.00
37	8" X 8" X 8" TEE	1	EA	\$ 1,200.00	\$ 1,200.00
38	8" X 8" X 8" TEE MAKE READY	0	EA	\$ 1,200.00	\$ -
39	12" X 12" X 4" TEE	2	EA	\$ 2,000.00	\$ 4,000.00
40	12" X 12" X 6" TEE	10	EA	\$ 2,000.00	\$ 20,000.00
41	12" X 12" X 8" TEE	7	EA	\$ 2,000.00	\$ 14,000.00
42	12" X 12" X 12" TEE	4	EA	\$ 2,000.00	\$ 8,000.00
43	12" X 12" X 12" TEE MAKE READY	0	EA	\$ 2,000.00	\$ -
44	CONNECTION TO PREVIOUS PHASE	1	EA	\$ 5,800.00	\$ 5,800.00
45	CONNECTION TO EXISTING WATER SYSTEM (THIRD STREET)	1	EA	\$ 30,000.00	\$ 30,000.00
46	CONNECTION TO EXISTING WATER SYSTEM (TFB RELOCATION) MAKE READY	0	EA	\$ 20,000.00	\$ -
47	1/2" METAL PLATE	0	SF	\$ 35.00	\$ -
48	FIRE DEPARTMENT CONNECTION	1	EA	\$ 10,000.00	\$ 10,000.00
LOW PRESSURE WATER SUBTOTAL					\$ 1,001,048.60



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
NON-POTABLE WATER					
1	8" DIP CLASS 53 NON-POTABLE WATER LINE (3-FEET DEEP)	1,263	LF	\$ 185.00	\$ 233,714.20
2	CATHODIC PROTECTION FOR ALL DIP LINES OFF-SITE	44	LF	\$ 60.00	\$ 2,640.00
3	8" GATE VALVE	2	EA	\$ 8,650.00	\$ 17,300.00
4	2" NON-POTABLE WATER LATERAL (ASSUME 40 FEET)	0	EA	\$ 1,600.00	\$ -
5	4" NON-POTABLE WATER LATERAL WITH GATE VALVE (ASSUME 40 FEET)	1	EA	\$ 10,900.00	\$ 10,900.00
6	6" NON-POTABLE WATER LATERAL WITH GATE VALVE (ASSUME 40 FEET)	3	EA	\$ 13,300.00	\$ 39,900.00
7	8" NON-POTABLE WATER LATERAL WITH GATE VALVE (ASSUME 40 FEET)	1	EA	\$ 16,050.00	\$ 16,050.00
8	AIR RELEASE VALVE	3	EA	\$ 5,000.00	\$ 15,000.00
9	BLOW OFF ASSEMBLY	2	EA	\$ 2,500.00	\$ 5,000.00
10	CAP	2	EA	\$ 350.00	\$ 700.00
11	4" IRRIGATION LATERAL WITH BOXES, WATER METER AND BFP	1	EA	\$ 6,800.00	\$ 6,800.00
12	CONNECTION TO EXISTING RECYCLED WATER SYSTEM	0	EA	\$ 10,000.00	\$ -
13	CONNECTION TO PREVIOUS PHASE	1	EA	\$ 5,800.00	\$ 5,800.00
NON-POTABLE WATER SUBTOTAL					\$ 353,804.20

STORM DRAIN					
1	10" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	143	LF	\$ 250.00	\$ 35,775.00
1	12" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY) MAKE READY	0	LF	\$ 310.00	\$ -
2	12" HDPE SDR 17 STORM DRAIN PIPE, 10 TO 15-FEET COVER (GRAVITY)	269	LF	\$ 335.00	\$ 89,947.50
3	14" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	321	LF	\$ 360.00	\$ 115,704.00
4	16" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	37	LF	\$ 405.00	\$ 14,985.00
5	18" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	297	LF	\$ 450.00	\$ 133,573.50
6	24" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	283	LF	\$ 500.00	\$ 141,390.00
7	30" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY) MAKE READY	0	LF	\$ 250.00	\$ -
8	36" HDPE SDR 17 STORM DRAIN PIPE, 5 TO 10-FEET COVER (GRAVITY)	244	LF	\$ 275.00	\$ 67,025.75
9	8" HDPE SDR 17 STORM DRAIN LATERAL AND CLEANOUT (ASSUME 40-FEET)	1	EA	\$ 3,900.00	\$ 3,900.00
10	10" HDPE SDR 17 STORM DRAIN LATERAL AND CLEANOUT (ASSUME 40-FEET)	1	EA	\$ 5,700.00	\$ 5,700.00
11	12" HDPE SDR 17 STORM DRAIN LATERAL AND CLEANOUT (ASSUME 40-FEET)	1	EA	\$ 6,900.00	\$ 6,900.00
12	14" HDPE SDR 17 STORM DRAIN LATERAL AND CLEANOUT (ASSUME 40-FEET)	5	EA	\$ 8,900.00	\$ 44,500.00
13	16" HDPE SDR 17 STORM DRAIN LATERAL AND CLEANOUT (ASSUME 40-FEET)	1	EA	\$ 9,900.00	\$ 9,900.00
14	STORM DRAIN MANHOLE (5-FEET TO 10-FEET COVER, 12 TO 24-INCH MAIN)	15	EA	\$ 8,800.00	\$ 132,000.00
15	STORM DRAIN MANHOLE (10-FEET TO 17-FEET COVER, 12 TO 24-INCH MAIN)	1	EA	\$ 15,000.00	\$ 15,000.00
16	STORM DRAIN MANHOLE (5-FEET TO 10-FEET COVER, 27 TO 48-INCH MAIN)	2	EA	\$ 7,000.00	\$ 14,000.00
17	STORM DRAIN MANHOLE (10-FEET TO 20-FEET COVER, 27 TO 48-INCH MAIN) DIVERSION WELL	1	EA	\$ 15,000.00	\$ 15,000.00
18	STORM DRAIN MANHOLE COVER	16	EA	\$ 1,500.00	\$ 24,000.00
19	STORM DRAIN MANHOLE COVER (CUSTOM)	3	EA	\$ 4,500.00	\$ 13,500.00
20	CONNECTION TO EXISTING STORM DRAIN SYSTEM (THIRD STREET)	8	EA	\$ 17,500.00	\$ 140,000.00
21	CONNECTION TO EXISTING STORM DRAIN SYSTEM MAKE READY	0	EA	\$ 10,000.00	\$ -
22	CONNECTION TO PREVIOUS PHASE	2	EA	\$ 5,000.00	\$ 10,000.00
23	CAP	2	EA	\$ 350.00	\$ 700.00
24	CATCH BASIN, CALTRANS	23	EA	\$ 3,200.00	\$ 73,600.00
25	CATCH BASIN, CALTRANS MAKE READY	0	EA	\$ 3,200.00	\$ -
26	SAND TRAP COVER	1	EA	\$ 1,500.00	\$ 1,500.00
27	TRENCH DEWATERING (ASSUME ALL GRAVITY STORM DRAIN LINES)	1,713	LF	\$ 125.00	\$ 214,167.50
28	CLEANOUT	0	EA	\$ 700.00	\$ -
29	BIO-RETENTION PLANTER	692	SF	\$ 100.00	\$ 69,160.00
STORM DRAIN SUBTOTAL					\$ 1,391,928.25



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
SANITARY SEWER					
1	10" HDPE SDR 17 SANITARY SEWER LINE, 5 TO 10-FEET COVER (FORCE MAIN)	273	LF	\$ 350.00	\$ 95,690.00
2	8" HDPE SDR 17 SANITARY SEWER LINE, 5 TO 10-FEET COVER (GRAVITY)	170	LF	\$ 160.00	\$ 27,200.00
3	10" HDPE SDR 17 SANITARY SEWER LINE, 5 TO 10-FEET COVER (GRAVITY)	125	LF	\$ 250.00	\$ 31,150.00
4	10" HDPE SDR 17 SANITARY SEWER LINE, 10 TO 15-FEET COVER (GRAVITY)	602	LF	\$ 350.00	\$ 210,721.00
5	12" HDPE SDR 17 SANITARY SEWER LINE, 5 TO 10-FEET COVER (GRAVITY)	190	LF	\$ 310.00	\$ 58,968.20
6	SANITARY SEWER MANHOLE (5-FEET TO 10-FEET COVER, 12 TO 24-INCH MAIN)	4	EA	\$ 8,800.00	\$ 35,200.00
7	SANITARY SEWER MANHOLE (10-FEET TO 17-FEET COVER, 12 TO 24-INCH MAIN)	3	EA	\$ 15,000.00	\$ 45,000.00
8	6" HDPE SDR 17 SANITARY SEWER LATERAL AND VENT (ASSUME 40-FEET)	0	EA	\$ 2,700.00	\$ -
9	8" HDPE SDR 17 SANITARY SEWER LATERAL AND VENT (ASSUME 40-FEET)	0	EA	\$ 3,900.00	\$ -
10	10" HDPE SDR 17 SANITARY SEWER LATERAL AND VENT (ASSUME 40-FEET)	4	EA	\$ 5,700.00	\$ 22,800.00
11	12" HDPE SDR 17 SANITARY SEWER LATERAL AND VENT (ASSUME 40-FEET)	1	EA	\$ 6,900.00	\$ 6,900.00
12	CONNECTION TO EXISTING SANITARY SEWER SYSTEM	1	EA	\$ 10,000.00	\$ 10,000.00
13	CONNECTION TO PREVIOUS PHASE	0	EA	\$ 5,000.00	\$ -
14	CAP	0	EA	\$ 350.00	\$ -
15	CLEANOUT	0	EA	\$ 700.00	\$ -
16	PRESSURIZED CLEANOUT	0	EA	\$ 700.00	\$ -
17	TRENCH DEWATERING (ASSUME ALL GRAVITY SANITARY SEWER LINES)	1,560	LF	\$ 125.00	\$ 195,035.00
SANITARY SEWER SUBTOTAL					\$ 738,664.20

AUXILIARY WATER SUPPLY SYSTEM (AWSS)					
1	20" KUBOTA FIRE WATER LINE (3-FEET DEEP)	940	LF	\$ 1,000.00	\$ 940,000.00
2	CATHODIC PROTECTION OFF-SITE	298	LF	\$ 60.00	\$ 17,880.00
3	FIRE HYDRANT ASSEMBLY (INCLUDES LATERAL CONNECTION TO MAIN)	2	EA	\$ 86,000.00	\$ 172,000.00
4	20" GATE VALVE	2	EA	\$ 45,000.00	\$ 90,000.00
5	THRUST BLOCK	2	EA	\$ 3,000.00	\$ 6,000.00
6	20"X12" REDUCER	1	EA	\$ 6,200.00	\$ 6,200.00
7	22.5 DEG BEND	8	EA	\$ 6,400.00	\$ 51,200.00
8	45.0 DEG BEND	3	EA	\$ 6,400.00	\$ 19,200.00
9	12" X 12" X 12" TEE	1	EA	\$ 12,000.00	\$ 12,000.00
10	CAP	1	EA	\$ 2,000.00	\$ 2,000.00
11	2" BYPASS LINE	0	LF	\$ 30.00	\$ -
12	CONNECTION TO PREVIOUS PHASE	0	EA	\$ 5,800.00	\$ -
13	CONNECTION TO EXISTING AWSS SYSTEM (THIRD STREET)	1	EA	\$ 50,000.00	\$ 50,000.00
AUXILIARY WATER SUPPLY SYSTEM (AWSS) SUBTOTAL					\$ 1,366,480.00



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
DISTRICT ENERGY					
1	8" HDPE SDR 11 HEATED HOT WATER LINE WITH 3" INSULATION	189	LF	\$ 320.00	\$ 60,352.00
2	10" HDPE SDR 11 HEATED HOT WATER LINE WITH 3" INSULATION	1,196	LF	\$ 500.00	\$ 598,200.00
3	12" HDPE SDR 11 HEATED HOT WATER LINE WITH 3" INSULATION	1,130	LF	\$ 620.00	\$ 700,600.00
4	16" HDPE SDR 11 HEATED HOT WATER LINE WITH 3" INSULATION	265	LF	\$ 720.00	\$ 190,800.00
5	10" HDPE SDR 17 CHILLED WATER LINE	500	LF	\$ 250.00	\$ 125,000.00
6	14" HDPE SDR 17 CHILLED WATER LINE	870	LF	\$ 360.00	\$ 313,200.00
7	16" HDPE SDR 17 CHILLED WATER LINE	1,130	LF	\$ 410.00	\$ 463,300.00
8	20" HDPE SDR 17 CHILLED WATER LINE	230	LF	\$ 460.00	\$ 105,800.00
9	4" HEATED HOT WATER LATERAL WITH 3" INSULATION (ASSUME 40-FEET)	4	EA	\$ 8,000.00	\$ 32,000.00
10	6" HEATED HOT WATER LATERAL WITH 3" INSULATION (ASSUME 40-FEET)	4	EA	\$ 12,000.00	\$ 48,000.00
11	8" HEATED HOT WATER LATERAL WITH 3" INSULATION (ASSUME 40-FEET)	2	EA	\$ 12,800.00	\$ 25,600.00
12	6" CHILLED WATER LATERAL (ASSUME 40-FEET)	4	EA	\$ 6,000.00	\$ 24,000.00
13	8" CHILLED WATER LATERAL (ASSUME 40-FEET)	6	EA	\$ 6,400.00	\$ 38,400.00
14	8" GATE VALVE	2	EA	\$ 8,650.00	\$ 17,300.00
15	10" GATE VALVE	6	EA	\$ 9,500.00	\$ 57,000.00
16	GATE VALVE WUNDERCOVER	0	EA	\$ 1,500.00	\$ -
17	CAP	8	EA	\$ 350.00	\$ 2,800.00
18	AIR RELEASE VALVE	12	EA	\$ 5,000.00	\$ 60,000.00
19	BLOW OFF ASSEMBLY	20	EA	\$ 3,500.00	\$ 70,000.00
20	RECIRCULATION VALVE	4	EA	\$ 9,500.00	\$ 38,000.00
DISTRICT ENERGY SUBTOTAL					\$ 2,970,352.00
BAY CONDENSER WATER					
1	16" HDPE SDR 17 BAY CONDENSER WATER LINE	1,085	LF	\$ 205.00	\$ 222,425.00
2	CAP	2	EA	\$ 350.00	\$ 700.00
BAY CONDENSER WATER SUBTOTAL					\$ 223,125.00
TRAFFIC SIGNAL IMPROVEMENTS					
1	MINOR TRAFFIC SIGNAL MODIFICATIONS AT CHANNEL STREET	1	LS	\$ 250,000.00	\$ 250,000.00
2	NEW TRAFFIC SIGNAL AT EXPOSITION STREET	1	LS	\$ 650,000.00	\$ 650,000.00
3	MINOR TRAFFIC SIGNAL MODIFICATIONS AT THE THIRD STREET BRIDGE	1	LS	\$ 100,000.00	\$ 100,000.00
TRAFFIC SIGNAL IMPROVEMENTS					\$ 1,000,000.00



**MISSION ROCK DEVELOPMENT
PRELIMINARY OPINION OF HORIZONTAL CONSTRUCTION COSTS**

PHASE 1

ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
<i>JOINT TRENCH</i>					
1	6" GAS TRENCH INCLUDES BACKFILL, MAIN AND TRENCHING	2,103	LF	\$ 85.00	\$ 178,759.25
2	JOINT TRENCH (ELEC/COMM)	1,405	LF	\$ 350.00	\$ 491,750.00
3	STREET LIGHT TRENCH	2,642	LF	\$ 55.00	\$ 145,323.75
4	(2) 2" MRU TELECOM CONDUITS	0	LF	\$ 50.00	\$ -
5	TRANSFORMER (ASSUME 25 KVA)	0	EA	\$ 25,000.00	\$ -
6	MAIN SWITCH	0	EA	\$ 15,000.00	\$ -
7	#6 VAULT	2	EA	\$ 12,000.00	\$ 24,000.00
8	#8 VAULT	9	EA	\$ 16,000.00	\$ 144,000.00
9	D3 BOX	6	EA	\$ 4,000.00	\$ 24,000.00
10	C4 BOX	5	EA	\$ 5,000.00	\$ 25,000.00
11	AT&T (T5) BOX	5	EA	\$ 6,500.00	\$ 32,500.00
12	#2 BOX	6	EA	\$ 3,000.00	\$ 18,000.00
13	STREET LIGHT BOX	5	EA	\$ 2,000.00	\$ 10,000.00
14	JOINT TRENCH SERVICE STUB	11	EA	\$ 2,500.00	\$ 27,500.00
15	TEMPORARY POWER	1	LS	\$ 585,000.00	\$ 585,000.00
<i>JOINT TRENCH SUBTOTAL</i>					\$ 1,705,833.00
				SUBTOTAL	\$ 19,299,892.78

Attachment 6

(Revised Exhibit C)

EXHIBIT C

ESTIMATED COSTS

<u>Exhibit</u>	<u>Description of Improvements</u>	<u>Estimated Costs</u>
Exhibit A-1	Street Improvement Plans	\$28,528,921
Exhibit A-2	Pump Station Plans	\$838,800