

Objectives

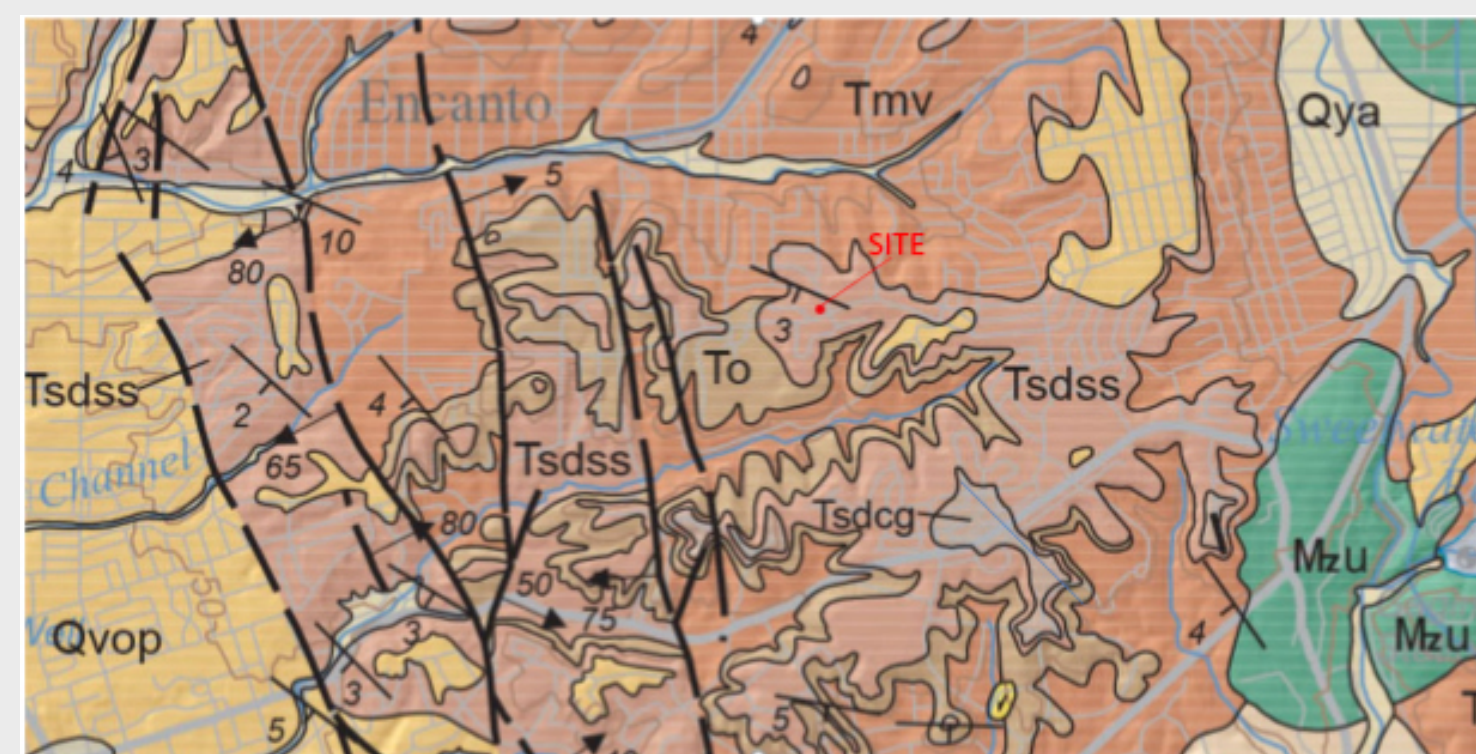
- To provide cost effective Design-Build services to the City of San Diego for the brand new Skyline Hills Fire Station 51.
- Create a site layout plan and construction schedule that allows the Firefighter's work and construction to occur simultaneously.
- Exceed expectations in sustainability by achieving Gold Standard Envision Certification as well as implementing water saving alternatives and recyclable construction material recommendations.
- Provide an accurate grading plan after completing an elevation survey of the site.
- Develop a space for the Firefighters of San Diego that promotes & rewards their work for their community.

Geotechnical Evaluation



Site survey with marked elevations

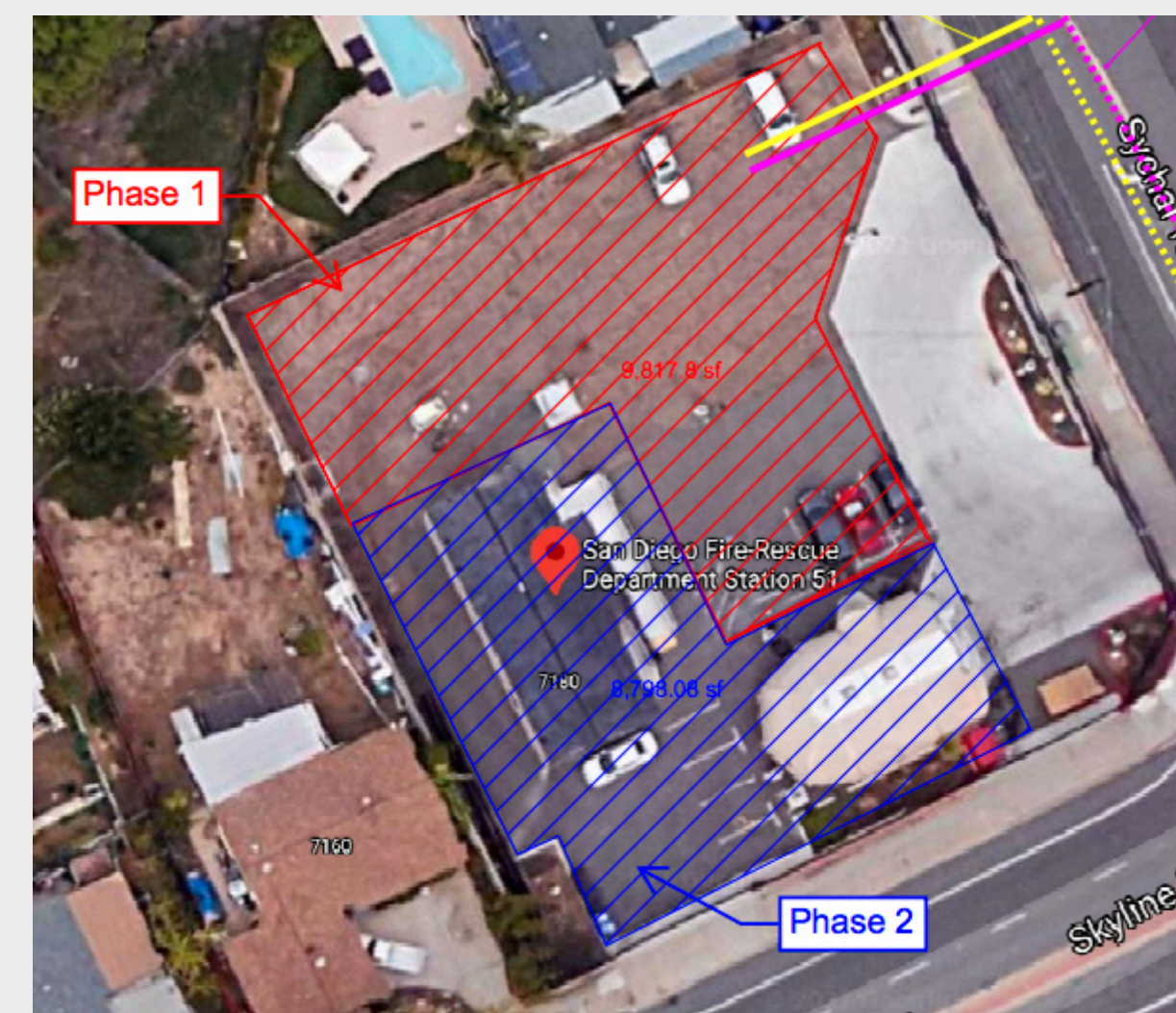
- 5 ft of elevation change.
- No significant geologic hazards.
- Subject to seismic shaking.



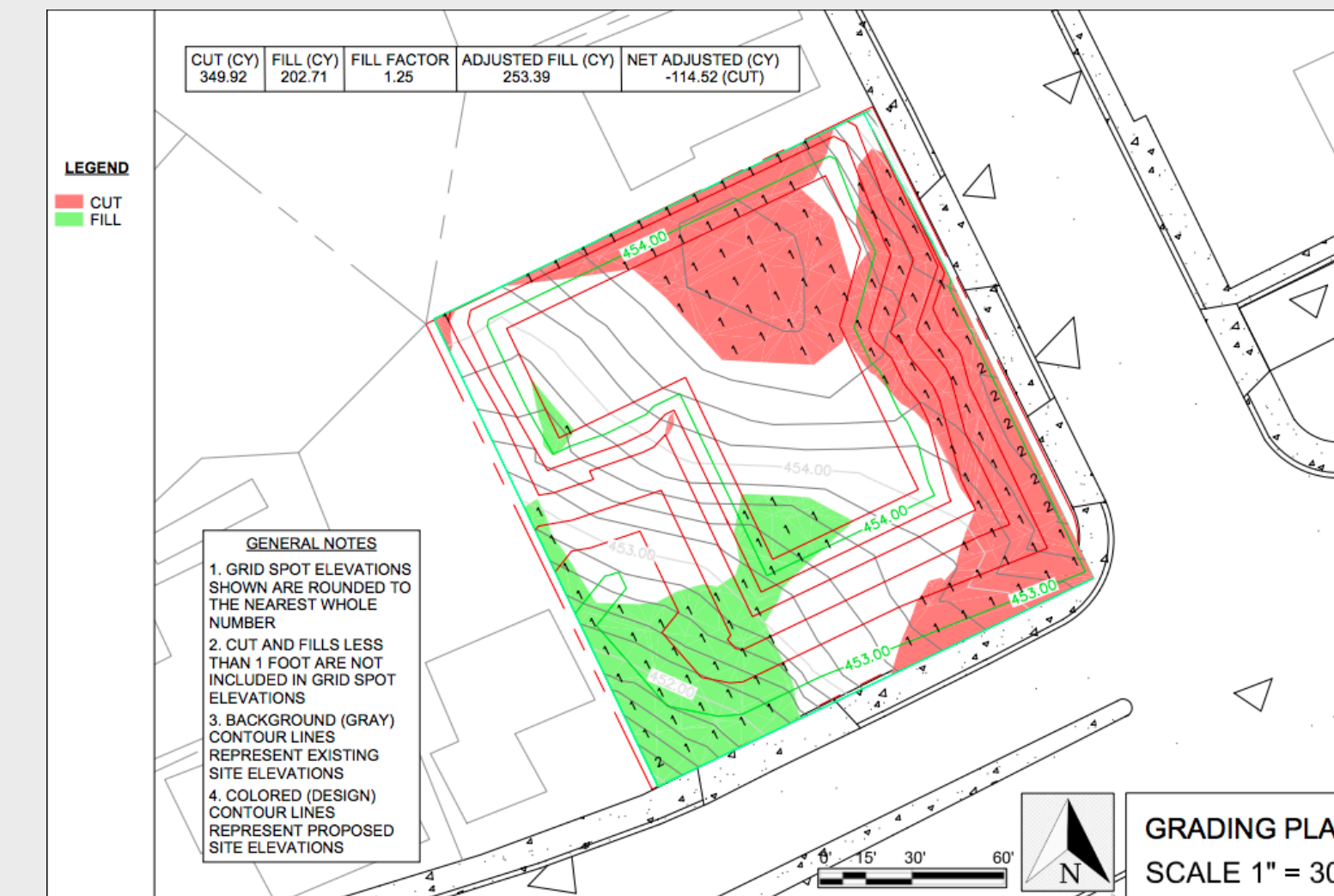
Regional Geologic Map

- Subsurface conditions: Undocumented Fill (Qudf), San Diego Formation (Tsd), Otay Formation (To).
- Undocumented Fill needs remedial grading.

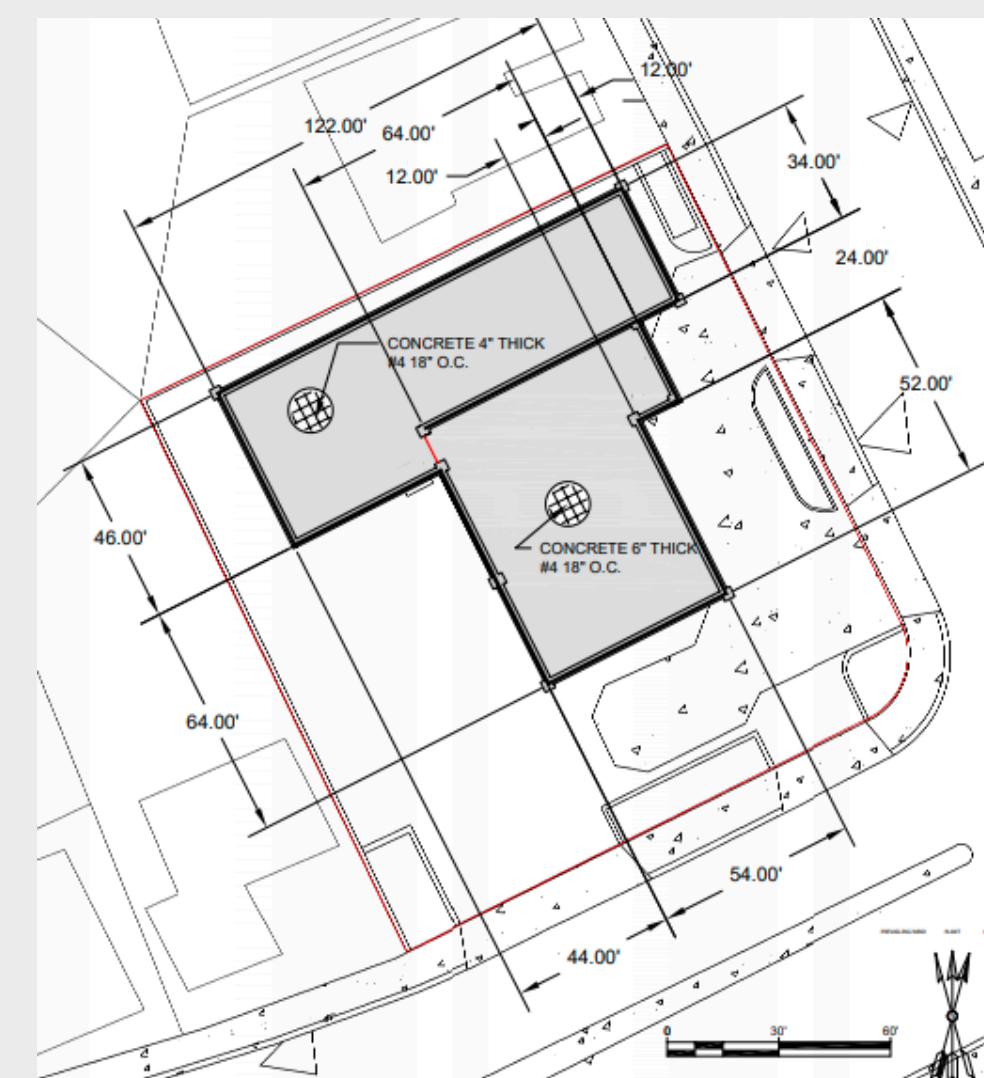
Plans & Exhibits



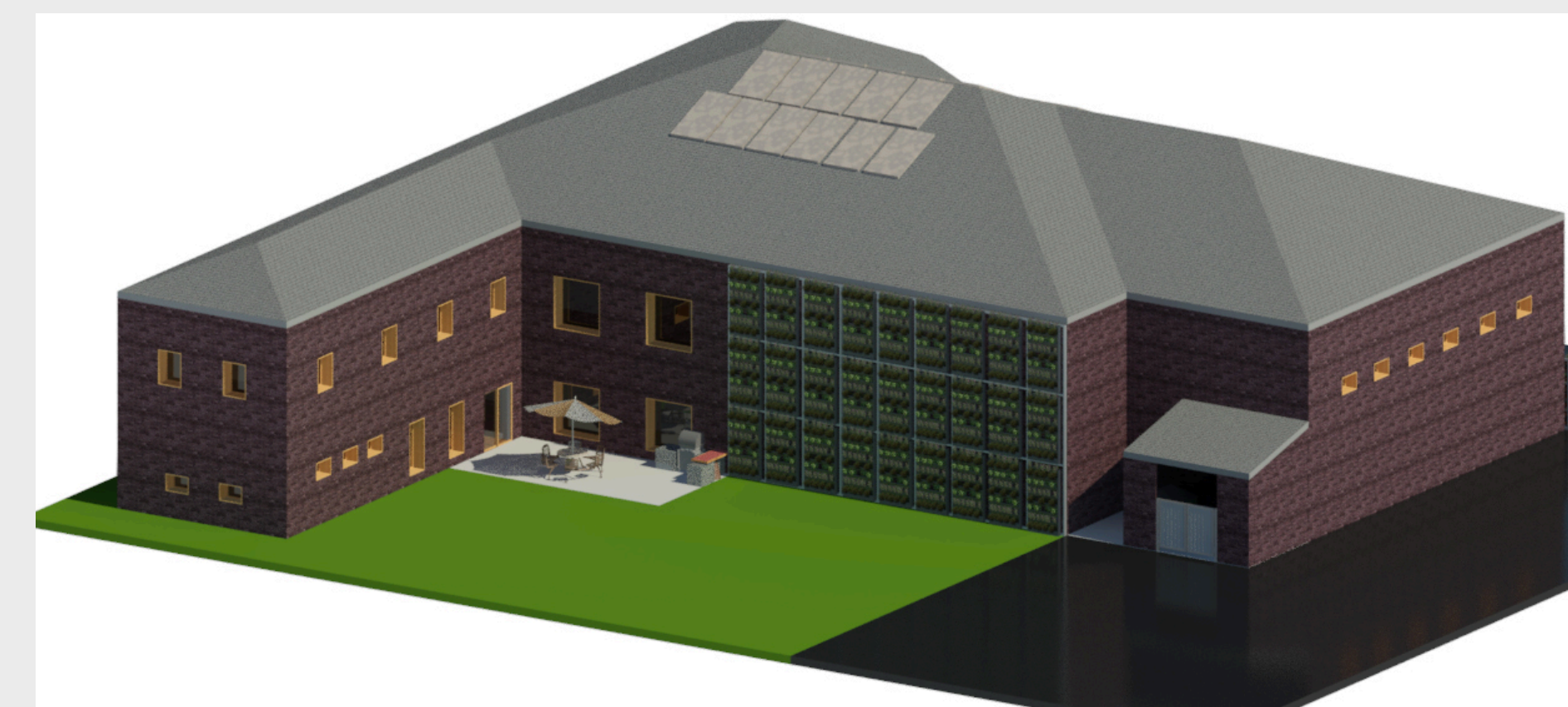
- Construction shall be split into two phases to allow for preexisting buildings to remain active.



- Cut and Fill calculations of proposed grading from surveyed existing conditions.
- Red = Cut ; Green = Fill

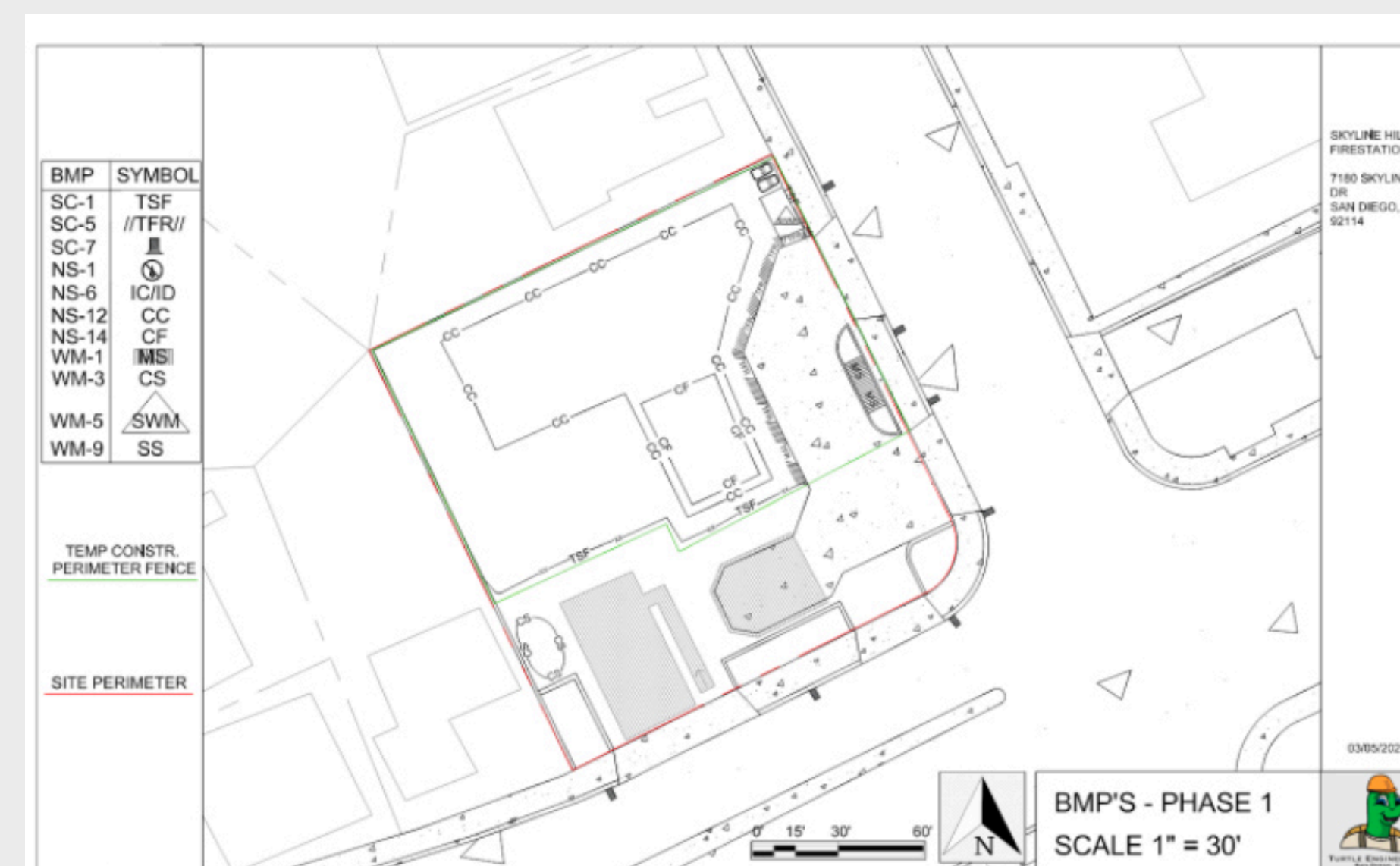


- Foundation plan displaying dimensions and concrete and rebar detailing.




- Architectural representation of the proposed building featuring solar panels and a green plant wall.
- Two stories with an estimated 12,000 square feet.

SWPPP



SWPPP Phase One

Temporary Silt Fence **SC-1**



Standard Symbol

Definition and Purpose
A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

SWPPP BMP Example

- Watershed Erosion Estimate = 6.714864. Low Site Sediment Risk Factor
- Low Receiving Water Risk
- Level 1 Combined Risk
- BMPs used on the project: 3 Sediment Control BMPs, 1 Wind Erosion Control BMP, 5 Non-Stormwater Management BMPs, 4 Waste Management and Materials Pollution Control BMPs

Sewer & Water Study

Sewer:

- Turtle Engineering is assuming 7 Drainage Fixture Units (DFU's) for the first floor of the building and 30 DFU's for the second floor.
- Turtle Engineering calculates a 3 inch sewer connection will be required from the sewer to the Fire Station to the Point of Contact.

Water:

- Through Turtle Engineering's calculations, we have found the 1st floor water demand to be 56.1 gallons per minute and the 2nd floor water demand to be 209.5 gallons per minute.
- From these values, we can calculate that the building supply and branches will need a pipe size of 1 1/4 inch to accommodate for the water demand within the Fire Station .
- Additionally, Turtle Engineering assumes no fire pump will be needed for the fire suppression system due to the square footage of the proposed building being under 20,000 square feet.

Results

PROJECT: SKYLINE HILLS FIRE STATION 51		TOTAL BUILDING SF: 12,100		FOR CONSTRUCTION PERMITS	
OWNER: SAN DIEGO CITY		Duration MO: 4		LOCATION: LEMON GROVE, CA	
		Site SF: 24,690		DATE: MARCH 28TH, 2021	
		Parking Spaces: 23		TURTLE ENGINEERING	
ESTIMATOR: Matthew Fredrickson					
SOFT SIDE BUDGET					
DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT	COMMENTS
DESIGN, PERMITS, FEE'S & SOFT SIDE	1	LS	8.00	8.00	8 BY OWNER
GENERAL CONDITIONS BUDGET					
DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT	COMMENTS
GENERAL CONDITIONS	4	MO	17.177	68.707	
SITWORK BUDGET					
DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT	COMMENTS
SITE IMPROVEMENTS	1	LS	171.588	171.588	
STRUCTURAL BUDGET					
DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT	COMMENTS
FOUNDATION	1	54,228.00	54,228.00		
SUMMARY					
SUBTOTAL: SOFT SIDE, GENERAL CONDITIONS, SITWORK, PARKING STRUCTURE, APARTMENT BUDGET				294,531	
CONTINGENCY @ 8.00%				23,562	
INSURANCES @ 1.25%				3,676	
CONTRACTOR'S FEE @ 4.00%				322,076	
SUBTOTAL				12,100	
SUBCONTRACTOR BONDS @ 0.00%				3,300	
MATERIAL ESCALATION @ 3.00%				10,148	
TOTAL BUDGET				348,451	

- Cost estimate for Turtle Engineering's scope of work is \$349,000 and includes general conditions, site work, and structural foundation
 - \$69,000 for staffing & temporary facilities
 - \$172,000 for surveying, demolition, earthwork and utilities
 - \$54,000 for field engineering, concrete reinforcement & carpentry
- Turtle Engineering will be on site for a duration of 4 months, and the overall project duration is estimated to be from July 2nd, 2021 until March 17th, 2022 for an overall duration of 8.5 months.



Achieved Gold Standard Envision Certification