Fullerton Elementary Solar Construction Project



Fullerton Elementary School District

What's Our Why?

- Need to replace aging lunch shelters 1.
- Need additional parking at the District Office 2.
- Need larger lunch shelters at various schools 3.
- Reducing future electric utility bills 4.
- Better for the environment 5.
- 6. Will create shaded areas for outdoor learning and recess
- 7. District is receiving over \$4.5 million in lunch, shade, and parking shelters at no cost



Remove Aging lunch Shade Shelters



 Remove 10 of our 14 aging lunch shelters at:

- Pacific Drive (3)
- Richman (3)
- Rolling Hills (2)
- Sunset Lane (2)

 Cost to remove 10 aging lunch shelters \$400,000 – No cost to the District

lunch Shade Shelters





New Lunch Shelters at:

- Pacific Drive
- Richman
- Rolling Hills
- Sunset Lane
- Hermosa (Larger)
- Maple (Larger)
- Raymond (Larger)

• Cost to build these structures-\$1.6 Mil-No cost to the District

Blacktop Shade Shelters





New Blacktop Shade Shelters at:

- Acacia
- Maple
- Nicolas
- Orangethorpe
- Rolling Hills
- Valencia Park
- Woodcrest

• Cost to build these structures-\$0.6 Mil-No cost to the District

New Field Shade Shelters at:

- Acacia
- Beechwood
- Commonwealth
- Pacific Drive
- Fern
- Golden Hill
- Ladera Vista
- Laguna Road
- Nicolas
- Parks
- Raymond
- Sunset Lane
- Valencia Park
- Cost to build these structures-\$1.2 Mil-No cost to the District

field Shade Shelters







Parking Shade Shelters





New Parking Lot Shade Structure and EV

- **Charging Stations:**
 - District Office
 - Fisler
 - Richman

• New Parking Lot • District Office

• Cost to build these structures-\$0.7 Mil-No cost to the District

PFMG Solar site walks to determine best placement

District and Maintenance reviewed PFMG recommendations

District met with each Site Leadership Team (Admin and Staff) to review placement criteria, present proposed locations and collaborate on possible alternative locations

11 of the 20 sites came up with alternatives

District shared alternatives with PFMG who was able to honor our changes





Placement Criteria of Photovoltaic Arrays

- 1. Requirements per DSA (Division of State Architects):
- Solar panels can't go on top of existing structures \bullet (i.e. roofs, existing lunch shelters)
- Solar panels must be at least 20 feet from any existing building \bullet
- Solar panels can't go over play ground equipment
- Solar panels can't go over existing easements
- Solar panels can't go over fire lanes \bullet
- Solar structure needs to be ADA accessible \bullet

2. Solar panels need maximum exposure-no interference with shade from buildings or trees

3. Avoid placing Solar panels in the front of schools for aesthetic reasons

4. Replace displaced trees

5. Create usable shade space for students and community





TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	126	48.510	270°	7°
В	Elevated	6	180	69.300	270°	7°
			306	117.810		

Acacia Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Acacia ES	259000-023981	306	117.810	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 537 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

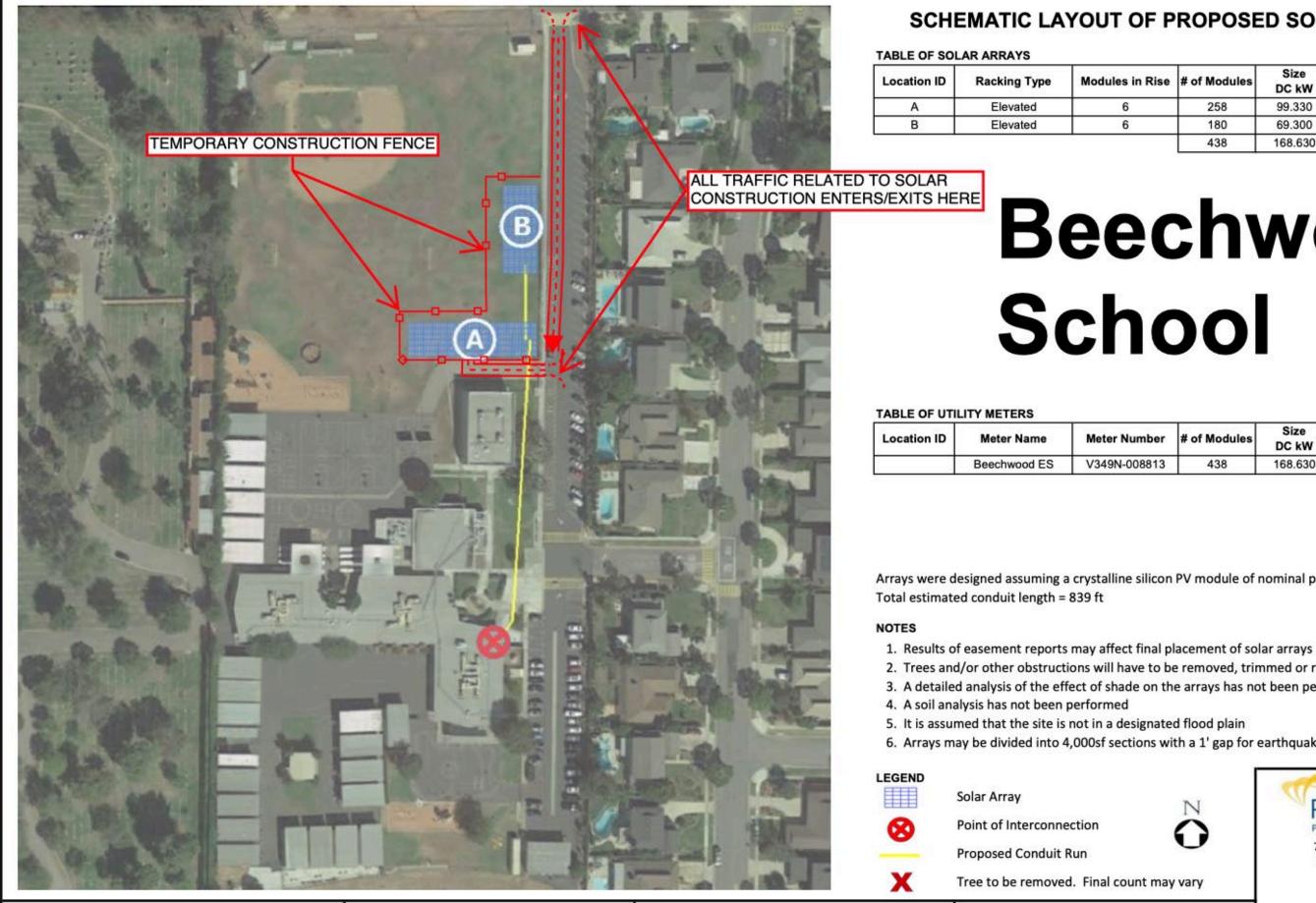
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	Revision:	S02
(Tree to be removed.	Final co
	Proposed Conduit Ru	In
0	Point of Interconnect	tion
	Solar Array	

Site Name:	Project name:	Site Address:	Revision:	S02
ACACIA ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	1200 N ACACIA AVE FULLERTON, CA 92831	Date: Drawn by:	2/8/2019 SAP
Z:\02_Projects\Fullerton School District\Engineering\Array Layouts\2018-03-10	Schematic\Acacia ES_S02_sap_2019-02-08.png	Full-SD_SAS_v1.230_sp_2019-02-08.xlsm Printed: 2/8/2019	8	7%



SAS Template Version: v110, Release Date: 01/22/2018



Site Name:	Project name:	Site Address:	Revision:	S03
BEECHWOOD ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	780 BEECHWOOD AVE	Date:	2/8/201
		FULLERTON, CA 92835	Drawn by:	SAP
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in Rise	# of Modules	Size DC kW	Azimuth	Tilt
	258	99.330	181°	7°
	180	69.300	270°	7°
	438	168.630		40 - C

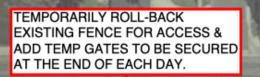


umber	# of Modules	Size DC kW	Connected to Arrays
008813	438	168.630	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W

- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety





ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HERE

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SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
А	Elevated	6	324	124.740	180°	7°
			324	124.740		

Commonwealth Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Commonwealth ES	259000-073203	324	124.740	A

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 433 ft

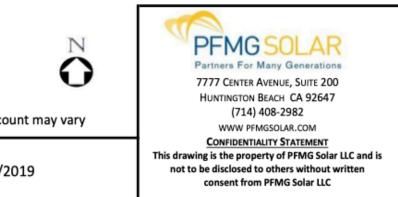
NOTES

- 1. Results of easement reports may affect final placement of solar arrays 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

-	Revision:	S02
X	Tree to be removed.	
	Proposed Conduit Ru	In
8	Point of Interconnect	tion
	Solar Array	

Site Name:	Project name:	Site Address:		Revision:	S02
COMMONWEALTH ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	2200 E COMMONW	Date:	2/13/2019	
COMMONWEALTH ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	FULLERTON, CA	92831	Drawn by:	SAP
Z:\02_Projects\Fullerton School District\Engineering\Array Layouts\2019-02-08_0	Constrained\Commonwealth ES_S01_sap_2018-3-10.png	Full-SD_SAS_v1.235_sp_2019-02-27.xlsm	Printed: 2/27/2019		86%



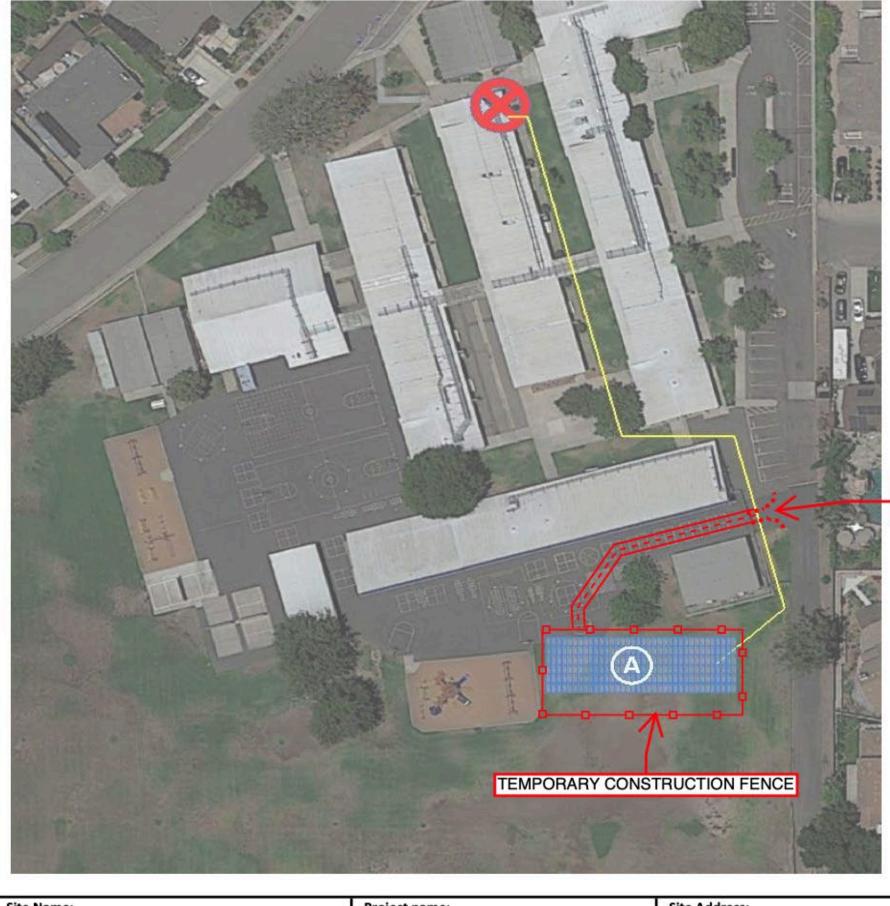


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	216	83.160	180°	7°
			216	83.160		

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Fern Drive ES	259000-080549	216	83.160	A

ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HE

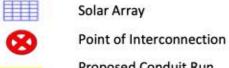
Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 512 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND	

X



Proposed Conduit Run

Tree to be removed. Final count may vary

	Site Name:	Project name:	Site Address:		Revision:	S02
	FERN DRIVE ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	1400 W FERN FULLERTON, CA		Date: Drawn by:	3/21/201 PMS
- 3	Z:\02 Projects\Fullerton School District\Engineering\Array Layouts\2019-02-08	Constrained\Fern Drive ES_SO1_pms_2019-03-21.png	Full-SD SAS v1.240 ps 2019-03-21.xlsm	Printed: 3/21/2019		2%



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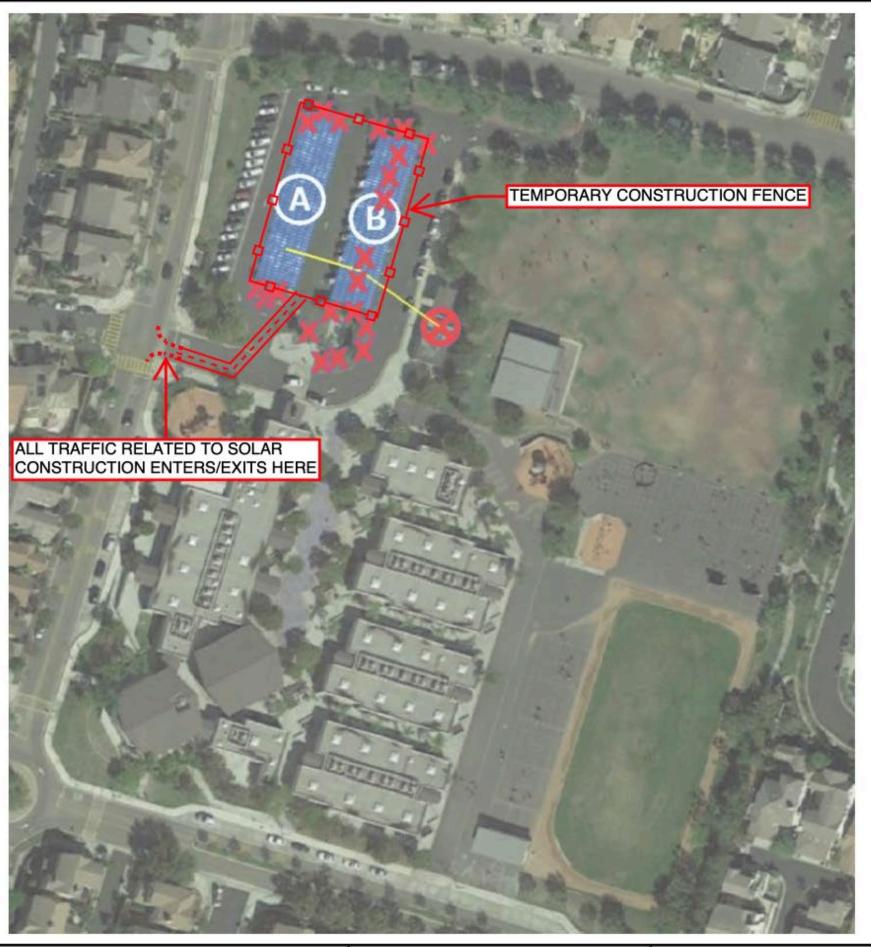


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Carport	6	294	113.190	107°	7°
В	Carport	6	294	113.190	107°	7°
1			588	226.380		8- ¹

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
l	Fisler ES	V349N-000348	588	226.380	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 164 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

	Revision:	S04-L
X	Tree to be remo	ved. Final cou
	Proposed Condu	it Run
8	Point of Intercor	nection
	Solar Array	
LEGEND		

	Site Name:	Project name:	Site Address:	Revision:	S04-L
	FISLER ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	1350 STARBUCK ST FULLERTON, CA 92833	Date: Drawn by:	2/8/201 SAP
Ì	Z:\02_Projects\Fullerton School District\Engineering\Array Layouts\2018-03-10_	Schematic\Fisler ES_S03_jsr_2018-04-03.png	Full-SD_SAS_v1.230_sp_2019-02-08.xlsm Printed: 2/8/2019	78	1%





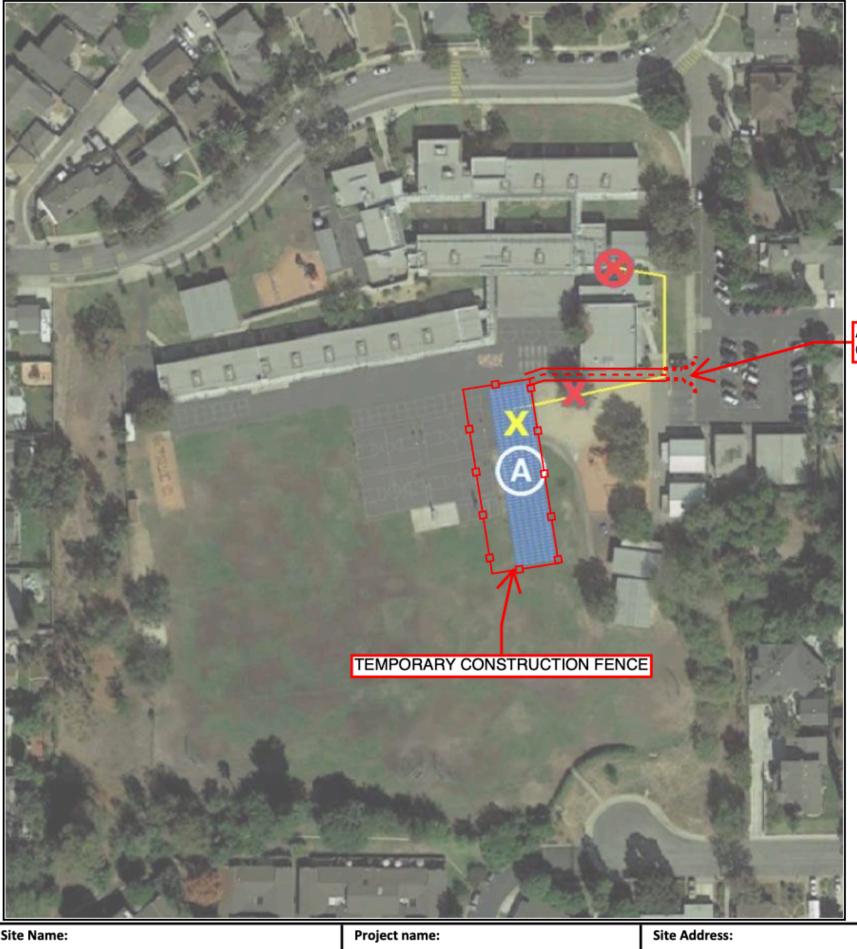


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
А	Elevated	6	312	120.120	261°	7°
			312	120.120		

Golden Hill Elementary

ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HERE

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Golden Hill ES	259000-084459	312	120.120	A

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 293 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

E	G	E	N	D		
		E				

63

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- Solar Array Point of Interconnection Proposed Conduit Run
 - Tree to be removed. Final count may vary

Site Name:	Project name:	Site Address:	Revision:	S03
GOLDEN HILL ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	732 BARRIS DR	Date:	2/13/201
GOLDEN HILL ELEMENTART SCHOOL	FOLLERTON SCHOOL DISTRICT	FULLERTON, CA 92832	Drawn by:	SAP
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FULLERTON SCHOOL DISTRICT

SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	258	99.330	153°	7°
.5-			258	99.330		

POSSIBLE ALTERNATIVE CONSTRUCTION TRAFIIC ROUTE

Hermosa Drive Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Hermosa Drive ES 1	259000-071826	258	99.330	A

Total estimated conduit length = 33 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

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	Drawn by:	SAP
	Date:	2/8/20
	Revision:	S02
X	Tree to be removed.	Final co
	Proposed Conduit Ru	in
8	Point of Interconnect	tion
	Solar Array	
LEGEND		

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HERMOSA DRIVE ELEMENTARY SCHOOL

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400 E HERMOSA DR

FULLERTON, CA 92835

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W



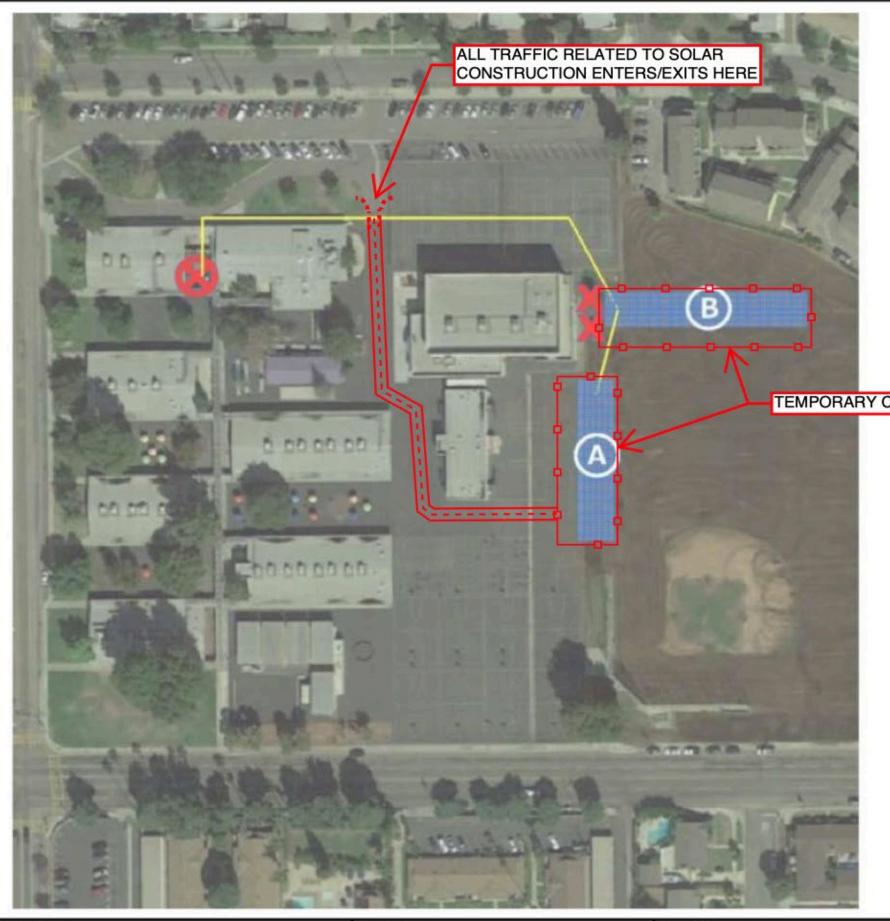


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	318	122.430	270*	7*
в	Elevated	6	384	147.840	180"	7°
			702	270.270		

Ladera Vista Jr. High

TEMPORARY CONSTRUCTION FENCE

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Ladera Vista JHS	V349N-017710	702	270,270	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 663 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

EALTH AVE	Date:	2/13/201
	Revision:	S04
X	Tree to be removed.	Final count
	Proposed Conduit Ru	nu
8	Point of Interconnec	tion
n	Solar Array	
LEGEND		

Site Name:	Project name:	Site Address:	Revision:	S04
LADERA VISTA JUNIOR HIGH SCHOOL	FULLERTON SCHOOL DISTRICT	1700 E COMMONWEALTH AVE FULLERTON, CA 92831	Date: Drawn by:	2/13/201 SAP
2:\02_Projects\Fullerton School District\Engineering\Array Layouts\2019-02	OE_Constrained\Ladera Vista JH5_503_sap_2019-02-08.prg	Fu8-50_5A5_v1.233_sp_2019-02-13.xhm Printed: 2/14/2019		80%



TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	360	138.600	113°	7°
1.1			360	138.600		

Laguna Road Elementary

TABLE OF UTILITY M	ETERS
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Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Laguna Road ES	259000-063238	360	138.600	A

ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HERE

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 351 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array		
8	Point of Intercon	nection	
-	Proposed Conduit Run		
X	Tree to be remov	ved. Final cou	
	Revision:	S03	
	Date:	2/27/20	
	Drawn by:	SAP	

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LAGUNA ROAD ELEMENTARY SCHOOL

Site Name:

TEMPORARY CONSTRUCTION FENCE

Project name:

FULLERTON SCHOOL DISTRICT

300 LAGUNA RD

FULLERTON, CA 92835

Site Address:





FULLERTON SCHOOL DISTRICT

SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	138	53.130	180°	7°
В	Elevated	6	138	53.130	180°	7°
		÷ .	276	106.260		0

TEMPORARY CONSTRUCTION FENCE

Maple Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Maple ES	259000-056151	276	106.260	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 98 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array	
8	Point of Interconnect	tion
<u> </u>	Proposed Conduit Ru	in
X	Tree to be removed.	Final co
	Revision:	S01-L
	Date:	2/8/20
	Drawn by:	SAP

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MAPLE ELEMENTARY SCHOOL

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244 E VALENCIA DR

FULLERTON, CA 92832

81%



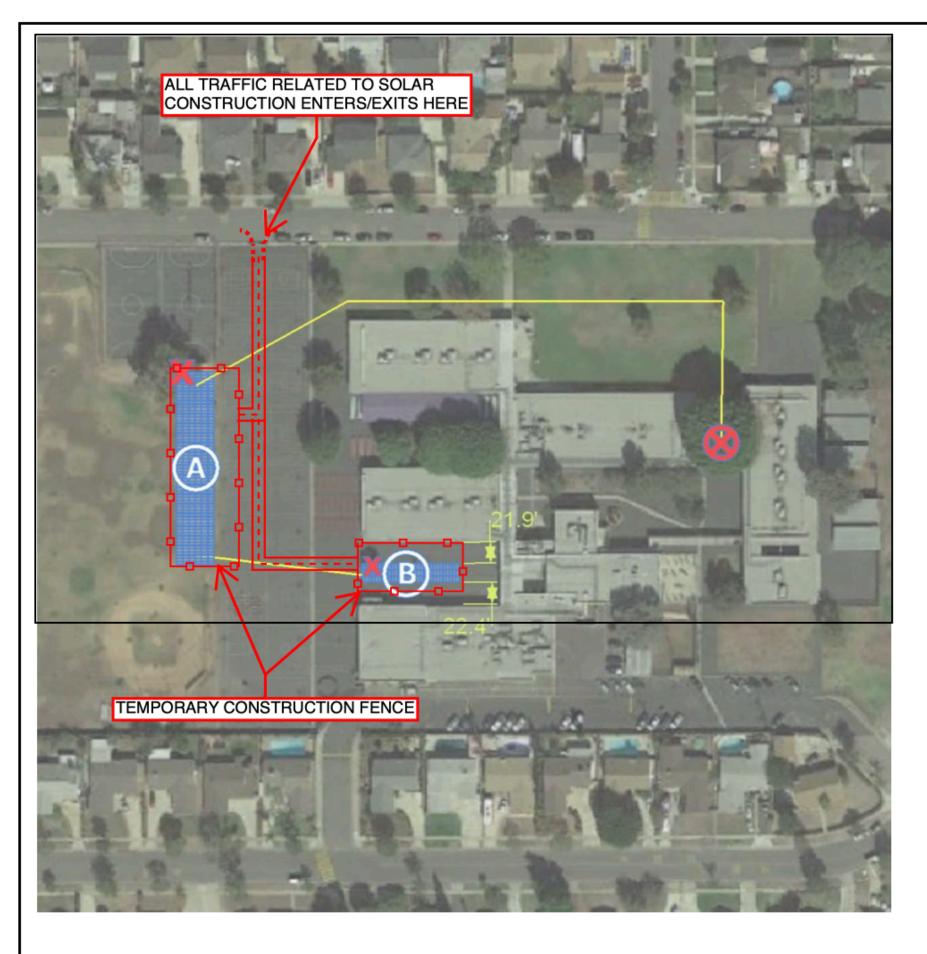


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	360	138.600	270°	7°
В	Elevated	3	90	34.650	180°	7°
			450	173.250		

Nicolas Jr. **High School**

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Nicolas JHS 1	359150-001234	450	173.250	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 896 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND						
	Solar Array					
8	Point of Interconnect	tion				
	Proposed Conduit Ru	Proposed Conduit Run				
X	Tree to be removed.	Final				
	Revision:	S03-				
	Date:	2/22				
	Drawn by:	SAP				

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Project name:

FULLERTON SCHOOL DISTRICT

Site Name:

NICOLAS JUNIOR HIGH SCHOOL

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1100 W OLIVE AVE

FULLERTON, CA 92833

Site Address:

74%





TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	168	64.680	180°	7°
В	Elevated	6	168	64.680	180°	7°
			336	129.360		

ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HERE

Orangethorpe Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Orangethorpe ES 2	V349N-011990	336	129.360	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 608 ft

NOTES

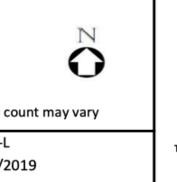
- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array
8	Point of Interconnection
	Proposed Conduit Run
X	Tree to be removed. Final

Site Name:	Project name:	Site Address:	Revision:	S01-L
ORANGETHORPE ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	1400 S BROOKHURST RD	Date:	2/8/202
ORANGETHORPE ELEMENTART SCHOOL	FOLLERTON SCHOOL DISTRICT	FULLERTON, CA 92833	Drawn by:	SAP
Z:\02_Projects\Fullerton School District\Engineering\Array Layouts\2018-03-10_	Schematic\Orangethorpe ES_S01_sap_2018-03-11.png	Full-SD_SAS_v1.230_sp_2019-02-08.xlsm Printed: 2/8/2019		85%







7777 CENTER AVENUE, SUITE 200 HUNTINGTON BEACH CA 92647 (714) 408-2982 WWW PFMGSOLAR.COM CONFIDENTIALITY STATEMENT This drawing is the property of PFMG Solar LLC and is not to be disclosed to others without written consent from PFMG Solar LLC



TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
D	Carport	6	216	83.160	180°	7°
E	Elevated	6	396	152.460	270°	7°
A	Elevated	6	132	50.820	180°	7°
В	Elevated	6	132	50.820	180°	7°
С	Elevated	6	132	50.820	180°	7°
			1,008	388.080		

Pacific Drive Elementary and District Office

	TABLE OF UTI	LITY METERS				
	LocationID				Size C kW	Connected to Arrays
	2		TION ENTERS			D
4	3	District Office 7	259000-039565	396	152.460	E
	1	Pacific Drive ES	V349N-000365	396	152.460	A,B,C
				1,008	388.080	

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 1138 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

FULLERTON, CA 92833

	Solar Array				
8	Point of Interconnect	tion			
	Proposed Conduit Run				
X	Tree to be removed.	Final cou			
	Revision:	S06-L			
	Date:	2/13/20			
	Drawn by:	SAP			

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SCHOOL

FULLERTON SCHOOL DISTRICT





TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	522	200.970	90°	7°
			522	200.970		

Parks Jr. **High School**

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Parks JHS	V349N-003848	522	200.970	A

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 778 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array	
8	Point of Interconnec	tion
-	Proposed Conduit Ru	ın
X	Tree to be removed.	Final c
	Revision:	S01
	Data	2/0/2

Site Name:	Project name:	Site Address:		Revision:	S01
PARKS JUNIOR HIGH SCHOOL	FULLERTON SCHOOL DISTRICT	1710 ROSECRANS AVE		Date:	2/8/20
PARKS JONIOR HIGH SCHOOL	FOLLERTON SCHOOL DISTRICT	FULLERTON, CA	92833	Drawn by:	SAP
:\02 Projects\Fullerton School District\Engineering\Array Layouts\2018-03-10	Schematic\Parks JHS S01 sap 2018-03-11.png	Full-SD SAS v1.231 sp 2019-02-11.xlsm	Printed: 2/11/2019	8	5%

Z	PFMG SOLAR Partners For Many Generations
υ	7777 CENTER AVENUE, SUITE 200 HUNTINGTON BEACH CA 92647 (714) 408-2982
unt may vary	WWW PFMGSOLAR.COM
	CONFIDENTIALITY STATEMENT
019	This drawing is the property of PFMG Solar LLC and is not to be disclosed to others without written consent from PFMG Solar LLC

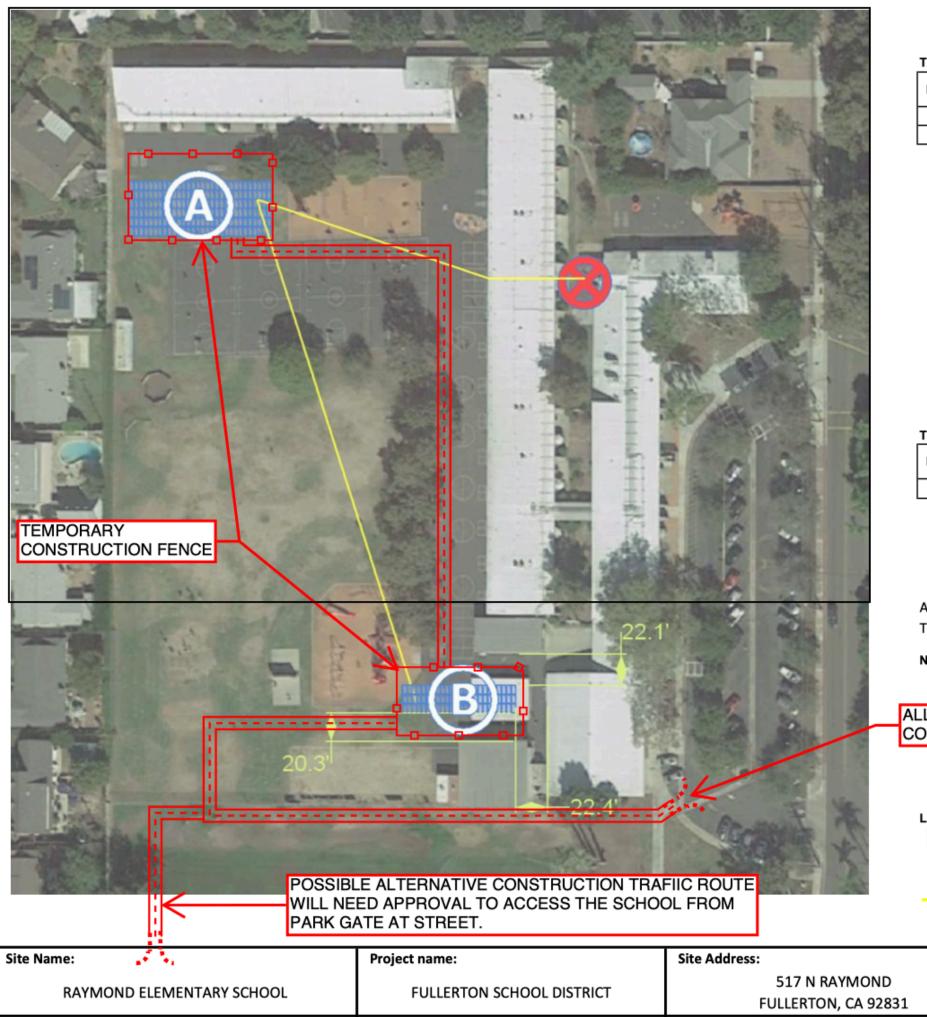


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	180	69.300	180°	7°
В	Elevated	3	72	27.720	180°	7°
			252	97.020		

Raymond Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Raymond ES	259000-070156	252	97.020	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 613 ft

NOTES

1. Results of easement reports may affect final placement of solar arrays

ALL TRAFFIC RELATED TO SOLAR CONSTRUCTION ENTERS/EXITS HERE

5. It is assumed that the site is not in a designated flood plain

LEGEND						
	Solar Array					
8	Point of Interconnection					
	Proposed Conduit Run					
X	Tree to be removed	l. Final cou				
	Revision:	S05				
	Date:	2/22/2				
31	Drawn by:	SAP				
nted- 2/22/2019	80%					

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- 2 Trees and/or other obstructions will have to be removed, trimmed or relocated the arrays has not been performed
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety



unt may vary

2019



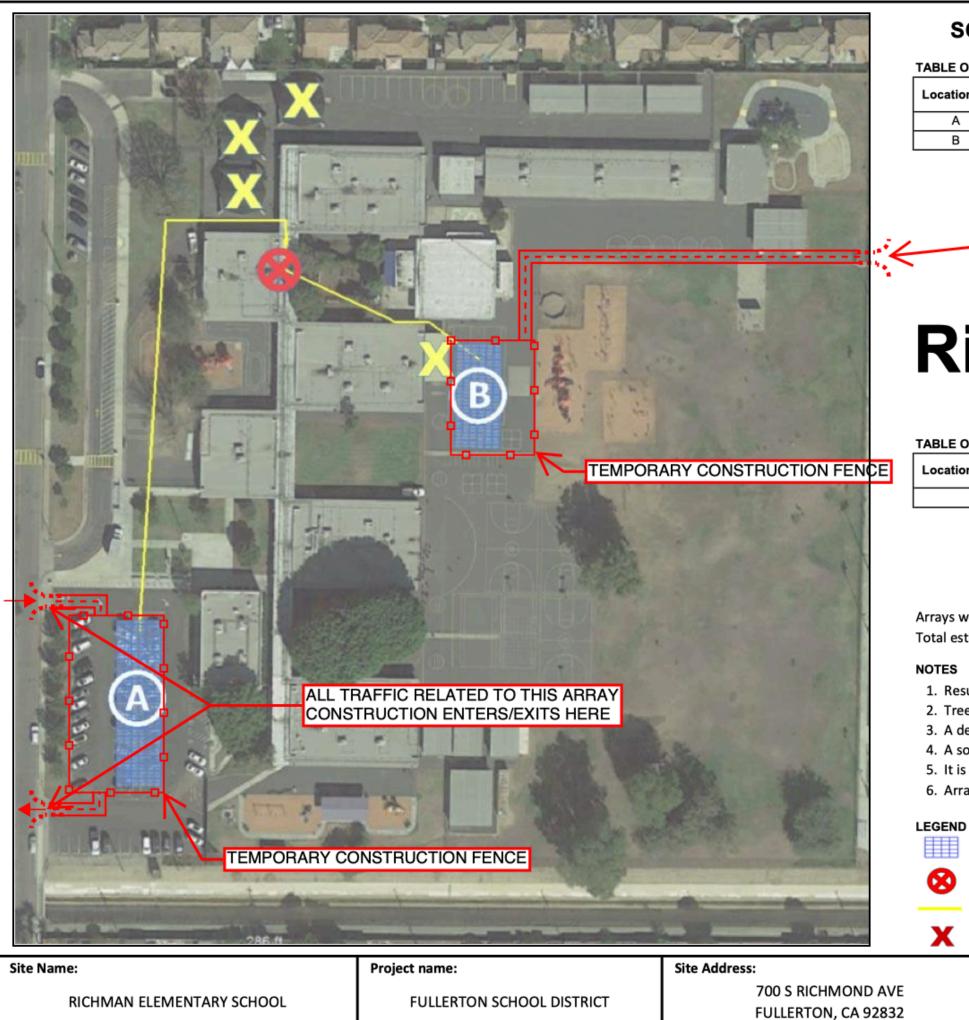


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Carport	6	258	99.330	270°	7°
В	Elevated	6	162	62.370	272°	7°
-			420	161.700		

ALL TRAFFIC RELATED TO THIS ARRAY CONSTRUCTION ENTERS/EXITS HERE

Richman Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Richman ES	V349N-007764	420	161.700	A,B

Total estimated conduit length = 1116 ft

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

	Date:	2/13,
	Revision:	S04-l
X	Tree to be removed.	Final o
-	Proposed Conduit Ru	n
8	Point of Interconnect	ion
	Solar Array	

Drawn by:

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SAP

SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W



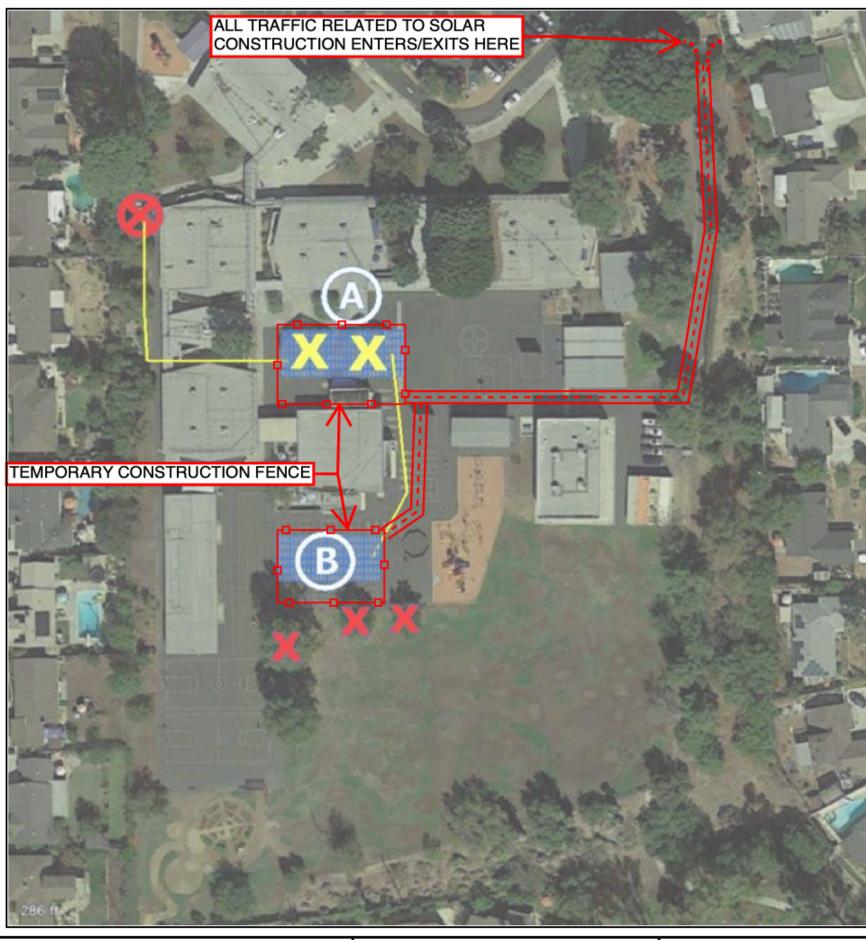


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	180	69.300	180°	7°
В	Elevated	6	150	57.750	180°	7°
			330	127.050		

Rolling Hills Elementary

TABLE OF UTILITY METERS

	Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
[Rolling Hills ES 2	259000-077470	330	127.050	A,B

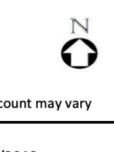
Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 425 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

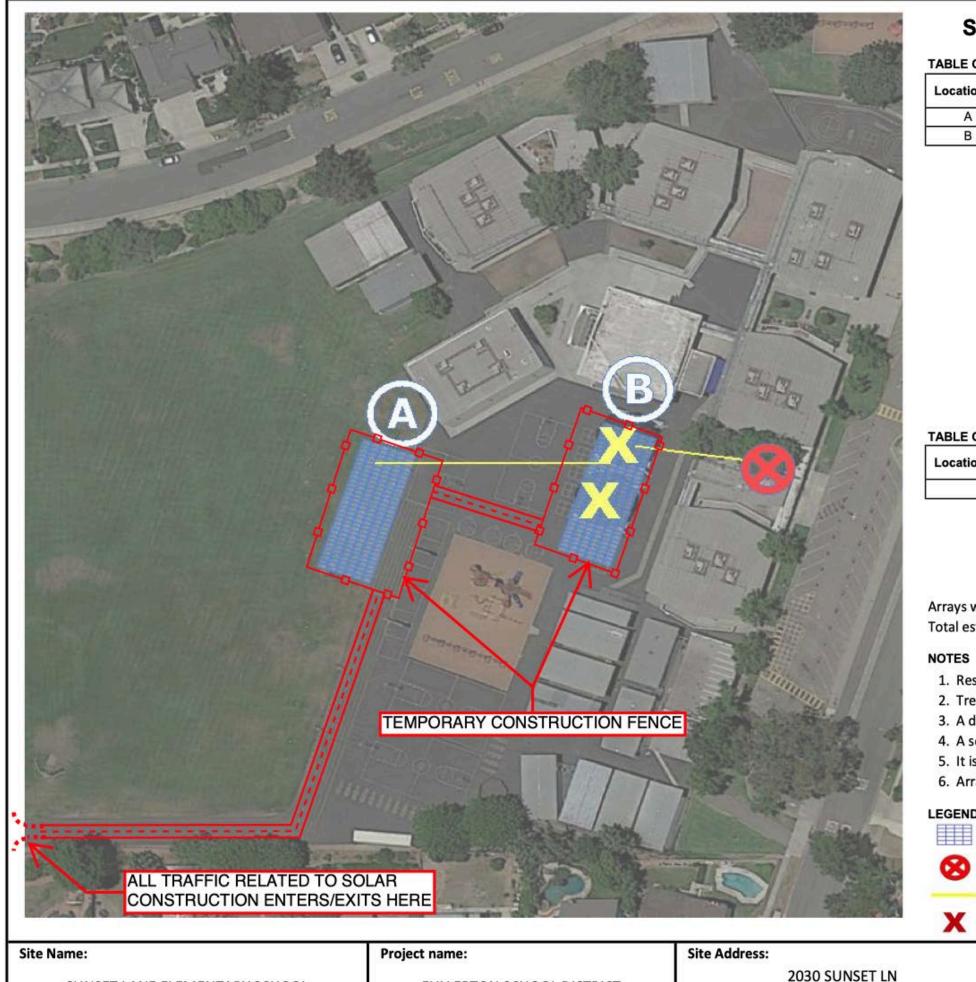
	Revision:	S04
X	Tree to be removed.	Final co
	Proposed Conduit Ru	ın
8	Point of Interconnec	tion
	Solar Array	
LEGEND		

	Site Name:	Project name:	Site Address:		Revision:	S04
	ROLLING HILLS ELEMENTARY SCHOOL	FULLERTON SCHOOL DISTRICT	1460 ROLLING HI	Date:	2/13/20	
	ROLLING HILLS ELEMENTARY SCHOOL	FOLLERTON SCHOOL DISTRICT	FULLERTON, CA	92835	Drawn by:	SAP
1	Z:\02_Projects\Fullerton School District\Engineering\Array Layouts\2019-02-08_0	Constrained\Rolling Hills ES_S03_sap_2019-02-08.png	Full-SD_SAS_v1.232_sp_2019-02-13.xlsm	Printed: 2/13/2019	8	2%



2019





FULLERTON SCHOOL DISTRICT

SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	180	69.300	109°	7°
В	Elevated	6	180	69.300	109°	7°
			360	138.600		

Sunset Lane Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Sunset Lane ES	V349N-003728	360	138.600	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 258 ft

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array	
8	Point of Interconnect	tion
-	Proposed Conduit Ru	in
X	Tree to be removed.	Final c
	Revision:	S01
	Date:	3/7/2

Drawn by:

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SUNSET LANE ELEMENTARY SCHOOL

FULLERTON, CA 92833

PMS





FULLERTON SCHOOL DISTRICT

SCHEMATIC LAYOUT OF PROPOSED SOLAR SYSTEM

TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
A	Elevated	6	126	48.510	180°	7°
В	Elevated	6	180	69.300	270°	7°
0.2		(A.1)	306	117.810		10-

Valencia Park Elementary

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Valencia Park ES	V349N-013636	306	117.810	A,B

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W Total estimated conduit length = 445 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Solar Array	
8	Point of Interconnec	tion
_	Proposed Conduit Ru	ın
X	Tree to be removed.	Final co
	Revision:	S02-L
	Date:	2/12/2
	Drawn by:	SAP

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VALENCIA PARK ELEMENTARY SCHOOL

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FULLERTON, CA 92833

69%

- 3. A detailed analysis of the effect of shade on the arrays has not been performed



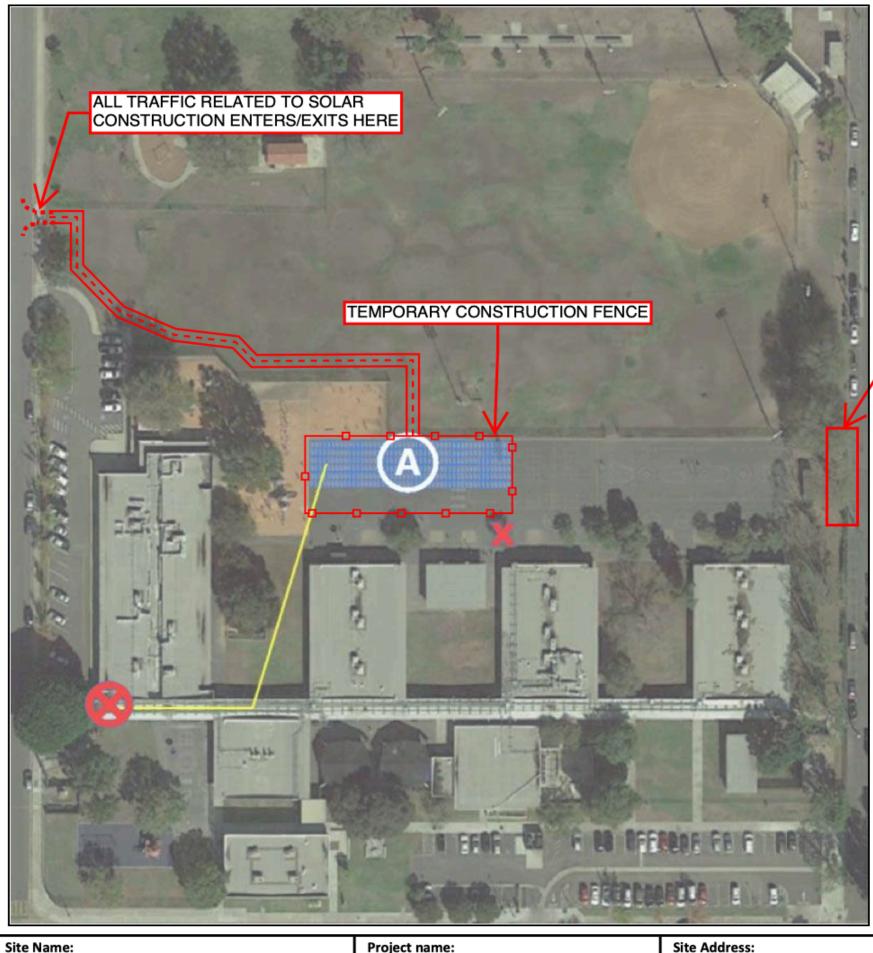


TABLE OF SOLAR ARRAYS

Location ID	Racking Type	Modules in Rise	# of Modules	Size DC kW	Azimuth	Tilt
А	Elevated	6	288	110.880	180°	7°
			288	110.880		

Woodcrest Elementary

IS THERE ACCESS TO THE SCHOOL FROM THIS LOCATION?

TABLE OF UTILITY METERS

Location ID	Meter Name	Meter Number	# of Modules	Size DC kW	Connected to Arrays
	Woodcrest ES 1	259000-039582	288	110.880	A

Total estimated conduit length = 437 ft

NOTES

- 1. Results of easement reports may affect final placement of solar arrays
- 2. Trees and/or other obstructions will have to be removed, trimmed or relocated
- 3. A detailed analysis of the effect of shade on the arrays has not been performed
- 4. A soil analysis has not been performed
- 5. It is assumed that the site is not in a designated flood plain
- 6. Arrays may be divided into 4,000sf sections with a 1' gap for earthquake safety

LEGEND

	Date:	2/8/20		
	Revision:	S01-L		
X	Tree to be removed.	Final co		
_	Proposed Conduit Run			
8	Point of Interconnect	ion		
	Solar Array			

Drawn by:

WOODCREST ELEMENTARY SCHOOL

FULLERTON SCHOOL DISTRICT

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455 W BAKER AVE

FULLERTON, CA 92832

71%

SAP

Arrays were designed assuming a crystalline silicon PV module of nominal power = 385W

