

**From:** [Phan, Johnny](#)  
**To:** [Downtown West Project](#)  
**Subject:** FW: Google - Diridon - Electrical Conceptual Schematic  
**Date:** Tuesday, April 6, 2021 2:23:09 PM  
**Attachments:** [Copy of Diridon Conceptual Electrical Schematics - City Copy-c.pdf](#)

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**From:** Miller, Gregg <[gmler@coblentzlaw.com](mailto:gmler@coblentzlaw.com)>  
**Sent:** Friday, January 29, 2021 10:14 AM  
**To:** Phan, Johnny <[Johnny.Phan@sanjoseca.gov](mailto:Johnny.Phan@sanjoseca.gov)>  
**Subject:** Google - Diridon - Electrical Conceptual Schematic

[External Email]

Johnny: please see attached for you and Kevin O'Connor. Thanks,

**Gregg Miller**

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# Microgrid Update

**27th January 2020**

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# Load Updates

- EV loads have been increased due to the inclusion of Bay Area REACH code agreements. Accounting for 100% parking spot coverage for service load calculations with L1, L2, and L3 (DC Fast Charge) capability distributed throughout the site as required. Represents a code required minimum load on distribution system.
- Thermal loads at CUP have increased due to 8760-modeling refinements and updates to programing. Net GSF reduction for total site program being offset by net GSF increase for Office use type, which has higher CUP load requirements than other use types.

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PGE OWNED

GOOGLE  
OWNED

COMMERCIAL  
TENANTS

MUNI OWNED

SJ MUNI

PGE SWITCHING  
STATION

CSJ SUBSTATION

BATTERIES/DIESEL/  
RE

BATTERIES/  
DIESEL/RE

BLDG. A

BLDG. B

BATTERIES/  
DIESEL/RE

BLDG. C

UTILITY  
METER/MAIN

UTILITY  
METER/MAIN

UTILITY  
METER/MAIN

UTILITY  
METER/MAIN

UTILITY  
METER/MAIN

UTILITY  
METER/MAIN

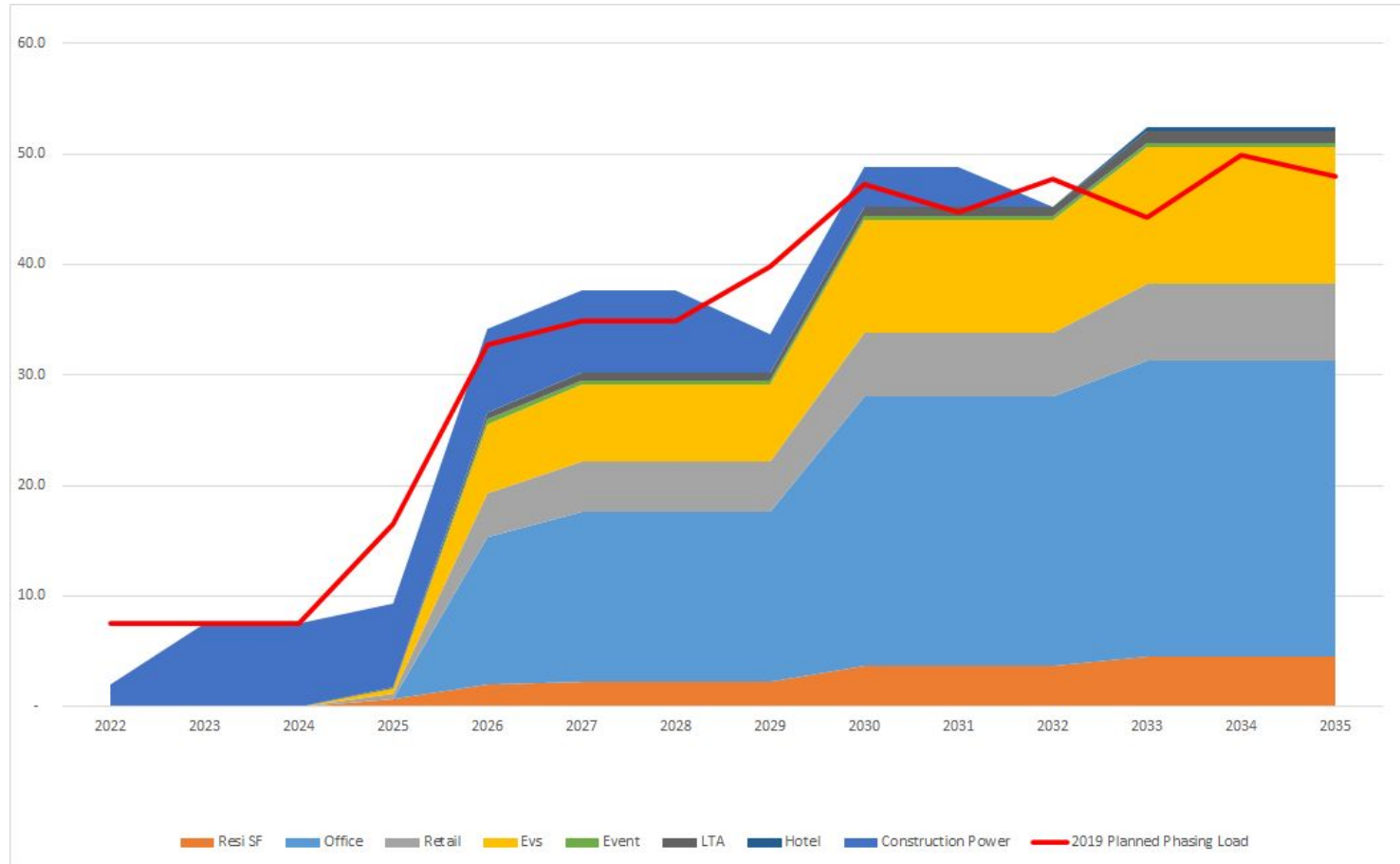
UTILITY  
METER/MAIN

BLDG. X

BLDG. Y

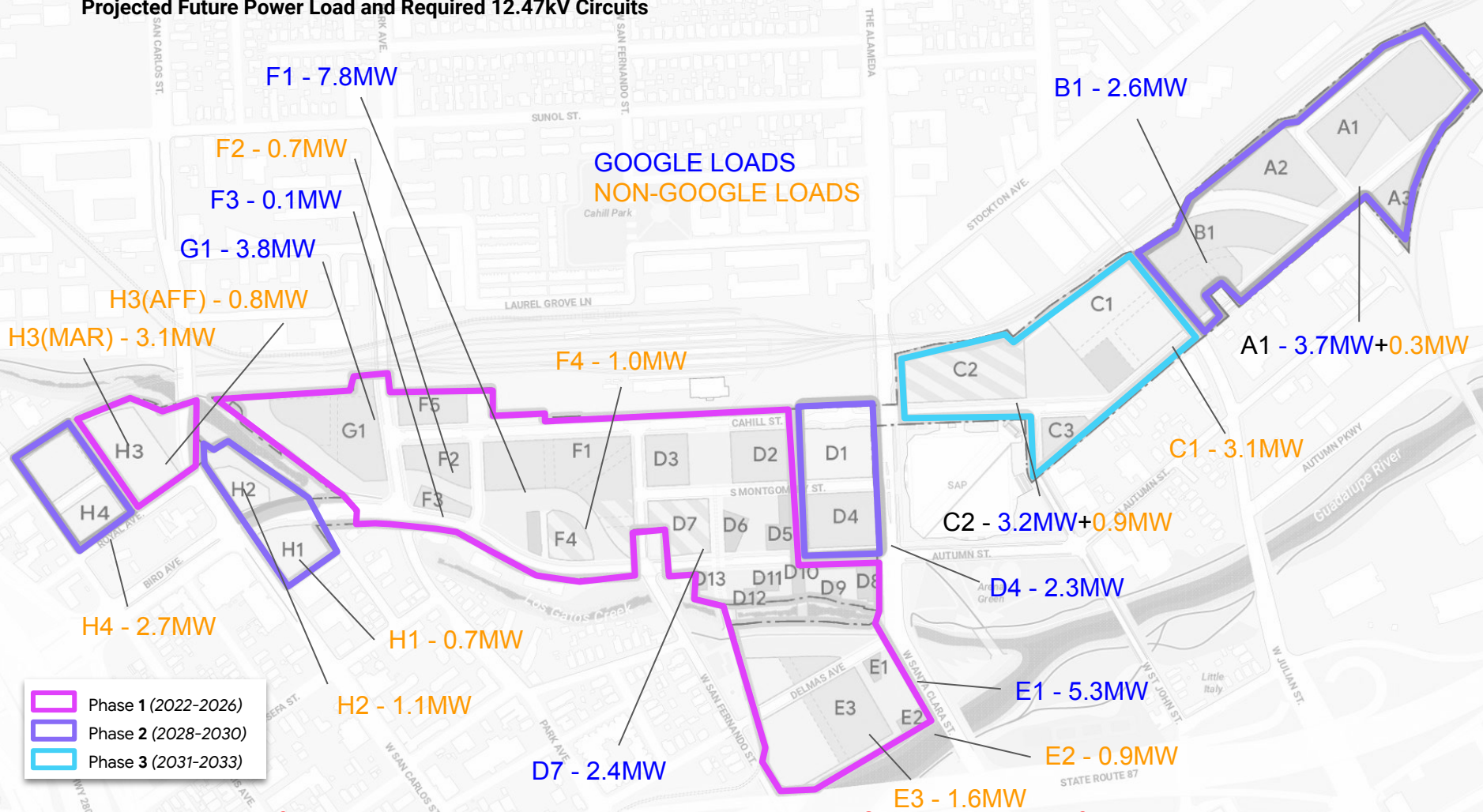
BLDG. Z

# Load Updates



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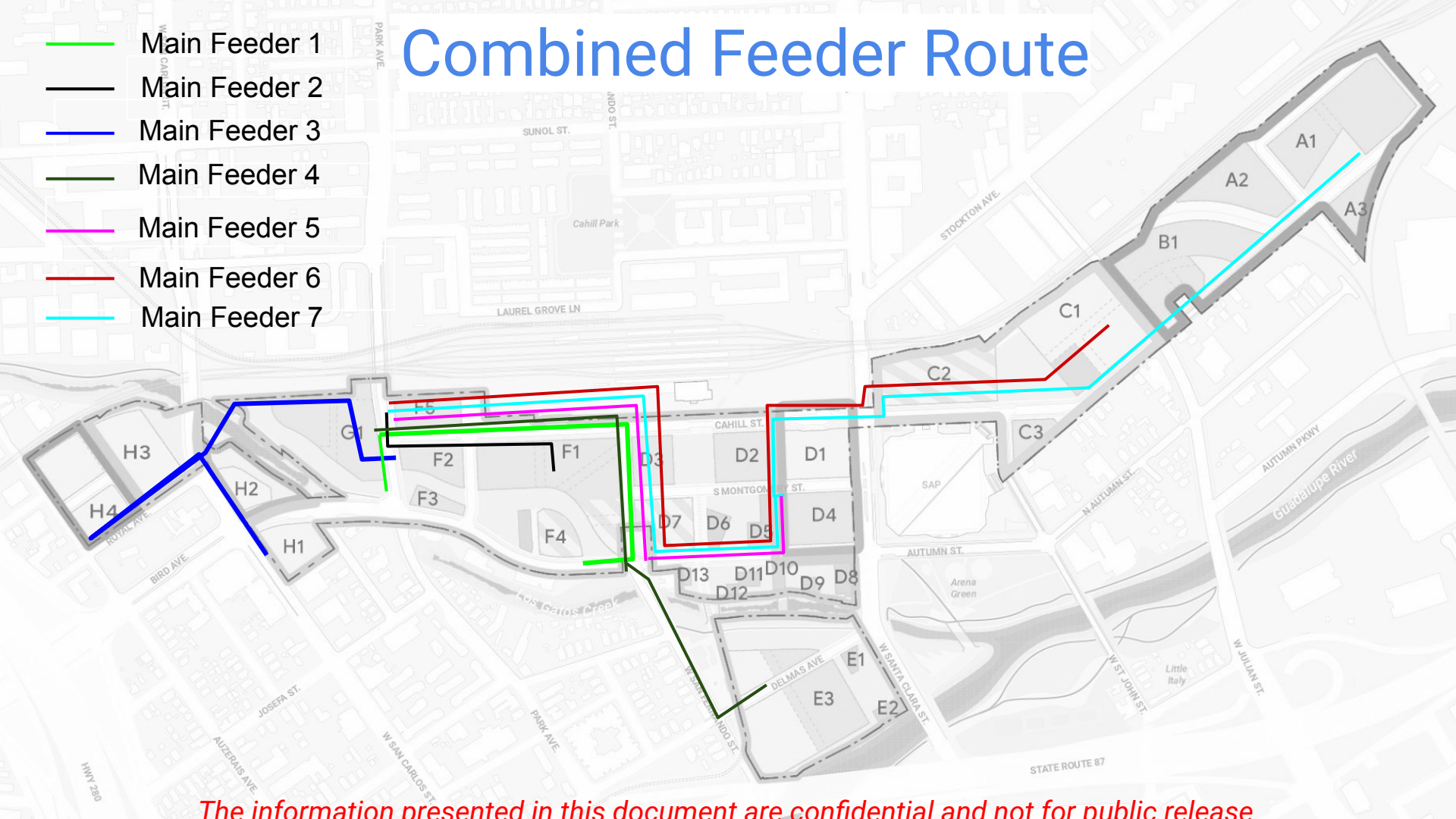
# Projected Future Power Load and Required 12.47kV Circuits



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# Combined Feeder Route

- Main Feeder 1
- Main Feeder 2
- Main Feeder 3
- Main Feeder 4
- Main Feeder 5
- Main Feeder 6
- Main Feeder 7



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# Combined Feeders

	Groups on Feeder	Load (MW)	Feeder Length	Looped Feeder Length
Feeder 1	G1, F2, F3, F4	5.6MW	2,000ft	4,000ft
Feeder 2	F1	7.8MW	850ft	1,700ft
Feeder 3	H1, H2, H3, H4	8.3MW	2,200ft	4,400ft
Feeder 4	E1, E2, E3	7.8 MW	2,800ft	5,600ft
Feeder 5	D4 and D7	4.7MW	2,300ft	4,600ft
Feeder 6	C1 and C2	7.2MW	4,200ft	8,400ft
Feeder 7	A1, A2, A3, and B1	6.5MW	5,300ft	10,600ft
Total		47.9MW	19,650ft	39,300ft

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# Emergency/Backup Power Options

	Summary	Aggregate Power Capacity	Looped Feeder Length	Ownership	Notes
Centralized Emergency and Optional Standby	Centralized emergency power generation with dedicated emergency feeders	14MW Emergency + 9MW Optional Standby	39,300ft	CSJ	Highest level of regulatory hurdles for application. Have assumed diversity reductions not supported by NEC.
Centralized Optional Standby Only	Centralized backup power for optional standby, using normal power feeders	9MW	0	CSJ	Standard regulatory complexity associated with typical microgrid application process.
Neighborhood Level Emergency Backup Only	Backup power for a single neighborhood	20MW	N/A	Google/Building	Assumes optional loads are provided by by a central system. Additional neighborhood backup will be required if no centralized is provided.
Building Level Emergency Backup Only	Backup power for a single building (BAU approach)	24MW	N/A	Google/Building	Assumes optional loads are provided by by a central system. Additional building backup will be required if no centralized is provided.

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# Transformers

Building(s)	Service	Qty	Size
A1	Primary	2	3 MVA
A2	Primary	1	1 MVA
A3	Primary	1	0.5 MVA
B1	Primary	1	3.75 MVA
C1	Primary	1	3.75 MVA
C2	Primary	2	2.5 MVA
D4	Primary	1	3 MVA
D7	Primary	1	3 MVA
E1	Primary	2	3.75 MVA
E2	Primary	1	1.5 MVA

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# Transformer

Building(s)	Service	Quantity	Size
E3	Primary	1	2.5 MVA
F1	Primary	2	5 MVA
F2	Primary	1	1 MVA
F3	Primary	1	0.225 MVA
G1	Primary	1	5 MVA
H1	Primary	1	1 MVA
H2	Primary	2	3 MVA
H3	Primary	1	5 MVA

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# Appendix