



India Basin Sediment Remediation and Restoration



Presented by Dominic Massaro
WEDA Pacific Chapter October 2022

India Basin Site Location



Project Sponsors



Courtesy of BUILD Inc., SOM, Bionic

- City of San Francisco Recreation and Parks Department
- San Francisco Water Quality Control Board
- U.S. Environmental Protection Agency
- BUILD Inc. (private development firm)

Project/Site Objectives

- Remediation
- Restoration
- Redevelopment
- Preservation of historic buildings
- Recreation
- Education
- Community revitalization

India Basin Future Development



Courtesy of Wikipedia (Khusid) via CC BY-SA 4.0

India Basin Future Development



Courtesy of BUILD Inc., SOM, Bionic

Historical Site Uses



Courtesy of India Basin Neighborhood Association

Site Contamination

- Metals
 - Copper, lead, mercury, and nickel
- PCBs
- PAHs
- Upland soils and offshore sediments
- Some areas above hazardous waste concentrations
 - Toxic Substances Control Act
- Human health and ecological risks not fully analyzed but exceed national and regional screening values
- Groundwater not an issue

Pre-Construction Site Conditions



Pre-Construction Site Conditions



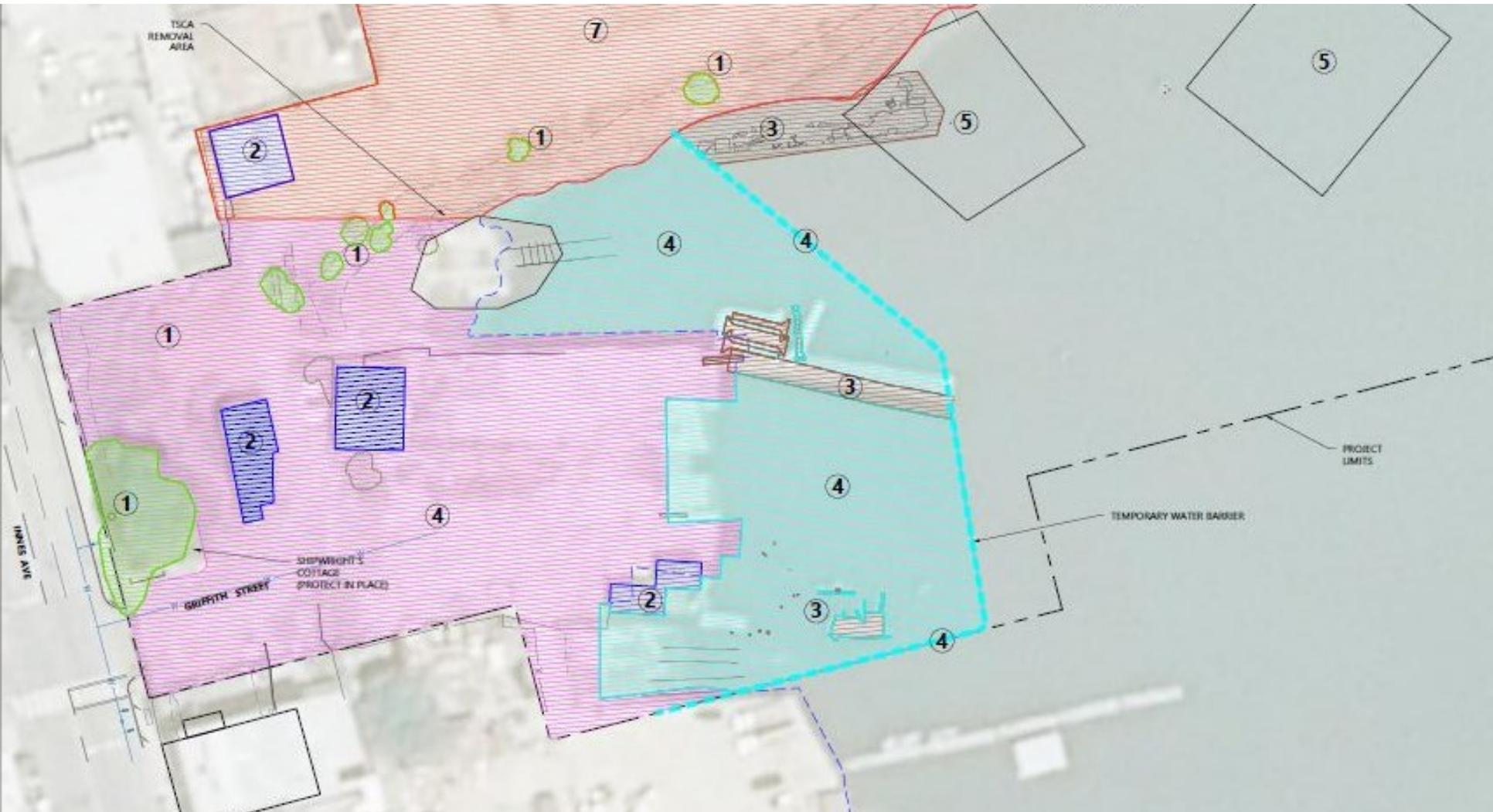
Pre-Construction Site Conditions



Pre-Construction Site Conditions



Construction Sequencing



Water Barrier System



Barrier Installation



Barrier Installation



Barrier Installation



Barrier Installation Challenges



Demolition



Demolition



Demolition Challenges



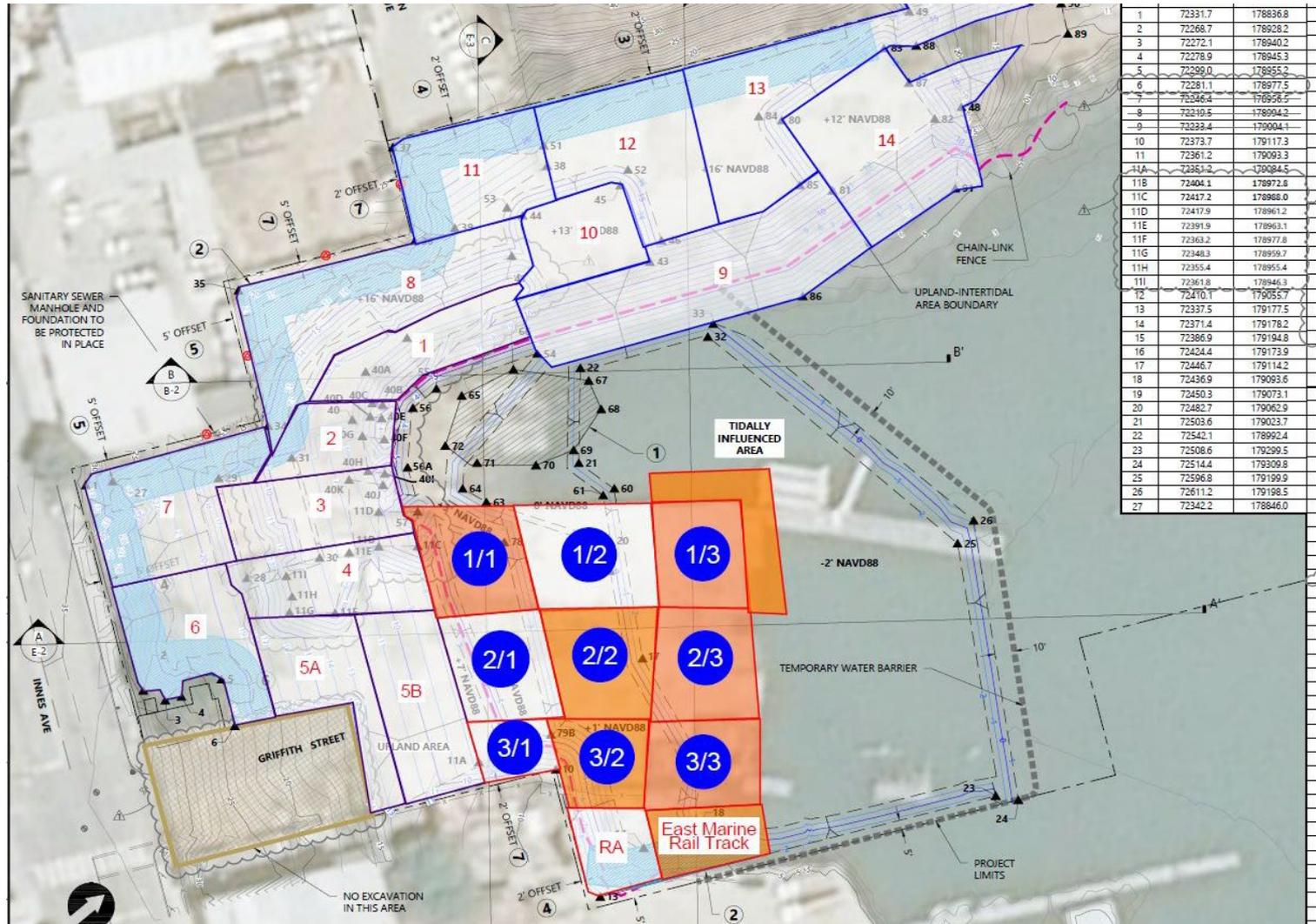
Excavation



Excavation



Excavation Challenges



Excavation Challenges



Waste Streams



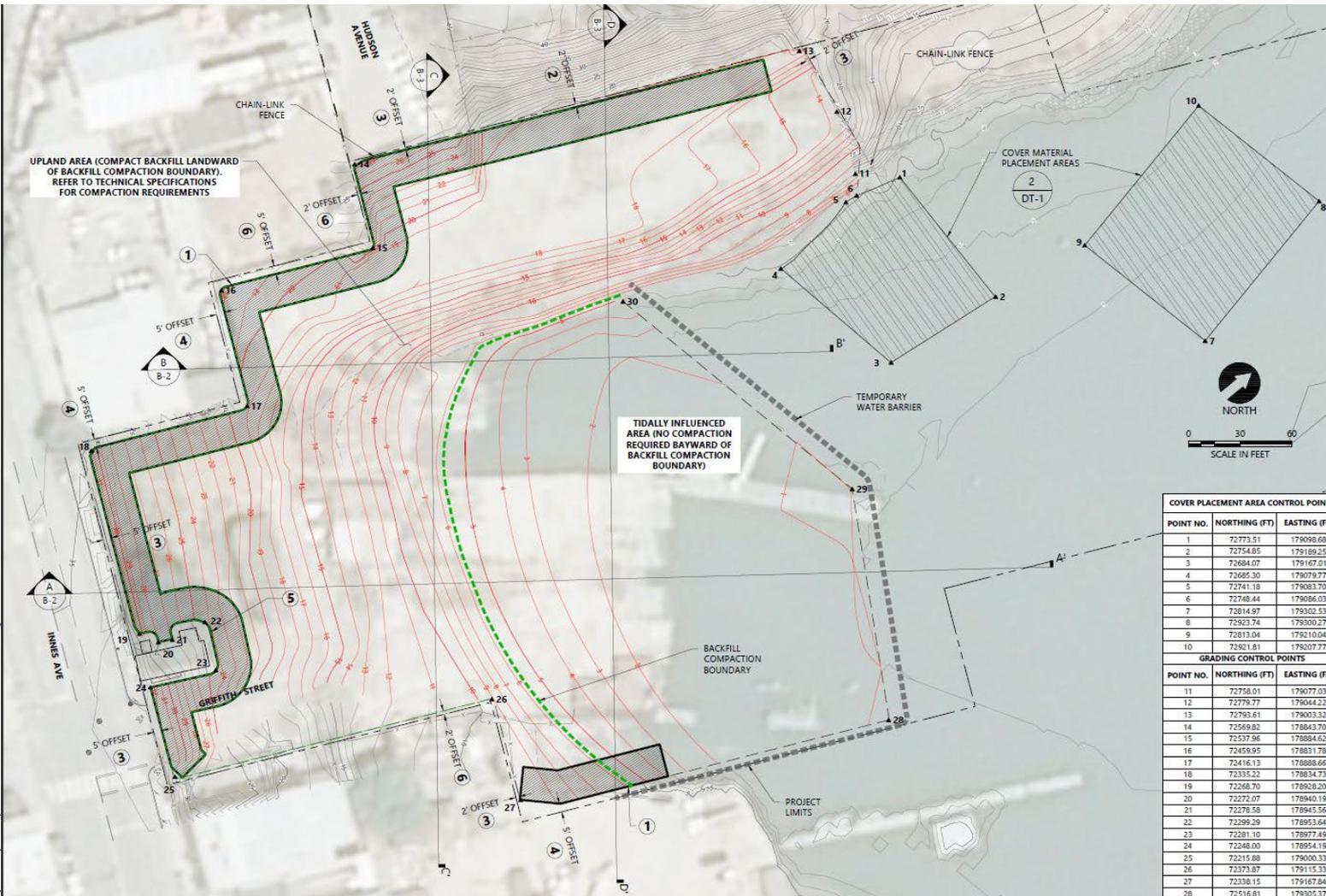
Backfill



Backfill Challenges



Off-Shore Sand Cover



SEE SHEET G-1 FOR PROJECT DATUM AND SURVEY INFORMATION.

LEGEND:

- PROJECT LIMITS
- BACKFILL AND GRADING SURFACE (5' INTERVALS)
- BACKFILL AND GRADING SURFACE (1' INTERVALS)
- COVER MATERIAL PLACEMENT AREAS
- FENCE
- SPECIAL EXCAVATION AREA
- BACKFILL COMPACTION BOUNDARY
- RESTRICTED EXCAVATION AREA (SEE SPECIFICATIONS)
- STRAW WADDLES SPACED DOWNSLOPE AT 15- FEET ON CENTER. SEE SPECIFICATIONS FOR FURTHER DETAIL.

GRADING NOTES:

- 1 LIMIT BOTTOM LENGTH OF EXCAVATION TO NO MORE THAN 20 LINEAR FEET IN PARALLEL WITH THE EXISTING STRUCTURE. LIMIT BOTTOM WIDTH OF EXCAVATION TO NO MORE THAN 20 LINEAR FEET PERPENDICULAR WITH THE EXISTING STRUCTURE. BACKFILL AND COMPACT THE OPEN EXCAVATION WITH CLEAN FILL WITHIN 48 HOURS PRIOR TO CONTINUING NEXT ADJACENT 20 LINEAR FOOT EXCAVATION AREA.
- 2 OFFSET FROM PROJECT BOUNDARY TO BE MAINTAINED DURING GRADING.
- 3 OFFSET FROM CHAIN-LINK FENCE TO BE MAINTAINED DURING GRADING. CHAIN-LINK FENCE TO BE PROTECTED IN PLACE.
- 4 OFFSET FROM RETAINING WALL TO BE MAINTAINED DURING GRADING. RETAINING WALL TO BE PROTECTED IN PLACE.
- 5 OFFSET FROM SHIPWRIGHT'S COTTAGE TO BE MAINTAINED DURING GRADING. SHIPWRIGHTS COTTAGE TO BE PROTECTED IN PLACE.
- 6 OFFSET FROM METAL SHEET FENCE AND RETAINING WALL TO BE MAINTAINED DURING GRADING. METAL SHEET FENCE AND RETAINING WALL TO BE PROTECTED IN PLACE.
- 7 STRAW WADDLES TO BE INSTALLED ON FINAL GRADING SURFACE FOR EROSION CONTROLS. SEE TECHNICAL SPECIFICATIONS.

COVER PLACEMENT AREA CONTROL POINTS

POINT NO.	NORTHING (FT)	EASTING (FT)
1	72773.51	179098.68
2	72754.85	179189.25
3	72684.07	179167.81
4	72685.30	179079.77
5	72741.18	179083.70
6	72748.44	179086.03
7	72814.97	179302.53
8	72923.74	179300.27
9	72813.04	179210.04
10	72921.81	179207.77

GRADING CONTROL POINTS

POINT NO.	NORTHING (FT)	EASTING (FT)
11	72758.01	179077.03
12	72779.77	179044.22
13	72793.61	179003.32
14	72589.82	178843.70
15	72537.96	178884.82
16	72459.95	178831.78
17	72416.13	178888.66
18	72335.22	178834.73
19	72286.70	178928.20
20	72272.07	178940.19
21	72278.58	178945.56
22	72299.39	178953.64
23	72281.10	178977.49
24	72248.00	178954.19
25	72215.88	179000.33
26	72373.87	179115.33
27	72338.15	179167.84
28	72516.81	179305.37

ONE INCH
 FULL SIZE, IF NOT ONE
 INCH SCALE ACCORDING
 TO THE PLAN

Off-Shore Sand Cover Challenges



Off-Shore Sand Cover Challenges



Barrier Removal



Barrier Removal



Project Duration



- 15-month duration
- The project was started in June 2021
- The project was completed in August 2022

Questions/Discussion

