Appendix E2

Stormwater Quality Management Plan

August 26, 2025

Memorandum

RE: SWQMP Concept Skycharger Zero-Emission Truck Charging Facility

This memorandum is intended to summarize the review and findings regarding the stormwater quality design of the Skycharger Zero Emission Truck Charging Facility proposed at 1400 Tidelands Ave., National City, CA 91950. The project proposes to improve the existing asphalt pavement, add a convenience store and EV charging stalls along with a solar canopy across an approximately 4.8 acre development. The project will be removing and replacing more than 5,000 square feet of existing impervious surface and will therefore trigger post-construction water quality requirements. The permitting Agency Having Jurisdiction (AHJ) will be National city and the stormwater concept has been designed to meet the National City BMP Design Manual (Feb 2016). The AHJ Stormwater Quality Management Plan (SWQMP) requirements require a BMP hierarchy to be evaluated. The hierarchy and feasibility as been summarized below:

- Infiltration – due to the nearby soil contamination from the *Former Ship Repair Basins* at pier 24 an Infiltration basin was deemed not feasible. See attachment A for the State Water Resources Control Board Geotracker Map.
- Harvest and Reuse – due to the limited proposed vegetation on site capture and reuse for irrigation was deemed not feasible.
- Biofiltration - A biofiltration basin was deemed feasible for the site and will be utilized as the proposed treatment BMP.

<u>Stormwater Concept Design Intent</u>

Stormwater will mimic existing conditions and sheet flow across the site from West to East. Flows will be conveyed to the proposed biofiltration basin located along the eastern property boundary. The biofiltration basin will be lined with a an underdrain. The BMP will be sized for the stormwater quality design volume and will be approximately 5,500 SF in size with a ponding depth of 6”. Treated flows will be collected via the underdrain and conveyed to the public storm drain main located in Tidelands Ave. Flows beyond the stormwater quality design volume will discharge through the overflow riser inlet located in the basin and be conveyed to the aforementioned public main in Tidelands Ave. Sizing Calculations and SWQMP Map can be found in Attachment A.

Regarding fire flow volumes from firefighting activities on the job site. The total capacity of the water supply to the site is less than 5,000 gallons per minute (gpm). The site is designed to receive these flows into the basin on the southeast side of the site and convey them to the storm drain system in Tidelands Avenue.

The stormwater detention basin receiving the flow from the firefighting activities has some bio filtration comments designed to treat the 85^{th} percentile storm event. Flows in excess of the 85^{th} percentile event will spill out of the basin and discharge into the National City Stormwater system.

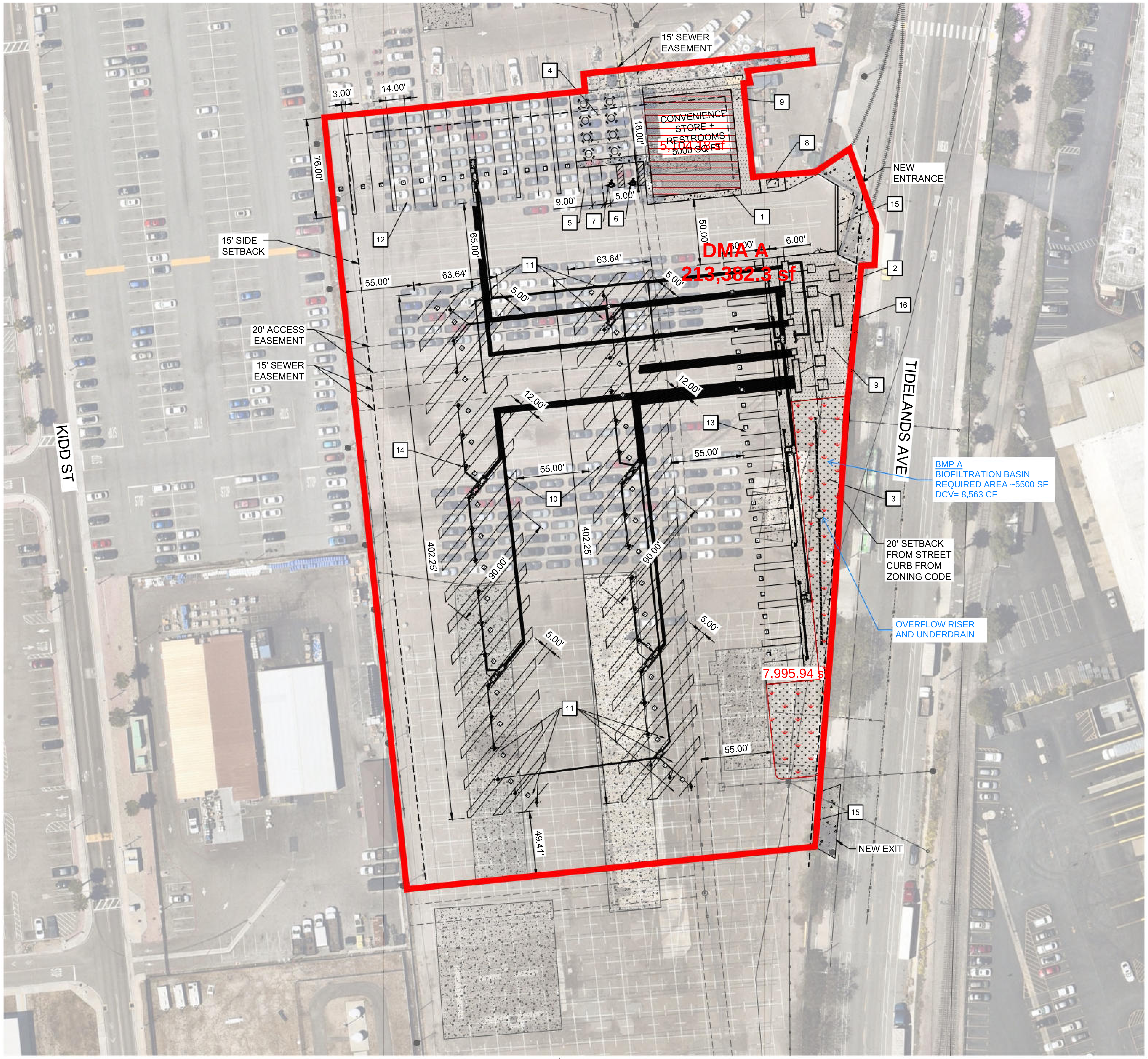
If there are any questions, please don’t hesitate to reach out.

Sincerely,

Jamey Dye

Civil Department Manager
jgdye@burnsmcd.com

Attachment A



NORTH

OVERALL SITE PLAN

0 20' 40' 80'
SCALE IN FEET

NOTES

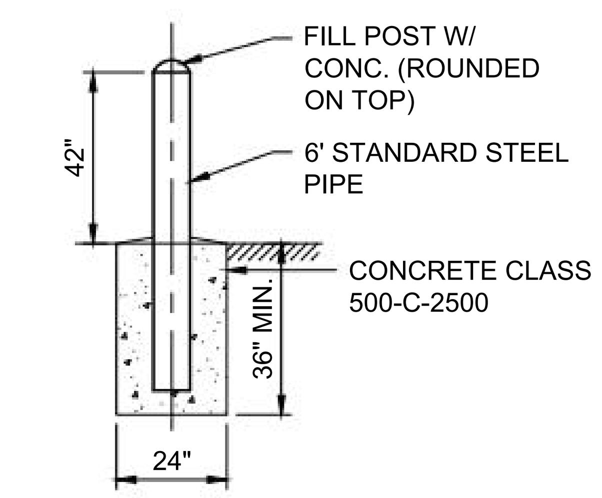
1. THE EXISTING INFORMATION SHOWN ARE PER RECORD DRAWINGS AND DRAWN TO THE CLOSEST ACCURACY AND WITHOUT ANY HORIZONTAL CONTROL

LEGEND AND ABBREVIATIONS

- EXISTING WATER LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING UNDERGROUND ELECTRICAL LINE
- EXISTING SANITARY SEWER LINE
- EXISTING RAIL SPUR
- EASEMENT
- EXISTING UTILITY POLE
- EXISTING SANITARY MANHOLE
- EX EXISTING WATER LINE
- LEASE LIMIT LINE
- CHAINLINK FENCE
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT/SIDEWALK
- VEGETATED AREA
- BUILDING
- ELECTRICAL CONDUIT

CONSTRUCTION NOTES #

1. CONCRETE SIDEWALK
2. ELECTRICAL EQUIPMENT YARD
3. LANDSCAPING/BIO FILTRATION BASIN WITH MEDIA AND UNDERDRAIN FOR STORMWATER TREATMENT
4. PICNIC AREA
5. 90° PARKING SPACE
6. ACCESSIBLE PARKING SPACE
7. VAN ACCESSIBLE PARKING SPACE
8. 9'x6' DUMPSTER AND DUMPSTER PAD
9. ASPHALT PAVEMENT
10. PULL THROUGH TRUCK+TRAILER PARKING SPACES (26 TYP.)
11. PULL THROUGH TRUCK ONLY PARKING SPACES (10 TYP.)
12. OVERNIGHT TRUCK+TRAILER PARKING SPACES (12 TYP.)
13. OVERNIGHT TRUCK ONLY PARKING SPACES (22 TYP.)
14. BOLLARD (TYP)
15. 24' WIDE SLIDING GATE
16. CHAINLINK FENCE WITH GATE



BOLLARD DETAIL

no.	date	by	ckd	description
A	08/02/24	SA	JGD	ISSUED FOR 30% REVIEW

BURNS McDONNELL
140 S. STATE COLLEGE BLVD, SUITE 100
BREA, CA 92821
BMCD LICENSE NO. 1107087

date	detailed
08/02/24	SA
designed	**checked**
AE	JGD

SKYCHARGER

NATIONAL CITY
1640 TIDELANDS AVE
NATIONAL CITY, CA 91950

ZERO-EMISSION TRUCK CHARGING FACILITY

OVERALL SITE PLAN

project: 172466 | contract:

drawing: CS101 — rev. A

sheet 3 of 4 sheets

file

PRELIMINARY - NOT FOR CONSTRUCTION

GeoTracker

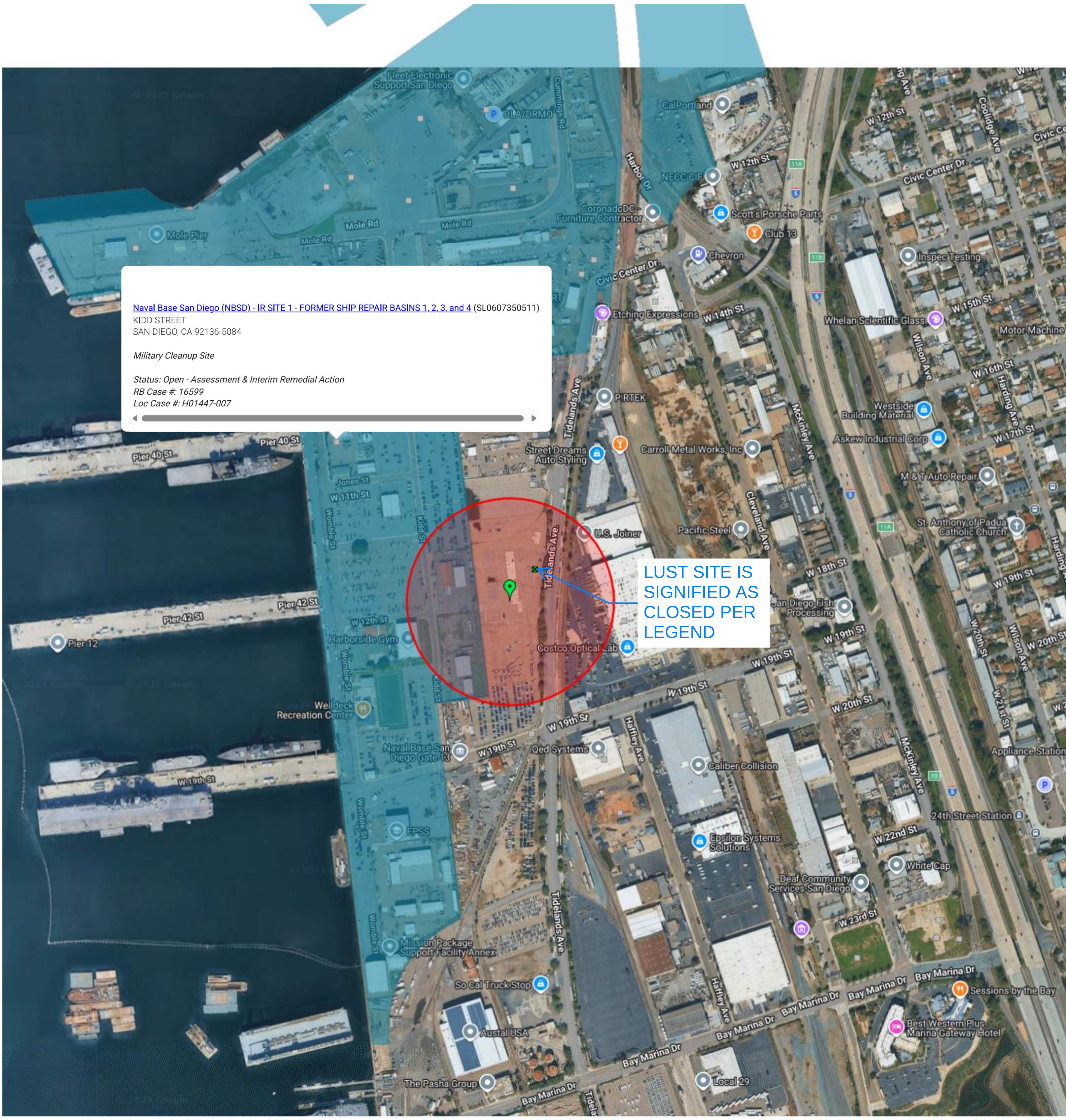
Search for a Project

Search for an Address

Home | Download Data | Tools | Contact Us

Export Locations to Excel

Export Locations as KML



LEGEND - CHOOSE MORE SITES

- LUST Cleanup Sites - REMOVE
- Cleanup Program Sites - REMOVE
- Military Cleanup Sites - REMOVE
- Military Privatized Sites - REMOVE
- Military UST Sites - REMOVE

Signifies a Closed Site

ACTIVE MAP COVERAGES:

- Military Bases - REMOVE

LIST SITES VISIBLE ON MAP

Map data ©2025 Imagery ©2025 Airbus, Maxar Technologies, Vexcel Imaging US, Inc. 50 m Report a map error

Sites Shown on Map: 146 Total Sites 18 Open Sites 128 Closed Sites 0 Sites w/Water Quality Data

Table 4. DMA Summary

	A		B	C	D
DMA ID	Structural BMP ID(s) that Provide Pollutant Control	Structural BMP ID(s) that Provide Hydromodification (Flow) Control	No BMPs: Self-Mitigating DMA[1]	No BMPs: *De Minimis* DMA[2]	Self-Retaining DMA Treated Using Only Site Design[3]
A	A	-	-	-	-

Notes

1. See BMP Design Manual Section 5.2.1 for characteristics required to qualify.
2. See BMP Design Manual Section 5.2.2 for characteristics required to qualify.
3. See BMP Design Manual Section 5.2.3. If this option is selected, the site design BMPs must be shown to achieve a DCV of 0 using the DMA Summary Worksheet.

Table 6. Structural BMP Summary Table

BMP ID No.	Structural BMP Type *(Select from the list below this table)*	Purpose(s): Pollutant Control	Purpose(s): Hydromodification Control	DMA(s) draining to BMP	Construction Plan Sheet No(s).
A	Biofiltration (without retention) (BF-1)			A	-

Structural BMP Types:

- Harvest and use (HU-1)
- Infiltration basin (INF-1)
- Bioretention (INF-2)
- Permeable pavement (INF-3)
- Biofiltration with partial retention (PR-1)
- Biofiltration (without retention) (BF-1)
- Biofiltration with Nutrient Sensitive Media Design (BF-2)
- Detention pond or vault for hydromodification management
- Other (describe)

Notes

- Proprietary Biofiltration (BF-3) can only be used if it meets the requirements of Appendix F
- Flow-thru treatment control BMPs, unless used solely for pre-treatment, may only be used as part of an alternative compliance program. See Section 1.8 of the BMP Design Manual for more information.

Pre-treatment BMPs
All structural BMPs that will be used for pre-treatment purposes only are described below, including the type of BMP and which of the BMPs from the table above it provides pre-treatment for. Sizing calculations are included in Appendix E.

Appendix C.3 DMA Design Capture Volume Calcuations

85th Percentile Rainfall (inches): 0.56

DMA ID: A

Hydrologic Soil Group (A, B, C, or D)	Post-Project Surface Type (*See Table B.1-1*)	Area of Surface Type (ft^2)	Post-Project Surface Runoff Factor (*C*) (*See Table B.1-1*)	Runoff Reduction from Site Design BMPs (*Select Only One*)	Tribuary Impervious/ Receiving Pervious Area Ratio[1]	*C* Factor Adjustment[2] (*See Table B.2-1*)	Final *C* Factor	Street Tree Volume Reduction[3] (ft^3)	Rain Barrel Volume Reduction[4] (ft^3)	Design Capture Volume (DCV)[5] (ft^3)
D	Concrete or Asphalt	200,362	0.90	None Claimed	1.00	0.86	0.86	0	0	8041
D	Roofs	5,000	0.90	None Claimed	1.00	0.86	0.86	0	0	201
D	Amended, Mulched Soils or Landscape	8,000	0.10	None Claimed	1.00	0.86	0.86	0	0	321
	Total DMA Area (ft^2)	213,362			**Weighted Average C Factor for DMA**		0.86	**Total DCV for DMA (ft^3)**		**8,563**

Additional Notes Documenting Rationale for Runoff Reduction from Site Design BMPs

Notes

1. If the area is pervious or if runoff dispersion site design BMPs are not proposed, enter "NA".
2. If the area is pervious or if runoff dispersion site design BMPs are not proposed, enter "1" in this column.
3. Include a separate line item in this table for each street tree and its tributary drainage area, or include supplemental information to demonstrate that the 85th percentile runoff of the impervious area draining to each street tree does not exceed the volume reduction credit being claimed for each street tree. Also include supplemental information documenting the mature tree canopy size of the street tree. Trees must be implemented in accordance with SD-1. Total tree volume reduction must be less than 0.25 times the DCV for the entire project, and each single tree volume credit must be less than 400 cu-ft (see Appendix B.2.2.1 for more information).
4. To be granted a credit here, rain barrels must meet the standards described in Section B.2 and fact sheet SD-8. Enter credit in cubic feet, not gallons.
5. DCV = (Final C Factor) x (85th Percentile Rainfall)/12 x (Area of Surface Type) - (Street Tree Volume Reduction) - (Rain Barrel Volume Reduction). Note that only one Site Design volume reduction credit can be applied for each area, however. For example, runoff dispersion and rain barrel volume reduction cannot both be claimed for the same line item area.

85th Percentile Rainfall (inches): 0.55

DMA ID: Example B.2-1

Hydrologic Soil Group (A, B, C, or D)	Post-Project Surface Type (*See Table B.1-1*)	Area of Surface Type (ft^2)	Post-Project Surface Runoff Factor (*C*) (*See Table B.1-1*)	Runoff Reduction from Site Design BMPs (*Select Only One*)	Tribuary Impervious/ Receiving Pervious Area Ratio[1]	*C* Factor Adjustment[2] (*See Table B.2-1*)	Final *C* Factor	Street Tree Volume Reduction[3] (ft^3)	Rain Barrel Volume Reduction[4] (ft^3)	Design Capture Volume (DCV)[5] (ft^3)
B	Impervious: Drains to Pervious	34,848	0.90	Runoff Dispersion (SD-5)	2.50	0.345	0.3105	0	0	496
B	Pervious: Natural	17,424	0.14	NA: Pervious	NA	1	0.14	0	0	112
B	Impervious: Drains to Rain Barrel	2,178	0.90	Rain Barrels (SD-8)	NA	1	0.9	0	13.37	76
B	Impervious: No Runoff Reduction	8,712	0.90	None Claimed	NA	1	0.9	0	0	359
	Total DMA Area (ft^2)	63,162			**Weighted Average C Factor for DMA**		0.37	**Total DCV for DMA (ft^3)**		**1,044**

Additional Notes Documenting Rational for Runoff Reduction from Site Design BMPs

1.0 acre of impervious area drains to the pervious natural area. The natural area meets the BMP Design Manual standards (at least 10 ft wide, slope < 5%). 0.05 acre of impervious area drains to two 50 gallon rain barrels. No runoff reduction site design BMPs (runoff dispersion, street trees, or rain barrels) are applied to 0.2 acre of impervious area, which drains directly to the drainage system (storm drain or curb gutter).

Notes

1. If the area is pervious or if runoff dispersion site design BMPs are not proposed, enter "NA".
2. If the area is pervious or if runoff dispersion site design BMPs are not proposed, enter "1" in this column.
3. Include a separate line item in this table for each street tree and its tributary drainage area, or include supplemental information to demonstrate that the 85th percentile runoff of the impervious area draining to each street tree does not exceed the volume reduction credit being claimed for each street tree. Also include supplemental information documenting the mature tree canopy size of the street tree. Trees must be implemented in accordance with SD-1. Total tree volume reduction must be less than 0.25 times the DCV for the entire project, and each single tree volume credit must be less than 400 cu-ft (see Appendix B.2.2.1 for more information).
4. To be granted a credit here, rain barrels must meet the standards described in Section B.2 and fact sheet SD-8. Enter credit in cubic feet, not gallons (7.48 gal = 1 cf).
5. DCV = (Final C Factor) x (85th Percentile Rainfall)/12 x (Area of Surface Type) - (Street Tree Volume Reduction) - (Rain Barrel Volume Reduction). Note that only one Site Design volume reduction credit can be applied for each area, however. For example, runoff dispersion and rain barrel volume reduction cannot both be claimed for the same line item area.

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs

Simple Sizing Method for Biofiltration BMPs			
BMP ID	IDs of Tribuary DMAs	IDs of Retention BMPs Treating the Same DMAs	
A	A	A	
Initial Information			
1a	Total DCV of tributary DMAs	8,563	ft^3
1b	Volume reduction from implementation of retention BMPs	0	ft^3
1	Remaining DCV after implementing retention BMPs (Line 1a - Line 1b)	8,563	ft^3
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hr
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0	in
5	Aggregate pore space	0.4	in/in
6	Required depth of gravel below the underdrain [Line 4/ Line 5]	0	in
7	Assumed surface area of the biofiltration BMP	8000	ft^2
8	Media retained pore storage	0.1	in/in
9	Volume retained by BMP [[[Line 4 + (Line 12 x Line 8)]/12] x Line 7]	1467	ft^3
10	DCV that requires biofiltration [Line 1 – Line 9]	7096	ft^3
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	in
12	Soil Media Thickness [18 inches minimum], also add mulch layer thickness to this line for sizing calculations	18	in
13	Aggregate Storage <u>above</u> underdrain invert	6	in
14	Soil Media available pore space	0.2	in/in
15	Soil Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate)	5	in/hr.
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hr
17	Depth filtered during storm [Line 15 x Line 16]	30	in
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	12	in
19	Total Depth Treated [Line 17 + Line 18]	42	in
Option 1 – Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	10644	ft^3
21	Required Footprint [Line 20/ Line 19] x 12	3041	ft^2
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	5322	ft^3
23	Required Footprint [Line 22/ Line 18] x 12	5322	ft^2
Footprint of the BMP			
24	Area draining to the BMP	213,362	ft^2
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.86	

26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	unitless
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	5505	ft^2
28	Footprint of the BMP = Maximum(Minimum(Line 21, Line 23), Line 27)	5505	ft^2
Check for Volume Reduction [Not Applicable for No Infiltration Condition]			
29	Calculate the fraction of the DCV retained by the BMP [Line 9/ Line 1]	-	unitless
30	Minimum required fraction of DCV retained for partial infiltration condition	0.375	unitless
31	Is the retained DCV > 0.375? If the answer is no increase the footprint sizing factor in Line 26 until the answer is yes for this criterion	☐ Yes ☐ No x NA	

Notes

1. Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)
2. The DCV fraction of 0.375 is based on a 40% average annual percent capture and a 36-hour drawdown time.
3. The increase in footprint for volume reduction can be optimized using the approach presented in Appendix B.5.2. The optimized footprint cannot be smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2.
4. If the proposed biofiltration BMP footprint is smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2, but satisfies Option 1 or Option 2 sizing, it is considered a compact biofiltration BMP and may be allowed at the discretion of the [City Engineer], if it meets the requirements in Appendix F.