PORT OF BROOKINGS HARBOR
Regular Commission Meeting
Wednesday, November 15, 2023 at 2:00pm
Hybrid / Meeting Room
16350 Lower Harbor Road Suite 202, Harbor OR, 97415

Teleconference Call-In Number: 1 (253) 215-8782
Meeting ID: 771 205 4017 **Passcode: 76242023** **to mute/unmute: * 6)**

Webinar Access:
https://us02web.zoom.us/s/7712054017?pwd=aGF4ZXlZOHA2eWZuL0o5WkxiZFhoZz09#success

A request for an interpreter for the hearing impaired, for those who want to participate but do not have access to a telephone, or for other accommodations for persons with disabilities should be made at least 48 hours in advance of the meeting to Port of Brookings Harbor Office at 541-469-2218.

TENTATIVE AGENDA

1. CALL MEETING TO ORDER **PAGE**
- Pledge of Allegiance
- Roll Call
- Modifications, Additions, and Changes to the Agenda
- Declaration of Potential Conflicts of Interest

2. APPROVAL OF AGENDA

3. APPROVAL OF MEETING MINUTES
A. Approve Minutes of Regular Commissioner Meeting Wednesday October 18, 2023……..**2**
B. Approve Minutes of Special Commissioner Meeting Thursday October 26, 2023……...**6**

4. PUBLIC COMMENTS – Limited to a maximum of three minutes per person. Comments by teleconference, please email your comments to danielle@portofbrookingsharbor.com prior to the meeting.

5. MANAGEMENT & FINANCIAL REPORTS / APPROVAL……...**7**

6. PRESENTATION BY CURRY COUNTY AQUATIC SAFETY, LUKE MARTINEZ

7. ACTION TEMS
A. Resolution No. 2023-11, Removal of Crab Dock and Ramp on North Jetty……...**50**
B. Delinquent Account Write Off Request……...**52**
C. EPA Wastewater Treatment Plant Phase 2 Funding……**55**

8. INFORMATION ITEMS
A. FEMA Update……**148**
B. Boardwalk Condition……**167**

9. COMMISSIONER COMMENTS

10. NEXT REGULAR MEETING DATE – Wednesday December 20, 2023, at 2:00pm

11. ADJOURNMENT

DRAFT MINUTES
REGULAR MEETING OF THE BOARD OF COMMISSIONERS
PORT OF BROOKINGS HARBOR DISTRICT

Wednesday, October 18, 2023

<u>This is not an exact transcript.</u> The audio of the session is available on the Port's website.

The Port of Brookings Harbor District met in regular session on the above date at 2:00pm. Open session at the Port Conference Room, 16350 Lower Harbor Road Suite 202, Harbor OR, 97415, teleconference and webinar.

1. CALL MEETING TO ORDER

Commission President Richard Heap called the Regular Meeting of the Port of Brookings Harbor of Commissioners to order at 2:00pm.

- **Port of Brookings Harbor Commissioners Present:**
  Joseph Speir, Vice-President (Pos. #1); Sharon Hartung, Secretary/Treasurer (Pos. #2); Larry Jonas (Pos. #3); Richard Heap, President (Pos. #4); Daniel Fraser (Pos. #5).
- **Port of Brookings Harbor Management and Staff:**
  Travis Webster, Port Manager; April Walker, Office Manager; Danielle King, Safety/Administrative; and James Walker, Port Counsel.
- There were no modifications, additions, or changes to the agenda. Webster noted that the recommended motion for Action Item F will be changing due to price increase.
- There were no declarations of potential conflicts of interest.

2. APPROVAL OF AGENDA – Audio time 0:02:06
A motion was made by Jonas and seconded by Speir to approve the agenda. The motion passed 5 – 0.

3. APPROVAL OF MEETING MINUTES – Audio time 0:02:22
A. Approve Minutes of Regular Commissioner Meeting Wednesday, September 20, 2023.

A motion was made by Speir and seconded by Fraser to approve the meeting minutes for September 20, 2023. The motion passed 5 – 0.

4. PUBLIC COMMENTS – Audio time 0:02:40
There were no public comments.

5. MANAGEMENT REPORTS / APPROVAL – Audio time 0:02:46
Webster reported on maintenance items Port staff completed in the RV Park along with an update on the fire fighters for the Smith River Complex Fire, who were located in dry camp and the kite field. Webster continued to report some maintenance repairs made throughout the Marina and that Port staff is letting charter guides know about the charter fee. Webster reported on FEMA purchases and what stages have been completed so far. Reviewed what stage the Port is at with the Wastewater Treatment Plant. King reviewed the Safety, Security & Environmental Report for the month of September. Walker reviewed the Financial Report for the month of September. There was discussion about how the reimbursements from FEMA were going.

A motion was made by Jonas and seconded by Hartung to approve the Management & Financial Reports as presented. The motion passed 5 – 0.

6. **HMGP REVIEW AND PUBLIC COMMENT PERIOD** – Audio time 0:17:33
   Webster noted this was another review period of our draft Natural Hazard Mitigation Plan. The Board did not have any questions. There was no public comment.

7. **ACTION ITEMS**
   A. **Amending Public Contracting Rules, Resolution No. 2023-08** – Audio time 0:19:33
   Webster reviewed that this will be updating our rules to reflect the new public contracting rules. Fraser had some clarification questions which Webster answered.

   A motion was made by Jonas and seconded by Speir to approve Resolution 2023-08, Amending Public Contracting Rules and Prescribing Rules and Procedures for Public Contracting. The motion passed 5 – 0.

   B. **State and Local Fiscal Recovery Funds** – Audio time 0:22:47
   Webster informed the Board that after the last meeting he has talked with the County, and there is a potential chance there is a grant opportunity for all the Ports to be involved with that could install a tsunami siren. After looking at other projects the Port has Webster suggested to install two oil water separators to help complete part of our DEQ 1200Z permit, Tier II corrective actions plan. One oil water separator would be located in the Boat Yard and one at our new crab pot gear storage area.

   A motion was made by Speir and seconded by Jonas to approve purchasing one oil water separator for the Boat Yard and a second oil water separator at the new Crab Pot Storage Area using the State and Local Recovery Funds to meet the requirements of the Tier 2 Report. The motion passed 5 – 0.

   C. **Bornstein Seafood, Lease Amendment No. 1** – Audio time 0:30:03
   Webster informed the Board that Action Item C, D, and E are all the same, this is approving adding our landing fee rates to their lease. Bornstein's lease is adding the landing fees and extending their lease another five years. Hallmark and Pacific Seafood is just adding the landing fees.

   A motion was made by Hartung and seconded by Speir to approve Bornstein Seafood Inc., Lease Amendment No. 1. The motion passed 5 – 0.

   D. **Hallmark Fisheries, Lease Amendment No. 2** – Audio time 0:33:47

   A motion was made by Hartung and seconded by Speir to approve Hallmark Fisheries, Lease Amendment No. 2. The motion passed 5 – 0.

   E. **Pacific Seafood, Amendment No. 1** – Audio time 0:33:51

   A motion was made by Hartung and second by Speir to approve Pacific Seafood, Lease Amendment No. 1. The motion passed 5 – 0.

   F. **Travelift Maintenance** – Audio time 0:34:27

Webster reviewed with the Board the price difference in materials and what needs to be replaced on the travelift.

A motion was made by Jonas and second by Speir to approve Kendrick Equipment to complete repairs to travelift as listed on annual inspection in the amount of $19,827.69. The motion passed 5 – 0.

G. Boat Yard Shop Building – Audio time 0:38:25
Webster reviewed that this item is coming back to the Board for review, has not sought out engineers yet for the structure and asked how the Board would like to proceed forward. There was discussion regarding some suggested specifications of the new shop.

A motion was made by Jonas and second by Speir to approve Port Manager to seek designs and cost estimates for new boat yard shop building. The motion passed 5 – 0.

H. Chetco Indian Memorial Amendment No. 1 – Audio time 0:52:18
Webster reviewed item and that the Siletz Indian Tribal Council would like to take over the maintenance of the Chetco Indian Memorial.

A motion was made by Jonas and second by Speir to approve Resolution 2023-09 Management and Maintenance of Chetco Indian Memorial site. The motion passed 5 – 0.

I. Collection Attempt, Requesting to File Suit – Audio time 0:54:24
Walker reviewed in June's regular meeting the Board approved sending account to collections. The collections agency has requested to file suit.

A motion was made by Hartung and second by Fraser to approve continuing the collection process and proceeding with litigation for the account of Hugh Allen Mills. The motion passed 5 – 0.

8. INFORMATION ITEMS

A. BOEM Meeting – Audio Time 0:57:27 & 1:01:15
Heap requested to continue with Information Item B and Information Item C, before Information Item A.

Heap reviewed his experience at the BOEM meeting.

B. Fire Marshall Inspections – Audio time 0:57:46
Webster informed the Board that there is a new Fire Marshal for Curry County and Coos County. She has reviewed Port property, and had some minor changes that Port staff has already fixed. These inspections are intended to become an annual inspection.

C. Cyber Security – Audio Time 0:58:40
Webster let the Board know if you get an email that looks suspicious or you don't know the email address, don't click on it.

Board allowed public comment. Comment was asking about the upcoming dredging project, what are the odors and how will it affect the residents, which Board and Webster answered.

9. **EXECUTIVE SESSION per ORS 192.660 (2)(a)** – Audio Time 1:20:14
   This executive session of the Port of Brookings Harbor Board of Directors is called pursuant to ORS 192.660 (2) (h) to consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed. ORS 192.660 (2) (f) to consider information or records that are exempt by law from public inspection.

   Any member of the media that is here may remain. However, the Board will require that any information derived from this meeting may not be disclosed pursuant to ORS 192.660(4).
   ORS 192.660 (6) No executive session may be held for the purpose of taking any final action or making any final decision.

   Adjourn out of executive session at 4:12pm and reconvene into regular session.

10. **COMMISSIONER COMMENTS** – Audio time 0:00:16
    Speir mentioned that he approached Webster about the pallets in the gear storage area. Fraser asked about the guide fee stickers and what actions can we take. Webster informed the Board what the stickers look like and what our rules are. The Board discussed enforcing the charter fishing guide fee.

11. **NEXT REGULAR MEETING DATE** – Wednesday, November 15, 2023, at 2:00 PM

12. **ADJOURNMENT** – Audio time 0:07:59
    Having no further business, the meeting adjourned at 4:21 pm.

_____ _____
Richard Heap, President Date Signed

_____ _____
Sharon Hartung, Secretary/Treasurer Date Signed

An audio recording was made of these proceedings. The recording and the full commission packet are available on the Ports website: www.portofbrookingsharbor.com.

DRAFT MINUTES
SPECIAL MEETING OF THE BOARD OF COMMISSIONERS
PORT OF BROOKINGS HARBOR DISTRICT

Thursday, October 26, 2023

<u>This is not an exact transcript.</u> The audio of the session is available on the Port's website.

The Port of Brookings Harbor District met in special session on the above date at 10:00am. Open session at the Port Conference Room, 16350 Lower Harbor Road Suite 202, Harbor OR, 97415, teleconference and webinar.

1. CALL MEETING TO ORDER

Commission President Richard Heap called the Special Meeting of the Port of Brookings Harbor of Commissioners to order at 10:00am.

- **Port of Brookings Harbor Commissioners Present:**
  Sharon Hartung Secretary/Treasurer (Pos. #2); Larry Jonas (Pos. #3); Richard Heap, President (Pos. #4). Joseph Speir, Vice-President (Pos. #1) and Daniel Fraser (Pos. #5) were absent.
- **Port of Brookings Harbor Management and Staff:**
  Travis Webster, Port Manager; April Walker, Office Manager; and Danielle King, Safety/Administrative.
- There were no modification, additions, or changes to the agenda.
- There were no declarations of potential conflicts of interest.

2. APPROVAL OF AGENDA – Audio time 0:01:02
A motion was made by Jonas and seconded by Hartung to approve the agenda. The motion passed 3 – 0.

3. PUBLIC COMMENT – Audio Time 0:01:24
There was no public comment.

4. ACTION ITEMS

A. Approval of Natural Hazards Mitigation Plan – Audio time 0:01:26
Webster reviewed item. Heap commented that we may not be the busiest recreational Port. Board had some questions for Webster about who receives the plan and how this plan helps the future of Port projects.

A motion was made by Hartung and second by Jonas to approve Resolution No. 2023-10, Adopting the Port of Brookings Harbor Natural Hazards Mitigation Plan. Motion passed 3-0.

5. COMMISSIONER COMMENTS – Audio Time 0:06:02
Jonas mentioned that he has received some questions about the vineyard going into the green building.

6. NEXT REGULAR MEETING DATE – Wednesday, November 15, 2023, at 2:00 PM

7. ADJOURNMENT – Audio time 0:06:54
Having no further business, the meeting adjourned at 10:07 am.

_____ _____
Richard Heap, President Date Signed

_____ _____
Sharon Hartung, Secretary/Treasurer Date Signed

An audio recording was made of these proceedings. The recording and the full commission packet are available on the Ports website: www.portofbrookingsharbor.com.

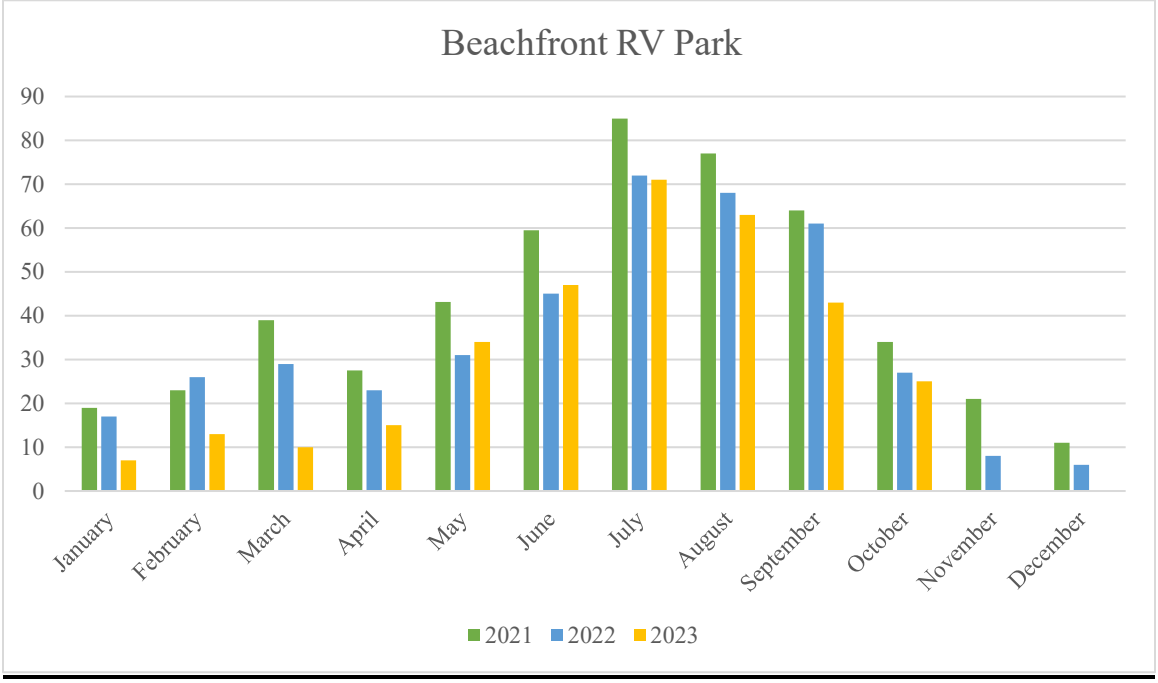
MANAGEMENT REPORT

DATE: November 15, 2023
RE: October 2023
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: Travis Webster, Port Manager

RV Park

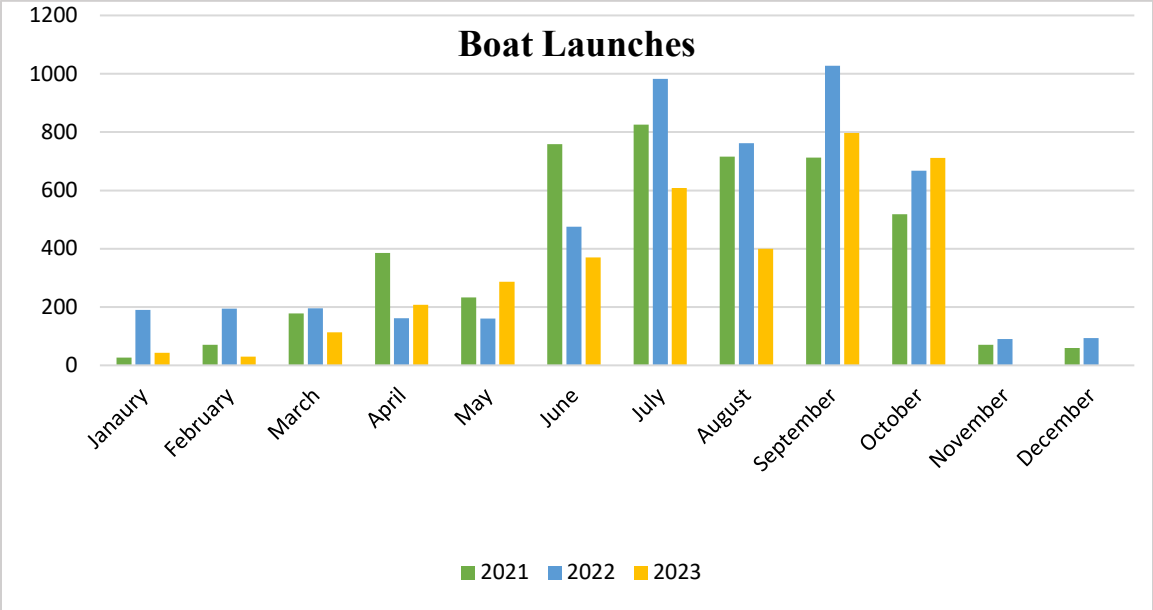
- Port staff completed the concrete blocks around the dumpsters.
- One of our traffic rated boxes lid broke. McLennan came out and replaced the lid.
- One pedestal was hit by an RV and broke the water line. The water line was fixed, and no other damage was done to the pedestal.
- 3 fences were also repaired and rebuilt.

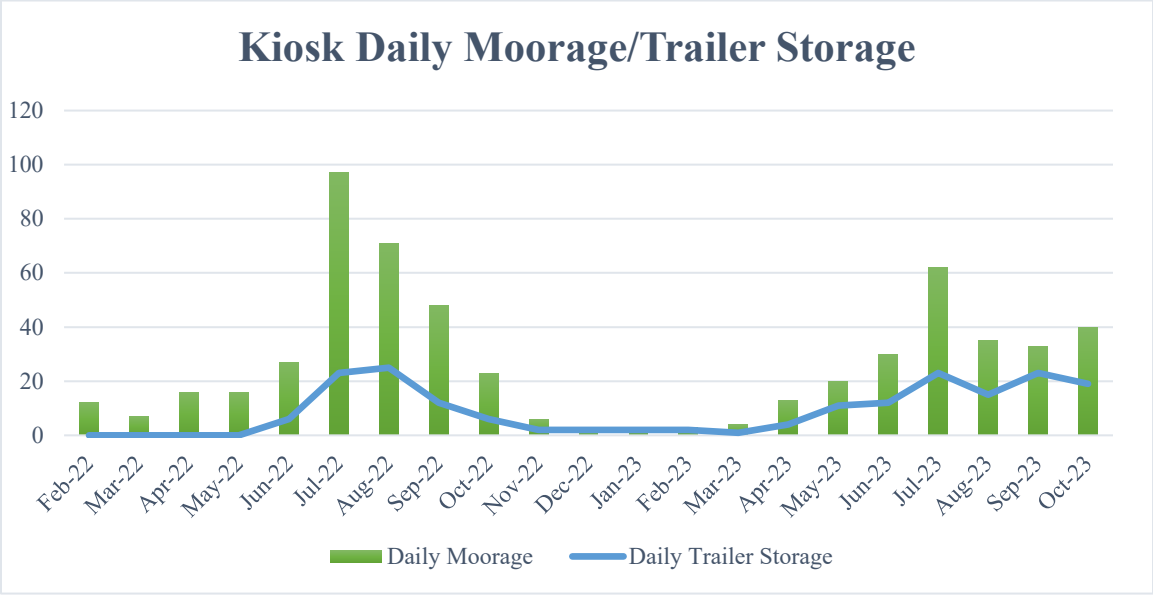
Occupancy Percent by Month & Year



Marina

- Dock walks are ongoing to check for loose connections on docks or cleats. Staff are also looking for any dock violation, ropes that may need to be replaced, and vessels that may need to be pumped out.
- Curry County was out to clean their sediment catch basin near the hotel parking lot. Port staff assisted with the cleaning by placing our turbidity curtain at the outfall of the pipe.
- The annual inspection of our Sani Sailors was completed by OSMB. We are currently still working with Marine Sync to correct the monitoring process. OSMB and Harbor Sanitary are aware of the problem and we continue to keep them updated.


Boat Launches
1200
1000
800
600
400
200
0
Janaury
February
March
April
May
June
July
August
September
October
November
December
2021
2022
2023


Kiosk Daily Moorage/Trailer Storage
120
100
80
60
40
20
0
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Daily Moorage
Daily Trailer Storage

Equipment Services Performed by Port Staff

Telehandler Work

	2019	2020	2021	2022	2023
January	4	2	0	8	3
February	1	6	3	2	2
March	6	4	6	5	4
April	7	10	5	7	14
May	6	3	7	6	7
June	3	0	3	4	7
July	1	5	0	1	2
August	3	4	1	0	0
September	3	3	1	2	7
October	10	6	5	7	1
November	3	9	13	9	
December	15	5	3	2	
Totals	**62**	**57**	**47**	**53**	**47**

Travel Lift Haul-Outs

	2019	2020	2021	2022	2023
January	2	1	0	2	1
February	2	5	1	6	1
March	4	5	6	6	1
April	7	5	6	7	7
May	13	9	5	8	8
June	16	15	12	6	7
July	15	14	7	8	9
August	8	4	7	5	8
September	7	6	8	4	4
October	9	8	4	11	4
November	8	5	12	6	
December	5	1	0	7	
Totals	**96**	**78**	**68**	**76**	**50**

Commercial Receiving Dock

- **Public Hoist** – Operational
- **Hallmark Seafood** – Operational- Received signed lease amendment.
- **Bornstein Seafood** – Operational- Received signed lease amendment.
- **Pacific Seafood –** Operational- Received signed lease amendment.
- **New Pacific Seafood Dock** – Operational- Staff continues to add steel plates to the pilings to keep them attached to the dock. We hope to have all pilings done by the start of crab season.

Commercial Retail Building

- Staff completed all Fire Marshall corrections throughout the port.
- Staff have begun looking into options for new warehouse buildings in the boatyard.

Maintenance Crew

- Staff completed 84 work orders for the month of October 2023. Staff have started assigning new gear storage areas for existing customers and using delineators to define the spots.
- Staff continue to keep up on routine maintenance, while working on FEMA work. Staff have nearly finished the sediment and discharge area.
- Staff completed training in HDPE pipe welding.
- Setting pipe and welding should be completed by the first week of November.

Office Staff

- 23 moorage renewals.
- Invoicing for gear and leased areas.
- Daily checks of port grounds and safety issues.
- See daily task sheets for more tasks completed.

FEMA

- Sediment basin construction is near completion. We are waiting on more concrete blocks so we can separate the pond from the dry stockpile.
- Billiter Marine was expected to start work October 16th and have rescheduled us for the first of December.
- After clam shelling work is completed some of that material will be moved to the pond area to build up material against the concrete blocks.
- Staff started welding and setting dredge pipes along basin 2. Extra lengths will be stored at the kite field and along the sediment storage area until we are ready to dredge in those areas.

WWTP

- Jack has completed the final steps of phase 2 funding. Port staff reviewed and submitted to EPA. After EPA reviews and is satisfied with the phase 2 package we will discuss and approve in a public meeting. We also are reviewing plant design and cost estimates with Pacific Seafood. The current phase 2 estimate for matching is $772,300.00.

Brooking Harbor VenTek RCS

Monthly Transactions Summary Report

3 Nov 2023 9:04:04AM

Date: October 01, 2023 to October 31, 2023 **Payment type:** ALL

Transaction IDs: ALL

Terminals: ALL

Location	Terminal	Product	Count	Cash	Visa	MC	Amex	Discover	Smart Card	Debit	Cash Refund	Credit Refund	Total
Date: 2023 / October													
1	VS_All Pay		711 ~~727~~										
	1	Boat Launch		1,580.00	1,825.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	3,555.00
	2	Daily Moorage	40 ~~24~~	75.00	465.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	600.00
	3	Charter	1	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	300.00
	4	Trailer Storage	19 ~~12~~	110.00	50.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	190.00
	Subtotal		764	1,765.00	2,640.00	240.00	0.00	0.00	0.00	0.00	0.00	0.00	4,645.00
Total Sales			771 ~~764~~	1,765.00	2,640.00	240.00	0.00	0.00	0.00	0.00	0.00	0.00	4,645.00

Grand Totals

Total Sales			**764**	**1,765.00**	**2,640.00**	**240.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4,645.00**

Danielle's Tasks Completed

Date: October 23'	
October 1 – 11	Put together meeting packet for Regular Commissioner Meeting October 18, 2023
October 4	Emailed and mailed commercial receiving docks a letter and draft amendment regarding adding landing fees to their lease.
October 9	Gave a safety meeting to all Port staff regarding situational awareness
October 11	Completed and disturbed meeting packets for Regular Commissioner Meeting October 18
October 17	Added Everbridge brochure to Beachfront RV Park customer packets.
October 18	Attended Regular Commissioner Meeting
October 19	Attended SDAO Risk Management Training
October 20	Completed and distributed meeting packets for Special Commissioner Meeting October 26
October 22	Down at the RV Park. Completed meeting minutes for October 18, 2023 commissioner meeting
October 24	Dock Inventory
October 25	Mailed out letters to gear storage tenants regarding keeping gear storage area clean of debris
October 26	Attended Special Commissioner Meeting
October 26	Completed meeting minutes for October 26, 2023 commissioner meeting
October 26 – 27	Put together NHMP packet to be submitted to OEM.
October 25 – 30	Started to redo the Ports Emergency Preparation Guide
October 30	Monthly inspections were completed as required by our Stormwater Pollution Control Plan (SWPCP).

April's Tasks Completed

October 2023	
October 2	Processed Payroll, including SEP / IRA Contributions and payroll taxes.
October 3	Wrote Notice of Termination for unpaid transient boat, which resulted in receiving payment in full.
October 6	Created invoice for Smith River Complex (Fire Crew) use of Port grounds; Total Due: $11,569.00
October 9	- Had Office Staff meeting, discussed current safety topic (DK), port projects, A/R, moorage. - Contacted Quill for items that were not received but were billed, received Credit Memo for items. - Sent excel report to SmartProcure in response to Public Records Request for Purchases by Vendor.
October 11	Sent Lease Agreements approved by Board & signed by tenants to Curry County Assessor's Office - Pacific Fishing LLC - South Coast Tours - J Sloane Hair Studio - Hungry Clam - Boardwalk Mail - Boat Shop & More - Atlas Coffee Stand - Slugs N Stones
October 13	Wrote Action Item I for next regular meeting, re: litigation for collection attempts (Al Mills).
October 16	- Submitted additional info. for MAG grant reimbursement to OSMB for pump out stations. - Processed Payroll, including SEP / IRA Contributions and payroll taxes.
October 17	Processed Curry County, and Oregon State, Lodging Taxes for 3rd Quarter 2023 RV Park revenues.
October 18	- Met with Dan and Sharon at Umpqua Bank for change of signers, submitted meeting minutes to begin change process. Picked up signer cards (10/24) that I will bring to 10/26 special meeting. - Attended Regular Commission Meeting.
October 19	- Reconciled Umpqua and LGIP bank accounts through September 2023. - Communicated with Gerald Burns regarding Financial Statements for upcoming FY 22-23 Audit.
October 23	Submitted rebuttal evidence to STRIPE regarding RV Park guest who disputed reservation charges.
October 24	Created invoices for tenants "23-24 Property Tax" totaling $24,670.81. Sent 30 Invoices due 11/15.
October 26	- Attended Special Commission Meeting - Transferred $130,120 from LGIP USDA fund to Umpqua USDA Acct. for Nov 6 auto payment.
October 30	- Processed Payroll, including SEP / IRA Contributions and payroll taxes. - Generated and sent out **34** Commercial Retail Lease Invoices for the month of November.

Denise's Tasks Completed

Date: October	
Daily	Processed fuel tickets, updated fuel dock sales spreadsheet, monitored transient dock
Daily	Processed Purchase Orders, Bills, Vendor Invoices, RV Park Reconciliation and Deposit
October 1 - 31	Handled storage inquiries and filled vacant trailer/boat storage spaces
October 11	Entered all September Kiosk credit card payments into Quickbooks
October 12 & 20	Researched status of commercial tenants' insurance policies and sent letters requesting copies of updated insurance policies
October 20	Invoiced for 20 gear storage spaces and 17 vessel/trailer storage spaces
October 21, 24	Worked at RV Park
October 25	Called 9 neighboring Oregon Ports to obtain info about their charter/fishing guides policies
October 31	Assessed Finance Charges, ran and sent monthly statements and processed collections notices

NOTES:

Recurring:

-Maintained work orders log and prepared month end report

-Daily bank deposit, got mail, sorted and processed mail and entered payments into Quicknooks

-Maintained trailer/boat spreadsheets and waiting list, and gear storage spreadsheets

-Assisted with previous months' bank/Quickbooks reconciliations

-Ran cards on file for approved storage/lease/bar cam sponsor customers on first of month, and throughout month for approved fuel customers

-Assisted with processing vendor payments/checks and dropped off designated payments

-Daily office settlement and Quickbooks backup

Denise Gerski's Tasks Completed,
Month: October 2023

Lisa's Tasks Completed

Date: October	
October 1-31	Processed **Twenty-three (23)** Moorage Renewals and Invoices for October 2023.
October 1	Posted for mailing – December 2023 Moorage Renewals dated December 1 – 14, 2023.
October 13	Posted for mailing – Letter re: Prepping Boat for Winter (to all moorage customers)
October 15	Posted for mailing – December 2023 Moorage Renewals dated December 16 – 30, 2023.
October 18	Posted for mailing – Letter re: Oregon Boat Registration Expiring December 31, 2023
October 24	Prepared Updated Boat Slip Inventory List for Danielle King, Administrative Assistant.
October 30	Prepared Updated Boat Owner Contact List for Brent Ferguson, Leadman.

NOTES:

Recurring:

- Updated expired insurance, registration, and policies for moorage customers.
- Issued Parking Permits for moorage customers.
- Issued Annual Launch passes.

For October 2023:

Disposed:

- American Maid (Reg: DO1026844) was disposed of on October 11, 2023.

Ongoing Inspections:

- Rhumba (Michael Maas) (B2, I-15) – ***Renewal: 9/01/23***
  - Michael canceled 2 scheduled vessel inspections in Month of March.
  - Left voice message acknowledging cancellation and stated that if vessel inspection is delayed until August 2023, his moorage will not be renewed.
  - Travis spoke with Michael Maas on 07/07/23 for an update on scheduling vessel inspection. Vessel is not seaworthy at this time.
  - On 08/30/23, spoke will Michael and he said he bought the battery but can't come over right now due to the fires.
  - Left voice message for Michael re: status of installing the battery.
  - On 9/20/23, Michael installed battery but motor does not run.
  - On 9/21/23, Vessel Inspection scheduled for 10/31/2023.
  - On 10/09/23, Michael called to cancel the Inspection for 10/31/2023.
  - On 10/31/23, "Notice of Termination – Annual Moorage" letter mailed to Michael Maas.

Currently Scheduling Upcoming Inspections for:

- Shar-Mar (Myrna Underwood-Scott) (B1, M18) – ***Renewal: 2/17/24***
  - Spoke with Myrna regarding scheduling vessel inspection in October 2023.
  - On 9/29/23, Incident Report regarding multiple individuals on Myrna's boat. Police confirmed boat sustained internal damages. Myrna has said that 'No one is allowed on the boat.' Insurance to assess damages. Will call Myrna December 1, 2023.
- OR954ABG (Dustin Shermer) (B2, E17) – ***Renewal: 1/18/24***
  - Inspection to be scheduled in November 2023 (weekend).
- Distant Star – DO592345 (Herschel Weeks) (B2, O17) – ***Renewal: 11/22/23***
  - Inspection was cancelled for 8/15/23.
  - On 9/26/2023, confirmed Herschel is away on business in Africa. He will return in late October 2023.
  - On 10/27/23, confirmed Herschel is tentatively scheduled to return to Oregon on November 9, 2023.
  - Inspection to be scheduled in November 2023.

Gary's Tasks Completed

October 2023	
October 1 thru 31	Updating and tracking all costs involved with FEMA (PW-189 Dredging and PW-190 Administration), EPA (WWTP) and HMGP (Stormwater & Paving Improvements). Completed quarterly reports as required.
October 1 thru 31	Assist building FEMA Sediment Basin. Building block wall footing, unloading and setting blocks and constructing sediment basin outfall.
October 4	Assist setting and removing turbidity curtain at boat yard culvert for the County removing sediment in their catch basin by the hotel.
October 5 thru 12	Assist setting forms, pour and strip forms for sidewalk repair along the beach at RV Park.
October 9 thru 18	Review and update EPA 424A Form for Phase II funding. Made final revisions to budget summary and submitted to Megan/EPA for pre-approval review (Oct 18).
October 12	Dredge pipe (8" HDPE) was delivered and unloaded at Basin 2 parking lot.
October 13	Prepared and submit PW-189 Dredging Pay Request #3 for $96,423 (invoices).
October 17	Prepared and submit PW-189 Dredging Pay Request #4 for $10,620 (labor & equipment).
October 20	Attend Teams Meeting with Pacific Seafood, Jack/EMC and Travis regarding plant operations but the discussion moved to financial needs from Pacific Seafood.
October 23	Assist excavating and preparing dredge pipe crossing areas at the fuel dock and Basin 2 east access ramps.
October 24 thru 31	Trained in pipe fusion welding from Core & Main (pipe supplier). Weld dredge pipe and install pipe from sediment basin to Basin 2 east side, along the boat yard and over to the Kite Field.

NOTES:

WORK ORDERS LOG
Port of Brookings Harbor
October 2023

Date	Location	Description of Work	Corrective Action	Date Completed	Completed By	
10/2/23	Boat Yard	Completed haul out and set down	Completed	10/2/23	Shawn & Sean	1
10/2/23	Settling Pond	Built forms	Completed	10/2/23	Shawn - Sean - Gary - Travis - Brent	2
10/2/23	Retail Septic	Pulled and cleaned pump	Completed	10/2/23	Brent	3
10/3/23	Settling Pond	Built forms	Completed	10/3/23	Shawn - Sean	4
10/3/23	Boat Yard	Completed haul out - set down	Completed	10/3/23	Shawn - Sean	5
10/4/23	CTR	Ran fish to CTR	Completed	10/4/23	Shawn	6
10/4/23	Retail Septic	Pulled and cleared both pumps	Completed	10/4/23	Brent & Travis	7
10/4/23	EQ 1109	Replaced tail lamp	Completed	10/4/23	Brent	8
10/4/23	Fish Station	Cleaned	Completed	10/4/23	Brent	9
10/4/23	Launch Ramp Kiosk	Installed paper and reset system	Completed	10/4/23	Brent	10
10/4/23	Basin 1, E-11	Tightened cleats	Completed	10/4/23	Brent	11
10/4/23	Fuel Dock Office	Hung fire extinguisher	Completed	10/4/23	Umpqua Fire	12
10/4/23	RV Park Office	Hung fire extinguisher	Completed	10/4/23	Umpqua Fire	13
10/4/23	All offices	Refilled water bottles	Completed	10/4/23	Brent	14
10/4/23	Boat Yard	Placed screen at culvert	Completed	10/4/23	Shawn - Travis - Gary - Bren	15
10/4/23	Boat Launch - Jetty	Checked for charter passes	Completed	10/4/23	Shawn	16
10/5/23	RV Park, Site 45	Fixed electrical panel	Completed	10/5/23	Brent	17
10/5/23	EQ 1110	Replaced running light	Completed	10/5/23	Brent	18
10/5/23	RV Park Dumpster Enclosure	Added blocks to protect building	Completed	10/5/23	Brent, Travis & Gary	19
10/5/23	RV Park	Rebuilt fences	Completed	10/5/23	Shawn	20
10/5/23	Fish Station	Cleaned - Twice	Completed	10/5/23	Brent	21
10/6/23	Fuel Dock Office	Added life ring	Completed	10/6/23	Shawn	22
10/6/23	RV Park Site 87	Rebuilt fence	Completed	10/6/23	Shawn	23
10/8/23	RV Park Site 44	Hammered firepit back into the ground	Completed	10/8/23	Marian	24
10/8/23	Basin 2, F1 - G'Luck	Plugged in shore power and turned on batteries	Completed	10/8/23	Marian & Brent	25
10/9/23	Basin 1 & 2	Completed dock walks	Completed	10/9/23	Shawn	26
10/9/23	Fish Station	Cleaned and dumped carcasses	Completed	10/9/23	Brent	27
10/9/23	Basin 1, B31, Jennie G	Spoke with owner about frayed lines and he is going to replace them	Completed	10/9/23	Brent	28
10/9/23	Basin 1, C20, Corfu	Replaced ropes (billed to customer)	Completed	10/9/23	Brent	29
10/9/23	Port	Placed sandbags - Filled sandbags	Completed	10/9/23	Shawn - Marian	30
10/9/23	Settling Pond	Removed forms	Completed	10/9/23	Shawn - Marian	31
10/10/23	Boat Yard	Got American Maid ready for flatbed	Completed	10/10/23	Shawn - Marian - Travis - Brent	32
10/10/23	Basin 1 & 2	Completed dock walks	Completed	10/10/23	Shawn & Marian	33
10/11/23	Settling Pond	Built forms	Completed	10/11/23	Shawn - Gary - Travis	34
10/11/23	Fuel Dock	Completed Monthly Inspections	Completed	10/11/23	Brent	35
10/11/23	Retail Septic	Fixed #2 (clogged and alarm didn't activate)	Completed	10/11/23	Brent	36
10/11/23	Port	Completed Monthly Sewer Inspections	Completed	10/11/23	Brent	37
10/11/23	Settling Pond	Poured concrete	Completed	10/11/23	Shawn - Brent - Travis - Gary	38
10/11/23	Boat Yard	Swept up Travel Lift Pad	Completed	10/11/23	Shawn	39
10/12/23	Settling Pond	Tore down forms / Built forms	Completed	10/12/23	Shawn - Travis - Gary	40
10/12/23	RV Park	Built fences	Completed	10/12/23	Shawn	41
10/13/23	RV Park Office	Finished building fence and cleaned up behind office	Completed	10/13/23	Shawn	42
10/13/23	Settling Pond	Poured concrete	Completed	10/13/23	Shawn - Travis - Brent - Marian - Gary	43
10/13/23	Kite Field Restroom	Covered two electrical boxes	Completed	10/13/23	Brent	44
10/16/23	Settling Pond	Installed delineator blocks	Completed	10/16/23	Shawn - Sean	45
10/16/23	Boat Yard	Cleaned out pump station	Completed	10/16/23	Shawn - Sean	46
10/16/23	Basin 1 & 2	Completed dock walks	Completed	10/16/23	Shawn - Sean	47
10/16/23	Port Maintenance Shop	Covered gypsum board under stairs	Completed	10/16/23	Shawn - Sean	48
10/17/23	Waste Oil Dump	Moved fluids into proper drums and scheduled pickup by ThermoFluids	Completed	10/17/23	Brent	49
10/17/23	Basin 2 Ramp Gate	Reset codes	Completed	10/17/23	Brent	50
10/17/23	Boat Wash Station	Dried out electrical motor that was not working	Completed	10/17/23	Brent	51
10/17/23	Boat Yard	Completed two haul outs / set ups	Completed	10/17/23	Shawn - Sean	52
10/17/23	Boat Yard	Cleaned Connex and pulled motor	Completed	10/17/23	Shawn - Sean	53
10/17/23	Settling Pond	Cleaned up	Completed	10/17/23	Shawn - Sean	54
10/18/23	Golf Carts	Removed excess fluid from batteries	Completed	10/18/23	Brent	55

10/18/23	Boardwalk	Built bench	Completed	10/18/23	Shawn- Sean	56
10/18/23	Boardwalk	Secured bench	Completed	10/18/23	Shawn	57
10/18/23	Settling Pond	Moved net	Completed	10/18/23	Shawn - Sean	58
10/18/23	RV Park	Secured top blocks on corners of RV Dumpster	Completed	10/18/23	Shawn - Sean	59
10/18/23	Port Meeting Room	Installed longer extension cord on phone	Completed	10/18/23	Danielle	60
10/18/23	Boat Shop	Smashed 10 yard dumpster	Completed	10/18/23	Shawn	61
10/19/23	RV Park	Filled potholes near dry camp area	Completed	10/19/23	Shawn - Sean	62
10/19/23	Day Camp Sites #144-145	Set posts	Completed	10/19/23	Shawn - Sean	63
10/19/23	Boat Yard	Helped Jon with welding	Completed	10/19/23	Shawn	64
10/19/23	Retail Septic System	Pulled both pumps, removed problematic items	Completed	10/19/23	Brent	65
10/20/23	RV Site #34	Repaired electric pedestal (4 hours)	Completed	10/20/23	Brent	66
10/20/23	Boat Yard	Completed two haul ins	Completed	10/20/23	Shawn & Sean	67
10/20/23	P-Q Ramp	Dug trench	Completed	10/20/23	Shawn & Sean	68
10/23/23	Port Sani Sailor	Had annual inspection with OSMB (Passed)	Completed	10/23/23	Brent	69
10/23/23	N-O Ramp	Removed tree	Completed	10/23/23	Shawn - Sean - Marian	70
10/23/23	N-O Ramp	Removed concrete - dug trench	Completed	10/23/23	Shawn - Sean - Marian - Travis - Gary	71
10/24/23	Basin 2 Parking Lot	Welded pipe	Completed	10/24/23	Shawn - Sean - Brent - Gary	72
10/25/23	Skid Row	Welded pipe	Completed	10/24/23	Shawn & Sean	73
10/26/23	Boat Yard	Helped Jon with welding	Completed	10/26/23	Shawn	74
10/26/23	Boat Yard	Welded pipe	Completed	10/26/23	Shawn - Sean - Gary - Travis - Brent	75
10/27/23	Boat Wash Pressure Washer	Fixed leak	Completed	10/27/23	Brent	76
10/27/23	Fish Station	Cleaned station and dumped carcasses	Completed	10/27/23	Brent	77
10/27/23	Retail Septic #2	Cleared fabric, long piece of plastic cord and wipes	Completed	10/27/23	Brent & Marian	78
10/27/23	Boat Yard / Kite Field	Welded pipe	Completed	10/30/23	Shawn & Sean	79
10/30/23	Fish Station	Cleaned station and dumped carcasses	Completed	10/30/23	Brent	80
10/31/23	Restroom Storage	Installed sign for electrical main shut off	Completed	10/31/23	Brent	81
10/31/23	Dry Camp	Put blocks between 139 and 140 back in place	Completed	10/31/23	Brent	82
10/31/23	Basin 1, B19	Added one cleat	Completed	10/31/23	Sean Armstrong	83
10/31/23	Port Office Bathroom	Sanded, patched, painted hole in wall	Completed	10/31/23	Marian	84
					TOTAL	**84**

Six Month Occupancy Forecast	
November	10%
December	2%
January	1%
February	1%
March	1%
April	0%

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
10/01/2023	127	38	89	30%
10/02/2023	127	34	93	27%
10/03/2023	127	33	94	26%
10/04/2023	127	35	92	28%
10/05/2023	127	35	92	28%
10/06/2023	127	50	77	39%
10/07/2023	127	50	77	39%
10/08/2023	127	33	94	26%
10/09/2023	127	26	101	20%
10/10/2023	127	23	104	18%
10/11/2023	127	23	104	18%
10/12/2023	127	32	95	25%
10/13/2023	127	40	87	31%
10/14/2023	127	37	90	29%
10/15/2023	127	31	96	24%
10/16/2023	127	29	98	23%
10/17/2023	127	28	99	22%
10/18/2023	127	33	94	26%
10/19/2023	127	38	89	30%
10/20/2023	127	43	84	34%
10/21/2023	127	47	80	37%
10/22/2023	127	40	87	31%
10/23/2023	127	32	95	25%
10/24/2023	127	29	98	23%
10/25/2023	127	25	102	20%
10/26/2023	127	25	102	20%
10/27/2023	127	32	95	25%
10/28/2023	127	24	103	19%
10/29/2023	127	17	110	13%
10/30/2023	127	16	111	13%
10/31/2023	127	15	112	12%
	3937	993		
October Occupancy	25%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
11/01/2023	127	11	116	9%
11/02/2023	127	16	111	13%
11/03/2023	127	19	108	15%
11/04/2023	127	18	109	14%
11/05/2023	127	17	110	13%
11/06/2023	127	14	113	11%
11/07/2023	127	14	113	11%
11/08/2023	127	12	115	9%
11/09/2023	127	14	113	11%
11/10/2023	127	12	115	9%
11/11/2023	127	8	119	6%
11/12/2023	127	2	125	2%
11/13/2023	127	4	123	3%
11/14/2023	127	5	122	4%
11/15/2023	127	5	122	4%
11/16/2023	127	10	117	8%
11/17/2023	127	9	118	7%
11/18/2023	127	11	116	9%
11/19/2023	127	12	115	9%
11/20/2023	127	10	117	8%
11/21/2023	127	16	111	13%
11/22/2023	127	28	99	22%
11/23/2023	127	28	99	22%
11/24/2023	127	30	97	24%
11/25/2023	127	26	101	20%
11/26/2023	127	12	115	9%
11/27/2023	127	7	120	6%
11/28/2023	127	6	121	5%
11/29/2023	127	2	125	2%
11/30/2023	127	2	125	2%
	3810	380		
November Occupancy	10%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
12/01/2023	127	1	126	1%
12/02/2023	127	1	126	1%
12/03/2023	127	2	125	2%
12/04/2023	127	1	126	1%
12/05/2023	127	1	126	1%
12/06/2023	127	1	126	1%
12/07/2023	127	2	125	2%
12/08/2023	127	2	125	2%
12/09/2023	127	2	125	2%
12/10/2023	127	1	126	1%
12/11/2023	127	0	127	0%
12/12/2023	127	0	127	0%
12/13/2023	127	0	127	0%
12/14/2023	127	1	126	1%
12/15/2023	127	2	125	2%
12/16/2023	127	3	124	2%
12/17/2023	127	3	124	2%
12/18/2023	127	1	126	1%
12/19/2023	127	1	126	1%
12/20/2023	127	1	126	1%
12/21/2023	127	1	126	1%
12/22/2023	127	4	123	3%
12/23/2023	127	4	123	3%
12/24/2023	127	4	123	3%
12/25/2023	127	4	123	3%
12/26/2023	127	6	121	5%
12/27/2023	127	7	120	6%
12/28/2023	127	10	117	8%
12/29/2023	127	8	119	6%
12/30/2023	127	9	118	7%
12/31/2023	127	9	118	7%
	3937	92		
December Occupancy	2%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
01/01/2024	127	7	120	6%
01/02/2024	127	1	126	1%
01/03/2024	127	1	126	1%
01/04/2024	127	0	127	0%
01/05/2024	127	0	127	0%
01/06/2024	127	0	127	0%
01/07/2024	127	2	125	2%
01/08/2024	127	2	125	2%
01/09/2024	127	2	125	2%
01/10/2024	127	3	124	2%
01/11/2024	127	3	124	2%
01/12/2024	127	5	122	4%
01/13/2024	127	5	122	4%
01/14/2024	127	4	123	3%
01/15/2024	127	1	126	1%
01/16/2024	127	1	126	1%
01/17/2024	127	1	126	1%
01/18/2024	127	1	126	1%
01/19/2024	127	1	126	1%
01/20/2024	127	0	127	0%
01/21/2024	127	0	127	0%
01/22/2024	127	0	127	0%
01/23/2024	127	0	127	0%
01/24/2024	127	0	127	0%
01/25/2024	127	0	127	0%
01/26/2024	127	0	127	0%
01/27/2024	127	0	127	0%
01/28/2024	127	0	127	0%
01/29/2024	127	0	127	0%
01/30/2024	127	0	127	0%
01/31/2024	127	0	127	0%
	3937	40		
January Occupancy	1%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
02/01/2024	127	0	127	0%
02/02/2024	127	0	127	0%
02/03/2024	127	0	127	0%
02/04/2024	127	0	127	0%
02/05/2024	127	0	127	0%
02/06/2024	127	0	127	0%
02/07/2024	127	0	127	0%
02/08/2024	127	0	127	0%
02/09/2024	127	0	127	0%
02/10/2024	127	0	127	0%
02/11/2024	127	0	127	0%
02/12/2024	127	0	127	0%
02/13/2024	127	0	127	0%
02/14/2024	127	0	127	0%
02/15/2024	127	1	126	1%
02/16/2024	127	6	121	5%
02/17/2024	127	6	121	5%
02/18/2024	127	2	125	2%
02/19/2024	127	2	125	2%
02/20/2024	127	2	125	2%
02/21/2024	127	1	126	1%
02/22/2024	127	0	127	0%
02/23/2024	127	0	127	0%
02/24/2024	127	0	127	0%
02/25/2024	127	0	127	0%
02/26/2024	127	0	127	0%
02/27/2024	127	0	127	0%
02/28/2024	127	0	127	0%
02/29/2024	127	0	127	0%
	3683	20		
February Occupancy	1%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
03/01/2024	127	0	127	0%
03/02/2024	127	0	127	0%
03/03/2024	127	0	127	0%
03/04/2024	127	0	127	0%
03/05/2024	127	0	127	0%
03/06/2024	127	0	127	0%
03/07/2024	127	0	127	0%
03/08/2024	127	0	127	0%
03/09/2024	127	0	127	0%
03/10/2024	127	1	126	1%
03/11/2024	127	1	126	1%
03/12/2024	127	1	126	1%
03/13/2024	127	0	127	0%
03/14/2024	127	1	126	1%
03/15/2024	127	1	126	1%
03/16/2024	127	1	126	1%
03/17/2024	127	1	126	1%
03/18/2024	127	0	127	0%
03/19/2024	127	0	127	0%
03/20/2024	127	1	126	1%
03/21/2024	127	1	126	1%
03/22/2024	127	3	124	2%
03/23/2024	127	3	124	2%
03/24/2024	127	3	124	2%
03/25/2024	127	3	124	2%
03/26/2024	127	3	124	2%
03/27/2024	127	2	125	2%
03/28/2024	127	2	125	2%
03/29/2024	127	3	124	2%
03/30/2024	127	3	124	2%
03/31/2024	127	2	125	2%
	3937	36		
March Occupancy	1%			

Date	Total Units	Occupied Units	Unoccupied Units	Occupancy
04/01/2024	127	2	125	2%
04/02/2024	127	2	125	2%
04/03/2024	127	2	125	2%
04/04/2024	127	2	125	2%
04/05/2024	127	0	127	0%
04/06/2024	127	0	127	0%
04/07/2024	127	0	127	0%
04/08/2024	127	0	127	0%
04/09/2024	127	0	127	0%
04/10/2024	127	0	127	0%
04/11/2024	127	0	127	0%
04/12/2024	127	0	127	0%
04/13/2024	127	0	127	0%
04/14/2024	127	0	127	0%
04/15/2024	127	0	127	0%
04/16/2024	127	0	127	0%
04/17/2024	127	1	126	1%
04/18/2024	127	1	126	1%
04/19/2024	127	1	126	1%
04/20/2024	127	1	126	1%
04/21/2024	127	1	126	1%
04/22/2024	127	1	126	1%
04/23/2024	127	1	126	1%
04/24/2024	127	0	127	0%
04/25/2024	127	0	127	0%
04/26/2024	127	0	127	0%
04/27/2024	127	0	127	0%
04/28/2024	127	0	127	0%
04/29/2024	127	0	127	0%
04/30/2024	127	0	127	0%
	3810	15		
April Occupancy	0%			

SAFETY, SECURITY, AND ENVIRONMENTAL REPORT

DATE: November 15, 2023
RE: October 2023
TO: Travis Webster, Port Manager
ISSUED BY: Danielle King, Safety, Security & Environmental Coordinator

SAFETY

- Port staff discussed situational awareness.

INCIDENTS

POBH recorded (2) incidents for the month of October bringing the year total to (44). Incidents included:

- RV backed into RV fence. Maintenance fixed fence.
- A needle was found on the ground. Port staff disposed of needle in hazardous waste container.

SECURITY

Four Aces Security Solutions and POBH recorded (43) security issues for the month of October bringing the year total to (374). Issues included:

- (20) Overnight parking tickets.
- (12) Ticket violations in Boat Launch Parking Lot
- (9) Parking violations in the Boat Launch Parking Lot
- (1) No Camping
- (1) Unauthorized Visitors

ENVIRONMENTAL / DEQ 1200-Z INDUSTRIAL STORMWATER

- Monthly inspections were completed as required by our Stormwater Pollution Control Plan (SWPCP).

FINANCIAL SUMMARY

DATE: November 15, 2023
RE: Month End Report for October 2023
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: April Walker, Office Manager

October 2023 Financial Report – Overview

Balance Sheet

- Unrestricted Cash and Equivalents totaled $259,419
- Restricted Cash and Equivalents totaled $384,560
- Total Checking/Savings (cash) at $643,979

October Profit & Loss

- Total revenue for all funds was $329,680
- Total expense was $354,212
- The net income for October was ($24,532)

October Program Revenues			October Program Expenditures		Net
Beachfront RV Park	$30,609		$19,591		**$11,019**
Commercial / Retail	$49,530		$36,535		**$12,995**
Fuel Dock	$65,663		$9,101		**$56,562**
Marina	$66,741		$45,886		**$20,855**
Total General Fund	**$212,543**		**$111,113**		**$101,431**

Budget Performance FY 2023-2024

- Total income for all funds is 12.8%, with general fund revenues at 33.2%
- Total expenditure for all funds is 14.6%, with general fund expenditure at 29.4%

Notes for October Financial Report

- Final loan payment on Travelift was made on October 22nd (m2Lease will release lien).
- 3rd QTR Transient Lodging Taxes were paid; County: $21,839.17 and State: $4,679.82.
- 2023-24 Property Taxes were paid totaling $24,670.81 and billed accordingly to tenants.
- Expenditures include spending on Dredging (FEMA), Wastewater Treatment Plant (EPA) and Hazard Mitigation (HMGP).

  Outstanding Reimbursements are as follows:

Project Agency	Project Name	Total Amount Submitted	Federal Share Amount	Other Share Amount	Amount Received	Amount Outstanding
FEMA	Dredging	$1,151,234.81	$866,161.98	$285,072.83	$364,298.39	$786,936.42
EPA	WWTP	$169,949.70	$135,959.76	$33,989.94	$135,959.76	$33,989.94
HMGP		-	-	-	-	-
Business OR - FEMA	Dredging	$39,744.00	-	-	$39,744.00	-
Totals		**$1,360,928.51**	**$1,002,121.74**	**$319,062.77**	**$540,002.15**	**$820,926.36**

Attachments

- Port Balance Sheet as of October 31, 2023, 2 pages
- Profit & Loss October 2023, 3 pages
- Profit & Loss General Fund October 2023, 2 pages
- Profit & Loss Budget Performance, FY July 1, 2023 through June 30, 2024, 4 pages
- October 2023 Check Register, 4 pages
- October 2023 ACH and Debit Card Payments, 3 pages
- Purchases by Vendor Summary October 2023, 1 page

Depreciation expenses are not included in the budget or in our financial reports. If depreciation expense were included in the budget, it would be difficult to balance the budget, and depreciation is not a cash expense, required under Generally Accepted Accounting Principles (GAAP), but not Governmental Accounting Standards Board (GASB).

Port of Brookings Harbor
Balance Sheet

Cash Basis

	Oct 31, 23	
ASSETS		
Current Assets		
Checking/Savings		
100 · UNRESTRICTED CASH & EQUIVALENTS		
101 · GENERAL FUND CHECKING & LGIP		
10103 · General Funds Ckg Umpqua 3634	58,063.94	
10106 · General Fund LGIP 6017	149,193.93	
10107 · Dredging LGIP 6254	50,057.28	
Total 101 · GENERAL FUND CHECKING & LGIP		257,315.15
10101 · Petty Cash		394.00
10102 · COUNTER CASH		
10102.1 · Office/Reception Cash Drawer	400.00	
10102.2 · RV Park Cash Drawer	510.00	
10102.3 · Fuel Dock Cash Drawer	800.00	
Total 10102 · COUNTER CASH		1,710.00
Total 100 · UNRESTRICTED CASH & EQUIVALENTS		259,419.15
110 · RESTRICTED CASH & EQUIVALENTS		
104 · RESTRICTED MONEY MKT & CHECKING		
20104 · USDA BOND Umpqua MM 9529	132,641.48	
30104 · Debt Service Umpqua MM 8627	2,507.39	
40104 · Capital Projects Umpqua 8018	2,500.00	
Total 104 · RESTRICTED MONEY MKT & CHECKING		137,648.87
105 · RESTRICTED LGIP		
20105 · USDA Bond Fund LGIP 6021	17,167.03	
30105 · IFA Debt Service Fund LGIP 6020	55,315.43	
50105 · Reserve Fund LGIP 6018	135,526.44	
70105 · Capital Projects LGIP 6273		
70105.2 · Port Construction Fund	217,128.94	
70105 · Capital Projects LGIP 6273 - Other	-178,226.44	
Total 70105 · Capital Projects LGIP 6273	38,902.50	
Total 105 · RESTRICTED LGIP		246,911.40
Total 110 · RESTRICTED CASH & EQUIVALENTS		384,560.27
Total Checking/Savings		643,979.42
Accounts Receivable		
120 · ACCOUNTS RECEIVABLE		-24,819.73
Total Accounts Receivable		-24,819.73
Other Current Assets		
130 · DUE FROM TRANSFERS		
40130 · Due From Capital Projects		213,012.77
Total 130 · DUE FROM TRANSFERS		213,012.77
150 · Undeposited Funds		9,141.29
Total Other Current Assets		222,154.06
Total Current Assets		841,313.75
TOTAL ASSETS		**841,313.75**
LIABILITIES & EQUITY		
Liabilities		
Current Liabilities		
Other Current Liabilities		
100222 · Payroll Liabilities		

Port of Brookings Harbor
Balance Sheet

Cash Basis

	Oct 31, 23	
10222 · HealthCare Premium - Dependent	-1,136.16	
Total 100222 · Payroll Liabilities		-1,136.16
10226 · Lodging Tax Payable		7,414.93
230 · DUE TO TRANSFERS		
40230 · Due To General Fund from CP	213,012.77	
Total 230 · DUE TO TRANSFERS		213,012.77
Total Other Current Liabilities		219,291.54
Total Current Liabilities		219,291.54
Total Liabilities		219,291.54
Equity		
300 · Fund Balance		
301 · Unappropriated Balance		
10301 · General Fund Unappropriated Bal	532,465.33	
20301 · Revenue Bond Unappropriate Bal	102,351.92	
30301 · Debt Service Unappropriated Bal	22,758.51	
40301 · Capital Project Unappropriated	40,430.77	
50301 · Reserve Fund Unappropriated Bal	402,738.52	
70301 · Port Const. Fund Unappropriated	569,448.67	
Total 301 · Unappropriated Balance	1,670,193.72	
302 · Appropriated Carryover		
10302 · General Fund Appropriated Carry	-532,465.33	
20302 · Revenue Bond Appropriated Carry	-102,351.92	
30302 · Debt Service Appropriated Carry	-22,758.51	
40302 · Capital Proj Appropriated Carry	-40,430.77	
50302 · Reserve Fund Appropriated Carry	-402,738.52	
70302 · Port Const. Fund Appropriated	-569,448.67	
Total 302 · Appropriated Carryover	-1,670,193.72	
Total 300 · Fund Balance		0.00
3900 · RETAINED EARNINGS		982,045.53
Net Income		-360,023.32
Total Equity		622,022.21
TOTAL LIABILITIES & EQUITY		**841,313.75**

Port of Brookings Harbor
Profit & Loss
October 2023

	Oct 23	
Income		
400 · REVENUES		
401 · GENERAL FUND REVENUES		
10413 · Property Tax Prior	986.58	
Total 401 · GENERAL FUND REVENUES		986.58
402 · GENERAL FUND PROGRAM REVENUES		
10421 · MARINA		
10421.2 · MOORAGE		
10421.3 · Commercial Slip Rent	14,945.43	
10421.4 · Recreational Slip Rent	36,736.63	
10421.5 · Transient	3,114.23	
10421.6 · Other Moorage	206.00	
Total 10421.2 · MOORAGE	55,002.29	
10422 · Boat Launch	1,610.00	
10423 · STORAGE		
10423.1 · Gear Storage	2,966.17	
10423.2 · Boat Storage	1,850.00	
Total 10423 · STORAGE	4,816.17	
10424 · ADMINISTRATIVE FEES	909.37	
10425 · MARINE SERVICES		
10425.1 · Travelift	3,272.67	
10425.2 · 12 K Telehandler	808.50	
10425.3 · Other Sales & Fees	2,347.70	
10425.4 · Public Hoist	179.82	
Total 10425 · MARINE SERVICES	6,608.69	
Total 10421 · MARINA		68,946.52
10427 · BEACHFRONT RV PARK		
10427.1 · Space Rental	27,784.30	
10427.2 · Other Sales & Fees	2,825.00	
Total 10427 · BEACHFRONT RV PARK		30,609.30
10428 · COMMERCIAL RETAIL		
10428.1 · Retail Property	32,102.54	
10428.2 · Docks	14,029.66	
10428.3 · CPI and Other Fees	3,447.39	
Total 10428 · COMMERCIAL RETAIL		49,579.59
10429 · FUEL DOCK		64,981.04
10430 · Landing Fees		14.99
Total 402 · GENERAL FUND PROGRAM REVENUES		214,131.44
420 · USDA REVENUE BOND FUND		
20414 · Interest Revenue Bond Fund		0.09
20419 · Transfer to USDA Bond Fund		10,843.00
Total 420 · USDA REVENUE BOND FUND		10,843.09
430 · DEBT SERVICE FUND REVENUE		
30414 · Interest Debt Service Fund		0.06
30419 · Transfer to Debt Service Fund		31,958.71
Total 430 · DEBT SERVICE FUND REVENUE		31,958.77

Port of Brookings Harbor
Profit & Loss
October 2023

	Oct 23	
440 · CAPITAL PROJECTS FUND REVENUE		
40416 · Government Funding		
40416.6 · EPA- Wastewater Treatment Plant	25,206.66	
40416.8 · Business Oregon Match-Dredging	39,744.00	
Total 40416 · Government Funding	64,950.66	
Total 440 · CAPITAL PROJECTS FUND REVENUE		64,950.66
450 · RESERVE FUND REVENUE		
50419 · Transfer to Reserve Fund	2,000.00	
Total 450 · RESERVE FUND REVENUE		2,000.00
460 · DEBT SERV. RV PARK IMPROV. FUND		
60419 · Transfer OR FFC 2020 Debt Serv.	4,809.87	
Total 460 · DEBT SERV. RV PARK IMPROV. FUND		4,809.87
Total 400 · REVENUES		329,680.41
Total Income		329,680.41
Gross Profit		329,680.41
Expense		
600 · GENERAL FUND EXPENDITURES		
10900 · Operating Transfers Out General		49,611.58
500 · PERSONNEL SERVICES		
10502 · Office Staff	43,010.26	
10504 · Operations Staff	19,379.18	
10506 · Overtime	1,569.22	
10508 · Payroll Taxes/Costs/Benefits		
10508.1 · Paid Holidays	0.00	
10508.2 · Sick Leave Benefit	470.33	
10508.3 · Vacation	8,128.43	
10508.4 · Payroll Taxes	7,326.80	
10508.5 · SEP Retirement	4,973.19	
Total 10508 · Payroll Taxes/Costs/Benefits	20,898.75	
10510 · Health Care and Dental	9,636.96	
10512 · Workers Compensation	1,018.77	
Total 500 · PERSONNEL SERVICES		95,513.14
601 · GENERAL FUND Material & Service		
10602 · REPAIRS & MAINTENANCE		
10602.1 · Equip. Repair/Maintenance	10,120.18	
10602.2 · Supplies	12,936.76	
10602.3 · Services	3,991.71	
Total 10602 · REPAIRS & MAINTENANCE	27,048.65	
10605 · UTILITIES		
10605.3 · Sanitary	4,121.51	
10605.5 · Telecommunications	1,335.99	
10605.6 · Waste Removal	6,383.59	
10605.7 · Water	2,929.15	
Total 10605 · UTILITIES	14,770.24	
10606 · OFFICE EXPENSE	1,292.08	
10607 · BANK SERVICE & FINANCE FEES	3,730.32	
10608 · TRAINING & TRAVEL	150.00	
10609 · PERMITS, LICENSES, TAXES & MISC	26,500.12	
10610 · INSURANCE; PROP & CAS, BOND	11,681.75	

Port of Brookings Harbor
Profit & Loss
October 2023

	Oct 23
10611 · PROFESSIONAL FEES	
10611.2 · Attorney	8,598.00
10611.3 · Engineering	520.00
10611.4 · Other Support/Consultant	1,201.42
Total 10611 · PROFESSIONAL FEES	10,319.42
Total 601 · GENERAL FUND Material & Service	95,492.58
Total 600 · GENERAL FUND EXPENDITURES	240,617.30
630 · DEBT SERVICE FUND EXPENDITURES	
801 · Principal	
30803P · 50 BFMII Travelift Principal	4,637.76
30804P · 2018 Genie Forklift Principal	1,345.72
Total 801 · Principal	5,983.48
810 · Interest Payments	
30813I · 50 BFMII Travelift Interest	21.24
30814I · 2018 Genie Forklift Interest	118.99
Total 810 · Interest Payments	140.23
Total 630 · DEBT SERVICE FUND EXPENDITURES	6,123.71
640 · CAPT. PROJ. EXPENDITURES	
740 · CAPT. PROJ. CAPITAL OUTLAY	
40702 · Land Improvement - Capt Proj	
40702.4 · FEMA- Dredging PW 189	69,608.60
40702.6 · EPA- Wastewater Treatment Plant	9,850.00
40702.8 · Business Oregon- Dredging	23,202.87
Total 40702 · Land Improvement - Capt Proj	102,661.47
Total 740 · CAPT. PROJ. CAPITAL OUTLAY	102,661.47
Total 640 · CAPT. PROJ. EXPENDITURES	102,661.47
660 · DEBT SERV. RV PARK EXPENDITURES	
60806P · RV Park Improv. Loan Principal	3,402.84
60815I · RV Park Improv. Loan Interest	1,407.03
Total 660 · DEBT SERV. RV PARK EXPENDITURES	4,809.87
Total Expense	354,212.35
Net Income	**-24,531.94**

Port of Brookings Harbor
Profit & Loss General Fund
October 2023

	BEACHFRONT RV ... (GENERAL FUND)	COMMERCIAL RET... (GENERAL FUND)	FUEL DOCK (GENERAL FUND)	MARINA (GENERAL FUND)	Total GENERAL FU...	TOTAL
Income						
400 · REVENUES						
402 · GENERAL FUND PROGRAM REVENUES						
10421 · MARINA						
10421.2 · MOORAGE						
10421.3 · Commercial Slip Rent	0.00	0.00	0.00	13,359.23	13,359.23	13,359.23
10421.4 · Recreational Slip Rent	0.00	0.00	0.00	36,736.63	36,736.63	36,736.63
10421.5 · Transient	0.00	0.00	681.75	2,432.48	3,114.23	3,114.23
10421.6 · Other Moorage	0.00	0.00	0.00	206.00	206.00	206.00
Total 10421.2 · MOORAGE	0.00	0.00	681.75	52,734.34	53,416.09	53,416.09
10422 · Boat Launch	0.00	0.00	0.00	1,610.00	1,610.00	1,610.00
10423 · STORAGE						
10423.1 · Gear Storage	0.00	0.00	0.00	2,966.17	2,966.17	2,966.17
10423.2 · Boat Storage	0.00	0.00	0.00	1,850.00	1,850.00	1,850.00
Total 10423 · STORAGE	0.00	0.00	0.00	4,816.17	4,816.17	4,816.17
10424 · ADMINISTRATIVE FEES	0.00	3.68	0.00	904.16	907.84	907.84
10425 · MARINE SERVICES						
10425.1 · Travelift	0.00	0.00	0.00	3,272.67	3,272.67	3,272.67
10425.2 · 12 K Telehandler	0.00	0.00	0.00	808.50	808.50	808.50
10425.3 · Other Sales & Fees	0.00	0.00	0.00	2,347.70	2,347.70	2,347.70
10425.4 · Public Hoist	0.00	0.00	0.00	179.82	179.82	179.82
Total 10425 · MARINE SERVICES	0.00	0.00	0.00	6,608.69	6,608.69	6,608.69
Total 10421 · MARINA	0.00	3.68	681.75	66,673.36	67,358.79	67,358.79
10427 · BEACHFRONT RV PARK						
10427.1 · Space Rental	27,784.30	0.00	0.00	0.00	27,784.30	27,784.30
10427.2 · Other Sales & Fees	2,825.00	0.00	0.00	0.00	2,825.00	2,825.00
Total 10427 · BEACHFRONT RV PARK	30,609.30	0.00	0.00	0.00	30,609.30	30,609.30
10428 · COMMERCIAL RETAIL						
10428.1 · Retail Property	0.00	32,049.54	0.00	53.00	32,102.54	32,102.54
10428.2 · Docks	0.00	14,029.66	0.00	0.00	14,029.66	14,029.66
10428.3 · CPI and Other Fees	0.00	3,447.39	0.00	0.00	3,447.39	3,447.39
Total 10428 · COMMERCIAL RETAIL	0.00	49,526.59	0.00	53.00	49,579.59	49,579.59
10429 · FUEL DOCK	0.00	0.00	64,981.04	0.00	64,981.04	64,981.04
10430 · Landing Fees	0.00	0.00	0.00	14.99	14.99	14.99
Total 402 · GENERAL FUND PROGRAM REVENUES	30,609.30	49,530.27	65,662.79	66,741.35	212,543.71	212,543.71
Total 400 · REVENUES	30,609.30	49,530.27	65,662.79	66,741.35	212,543.71	212,543.71
Total Income	30,609.30	49,530.27	65,662.79	66,741.35	212,543.71	212,543.71
Gross Profit	30,609.30	49,530.27	65,662.79	66,741.35	212,543.71	212,543.71
Expense						
600 · GENERAL FUND EXPENDITURES						
500 · PERSONNEL SERVICES						

Port of Brookings Harbor
Profit & Loss General Fund
October 2023

	BEACHFRONT RV ... (GENERAL FUND)	COMMERCIAL RET... (GENERAL FUND)	FUEL DOCK (GENERAL FUND)	MARINA (GENERAL FUND)	Total GENERAL FU...	TOTAL
10508 · Payroll Taxes/Costs/Benefits						
10508.5 · SEP Retirement	925.87	1,189.41	1,189.47	1,668.44	4,973.19	4,973.19
Total 10508 · Payroll Taxes/Costs/Benefits	925.87	1,189.41	1,189.47	1,668.44	4,973.19	4,973.19
10510 · Health Care and Dental	2,409.24	2,409.24	2,409.24	2,409.24	9,636.96	9,636.96
10512 · Workers Compensation	254.69	254.70	254.69	254.69	1,018.77	1,018.77
Total 500 · PERSONNEL SERVICES	3,589.80	3,853.35	3,853.40	4,332.37	15,628.92	15,628.92
601 · GENERAL FUND Material & Service						
10602 · REPAIRS & MAINTENANCE						
10602.1 · Equip. Repair/Maintenance	0.00	0.00	0.00	10,120.18	10,120.18	10,120.18
10602.2 · Supplies	4,001.87	189.08	658.46	8,082.25	12,931.66	12,931.66
10602.3 · Services	948.90	948.90	145.50	1,948.41	3,991.71	3,991.71
Total 10602 · REPAIRS & MAINTENANCE	4,950.77	1,137.98	803.96	20,150.84	27,043.55	27,043.55
10605 · UTILITIES						
10605.3 · Sanitary	1,649.47	1,337.36	42.07	1,092.61	4,121.51	4,121.51
10605.5 · Telecommunications	308.89	91.97	137.52	797.61	1,335.99	1,335.99
10605.6 · Waste Removal	2,708.66	0.00	0.00	3,674.93	6,383.59	6,383.59
10605.7 · Water	616.20	486.08	26.00	1,800.87	2,929.15	2,929.15
Total 10605 · UTILITIES	5,283.22	1,915.41	205.59	7,366.02	14,770.24	14,770.24
10606 · OFFICE EXPENSE	522.64	256.48	256.48	256.48	1,292.08	1,292.08
10607 · BANK SERVICE & FINANCE FEES	1,338.04	0.00	1,077.51	1,311.17	3,726.72	3,726.72
10608 · TRAINING & TRAVEL	37.50	37.50	37.50	37.50	150.00	150.00
10609 · PERMITS, LICENSES, TAXES & MISC	876.72	23,321.33	876.72	1,425.35	26,500.12	26,500.12
10610 · INSURANCE; PROP & CAS, BOND	979.60	2,222.67	176.00	8,303.48	11,681.75	11,681.75
10611 · PROFESSIONAL FEES						
10611.2 · Attorney	1,557.75	3,534.75	1,557.75	1,947.75	8,598.00	8,598.00
10611.3 · Engineering	130.00	130.00	130.00	130.00	520.00	520.00
10611.4 · Other Support/Consultant	324.67	125.68	125.63	625.44	1,201.42	1,201.42
Total 10611 · PROFESSIONAL FEES	2,012.42	3,790.43	1,813.38	2,703.19	10,319.42	10,319.42
Total 601 · GENERAL FUND Material & Service	16,000.91	32,681.80	5,247.14	41,554.03	95,483.88	95,483.88
Total 600 · GENERAL FUND EXPENDITURES	19,590.71	36,535.15	9,100.54	45,886.40	111,112.80	111,112.80
Total Expense	19,590.71	36,535.15	9,100.54	45,886.40	111,112.80	111,112.80
Net Income	**11,018.59**	**12,995.12**	**56,562.25**	**20,854.95**	**101,430.91**	**101,430.91**

Port of Brookings Harbor
Profit & Loss Budget Performance FY 2023-2024
July 2023 through June 2024

	Jul '23 - Jun 24	Budget	% of Budget
Income			
400 · REVENUES			
401 · GENERAL FUND REVENUES			
10411 · Cash Carry Over	0.00	402,242.00	0.0%
10412 · Property Tax Current	73,326.88	270,000.00	27.2%
10413 · Property Tax Prior	11,601.49	10,000.00	116.0%
10414 · Interest General Fund	2,479.11	2,000.00	124.0%
10417 · Assets Sales	0.00	10,000.00	0.0%
10418 · Miscellaneous	0.40	50,000.00	0.0%
10419 · Transfer to General Fund	0.00	0.00	0.0%
10420 · Grants & Other Funding - GF	0.00	0.00	0.0%
Total 401 · GENERAL FUND REVENUES	87,407.88	744,242.00	11.7%
402 · GENERAL FUND PROGRAM REVENUES			
10421 · MARINA			
10421.2 · MOORAGE			
10421.3 · Commercial Slip Rent	62,853.87		
10421.4 · Recreational Slip Rent	119,993.08		
10421.5 · Transient	7,372.61		
10421.6 · Other Moorage	6,261.00		
Total 10421.2 · MOORAGE	196,480.56		
10422 · Boat Launch	12,893.05		
10423 · STORAGE			
10423.1 · Gear Storage	17,186.87		
10423.2 · Boat Storage	14,540.00		
Total 10423 · STORAGE	31,726.87		
10424 · ADMINISTRATIVE FEES	3,388.17		
10425 · MARINE SERVICES			
10425.1 · Travelift	17,130.00		
10425.2 · 12 K Telehandler	2,983.50		
10425.3 · Other Sales & Fees	21,004.02		
10425.4 · Public Hoist	325.52		
Total 10425 · MARINE SERVICES	41,443.04		
10426 · EVENTS ON PORT PROPERTY	5,802.00		
10421 · MARINA - Other	0.00	750,000.00	0.0%
Total 10421 · MARINA	291,733.69	750,000.00	38.9%
10427 · BEACHFRONT RV PARK			
10427.1 · Space Rental	191,281.89		
10427.2 · Other Sales & Fees	20,169.25		
10427 · BEACHFRONT RV PARK - Other	0.00	750,000.00	0.0%
Total 10427 · BEACHFRONT RV PARK	211,451.14	750,000.00	28.2%
10428 · COMMERCIAL RETAIL			
10428.1 · Retail Property	135,468.32		
10428.2 · Docks	66,052.09		
10428.3 · CPI and Other Fees	15,241.58		
10428 · COMMERCIAL RETAIL - Other	0.00	590,000.00	0.0%
Total 10428 · COMMERCIAL RETAIL	216,761.99	590,000.00	36.7%
10429 · FUEL DOCK	322,493.71	1,000,000.00	32.2%
10430 · Landing Fees	194.28	50,000.00	0.4%
Total 402 · GENERAL FUND PROGRAM REVENUES	1,042,634.81	3,140,000.00	33.2%
420 · USDA REVENUE BOND FUND			
20411 · Cash Carry Over - USDA Revenue	0.00	103,660.00	0.0%
20414 · Interest Revenue Bond Fund	1,346.84	800.00	168.4%
20419 · Transfer to USDA Bond Fund	43,372.00	130,120.00	33.3%
Total 420 · USDA REVENUE BOND FUND	44,718.84	234,580.00	19.1%
430 · DEBT SERVICE FUND REVENUE			
30411 · Cash Carry Over - Debt Service	0.00	23,700.00	0.0%
30414 · Interest Debt Service Fund	639.50	616.00	103.8%
30419 · Transfer to Debt Service Fund	127,834.84	486,213.00	26.3%
Total 430 · DEBT SERVICE FUND REVENUE	128,474.34	510,529.00	25.2%
440 · CAPITAL PROJECTS FUND REVENUE			
40411 · Cash Carry Over - Capt Proj	0.00	2,500.00	0.0%
40416 · Government Funding			

Port of Brookings Harbor
Profit & Loss Budget Performance FY 2023-2024
July 2023 through June 2024

	Jul '23 - Jun 24	Budget	% of Budget
40416.2 · FEMA Funding PW 162 (Closed)	79,842.98	0.00	100.0%
40416.4 · FEMA- Dredging PW 189	121,180.58	1,835,304.00	6.6%
40416.5 · FEMA- Dredging PW 190 (Admin)	10,943.48	139,230.00	7.9%
40416.6 · EPA- Wastewater Treatment Plant	61,097.06	3,500,000.00	1.7%
40416.7 · Hazard Mitigation-Paving/Drains	0.00	1,200,000.00	0.0%
40416.8 · Business Oregon Match-Dredging	39,744.00	500,000.00	7.9%
40416.9 · Business Oregon Match-HMGP	0.00	500,000.00	0.0%
Total 40416 · Government Funding	312,808.10	7,674,534.00	4.1%
40419 · Transfer to Capital Project	0.00	0.00	0.0%
Total 440 · CAPITAL PROJECTS FUND REVENUE	312,808.10	7,677,034.00	4.1%
450 · RESERVE FUND REVENUE			
50411 · Cash Carry Over - Reserve Fund	0.00	400,236.00	0.0%
50414 · Interest Reserve Fund	2,198.99	2,000.00	109.9%
50419 · Transfer to Reserve Fund	8,000.00	24,000.00	33.3%
50430 · Landing Fees	0.00	50,000.00	0.0%
Total 450 · RESERVE FUND REVENUE	10,198.99	476,236.00	2.1%
460 · DEBT SERV. RV PARK IMPROV. FUND			
60419 · Transfer OR FFC 2020 Debt Serv.	19,239.48	57,718.00	33.3%
Total 460 · DEBT SERV. RV PARK IMPROV. FUND	19,239.48	57,718.00	33.3%
470 · PORT CONSTRUCTION FUND REVENUE			
70411 · Cash Carry Over - Port Const.	0.00	2,500.00	0.0%
70414 · Interest Port Construction Fund	558.85	0.00	100.0%
70419 · Transfers to Port Const. Fund	0.00	50,000.00	0.0%
Total 470 · PORT CONSTRUCTION FUND REVENUE	558.85	52,500.00	1.1%
Total 400 · REVENUES	1,646,041.29	12,892,839.00	12.8%
70429 · Returned Check Charges	50.00		
Total Income	1,646,091.29	12,892,839.00	12.8%
Gross Profit	1,646,091.29	12,892,839.00	12.8%
Expense			
600 · GENERAL FUND EXPENDITURES			
10900 · Operating Transfers Out General	198,446.32	658,051.00	30.2%
500 · PERSONNEL SERVICES			
10502 · Office Staff	125,182.00	292,398.00	42.8%
10504 · Operations Staff	64,749.42	271,653.00	23.8%
10506 · Overtime	4,608.17	11,475.00	40.2%
10508 · Payroll Taxes/Costs/Benefits			
10508.1 · Paid Holidays	4,040.32		
10508.2 · Sick Leave Benefit	2,646.90		
10508.3 · Vacation	15,724.69		
10508.4 · Payroll Taxes	22,459.32		
10508.5 · SEP Retirement	19,673.41	0.00	100.0%
10508 · Payroll Taxes/Costs/Benefits - Other	0.00	185,338.00	0.0%
Total 10508 · Payroll Taxes/Costs/Benefits	64,544.64	185,338.00	34.8%
10510 · Health Care and Dental	36,448.03	130,000.00	28.0%
10512 · Workers Compensation	-1,569.33	15,000.00	-10.5%
Total 500 · PERSONNEL SERVICES	293,962.93	905,864.00	32.5%
601 · GENERAL FUND Material & Service			
10601 · ADVERTISING & NOTIFICATIONS	2,754.94	5,476.00	50.3%
10602 · REPAIRS & MAINTENANCE			
10602.1 · Equip. Repair/Maintenance	20,518.45		
10602.2 · Supplies	55,121.51		
10602.3 · Services	24,277.70		
10602 · REPAIRS & MAINTENANCE - Other	0.00	368,078.00	0.0%
Total 10602 · REPAIRS & MAINTENANCE	99,917.66	368,078.00	27.1%
10603 · FUEL purchased for resale	289,808.68	800,000.00	36.2%
10605 · UTILITIES			
10605.1 · Electric	23,808.08		
10605.3 · Sanitary	18,842.74		
10605.5 · Telecommunications	5,730.38		
10605.6 · Waste Removal	37,144.43		
10605.7 · Water	11,216.26		

Port of Brookings Harbor
Profit & Loss Budget Performance FY 2023-2024
July 2023 through June 2024

	Jul '23 - Jun 24	Budget	% of Budget
10605 · UTILITIES - Other	0.00	310,001.00	0.0%
Total 10605 · UTILITIES	96,741.89	310,001.00	31.2%
10606 · OFFICE EXPENSE	6,085.55	41,000.00	14.8%
10607 · BANK SERVICE & FINANCE FEES	22,924.53	60,000.00	38.2%
10608 · TRAINING & TRAVEL	1,264.53	10,000.00	12.6%
10609 · PERMITS, LICENSES, TAXES & MISC	27,559.47	80,392.00	34.3%
10610 · INSURANCE; PROP & CAS, BOND	49,798.77	129,999.00	38.3%
10611 · PROFESSIONAL FEES			
10611.2 · Attorney	33,774.50		
10611.3 · Engineering	5,850.00		
10611.4 · Other Support/Consultant	6,149.35		
10611 · PROFESSIONAL FEES - Other	0.00	235,000.00	0.0%
Total 10611 · PROFESSIONAL FEES	45,773.85	235,000.00	19.5%
Total 601 · GENERAL FUND Material & Service	642,629.87	2,039,946.00	31.5%
710 · GENERAL FUND CAPITAL OUTLAY	0.00	0.00	0.0%
920 · OPERATING CONTINGENCY	0.00	255,382.00	0.0%
Total 600 · GENERAL FUND EXPENDITURES	1,135,039.12	3,859,243.00	29.4%
620 · USDA REVENUE BOND EXPENDITURES			
20801P · USDA Revenue Bond Principal	0.00	42,010.00	0.0%
620 · USDA REVENUE BOND EXPENDITURES - Other	0.00	88,110.00	0.0%
Total 620 · USDA REVENUE BOND EXPENDITURES	0.00	130,120.00	0.0%
630 · DEBT SERVICE FUND EXPENDITURES			
30802P · IFA PRINCIPAL			
30802.1 · OBDD #520139/Boardwalk Prin	3,793.46		
30802.2 · OBDD #525172/RV Park Prin.	3,420.92		
30802.3 · OBDD #525176/Green Bldg Prn	6,024.09		
30802.4 · OBDD #525181/EurekaFish Prn	3,912.98		
30802.5 · SPWF #L02009/Cold Strg Prin	55,663.62		
30802.9 · SPWF X03004/Eureka Fishery Prin	4,684.93		
30802P · IFA PRINCIPAL - Other	0.00	310,000.00	0.0%
Total 30802P · IFA PRINCIPAL	77,500.00	310,000.00	25.0%
801 · Principal			
30803P · 50 BFMII Travelift Principal	18,424.36	18,424.00	100.0%
30804P · 2018 Genie Forklift Principal	5,334.36	16,333.00	32.7%
30806P · Land Sale Assests, Pay IFA Debt	0.00	140,000.00	0.0%
Total 801 · Principal	23,758.72	174,757.00	13.6%
810 · Interest Payments			
30813I · 50 BFMII Travelift Interest	211.64	212.00	99.8%
30814I · 2018 Genie Forklift Interest	524.48	1,243.00	42.2%
Total 810 · Interest Payments	736.12	1,455.00	50.6%
Total 630 · DEBT SERVICE FUND EXPENDITURES	101,994.84	486,212.00	21.0%
640 · CAPT. PROJ. EXPENDITURES			
740 · CAPT. PROJ. CAPITAL OUTLAY			
40702 · Land Improvement - Capt Proj			
40702.4 · FEMA- Dredging PW 189	403,689.16	1,835,304.00	22.0%
40702.5 · FEMA- Dredging PW 190 (Admin)	8,335.39	139,230.00	6.0%
40702.6 · EPA- Wastewater Treatment Plant	74,611.33	3,500,000.00	2.1%
40702.7 · Hazard Mitigation-Paving/Drains	3,817.50	1,200,000.00	0.3%
40702.8 · Business Oregon- Dredging	134,546.41	500,000.00	26.9%
40702.9 · Business Oregon- HMGP	1,272.50	500,000.00	0.3%
40702 · Land Improvement - Capt Proj - Other	0.00	0.00	0.0%
Total 40702 · Land Improvement - Capt Proj	626,272.29	7,674,534.00	8.2%
Total 740 · CAPT. PROJ. CAPITAL OUTLAY	626,272.29	7,674,534.00	8.2%
Total 640 · CAPT. PROJ. EXPENDITURES	626,272.29	7,674,534.00	8.2%
650 · RESERVE FUND EXPENDITURES			
50100 · RESERVE FUND CAPITAL OUTLAY	0.00	0.00	0.0%
50200 · RESERVE for FUTURE EXPENDITURE	0.00	476,236.00	0.0%
Total 650 · RESERVE FUND EXPENDITURES	0.00	476,236.00	0.0%

Port of Brookings Harbor
Profit & Loss Budget Performance FY 2023-2024
July 2023 through June 2024

	Jul '23 - Jun 24	Budget	% of Budget
660 · DEBT SERV. RV PARK EXPENDITURES			
60806P · RV Park Improv. Loan Principal	13,553.53	41,085.00	33.0%
60815I · RV Park Improv. Loan Interest	5,685.95	16,633.00	34.2%
Total 660 · DEBT SERV. RV PARK EXPENDITURES	19,239.48	57,718.00	33.3%
670 · PORT CONST FUND EXPENDITURES			
70100 · PORT CONST. CAPITAL OUTLAY			
70700 · Land Improvement - Port Const.			
70701.3 · Services	480.00		
Total 70700 · Land Improvement - Port Const.	480.00		
70100 · PORT CONST. CAPITAL OUTLAY - Other	0.00	50,000.00	0.0%
Total 70100 · PORT CONST. CAPITAL OUTLAY	480.00	50,000.00	1.0%
Total 670 · PORT CONST FUND EXPENDITURES	480.00	50,000.00	1.0%
930 · Fund Balances			
10930 · Unappropriated Balance GF	0.00	25,000.00	0.0%
20930 · Unappropriated Balance-USDA	0.00	104,460.00	0.0%
30930 · Unappropriated Balance Debt	0.00	24,316.00	0.0%
40930 · Unappropriated Balance Capt Pro	0.00	2,500.00	0.0%
50930 · Unappropriated Balance Reserve	0.00	0.00	0.0%
70930 · Unappropriated Balance Port Con	0.00	2,500.00	0.0%
Total 930 · Fund Balances	0.00	158,776.00	0.0%
Total Expense	1,883,025.73	12,892,839.00	14.6%
Net Income	**-236,934.44**	**0.00**	**100.0%**

Type	Num	Date	Name	Memo	Debit	Credit
100 · UNRESTRICTED CASH & EQUIVALENTS						
101 · GENERAL FUND CHECKING & LGIP						
10103 · General Funds Ckg Umpqua 3634						
Bill Pmt -Check		10/06/2023	Quill Corporation	QuickBooks generated zero amount transaction for bill payment stub	0.00	
Bill Pmt -Check	ACH DEBIT	10/05/2023	US Bank Equipment Finance	Contract No. 500-0623925-000 RICOH IMC6000 Copier		223.20
Bill Pmt -Check	ACH DEBIT	10/04/2023	Spectrum Business 8752 19 060 0251...	Internet & Voice for Port Shop Offices 09/17/23 - 10/16/23		132.97
Bill Pmt -Check	ACH DEBIT	10/03/2023	Curry Transfer & Recycling	Account Number: 2040-522445-001 Trash Dumpsters		600.88
Bill Pmt -Check	ACH DEBIT	10/20/2023	Ziply Fiber 541-469-5867-121516-5	541-469-5867-121516-5 Beachfront RV Park		86.90
Bill Pmt -Check	ACH DEBIT	10/05/2023	Curry Transfer & Recycling	Account #2040-2434-001 Trash Dumpsters		5,522.71
Bill Pmt -Check	ACH DEBIT	10/06/2023	Spectrum Enterprise 177075701	Internet for Port Office 09/29/2023 - 10/28/2023		109.98
Bill Pmt -Check	ACH DEBIT	10/05/2023	Quill Corporation	ACCT#1932158 Office Supplies		400.53
Check	ACH DEBIT	10/13/2023	ADP	Advice of Debit 643841692 Payroll Date: 10/4/2023		160.71
Bill Pmt -Check	ACH DEBIT	10/18/2023	VERIZON WIRELESS	Account#742050310-00001 Mobile Phones for Staff		412.58
Bill Pmt -Check	ACH DEBIT	10/12/2023	Miller Nash LLP	Legal Services		8,598.00
Bill Pmt -Check	ACH DEBIT	10/12/2023	Amazon Capital Services	Business Account #A2VUC5YWS42764 - Supplies/Materials		499.04
Check	ACH DEBIT	10/05/2023	BL/ RV Park	STRIPE DEBIT - $1,256.54 - Refunds issued 5 OCT 2023		1,256.54
Bill Pmt -Check	ACH DEBIT	10/18/2023	US Relay/HD Relay	HD Relay Advanced Streaming - 500GB Monthly		99.00
Bill Pmt -Check	ACH DEBIT	10/28/2023	Spectrum Business 8752 19 060 0025...	8752 19 060 0025169-Beachfront RV Internet		129.99
Check	ACH DEBIT	10/12/2023	BL/ RV Park	STRIPE DEBIT - $216.11 - Refunds issued 12 OCT 2023		216.11
Check	ACH DEBIT	10/27/2023	ADP	Advice of Debit 645069767 ezLaborManager/ADP 300 Timeclock (3 Timeclocks)		183.85
Check	ACH DEBIT	10/27/2023	ADP	Advice of Debit 644875829 Payroll Date: 10/18/2023		158.11
Bill Pmt -Check	ACH DEBIT	10/25/2023	Amazon Capital Services	Business Account #A2VUC5YWS42764 - Supplies/Materials		518.97
Bill Pmt -Check	ACH DEBIT	10/25/2023	Chevron Business Card	Account #: 0496007075666 Fuel Purchases for Port Vehicles/Equipment		774.67
Bill Pmt -Check	ACH DEBIT	10/25/2023	Four Aces Security Solutions LLC	SEPTEMBER 2023 - 60 Hours Security Patrol - 33.33%Marina, 33.33%Beachfront RV Park, 33.3...		2,846.70
Bill Pmt -Check	ACH DEBIT	10/25/2023	Quill Corporation	ACCT#1932158 Office Supplies		89.42
Bill Pmt -Check	ATM DEBIT	10/06/2023	Spectrum Business 8752 19 060 0247...	Internet & Voice for Port Meeting Room 09/19/23 - 010/18/23		124.98
Bill Pmt -Check	ATM DEBIT	10/01/2023	Rentprep Enterprise/Fidelis Screening	3-Background checks for new moorage customer		59.85
Bill Pmt -Check	ATM DEBIT	10/18/2023	Ziply Fiber 541-412-7930-102902-5	541-412-7930-102902-5 Fuel Dock Telephone		45.55
Bill Pmt -Check	ATM DEBIT	10/04/2023	DropBox	DropBox Annual Subscription Cloud Storage		119.88
Bill Pmt -Check	ATM DEBIT	10/06/2023	Intuit	10/6/2023 Intuit Quickbooks Enterprise Silver Addition (Subscription) - 4 Users		3,371.00
Bill Pmt -Check	ATM DEBIT	10/08/2023	Firefly Reservations	Beachfront RV Park reservation system		208.60
Bill Pmt -Check	ATM DEBIT	10/10/2023	GODaddy.com, LLC	Customer # 111488887 Annual Renewal Business Plus Website Builder Beachfront RV		239.88
Bill Pmt -Check	ATM DEBIT	10/11/2023	Harbor Water District P.U.D.	Hall rental December 16		150.00
Bill Pmt -Check	ATM DEBIT	10/13/2023	SAIF (workers' compensation provider)	Workers' Compensation Policy (September 2023)		1,018.77
Bill Pmt -Check	ATM DEBIT	10/19/2023	Microsoft	Office 365 Home Annual Subscription (RV PARK) reception@port-brookings-harbor.com		99.99
Bill Pmt -Check	ATM DEBIT	10/19/2023	Pacific Office Automation	Customer # 507410 Copier Lease & Maintenance		312.78
Bill Pmt -Check	ATM DEBIT	10/20/2023	GODaddy.com, LLC	Customer # 111488887 Annual Renewal Business Plus Website Builder Beachfront RV		239.88
Bill Pmt -Check	ATM DEBIT	10/23/2023	ROBERT BOSCH TOOL CORPORAT...	GREASE FOR TOOL MAINTENANCE		35.25
Bill Pmt -Check	ATM DEBIT	10/23/2023	Zoom Video Communications Inc.	Account#113208511 Standard Pro Monthly Service		15.99
Bill Pmt -Check	ATM DEBIT	10/24/2023	See Water Inc.	October 24 2023 - October 24 2024 Subscription to Pump Portal		239.80
Bill Pmt -Check	ATM DEBIT	10/26/2023	SimpliSafe	Support for Port Office Alarm System SUPPORT OCTOBER 2022		19.99
Bill Pmt -Check	ATM DEBIT	10/25/2023	O'Reilly Auto Parts	Account#2606586 Vehicle/Equip Maint. & Supplies		36.99
Bill Pmt -Check	ATM DEBIT	10/29/2023	Vonage	Account#175698		293.04
Bill Pmt -Check	ATM DEBIT	10/31/2023	FRED MEYER	Chocolates for Halloween for Office		18.48
Bill Pmt -Check	ATM DEBIT	10/31/2023	Oregon Secretary of State	RENEWAL - Oregon Business Filing Fee - Registry No. 1622409-99		50.00
Check	DEBIT	10/04/2023	Charles Schwab & Co., Inc	Employer Contribution 10/4/2023		182.60
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		161.97
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		153.36
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		240.00
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		240.12
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		212.14
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		52.22
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		166.16
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		166.82
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		158.18
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		822.24

Port of Brookings Harbor

Check Registers

Cash Basis — **As of October 31, 2023**

Type	Num	Date	Name	Memo	Debit	Credit
Check	DEBIT	10/04/2023	Edward Jones	Employer Contribution 10/4/2023		153.79
Check	DEBIT	10/18/2023	Charles Schwab & Co., Inc	Employer Contribution 10/18/2023		205.52
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		162.01
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		124.95
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		240.00
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		238.88
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		224.65
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		49.73
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		166.16
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		163.36
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		166.28
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		365.44
Check	DEBIT	10/18/2023	Edward Jones	Employer Contribution 10/18/2023		156.61
Check	DEBIT	10/02/2023	Elavon	SEPT 2023 MERCHANT SERVICE FEE ACCT#873 Ventek Boat Launch		208.96
Check	DEBIT	10/02/2023	Elavon	SEPT 2023 MERCHANT SERVICE FEE ACCT#951 Fuel Dock		1,077.51
Check	DEBIT	10/02/2023	Elavon	SEPT 2023 MERCHANT SERVICE FEE ACCT#316 Port Office		1,102.21
Check	DEBIT	10/20/2023	Umpqua Bank (Service fees)	ACH CCD Credits Originated for 09/23 - Miscellaneous Debit		2.50
General Journal	PAY 11/1	10/30/2023		Rec 11/1/2023 Payroll		17,739.32
General Journal	TAX 11/1	10/30/2023		Rec 11/1/2023 Payroll		7,378.15
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Service Fund for Travelift Payment		4,659.00
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Service Fund for Fork Lift Payment		1,464.71
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Serv. RV Park for Umpqua Bank Loan Acct#97748040835 Payment		4,809.87
General Journal	Dredge 10/6	10/06/2023		General Fund Internal Transfer from Umpqua General Fund to Dreding Fund LGIP 6254 2% Gross...		2,199.22
General Journal	IFA 10/6	10/06/2023		Transfer to IFA Debt Service for 2nd QTR 2023 Pmt		25,835.00
General Journal	RES 10/6	10/06/2023		Transfer to Reserve Fund		2,000.00
General Journal	USDA 10/6	10/06/2023		To transfer to USDA Revenue Bond Fund for November 2022 Payment		10,843.00
General Journal	PAY 10/18	10/16/2023		Rec 10/18/2023 Payroll		17,520.13
General Journal	TAX 10/18	10/16/2023		Rec 10/18/2023 Payroll		7,396.83
General Journal	GF 10/3/23	10/03/2023		Transfer $50,000 from LGIP to Umpqua Bank - General Funds	50,000.00	
General Journal	PAY 10/4/23	10/04/2023		Rec 10/4/2023 Payroll		20,968.03
General Journal	TAX 10/4/23	10/04/2023		Rec 10/4/2023 Payroll		8,747.66
Bill Pmt -Check	11659	10/05/2023	Gold Beach Lumber Yard, Inc.	Account #776 Hardware Supplies & Materials		491.90
Bill Pmt -Check	11660	10/12/2023	Anchor Lock & Key	LOCKS		218.91
Bill Pmt -Check	11661	10/12/2023	Curry Equipment	Account#1052 Equip Repair & Maint. Supplies		392.42
Bill Pmt -Check	11662	10/12/2023	Freeman Rock, Inc.	ROCK FOR NEW CRAB POT STORAGE AREA		1,066.73
Bill Pmt -Check	11663	10/12/2023	Englund Marine Supply Co.	ZINCS, BUOY AND BUOY BAG		300.18
Bill Pmt -Check	11664	10/12/2023	Kendrick Equipment USA LLC	SEP 12, 2023 ANNUAL INSPECTION OF EQ# 4605 TRAVELIFT 50BFMII		3,687.89
Bill Pmt -Check	11665	10/12/2023	Marine Surveyors & Consultants	NSPECTION/CERTIFICATION OF BORNSTEIN HOIST		765.00
Bill Pmt -Check	11666	10/12/2023	NAPA Auto Part	ACCT#60285 Vehicle/Equip Maint. & Supplies		41.14
Bill Pmt -Check	11667	10/12/2023	Pump Pipe & Tank Services, LLC	CASE OF FILTERS / CHANGE ALL FILTERS		590.86
Bill Pmt -Check	11668	10/12/2023	Pape Material Handling	Customer No. 1070715 Equipment Maintenance & Repair		314.56
Bill Pmt -Check	11669	10/12/2023	Tidewater Contractors, Inc.	Customer Code: 000061		1,075.00
Bill Pmt -Check	11670	10/12/2023	Thermo Fluids, Inc.	Account # PO24273 Removal of Used Oil and Oily Water		126.57
Sales Tax Pay...	11671	10/18/2023	Curry County TLT	Curry County Lodging Tax		21,839.17
Sales Tax Pay...	11672	10/18/2023	Oregon Lodging Tax	BIN: 0294055-3		4,679.82
Bill Pmt -Check	11673	10/18/2023	Grainger	ACCT# 822663001		1,082.44
Bill Pmt -Check	11674	10/18/2023	Harbor Sanitary District	SEPTEMBER 2023 Sanitary Bill		4,121.51
Bill Pmt -Check	11675	10/18/2023	Harbor Water District P.U.D.	08/28/2023 - 09/21/2023 SERVICE/WATER BILL		2,929.15
Bill Pmt -Check	11676	10/18/2023	SDAO Spec. Dist. Assoc. OR - Health...	Customer #: 03-0016414 - HEALTHCARE PREMIUM		9,681.66
Bill Pmt -Check	11677	10/18/2023	SDAO Spec. Dist. Assoc. OR - Prop &...	Policy#31P16414-203 Customer ID: 01-16414 - 2021 PROPERTY & CASUALTY POLICY		11,681.75
Bill Pmt -Check	11678	10/25/2023	BI-MART	Account #931481 Water & Supplies		107.72
Bill Pmt -Check	11679	10/25/2023	Boat Shop & More LLC	HAULED BOAT "AMERICAN MAID" TO CTR		260.00
Bill Pmt -Check	11680	10/25/2023	Kendrick Equipment USA LLC	WIRE ROPE FOR TRAVEL LIFT		5,927.57
Bill Pmt -Check	11681	10/25/2023	NAPA Auto Part	ACCT#60285 Vehicle/Equip Maint. & Supplies		140.96
Bill Pmt -Check	11682	10/25/2023	Slice Recovery	660 Bundles FIREWOOD for Resale RV Park		2,112.00
Bill Pmt -Check	11683	10/25/2023	Stormwater Biochar LLC	Pure Rain Stormwater Filter Sock 36" Long BiocharBASIC		2,200.89

Type	Num	Date	Name	Memo	Debit	Credit
Bill Pmt -Check	11684	10/25/2023	Umpqua Valley Fire Services, Inc.	ANNUAL FIRE EXTINGUISHER CERTIFICATIONS		742.47
Bill Pmt -Check	11685	10/25/2023	EMC-Engineers/Scientists, LLC	5.2 hrs engineering for Port, progress reports for all projects		520.00
Bill Pmt -Check	11686	10/30/2023	Gold Beach Lumber Yard, Inc.	Account #776 Hardware Supplies & Materials		1,589.89
Bill Pmt -Check	11687	10/30/2023	Curry County Tax Collector	7/1/2023-6/30/2024 Real Property Tax for Tenant's Lease Property		24,670.81
Total 10103 · General Funds Ckg Umpqua 3634					50,000.00	272,005.82
Total 101 · GENERAL FUND CHECKING & LGIP					50,000.00	272,005.82
10101 · Petty Cash						
Total 10101 · Petty Cash						
Total 100 · UNRESTRICTED CASH & EQUIVALENTS					50,000.00	272,005.82
110 · RESTRICTED CASH & EQUIVALENTS						
104 · RESTRICTED MONEY MKT & CHECKING						
20104 · USDA BOND Umpqua MM 9529						
General Journal	USDA 10/30	10/30/2023		To transfer to USDA Revenue Bond Fund...LGIP 6021 to Umpqua Bank 9529 for November 2023 ...	130,120.00	
Total 20104 · USDA BOND Umpqua MM 9529					130,120.00	0.00
30104 · Debt Service Umpqua MM 8627						
60104 · OR FFC 2020 Debt Service						
Check	DEBIT	10/16/2023	Umpqua Bank/OR FFC Agreement 20...	OR FFC Agreement 2020 Payment #39		4,809.87
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Serv. RV Park for Umpqua Bank Loan Acct#97748040835 Payment	4,809.87	
Total 60104 · OR FFC 2020 Debt Service					4,809.87	4,809.87
30104 · Debt Service Umpqua MM 8627 - Other						
Check	DEBIT	10/16/2023	Umpqua Bank/Loan#747041620	Genie Reach Forklift Loan#747041620 Payment #68		1,464.71
Check	DEBIT	10/23/2023	m2 Lease LLC	Customer #107104 Loan#110561 Pmt # 84 - 50 BFMII Travelift - FINAL PMT		4,659.00
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Service Fund for Travelift Payment	4,659.00	
General Journal	DEBT 10/5	10/05/2023		Transfer to Debt Service Fund for Fork Lift Payment	1,464.71	
Total 30104 · Debt Service Umpqua MM 8627 - Other					6,123.71	6,123.71
Total 30104 · Debt Service Umpqua MM 8627					10,933.58	10,933.58
40104 · Capital Projects Umpqua 8018						
40104.1 · Government Funds						
General Journal	EPA Pay#3	10/20/2023		Progress PMT # 3, EPA Reimbursement WWTP	25,206.66	
General Journal	EPA Pay#3	10/20/2023		Progress PMT # 3, EPA Reimbursement WWTP		25,206.66
Total 40104.1 · Government Funds					25,206.66	25,206.66
40104 · Capital Projects Umpqua 8018 - Other						
General Journal	CP 10/12/23	10/12/2023		Transfer from LGIP GF to Umpqua CP for Freeman Rock (PW189)	495.90	
General Journal	CP 10/12/23	10/12/2023		Transfer from LGIP GF to Umpqua CP for John's Portable Welding (PW189)	320.00	
General Journal	CP 10/12/23	10/12/2023		Transfer from LGIP GF to Umpqua CP for McLennan Excavation (PW189)	79,375.00	
General Journal	CP 10/12/23	10/10/2023		Transfer from LGIP GF to Umpqua CP for Harbor Logging Supply (PW189)	444.44	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Gold Beach Lumber (PW189)	415.87	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Gold Beach Lumber (PW189)	84.48	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Bi Mart (PW189)	119.99	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Gold Beach Lumber (PW189)	163.80	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP EMC 91009-2357 (PW189)	1,730.00	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Fastenal (PW189)	870.30	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Freeman Rock (PW189)	2,758.50	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Freeman Rock (PW189)	707.00	
General Journal	CP 10/25/23	10/25/2023		Transfer from LGIP CP to Umpqua CP Freeman Rock (PW189)	1,048.25	

Port of Brookings Harbor

Check Registers

Cash Basis **As of October 31, 2023**

Type	Num	Date	Name	Memo	Debit	Credit
General Journal	CP 10/26/23	10/26/2023		Transfer from LGIP CP to Umpqua CP Tidewater Contractors (PW189)	4,200.00	
General Journal	CP 10/25	10/25/2023		Transfer from LGIP CP to Umpqua CP for WWTP (EPA)	9,850.00	
Bill Pmt -Check	492	10/05/2023	Gold Beach Lumber Yard, Inc.	20 oz gap & crack foam sealant (PW189)		77.94
Bill Pmt -Check	493	10/12/2023	Freeman Rock, Inc.	Rock - erosion control at sediment basin (PW 189)		495.90
Bill Pmt -Check	494	10/12/2023	John Kellum/John's Portable Welding	Fit and Weld - Corner blocks, sediment basin (PW189)		320.00
Bill Pmt -Check	495	10/12/2023	McLennan Excavation, Inc.	Erosion control - sediment basin (PW189)		79,375.00
Bill Pmt -Check	496	10/12/2023	Harbor Logging Supply, Inc.	Steel bracing, concrete corner blocks - sediment basin (PW189)		444.44
Bill Pmt -Check	497	10/26/2023	BI-MART	Account #931481 (PW189)		119.99
Bill Pmt -Check	498	10/26/2023	Gold Beach Lumber Yard, Inc.	Account #776 Hardware Supplies & Materials (PW189)		664.15
Bill Pmt -Check	499	10/26/2023	Fastenal Industrial Supplies	Customer No.ORBRK0013 (PW189)		870.30
Bill Pmt -Check	500	10/26/2023	Freeman Rock, Inc.	Concrete for Dredging sediment basin (PW189)		4,513.75
Bill Pmt -Check	501	10/26/2023	EMC-Engineers/Scientists, LLC	98.5 hrs engineering and permitting (WWTP)		9,850.00
Bill Pmt -Check	502	10/26/2023	EMC-Engineers/Scientists, LLC	9.3 hrs engineering and CAD Graphics invoice 2023-25 (PW189)		1,730.00
Bill Pmt -Check	503	10/27/2023	Tidewater Contractors, Inc.	Customer Code: 000061 (PW189)		4,200.00
Total 40104 · Capital Projects Umpqua 8018 - Other					102,583.53	102,661.47
Total 40104 · Capital Projects Umpqua 8018					127,790.19	127,868.13
Total 104 · RESTRICTED MONEY MKT & CHECKING					268,843.77	138,801.71
Total 110 · RESTRICTED CASH & EQUIVALENTS					268,843.77	138,801.71
TOTAL					**318,843.77**	**410,807.53**

Port of Brookings Harbor
ACH and Debit Card Payments
October 2023

Num	Date	Name	Account	Paid Amount
ACH DEBIT	10/03/2023	Curry Transfer & Recycling	10103 · General Funds Ckg Umpqua 3634	-600.88
ACH DEBIT	10/04/2023	Spectrum Business 8752 19 060 0251369	10103 · General Funds Ckg Umpqua 3634	-132.97
ACH DEBIT	10/05/2023	US Bank Equipment Finance	10103 · General Funds Ckg Umpqua 3634	-223.20
ACH DEBIT	10/05/2023	Curry Transfer & Recycling	10103 · General Funds Ckg Umpqua 3634	-5,522.71
ACH DEBIT	10/05/2023	Quill Corporation	10103 · General Funds Ckg Umpqua 3634	-400.53
ACH DEBIT	10/05/2023	BL/ RV Park - REFUNDS	10103 · General Funds Ckg Umpqua 3634	-1,256.54
ACH DEBIT	10/06/2023	Spectrum Enterprise 177075701	10103 · General Funds Ckg Umpqua 3634	-109.98
ACH DEBIT	10/12/2023	Miller Nash LLP	10103 · General Funds Ckg Umpqua 3634	-8,598.00
ACH DEBIT	10/12/2023	Amazon Capital Services	10103 · General Funds Ckg Umpqua 3634	-499.04
ACH DEBIT	10/12/2023	BL/ RV Park - REFUNDS	10103 · General Funds Ckg Umpqua 3634	-216.11
ACH DEBIT	10/13/2023	ADP	10103 · General Funds Ckg Umpqua 3634	-160.71
ACH DEBIT	10/18/2023	VERIZON WIRELESS	10103 · General Funds Ckg Umpqua 3634	-412.58
ACH DEBIT	10/18/2023	US Relay/HD Relay	10103 · General Funds Ckg Umpqua 3634	-99.00
ACH DEBIT	10/20/2023	Ziply Fiber 541-469-5867-121516-5	10103 · General Funds Ckg Umpqua 3634	-86.90
ACH DEBIT	10/25/2023	Amazon Capital Services	10103 · General Funds Ckg Umpqua 3634	-518.97
ACH DEBIT	10/25/2023	Chevron Business Card	10103 · General Funds Ckg Umpqua 3634	-774.67
ACH DEBIT	10/25/2023	Four Aces Security Solutions LLC	10103 · General Funds Ckg Umpqua 3634	-2,846.70
ACH DEBIT	10/25/2023	Quill Corporation	10103 · General Funds Ckg Umpqua 3634	-89.42
ACH DEBIT	10/27/2023	ADP	10103 · General Funds Ckg Umpqua 3634	-183.85
ACH DEBIT	10/27/2023	ADP	10103 · General Funds Ckg Umpqua 3634	-158.11
ACH DEBIT	10/28/2023	Spectrum Business 8752 19 060 0025169	10103 · General Funds Ckg Umpqua 3634	-129.99
ATM DEBIT	10/01/2023	Rentprep Enterprise/Fidelis Screening	10103 · General Funds Ckg Umpqua 3634	-59.85
ATM DEBIT	10/04/2023	DropBox	10103 · General Funds Ckg Umpqua 3634	-119.88
ATM DEBIT	10/06/2023	Spectrum Business 8752 19 060 0247029	10103 · General Funds Ckg Umpqua 3634	-124.98
ATM DEBIT	10/06/2023	Intuit - for QuickBooks	10103 · General Funds Ckg Umpqua 3634	-3,371.00
ATM DEBIT	10/08/2023	Firefly Reservations	10103 · General Funds Ckg Umpqua 3634	-208.60
ATM DEBIT	10/10/2023	GODaddy.com, LLC	10103 · General Funds Ckg Umpqua 3634	-239.88
ATM DEBIT	10/11/2023	Harbor Water District P.U.D.	10103 · General Funds Ckg Umpqua 3634	-150.00
ATM DEBIT	10/13/2023	SAIF (workers' compensation provider)	10103 · General Funds Ckg Umpqua 3634	-1,018.77
ATM DEBIT	10/18/2023	Ziply Fiber 541-412-7930-102902-5	10103 · General Funds Ckg Umpqua 3634	-45.55
ATM DEBIT	10/19/2023	Microsoft Subscription - RV Park Office	10103 · General Funds Ckg Umpqua 3634	-99.99
ATM DEBIT	10/19/2023	Pacific Office Automation	10103 · General Funds Ckg Umpqua 3634	-312.78

Port of Brookings Harbor
ACH and Debit Card Payments
October 2023

ATM DEBIT	10/20/2023	GODaddy.com, LLC	10103 · General Funds Ckg Umpqua 3634	-239.88
ATM DEBIT	10/23/2023	ROBERT BOSCH TOOL CORPORATION	10103 · General Funds Ckg Umpqua 3634	-35.25
ATM DEBIT	10/23/2023	Zoom Video Communications Inc.	10103 · General Funds Ckg Umpqua 3634	-15.99
ATM DEBIT	10/24/2023	See Water Inc.	10103 · General Funds Ckg Umpqua 3634	-239.80
ATM DEBIT	10/25/2023	O'Reilly Auto Parts	10103 · General Funds Ckg Umpqua 3634	-36.99
ATM DEBIT	10/26/2023	SimpliSafe	10103 · General Funds Ckg Umpqua 3634	-19.99
ATM DEBIT	10/29/2023	Vonage	10103 · General Funds Ckg Umpqua 3634	-293.04
ATM DEBIT	10/31/2023	FRED MEYER	10103 · General Funds Ckg Umpqua 3634	-18.48
ATM DEBIT	10/31/2023	Oregon Secretary of State	10103 · General Funds Ckg Umpqua 3634	-50.00
DEBIT	10/02/2023	BANK SERVICE & FINANCE FEES	10106 · General Fund LGIP 6017	-1.10
DEBIT	10/02/2023	Elavon	10103 · General Funds Ckg Umpqua 3634	-208.96
DEBIT	10/02/2023	Elavon	10103 · General Funds Ckg Umpqua 3634	-1,077.51
DEBIT	10/02/2023	Elavon	10103 · General Funds Ckg Umpqua 3634	-1,102.21
DEBIT	10/04/2023	Charles Schwab & Co., Inc	10103 · General Funds Ckg Umpqua 3634	-182.60
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-161.97
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-153.36
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-240.00
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-240.12
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-212.14
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-52.22
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-166.16
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-166.82
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-158.18
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-822.24
DEBIT	10/04/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-153.79
DEBIT	10/16/2023	Umpqua Bank/Loan#747041620	30104 · Debt Service Umpqua MM 8627	-1,464.71
DEBIT	10/16/2023	Umpqua Bank/OR FFC Agreement 2020	60104 · OR FFC 2020 Debt Service	-4,809.87
DEBIT	10/18/2023	Charles Schwab & Co., Inc	10103 · General Funds Ckg Umpqua 3634	-205.52
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-162.01
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-124.95
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-240.00
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-238.88
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-224.65
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-49.73

Port of Brookings Harbor
ACH and Debit Card Payments
October 2023

DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-166.16
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-163.36
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-166.28
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-365.44
DEBIT	10/18/2023	Edward Jones	10103 · General Funds Ckg Umpqua 3634	-156.61
DEBIT	10/20/2023	Umpqua Bank (Service fees)	10103 · General Funds Ckg Umpqua 3634	-2.50
DEBIT	10/23/2023	m2 Lease LLC	30104 · Debt Service Umpqua MM 8627	-4,659.00
Total for October 2023				**-48,020.61**

Port of Brookings Harbor
Purchases by Vendor Summary
October 2023

	Oct 23
ADP	502.67
Amazon Capital Services	1,018.01
Anchor Lock & Key	218.91
BI-MART	227.71
Boat Shop & More LLC	260.00
Chevron Business Card	774.67
Curry County Tax Collector	24,670.81
Curry Equipment	392.42
Curry Transfer & Recycling	6,123.59
DropBox	119.88
Elavon	2,388.68
EMC-Engineers/Scientists, LLC	12,100.00
Englund Marine Supply Co.	300.18
Fastenal Industrial Supplies	870.30
Firefly Reservations	208.60
Four Aces Security Solutions LLC	2,846.70
FRED MEYER	18.48
Freeman Rock, Inc.	6,076.38
GODaddy.com, LLC	479.76
Gold Beach Lumber Yard, Inc.	2,823.88
Grainger	1,082.44
Harbor Logging Supply, Inc.	444.44
Harbor Sanitary District	4,121.51
Harbor Water District P.U.D.	3,079.15
Intuit	3,371.00
John Kellum/John's Portable Welding	320.00
Kendrick Equipment USA LLC	9,615.46
Marine Surveyors & Consultants	765.00
McLennan Excavation, Inc.	79,375.00
Microsoft	99.99
Miller Nash LLP	8,598.00
NAPA Auto Part	182.10
O'Reilly Auto Parts	36.99
Oregon Secretary of State	50.00
Pacific Office Automation	312.78
Pape Material Handling	314.56
Pump Pipe & Tank Services, LLC	590.86
Quill Corporation	489.95
Rentprep Enterprise/Fidelis Screening	59.85
ROBERT BOSCH TOOL CORPORATION	35.25
SAIF (workers' compensation provider)	1,018.77
SDAO Spec. Dist. Assoc. OR - Healthcare	9,681.66
SDAO Spec. Dist. Assoc. OR - Prop & Cas	11,681.75
See Water Inc.	239.80
SimpliSafe	19.99
Slice Recovery	2,112.00
Spectrum Business 8752 19 060 0025169	129.99
Spectrum Business 8752 19 060 0247029	124.98
Spectrum Business 8752 19 060 0251369	132.97
Spectrum Enterprise 177075701	109.98
Stormwater Biochar LLC	2,200.89
Thermo Fluids, Inc.	126.57
Tidewater Contractors, Inc.	5,275.00
Umpqua Valley Fire Services, Inc.	742.47
US Bank Equipment Finance	223.20
US Relay/HD Relay	99.00
VERIZON WIRELESS	412.58
Vonage	293.04
Ziply Fiber 541-412-7930-102902-5	45.55
Ziply Fiber 541-469-5867-121516-5	86.90
Zoom Video Communications Inc.	15.99
TOTAL	**210,139.04**

ACTION ITEM – A

DATE: November 15, 2023
RE: Resolution No. 2023-11, Removal of Crab Dock and Ramp on North Jetty
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: Travis Webster, Port Manager

OVERVIEW

- January 11, 2022, Workshop Meeting, the Board discussed how the jetty belongs to the Corps of Engineers. The Port has no authority to enforce any of our ordinances on the jetties. Access to the jetties from Port property is enforceable. Over the years there have been many issues with people camping on the North Jetty, getting stuck trying to turn around, dumping trash, vehicle fires, etc. Port contacted the Corps of Engineers and asked if they had any issues with the Port installing a gate at the entrance. Only thing they asked for is a key to the gate for when they need to access the jetty.
- January 19, 2022, Regular Meeting, the Board approved installing a single bar gate with a sign (Enter at Your Own Risk) at the entrance to the North Jetty and providing the US Corps of Engineers a key for access. Remove entire crab dock including piling and ramp from the North Jetty when a project warrants a barge and crane or if other means become available.
- March 16, 2022, Regular Meeting, the Board received 4 comments from the public regarding their disapproval of removing the crab dock.
- May 6, 2022, Special Meeting, the Board approved completing necessary U.S. Army Corps of Engineers forms to keep the crab dock at its current location and authorize the Port Manager to sign the necessary form applications.
- May 13, 2022, gate was installed on the North Jetty.
- February 7, 2023, received approval from USACE to construct, operate, and maintain a ramp for public use at the Chetco River Small Boat Basin Project, Curry County, Oregon.
- Even after installing gate, the Port is still having multiple issues regarding navigation and access.

DOCUMENTS

- Resolution No. 2023-11, Removal of Crab Dock and Ramp on North Jetty, 1 page

COMMISSIONERS ACTION

- Recommended Motion:
  Motion to approve Resolution No. 2023-11, to remove the crab dock and ramp from the North Jetty and authorize the Port Manager to sign the necessary form applications.

PORT OF BROOKINGS HARBOR
CURRY COUNTY, OREGON

RESOLUTION NO. 2023-11

A RESOLUTION OF THE BOARD OF COMMISSIONERS ADOPTING THE PORT OF BROOKINGS HARBOR REMOVAL OF CRAB DOCK AND RAMP ON NORTH JETTY

WHEREAS, the Port of Brookings Harbor is a port district, organized and operated under the provisions of ORS Chapter 777, and has the authority to adopt resolutions; and

WHEREAS, the dock has created navigational hazard for passing vessels; and

WHEREAS, the location of the dock has created accessibility issues that are not feasible to construct; and

WHEREAS, the Port has determined that it is in the best interest of the district to remove the crab dock and ramp located on the North Jetty which is controlled by the USACE; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE PORT OF BROOKINGS HARBOR THAT:

1. The Port of Brookings Harbor Board of Commissioners ("Commissioners") approve removing the crab dock and ramp from the USACE North Jetty.
2. The Board authorizes the Port Manager to sign and complete the USACE Standard Form 299 for the removal of the crab dock and ramp.

APPROVED AND ADOPTED by the Board of Commissioners this 15th day of November 2023.

ATTEST:

_____ _____

Richard Heap, President Sharon Hartung, Secretary/Treasurer

ACTION ITEM – B

DATE: November 15, 2023
RE: Delinquent Account Write Off Request
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: April Walker, Office Manager

OVERVIEW

- Delinquent accounts are reviewed and written off per Resolution 478. The Port Manager has the authority to write off delinquent accounts below $1,000 and submit them to a collection agency if we find the accounts unretrievable. Any amount over $1,000 requires Board action.
- I have prepared a summary account, and attached for your review, on Christopher Walko. The Port has exhausted all attempts to contact, and retrieve amounts due. Requesting to move forward sending account to collections, and proceed with litigation if the collection agency requests to do so.

DOCUMENTS

- Delinquent Account Write Off Request, 2 pages (Walko, Christopher $6,015.99)

COMMISSIONERS ACTION

- Recommended Motion:
  Motion to approve delinquent account write off amount of $6,015.99 from accounts receivable, submit the amount to Port collection agency, and proceed with litigation if necessary.

Delinquent Account Write Off Request

Customer: Walko, Christopher

Amount Owed: $6,015.99 Date: 11/15/2023

Requesting permission to write off charges on account receivable as uncollectable.
Notes and timeline of collection attempts on the account of **Christopher Walko:**

- **5/23/2023** Port Office staff contacted Moorage holder for noncompliance of pump out rules. Moorage holder informed staff that he had sold the boat; he couldn't remember when, but said it was "a few months ago" and provided the name of the buyer. Since seller and buyer did not follow policies listed in Moorage Agreement (i.e., sale of vessel, seaworthiness/condition of vessel, assignment, transfer and sub-lease, non-payment, and abandonment), for at least a month or more, we provided both parties with a Notice of Termination on 5/24/23 giving 30 days to remove the vessel from Port.

- **5/27/2023** After failed attempts to leave the Port while operating the vessel, Mr. Walko tied up in another Moorage holders slip. Port staff towed his vessel to the Transient Dock to clear the slip the vessel was tied up in. Office staff began tallying Transient Dock daily fees since the vessel had no existing Moorage Agreement or prepayment.

- **6/30/2023** Mr. Walko had not removed the vessel from Port property as per Termination Notice, nor had he responded to any invoices, or paid any Transient Dock fees. Office Manager created Pre-Seizure notice, which was adhered to the vessel, sent to Mr. Walko's presumed mailing address, and sent to Oregon State Marine Board (ORS 830.918).

- **7/11/2023** Following Port policies, and Marine Board 'Abandoned Vessel' regulations, Office Manager created a Seizure notice which was adhered to vessel, sent to Mr. Walko's presumed mailing address, and sent to Oregon State Marine Board (ORS 830.928). Port staff seized the vessel, impounded it, and placed it into the boat yard.

- **8/11/2023** Following Marine Board 'Abandoned Vessel' regulations, Port allowed 30 days for the vessel owner to pay all fees associated with the vessel before the title vests in the Port (ORS 830.931). The Port received no correspondence from the vessel owner. As of 8/11/23, the title vests in the Port.

- **10/10/2023** Port staff prepared the vessel for demolition, removing all fluids, motors, fly bridge and prepared the vessel for transport to Curry Transfer and Recycling.

- **10/13/2023** Vessel was transported to Curry Transfer and Recycling and disposed of.

- **10/23/2023** Mr. Walko was sent a 90-day overdue notice, giving him 10 days to settle his account before it is sent to collections.

- **11/3/2023** A Demand Notice for payment was sent by mail to Mr. Walko's presumed address. We have no phone number on file. We have had no correspondence from Mr. Walko since May 27th, 2023.

☐ Write off this account on accounts receivable as uncollectable and **submit this to collection agency in the amount of $6,015.99**

☐ Write off this amount on accounts receivable as uncollectable in the accounts receivable and **do not submit this to collection agency in the amount of $6,015.99**

☐ **Other Agreement/Terms as presented and approved.** Customer balance is **$6,015.99**

_____ _____

Authorized / Attached Minutes Date

Port of Brookings Harbor
Balance Details for Walko, Christopher
All Transactions

	Type	Date	Num	Memo	Due Date	Open Balance
Walko, Christopher						
	Invoice	05/27/2023	20231075	Transient Dock, Dates: 5/27/23-6/30/23	05/27/2023	750.72
	Invoice	07/11/2023	20231179	Transient Dock, Dates: 7/1/23-7/11/23	07/11/2023	264.00
				MOORAGE FEES		**1,014.72**
	Invoice	07/11/2023	20231180	Impound Seizure Fee, 7/11/23	07/11/2023	750.00
	Invoice	08/11/2023	20231702	Storage of Vessel - Yard Days during pre/post seizu	08/11/2023	1,440.00
	Invoice	10/10/2023	20231690	Preparation of Boat for Demolition: (3 staff at 5 hour	10/10/2023	1,500.00
	Invoice	10/11/2023	20231701	Disposal of vessel "American Maid"	10/11/2023	1,027.20
	Invoice	10/23/2023	20231771	Transport of "AMERICAN MAID" to CTR -Trucking	10/23/2023	260.00
				SEIZURE, STORAGE AND DISPOSAL FEES		**4,977.20**
	Invoice	06/30/2023	FC 1758	Finance Charge	06/30/2023	12.59
	Invoice	07/31/2023	FC 1776	Finance Charge	07/31/2023	11.48
				FINANCE CHARGES		**24.07**
Total Walko, Christopher				**TOTAL DUE**		**6,015.99**

ACTION ITEM – C

DATE: November 15, 2023
RE: EPA Wastewater Treatment Plant, Phase 2 Funding
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: Travis Webster, Port Manager

OVERVIEW: PHASE 1 – PLANNING & DESIGN

- Oregon Department of Environmental Quality (ODEQ) received additional information from Jack Akin/EMC to complete the NPDES permit process.
- Phase 2 funding request (424A Form) was completed and submitted to EPA Region 10 for pre-approval review. Total funding amount came to 3,500,000 with $875,000 matching. Phase 2 funding amounts came to $3,089,200 with $772,300 matching.
- EPA R10 quarterly report was completed and submitted.
- Meeting with Pacific Seafood to discuss WWTP operations ended in discussion of financial needs from Pacific Seafood so they can decide how to budget. They were told the Port is looking for $772,300 in matching for construction. The Port will provide Phase 1 matching.
- Request for Proposal documents for the plant and civil work are under development, and we expect to have draft documents completed sometime in December, or early January 2024. Then release the RFPs in January 2024 for bids.

DOCUMENTS

- EPA 424A Form – Phase 2 Funding Request, 28 pages
- EPA R10 October 2023 Quarterly Report, 2 pages
- ODEQ Permit Additional Information, 62 pages

COMMISSIONERS ACTION

- Recommended Motion:
  Motion to approve Port Manager to sign and submit Phase 2 construction funding for wastewater treatment plant.

PORT OF BROOKINGS HARBOR

WWTP WORKPLAN AND BUDGET NARRATIVE

10/2023

PHASE II - Port of Brookings Harbor, Oregon Wastewater Treatment Plant

1.0 INTRODUCTION

The Port of Brookings Harbor (POBH, the Port) is the Grant Recipient. Pacific Seafood, Brookings facility, a lessor of the POBH, is currently in violation of the Clean Water Act NPDES permit limits. For now, Pacific Seafood operates under a 900-J Fish Processing permit, the effluent limitations of which operations have violated on numerous occasions. If Pacific Seafood wastewater effluent is not brought into compliance, the facility will be forced to close down and perhaps relocate.

Therefore, in order to retain this facility and fish processing in general at the POBH, and to ensure that the waters of the state are protected, the Port is endeavoring to install wastewater treatment facilities. After analyzing years of discharge monitoring reports submitted to the ODEQ by Pacific Seafood, thus thoroughly understanding the wastewater effluent quality, POBH and its consultant evaluated several treatment options. A wastewater treatment system for effluent discharged to the existing outfall was selected as the best option for meeting ODEQ requirements.

2.0 PROJECT DESCRIPTION - PHASE II

POBH therefore intends to construct a modular wastewater treatment plant (WWTP) with a capacity to treat up to 500,000 gallons per day of industrial wastewater. Installation of the WWTP will also require upgrades to existing infrastructure at the Port. **Figure 1** shows the location and footprint of the proposed system. **Figure 2** presents civil works detail. In order to do this work, design, permitting and all preliminary, non-construction work must be completed. Preliminary work (Phase 1) is still in progress, as of the date of this narrative, most of which must be completed prior to equipment procurement and associated construction. After Phase 1 work is completed, the remaining funds will be used in Phase 2 Construction.

Phase II work entails

- Contractor and equipment procurement;
- Site civil and construction works, including site grading, subbase and subgrade preparation, stormwater system installation, utility provision, concrete pad and ring beam construction;
- WWTP equipment assembly and placement;
- System controls installation and settings;
- Completed system testing, evaluation and adjustment.

The Phase II scope of work and time schedule can be generally described as follows.

The NPDES WWTP permit is in progress. Data and system submissions needed to keep the ODEQ permit evaluation moving forward will be completed by **11/15/23**. The finalization of the ODEQ review process is expected to be completed by **April, 2024**.

Phase I tasks are planned to continue final design details, engineered construction drawings and RFP (Request for Proposals) preparation.

In early **January, 2024** the contractor and equipment procurement process will begin and contractor selected by **April, 2024**. Equipment and materials will be ordered upon receipt of the ODEQ permit.

Equipment is expected to arrive at the Port by **August, 2024**. Meanwhile, between **April and August** the Port will have completed the civil works, the tasks of which are outlined in the table so-named on Page 3. The WWTP units to arrive, be assembled and installed are listed on Page 3 in the table named "WWTP".

Installation and successful testing of the treatment equipment is planned to be completed during the month of August, likely extending into **September, 2024** for final evaluation.

This planned schedule allows for 75 days of slip (breakdowns, bad weather, etc.). In our opinion, the assumptions upon which this estimated schedule is based are reasonable.

2.1 Phase II Scope of Work

The proposed WWTP components are to be constructed off site and shipped to the site for assembly. The concrete slab foundation to support the system, canopies and shelters to cover certain system components, and the control room to operate the system, will be constructed by qualified subcontractors. Existing electrical, water and storm sewer systems will be modified as needed to accommodate the new WWTP. The WWTP west-side operations will require repairs to the existing Old PacChoice Dock, adjacent to the Pacific Seafood facility, to stabilize the westward section of the new WWTP facility. No in-water work will be done during this Phase. Budget and scope of work details are provided below (Page 3).

2.2 Project Management

The POBH contracted the consultant to evaluate treatment options, develop the WWTP Workplan, and to complete permitting and grant application requirements. The consultant has been contracted to be responsible for the engineering design, permit applications, RFQs, contractor selection assistance, final design elements, scheduling, evaluation of the system and project oversight assistance (as engineer-of-record). The consultant's oversight tasks will be shared with Port Staff, who provides final approval for on-sight work. POBH has also designated the consultant to assist Port staff in budget management. Port Work, as labeled in the lower left hand corner of the Cost Budget Sheet, Civil Works table, for $38,237, is estimated and described in detail on Page 4, in the table named PORT WORK DETAIL.

3.0 SCHEDULE AND MILESTONES - PHASE II

The schedule and milestones are described in Section 2.0 above, presented as bulleted items. Budgeting details and scopes of work are provided below.

BUDGET COSTING SHEET

Civil Works

Access & Work Areas	Coverage, sf	$/cy Excavation, Grading	$/sf Subgrade Compaction	$/cy. Rock purchase, deliver/Place	$/Ton Asphalt, Placed	$/cy Concrete
WWTP & Surrounding	38,240	$28	$1	$65	$125	$150
$/Specified Catch Basin, ea	$/yd3 Concrete, Labor	Cut/Fill Volumes, cy	Volume of Sub-base and Base Rock, cy	Volume of Asphalt, Tons, 3" Thick	Concrete Volume, cy	12" SW Pipe Installed/ft.
$6,500	$300	948.9	885	365	458.1	120
SW Pipe Length, ft	No. Catch Basins	SW System Total	Grading Total	Compaction Total	Aggregate Total	Asphalt Total
600	4	$98,000	$26,854	$19,120	$57,537	$45,600
Concrete Total	TOTAL Pre-MOBE/DEMOBE BUDGET Items	Total Equipment MOBE/DEMOBE Costs	Total Itemized Costs	Soil Investigation	Estimated Utilities Service	TOTAL Mitigation BUDGET
$206,163	$453,275	$86,262	$539,537	$22,000	$441,000	**$1,127,831**
Engineering	$54,393	Permitting	$32,664	Port Work	$38,237.00	

WWTP

GPD System		$500,000	
1895 CMD MBR WWTP		$1,405,023	
GLS TANKS		$681,205	
SLUDGE DEWATERING		$132,723	
ODOR CONTROL SYSTEM		$92,770	
SUPERVISION FOR INSTALLATION	500	$12,000	Assume $500 per man-day, six days/wk, 2 wks. x 2 people
		$720,516	30% Required Upon Order
		$1,681,205	70% Required Within 60 Days of Equipment Receip.
Estimated WWTP Costs		**$2,401,721**	

Dock Repair	$331,948	
Assume dock construction will begin in April, 2024, Completed by August, pay on balance monthly, 30% down for materials		

Budget By Category

Category		Federal	Non-Federal
Personnel	a.	$19,800	$4,950
Fringe Benefits	b.	$5,990	$1,497
Travel	c.	$4,800	$1,200
Equipment	d.		
supplies	e.		
Contractual	f.	$3,032,479	$758,120
Construction	g.		
Other	h.	$26,131	$6,533
Totals		**$3,089,200**	**$772,300**

TOTAL PROJECT COSTS	**$3,861,500**

PORT WORK DETAIL				
ID	Category	Totals	Federal Share	Non-Federal Share
a.	Personnel	$24,750	$19,800	$4,950
Description: Port personnel performing administrative duties, meetings with suppliers and contractors, managing bidding documents, plant inspections (if necessary) and other project related activities.				
Travis Webster	Port Manager	Hourly Rate $45.68 x 208 Hours / 4 hours per week / 52 weeks		
Gary Dehlinger	Project Manager	Hourly Rate $30.00 x 416 Hours / 8 hours per week / 52 weeks		
April Walker	Office Manager	Hourly Rate $26.63 x 104 Hours / 2 hours per week / 52 weeks		
b.	Fringe Benefits	$7,487	$5,990	$1,497
Description: Personnel wage benefits include medical/dental, retirement, and PTO costs.				
Travis Webster	Port Manager	Benefit Rate $13.59 x 208 Hours		
Gary Dehlinger	Project Manager	Benefit Rate $8.79 x 416 Hours		
April Walker	Office Manager	Benefit Rate $9.67 x 104 Hours		
c.	Travel	$6,000	$4,800	$1,200
Description: Meeting with suppliers and/or contractors and plant inspections (if necessary). Costs include milage, flight, meal, and hotel costs.				
TOTALS		**$38,237**	**$30,590**	**$7,647**

4.0 ENVIRONMENTAL RESULTS/BENEFITS - PHASE II

4.1 Outputs

Phase II of this Project will result in completion of all construction of the civil works and the WWTP as described in Section 2.0 above.

4.1.1 Regulatory/Environmental

The following describes the processes whereby all regulatory and environmental requirements are satisfied.

4.1.1.1 Industrial Wastewater Treatment Quality

As stated in the Section 1.0 this facility, Pacific Seafood, is at present out of compliance with federal and state NPDES wastewater effluent requirements. Currently, the facility uses a rotary drum screen to treat approximately 500,000 gallons per day prior to discharge, which does little

to reduce the incoming BOD (Biological Oxygen Demand), TSS (Total Suspended Solids), O&G (Oil and Grease) and regulated toxic pollutants.

4.1.1.2 Water Quality Modeling

Modeling of the wastewater effluent has been completed for wastewater treatment plant permitting in Oregon. Pacific Seafood Group prepared a Mixing Zone Study on (Pacific) for the seafood processing facility in Brookings, Oregon, and the POBH has completed the required addendum for that study.

4.1.1.3 In-Water Work

No in-water work is included in this Phase II scope of work.

4.1.1.4 Upland, or Above-Water Work

As mentioned above, all above-water work, that is; the Old PacChoice Dock repair/replacement/upgrade of the concrete decking and its upland understructure, concrete pad and jointing to the dock decking, the stormwater system construction, the electrical, water and wastewater piping (effluent pipe will be connected to the retrofitted existing effluent pipe from the Pacific Seafood facility), is scheduled to be accomplished during dry months between late March/early April and late September, 2024. As such, to the Port's knowledge, the USACE, ODSL, NOAA/NMFA, ODFW and DLCD do not have jurisdiction over this project.

However, the WWTP concrete pad and any buried utilities will be constructed atop cultural resources. A review of Oregon Archaeological Records Remote Access information indicates there are documented cultural resources and prior evaluations within Commercial Area Project.

Prior archaeological evaluations (#24439 and 25453) have confirmed the presence of significant archaeological deposits at the Port that are associated with the Chetco Indian village of Tcet-xo (35CU42) initially documented in 1935.

The site was determined eligible for the National Register of Historic Places in 2012.

The 2011 testing for the seawall work rediscovered archeological deposits associated with the Tcet-xo village and determined the site likely extends to the north under the adjacent asphalt surface.

Additionally, a 2005 survey (#19795) to the north of the Commercial Area for a proposed sanitary force main project also determined the potential presence of archeological deposits under paved surfaced near the Port was high. Thus prior findings suggest archaeological materials may be present underneath the gravel and asphalt at of the proposed work areas.

The Port will, as it has in the past when working in Site 35CU42, employ a SHPO-approved archaeologist to oversee excavations within these culturally sensitive areas.

4.1.1.5 The POTW Permit

The ODEQ has determined the type of permit for this project to be an Individual POTW (Publicly Owned Treatment Works) permit.

4.2 Outcomes

The completion of Phase II tasks will be the installation of the WWTP, and thus the achievement of NPDES benchmarks, protecting Chetco Estuary water quality.

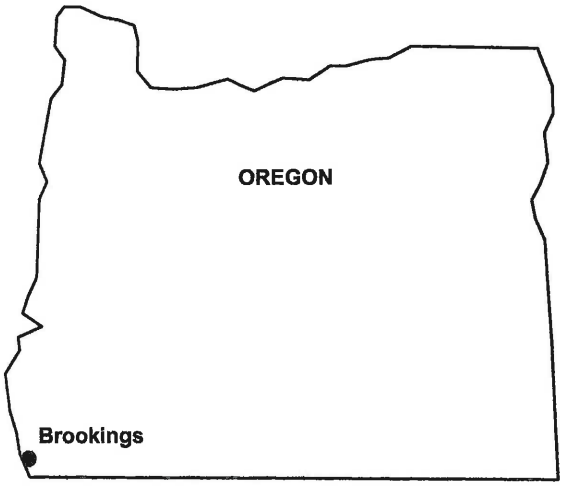
5.0 SELECTION OF QUALIFIED CONTRACTORS AND SUBCONTRACTORS

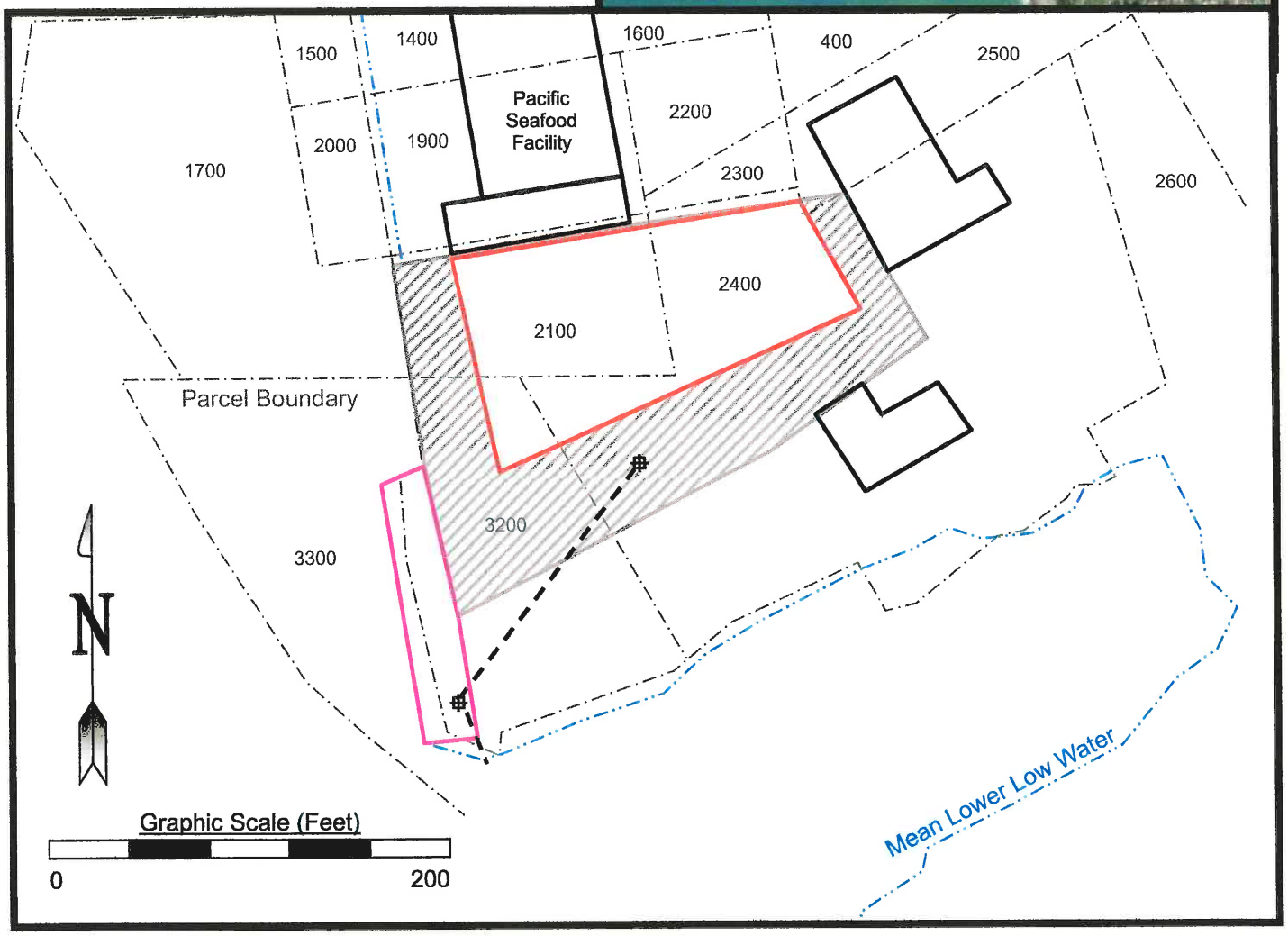
All procurement transactions for professional engineering services and construction contractors have been conducted in a manner that promotes fair and open competition from an adequate number of qualified sources. 2 CFR 200.320 indicates the specific methods of procurement to be followed and the circumstances under which each method can be used. As such all contracts associated with this project are in compliance with the requirements of 44 CFR part 13, 2 CFR parts 215, 220, 225 and 230. Further, all contracting and procurement will adhere, as applicable to ORS Chapter 279A, Public Contracting - General Provisions.

6.0. EPA's Strategic Plan Goals/Objectives

Cited in this narrative is that within the EPA's Strategic Plan, to Ensure Clean and Safe Water for All Communities, Objective 5.1: Ensure Safe Drinking Water and Reliable Water Infrastructure, anticipated environmental results, anticipated environmental outputs, and anticipated environmental outcomes.

FIGURE 1





Notes:

- Existing Structures
- Wastewater Treatment System
- Old PacChoice Fishery Dock
- Paving Area
- Catch Basin
- Underground Stormwater Drain

Port of Brookings
Wastewater Treatment System Project

Figure 1: Project Location

EMC
Engineers/Scientists, LLC
450 Conestoga Drive
Jacksonville, OR 97530

Scale:	See Graphic
Date:	March 28, 2023
Prepared by	RLG
Source:	Curry County GIS
File:	C: POB\WWTS\Location.doc

FIGURE 2

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

PORT OF BROOKINGS - HARBOR
PROPOSED WASTEWATER TREATMENT PLANT & STORM DRAIN IMPROVEMENTS

PORT OF BROOKINGS HARBOR

GENERAL NOTES

1. WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF THE CURRENT "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION", ODOT/ AMERICAN PUBLIC WORKS ASSOCIATION (APWA), UNLESS OTHERWISE COVERED BY THE SPECIFICATIONS WRITTEN FOR THIS PROJECT(IF APPLICABLE), OR THE 'WATER / SEWER STANDARDS AND SPECIFICATIONS' OR THE "STANDARD DRAWINGS " OF CURRY COUNTY.
2. IN THE EVENT OF CONFLICT IN REGULATIONS AND SPECIFICATIONS GOVERNING THIS PROJECT, THE ORDER OF PRECEDENCE IS AS FOLLOWS:
   A. CONTRACT SPECIAL PROVISIONS;
   B. CONSTRUCTION PLANS;
   C. PORT OF BROOKINGS HARBOR STANDARDS AND SPECIFICATIONS;
   D. GENERAL NOTES;
   E. ODOT/APWA SPECIFICATIONS FOR CONSTRUCTION.
3. ALL CONSTRUCTION SHALL BE SUBJECT TO INSPECTION AND COMPLIANCE WITH THE ABOVE APPLICABLE REGULATIONS AND SPECIFICATIONS.
4. ALL CONTRACTORS AND SUBCONTRACTORS SHALL POSSESS A VALID STATE CONTRACTOR'S LICENSE PRIOR TO COMMENCING WORK ON THIS PROJECT. ALL CONTRACTORS AND SUBCONTRACTORS MUST ALSO BE CURRENTLY PRE-QUALIFIED WITH CURRY COUNTY FOR THE CLASS(ES) OF WORK REQUIRED PRIOR TO ANY CONSTRUCTION.
5. A MANDATORY PRE-CONSTRUCTION CONFERENCE OF ALL PARTIES SHALL BE HELD PRIOR TO ANY CONSTRUCTION.
6. THE PORT OF BROOKINGS HARBOR SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY STAGE OF CONSTRUCTION.
7. THE ENGINEER DOES NOT GUARANTEE THE COMPLETENESS OR ACCURACY OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FIELD VERIFYING ANY POTENTIAL UTILITY CONFLICTS BETWEEN EXISTING UNDERGROUND UTILITIES AND THE WORK SHOWN ON THESE PLANS. THIS INCLUDES BOTH POTENTIAL UTILITY CONFLICTS SHOWN ON THESE PLANS AND POTENTIAL UTILITY CONFLICTS NOT SHOWN ON THESE PLANS BUT EITHER LOCATED, FOUND OR MARKED IN THE FIELD. WHERE POTENTIAL CONFLICTS ORE FOUND, THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NEEDED (INCLUDING PRELIMINARY POTHOLING OF THE UTILITIES AT THE POTENTIAL CONFLICT LOCATION) PRIOR TO WORK IN THE AREA TO ALLOW TIME FOR THE RESPONSIBLE AGENCY TO CORRECT THE CONFLICT (UNLESS OTHERWISE SPECIFIED ON THE PLANS). NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY EXPENSE THE CONTRACTOR MAY INCUR AS A RESULT OF HIS FAILURE TO ADEQUATELY EXPLORE, IN THE OPINION OF THE ENGINEER, POTENTIAL UTILITY CONFLICTS.
8. THERE SHALL BE NO DEVIATION FROM THE APPROVED PLANS UNLESS REQUESTED IN WRITING BY CONTRACTOR AND APPROVED IN WRITING BY THE PORT OF BROOKINGS HARBOR. .
9. ALL UNDERGROUND UTILITIES AND SERVICE LATERALS ARE TO BE INSTALLED PRIOR TO PAVING.
10. CRUSHED ROCK BASE MATERIAL SHALL BE OBTAINED FROM A SOURCE APPROVED BY THE PORT OF BROOKINGS HARBOR.
11. CRUSHED ROCK BASE MATERIAL SHALL COMPLY WITH APWA/ODOT SEC. 00641 AND SEC. 02630 AND SHALL BE PLACED IN MAXIMUM LIFTS OF (8) INCHES AND SHALL BE COMPACTED TO 100% OF MAXIMUM RELATIVE DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD A WITH COURSE PARTICAL CORRECTION ACCORDING TO ODOT TM-223 PROCEDURE FOR THE DETERMINATION OF 100% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.
12. CLASS "B" TRENCH BACKFILL MATERIAL SHALL COMPLY WITH APWA/ODOT SEC. 00405.14 AND SHALL BE 3/4" CRUSHED ROCK UNDER PAVEMENT OR IN RIGHT-OF-WAY. BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM LIFTS OF 8" AND SHALL BE COMPACTED BY MECHANICAL MEANS TO 95% OF MAXIMUM RELATIVE DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD D PROCEDURE FOR THE DETERMINATION OF 95% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.
13. UNLESS NOTED OTHERWISE, THE SAMPLING AND TESTING OF MATERIALS FOR USE ON THE JOBSITE SHALL SHALL BE AT THE EXPENSE OF THE CONTRACTOR. ALL TESTING OF MATERIALS AND WORKMANSHIP SHALL BE PERFORMED BY A CERTIFIED TESTER. RESULTS OF THE TESTS SHALL BE SENT DIRECTLY TO THE PORT OF BROOKINGS HARBOR AS WELL AS THE CONTRACTOR, BY THE LABORATORY. LOCATION AND FREQUENCY OF TESTS SHALL BE DESIGNATED BY THE PORT OF BROOKINGS HARBOR AND COORDINATED BY THE CONTRACTOR.
14. CLASS "A" TRENCH BACKFILL MATERIAL SHALL BE APPROVED NATIVE MATERIAL PER ODOT/APWA SPECS. SEC. 00405.14 FOR ALL AREAS OUTSIDE OF TRAFFIC AREAS AND THE RIGHT-OF-WAY. BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM LIFTS OF SIX (6) INCHES AND SHALL BE COMPACTED BY MECHANICAL MEANS TO 75% OF MAXIMUM RELATIVE DENSITY AND OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD D PROCEDURE FOR THE DETERMINATION OF 95% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.
15. ASPHALTIC CONCRETE PAVEMENT SHALL BE LEVEL 2, 1/2" DENSE GRADE MIX. MATERIALS AND WORKMANSHIP SHALL BE AS SPECIFIED IN SECTION 00744 OF THE ODOT/APWA SPECS. INSTALLATION SHALL BE IN ACCORDANCE WITH PORT OF BROOKINGS HARBOR STANDARD SPECIFICATIONS, AND TO THE CROSS-SECTION(S), GRADE AND LOCATIONS SHOWN ON THE APPROVED PLANS.
16. CONSTRUCTION STAKING SHALL BE PROVIDED BY THE CONTRACTOR'S SURVEYOR, FOR EACH PHASE OF CONSTRUCTION. STAKES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION AND SHALL BE CONTINUOUSLY MAINTAINED BY THE CONTRACTOR UNTIL EACH PHASE OF CONSTRUCTION HAS BEEN COMPLETED AND INSPECTED. THE CONTRACTOR'S SURVEYOR SHALL PERFORM THE CONTRACTOR RESPONSIBILITIES DESCRIBED IN THE CONSTRUCTION SURVEYING MANUAL FOR CONTRACTORS, CHAPTER 1.8 (SEC. 00305).
17. A COPY OF THE APPROVED PLANS, SPECIFICATIONS AND STANDARD DRAWINGS SHALL BE ON THE JOBSITE AT ALL TIMES WHILE THE WORK IS IN PROGRESS.
18. STREET NAMES, SIGNS, STOP BARS AND STOP SIGNS SHALL BE INSTALLED BY PORT OF BROOKINGS HARBOR. SIGN SLEEVES TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
19. ALL MATERIAL REMAINING AFTER BACKFILLING OPERATIONS HAVE BEEN COMPLETED SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED OF BY THE PORT OF BROOKINGS HARBOR.
20. PRIOR TO FINAL ACCEPTANCE, THE PORT OF BROOKINGS HARBOR SHALL CERTIFY THAT ALL IMPROVEMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
21. IF THE CONTRACTOR WISHES TO USE WATER FROM THE PORT OF BROOKINGS WATER DISTRIBUTION SYSTEM, CONTRACTOR SHALL MAKE USE OF A BULK WATER STATION IF AVAILABLE. AS AN OPTION, THE CONTRACTOR MAY APPLY FOR A HYDRANT METER PERMIT THROUGH THE HARBOR WATER DISTRICT.
22. CONTRACTOR SHALL NOT USE THE PUBLIC RIGHT-OF-WAY FOR LONG TERM STAGING OR MATERIAL STORAGE WITHOUT PRIOR APPROVAL. DURING THE WORK DAY, THE CONTRACTOR MAY USE THE WORK AREA FOR STORAGE OF PROJECT MATERIALS AND EQUIPMENT THAT WILL BE USED DURING THAT DAY; HOWEVER, AT THE END OF THE DAY, THE WORK SITE SHALL BE CLEANED UP TO THE SATISFACTION OF THE ENGINEER. DISPOSAL OF MATERIALS IS NOT PERMITTED WITHIN THE PUBLIC RIGHT-OF-WAY.
23. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR DISPOSAL SITES OUTSIDE OF THE RIGHT-OF-WAY, SHALL PAY ANY AND ALL COSTS INVOLVED, AND SHALL FURNISH THE PORT OF BROOKINGS HARBOR WITH ALL REQUIRED PERMITS AND DISPOSAL SITE AGREEMENTS.
24. THE CONTRACTOR SHALL DESIGNATE AN EMERGENCY CONTACT PERSON THAT WILL HANDLE AFTER-HOURS ISSUES RELATED TO THE PROJECT, AND SHALL PROVIDE EMERGENCY CONTACT TELEPHONE NUMBERS TO THE PORT OF BROOKINGS HARBOR.
25. ALL MATERIALS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS OR LISTED IN THE CONTRACT SPECIFICATIONS.
26. ALL GRADES SHOWN ON THE PLANS SHALL BE SUBJECT TO ADJUSTMENT IN THE FIELD BY THE ENGINEER (IN ACCORDANCE WITH THE PROJECT SURVEYOR).
27. THE CONTRACTOR SHALL CONTACT THE PORT OF BROOKINGS HARBOR 24 HOURS IN ADVANCE OF ANY EXCAVATION NEAR THE COUNTY OR PORT FACILITIES. CONTACT THE PORT OF BROOKINGS HARBOR IF ANY UNALLOCATED FACILITIES ARE DISCOVERED DURING CONSTRUCTION..
28. THE CONTRACTOR SHALL NOTIFY CURRY COUNTY 24 HOURS IN ADVANCE OF ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

STORM DRAIN NOTES

1. ALL STORM SEWER PIPE SHALL MEET THE OREGON STATE PLUMBING SPECIALTY CODE.
2. ALL PIPE SHALL PLACED ON STABLE EARTH, OR IF IN THE OPINION OF THE PROJECT ENGINEER, THE EXISTING FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED WITH A GRAVEL MATERIAL TO SUPPORT THE PIPE.
3. THE BACKFILL SHALL BE PLACED EQUALLY ON BOTH SIDES OF THE PIPE IN LAYERS WITH A LOOSE AVERAGE DEPTH OF 6", MAXIMUM DEPTH 8'-9" THOROUGHLY TAMPING EACH LAYER. THESE COMPACTED LAYERS MUST EXTEND FOR ONE DIAMETER ON EACH SIDE OF THE PIPE OR TO THE OTHER SIDE OF THE TRENCH. MATERIALS TO COMPLETE THE FILL OVER THE PIPE SHALL BE THE SAME AS DESCRIBED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL DROP INLET AND CATCH BASIN FRAMES / GRATES TO GRADE PRIOR TO PAVING.
3. UNLESS OTHERWISE NOTED, ALL STORM SEWER PIPE SHALL BE CORRUGATED POLYETHYLENE PIPE. THE MATERIAL SUPPLIED UNDER THIS SPECIFICATION SHALL BE HIGH DENSITY CORRUGATED POLYETHYLENE SMOOTH INTERIOR PIPE AND SHALL BE MANUFACTURED IN CONFORMITY WITH THE LATEST AASHTO SPECIFICATIONS. COUPLERS SHALL COVER NOT LESS THAN ONE FULL CORRUGATION ON EACH ANNULAR SECTION OF PIPE.
6. PIPE ENDS AT OUTFALLS SHALL BE BEVELED TO MATCH SIDE SLOPES. FIELD CUT OF PIPE ENDS IS PERMITTED WHEN APPROVED BY THE COUNTY/PORT ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PIPE OUTFALLS SHALL BE RIPRAPPED WITH A PAD MINIMUM OF 12" THICK, EXTENDING MINIMUM OF 6' FROM DISCHARGE POINT.
7. ALL STEEL PARTS OF ANY STORM DRAINAGE SYSTEM SHALL BE GALVANIZED OR HAVE A TREATMENT 1 ASPHALT COATING OR BETTER AS SPECIFIED IN THE ODOT STANDARD SPECIFICATIONS. ALUMINUM AND CONCRETE PIPES AND STRUCTURES DO NOT REQUIRE A TREATMENT 1 COATING.
8. STORM DRAINAGE PIPE AND DROP INLETS SHALL BE FLUSHED AND CLEANED PRIOR TO ENGINEER/JURISDICTIONAL ACCEPTANCE.
9. ALL PIPES SHALL MINIMUM OF 12" COVER AT THE TOP OF THE BELL, OR PIPES SHALL HAVE MINIMUM COVER PER THE MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS GREATER.
10. 100-FT MAX LINEAR RUN BETWEEN CLEANOUTS. 135' MAX AGGREGATE HORIZONTAL CHANGE IN DIRECTION WITHOUT CLEANOUT.
11. STORM DRAIN PIPE SHALL BE HDPE , TYPICAL.

INSPECTION TESTING & FREQUENCY TABLE
SEE NOTE 1

STREETS, PARKING LOTS, FILLS, TRENCHES, ETC.			
MATERIAL	FREQUENCY	MIN. NUMBER OF TESTS	NOTES
SUB-GRADE	1 TEST PER 4,000 SF PER LIFT	4	2, 3, & 5
ENGINEERED FILL	1 TEST PER 4,000 SF PER LIFT	4	2 & 4
BASEROCK	1 TEST PER 4,000 SF PER LIFT	4	2, 3, & 5
ASPHALT	1 TEST PER 8,000 SF PER LIFT	4	2 & 5
TRENCH BACKFILL	1 TEST PER 200 LIN. FT. PER LIFT	4	2
TRENCH ASPHALT PATCHING	1 TEST PER 300 LIN. FT. PER LIFT	4	2
CONCRETE			
SLUMP, AIR AND CYLINDERS FOR ALL SITE CONCRETE AND PCC PAVEMENT, UNLESS OTHERWISE SPECIFIED. ONE SET OF CYLINDERS PER 100 CUSIC YARDS OR PORTION THEREOF OF CONCRETE POURED PER DAY. SLUMP AND AIR TESTS ARE REQUIRED ON SAME LOAD AS CYLINDERS.			2 & 5
BUILDING PERMIT INSPECTION AND SPECIAL INSPECTIONS FOR STRUCTURAL CONCRETE, MASONRY, EPOXY ANCHORS, ETC., AS REQUIRED BY PROJECT STRUCTURAL ENGINEER AND CURRENT BUILDING CODES.			2 & 5
ENGINEER TO INSPECT FORMS PRIOR TO PLACEMENT OF CONCRETE.			5
UNDERGROUND VAULTS, MANHOLES & STORMWATER DETENTION SYSTEMS			
PROVIDE ENGINEER WITH AS-BUILT SURVEY PRIOR TO BACKFILL. INSPECTIONS BY ENGINEER REQUIRED PRIOR TO BACKFILL.			5

INSPECTION AND TESTING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL TESTING, INSPECTIONS, AND SPECIAL INSPECTIONS, AND SPECIAL INSPECTIONS AS REQUIRED BY PROJECT ENGINEER, CURRENT BUILDING CODES, OR JURISDICTIONS HAVING AUTHORITY. ALL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO SUBSEQUENT WORK. ADDITIONAL OR FREQUENT TESTS MAY BE REQUIRED BY AGENCY, BUILDING OFFICIAL OR ENGINEER.
2. TESTING MUST BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY RETAINED BY THE CONTRACTOR.
3. IN ADDITION TO IN-PLACE DENSITY TESTING, THE SUB-GRADE AND BASE ROCK SHALL BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR HEAVY NON-VIBRATORY ROLLER. SOILS SHALL BE REMOVED AND RE-COMPACTED OR REPLACED WITH APPROVED IMPORTED STRUCTURAL FILL IF THEY DO NOT DEMONSTRATE A FIRM, UNYIELDING CONDITION. BASE ROCK PROOF-ROLL SHALL TAKE PLACE LESS THAN 24 HOURS PRIOR TO PAVING AND SHALL BE WITNESSED BY THE ENGINEER OR GOVERNING AGENCY.
4. THE APPROVED INDEPENDENT LABORATORY SHALL PROVIDE CLARIFICATION STAMPED BY AN ENGINEER LICENSED IN THE STATE OF OREGON THAT THE SUB-GRADE IS PREPARED AND ALL ENGINEERED FILLS ARE PLACED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND DOCUMENTS.
5. PROVIDE ENGINEER WITH SPOT ELEVATION VERIFICATION FOR SUB-GRADE AND TOP OF AGGREGATE PRIOR TO PLACING CONCRETE, ASPHALT, AND/OR OTHER STRUCTURES(WHEN INCLUDED IN THE PROJECT).

CONCRETE STANDARDS

1. EXCEPT AS OTHERWISE NOTED OR DEFINED BY COUNTY AND/OR PROJECT ENGINEER APPROVAL, ALL CONCRETE SHALL CONFORM TO SECTIONS 00440 AND 00759 OF THE CURRENT OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL.
2. CONCRETE SHALL NOT BE PLACED UNTIL FORMS HAVE BEEN INSPECTED.
3. INSPECTION REQUESTS MUST BE MADE 24 HOURS PRIOR TO DATE OF INSPECTION. TO SCHEDULE AN INSPECTION, CALL PORT OF BROOKINGS HARBOR, PHONE 541-469-2218.
4. CONCRETE SHALL BE COMMERCIAL GRADE RETAINING THE FOLLOWING CHARACTERISTICS:
   ENTRAINED AIR - 4.0% TO 7.0%
   SLUMP - 5 INCHES OR LESS
   COMPRESSIVE STRENGTH - MINIMUM 3,000 PSI AT 28 DAYS
   TEMPERATURE - MINIMUM 50° f TO MAXIMUM 90° f.
5. ALL CONCRETE SHALL BE FORMED ON A MINIMUM 95% RD COMPACTED BASE OF ¾"-0" CRUSHED AGGREGATE. DEPTH OF BASE VARIES WITH STRUCTURE. MINIMUM 4" COMPACTED BASE FOR SIDEWALKS, RAMPS, AND APPROACHES. MINIMUM 8" BASE FOR CURB. GUTTER, VALLEY GUTTERS AND INLETS.
6. SAFETY YELLOW TRUNCATED DOME DETECTABLE WARNING SURFACES ARE REQUIRED ON ALL SIDEWALK RAMPS AND ACCESSIBLE ROUTE ISLANDS.
7. CONCRETE EXTRUDING MACHINES SHALL OPERATE UNDER SUFFICIENT RESTRAINT TO FORWARD MOTION TO PRODUCE A WELL-CONSOLIDATED MASS OD CONCRETE.
8. ALL CONCRETE STRUCTURES REINFORCED WITH REINFORCING BARS SHALL BE VIBRATED TO REMOVE VOIDS AS APPLICABLE.
9. SURFACE SHALL HAVE A FINISHED TEXTURE THAT WILL NOT BE SLICK WHEN WET (MEDIUM BROOM FINISH). CURING COMPOUND MAY BE APPLIED IMMEDIATELY AFTER CONCRETE IS FINISHED. WHITE PIGMENT RECOMMENDED, CLEAR ACCEPTABLE.
10. AN EDGING TOOL SHALL BE USED ON ALL EDGES AND JOINTS.
11. PROVIDE CONTRACTION JOINTS AT 15' INTERVALS AND "FALSE" TOOLED JOINTS AT 5' INTERVALS ON CURBS, SIDEWALKS AND APPROACHES. CONTRACTION JOINT GROOVES SHALL BE AT MINIMUM, 1-1/2" DEEP OR ONE-THIRD THE THICKNESS OF CONCRETE.
12. PROVIDE EXPANSION JOINTS OPPOSITE ABUTTING EXPANSION JOINTS IN ABUTTING CONCRETE, AT EACH POINT OF TANGENCY IN THE STRUCTURE ALIGNMENT, BETWEEN DRIVEWAYS AND CONCRETE PAVEMENT, AROUND POLES, POSTS, BOXES, AND OTHER FIXTURES WHICH PROTRUDE THROUGH OR AGAINST THE STRUCTURES, AT ALL BCR'S AND ECR'S, AT MAXIMUM OF 100' INTERVALS. EXPANSION JOINT MATERIAL SHALL BE OF THE BITUMINOUS, PREFORMED FILLER TYPE NOT LESS THAN ½" WIDE, PLACED FLUSH OR NO MORE THAN ½" BELOW THE CONCRETE SURFACE..
13. STRAIGHT LINE EDGES SHALL NOT VARY MORE THAN ¼" UNDER A 12 FT. STRAIGHT EDGE.
14. CURE AND PROTECT CONCRETE AFTER PLACING AND FINISHING. KEEP STRUCTURES FREE FROM CONTACT, STRAIN AND PUBLIC TRAFFIC FOR AT LEAST SEVEN DAYS OR LONGER AS DIRECTED, MIXES TO EXPEDITE CURING MAY BE USED WITH APPROVAL OF COUNTY ENGINEER.

ABBREVIATIONS & SYMBOLS

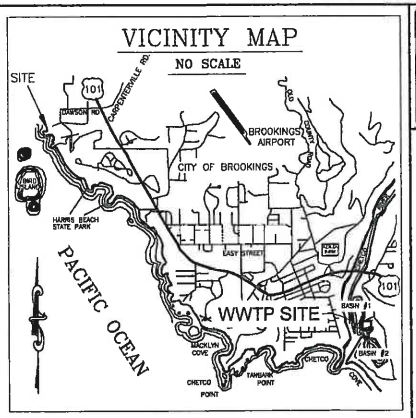
A.C.	ASPHALTIC CONCRETE	MB	MAILBOX
ARV	AIR RELEASE VALVE	MIN	MINIMUM
B.C.	BACK OF CURB	M.H.	MANHOLE
B.F.V.	BUTTERFLY VALVE	MJ	MECHANICAL JOINT
BF	BLIND FACE	OG	ORIGINAL GRADE
BO	BLOW OFF	℄	PROPERTY LINE
CB	CATCH BASIN	PP	POWER POLE
CL	CLASS	PUE	PUBLIC UTILITY EASEMENT
C.I.	CURB INLET	RT.	RIGHT
℄	CENTER LINE	R/W	RIGHT-OF-WAY
CONC	CONCRETE	SS	SANITARY SEWER
D/W	DRIVEWAY	SSL	SANITARY SEWER LATERAL
D.I.	DUCTILE IRON	STA	STATION
EL.	ELEVATION	S/W	SIDEWALK
EP	EDGE OF PAVEMENT	STD	STANDARD
EX	EXISTING	SD	STORM DRAIN
FG	FINISH GRADE	TEL.	TELEPHONE
FH	FIRE HYDRANT	TC	TOP OF CURB
G.V.	GATE VALVE	TP	TELEPHONE POLE
INV	INVERT	TYP	TYPICAL
LS	LANDSCAPING	UNO	UNLESS NOTED OTHERWISE
LT.	LEFT	WM	WATER METER
MAX	MAXIMUM	WV	WATER VALVE
		W	WATER

	AGENCY	APPROVED BY	DATE
POWER	COOS-CURRY ELECTRIC		
DOMESTIC WATER	HARBOR WATER DISTRICT		
SANITARY SEWER	HARBOR SANITARY		
STORM DRAINAGE	CURRY COUNTY		
STREETS	CURRY COUNTY		
ENGINEERING	PORT OF BROOKINGS HARBOR		

CONSTRUCTION AUTHORIZED TO PROCEED IN ACCORDANCE WITH APPROVED PLANS WHEN ALL PERMITS HAVE BEEN ISSUED AND PRE-CONSTRUCTION MEETING HAS CONCLUDED.

BY _____ TITLE _____ DATE _____

VICINITY MAP
NO SCALE



LEGEND

	EXISTING	PROPOSED
WATER LINE	W W W	W W W
SANITARY SEWER LINE	SS SS	SS SS SS
STORM SEWER LINE	SD SD	SD SD SD
GAS LINE	GAS GAS	
OVERHEAD UTILITIES	OU OU	OU OU OU
POWER LINE (UG)	UE UE	UE UE UE
COMMUNICATION LINE	T	T
FENCE	X	X
CENTERLINE		
PROPERTY LINE		
EASEMENT BOUNDARY		
SWALE / WATERWAY FLOW		
SEDIMENT FENCE		
TOP & TOE OF SLOPES (CUT OR FILL)		

PRELIMINARY NOT FOR CONSTRUCTION

SURVEYOR
ROBERTS & ASSOCIATES LAND SURVEYING, INC.
611 SPRUCE STREET
BROOKINGS, OR 97415
(541) 469-0162
CONTACT: RICH ROBERTS

PROJECT ENGINEER
EMC ENGINEERS / SCIENTISTS
450 CONESTOGA DRIVE
JACKSONVILLE, OR 97530
(541) 261-9929
CONTACT: JACK AXIN, P.E.

HORIZONTAL DATUM
OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010. INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001. BENCH MARK UTILIZED FOR THIS SURVEY US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.53 FEET

GEOTECHNICAL NOTE
THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE PROJECT ENGINEER FOR REQUIRED REMEDIATION. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER FOR REQUIRED SITE OBSERVATIONS AND TESTING OF ALL FILLS.

PROJECT LOCATION
PORT OF BROOKINGS - HARBOR MARINA IN HARBOR, CURRY COUNTY, OREGON
LATITUDE / LONGITUDE : 42.048427° , -124.288168°
MAP: 41S13W05D - TL 3200, 2100

DATE	SET	DESCRIPTION	REVIEW & APPROVED BY ENGINEER
		PRELIMINARY - REVIEW 70% SUBMITTAL	X
10/11/2023	X	PRELIMINARY - REV. REVIEW 90% SUBMITTAL	X
		CONSTRUCTION DOCUMENTS SUBMITTAL SET	
		CONSTRUCTION DOCUMENTS SUBMITTAL SET	
		RECORD DRAWINGS	

SHEET INDEX

C1.0 COVER SHEET - GENERAL NOTES
C2.0 EXISTING CONDITIONS
C2.02 SD LINE "A" PLAN & PROFILE
C2.03 SD LINE "B" PLAN & PROFILE
C2.1 PROPOSED SITE PLAN
C2.2 PROPOSED FACILITIES PLAN
C2.3 PROPOSED WWTP DETAILS
C2.9 DOCK DEMOLITION PLAN
C3.0 DOCK REPAIR PLAN
C3.1 DOCK REPAIR DETAILS

DRAWING SCALE NOTE
SCALES ARE AS SHOWN WHEN PRINTED AT 22"X34" SIZE.
WHEN PRINTED AT 11"X17", SCALES ARE REDUCED BY 50% - TYP

CALL BEFORE YOU DIG!

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EMC - Engineers/Scientists, LLC
Grants Pass • Jacksonville • Medford, OR

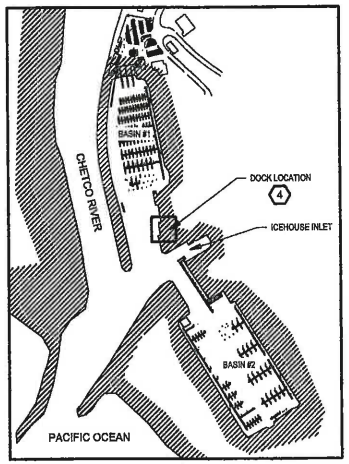
PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No: **C1.0**
COVER SHEET

C:\OBS\EMC Projects\023-2302 Port of Brookings WWTP\Port of Brookings WWTP.dwg, 10/11/2023 4:26:11 PM

EXISTING CONDITIONS NOTES

1. ICE HOUSE DOCK
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT. (CURRENTLY CONDEMNED). SEE SHEETS C2.9, C3.0 & C3.1
5. BC FISHERIES BUILDING
6. COLD STORAGE BUILDING
7. EXISTING 40 " DP. CONCRETE BOX CULVERT W/ STEEL PLATE COVERS CONTAINING UTILITY LINES FROM ICE HOUSE BUILDING TO COLD STORAGE BUILDING
8. APPROX. EDGE OF AC PAVING
9. APPROX. EDGE OF CONCRETE SLAB
10. COMPACTED GRAVEL SURFACE
11. COLD STORAGE LOADING DOCK RAMP
12. LOADING DOCK RAMP CONCRETE WALLS
13. POWER / LIGHT POLE
14. ATON TOWER PAD
15. SEA WALL
16. STEEL BOLLARDS
17. CONCRETE PAD
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)



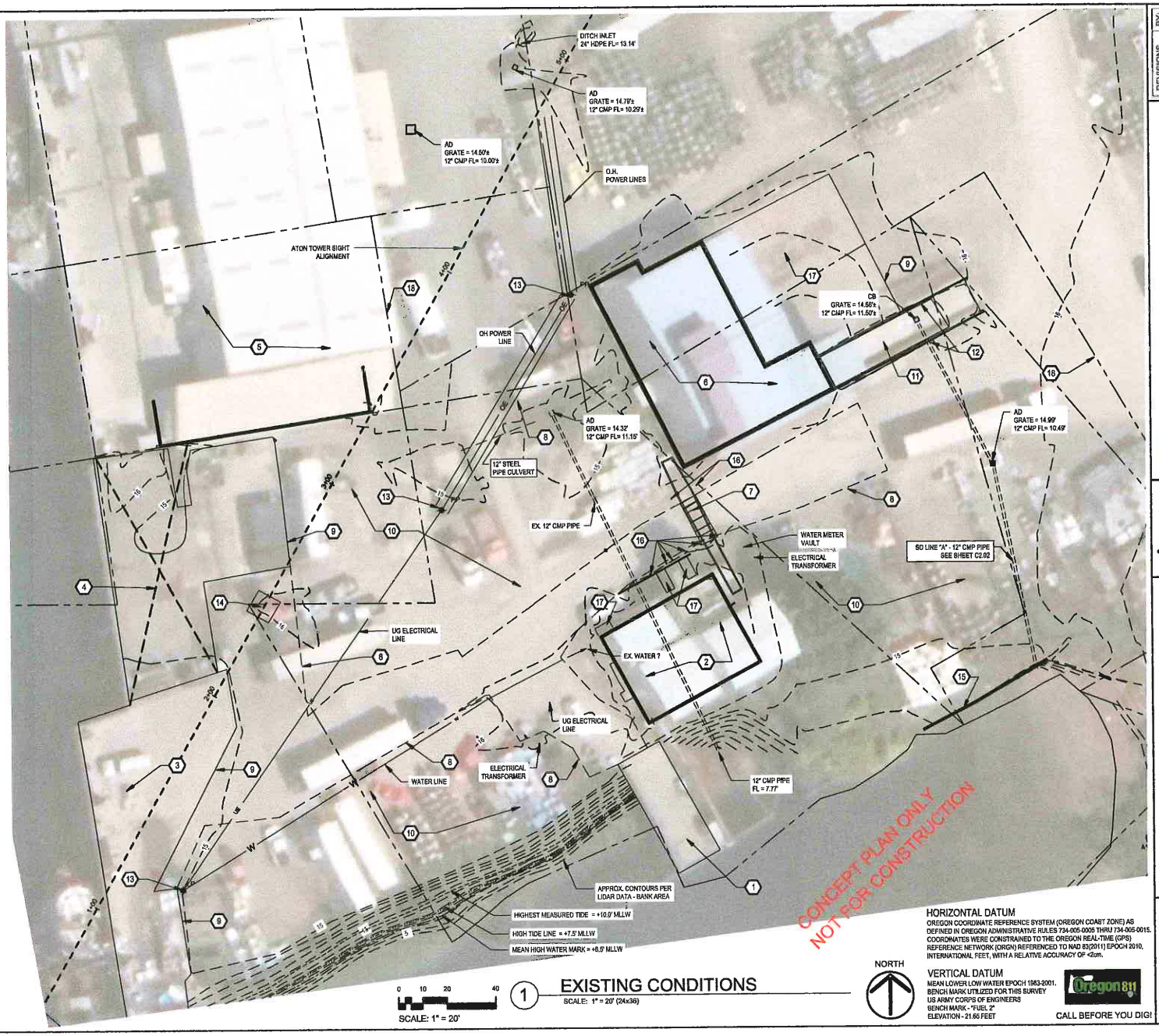
DOCK LOCATION PLAN

PORT OF BROOKINGS SCALE: NONE

NORTH

NOTE:
EVERY EFFORT HAS BEEN MADE TO VERIFY ALL EXISTING SITE ELEMENTS AND CONDITIONS PER THE EXISTING SITE SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS, UTILITIES(ABOVE GROUND AND UNDERGROUND), ELEVATIONS AND MEASUREMENTS. IF DISCREPANCIES AND/OR (INCLUDING BUT NOT LIMITED TO) UNKNOWN UTILITIES, ELECTRICAL, COMMUNICATION LINES, ARE DISCOVERED, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR RESOLUTION AND THE PORT OF BROOKINGS - HARBOR WILL BE RESPONSIBLE FOR CORRECTIONS AND/OR RELOCATION OF SUCH ELEMENTS AS REQUIRED.

NOTE:
ALL EXISTING UG UTILITIES TO BE PROTECTED DURING CONSTRUCTION



0 10 20 40
SCALE: 1" = 20'

1 EXISTING CONDITIONS
SCALE: 1" = 20' (24x36)

NORTH

HORIZONTAL DATUM

OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010. INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

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BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET

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PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No: **C2.0**
EXISTING CONDITIONS

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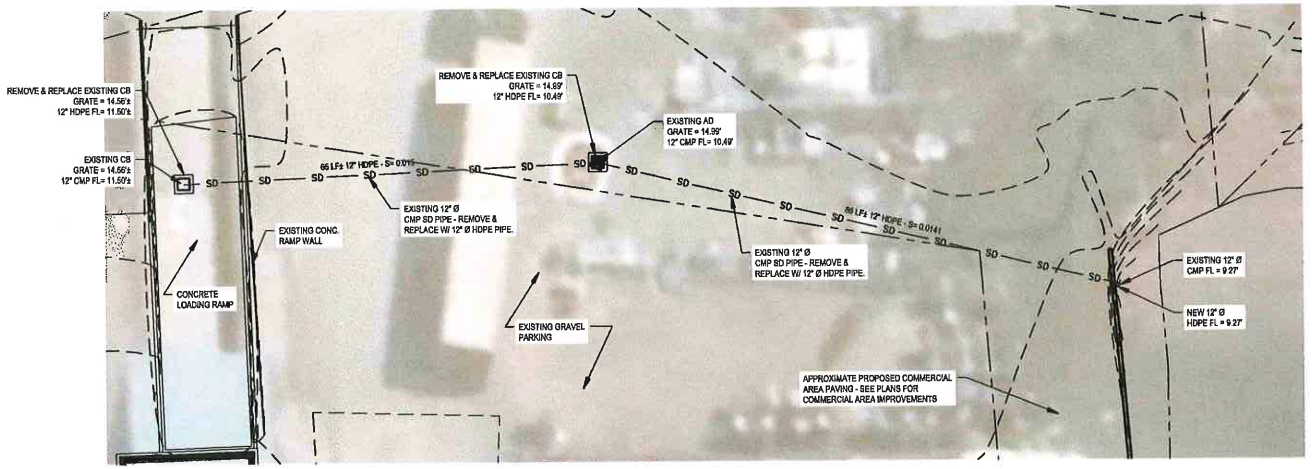
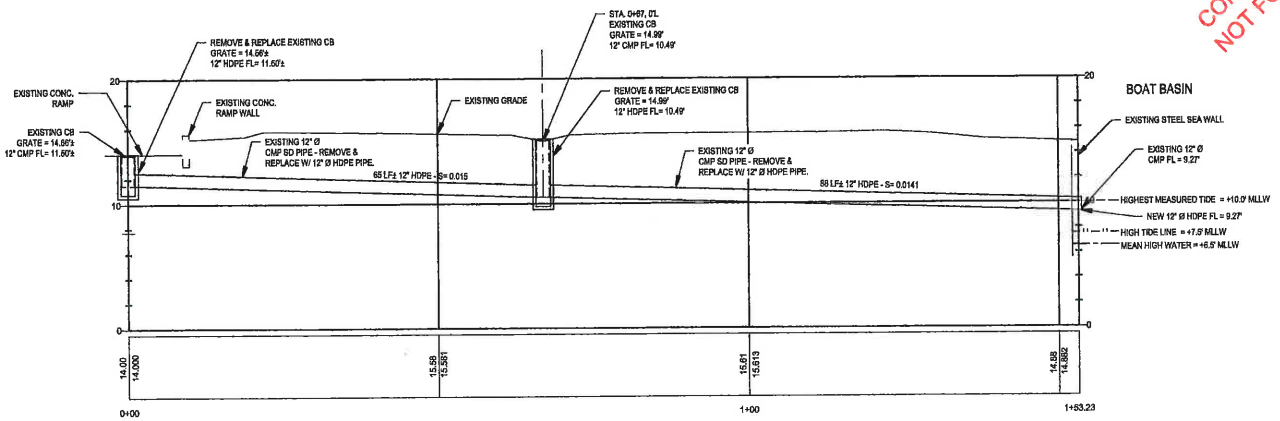


1 PLAN - EXISTING 12" SD LINE A

SCALE: 1" = 10' (24x36)

NORTH



2 PROFILE - EXISTING 12" SD LINE A

SCALE: H - 1" = 10'
V - 1" = 5'

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
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NOTE:
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PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	10 OCT 2023
JOB No:	023-2302
SHEET No:	C2.02
	SD LINE PLAN & PROFILE

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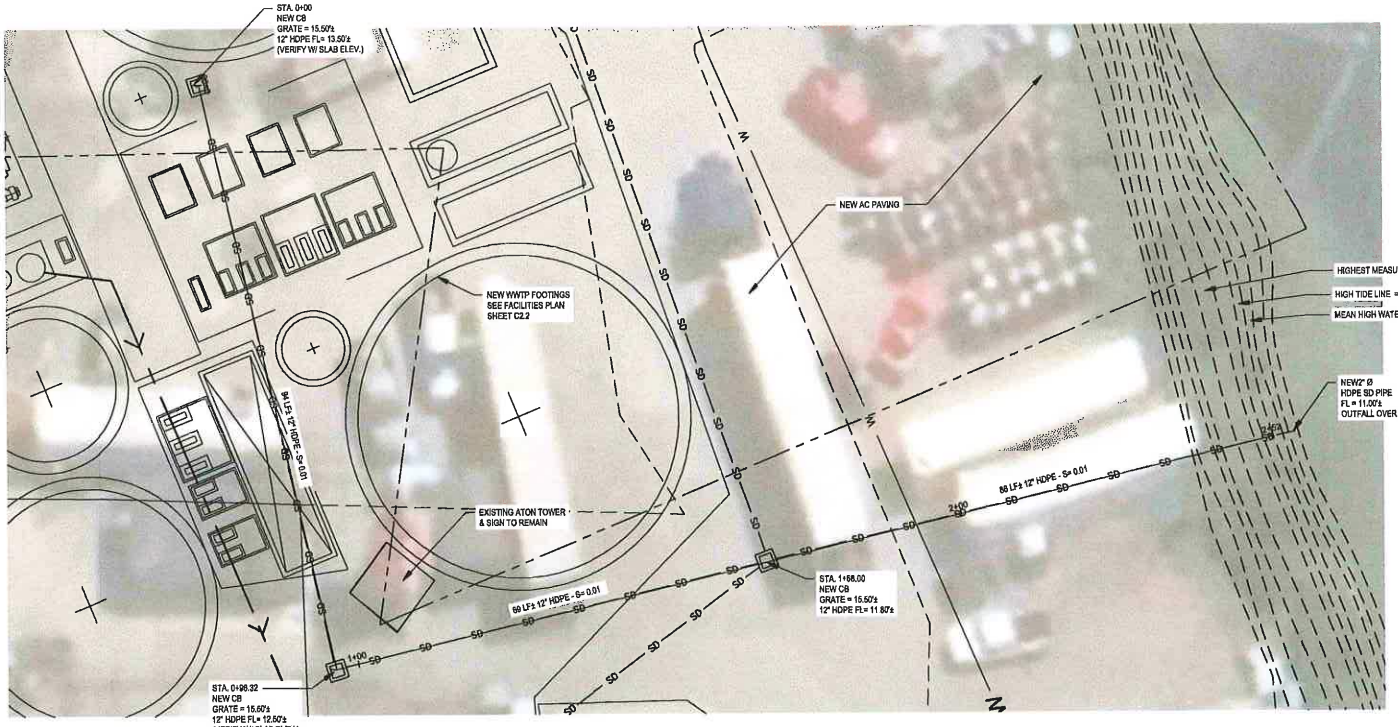
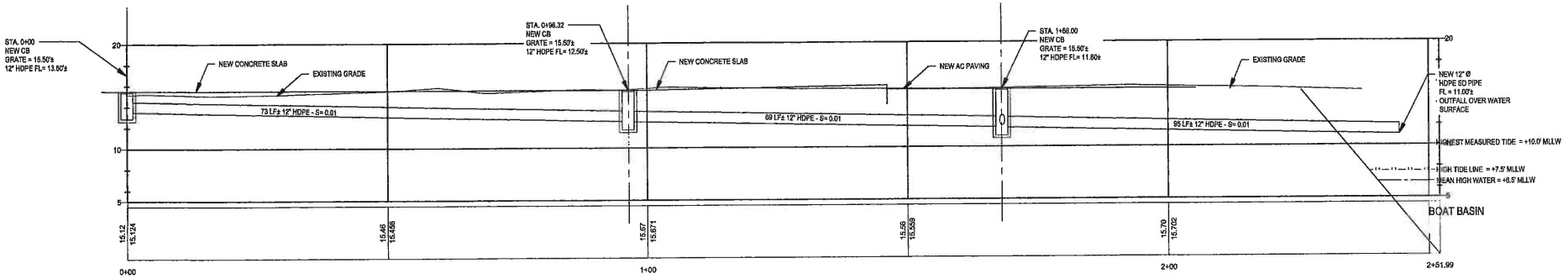


1 PLAN - PROPOSED 12" SD LINE B
SCALE: 1" = 10' (24x36)

NORTH



2 PROFILE - PROFILE - PROPOSED 12" SD LINE B
SCALE: H - 1" = 10'
V - 1" = 5'

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET

NOTE:
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PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No:
C2.03
SD LINE
PLAN & PROFILE

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PROPOSED SITE PLAN NOTES

1. ICE HOUSE DOCK
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT. (CURRENTLY CONDEMNED). SEE REPAIR DRAWINGS, SHEETS C2.9, C3.0 & C3.1
5. BC FISHERIES BUILDING
6. COLD STORAGE BUILDING
7. EXISTING 40' DP. CONCRETE BOX CULVERT W/ STEEL PLATE COVERS CONTAINING UTILITY LINES FROM ICE HOUSE BUILDING TO COLD STORAGE BUILDING
8. APPROX. EDGE OF AC PAVING = REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB REMOVE AS REQUIRED
10. COMPACTED GRAVEL SURFACE
11. COLD STORAGE LOADING DOCK RAMP
12. LOADING DOCK RAMP CONCRETE WALLS
13. POWER / LIGHT POLE TO BE RELOCATED
14. ATON TOWER PAD TO REMAIN
15. SEA WALL
16. STEEL BOLLARDS - RELOCATE AS REQUIRED
17. CONCRETE PAD
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)
19. WASTE WATER TREATMENT PLANT - SEE FACILITIES PLAN C2.2 & C2.3 FOR DETAILS
20. REMOVE EXISTING AC PAVING - INSTALL NEW AC PAVING OVER 4" CRUSHED ROCK BASE - TYP.
21. EXISTING CMP SD PIPE TO BE ABANDONED IN-PLACE
22. REMOVE EXISTING SD PIPE
23. REMOVE EXISTING AD
24. RELOCATE EXISTING SD AS REQUIRED
25. NEW CB W/ OIL SEPARATOR
26. NEW 12"Ø HDPE SD PIPE
27. NEW 6"Ø PVC 3034 SD PIPE FROM TRENCH DRAIN
28. 6" PIPE FROM DOSING TO OUTFALL
29. EXISTING 6" SD OUTFALL - 6X4X4 TEE VERTICAL OUTFALL AFFIXED TO BULKHEAD AND EXTENDING 20LF WESTWARD TO DISCHARGE.
30. 6" PIPE FROM ADJACENT FACILITY TO THE EQUALIZATION TANK
31. STATIONARY BARGE W/ MOBILE CRANE
32. DEBRIS REMOVAL & MATERIAL STAGING AREA

NOTE:
EVERY EFFORT HAS BEEN MADE TO VERIFY ALL EXISTING SITE ELEMENTS AND CONDITIONS PER THE EXISTING SITE SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS, UTILITIES(ABOVE GROUND AND UNDERGROUND), ELEVATIONS AND MEASUREMENTS. IF DISCREPANCIES AND/OR ((INCLUDING BUT NOT LIMITED TO) UNKNOWN UTILITIES, ELECTRICAL, COMMUNICATION LINES, ARE DISCOVERED, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR RESOLUTION AND THE PORT OF BROOKINGS - HARBOR WILL BE RESPONSIBLE FOR CORRECTIONS AND/OR RELOCATION OF SUCH ELEMENTS AS REQUIRED.

NOTE:
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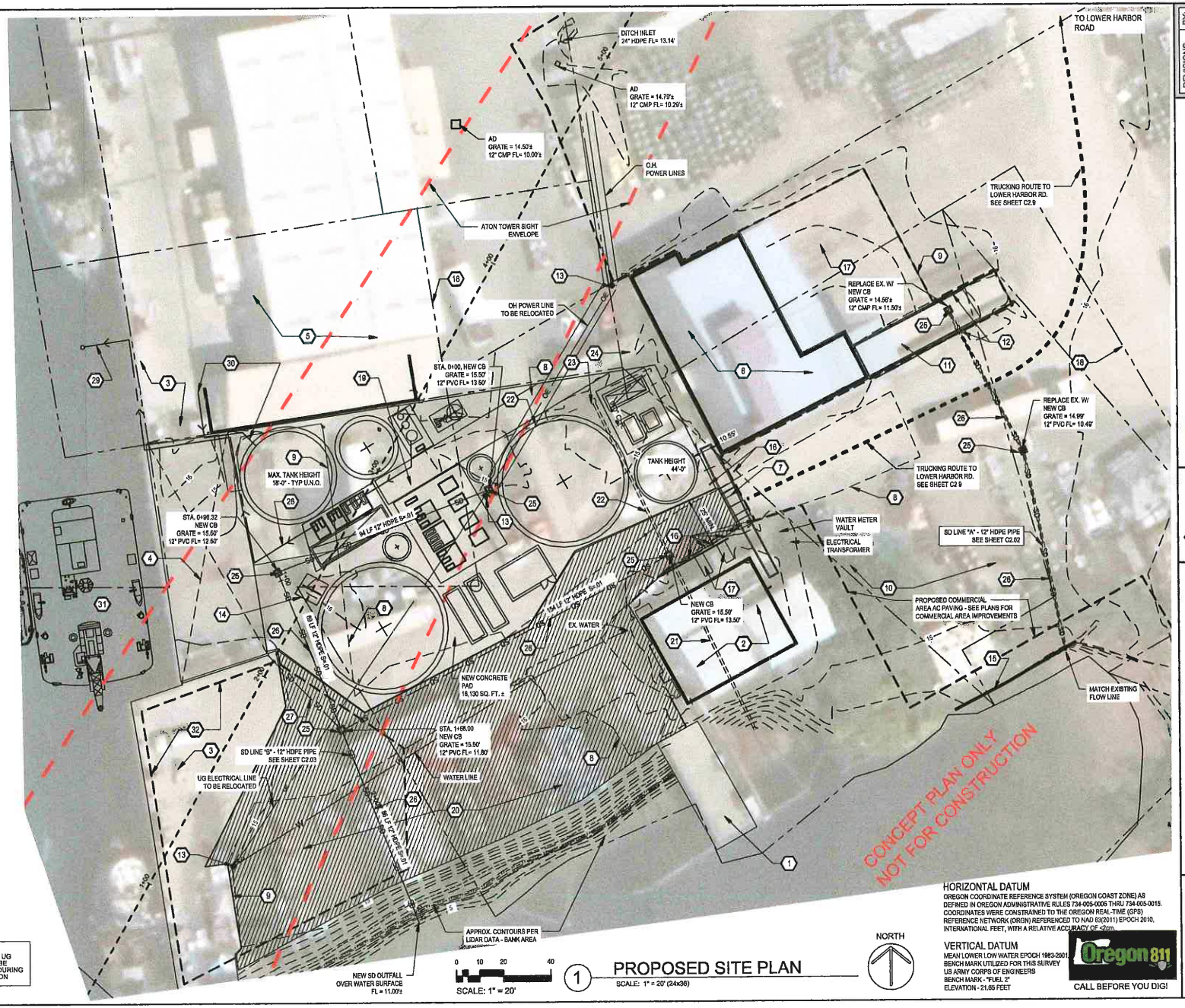

1 PROPOSED SITE PLAN
SCALE: 1" = 20' (24x36)

HORIZONTAL DATUM
OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No: C2.1
PROPOSED SITE PLAN

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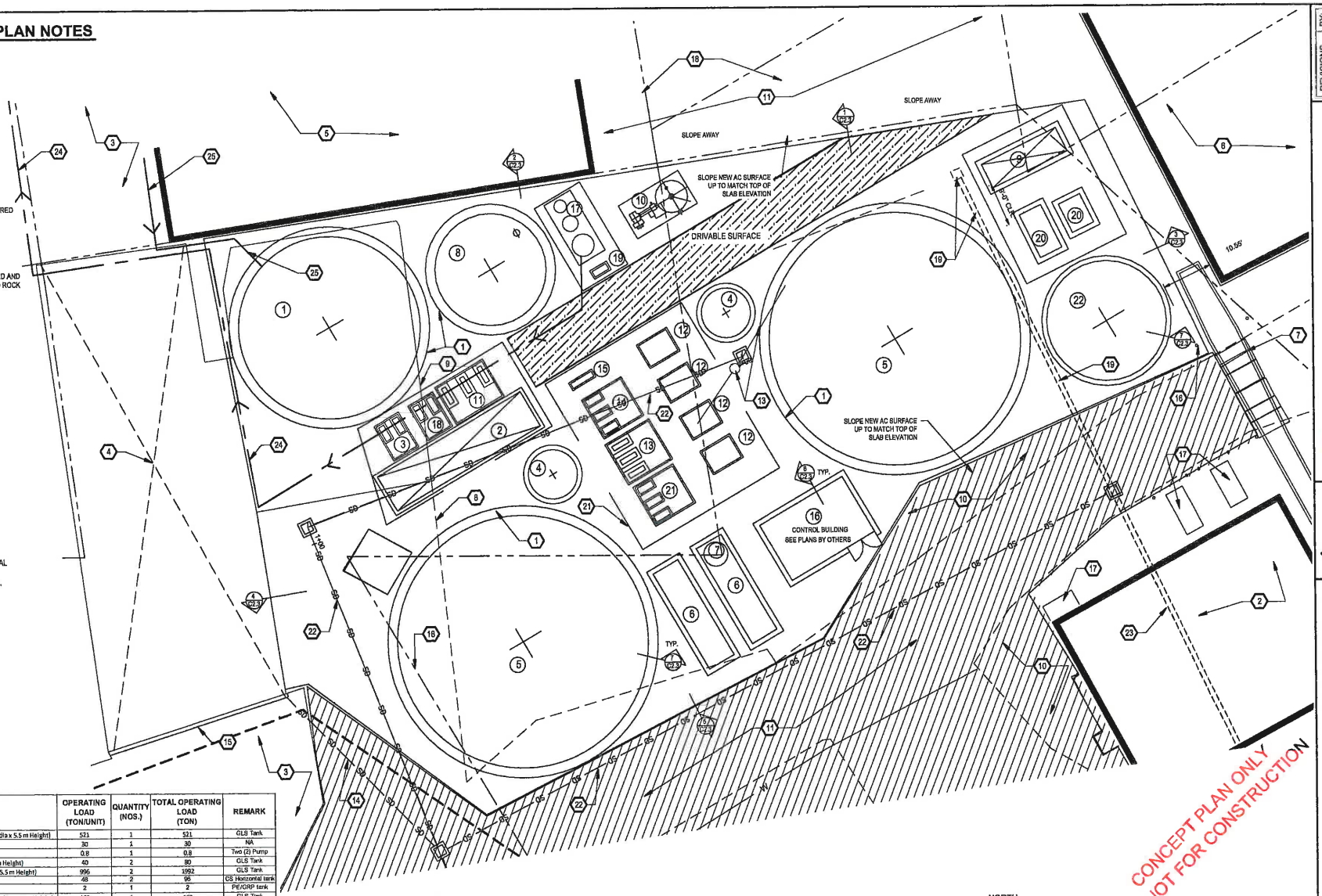
PROPOSED FACILITIES PLAN NOTES

1. TANK FOOTINGS - SEE DETAIL 7, SHEET C2.3
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT.(CURRENTLY CONDEMNED). SEE SHEETS C2.9, C3.0 & C3.1
5. BC FISHERIES BUILDING
6. COLD STORAGE BUILDING
7. EXISTING 40" DP. CONCRETE BOX CULVERT W/ STEEL PLATE COVERS CONTAINING UTILITY LINES FROM ICE HOUSE BUILDING TO COLD STORAGE BUILDING
8. APPROX. EDGE OF AC PAVING - REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB REMOVE AS REQUIRED
10. EXISTING COMPACTED GRAVEL SURFACE
11. EXISTING AC SURFACE TO BE REMOVED, PREPARED AND RE-SURFACED WITH AC PAVING OVER 4" CRUSHED ROCK
12. 7" THICK CONCRETE SLAB FOR NEW WWTP - SEE SHEET C2.3 FOR DETAILS
13. POWER / LIGHT POLE TO BE RELOCATED
14. PVC TRENCH DRAIN - CONNECT TO SD SYSTEM
15. TRENCH DRAIN FOR NEW DOCK - SEE DRAWINGS UNDER SEPARATE COVER
16. STEEL BOLLARDS - RELOCATE AS REQUIRED
17. CONCRETE PAD TO REMAIN
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)
19. REMOVE EXISTING SD SYSTEM AS SHOWN. SEE SHEET C2.1
20. NOT USED
21. NOT USED
22. NEW SD DRAINAGE SYSTEM - SEE SHEET C2.1
23. EXISTING SD PIPE TO BE ABANDONED IN-PLACE.
24. EXISTING 8" SD OUTFALL - 6X4X4 TEE VERTICAL OUTFALL AFFIXED TO BULKHEAD AND EXTENDING 20LF WESTWARD TO DISCHARGE. SEE SHEET C2.1
25. 6" PIPE FROM ADJACENT FACILITY TO THE EQUALIZATION TANK



S.No	DESCRIPTION	OPERATING LOAD (TON/UNIT)	QUANTITY (NOS.)	TOTAL OPERATING LOAD (TON)	REMARK
1	EQUALIZATION TANK, 505m3, ABOVE GROUND, (11.4 m dia x 5.5 m Height)	521	1	521	GLS Tank
2	DAF UNIT, 90m3/h.	30	1	30	NA
3	DAF FEED PUMP SKID	0.8	1	0.8	Two (2) Pump
4	ANOXIC TANK, 35m3, ABOVE GROUND, (3.1 m dia x 5.5 m Height)	40	2	80	GLS Tank
5	AERATION TANK, 970m3, ABOVE GROUND, (15.8 m dia x 5.5 m Height)	996	2	1992	GLS Tank
6	MBR TANK, 38.6 m3	48	2	96	CS Horizontal tank
7	CIP TANK, 1000 Litres	2	1	2	PE/GRP tank
8	SLUDGE HOLDING TANK, 153m3, ABOVE GROUND, (7.0 m dia x 4.5 m Height)	162	1	162	GLS Tank
9	SLUDGE DEWATERING SYSTEM	6.5	1	6.5	Under Shed
10	ODOR CONTROL SYSTEM (OCS)	3.6	1	3.6	
11	DAF RECIRCULATION PUMP	0.4	1	0.4	Under Shed
12	AIR BLOWER	1.6	4	6.4	Under Shed
13	RAS/WAS PUMPS SKID	0.9	1	0.9	Under Shed
14	MBR PERMEATE PUMPS SKID	0.7	1	0.7	Under Shed
15	UV SYSTEM	0.2	1	0.2	Under Shed
16	CONTROL ROOM (6.0 m L x 4.0 m W x 4.5 m H)	NA	1	NA	
17	DOSING SYSTEM SKID	3	1	3	Under Shed
18	Waste Water Transfer Pump SKID	1.5	1	1.5	Under Shed
19	SLUDGE DEWATERING FEED PUMPS	0.3	1	0.3	Under Shed
20	POLYMER PREPARATION & DOSING SYSTEM	5	1	5	Under Shed
21	Backwash (CIP/FEED) Pump SKID	0.5	1	0.5	Under Shed
22	TREATED WATER TANK, 574m3, ABOVE GROUND, (7.5 m dia x 13.5 m Height)	585	1	585	GLS Tank

NOTE:
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NOTE:
SEE SHEET C2.3 FOR INDIVIDUAL COMPONENT CONCRETE MOUNTING DETAILS

0 5 10 20
SCALE: 1" = 10'

1 PROPOSED FACILITIES PLAN
SCALE: 1" = 10' (24x36)

NOTE:
ALL EXISTING UG UTILITIES TO BE PROTECTED DURING CONSTRUCTION

NORTH

HORIZONTAL DATUM
OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001. BENCH MARK UTILIZED FOR THIS SURVEY US ARMY CORPS OF ENGINEERS BENCH MARK - "FUEL 2" ELEVATION - 21.65 FEET

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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No: C2.2
PROPOSED FACILITIES PLAN

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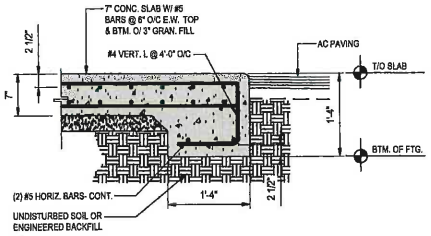
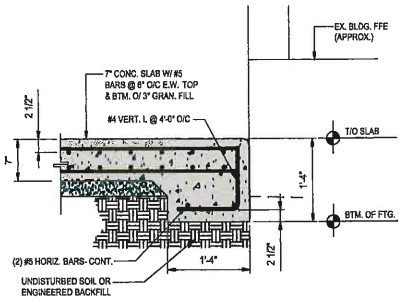
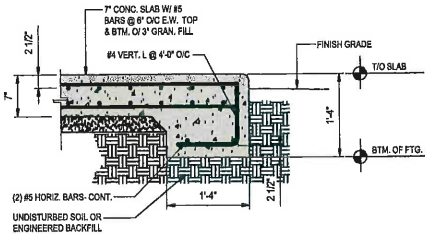


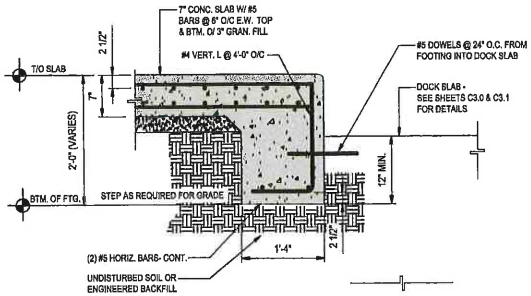
1 SLAB EDGE DETAIL
SCALE: 1" = 1'-0"



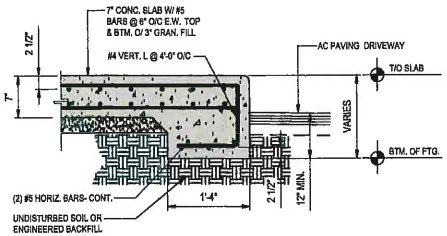
2 SLAB EDGE @ BUILDING
SCALE: 1" = 1'-0"



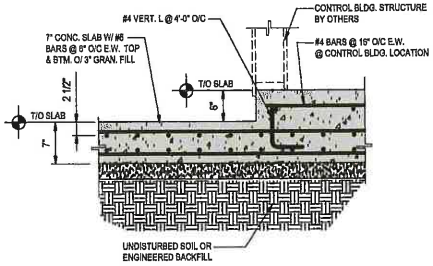
3 SLAB EDGE DETAIL
SCALE: 1" = 1'-0"



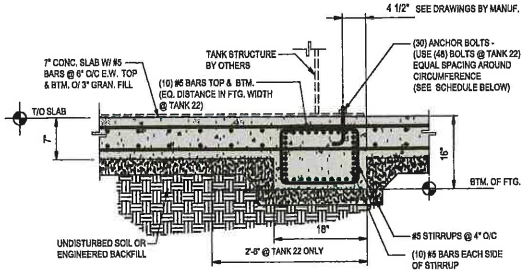
4 SLAB EDGE @ DOCK
SCALE: 1" = 1'-0"



5 SLAB EDGE @ DRIVEWAY
SCALE: 1" = 1'-0"



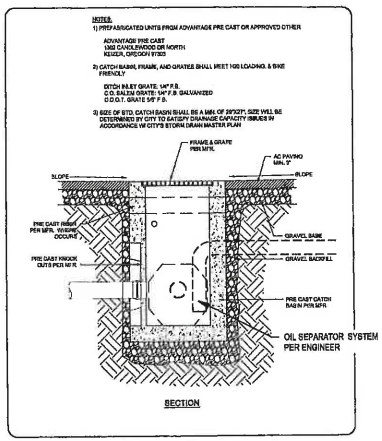
6 SLAB @ CONTROL BLDG.
SCALE: 1" = 1'-0"



7 FOOTINGS @ TANK LOCATIONS
SCALE: 1" = 1'-0"

ANCHOR BOLT SCHEDULE

Bolt Grade	f_b	= 4.6
Bolt Yield Strength	Y_b	= 34.8 ksi
Bolt Ultimate Strength	U_b	= 58 ksi
Bolt Size	d	= 1 in
No. of Anchor Bolts	N_{ab}	= 48
Shear Resistance		= Tankbase Friction
Anchorage Tension Capacity	C_t	= 10 Kips
Anchorage Shear Capacity	C_s	= 10 Kips



CITY OF BROOKINGS - STANDARD DETAIL (MODIFIED)
CATCH BASIN — 4.23
APPROVED BY RESOLUTION 17-R-1152 — DATE: 4/10/17

NOTE:
EVERY EFFORT HAS BEEN MADE TO VERIFY ALL EXISTING SITE ELEMENTS AND CONDITIONS PER THE EXISTING SITE SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS, UTILITIES(ABOVE GROUND AND UNDERGROUND), ELEVATIONS AND MEASUREMENTS. IF DISCREPANCIES AND/OR (INCLUDING BUT NOT LIMITED TO) UNKNOWN UTILITIES, ELECTRICAL, COMMUNICATION LINES, ARE DISCOVERED, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR RESOLUTION AND THE PORT OF BROOKINGS - HARBOR WILL BE RESPONSIBLE FOR CORRECTIONS AND/OR RELOCATION OF SUCH ELEMENTS AS REQUIRED.

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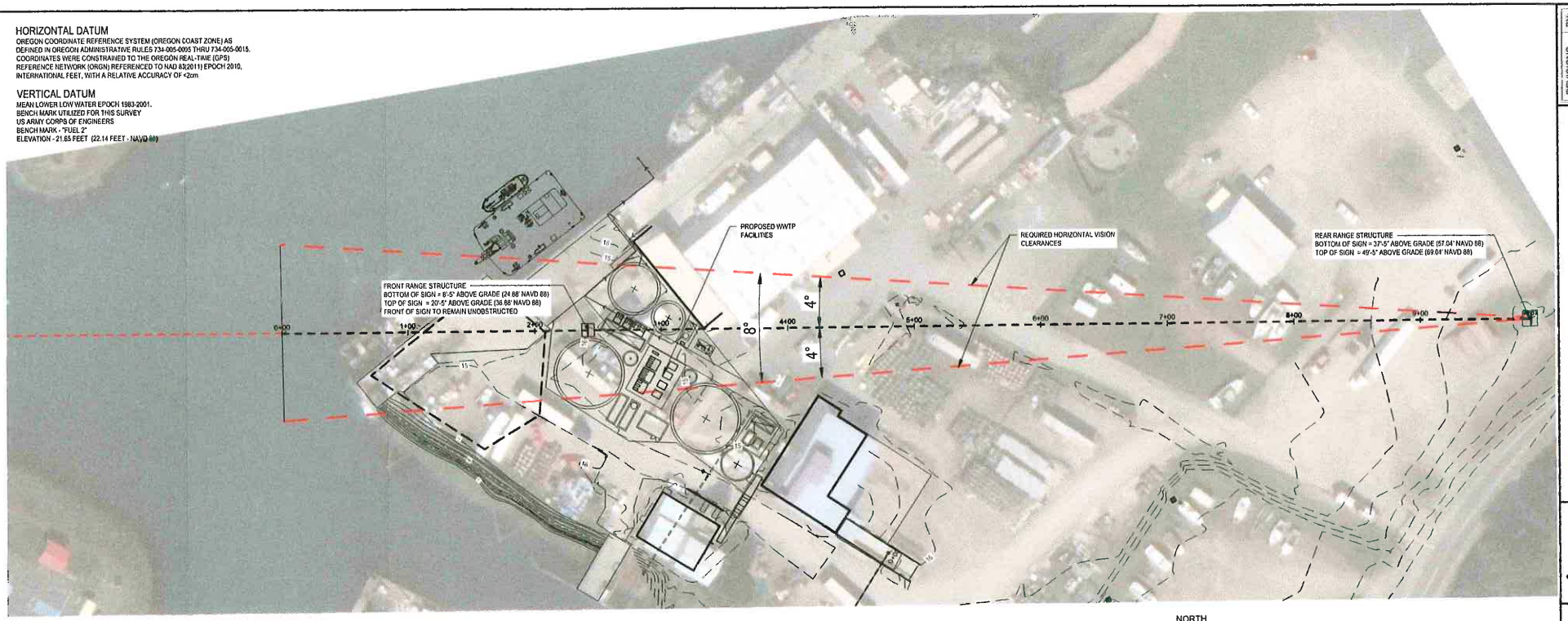
PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 10 OCT 2023
JOB No: 023-2302
SHEET No: C2.3
PROPOSED WWTP DETAILS

HORIZONTAL DATUM
OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0095 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET (22.14 FEET - NAVD 88)

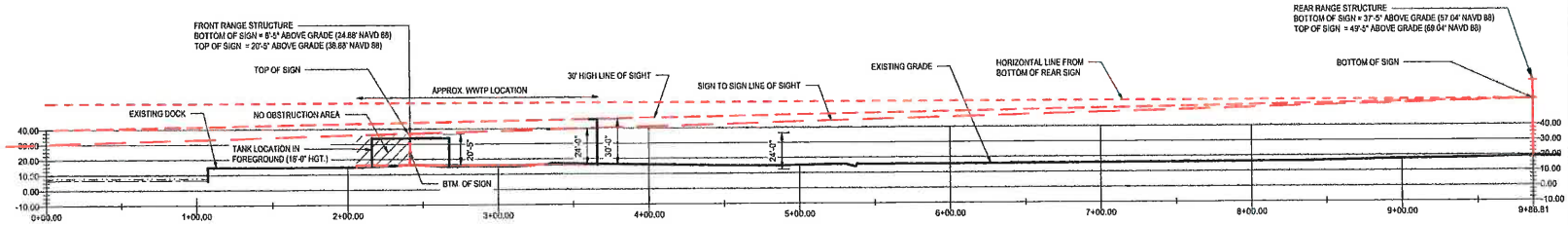


SCALE: 1" = 40'

1 ATON VISION CLEARANCE PLAN

SCALE: 1" = 40' (24x36)

NORTH



SCALE: 1" = 40'

2 VERTICAL VISION CLEARANCE PROFILE

SCALE: 1" = 40' (24x36)

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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
ATON VISION CLEARANCE PLAN

DRAWN BY:	JW
DATE:	10 OCT 2023
JOB No:	023-2302
SHEET No:	C2.5
	ATON PLAN & PROFILE

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DOCK DEMO PLAN NOTES

1. EXISTING DOCK AND/OR CONCRETE TO REMAIN
2. APPROXIMATE LIMITS OF DOCK REPAIR (1,900 SQ. FT. ±)
3. DEMOLISH EXISTING CONCRETE DECK AND PLYWOOD SHEATHING - INSPECT EXISTING SUPPORT TIMBERS AND FRAMING FOR DECAY / DAMAGE.
4. REMOVE EXISTING DOCK CRANE AS REQUIRED
5. NOT USED
6. NOT USED
7. NOT USED
8. EXISTING AC PAVING / CONCRETE- REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB
10. DEBRIS REMOVAL & MATERIAL STAGING AREA
11. WOOD PILINGS & CAPS TO REMAIN - TYPICAL
12. STATIONARY BARGE W/ MOBILE CRANE

NORTH

2 LOCATION PLAN
SCALE: NONE

NOTE:
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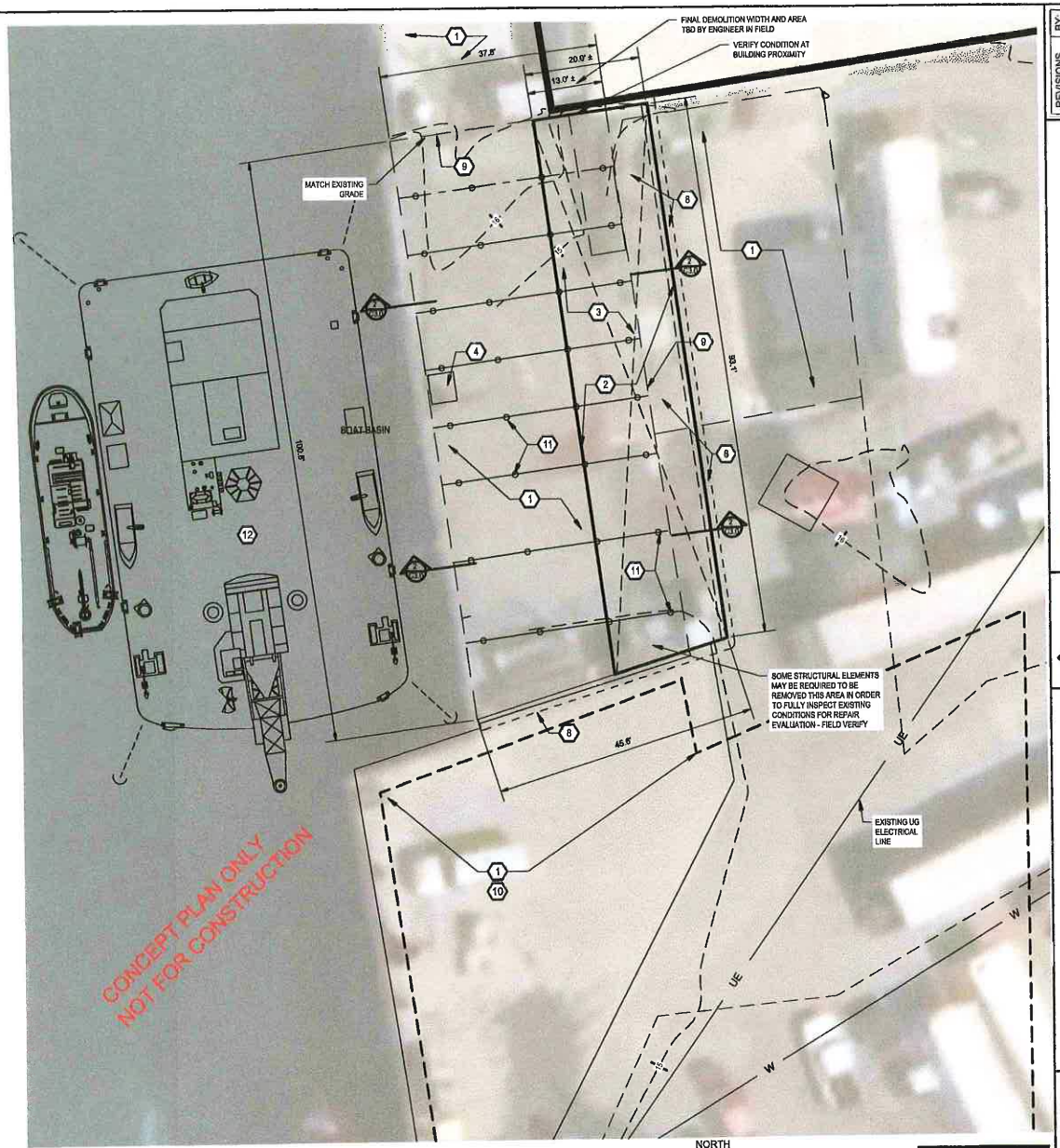
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET



0 5 10 20
SCALE: 1" = 10'

NORTH

1 DOCK DEMOLITION PLAN
SCALE: 1" = 10' (24x36)

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REVISIONS	BY:

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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR

16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415

PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	10 OCT 2023
JOB No:	023-2302
SHEET No:	**C2.9**
	DOCK DEMO PLAN

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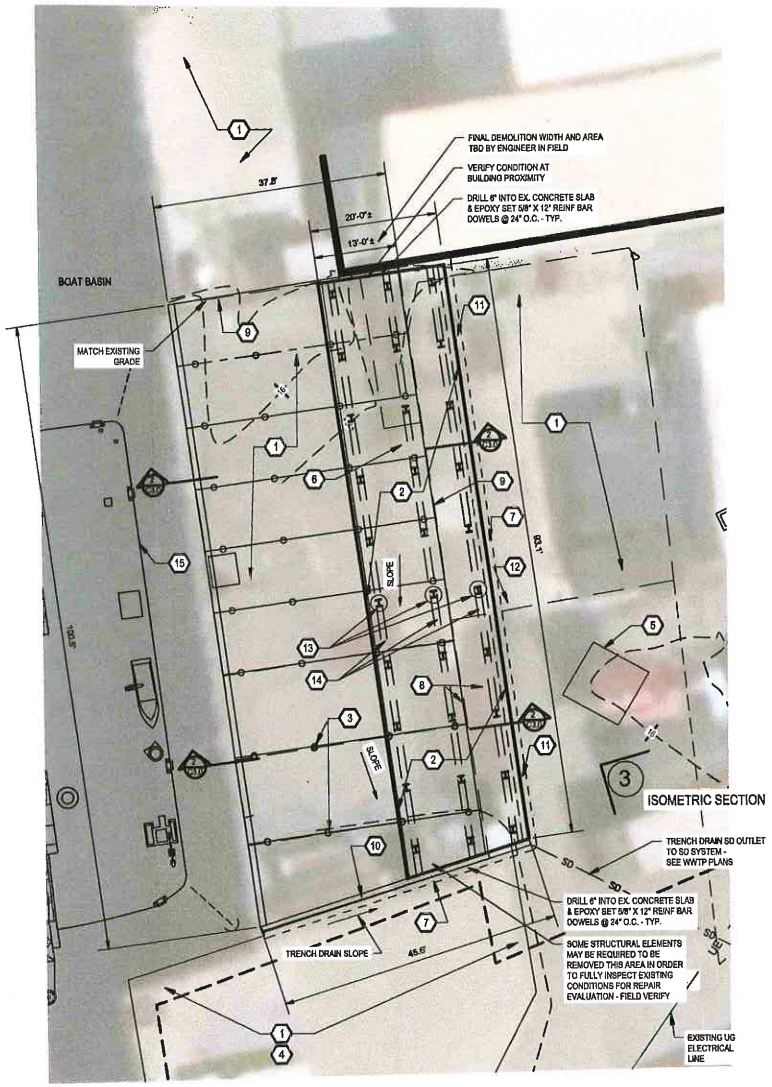
DOCK REPAIR PLAN NOTES

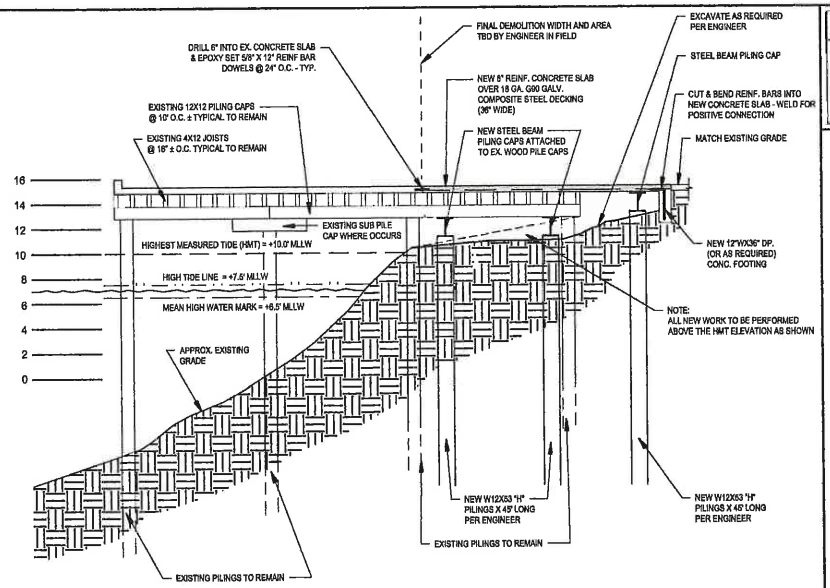
1. EXISTING DOCK AND/OR CONCRETE TO REMAIN
2. APPROXIMATE LIMITS OF DOCK REPAIR (1,900 SQ. FT. ±)
3. EXISTING WOOD PILING AND PILING CAP TO REMAIN - TYP.
4. MATERIAL STAGING AREA
5. EXISTING ATON TOWER & SIGN TO REMAIN
6. NEW 6" THICK REINFORCED CONCRETE SLAB OVER 2"X36" 18 GA. G90 GALV. STEEL FLOOR DECK - TYPICAL
7. REMOVE & REPLACE EXISTING CONCRETE AS REQUIRED
8. APPROX. EDGE OF AC PAVING - REMOVE & REPLACE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB
10. NEW TRENCH DRAIN - SEE SHEET C3.1 FOR DETAILS
11. 12"X36" (OR AS REQ'D) DP. EDGE FOOTING - DOWEL INTO NEW CONC. SLAB. SEE DOWELING INSTRUCTIONS THIS SHEET.
12. MATCH EXISTING GRADE @ SLAB / AC LINE -TYP.
13. NEW W12X53 "H" PILINGS X 45' LONG PER ENGINEER - TYP.
14. NEW STEEL BEAM PILING CAPS
15. STATIONARY BARGE W/ MOBILE CRANE



0 5 10 20
SCALE: 1" = 10'

1 DOCK REPAIR PLAN
SCALE: 1" = 10' (24x36)

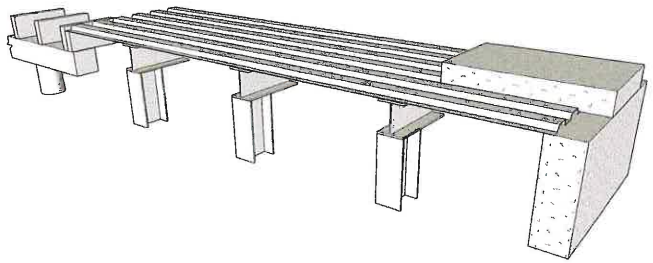
NORTH



2 DOCK SECTION - TYPICAL REPAIR AREA
SCALE: 1" = 5'

0 2.5 5 10
SCALE: 1" = 5'

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION



3 ISOMETRIC SECTION - TYPICAL REPAIR AREA
SCALE: NONE
LOOKING NORTHWEST

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HORIZONTAL DATUM

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VERTICAL DATUM

MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.85 FEET

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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	10 OCT 2023
JOB No:	023-2302
SHEET No:	C3.0
	DOCK REPAIR PLAN

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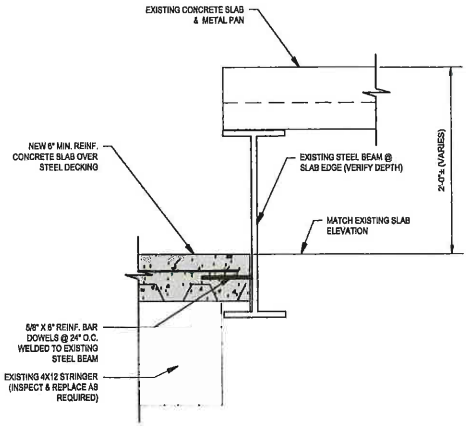
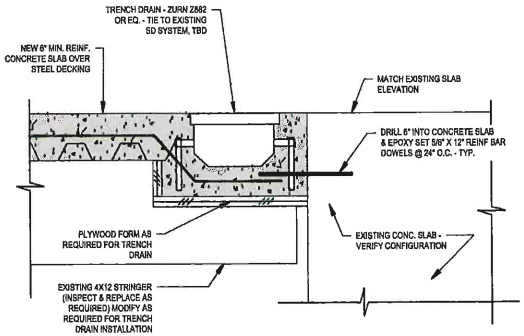


1 CONNECTION @ NORTH SLAB EDGE

SCALE: 1.5" = 1'-0"

0 6" 1' 2'

GRAPHIC SCALE

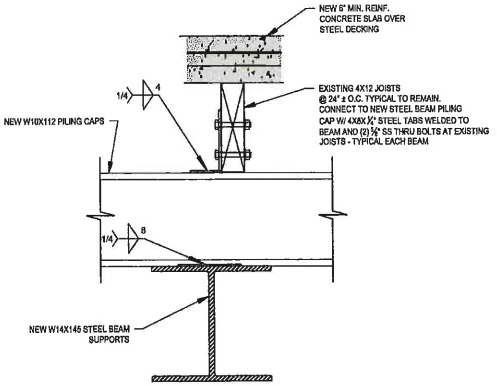


2 CONNECTION @ SOUTH SLAB EDGE

SCALE: 1.5" = 1'-0"

0 6" 1' 2'

GRAPHIC SCALE



3 CONNECTION TO NEW PILING CAPS

SCALE: 1.5" = 1'-0"

TYPICAL AT EACH CROSSING

0 6" 1' 2'

GRAPHIC SCALE

ZURN. **Z882**
12 [305] WIDE REVEAL TRENCH DRAIN SYSTEM WITH STEEL FRAME

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice

SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE, EMBEDMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES

12 [305] 9 [235] 4 [102] MIN. INVERT 96 [2438] 98 [2489] 4 [102] 1/2 [47] MIN.

Note: • Actual Channel length is 98 3/8 [2499] to allow for overlap.

ENGINEERING SPECIFICATION: Zurn Z882
Channels shall be 96" [2438mm] long, 12" [305mm] wide reveal and have a 9-1/4" [235mm] throat. Modular channel sections shall be made of 0% water absorbent High Density Polyethylene (HDPE). Shall have a positive mechanical connection between channel sections that will not separate during the installation and shall mechanically lock into the concrete surround every 12" [305mm]. Channels shall weigh less than 5.05 lbs. [2.29kg] per linear foot, have a smooth, 3° [76mm] radiused self cleaning bottom with a Manning's coefficient of 0.008 and 1.04% or neutral 0% built in slope. Channels shall have rebar clips standard to secure trench in its final location. Shall be provided with standard DOG grates that lock down to frame. Zurn 12" [305mm] wide reveal ductile iron slotted grate conforming to ASTM specification A536-84, Grade 60-55-08. Ductile iron grate is rated class C per the DIN EN1433 top load classifications. Supplied in 24" [608mm] nominal lengths with 15/16" [21mm] wide slots, and 1-1/2" [38mm] bearing depth. Grate has an open area of 60.8 sq. in (sq. ft. [171.027 sq. mm per meter]). The 1/4" [6mm] thick heavy-duty carbon steel frame assembly conforms to ASTM specification A36 with 10 - 4" [102mm] long concrete anchors per 96" [2438mm]. Grate lockdown bars are to be integral to the frame. The frame is supplied with a powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames Shall be produced in the U.S.A.

PREFIX OPTIONS (Check/specify appropriate options)

__ 2 Eight-foot High Density Polyethylene (HDPE) Channel. Heavy-Duty Frame with Anchor Studs.[1]

SUFFIX OPTIONS (Check/specify appropriate option)

Outlet Adapters Add/Each

__ -E3 Closed End Cap
__ -E4 4 [102] No-Hub End Outlet
__ -E6 6 [152] No-Hub End Outlet
__ -E8 8 [203] No-Hub End Outlet
__ -U4 4 [102] No-Hub Bottom Outlet
__ -U6 6 [152] No-Hub Bottom Outlet
__ -U8 8 [203] No-Hub Bottom Outlet

Grate Options (Load Classifications are per DIN EN1433)

__ -DDC Black Acid Resistant Epoxy Coated Ductile Grate - Class C
__ -DDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
__ -DDF Black Acid Resistant Epoxy Coated Ductile Grate - Class F
__ -DC Ductile Iron Solid Cover - Class E
__ -DGC Ductile Iron Slotted Grate - Class C [1]
__ -DGE Ductile Iron Slotted Grate - Class E
__ -DGF Ductile Iron Slotted Grate - Class F
__ -GDC Galvanized Ductile Slotted Grate - Class C
__ -GDE Galvanized Ductile Slotted Grate - Class E
__ -GDF Galvanized Ductile Slotted Grate - Class F
__ -GHPC Galvanized Heel-Proof Ductile Grate - Class B
__ -GHPDE Galvanized Heel-Proof Ductile Slotted Grate - Class E
__ -HPD Heel-Proof Ductile Slotted Grate - Class B
__ -HPDE Heel-Proof Ductile Slotted Grate - Class E
__ -HPDC Heel-Proof Ductile Slotted Grate - Class C
__ -RPGC Reinforced Slotted Galvanized Grate - Class C
__ -RPGRC Reinforced Perforated Galvanized Reverse Punch Grate - Class C
__ -RPGC Reinforced Slotted Stainless Steel Grate - Class C
__ -RPSC Reinforced Perforated Stainless Steel Grate - Class C
__ -RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

Trench No.	'A' Shallow Inv.	'B' Deep Inv.	Flow (cfs)	Flow (gpm)	Flow (lps)
B201	9.25 [159]	7.25 [184]	1.241	557	35
B202	7.23 [184]	5.25 [210]	1.725	774	49
B203	8.25 [210]	9.25 [235]	2.226	999	63
B203N	9.25 [235]	9.25 [235]	-	-	-
B204	9.25 [235]	10.25 [260]	2.745	1233	78
B205	10.25 [260]	11.25 [286]	3.271	1468	93
B206	11.25 [286]	12.25 [311]	3.808	1709	108
B206N	12.25 [311]	12.25 [311]	-	-	-
B207	12.25 [311]	13.25 [337]	4.347	1951	123
B208	13.25 [337]	14.25 [362]	4.893	2196	139
B209	14.25 [362]	15.25 [387]	5.443	2443	155
B209N	15.25 [387]	15.25 [387]	-	-	-
B210	15.25 [387]	16.25 [413]	5.998	2691	170
B211	16.25 [413]	17.25 [438]	6.551	2940	186
B212	17.25 [438]	18.25 [464]	7.106	3189	202

Miscellaneous Options

__ -CSF Black Acid Resistant Coated Top Frame
__ -JC Joint Connector
__ -SW Sidewall Extensions - 11 [278] High
__ -SW2 Double Sidewall Extensions - 22 [559] High
__ -VP Vandal-Proof Lockdown

MADE in the U.S.A.

__ -ADA-USA Meets Americans with Disabilities Act Requirements - Class C
__ -BG Galvanized Steel Bar Grate - Class D
__ -DGC-USA Ductile Iron Slotted Grate - Class C
__ -DGE-USA Ductile Iron Slotted Grate - Class E
__ -FG Fabricated Galvanized Steel Slotted Grate - Class A
__ -FS Fabricated Stainless Steel Slotted Grate - Class A
__ -GADA-USA Galvanized Ductile ADA Slotted Grate - Class C
__ -GDC-USA Galvanized Ductile Slotted Grate - Class C
__ -GDE-USA Galvanized Ductile Slotted Grate - Class E
__ -GHPDG-USA Galvanized Ductile Slotted Grate - Class E
__ -HPDC-USA Heel-Proof Ductile Slotted Grate - Class E
__ -DG Fiberglass Grate - Class A
__ -PG Perforated Galvanized Steel Grate - Class A
__ -PS Perforated Stainless Steel Grate - Class A
__ -SBG-L Stainless Steel Bar Grate - Class C

Miscellaneous Options

__ -DB Bottom Dome Strainer

* Regularly furnished unless otherwise specified

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 - Ph. 905-963-9878, Fax 814-454-7929
In Canada: Zurn Industries Limited
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 - Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. G
Date: 12/15/17
C.N. No. 130933
Prod. | Dwg. No. Z882

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

REVISIONS	BY:

EMC | Engineers/Scientists, LLC
Grants Pass • Jacksonville • Medford, OR

PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	10 OCT 2023
JOB No:	023-2302
SHEET No:	C3.1

DOCK REPAIR DETAILS

Oregon 811 CALL BEFORE YOU DIG!

SF424 APPLICATION FOR ASSISTANCE

and

SF 424A (Budget Information for Non-Construction Programs)

View Burden Statement

OMB Number: 4040-0004
Expiration Date: 12/31/2019

Application for Federal Assistance SF-424

* 1. Type of Submission:
- ○ Preapplication
- ◉ Application
- ○ Changed/Corrected Application

* 2. Type of Application:
- ◉ New
- ○ Continuation
- ○ Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Port of Brookings Harbor

* b. Employer/Taxpayer Identification Number (EIN/TIN): 93-601-3807

* c. Organizational DUNS: 0520425530000

d. Address:

* Street1: 16330 Lower Harbor Road
Street2:
* City: Brookings
County/Parish: Curry
* State: OR: Oregon
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 97415-8306

e. Organizational Unit:

Department Name: Port Office

Division Name:

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
* First Name: Jack (John)
Middle Name: Anthony
* Last Name: Akin
Suffix:

Title: Project Engineer

Organizational Affiliation: Consultant

* Telephone Number: 541.261.9929
Fax Number: 541.727.5488

* Email: emc@emcengineersscientists.com

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

D: Special District Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.202

CFDA Title:

*** 12. Funding Opportunity Number:**

STAG–Clean Water SRF

* Title:

Community Grants Program

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Fish Processing Wastewater Treatment, and associated Port Infrastructure

Attach supporting documents as specified in agency instructions.

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: OR-004 * b. Program/Project: OR-004

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 01/21/2021 * b. End Date: 12/31/2024

18. Estimated Funding ($):

* a. Federal	3,089,200.00
* b. Applicant	772,300.00
* c. State	
* d. Local	
* e. Other	
* f. Program Income	
* g. TOTAL	3,861,500.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

(•) a. This application was made available to the State under the Executive Order 12372 Process for review on 02/21/2023.

( ) b. Program is subject to E.O. 12372 but has not been selected by the State for review.

( ) c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

( ) Yes (•) No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☑ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Travis

Middle Name: Blaine

* Last Name: Webster

Suffix:

* Title: Port Manager

* Telephone Number: 541.469.2218 Fax Number:

* Email: travis@portofbrookingsharbor.com

* Signature of Authorized Representative: * Date Signed:

View Burden Statement

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2025

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Phase 1 (Initial Planning and Design)		$	$	$ 410,800.00	$	$ 410,800.00
2. Phase 1 (Initial Planning and Design)					102,700.00	102,700.00
3. Phase 2 Construction				3,089,200.00		3,089,200.00
4.					772,300.00	772,300.00
5. Totals		$	$	$ 3,500,000.00	$ 875,000.00	$ 4,375,000.00

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SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
a. Personnel	$	$	$ 19,800.00	$ 4,950.00	$
b. Fringe Benefits			5,990.00	1,497.00	
c. Travel			4,800.00	1,200.00	
d. Equipment					
e. Supplies					
f. Contractual	389,494.00	97,373.00			
g. Construction			3,032,479.00	758,120.00	
h. Other	21,306.00	5,327.00	26,131.00	6,533.00	
i. Total Direct Charges (sum of 6a-6h)	410,800.00	102,700.00	3,089,200.00	772,300.00	$
j. Indirect Charges					$
k. TOTALS (sum of 6i and 6j)	$ 410,800.00	$ 102,700.00	$ 3,089,200.00	$ 772,300.00	$
7. Program Income	$	$	$	$	$

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SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Phase 1 (Initial Planning and Design)	$ 102,700.00	$	$	$ 102,700.00
9. Phase 2 Construction			772,300.00	772,300.00
10.				0.00
11.				0.00
12. TOTAL (sum of lines 8-11)	$ 102,700.00	$	$ 772,300.00	$ 875,000.00

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 3,500,000.00	$ 640,000.00	$ 1,440,000.00	$ 1,000,000.00	$ 420,000.00
14. Non-Federal	$ 875,000.00	160,000.00	360,000.00	250,000.00	105,000.00
15. TOTAL (sum of lines 13 and 14)	$ 4,375,000.00	$ 800,000.00	$ 1,800,000.00	$ 1,250,000.00	$ 525,000.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16.	$	$	$	$
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	$	$	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges:

23. Remarks:

Recipient: Port of Brookings Harbor
Community Grant Project Name: Fish Processing Wastewater Treatment, and associated Port Infrastructure – Phase 1 (Initial Planning and Design)
Project Period Dates: 10/01/2021 – 02/29/2024
Performance Report Period: 10/01/2021 – 10/30/2023

Milestone Schedule/Outputs/Outcomes

ID	Phase	Task Name	Item	Estimated Start Dates	Milestone Dates
1	1 - Pre-Sitework	Project Development, Design/Specs		October 1, 2021	November 15, 2023
2	1 - Pre-Sitework	WW NPDES Permit	(ODEQ)	June 1, 2022	April 30, 2024
3	1 - Pre-Sitework	Final Project Design		April 1, 2023	December 31, 2023
4	1 - Pre-Sitework	Negotiations with Port Management, Fish Processors, Local Utilities		October 20, 2023	December 31, 2023
5	1 - Pre-Sitework	RFQ, Contractor selection / WWTP System		January 1, 2024	April 1, 2024
6	1 - Pre-Sitework	RFQ, Contractor selection / Upland Work		January 1, 2024	April 1, 2024
7	2 - Sitework	Excavate and grade foundation.		June 1, 2024	
8	2 - Sitework	Excavate and modify current utilities	Electrical	June 1, 2024	
9	2 - Sitework	Install concrete pad foundation.		July 1, 2024	July 29, 2024
10	2 - Sitework	Repair Dock Edge:	Remove Dock surface	June 1, 2024	
			Install shoring & supports and backfill	June 1, 2024	
			Replace dock surface	June 1, 2024	
			Influent and Discharge	July 1, 2024	July 29, 2024
11	2 - Sitework	Import & Assemble system components		August 1, 2024	September 26, 2024
12	2 - Sitework	Construct control room and roof canopy		September 26, 2024	October 10, 2024
13	2 - Startup	Training and WWTP Startup		October 10, 2024	October 31, 2024

Progress Summary

1. *Provide a brief narrative comparing actual accomplishments to date to the milestones, outputs and outcomes established in your workplan. Identify activities that have been completed or are in progress*.
   The initial planning and design started prior to the Phase 1 award on May 10, 2023. Design and specifications will be completed by November 15, 2023. The initial NPDES permit application and annual fee were paid to ODEQ July 7, 2023. ODEQ will be receiving the WWTP feasibility and compliance information by November 15, 2023, to complete the permit by April 30, 2024. Request for proposals will be published in January 2024 to receive bids on the WWTP System and Civil Construction. Contracts to be awarded and in place for the WWTP System and Civil Construction by April 2024. Phase 2 Sitework would begin shortly afterward with WWTP System components arriving in August 2024. WWTP System startup would begin in October 2024.

2. *Describe any reasons for slippage if established milestones/outputs/outcomes were not met*.
   None to note.

3. *Describe your project's current financial state (ex. expenditures to date, forthcoming payment requests, recent procurement information, cost overruns, or any other known issues impacting your ability to utilize Community Grant funding)*.
   Phase 1 (Initial Planning and Design) Award Amount: $510,500.

Federal Share Amount: $410,400.
Non-Federal Share Amount: $102,600.

Total expenditures as of October 1, 2023: $169,949.70.
Federal Share Reimbursed Amount: $135,959.76 (80%)
Non-Federal Share Amount: $33,989.94 (20%)

The design and specifications for the WWTP are ongoing. The ODEQ permitting process is expected to continue through April 2024. Preparing RFP documents and bidding process is being developed. The anticipated payment request(s) during the next quarter total is approximately $50,000.

4. *Provide any additional relevant information (ex. unexpected issues, success stories, copies of contracts >$250,000 not previously supplied to EPA, etc.).*
   No contracts over $250,000 were completed. The Port engineering contract to EMC Engineers/Scientists, LLC was renewed for one additional year and not to exceed $100,000.

EMC | Grants Pass * Jacksonville * Medford, OR
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emc@emcengineersscientists.com; http://www.emcengineersscientists.com
- Engineers/Scientists, LLC

10/20/23

Ranei Nomura
ODEQ Water Quality Program Manager
DEQ Western Region

Trinh Hansen
ODEQ Water Quality Permit Coordinator
Western Region

cc: Travis Webster, Port Manager, Port of Brookings Harbor
Gary Dehlinger, Project Manager, Port of Brookings Harbor

Dear Ms. Nomura,

RE **File No. 126385**, the following is meant to supply necessary information to ODEQ to the existing Permit Application, presently under review.

Permit Status

On August 1, 2023 the ODEQ acknowledged its receipt of the administratively complete, 7/27/2023 Port of Brookings Harbor (Port) Application to construct a wastewater treatment plant on Port property. At that time neither a permit writer nor a permit number had been assigned to the proposed project. Application No. 948246 and File No. 126385 were then assigned.

Format of this Report

- **WORKPLAN AND ESTIMATED BUDGET OF PROPOSED WWTP, P2**
- **PROCESS FLOW AND SYSTEM DESCRIPTIONS, P8**
- **COMPLIANCE, P16 (REFERS TO MIXING ZONE ADDENDUM, ATTACHED)**
- **ENGINEERED DRAWINGS OF PROPOSED PLANT, ATTACHED**

It should be noted that the wastewater treatment system described in this report may be revised before, during or after the formal request for proposal from qualified contractors. However, no revisions will be made that reduce the wastewater efficiency that is presented on P17.

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emc@emcengineersscientists.com; http://www.emcengineersscientists.com
- Engineers/Scientists, LLC

WORKPLAN AND ESTIMATED BUDGET
PORT OF BROOKINGS HARBOR, OREGON WASTEWATER TREATMENT PLANT

INTRODUCTION

The Port of Brookings Harbor (POBH, the Port) is the proposed Permittee. Pacific Seafood, Brookings facility, a lessor of the POBH, is currently in violation of the Clean Water Act NPDES permit limits. For now, Pacific Seafood operates under a 900-J Fish Processing permit, the effluent limitations of which operations have violated on numerous occasions. If Pacific Seafood wastewater effluent is not brought into compliance, the facility will be forced to close down and perhaps relocate.

Therefore, in order to retain this facility and fish processing in general at the POBH, and to ensure that the waters of the state are protected, the Port is endeavoring to install wastewater treatment facilities under its own NPDES permit. After analyzing years of discharge monitoring reports submitted to the ODEQ by Pacific Seafood, thus thoroughly understanding the wastewater effluent quality, POBH and its consultant evaluated several treatment options. A wastewater treatment system for effluent discharged to the existing outfall was selected as the best option for meeting ODEQ requirements.

PROJECT DESCRIPTION

POBH therefore intends to construct a modular wastewater treatment plant (WWTP) with a capacity to treat up to 500,000 gallons per day of industrial wastewater. Installation of the WWTP will also require upgrades to existing infrastructure at the Port. In order to do this work, design, permitting and all preliminary, non-construction work must be completed. Preliminary work (**Phase I**) is still in progress, as of the date of this narrative, most of which must be completed prior to equipment procurement and associated construction. After Phase I work is completed, the remaining funds will be used in Phase II Construction.

Phase II work entails

- Contractor and equipment procurement;
- Site civil and construction works, including site grading, subbase and subgrade preparation, stormwater system installation, utility provision, concrete pad and ring beam construction;
- WWTP equipment assembly and placement;
- System controls installation and settings;
- Completed system testing, evaluation and adjustment.

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The Phase II scope of work and time schedule can be generally described below.

The NPDES WWTP permit is in progress. Data and system submissions needed to keep the ODEQ permit evaluation moving forward will be completed by **11/15/23**. The finalization of the ODEQ review process is expected to be completed by **April, 2024**. Phase I tasks are planned to continue final design details, engineered construction drawings and RFP (Request for Proposals) preparation.

In early **January, 2024** the contractor and equipment procurement process will begin and contractor selected by **April, 2024**. Equipment and materials will be ordered upon receipt of the ODEQ permit.

Equipment is expected to arrive at the Port by **August, 2024**. Meanwhile, between **April and August** the Port will have completed the civil works, the tasks of which are outlined in the table so-named on P4. The WWTP units to arrive, be assembled and installed are listed on P12 in the Section named "**UNITS DESCRIPTIONS**".

Installation and successful testing of the treatment equipment is planned to be completed during the month of August, likely extending into **September, 2024** for final evaluation. This planned schedule allows for 75 days of slip (breakdowns, bad weather, etc.). In our opinion, the assumptions upon which this estimated schedule is based are reasonable.

Phase II Scope of Work

The proposed WWTP components are to be constructed off site and shipped to the site for assembly. The concrete slab foundation to support the system, canopies and shelters to cover certain system components, and the control room to operate the system, will be constructed by qualified subcontractors. Existing electrical and lighting, water and storm sewer systems will be modified as needed to accommodate the new WWTP. The WWTP west-side operations will require repairs to the existing Old PacChoice Dock, adjacent to the Pacific Seafood facility, to stabilize the westward section of the new WWTP facility. No in-water work will be done during this Phase. Budget and scope of work details are provided below (beginning on P4).

Project Management

The POBH contracted the consultant (EMC-Engineers/Scientists, LLC) to evaluate treatment options, develop the WWTP Workplan, and to complete permitting and grant application requirements. The consultant has been contracted to be responsible for the engineering design, permit applications, RFQs, contractor selection assistance, final design elements, scheduling, evaluation of the system and project oversight assistance (as engineer-of-record).

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The consultant's oversight tasks will be shared with Port Staff, who provides final approval for on-sight work. POBH has also designated the consultant to assist Port staff in budget management. Port Work, as labeled in the lower right hand corner of the Cost Budget Sheet, Civil Works table, for $38,237, is described in detail on P5, in the table named PORT WORK DETAIL.

SCHEDULE AND MILESTONES - PHASE II - The schedule and milestones are described above. Budgeting details and scopes of work are provided below.

BUDGET COSTING SHEET

Civil Works

Access & Work Areas	Coverage, sf	$/cy Excavation, Grading	$/sf Subgrade Compaction	$/cy. Rock purchase, deliver/Place	$/Ton Asphalt, Placed	$/cy Concrete
WWTP & Surrounding	38,240	$28	$1	$65	$125	$150
$/Specified Catch Basin, ea	$/yd3 Concrete, Labor	Cut/Fill Volumes, cy	Volume of Sub-base and Base Rock, cy	Volume of Asphalt, Tons, 3" Thick	Concrete Volume, cy	12" SW Pipe Installed/ft.
$6,500	$300	948.9	885	365	458.1	120
SW Pipe Length, ft	No. Catch Basins	SW System Total	Grading Total	Compaction Total	Aggregate Total	Asphalt Total
600	4	$98,000	$26,854	$19,120	$57,537	$45,600
Concrete Total	TOTAL Pre-MOBE/DEMOBE BUDGET Items	Total Equipment MOBE/DEMOBE Costs	Total Itemized Costs	Soil Investigation	Estimated Utilities Service	TOTAL Mitigation BUDGET
$206,163	$453,275	$86,262	$539,537	$22,000	$441,000	$1,127,831
Engineering	$54,393	Permitting	$32,664	Port Work	$38,237.00	

WWTP

GPD System		$500,000	
1895 CMD MBR WWTP		$1,405,023	
GLS TANKS		$681,205	
SLUDGE DEWATERING		$132,723	
ODOR CONTROL SYSTEM		$92,770	
SUPERVISION FOR INSTALLATION	500	$12,000	Assume $500 per man-day, six days/wk, 2 wks. x 2 people
		$720,516	30% Required Upon Order
		$1,681,205	70% Required Within 60 Days of Equipment Receip.
Estimated WWTP Costs		$2,401,721	

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Dock Repair	$331,948
Assume dock construction will begin in April, 2024, Completed by August, pay on balance monthly, 30% down for materials	

Budget By Category			
Category		**Federal**	**Non-Federal**
Personnel	a.	$19,800	$4,950
Fringe Benefits	b.	$5,990	$1,497
Travel	c.	$4,800	$1,200
Equipment	d.		
supplies	e.		
Contractual	f.	$3,032,479	$758,120
Construction	g.		
Other	h.	$26,131	$6,533
Totals		**$3,089,200**	**$772,300**

TOTAL PROJECT COSTS	**$3,861,500**

PORT WORK DETAIL				
ID	**Category**	**Totals**	**Federal Share**	**Non-Federal Share**
a.	**Personnel**	$24,750	$19,800	$4,950
Description: Port personnel performing administrative duties, meetings with suppliers and contractors, managing bidding documents, plant inspections (if necessary) and other project related activities.				
Travis Webster	Port Manager	Hourly Rate $45.68 x 208 Hours / 4 hours per week / 52 weeks		
Gary Dehlinger	Project Manager	Hourly Rate $30.00 x 416 Hours / 8 hours per week / 52 weeks		
April Walker	Office Manager	Hourly Rate $26.63 x 104 Hours / 2 hours per week / 52 weeks		
b.	**Fringe Benefits**	$7,487	$5,990	$1,497
Description: Personnel wage benefits include medical/dental, retirement, and PTO costs.				
Travis Webster	Port Manager	Benefit Rate $13.59 x 208 Hours		
Gary Dehlinger	Project Manager	Benefit Rate $8.79 x 416 Hours		
April Walker	Office Manager	Benefit Rate $9.67 x 104 Hours		
c.	**Travel**	$6,000	$4,800	$1,200
Description: Meeting with suppliers and/or contractors and plant inspections (if necessary). Costs include milage, flight, meal, and hotel costs.				
TOTALS		**$38,237**	**$30,590**	**$7,647**

ENVIRONMENTAL RESULTS/BENEFITS - PHASE II

Outputs

Phase II of this Project will result in completion of all construction of the civil works and the WWTP as described above.

Regulatory/Environmental

The following describes the processes whereby all regulatory and environmental requirements are satisfied.

Industrial Wastewater Treatment Quality

Pacific Seafood is at present out of compliance with federal and state NPDES wastewater effluent requirements. Currently, the facility uses a rotary drum screen to treat approximately its wastewater effluent prior to discharge, which does little to reduce the incoming BOD (Biological Oxygen Demand), TSS (Total Suspended Solids), O&G (Oil and Grease) and regulated toxic pollutants.

Water Quality Modeling

Modeling of the wastewater effluent has been completed for wastewater treatment plant permitting in Oregon. Pacific Seafood Group prepared a Mixing Zone Study on (Pacific) for the seafood processing facility in Brookings, Oregon, and the POBH has completed the required Addendum for that study.

In-Water Work

No in-water work is included in this Phase II scope of work.

Upland, or Above-Water Work

As mentioned above, all above-water work, that is; the Old PacChoice Dock repair/replacement/upgrade of the concrete decking and its upland understructure, concrete pad and jointing to the dock decking, the stormwater system construction, the electrical, water and wastewater piping (effluent pipe will be connected to the retrofitted existing effluent pipe from the Pacific Seafood facility), is scheduled to be accomplished during dry months between late March/early April and late September, 2024. As such, to the Port's knowledge, the USACE, ODSL, NOAA/NMFA, ODFW and DLCD do not have jurisdiction over this project.

However, the WWTP concrete pad and any buried utilities will be constructed atop cultural resources. A review of Oregon Archaeological Records Remote Access information indicates there are documented cultural resources and prior evaluations within Commercial Area Project.

Prior archaeological evaluations (#s 24439 and 25453) have confirmed the presence of significant archaeological deposits at the Port that are associated with the Chetco Indian village of Tcet-xo (35CU42) initially documented in 1935.

The site was determined eligible for the National Register of Historic Places in 2012.

The 2011 testing for the seawall work rediscovered archeological deposits associated with the Tcet-xo village and determined the site likely extends to the north under the adjacent asphalt surface.

Additionally, a 2005 survey (#19795) to the north of the Commercial Area for a proposed sanitary force main project also determined the potential presence of archeological deposits under paved surfaced near the Port was high. Thus prior findings suggest archaeological materials may be present underneath the gravel and asphalt at of the proposed work areas.

The Port will, as it has in the past when working in Site 35CU42, employ a SHPO-approved archaeologist to oversee excavations within these culturally sensitive areas.

The POTW Permit

The ODEQ has determined the type of permit for this project to be an Individual POTW (Publicly Owned Treatment Works) permit.

Outcomes

The completion of Phase II tasks will be the installation of the WWTP, and thus the achievement of NPDES benchmarks, protecting Chetco Estuary water quality.

SELECTION OF QUALIFIED CONTRACTORS AND SUBCONTRACTORS

All procurement transactions for professional engineering services and construction contractors have been conducted in a manner that promotes fair and open competition from an adequate number of qualified sources. 2 CFR 200.320 indicates the specific methods of procurement to be followed and the circumstances under which each method can be used.

As such all contracts associated with this project are in compliance with the requirements of 44 CFR part 13, 2 CFR parts 215, 220, 225 and 230. Further, all contracting and procurement will adhere, as applicable to ORS Chapter 279A, Public Contracting - General Provisions.

PROCESS FLOW AND DESCRIPTIONS

Raw Wastewater enters the system through the fine screen provided by the Plant, presently in place. From thence wastewater is pumped into the equalization tank to assure consistent flow into the rest of the system. From equalization the wastewater is then pumped and split to the DAF units, during which time coagulation and flocculation dosing are introduced. After solids have been removed from the DAFs and pumped to the sludge holding tank, the treated wastewater is pumped into the anoxic tank whereby anaerobic conditions accelerate treatment.

From the aeration tanks wastewater is then pumped to the MBR. Airflow is provided to the aeration and MBR tanks as needed. From the MBR sludge is directed to the sludge holding tank, and thence to sludge dewatering, and the finished wastewater is pumped to the effluent equalization tank for ebb tide discharge.

The contained air from the equalization, anoxic, sludge holding, and sludge dewatering tanks are piped to and through the odor control unit. All controls associated with flow, including motor and pump control, will be programmed to be managed by SCADA. Process flow is shown below.

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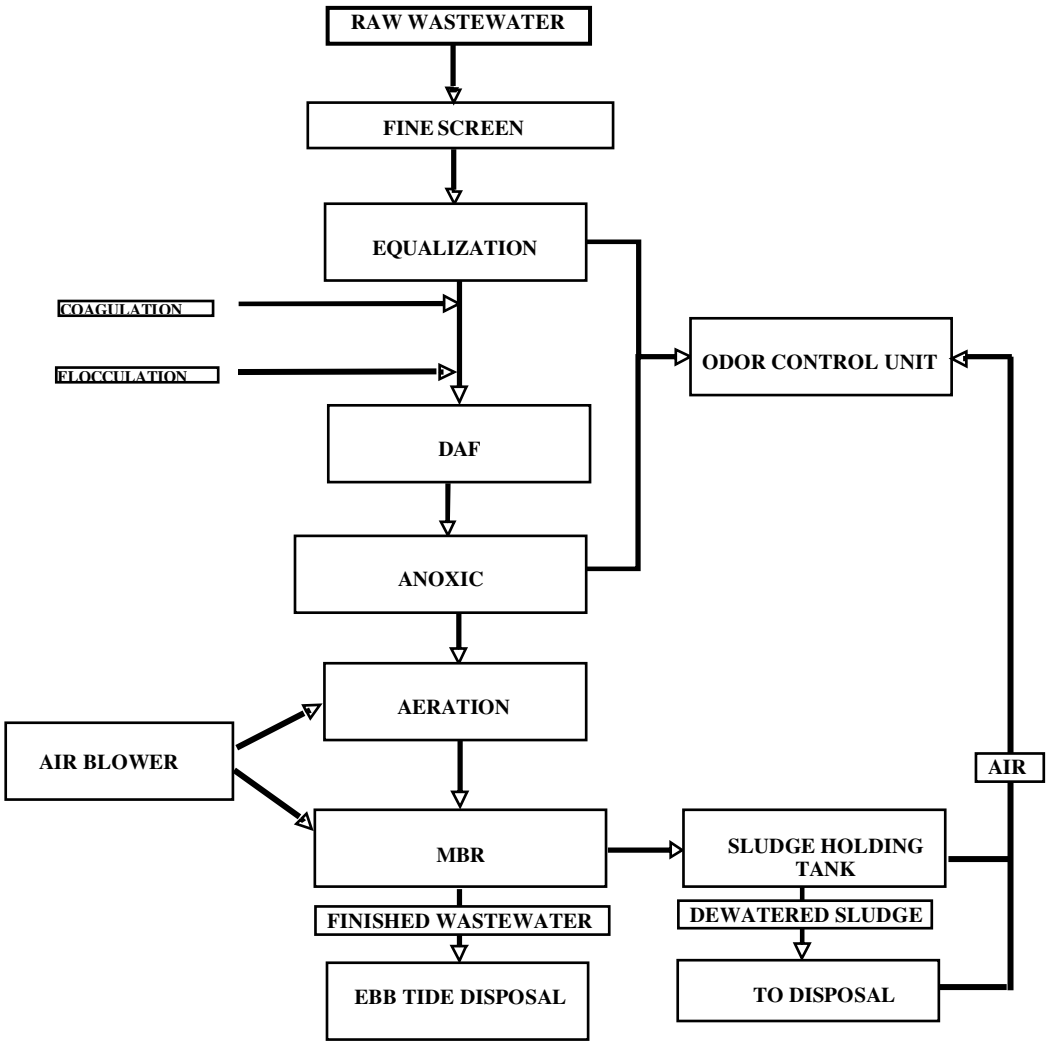
PROCESS FLOW DIAGRAM



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As shown above we have put a DAF and an MBR in sequence. The primary intended function of the DAF is to remove FOG. The MBR will provide a much better wastewater quality, and do it much more efficiently. Utilizing the DAF only would provide us with an activated sludge of 2 to 3 g/L MLSS, as opposed to about 6 to 7 utilizing the MBR. Retention time is thus reduced and the DAF system 1/2 to 1/3 the size it would otherwise have to be.

The equalization tank that receives the wastewater from Pacific Seafood outfall provides steady, even wastewater flow, allowing for consistent polymer/coagulant concentrations. We also plan via SCADA control to place variable frequency drives on key pumps and blowers. We can control airflow, utilizing DO meters, (DO is inversely correlative with BOD concentrations), and can thereby automatically adjust airflow into the aeration tanks.

While it is not particularly a good idea to adjust polymer concentrations because it threatens the efficiency of particle separation in the DAF, we can instead control flow from the equalization tank, based on incoming levels of wastewater from the Pacific Seafood outfall. These automatic adjustments, all programmed and controlled by SCADA, will keep quantities of polymer and air flow down to that required by wastewater strength and quantity.

A listing of the units used in the primary and secondary treatment system are shown on beginning on P12. FYI, the CIP system is the in-place membrane cleaner, which maintains the MBR screens. The footprint of the tanks, as shown in the engineered drawing, Sheet C2.2, are so arranged due to the fact that, coincidentally, the location of this wastewater treatment plant is right in the horizontal and vertical line of site pathway of the ATON siting towers required by the US Coast Guard and others in order to allow ships to site in on to enter and exit the federal channel. Consequently, the tanks can be no higher than 20 feet (system tanks are about 18 feet to allow a margin of error) in line with the beam of site, except for one of the tanks, which is 22 feet because it is horizontally outside of that beam.

On P14 is a listing of the electrical requirements for each piece of equipment utilizing power, and a couple of clarifications are needed. First of all the value of 404.1 kW is the total of all equipment, and is only that which is for startup conditions. Also, it tallies up all four blowers. Duplication is required for backup for key WW units, and so there are actually four blowers, with only two of them operating any given time. These blowers are rated at 75 kW each, and so we deduct 150 kW from the 404.1 total, leaving 254.1 kW for startup. We estimate the O_2 requirements of about 1.5 lbs. O_2/lb. of BOD reduction, and about 4.6 lb.s O_2/lb. of Ammonia reduction. Thence we calculate SCFM, assuming 21% oxygen in air, and sized the blowers accordingly.

A general rule of thumb is that actual operating usage of power is about 60% of that of startup and so we reduce estimated operating usage to 152.5 kW. Power usage can be further reduced as described above with respect to VFD on the blowers and motors. We are now working on getting more accurate estimates of operating electrical requirements.

The table on P15 enlists estimated annual usage, in kilograms, of coagulant, polymers, caustic soda, citric acid, and NAOCL. These numbers are only estimates, and as previously explained, can be somewhat adjustable when program linked to wastewater flow from the equalization tank.

Sludge volumes on P15 are estimated from average BOD, but we expect the sludge to be below what we are estimating, due to the exponential efficiency of aeration throughout the system (following first order kinetics). We are assuming that the solid waste will go to the Dry Creek Landfill, which is the nearest facility…the same used by the City of Brookings WWTP. However, we are proposing to Pacific Seafood methods utilizing the organic and inorganic fractions of the WWTP waste sludges for beneficial uses, including for biogas production and recycling.

UNITS DESCRIPTIONS

Primary Treatment System

- Belt type oil skimmer of mild s
- Steel powder coated frame & SS304 pulley, PTFE Scraper
- 133,407 Gallon Influent Equalization Tank, 37.4 ft. dia x 18 ft. ht , above ground, with cover, of glass-lined steel submersible mixer
- 23775 gal/hr. @ 14.5 psi capacity SS DAF feed pump, submersible
- 23775 gal/hr. DAF unit of SS304, including an e-circulation pump, saturation vessel, pipe flocculator, air compressor and sludge transfer pump
- Coagulation dosing pump, motor driven PP diaphragm dosing tank
- pH dosing pump, motor, driven diaphragm, PP

Secondary Treatment System

- 23,775 gallon per hour Wastewater transfer pump at 14 4.5 psi, SS, submersible
- 9246 gallon, above ground, anoxic tank, of glass lined steel, 10.2 feet diameter, 16.4 foot height
- Submersible, SS anoxic tank mixer
- 23,774 gallons per hour, open, impeller, stainless steel, internal recirculation pump
- 282,662 gallon, aeration tank, glass lined steel, 50 foot, 52 foot diameter, 18 foot height
- 22.6 foot long, 6 foot wide, by 10 foot, high carbon, steel epoxy, painted membrane tank
- MBR modules, hollow fiber membranes of PVDF
- Positive displacement, cast-iron air, blowers for the aeration and MBR tanks
- Fine bubble air diffusers, and lateral works for the aeration and MBR tanks
- CS/GI non-submerged and submerged piping valves, constructed of PVC
- 23,775 gallons per hour at 14.5 psi, semi open impeller stainless steel RAS/WAS pumps

CIP System and Permeate Pumps

- 260 gallon, polyethylene CIP tank
- 13,208.5 gallons per hour at 29, 243.5 PSI stainless steel, horizontal centrifugal MBR permeate pumps
- 151,634 gallon, glass lined steel effluent treated water tank, 24.6 foot diameter, 44.3 foot high

Sludge Handling System

- 39,626 gallon glass lined steel sludge holding tank, 23 feet diameter, 14.8 foot high, with roof, with stainless steel submersible holding tank mixer
- 3963 gallon per hour at 29 psi, progressive cavity pumps, construct of stainless steel, for sludge dewatering feed
- 3963 gallon per hour sludge, dewatering screw press, intended to be operated 12 to 16 hours per day, with dry, solid and feed of one to 2%, dry solid and sludge cake of 20 to 22%, utilizing AISI 304 stainless steel, with stainless steel bolts, micro alloy steel screw conveyor, 104 to 130 gallons per hour polymer preparation and dosing unit, stainless steel 316 mixers, and a 130 gallon per hour at 43.5 psi dosing pump

Odor Control System

- 59,332.3 $ft.^3$ per hour odor control system to serve the equalization tank, the anoxic tanks, and the sludge holding tank. Each consists of an air fan, OCS tower in GRP, carbon media, a local panel, and skid works

Valves, Pipe and Fittings

- Consists of ball, butterfly and gate valves, constructed of PVC for the waterlines, brass for airlines, and some airlines are constructed of carbon steel

Instrumentation

- Consists of pressure gauges for pumps, blowers, level switches, for both tanks and dosing tanks, a meter at the inlet and outlet, level transmitter in the MBR tank, pressure transmitter at suction of permeate pumps, meters in the aeration tanks and flow indicator transmitter at the airline to the aeration tanks

Electrical and Control System

- Form II protection is IP 54, Sheet steel cable entry, main control panel, with a PLC based panel
- SCADA system providing for one operator workstation and one engineering workstation. Work stations will be provided with two 21-inch monitors, keyboard, mouse, and printer. SCADA system shall be communicated with PLC system through ethernet switch in PLC panel. Provided with panel will be cable works as required, flexible, copper conductor with PVC insulation, unarmored for power and control with HDG/GI cable trays.

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POWER REQUIREMENTS

SN	EQUIPMENT DESCRIPTION	QTY	DUTY	MOTOR (KW)	TOTAL INSTALLED (KW)
1.	DAF Feed Pump	2	1	5.5	11.00
2.	Equalization tank Mixer	1	1	4.00	4.00
3.	Oil Skimmer	1	1	0.37	0.37
4.	DAF System	1	1	0.37	0.37
5.	DAF Recirculation Pump	1	1	15.00	15.00
6.	Sludge Transfer Pump	1	1	1.5	1.50
7.	Rotary Drum Screen	2	2	0.37	0.74
8.	Anoxic Tank Feed Pumps	2	1	5.50	11.00
9.	Anoxic Tank Mixer	2	2	1.1	2.20
10.	Internal Recirculation Pumps	3	2	5.5	16.50
11.	MBR Permeate Pumps	3	2	4.00	12.00
12.	RAS/WAS Pumps	3	2	5.5	16.50
13.	Air Blowers	4	2	75.0	300.00
14.	Sludge Holding Tank Mixer	1	1	3.00	3.00
15.	Dosing Pump: DAF Polymer	1	1	0.370	0.37
16.	DAF Polymer Tank Mixer	1	1	0.550	0.55
17.	Dosing Pumps: Coagulant , pH	2	2	0.014	0.03
18.	Dosing Pumps: MBR CIP	2	2	0.550	1.10
19.	Dosing Tank Mixer	1	1	0.75	0.75
20.	Flushing Pump	1	1	0.25	0.25
21.	Sludge Transfer Pumps to Dewatering	1	1	3.0	3.00
22.	Sludge Dewatering System	1	1	0.75	0.75
23.	Dewatering Polymer Dosing Pump	1	1	0.55	0.55
24.	Dewatering Polymer Tank Mixer	1	1	0.37	0.37
25.	Odor Control System	1	1	2.20	2.20
TOTAL					404.10*

**See notes beginning on P10, last paragraph, RE estimated operating electrical requirements*

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PRELIMINARY ANNUAL CHEMICAL CONSUMPTION ESTIMATES

ITEM	DESCRIPTION	DOSE, PPM	CONC, %	ANNUAL USE, KG
1.	Coagulant: Ferric Chloride ($FeCl_3$)	20.0	40%	34,583.8
2.	Polymer for DAF	2.0	100%	1,383.4
3.	PH Dosing: Caustic Soda (NaOH)	6.0	48%	8,645.9
4.	MBR CIP & CEB: NaOCl		12.50%	2,207.0
5.	MBR CEB: Citric Acid		30.00%	665.0
6.	Polymer for Dewatering System	2.0	100%	262.8

SLUDGE PRODUCTION, ODOR CONTROL AND HANDLING

The processes will produce a watery sludge, which is to be directly pumped from the two treatment systems (DAF and the MBR) into a sealed holding tank. The exhaust near the holding tank roof will pass through a biofilter to prevent odors (primarily H_2S). The watery sludge will then be pumped into a centrifugal press, designed to dewater the slurry. The centrifugal press effluent will be pumped back into the system (DAF), and the thickened sludge will be pumped directly into a lined and covered dump truck. The truck receiving and carrying the thickened sludge will travel to the Dry Creek Landfill, located in White City, Oregon. Trucking may be done independently, or, if feasible (i.e. if scheduling, odor control, costs prove it beneficial), the operator (the Plant) may strike an agreement with the City of Brookings' trucking, which also trucks, as far as we understand, their sludges to Dry Creek Landfill.

Alternatively, the Port may be able to utilized local (e.g. Crescent City, CA) composting or other beneficial use options for sludge disposal. All areas where sludge is exposed to open air will be contained in sheltered and sealed areas. Odors will therefore be controlled and negligible, well below those produced by the adjacent fish processing operations. It should be remembered that the proposed wastewater treatment units are to be located in an industrial area at the Port, next to the commercial receiving docks, where crab, shrimp and other fish are received by the ton during their seasons.

Sludge volumes are estimated from the known and previously experienced data and efficiencies of this equipment in handling industrial fish processing wastewater.

The design flow of 500,000 gallons per day was used for sludge calculations. The Plant facility operates seasonally, shown in the data to have operated during 14 of the 24 months reviewed.

A 90% removal of TSS (total suspended solids) is designed into the DAF. A 90% removal of FOG (free oil & grease) is designed into the DAF. 80% removal of the BOD (biological oxygen demand) will be removed with the TSS and FOG (primarily the FOG). 70% of the remaining BOD will be biologically reduced within the MBR. 80% of the remaining TSS will be removed by the MBR. Volumes will depend on influent values, which vary considerably. They will be much higher during shrimp season than during crab season. Estimating on the high side 1000 mg/L TSS, 2000 mg/L BOD and 500 mg/L FOG, we can expect 1860 gallon/day thickened sludge, or about 9.3 cubic yards (one dump truck load). This could be the case on the busiest shrimp processing days. Sludge volumes produced during crab season would be relatively negligible.

COMPLIANCE SCHEDULE

In an effort to achieve compliance with calculated aquatic toxicity limits per the Reasonable Potential Analysis, Domestic Workbook, Revision 8.1, put forth by ODEQ, dilutions were reevaluated a shown in the MZ Addendum (attached), analyzing the existing 2-port diffuser based on a design flow of 500,000 gallon per day, while considering continuous and ebb-only discharge regimes.

Modeling was also performed to assess whether acute dilutions and effluent limits could be increased through installation of a new multiport diffuser and, per DEQ guidance, an allowance of 100 ft. RMZ and 300 ft. ZID. Under these conditions, the estimated AML and MDL are approximately 44 and 88 µg/L, respectively.

On behalf of the Port of Brookings Harbor, we request consideration of a Compliance Schedule. During a reasonable time period, the Port would monitor the proposed WWTP effluent, implementing outfall revisions per the Addendum recommendations. Ebb-tide only tank and pump capacity have already been incorporated into the proposed wastewater treatment system design. Other steps, if found necessary, would be taken per the Schedule to assure compliance with ODEQ-calculated aquatic toxicity limits.

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RAW WASTEWATER AFTER FINE SCREEN

PARAMETERS	UNIT	INLET VALUES
pH		**7.0 – 8.5**
Free Oil & Grease (FOG)	mg/L	**500**
Total Suspended Solids (TSS)	mg/L	**1000**
Total Dissolved Solids (TDS)	mg/L	**3000**
Biochemical oxygen demand (BOD)	mg/L	**2000**
Chemical Oxygen Demand (COD)	mg/L	**3000**
Ammonia (NH3)	mg/L	**50**
Total Nitrogen (TN)	mg/L	**100**
Wastewater Design Temperature	Degree F	**50 – 68**

EFFLUENT WASTEWATER

PARAMETERS	UNIT	OUTLET VALUES
pH		**6.0 – 9.0**
Free Oil & Grease (FOG)	mg/L	**20**
Total Suspended Solids (TSS)	mg/L	**30**
Biochemical oxygen demand (BOD)	mg/L	**30**
Chemical Oxygen Demand (COD)	mg/L	**-**
Total Nitrogen (TN)	mg/L	**10**

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Sincerely

Jack (John) Akin, MS, PE, IC, HMS, CAI
EMC-Engineers/Scientists, LLC

SLR International Corporation
1800 Blankenship Road, Suite 440, West Linn, Oregon,
97068 August 17, 2023
Attention: Jack Akin

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SLR Project No.: 108.21691.00001

Mixing Zone Study Addendum

Background

In November 2020, SLR prepared a Mixing Zone Study (MZS) report for the Pacific Seafood Group (PSG) seafood processing facility in Brookings, Oregon. Since then, the Port of Brookings (the Port) has engaged EMC Engineers/Scientists, LLC (EMC) to design a wastewater treatment plant to treat industrial wastewater generated at the Port, including from the PSG processing plant. In turn, EMC has engaged SLR to update the dilution modeling results in the 2020 MZS report to reassess dilutions for the existing outfall and to evaluate whether acute dilutions at the zone of initial dilution (ZID) could be increased through installation of a new diffuser. This approach is being taken because dilution at the acute mixing zone boundary (versus dilution at the chronic mixing zone boundary) is the factor governing effluent limit calculations for the discharge.

Two scenarios were assessed: one in which the design discharge of 500,000 gallons per day (gpd) is discharged continuously (24 hours per day), which corresponds to an average discharge rate of 347 gallons per minute (gpm), and one where discharge occurs only on ebb tide (approximately 12 hours per day), which corresponds to 694 gpm. (Average rates are used because the wastewater treatment system will have a large equalization tank and is being designed to run at a steady, continuous flow rate.) The latter scenario was conceived to avoid potential accumulation in the boat basin where the existing outfall is located. When DEQ calculated limits based on the 2020 study, they used a worst-case dilution that had been estimated based on continuous discharge, which could theoretically, during flood tide, result in effluent flowing into the boat basins. A "flushing" factor was discussed in the MZS report, to account for how fast that accumulated wastewater could be flushed out of the boat basin. That factor resulted in lower overall dilutions. Discharging only during ebb tide will eliminate build up. This will be a benefit not only for dilutions, but also for aesthetic reasons.

Additionally, chronic dilutions were predicted for regulatory mixing zone (RMZ) sizes ranging from 100 ft, as allotted in the 900-J general permit, to 300 ft, as allowed in estuaries based on Oregon DEQ's *Internal Management Directive – Part 1* (DEQ, 2012). Similarly, acute dilutions were predicted for zones of initial dilution (ZID) sized from 10 to 30 ft, as it is DEQ practice to size the ZID at 10% the RMZ.

Existing Outfall

The existing outfall consists of a Y" shaped diffuser with two 4-inch diameter ports. A two-port diffuser cannot be modeled directly using CORMIX dilution modeling software, which can handle single submerged ports and diffusers with three or more ports.

Because of this, the discharge had previously been modeled as a single 5.7-inch diameter port, which has the same port area and exit velocity as two 4-inch diameter ports. While matching exit velocities is a reasonable approach for assessment of dilutions in the far field after plumes emanating from the individual ports have merged, it may be overly conservative for predicting dilutions in the near-field, since two smaller ports would have a larger jet surface area in contact with the receiving water until the point where the individual plumes merge. The CORMIX manual recommends that a single-port simulation be run with partial effluent flow when prediction is needed close to the diffuser, such as at the ZID boundary (Doneker & Jirka, 2021).

For this assessment, dilutions at the ZID boundary were assessed by modeling a single 4-inch diameter port at half the total discharge rate. For assessment of chronic criteria at the RMZ boundary, the diffuser was schematized as a single 5.7-inch diameter port as had been done in the 2020 MZS since a two-port diffuser can't be modeled in CORMIX. Model inputs are summarized in Table 1.

Parameter	Continuous Discharge	Ebb Only
Flow rate[1] (gpm)	Acute: 174 Chronic: 347	Acute: 347 Chronic 694
Effluent temperature[2] (°C)	15	15
Effluent salinity[2] (ppth)	5	5
Average depth[2] (ft)	12	12
Depth at discharge[2] (ft)	9	9
Wind Speed[2] (m/s)	2	2
Current Speed[2,3] (m/s)	Acute: 0.1 and 1.0 Chronic: 0.5	Acute: 0.1 and 1.0 Chronic: 0.5
Stratification[2,3]	Uniform & Stratified	Uniform & Stratified
Manning's n[2]	0.025	0.025
Distance to bank[2] (ft)	20	20
Vertical angle[2] (degrees)	0	0
Port diameter (inches)	Acute: 4 Chronic 5.7	Acute: 4 Chronic 5.7
Horizontal angle[2] (degrees)	90	90
Port height[4] (inches)	Acute: 2 Chronic: 2.85	Acute: 2 Chronic: 2.85
Mixing Zone[5] (ft)	Acute: 10, 20, & 30 Chronic: 100, 200, & 300	Acute: 10, 20, & 30 Chronic: 100, 200, & 300

Notes:

1. Acute dilutions were modeled using half the total flow through a single 4-inch diameter port. Chronic dilutions were modeled using the full flow through a single 5.7-inch diameter port. The flow rate used to assess acute dilutions is half the rate for the total diffuser since it is modeled though a single port of the two-port diffuser.
2. No change from 2020 Mixing Zone Study.

3. Where two scenarios are shown, the critical condition is the value resulting in the least mixing.
4. Port height is relative to its centerline and represents half the diameter indicating the diffuser is laying on the bottom.
5. Oregon Department of Environmental Quality (DEQ) *Internal Management Directive – Part 1* allows for RMZs up to 300 ft in any direction (2012). It is DEQ's typical practice to size the ZID at 10% the RMZ.

As shown in Table 2, critical dilutions at the ZID boundary for the existing diffuser were higher for the scenario in which discharge only occurs during ebb tide (Table 2). Dilutions for the ebb-only scenario ranged from 10.8 for a 10 ft ZID to 20.5 at a 30 ft ZID. For comparison, the critical acute dilution predicted at 10 ft was 6.9 in the 2020 MZS (SLR, 2020**).**

Also shown on the table are the predicted average monthly limits (AML) and maximum daily limits (MDL) for copper as estimated using the effluent limits calculation spreadsheet provided by DEQ, which used a value of 0.47 micrograms per liter (ug/L) for the background copper concentration. The AML and MDL for a 10 ft ZID are approximately 24 and 47 ug/L, respectively, for the ebb-only discharge and 12 and 24 ug/L for a continuous discharge. For comparison, the AML and MDL estimated by DEQ based on the 2020 study for PSG were approximately 15 and 31 ug/L, respectively.

Table 2: Critical Acute Dilutions and Estimated Limits for Existing Diffuser

ZID Distance	Continuous Discharge		Ebb Only Discharge	
	Dilution	Limits (ug/L)	Dilution	Limits (ug/L)
10 ft	5.5	AML: 12.1 MDL: 24.3	10.8	AML: 23.5 MDL: 47.2
20 ft	12.0	AML: 26.1 MDL: 52.4	16.0	AML: 34.8 MDL: 69.8
30 ft	19.3	AML: 41.9 MDL: 84.0	20.5	AML: 44.5 MDL: 89.2

Notes: Above scenarios represent critical ambient conditions, i.e., the combination of stratification and current speed resulting in the least mixing. It is DEQ practice to use centerline dilutions at the ZID boundary and average dilutions at the RMZ boundary. Above dilutions are expressed as centerline.

Predicted critical chronic dilutions at the RMZ boundary for the existing diffuser ranged from 46 at 100 ft to 157 at 300 ft for a continuous discharge, and from approximately 53 at 100 ft to 100 at 300 ft for ebb discharge only (Table 3). For comparison, the predicted critical chronic dilution at 100 ft was 53 in the 2020 MZS. However, DEQ used a value of 34 for dilution at the RMZ in its effluent limit calculation spreadsheet. That value came from a conservative assessment of flushing potential in the boat basing presented in the 2020 study. Accumulation in the boat basin would not be a factor for an ebb-only discharge. Regardless, effluent limits here (for copper) are governed by available acute dilution, and dilution at the RMZ has no effect on effluent limits calculations.

Table 3: Critical Chronic Dilutions for Existing Diffuser

RMZ Distance	Dilution Continuous	Dilution Ebb-Only[1]
100 ft	46.0	53.2
200 ft	107	72.1
300 ft	157	99.7

Notes: Above scenarios represent critical ambient conditions, i.e., the stratification resulting in the least mixing. It is DEQ practice to use centerline dilutions at the ZID boundary and average dilutions at the RMZ boundary. Above dilutions are expressed as average.

New Diffuser

Modeling was performed with CORMIX to assess whether acute dilutions at the ZID boundary could be improved through design and installation of a new multiport diffuser. As with the existing diffuser, modeling was performed using partial flow through a single port for predictions at the ZID boundary. For predictions at the RMZ boundary, the multiport diffuser module of CORMIX was used since all diffusers considered had at least three ports.

Simulations included assessment in both stratified and unstratified ambient, and at the low and high ambient current speeds (the later for acute conditions only) as described in the 2020 study since critical ambient conditions for modeling are defined in Oregon's guidance as the combination of those conditions which result in the least mixing (DEQ, 2013). The target exit velocity for the discharge was 3 meters per second (m/s) in keeping with recommendations from the United States Environmental Protection Agency for preventing acute toxicity (EPA, 1991). Design variables assessed included number of ports (3 to 15), diameter of ports (1.5 to 2.5 inches), vertical angle of the ports (0 to 90 degrees), diffuser depth (9 as for current diffuser to the basin average of 12 ft at MLLW), and diffuser length (6 to 24 ft; only effects chronic dilutions). Modeling was performed for both a continuous discharge scenario and for discharge during ebb tide only.

For ebb-only discharge, the highest critical acute dilution attainable at a 10 ft ZID was 20.2, which corresponds to a diffuser with 13 1.5-inch diameter ports oriented at 60 degrees above horizontal, pointing in the direction of ebb flow, and discharging one foot above the seafloor. For continuous discharge, a similar diffuser at approximately half the size results in the most mixing. The highest critical acute dilution attainable at a 10 ft ZID for continuous discharge was 19.3, which corresponds to a diffuser with seven 1.5-inch diameter ports oriented at 60 degrees above horizontal and on alternating sides of the diffuser axis (to account for tidal reversals). Under either discharge scenario, acute dilutions were not improved by moving the diffuser to a deeper location in the boat basin.

[1] Chronic water quality criteria that apply at the RMZ boundary are typically expressed as 4-day averages and while CORMIX dilutions are based on steady-state conditions, the actual discharge under the ebb-only scenario is intermittent. In such cases, it is reasonable to adjust the predicted steady-state dilution upward by a factor based on the ratio of the modeled instantaneous flow to the appropriate time-averaged flow. This method is described in the *Washinton Permit Writer's Manual*. Using that method, a factor of 2 would be applied to the ebb-only scenario since discharge would occur approximately half the time. No such adjustment is warranted for predictions at the ZID boundary since acute criteria are typically expressed as 1-hour averages, which is less than the time between tidal reversals (typically 6.2 hours).

Acute dilutions for other ZID sizes, 20 and 30 ft, are summarized in Table 4, which also includes corresponding estimates for the AML and MDL. For a 10 ft ZID, the AML and MDL for a new 7-port diffuser discharging continuously are approximately 37 and 75 ug/L, respectively. The AML and MDL for a new 13-port diffuser discharging during ebb only are approximately 44 and 88 ug/L, respectively. Both represent a significant increase over the existing diffuser.

Table 4: Critical Acute Dilutions and Limits for Proposed New Diffuser

ZID Distance	Continuous Discharge 7-Port Diffuser		Ebb Only Discharge 13-Port Diffuser	
	Dilution	Limits (ug/L)	Dilution	Limits (ug/L)
10 ft	17.1	AML: 37.1 MDL: 74.5	20.2	AML: 43.8 MDL: 87.9
20 ft	20.1	AML: 43.6 MDL: 87.5	26.4	AML: 57.2 MDL: 114.8
30 ft	22.0	AML: 47.7 MDL: 95.7	29.2	AML: 63.2 MDL: 126.9
Notes: Above scenarios represent critical ambient conditions, i.e., the combination of stratification and current speed resulting in the least mixing. It is DEQ practice to use centerline dilutions at the ZID boundary and average dilutions at the RMZ boundary. Above acute dilutions are expressed as centerline.				

Critical chronic dilutions at the RMZ boundary increased with increasing diffuser length and port spacing. A minimum 1.5-ft spacing is recommended to prevent plume-merge prior to the ZID boundary, which corresponds to a 9-ft diffuser for the 7-port continuous discharge and an 18-ft diffuser for the ebb-only 13-port diffuser. These recommendations apply for a 10-ft ZID and are based on review of dilution isocontours generated in CorVue. A larger spacing, 3 to 3.5 ft, would be recommended should a 30-ft IDZ be authorized.

Predicted critical dilutions at the RMZ boundary ranged from 140 at 100 ft to 305 at 300 ft for a 7-port diffuser discharging continuously. For a 13-port diffuser discharging during ebb only predicted critical chronic dilutions ranged from 126 at 100 ft to 243 at 300 ft. Though limit calculations aren't affected by dilutions at the RMZ, both options represent a significant increase over the existing diffuser.

Table 5: Critical Chronic Dilutions for Proposed New Diffuser

RMZ Distance	Continuous Discharge 7-Port Diffuser	Ebb Only Discharge 13-Port Diffuser
100 ft	140	126
200 ft	289	173
300 ft	305	243
Notes: Above scenarios represent critical ambient conditions, i.e., the stratification resulting in the least mixing. It is DEQ practice to use centerline dilutions at the ZID boundary and average dilutions at the RMZ boundary. Above dilutions are expressed as average.		

Summary

Dilutions were reevaluated for the existing 2-port diffuser based on a design flow of 500,000 gpd and considering continuous and ebb-only discharge regimes. Modeling was also performed to assess whether acute dilutions and effluent limits could be increased through installation of a new multiport diffuser. Results are summarized on Table 6, conservatively assuming a 100 ft RMZ and 10 ft ZID (DEQ guidance allows for a RMZ of up to 300 ft in estuaries). Results from the 2020 mixing zone study for PSG are also shown for comparison. With the existing diffuser, continuous discharge would result in less mixing than predicted in the 2020 study for PSG and lower effluent limits. **Some improvement in mixing can be attained by discharging only during ebb flow, which would result in limits approximately 50% higher than those estimated by DEQ based on the 2020 study. Even greater mixing could be obtained through installation of a new multiport diffuser. The most mixing and highest limits could be attained using a 13-port diffuser, with 2' separation OC between ports, discharging only during ebb tide. Under these conditions, the estimated AML and MDL are approximately 44 and 88 ug/L, respectively.**

Table 6: Comparison of Discharge Options Assuming a 100 ft RMZ and 10 ft ZID

Scenario	Dilutions	Limits (ug/L)
2020 Study for PSG	ZID: 6.9 RMZ: 53	AML: 15.3 MDL: 30.8
Existing 2-port diffuser, Continuous	ZID: 5.5 RMZ: 46.0	**AML: 12.1** MDL: 24.3
Existing 2-port diffuser, Ebb only	ZID: 10.8 RMZ: 53.2	**AML: 23.5** MDL: 47.2
New 7-port diffuser, Continuous	ZID: 17.1 RMZ: 140	AML: 37.1 MDL: 74.5
New 13-port diffuser, Ebb only	ZID: 20.2 RMZ: 126	AML: 43.8 MDL: 87.9
Notes: CORMIX output session files for the above scenarios (excluding from 2020 study) are included as Attachment 1.		

Should a new diffuser be installed, its exact location and orientation would have to be determined as part of the civil engineering design process, with the goal to position it such that the ports point in the direction of local water flow during ebb tide. Consideration should also be given to factors such as depth and boat traffic that could hit the diffuser if it is not deep enough or in locations where boats with a deeper draft commonly travel.

References

Doneker, R.L. and Jirka, G.H. 2021. CORMIX User Manual.

Oregon Department of Environmental Quality (DEQ) 2012. Regulatory Mixing Zone Internal Management Directive Part One: Allocating Regulatory Mixing Zones." May.

Oregon Department of Environmental Quality (DEQ) 2013. Regulatory Mixing Zone Internal Management Directive Part Two: Reviewing Mixing Zone Studies." June.

United States Environmental Protection Agency. 1991. "Technical Support Document for Water Quality-Based Toxics Control." March.

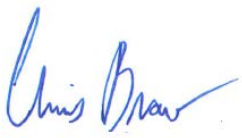
Washington Department of Ecology (Ecology) 2015. "Water Quality Program Permit Writer's Manual, Appendix C." January

Closure

SLR appreciated this opportunity to provide consulting services to EMC and looks forward to working with you again in the future.

Regards,

SLR International Corporation



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Attachments Attachment 1. CORMIX output

Attachment 1. CORMIX Session Files

Port of Brookings Mixing Zone Study Addendum

EMC Engineers/Scientists, LLC

SLR Project No.: 108.21691.00001

August 17, 2023

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                  CORMIX MIXING ZONE EXPERT SYSTEM
                     CORMIX Version 12.0GTD
                   HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:            Port of Brookings
  DESIGN CASE:              Existing, ebb, acute, 10 ft
  FILE NAME:                N:\Portland\Projects\EMC EngineersScientists\modeling\PortofBrookings.prd
  Using subsystem CORMIX1:    Single Port Discharges
  Start of session:         08/16/2023--16:13:54
*****************************************************************************
SUMMARY OF INPUT DATA:
---------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                        = unbounded
  Average depth                HA     = 3.66 m
  Depth at discharge           HD     = 2.74 m
  Ambient velocity             UA     = 1 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n          = 0.025
  Wind velocity                UW     = 2 m/s
  Stratification Type          STRCND = C
  Surface density              RHOAS  = 1005 kg/m^3
  Bottom density               RHOAB  = 1027 kg/m^3
  Stratification height        HINT   = 1.52 m (pycnocline level)
  Density below pycnocline        RHOAP  = 1021.5 kg/m^3
---------------------------------------------------------------------------
DISCHARGE PARAMETERS:            Single Port Discharge
  Nearest bank                         = left
  Distance to bank             DISTB  = 6.10 m
  Port diameter                D0     = 0.1016 m
  Port cross-sectional area       A0     = 0.0081 m^2
  Discharge velocity           U0     = 2.70 m/s
  Discharge flowrate           Q0     = 0.021892 m^3/s
  Discharge port height          H0     = 0.05 m
  Vertical discharge angle       THETA  = 0 deg
  Horizontal discharge angle      SIGMA  = 90 deg
  Discharge density            RHO0   = 1002.95 kg/m^3
  Density difference           DRHO   = 21.3000 kg/m^3
  Buoyant acceleration           GP0    = 0.2039 m/s^2
  Discharge concentration         C0     = 100 %
  Surface heat exchange coeff.    KS     = 0 m/s
  Coefficient of decay           KD     = 0 /s
---------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.09 m        Lm  = 0.24 m        Lb  = 0.00 m
  LM  = 1.79 m        Lm' = 99999 m        Lb' = 99999 m
---------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 18.76
  Velocity ratio               R      = 2.70
---------------------------------------------------------------------------
```

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 3.05 m (m^2 if area)
Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = H2 |

The specified ambient density stratification is important, the near field flow is confined to lower layer by ambient density jump at the pycnocline. The linearly stratified lower layer was represented by a uniform lower layer with density equal to mean lower layer density layer.
Applicable layer depth = lower layer depth = 1.52 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
6.10 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.
Pollutant concentration at NFR edge c = 2.726 %
Dilution at edge of NFR s = 36.7
NFR Location: x = 10.55 m
(centerline coordinates) y = 0.93 m
z = 1.52 m
NFR plume dimensions: half-width (bh) = 0.63 m
thickness (bv) = 0.63 m
Cumulative travel time: 10.2541 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically important. The discharge near field flow will be confined to the lower layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower layer with density equal to mean lower layer density.

PLUME BANK CONTACT SUMMARY:

Plume in unbounded section does not contact bank in this simulation.
********** TOXIC DILUTION ZONE SUMMARY **********
No TDZ was specified for this simulation.
********** REGULATORY MIXING ZONE SUMMARY **********
The plume conditions at the boundary of the specified RMZ are as follows:
Pollutant concentration c = 9.296739 %
Corresponding dilution s = 10.8
Plume location: x = 3.05 m
(centerline coordinates) y = 0.66 m
z = 0.12 m
Plume dimensions: half-width (bh) = 0.23 m
thickness (bv) = 0.45 m
Cumulative travel time < 10.2541 sec. (RMZ is within NFR)

Note:
Plume concentration c and dilution s values are reported based on prediction file values - assuming linear interpolation between predicted points just before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account for this linear interpolation. Step size can be controlled by increasing (reduces the prediction step size) or decreasing (increases the prediction step size) the - Output Steps per Module - in CORMIX input.

Regulatory Mixing Zone Analysis:
The specified RMZ occurs within the near-field region (NFR). This RMZ specification may be highly restrictive.

********** FINAL DESIGN ADVICE AND COMMENTS **********
The discharge port or nozzle points towards the nearest bank.
Since this is an UNUSUAL DESIGN, check whether you have specified correctly the port horizontal angle (SIGMA).

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                 CORMIX MIXING ZONE EXPERT SYSTEM
                    CORMIX Version 12.0GTD
                  HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:             Port of Brookings
  DESIGN CASE:               Existing, continuous, acute, 10 ft
  FILE NAME:                 N:\Portland\Projects\EMC EngineersScientists\modeling\PortofBrookings.prd
  Using subsystem CORMIX1:     Single Port Discharges
  Start of session:          08/16/2023--16:16:38
*****************************************************************************
SUMMARY OF INPUT DATA:
---------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                          = unbounded
  Average depth                 HA     = 3.66 m
  Depth at discharge            HD     = 2.74 m
  Ambient velocity              UA     = 1 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n          = 0.025
  Wind velocity                 UW     = 2 m/s
  Stratification Type           STRCND = U
  Surface density               RHOAS  = 1025 kg/m^3
  Bottom density                RHOAB  = 1025 kg/m^3
---------------------------------------------------------------------------
DISCHARGE PARAMETERS:            Single Port Discharge
  Nearest bank                           = left
  Distance to bank              DISTB  = 6.10 m
  Port diameter                 D0     = 0.1016 m
  Port cross-sectional area     A0     = 0.0081 m^2
  Discharge velocity            U0     = 1.35 m/s
  Discharge flowrate            Q0     = 0.010978 m^3/s
  Discharge port height         H0     = 0.05 m
  Vertical discharge angle      THETA  = 0 deg
  Horizontal discharge angle    SIGMA  = 90 deg
  Discharge density             RHO0   = 1002.95 kg/m^3
  Density difference            DRHO   = 22.0500 kg/m^3
  Buoyant acceleration          GP0    = 0.211 m/s^2
  Discharge concentration       C0     = 100 %
  Surface heat exchange coeff.  KS     = 0 m/s
  Coefficient of decay          KD     = 0 /s
---------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.09 m       Lm  = 0.12 m       Lb  = 0.00 m
  LM  = 0.88 m       Lm' = 99999 m      Lb' = 99999 m
---------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 9.25
  Velocity ratio                R      = 1.35
---------------------------------------------------------------------------
MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
  Toxic discharge                        = no
```

Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 3.05 m (m^2 if area)
Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = H1A1 |

This flow configuration applies to a layer corresponding to the full water
depth at the discharge site.
Applicable layer depth = water depth = 2.74 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
6.10 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory
implication. However, this information may be useful for the discharge
designer because the mixing in the NFR is usually sensitive to the
discharge design conditions.
Pollutant concentration at NFR edge c = 0.3029 %
Dilution at edge of NFR s = 330.1
NFR Location: x = 60.68 m
(centerline coordinates) y = 0.12 m
z = 2.74 m
NFR plume dimensions: half-width (bh) = 1.35 m
thickness (bv) = 1.35 m
Cumulative travel time: 58.8101 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water
density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards
the surface.

Benthic attachment:
For the present combination of discharge and ambient conditions, the
discharge plume becomes attached to the channel bottom within the NFR
immediately following the efflux. High benthic concentrations may occur.

FAR-FIELD MIXING SUMMARY:
Plume becomes vertically fully mixed at 209.59 m downstream.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section does not contact bank in this simulation.
********** TOXIC DILUTION ZONE SUMMARY **********
No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********
The plume conditions at the boundary of the specified RMZ are as follows:
Pollutant concentration c = 18.173382 %
Corresponding dilution s = 5.5
Plume location: x = 3.05 m
(centerline coordinates) y = 0.12 m
z = 0.07 m
Plume dimensions: half-width (bh) = 0.11 m
thickness (bv) = 0.22 m
Cumulative travel time < 58.8101 sec. (RMZ is within NFR)

Note:
Plume concentration c and dilution s values are reported based on prediction file values - assuming linear interpolation between predicted points just before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account for this linear interpolation. Step size can be controlled by increasing (reduces the prediction step size) or decreasing (increases the prediction step size) the - Output Steps per Module - in CORMIX input.

Regulatory Mixing Zone Analysis:
The specified RMZ occurs within the near-field region (NFR). This RMZ specification may be highly restrictive.

********** FINAL DESIGN ADVICE AND COMMENTS **********
The discharge port or nozzle points towards the nearest bank.
Since this is an UNUSUAL DESIGN, check whether you have specified correctly the port horizontal angle (SIGMA).

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                 CORMIX MIXING ZONE EXPERT SYSTEM
                    CORMIX Version 12.0GTD
                  HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:              Port of Brookings
  DESIGN CASE:                Existing, continuous, chronic, 100 ft
  FILE NAME:                  N:\Portland\Projects\EMC EngineersScientists\modeling\PortofBrookings.prd
  Using subsystem CORMIX1:     Single Port Discharges
  Start of session:           08/16/2023--16:19:43
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                       = unbounded
  Average depth                 HA     = 3.66 m
  Depth at discharge             HD     = 2.74 m
  Ambient velocity               UA     = 0.5 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n          = 0.025
  Wind velocity                 UW     = 2 m/s
  Stratification Type            STRCND = C
  Surface density               RHOAS  = 1005 kg/m^3
  Bottom density                RHOAB  = 1027 kg/m^3
  Stratification height          HINT   = 1.52 m (pycnocline level)
  Density below pycnocline        RHOAP  = 1021.5 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:            Single Port Discharge
  Nearest bank                        = left
  Distance to bank               DISTB  = 6.10 m
  Port diameter                 D0     = 0.1448 m
  Port cross-sectional area       A0     = 0.0165 m^2
  Discharge velocity             U0     = 1.33 m/s
  Discharge flowrate             Q0     = 0.021892 m^3/s
  Discharge port height           H0     = 0.07 m
  Vertical discharge angle        THETA  = 0 deg
  Horizontal discharge angle      SIGMA  = 90 deg
  Discharge density              RHO0   = 1002.95 kg/m^3
  Density difference             DRHO   = 21.3000 kg/m^3
  Buoyant acceleration           GP0    = 0.2039 m/s^2
  Discharge concentration         C0     = 100 %
  Surface heat exchange coeff.    KS     = 0 m/s
  Coefficient of decay           KD     = 0 /s
-----------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.13 m        Lm  = 0.34 m        Lb  = 0.04 m
  LM  = 1.05 m        Lm' = 99999 m        Lb' = 99999 m
-----------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 7.74
  Velocity ratio                 R      = 2.66
-----------------------------------------------------------------------------
```

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 30.48 m (m^2 if area)
Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = H2 |

The specified ambient density stratification is important, the near field flow is confined to lower layer by ambient density jump at the pycnocline. The linearly stratified lower layer was represented by a uniform lower layer with density equal to mean lower layer density layer.
Applicable layer depth = lower layer depth = 1.52 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
6.10 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.
Pollutant concentration at NFR edge c = 4.1522 %
Dilution at edge of NFR s = 24.1
NFR Location: x = 5.68 m
(centerline coordinates) y = 0.93 m
z = 1.52 m
NFR plume dimensions: half-width (bh) = 0.73 m
thickness (bv) = 0.73 m
Cumulative travel time: 10.8048 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically important. The discharge near field flow will be confined to the lower layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower layer with density equal to mean lower layer density.

PLUME BANK CONTACT SUMMARY:

Plume in unbounded section contacts nearest bank at 124.42 m downstream.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:

Pollutant concentration c = 2.172599 %
Corresponding dilution s = 46.0
Plume location: x = 30.48 m
(centerline coordinates) y = 0.93 m
z = 1.52 m
Plume dimensions: half-width (bh) = 2.57 m
thickness (bv) = 0.39 m
Cumulative travel time: 60.3954 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction file values - assuming linear interpolation between predicted points just before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account for this linear interpolation. Step size can be controlled by increasing (reduces the prediction step size) or decreasing (increases the prediction step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

The discharge port or nozzle points towards the nearest bank.
Since this is an UNUSUAL DESIGN, check whether you have specified correctly the port horizontal angle (SIGMA).

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
             CORMIX MIXING ZONE EXPERT SYSTEM
               CORMIX Version 12.0GTD
              HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:             Port of Brookings
  DESIGN CASE:               Existing, ebb, chronic, 100 ft
  FILE NAME:                 N:\Portland\Projects\EMC EngineersScientists\modeling\PortofBrookings.prd
  Using subsystem CORMIX1:    Single Port Discharges
  Start of session:          08/16/2023--16:20:26
*****************************************************************************
SUMMARY OF INPUT DATA:
---------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                     = unbounded
  Average depth              HA     = 3.66 m
  Depth at discharge         HD     = 2.74 m
  Ambient velocity           UA     = 0.5 m/s
  Darcy-Weisbach friction factor  F     = 0.0318
    Calculated from Manning's n     = 0.025
  Wind velocity              UW     = 2 m/s
  Stratification Type        STRCND = C
  Surface density            RHOAS  = 1005 kg/m^3
  Bottom density             RHOAB  = 1027 kg/m^3
  Stratification height      HINT   = 1.52 m (pycnocline level)
  Density below pycnocline        RHOAP  = 1021.5 kg/m^3
---------------------------------------------------------------------------
DISCHARGE PARAMETERS:            Single Port Discharge
  Nearest bank                      = left
  Distance to bank           DISTB  = 6.10 m
  Port diameter              D0     = 0.1448 m
  Port cross-sectional area       A0     = 0.0165 m^2
  Discharge velocity         U0     = 2.66 m/s
  Discharge flowrate         Q0     = 0.043785 m^3/s
  Discharge port height      H0     = 0.07 m
  Vertical discharge angle       THETA  = 0 deg
  Horizontal discharge angle      SIGMA  = 90 deg
  Discharge density          RHO0   = 1002.95 kg/m^3
  Density difference         DRHO   = 21.3000 kg/m^3
  Buoyant acceleration       GP0    = 0.2039 m/s^2
  Discharge concentration        C0     = 100 %
  Surface heat exchange coeff.    KS     = 0 m/s
  Coefficient of decay       KD     = 0 /s
---------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.13 m        Lm  = 0.68 m        Lb  = 0.07 m
  LM  = 2.11 m        Lm' = 99999 m        Lb' = 99999 m
---------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 15.48
  Velocity ratio             R      = 5.32
---------------------------------------------------------------------------
```

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 30.48 m (m^2 if area)
Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = H2A5 |

The specified ambient density stratification is important, the near field flow is confined to lower layer by ambient density jump at the pycnocline. The linearly stratified lower layer was represented by a uniform lower layer with density equal to mean lower layer density layer.
Applicable layer depth = lower layer depth = 1.52 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
6.10 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.
Pollutant concentration at NFR edge c = 2.4544 %
Dilution at edge of NFR s = 40.7
NFR Location: x = 12.76 m
(centerline coordinates) y = 3.14 m
z = 0 m
NFR plume dimensions: half-width (bh) = 1.34 m
thickness (bv) = 1.34 m
Cumulative travel time: 20.4562 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically important. The discharge near field flow will be confined to the lower layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower layer with density equal to mean lower layer density.

Benthic attachment:

For the present combination of discharge and ambient conditions, the
discharge plume becomes attached to the channel bottom within the NFR
immediately following the efflux. High benthic concentrations may occur.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section contacts nearest bank at 30.40 m downstream.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:

Pollutant concentration	c = 1.87895 %
Corresponding dilution	s = 53.2
Plume location:	x = 30.48 m
(centerline coordinates)	y = 6.10 m
	z = 0 m
Plume dimensions:	half-width (bh) = 5.91 m
	thickness (bv) = 0.79 m
Cumulative travel time:	55.9011 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction
file values - assuming linear interpolation between predicted points just
before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account
for this linear interpolation. Step size can be controlled by increasing
(reduces the prediction step size) or decreasing (increases the prediction
step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

The discharge port or nozzle points towards the nearest bank.
Since this is an UNUSUAL DESIGN, check whether you have specified
correctly the port horizontal angle (SIGMA).

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known
technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
CORMIX predictions on dilutions and concentrations (with associated
plume geometries) are reliable for the majority of cases and are accurate
to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
              CORMIX MIXING ZONE EXPERT SYSTEM
                CORMIX Version 12.0GTD
              HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:            Port of Brookings
  DESIGN CASE:             7-port, continuous, acute, 10 ft
  FILE NAME:              N:\Portland\Projects\EMC EngineersScientists\modeling\New diffuser 2023\New
Diffuser.prd
  Using subsystem CORMIX1:    Single Port Discharges
  Start of session:         08/16/2023--16:24:42
***************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                       = unbounded
  Average depth               HA     = 3.66 m
  Depth at discharge          HD     = 2.74 m
  Ambient velocity            UA     = 0.1 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n          = 0.025
  Wind velocity               UW     = 2 m/s
  Stratification Type         STRCND = C
  Surface density             RHOAS  = 1005 kg/m^3
  Bottom density              RHOAB  = 1027 kg/m^3
  Stratification height       HINT   = 1.52 m (pycnocline level)
  Density below pycnocline       RHOAP  = 1021.5 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:           Single Port Discharge
  Nearest bank                        = left
  Distance to bank            DISTB  = 6.10 m
  Port diameter               D0     = 0.0381 m
  Port cross-sectional area       A0     = 0.0011 m^2
  Discharge velocity          U0     = 2.74 m/s
  Discharge flowrate          Q0     = 0.003123 m^3/s
  Discharge port height         H0     = 0.30 m
  Vertical discharge angle        THETA  = 60 deg
  Horizontal discharge angle      SIGMA  = 180 deg
  Discharge density           RHO0   = 1002.95 kg/m^3
  Density difference          DRHO   = 21.3000 kg/m^3
  Buoyant acceleration          GP0    = 0.2039 m/s^2
  Discharge concentration        C0     = 100 %
  Surface heat exchange coeff.    KS     = 0 m/s
  Coefficient of decay          KD     = 0 /s
-----------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.03 m        Lm  = 0.92 m        Lb  = 0.64 m
  LM  = 1.11 m        Lm' = 99999 m        Lb' = 99999 m
-----------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 31.08
  Velocity ratio              R      = 27.39
```

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
  Toxic discharge = no
  Water quality standard specified = no
  Regulatory mixing zone = yes
  Regulatory mixing zone specification = distance
  Regulatory mixing zone value = 3.05 m (m^2 if area)
  Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

  | FLOW CLASS = V4 |

  The specified ambient density stratification is important, the near field
  flow is confined to lower layer by ambient density jump at the
  pycnocline. The linearly stratified lower layer was represented by a
  uniform lower layer with density equal to mean lower layer density layer.
  Applicable layer depth = lower layer depth = 1.52 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
  Origin is located at the BOTTOM below the port/diffuser center:
    6.10 m from the left bank/shore.
  Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory
  implication. However, this information may be useful for the discharge
  designer because the mixing in the NFR is usually sensitive to the
  discharge design conditions.
  Pollutant concentration at NFR edge c = 10.7934 %
  Dilution at edge of NFR s = 9.3
  NFR Location: x = 1.19 m
    (centerline coordinates) y = 0 m
                             z = 1.52 m
  NFR plume dimensions: half-width (bh) = 0.09 m
                        thickness (bv) = 1.52 m
  Cumulative travel time: 16.3524 sec.

Buoyancy assessment:
  The effluent density is less than the surrounding ambient water
  density at the discharge level.
  Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards
  the surface.

Stratification assessment:
  The specified two layer ambient density stratification is dynamically
  important. The discharge near field flow will be confined to the lower
  layer by the ambient density stratification.
  The linearly stratified lower layer will be represented by a uniform lower
  layer with density equal to mean lower layer density.

Near-field instability behavior:
The discharge flow will experience instabilities with full vertical mixing in the near-field.
There may be benthic impact of high pollutant concentrations.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section contacts nearest bank at 26.61 m downstream.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:

Pollutant concentration	c = 5.857352 %
Corresponding dilution	s = 17.1
Plume location:	x = 3.05 m
(centerline coordinates)	y = 0 m
	z = 1.52 m
Plume dimensions:	half-width (bh) = 1.09 m
	thickness (bv) = 0.24 m
Cumulative travel time:	34.9050 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction file values - assuming linear interpolation between predicted points just before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account for this linear interpolation. Step size can be controlled by increasing (reduces the prediction step size) or decreasing (increases the prediction step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                 CORMIX MIXING ZONE EXPERT SYSTEM
                    CORMIX Version 12.0GTD
                  HYDRO2:Version-12.0.1.0  August,2021
SITE NAME/LABEL:              Port of Brookings
  DESIGN CASE:                7-port, continuous, chronic, 100 ft
  FILE NAME:                  N:\Portland\Projects\EMC EngineersScientists\modeling\New diffuser 2023\New
Diffuser.prd
  Using subsystem CORMIX2:    Multiport Diffuser Discharges
  Start of session:           08/16/2023--16:32:36
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                         = unbounded
  Average depth                 HA      = 3.66 m
  Depth at discharge            HD      = 2.74 m
  Ambient velocity              UA      = 0.5 m/s
  Darcy-Weisbach friction factor  F     = 0.0318
    Calculated from Manning's n         = 0.025
  Wind velocity                 UW      = 2 m/s
  Stratification Type           STRCND = C
  Surface density               RHOAS  = 1005 kg/m^3
  Bottom density                RHOAB  = 1027 kg/m^3
  Stratification height         HINT   = 1.52 m (pycnocline level)
  Density below pycnocline      RHOAP  = 1021.5 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:           Submerged Multiport Diffuser Discharge
  Diffuser type                 DITYPE = alternating perpendicular
  Diffuser length               LD      = 2.74 m
  Nearest bank                          = left
  Diffuser endpoints            YB1    = 6.10 m;    YB2 = 8.84 m
  Number of openings            NOPEN  = 7
  Number of Risers              NRISER = 7
  Ports/Nozzles per Riser       NPPERR  = 1
  Spacing between risers/openings SPAC   = 0.46 m
  Port/Nozzle diameter          D0      = 0.0381 m
    with contraction ratio              = 1
  Equivalent slot width         B0      = 0.002494 m
  Total area of openings        TA0     = 0.0080 m^2
  Discharge velocity            U0      = 2.74 m/s
  Total discharge flowrate      Q0      = 0.021892 m^3/s
  Discharge port height         H0      = 0.30 m
  Nozzle arrangement            BETYPE = alternating without fanning
  Diffuser alignment angle      GAMMA  = 90 deg
  Vertical discharge angle      THETA  = 90 deg
  Actual Vertical discharge angle THEAC  = 60 deg
  Horizontal discharge angle    SIGMA  = 0 deg
  Relative orientation angle    BETA   = 90 deg
  Discharge density             RHO0   = 1002.95 kg/m^3
  Density difference            DRHO   = 21.3000 kg/m^3
```

```
  Buoyant acceleration            GP0    = 0.2039 m/s^2
  Discharge concentration         C0     = 100 %
  Surface heat exchange coeff.    KS     = 0 m/s
  Coefficient of decay            KD     = 0 /s
-------------------------------------------------------------------------------
FLUX VARIABLES PER UNIT DIFFUSER LENGTH:
  Discharge (volume flux)         q0     = 0.007981 m^2/s
  Momentum flux
     (based on slot width B0)    m0 =U0^2*B0   = 0.018765 m^3/s^2
     (based on volume flux q0)   m0 =U0*q0     = 0.021892 m^3/s^2
  Buoyancy flux
     (based on slot width B0)    j0 =U0*GP0*B0 = 0.001501 m^3/s^3
     (based on volume flux q0)   j0 =q0*GP0    = 0.001628 m^3/s^3
-------------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.00 m         Lm  = 0.09 m         LM  = 1.59 m
  lm' = 99999 m        Lb' = 99999 m        La  = 99999 m
  (These refer to the actual discharge/environment length scales.)
-------------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
Slot Froude number              FR0    = 121.64
  Port/nozzle Froude number       FRD0   = 31.12
  Velocity ratio                  R      = 5.49
-------------------------------------------------------------------------------
MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
  Toxic discharge                       = no
  Water quality standard specified      = no
  Regulatory mixing zone                = yes
  Regulatory mixing zone specification  = distance
  Regulatory mixing zone value          = 30.48 m (m^2 if area)
  Region of interest                    = 304.80 m
*******************************************************************************
HYDRODYNAMIC CLASSIFICATION:
  *-----------------------*
  | FLOW CLASS   = MU8 |
  *-----------------------*
  The specified ambient density stratification is important, the near field
  flow is confined to lower layer by ambient density jump at the
  pycnocline. The linearly stratified lower layer was represented by a
  uniform lower layer with density equal to mean lower layer density layer.
  Applicable layer depth = lower layer depth = 1.52 m
*******************************************************************************
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):


-------------------------------------------------------------------------------
X-Y-Z Coordinate system:
  Origin is located at the BOTTOM below the port/diffuser center:
    7.47 m from the left bank/shore.
  Number of display steps NSTEP = 500 per module.
-------------------------------------------------------------------------------
NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing.  It has no regulatory
  implication.  However, this information may be useful for the discharge
  designer because the mixing in the NFR is usually sensitive to the
```

discharge design conditions.
Pollutant concentration at NFR edge c = 1.0402 %
Dilution at edge of NFR s = 96.1
NFR Location: x = 3.81 m
(centerline coordinates) y = 0 m
z = 1.52 m
NFR plume dimensions: half-width (bh) = 1.38 m
thickness (bv) = 1.52 m
Cumulative travel time: 15.1359 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water
density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards
the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically
important. The discharge near field flow will be confined to the lower
layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower
layer with density equal to mean lower layer density.

Near-field instability behavior:
The diffuser flow will experience instabilities with full vertical mixing
in the near-field.
There may be benthic impact of high pollutant concentrations.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section does not contact bank in this simulation.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:
Pollutant concentration c = 0.712652 %
Corresponding dilution s = 140.3
Plume location: x = 30.48 m
(centerline coordinates) y = 0 m
z = 1.52 m
Plume dimensions: half-width (bh) = 3.08 m
thickness (bv) = 1.00 m
Cumulative travel time: 68.4759 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction
file values - assuming linear interpolation between predicted points just
before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account
for this linear interpolation. Step size can be controlled by increasing
(reduces the prediction step size) or decreasing (increases the prediction
step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent
the actual three-dimensional diffuser geometry. Thus, it approximates
the details of the merging process of the individual jets from each
port/nozzle.
In the present design, the spacing between adjacent ports/nozzles
(or riser assemblies) is of the order of, or less than, the local
water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design, the user is advised to use a
final CORMIX1 (single port discharge) analysis, with discharge data
for an individual diffuser jet/plume, in order to compare to
the present near-field prediction.

DIFFUSER DESIGN DETAILS: Because of the alternating arrangement
of the opposing nozzles/ports, the AVERAGE VERTICAL ANGLE (THETA)
has been set to 90 deg. This represents a ZERO NET HORIZONTAL
MOMENTUM FLUX for the entire diffuser.

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known
technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
CORMIX predictions on dilutions and concentrations (with associated
plume geometries) are reliable for the majority of cases and are accurate
to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                 CORMIX MIXING ZONE EXPERT SYSTEM
                    CORMIX Version 12.0GTD
                  HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:              Port of Brookings
  DESIGN CASE:                13-port, ebb, acute, 10 ft
  FILE NAME:                  N:\Portland\Projects\EMC EngineersScientists\modeling\New diffuser 2023\New
Diffuser.prd
  Using subsystem CORMIX1:     Single Port Discharges
  Start of session:            08/16/2023--16:27:13
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                        = unbounded
  Average depth                  HA     = 3.66 m
  Depth at discharge             HD     = 2.74 m
  Ambient velocity               UA     = 0.1 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n         = 0.025
  Wind velocity                  UW     = 2 m/s
  Stratification Type            STRCND = C
  Surface density                RHOAS  = 1005 kg/m^3
  Bottom density                 RHOAB  = 1027 kg/m^3
  Stratification height          HINT   = 1.52 m (pycnocline level)
  Density below pycnocline       RHOAP  = 1021.5 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:            Single Port Discharge
  Nearest bank                          = left
  Distance to bank               DISTB  = 6.10 m
  Port diameter                  D0     = 0.0381 m
  Port cross-sectional area      A0     = 0.0011 m^2
  Discharge velocity             U0     = 2.96 m/s
  Discharge flowrate             Q0     = 0.003369 m^3/s
  Discharge port height          H0     = 0.30 m
  Vertical discharge angle       THETA  = 60 deg
  Horizontal discharge angle     SIGMA  = 0 deg
  Discharge density              RHO0   = 1002.95 kg/m^3
  Density difference             DRHO   = 21.3000 kg/m^3
  Buoyant acceleration           GP0    = 0.2039 m/s^2
  Discharge concentration        C0     = 100 %
  Surface heat exchange coeff.   KS     = 0 m/s
  Coefficient of decay           KD     = 0 /s
-----------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.03 m        Lm  = 1.00 m        Lb  = 0.69 m
  LM  = 1.20 m        Lm' = 99999 m       Lb' = 99999 m
-----------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 33.52
  Velocity ratio                 R      = 29.55
```

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 3.05 m (m^2 if area)
Region of interest = 304.80 m
****
HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = V4 |

The specified ambient density stratification is important, the near field flow is confined to lower layer by ambient density jump at the pycnocline. The linearly stratified lower layer was represented by a uniform lower layer with density equal to mean lower layer density layer.
Applicable layer depth = lower layer depth = 1.52 m
****
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
6.10 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory implication. However, this information may be useful for the discharge designer because the mixing in the NFR is usually sensitive to the discharge design conditions.
Pollutant concentration at NFR edge c = 6.9547 %
Dilution at edge of NFR s = 14.4
NFR Location: x = 2.37 m
(centerline coordinates) y = 0 m
z = 1.52 m
NFR plume dimensions: half-width (bh) = 0.16 m
thickness (bv) = 1.52 m
Cumulative travel time: 16.6842 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically important. The discharge near field flow will be confined to the lower layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower layer with density equal to mean lower layer density.

Near-field instability behavior:
The discharge flow will experience instabilities with full vertical mixing in the near-field.
There may be benthic impact of high pollutant concentrations.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section contacts nearest bank at 26.69 m downstream.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:

Pollutant concentration	c = 4.951083 %
Corresponding dilution	s = 20.2
Plume location:	x = 3.05 m
(centerline coordinates)	y = 0 m
	z = 1.52 m
Plume dimensions:	half-width (bh) = 0.62 m
	thickness (bv) = 0.55 m
Cumulative travel time:	23.4906 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction file values - assuming linear interpolation between predicted points just before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account for this linear interpolation. Step size can be controlled by increasing (reduces the prediction step size) or decreasing (increases the prediction step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations (with associated plume geometries) are reliable for the majority of cases and are accurate to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges the design configuration as highly complex and uncertain for prediction.

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXX
                 CORMIX MIXING ZONE EXPERT SYSTEM
                    CORMIX Version 12.0GTD
                  HYDRO2:Version-12.0.1.0  August,2021
SITE NAME/LABEL:             Port of Brookings
  DESIGN CASE:               13-port, ebb, chronic, 100 ft
  FILE NAME:                 N:\Portland\Projects\EMC EngineersScientists\modeling\New diffuser 2023\New
Diffuser.prd
  Using subsystem CORMIX2:    Multiport Diffuser Discharges
  Start of session:          08/16/2023--16:29:35
************************************************************************
SUMMARY OF INPUT DATA:
------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                       = unbounded
  Average depth              HA     = 3.66 m
  Depth at discharge         HD     = 2.74 m
  Ambient velocity           UA     = 0.5 m/s
  Darcy-Weisbach friction factor  F      = 0.0318
    Calculated from Manning's n          = 0.025
  Wind velocity              UW     = 2 m/s
  Stratification Type        STRCND = C
  Surface density            RHOAS  = 1005 kg/m^3
  Bottom density             RHOAB  = 1027 kg/m^3
  Stratification height      HINT   = 1.52 m (pycnocline level)
  Density below pycnocline       RHOAP  = 1021.5 kg/m^3
------------------------------------------------------------------------
DISCHARGE PARAMETERS:           Submerged Multiport Diffuser Discharge
  Diffuser type              DITYPE = unidirectional perpendicular
  Diffuser length            LD     = 5.49 m
  Nearest bank                        = left
  Diffuser endpoints         YB1    = 6.10 m;    YB2 = 11.58 m
  Number of openings         NOPEN  = 13
  Number of Risers           NRISER = 13
  Ports/Nozzles per Riser    NPPERR  = 1
  Spacing between risers/openings SPAC   = 0.46 m
  Port/Nozzle diameter       D0     = 0.0381 m
    with contraction ratio            = 1
  Equivalent slot width      B0     = 0.002494 m
  Total area of openings     TA0    = 0.0148 m^2
  Discharge velocity         U0     = 2.95 m/s
  Total discharge flowrate   Q0     = 0.043785 m^3/s
  Discharge port height      H0     = 0.30 m
  Nozzle arrangement         BETYPE = unidirectional without fanning
  Diffuser alignment angle   GAMMA  = 90 deg
  Vertical discharge angle   THETA  = 60 deg
  Actual Vertical discharge angle THEAC  = 60 deg
  Horizontal discharge angle  SIGMA  = 0 deg
  Relative orientation angle  BETA   = 90 deg
  Discharge density          RHO0   = 1002.95 kg/m^3
  Density difference         DRHO   = 21.3000 kg/m^3
```

Buoyant acceleration GP0 = 0.2039 m/s^2
Discharge concentration C0 = 100 %
Surface heat exchange coeff. KS = 0 m/s
Coefficient of decay KD = 0 /s

FLUX VARIABLES PER UNIT DIFFUSER LENGTH:
Discharge (volume flux) q0 = 0.007981 m^2/s
Momentum flux
(based on slot width B0) m0 =U0^2*B0 = 0.021763 m^3/s^2
(based on volume flux q0) m0 =U0*q0 = 0.023576 m^3/s^2
Buoyancy flux
(based on slot width B0) j0 =U0*GP0*B0 = 0.001616 m^3/s^3
(based on volume flux q0) j0 =q0*GP0 = 0.001628 m^3/s^3

DISCHARGE/ENVIRONMENT LENGTH SCALES:
LQ = 0.00 m Lm = 0.09 m LM = 1.71 m
lm' = 99999 m Lb' = 99999 m La = 99999 m
(These refer to the actual discharge/environment length scales.)

NON-DIMENSIONAL PARAMETERS:
Slot Froude number FR0 = 131.00
Port/nozzle Froude number FRD0 = 33.51
Velocity ratio R = 5.91

MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
Toxic discharge = no
Water quality standard specified = no
Regulatory mixing zone = yes
Regulatory mixing zone specification = distance
Regulatory mixing zone value = 30.48 m (m^2 if area)
Region of interest = 304.80 m

****

HYDRODYNAMIC CLASSIFICATION:

| FLOW CLASS = MU2 |

The specified ambient density stratification is important, the near field
flow is confined to lower layer by ambient density jump at the
pycnocline. The linearly stratified lower layer was represented by a
uniform lower layer with density equal to mean lower layer density layer.
Applicable layer depth = lower layer depth = 1.52 m

****

MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

X-Y-Z Coordinate system:
Origin is located at the BOTTOM below the port/diffuser center:
8.84 m from the left bank/shore.
Number of display steps NSTEP = 500 per module.

NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing. It has no regulatory
implication. However, this information may be useful for the discharge
designer because the mixing in the NFR is usually sensitive to the

discharge design conditions.
Pollutant concentration at NFR edge c = 1.0316 %
Dilution at edge of NFR s = 96.9
NFR Location: x = 2.74 m
(centerline coordinates) y = 0 m
z = 1.52 m
NFR plume dimensions: half-width (bh) = 2.66 m
thickness (bv) = 1.52 m
Cumulative travel time: 5.1712 sec.

Buoyancy assessment:
The effluent density is less than the surrounding ambient water
density at the discharge level.
Therefore, the effluent is POSITIVELY BUOYANT and will tend to rise towards
the surface.

Stratification assessment:
The specified two layer ambient density stratification is dynamically
important. The discharge near field flow will be confined to the lower
layer by the ambient density stratification.
The linearly stratified lower layer will be represented by a uniform lower
layer with density equal to mean lower layer density.

Near-field instability behavior:
The diffuser flow will experience instabilities with full vertical mixing
in the near-field.
There may be benthic impact of high pollutant concentrations.

PLUME BANK CONTACT SUMMARY:
Plume in unbounded section contacts nearest bank at 110.83 m downstream.

********** TOXIC DILUTION ZONE SUMMARY **********

No TDZ was specified for this simulation.

********** REGULATORY MIXING ZONE SUMMARY **********

The plume conditions at the boundary of the specified RMZ are as follows:
Pollutant concentration c = 0.79204 %
Corresponding dilution s = 126.3
Plume location: x = 30.48 m
(centerline coordinates) y = 0 m
z = 1.52 m
Plume dimensions: half-width (bh) = 4.70 m
thickness (bv) = 1.18 m
Cumulative travel time: 60.6448 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction
file values - assuming linear interpolation between predicted points just
before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account
for this linear interpolation. Step size can be controlled by increasing
(reduces the prediction step size) or decreasing (increases the prediction
step size) the - Output Steps per Module - in CORMIX input.

********** FINAL DESIGN ADVICE AND COMMENTS **********

CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent
the actual three-dimensional diffuser geometry. Thus, it approximates
the details of the merging process of the individual jets from each
port/nozzle.
In the present design, the spacing between adjacent ports/nozzles
(or riser assemblies) is of the order of, or less than, the local
water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design, the user is advised to use a
final CORMIX1 (single port discharge) analysis, with discharge data
for an individual diffuser jet/plume, in order to compare to
the present near-field prediction.

REMINDER: The user must take note that HYDRODYNAMIC MODELING by any known
technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
CORMIX predictions on dilutions and concentrations (with associated
plume geometries) are reliable for the majority of cases and are accurate
to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
the design configuration as highly complex and uncertain for prediction.

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

PORT OF BROOKINGS - HARBOR
PROPOSED WASTEWATER TREATMENT PLANT & STORM DRAIN IMPROVEMENTS

PORT OF BROOKINGS HARBOR

GENERAL NOTES

1. WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF THE CURRENT "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION" , ODOT/ AMERICAN PUBLIC WORKS ASSOCIATION (APWA), UNLESS OTHERWISE COVERED BY THE SPECIFICATIONS WRITTEN FOR THIS PROJECT(IF APPLICABLE), OR THE 'WATER / SEWER STANDARDS AND SPECIFICATIONS' OR THE "STANDARD DRAWINGS " OF CURRY COUNTY.

2. IN THE EVENT OF CONFLICT IN REGULATIONS AND SPECIFICATIONS GOVERNING THIS PROJECT, THE ORDER OF PRECEDENCE IS AS FOLLOWS:
   A. CONTRACT SPECIAL PROVISIONS;
   B. CONSTRUCTION PLANS;
   C. PORT OF BROOKINGS HARBOR STANDARDS AND SPECIFICATIONS;
   D. GENERAL NOTES;
   E. ODOT/APWA SPECIFICATIONS FOR CONSTRUCTION.

3. ALL CONSTRUCTION SHALL BE SUBJECT TO INSPECTION AND COMPLIANCE WITH THE ABOVE APPLICABLE REGULATIONS AND SPECIFICATIONS.

4. ALL CONTRACTORS AND SUBCONTRACTORS SHALL POSSESS A VALID STATE CONTRACTOR'S LICENSE PRIOR TO COMMENCING WORK ON THIS PROJECT. ALL CONTRACTORS AND SUBCONTRACTORS MUST ALSO BE CURRENTLY PRE-QUALIFIED WITH CURRY COUNTY FOR THE CLASS(ES) OF WORK REQUIRED PRIOR TO ANY CONSTRUCTION.

5. A MANDATORY PRE-CONSTRUCTION CONFERENCE OF ALL PARTIES SHALL BE HELD PRIOR TO ANY CONSTRUCTION.

6. THE PORT OF BROOKINGS HARBOR SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY STAGE OF CONSTRUCTION.

7. THE ENGINEER DOES NOT GUARANTEE THE COMPLETENESS OR ACCURACY OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FIELD VERIFYING ANY POTENTIAL UTILITY CONFLICTS BETWEEN EXISTING UNDERGROUND UTILITIES AND THE WORK SHOWN ON THESE PLANS. THIS INCLUDES BOTH POTENTIAL UTILITY CONFLICTS SHOWN ON THESE PLANS AND POTENTIAL UTILITY CONFLICTS NOT SHOWN ON THESE PLANS BUT EITHER LOCATED, FOUND OR MARKED IN THE FIELD. WHERE POTENTIAL CONFLICTS ORE FOUND, THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NEEDED (INCLUDING PRELIMINARY POTHOLING OF THE UTILITIES AT THE POTENTIAL CONFLICT LOCATION) PRIOR TO WORK IN THE AREA TO ALLOW TIME FOR THE RESPONSIBLE AGENCY TO CORRECT THE CONFLICT (UNLESS OTHERWISE SPECIFIED ON THE PLANS). NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY EXPENSE THE CONTRACTOR MAY INCUR AS A RESULT OF HIS FAILURE TO ADEQUATELY EXPLORE, IN THE OPINION OF THE ENGINEER, POTENTIAL UTILITY CONFLICTS.

8. THERE SHALL BE NO DEVIATION FROM THE APPROVED PLANS UNLESS REQUESTED IN WRITING BY CONTRACTOR AND APPROVED IN WRITING BY THE PORT OF BROOKINGS HARBOR. .

9. ALL UNDERGROUND UTILITIES AND SERVICE LATERALS ARE TO BE INSTALLED PRIOR TO PAVING.

10. CRUSHED ROCK BASE MATERIAL SHALL BE OBTAINED FROM A SOURCE APPROVED BY THE PORT OF BROOKINGS HARBOR.

11. CRUSHED ROCK BASE MATERIAL SHALL COMPLY WITH APWA/ODOT SEC. 00641 AND SEC. 02630 AND SHALL BE PLACED IN MAXIMUM LIFTS OF (6) INCHES AND SHALL BE COMPACTED TO 100% OF MAXIMUM RELATIVE DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD A WITH COURSE PARTICAL CORRECTION ACCORDING TO ODOT TM-223 PROCEDURE FOR THE DETERMINATION OF 100% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.

12. CLASS "B" TRENCH BACKFILL MATERIAL SHALL COMPLY WITH APWA/ODOT SEC. 00405.14 AND SHALL BE 3/4" CRUSHED ROCK UNDER PAVEMENT OR IN RIGHT-OF-WAY. BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM LIFTS OF 6" AND SHALL BE COMPACTED BY MECHANICAL MEANS TO 95% OF MAXIMUM RELATIVE DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD D PROCEDURE FOR THE DETERMINATION OF 95% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.

13. UNLESS NOTED OTHERWISE, THE SAMPLING AND TESTING OF MATERIALS FOR USE ON THE JOBSITE SHALL SHALL BE AT THE EXPENSE OF THE CONTRACTOR. ALL TESTING OF MATERIALS AND WORKMANSHIP SHALL BE PERFORMED BY A CERTIFIED TESTER. RESULTS OF THE TESTS SHALL BE SENT DIRECTLY TO THE PORT OF BROOKINGS HARBOR AS WELL AS THE CONTRACTOR, BY THE LABORATORY. LOCATION AND FREQUENCY OF TESTS SHALL BE DESIGNATED BY THE PORT OF BROOKINGS HARBOR AND COORDINATED BY THE CONTRACTOR.

14. CLASS "A" TRENCH BACKFILL MATERIAL SHALL BE APPROVED NATIVE MATERIAL PER ODOT/APWA SPECS. SEC. 00405.14 FOR ALL AREAS OUTSIDE OF TRAFFIC AREAS AND THE RIGHT-OF-WAY. BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM LIFTS OF SIX (6) INCHES AND SHALL BE COMPACTED BY MECHANICAL MEANS TO 75% OF MAXIMUM RELATIVE DENSITY AND OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99 METHOD D PROCEDURE FOR THE DETERMINATION OF 95% RELATIVE MAXIMUM DENSITY OF GRANULAR MATERIALS.

15. ASPHALTIC CONCRETE PAVEMENT SHALL BE LEVEL 2, 1/2" DENSE GRADE MIX. MATERIALS AND WORKMANSHIP SHALL BE AS SPECIFIED IN SECTION 00744 OF THE ODOT/APWA SPECS. INSTALLATION SHALL BE IN ACCORDANCE WITH PORT OF BROOKINGS HARBOR STANDARD SPECIFICATIONS, AND TO THE CROSS-SECTION(S), GRADE AND LOCATIONS SHOWN ON THE APPROVED PLANS.

16. CONSTRUCTION STAKING SHALL BE PROVIDED BY THE CONTRACTOR'S SURVEYOR, FOR EACH PHASE OF CONSTRUCTION. STAKES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION AND SHALL BE CONTINUOUSLY MAINTAINED BY THE CONTRACTOR UNTIL EACH PHASE OF CONSTRUCTION HAS BEEN COMPLETED AND INSPECTED. THE CONTRACTOR'S SURVEYOR SHALL PERFORM THE CONTRACTOR RESPONSIBILITIES DESCRIBED IN THE CONSTRUCTION SURVEYING MANUAL FOR CONTRACTORS, CHAPTER 1.6 (SEC. 00305).

17. A COPY OF THE APPROVED PLANS, SPECIFICATIONS AND STANDARD DRAWINGS SHALL BE ON THE JOBSITE AT ALL TIMES WHILE THE WORK IS IN PROGRESS.

18. STREET NAMES, SIGNS, STOP BARS AND STOP SIGNS SHALL BE INSTALLED BY PORT OF BROOKINGS HARBOR. SIGN SLEEVES TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.

19. ALL MATERIAL REMAINING AFTER BACKFILLING OPERATIONS HAVE BEEN COMPLETED SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED OF BY THE PORT OF BROOKINGS HARBOR.

20. PRIOR TO FINAL ACCEPTANCE, THE PORT OF BROOKINGS HARBOR SHALL CERTIFY THAT ALL IMPROVEMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

21. IF THE CONTRACTOR WISHES TO USE WATER FROM THE PORT OF BROOKINGS WATER DISTRIBUTION SYSTEM, CONTRACTOR SHALL MAKE USE OF A BULK WATER STATION IF AVAILABLE. AS AN OPTION, THE CONTRACTOR MAY APPLY FOR A HYDRANT METER PERMIT THROUGH THE HARBOR WATER DISTRICT.

22. CONTRACTOR SHALL NOT USE THE PUBLIC RIGHT-OF-WAY FOR LONG TERM STAGING OR MATERIAL STORAGE WITHOUT PRIOR APPROVAL. DURING THE WORK DAY, THE CONTRACTOR MAY USE THE WORK AREA FOR STORAGE OF PROJECT MATERIALS AND EQUIPMENT THAT WILL BE USED DURING THAT DAY; HOWEVER, AT THE END OF THE DAY, THE WORK SITE SHALL BE CLEANED UP TO THE SATISFACTION OF THE ENGINEER. DISPOSAL OF MATERIALS IS NOT PERMITTED WITHIN THE PUBLIC RIGHT-OF-WAY.

23. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR DISPOSAL SITES OUTSIDE OF THE RIGHT-OF-WAY, SHALL PAY ANY AND ALL COSTS INVOLVED, AND SHALL FURNISH THE PORT OF BROOKINGS HARBOR WITH ALL REQUIRED PERMITS AND DISPOSAL SITE AGREEMENTS.

24. THE CONTRACTOR SHALL DESIGNATE AN EMERGENCY CONTACT PERSON THAT WILL HANDLE AFTER-HOURS ISSUES RELATED TO THE PROJECT, AND SHALL PROVIDE EMERGENCY CONTACT TELEPHONE NUMBERS TO THE PORT OF BROOKINGS HARBOR.

25. ALL MATERIALS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS OR LISTED IN THE CONTRACT SPECIFICATIONS.

26. ALL GRADES SHOWN ON THE PLANS SHALL BE SUBJECT TO ADJUSTMENT IN THE FIELD BY THE ENGINEER (IN ACCORDANCE WITH THE PROJECT SURVEYOR).

27. THE CONTRACTOR SHALL CONTACT THE PORT OF BROOKINGS HARBOR 24 HOURS IN ADVANCE OF ANY EXCAVATION NEAR THE COUNTY OR PORT FACILITIES. CONTACT THE PORT OF BROOKINGS HARBOR IF ANY UNALLOCATED FACILITIES ARE DISCOVERED DURING CONSTRUCTION..

28. THE CONTRACTOR SHALL NOTIFY CURRY COUNTY 24 HOURS IN ADVANCE OF ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

STORM DRAIN NOTES

1. ALL STORM SEWER PIPE SHALL MEET THE OREGON STATE PLUMBING SPECIALTY CODE.

2. ALL PIPE SHALL PLACED ON STABLE EARTH, OR IF IN THE OPINION OF THE PROJECT ENGINEER, THE EXISTING FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED WITH A GRAVEL MATERIAL TO SUPPORT THE PIPE.

3. THE BACKFILL SHALL BE PLACED EQUALLY ON BOTH SIDES OF THE PIPE IN LAYERS WITH A LOOSE AVERAGE DEPTH OF 6", MAXIMUM DEPTH 8"-9" THOROUGHLY TAMPING EACH LAYER. THESE COMPACTED LAYERS MUST EXTEND FOR ONE DIAMETER ON EACH SIDE OF THE PIPE OR TO THE OTHER SIDE OF THE TRENCH. MATERIALS TO COMPLETE THE FILL OVER THE PIPE SHALL BE THE SAME AS DESCRIBED.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL DROP INLET AND CATCH BASIN FRAMES / GRATES TO GRADE PRIOR TO PAVING.

3. UNLESS OTHERWISE NOTED, ALL STORM SEWER PIPE SHALL BE CORRUGATED POLYETHYLENE PIPE. THE MATERIAL SUPPLIED UNDER THIS SPECIFICATION SHALL BE HIGH DENSITY CORRUGATED POLYETHYLENE SMOOTH INTERIOR PIPE AND SHALL BE MANUFACTURED IN CONFORMITY WITH THE LATEST AASHTO SPECIFICATIONS. COUPLERS SHALL COVER NOT LESS THAN ONE FULL CORRUGATION ON EACH ANNULAR SECTION OF PIPE.

6. PIPE ENDS AT OUTFALLS SHALL BE BEVELED TO MATCH SIDE SLOPES. FIELD CUT OF PIPE ENDS IS PERMITTED WHEN APPROVED BY THE COUNTY/PORT ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PIPE OUTFALLS SHALL BE RIPRAPPED WITH A PAD MINIMUM OF 12" THICK, EXTENDING MINIMUM OF 6' FROM DISCHARGE POINT.

7. ALL STEEL PARTS OF ANY STORM DRAINAGE SYSTEM SHALL BE GALVANIZED OR HAVE A TREATMENT 1 ASPHALT COATING OR BETTER AS SPECIFIED IN THE ODOT STANDARD SPECIFICATIONS. ALUMINUM AND CONCRETE PIPES AND STRUCTURES DO NOT REQUIRE A TREATMENT 1 COATING.

8. STORM DRAINAGE PIPE AND DROP INLETS SHALL BE FLUSHED AND CLEANED PRIOR TO ENGINEER/JURISDICTIONAL ACCEPTANCE.

9. ALL PIPES SHALL MINIMUM OF 12" COVER AT THE TOP OF THE BELL, OR PIPES SHALL HAVE MINIMUM COVER PER THE MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS GREATER.

10. 100-FT MAX LINEAR RUN BETWEEN CLEANOUTS. 135' MAX AGGREGATE HORIZONTAL CHANGE IN DIRECTION WITHOUT CLEANOUT.

11. STORM DRAIN PIPE SHALL BE HDPE , TYPICAL.

INSPECTION TESTING & FREQUENCY TABLE
SEE NOTE 1

STREETS, PARKING LOTS, FILLS, TRENCHES, ETC.			
MATERIAL	FREQUENCY	MIN. NUMBER OF TESTS	NOTES
SUB-GRADE	1 TEST PER 4,000 SF PER LIFT	4	2, 3, & 5
ENGINEERED FILL	1 TEST PER 4,000 SF PER LIFT	4	2 & 4
BASEROCK	1 TEST PER 4,000 SF PER LIFT	4	2, 3, & 5
ASPHALT	1 TEST PER 6,000 SF PER LIFT	4	2 & 5
TRENCH BACKFILL	1 TEST PER 200 LIN. FT. PER LIFT	4	2
TRENCH ASPHALT PATCHING	1 TEST PER 300 LIN. FT. PER LIFT	4	2
CONCRETE			
SLUMP, AIR AND CYLINDERS FOR ALL SITE CONCRETE AND PCC PAVEMENT, UNLESS OTHERWISE SPECIFIED, ONE SET OF CYLINDERS PER 100 CUBIC YARDS OR PORTION THEREOF OF CONCRETE POURED PER DAY. SLUMP AND AIR TESTS ARE REQUIRED ON SAME LOAD AS CYLINDERS.			2 & 5
BUILDING PERMIT INSPECTION AND SPECIAL INSPECTIONS FOR STRUCTURAL CONCRETE, MASONRY, EPOXY ANCHORS, ETC., AS REQUIRED BY PROJECT STRUCTURAL ENGINEER AND CURRENT BUILDING CODES.			2 & 5
ENGINEER TO INSPECT FORMS PRIOR TO PLACEMENT OF CONCRETE.			5
UNDERGROUND VAULTS, MANHOLES & STORMWATER DETENTION SYSTEMS			
PROVIDE ENGINEER WITH AS-BUILT SURVEY PRIOR TO BACKFILL. INSPECTIONS BY ENGINEER REQUIRED PRIOR TO BACKFILL.			5

INSPECTION AND TESTING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL TESTING, INSPECTIONS, AND SPECIAL INSPECTIONS, AND SPECIAL INSPECTIONS AS REQUIRED BY PROJECT ENGINEER, CURRENT BUILDING CODES, OR JURISDICTIONS HAVING AUTHORITY. ALL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO SUBSEQUENT WORK. ADDITIONAL OR FREQUENT TESTS MAY BE REQUIRED BY AGENCY, BUILDING OFFICIAL OR ENGINEER.

2. TESTING MUST BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY RETAINED BY THE CONTRACTOR.

3. IN ADDITION TO IN-PLACE DENSITY TESTING, THE SUB-GRADE AND BASE ROCK SHALL BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR HEAVY NON-VIBRATORY ROLLER. SOILS SHALL BE REMOVED AND RE-COMPACTED OR REPLACED WITH APPROVED IMPORTED STRUCTURAL FILL IF THEY DO NOT DEMONSTRATE A FIRM, UNYIELDING CONDITION. BASE ROCK PROOF-ROLL SHALL TAKE PLACE LESS THAN 24 HOURS PRIOR TO PAVING AND SHALL BE WITNESSED BY THE ENGINEER OR GOVERNING AGENCY.

4. THE APPROVED INDEPENDENT LABORATORY SHALL PROVIDE CLARIFICATION STAMPED BY AN ENGINEER LICENSED IN THE STATE OF OREGON THAT THE SUB-GRADE IS PREPARED AND ALL ENGINEERED FILLS ARE PLACED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND DOCUMENTS.

5. PROVIDE ENGINEER WITH SPOT ELEVATION VERIFICATION FOR SUB-GRADE AND TOP OF AGGREGATE PRIOR TO PLACING CONCRETE, ASPHALT, AND/OR OTHER STRUCTURES(WHEN INCLUDED IN THE PROJECT).

CONCRETE STANDARDS

1. EXCEPT AS OTHERWISE NOTED OR DEFINED BY COUNTY AND/OR PROJECT ENGINEER APPROVAL, ALL CONCRETE SHALL CONFORM TO SECTIONS 00440 AND 00759 OF THE CURRENT OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL.

2. CONCRETE SHALL NOT BE PLACED UNTIL FORMS HAVE BEEN INSPECTED.

3.INSPECTION REQUESTS MUST BE MADE 24 HOURS PRIOR TO DATE OF INSPECTION. TO SCHEDULE AN INSPECTION, CALL PORT OF BROOKINGS HARBOR, PHONE: 541-469-2218.

4. CONCRETE SHALL BE COMMERCIAL GRADE RETAINING THE FOLLOWING CHARACTERISTICS:
   ENTRAINED AIR - 4.0% TO 7.0%
   SLUMP - 5 INCHES OR LESS
   COMPRESSIVE STRENGTH - MINIMUM 3,000 PSI AT 28 DAYS
   TEMPERATURE - MINIMUM 50° f TO MAXIMUM 90° f.

5. ALL CONCRETE SHALL BE FORMED ON A MINIMUM 95% RD COMPACTED BASE OF ¾"-0" CRUSHED AGGREGATE. DEPTH OF BASE VARIES WITH STRUCTURE. MINIMUM 4" COMPACTED BASE FOR SIDEWALKS, RAMPS, AND APPROACHES. MINIMUM 6" BASE FOR CURB. GUTTER, VALLEY GUTTERS AND INLETS.

6. SAFETY YELLOW TRUNCATED DOME DETECTABLE WARNING SURFACES ARE REQUIRED ON ALL SIDEWALK RAMPS AND ACCESSIBLE ROUTE ISLANDS.

7. CONCRETE EXTRUDING MACHINES SHALL OPERATE UNDER SUFFICIENT RESTRAINT TO FORWARD MOTION TO PRODUCE A WELL-CONSOLIDATED MASS OD CONCRETE.

8. ALL CONCRETE STRUCTURES REINFORCED WITH REINFORCING BARS SHALL BE VIBRATED TO REMOVE VOIDS AS APPLICABLE.

9. SURFACE SHALL HAVE A FINISHED TEXTURE THAT WILL NOT BE SLICK WHEN WET (MEDIUM BROOM FINISH). CURING COMPOUND MAY BE APPLIED IMMEDIATELY AFTER CONCRETE IS FINISHED. WHITE PIGMENT RECOMMENDED, CLEAR ACCEPTABLE.

10. AN EDGING TOOL SHALL BE USED ON ALL EDGES AND JOINTS.

11. PROVIDE CONTRACTION JOINTS AT 15' INTERVALS AND "FALSE" TOOLED JOINTS AT 5' INTERVALS ON CURBS, SIDEWALKS AND APPROACHES. CONTRACTION JOINT GROOVES SHALL BE AT MINIMUM, 1-1/2" DEEP OR ONE-THIRD THE THICKNESS OF CONCRETE.

12. PROVIDE EXPANSION JOINTS OPPOSITE ABUTTING EXPANSION JOINTS IN ABUTTING CONCRETE, AT EACH POINT OF TANGENCY IN THE STRUCTURE ALIGNMENT, BETWEEN DRIVEWAYS AND CONCRETE PAVEMENT, AROUND POLES, POSTS, BOXES, AND OTHER FIXTURES WHICH PROTRUDE THROUGH OR AGAINST THE STRUCTURES, AT ALL BCR'S AND ECR'S, AT MAXIMUM OF 100' INTERVALS. EXPANSION JOINT MATERIAL SHALL BE OF THE BITUMINOUS, PREFORMED FILLER TYPE NOT LESS THAN ½" WIDE, PLACED FLUSH OR NO MORE THAN ⅛" BELOW THE CONCRETE SURFACE..

13. STRAIGHT LINE EDGES SHALL NOT VARY MORE THAN ¼" UNDER A 12 FT. STRAIGHT EDGE.

14. CURE AND PROTECT CONCRETE AFTER PLACING AND FINISHING. KEEP STRUCTURES FREE FROM CONTACT, STRAIN AND PUBLIC TRAFFIC FOR AT LEAST SEVEN DAYS OR LONGER AS DIRECTED, MIXES TO EXPEDITE CURING MAY BE USED WITH APPROVAL OF COUNTY ENGINEER.

ABBREVIATIONS & SYMBOLS

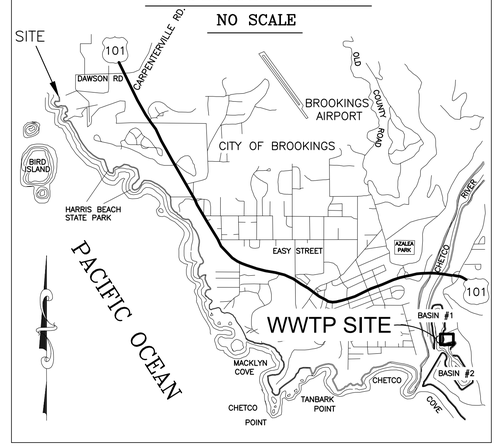
A.C.	ASPHALTIC CONCRETE	MB	MAILBOX
ARV	AIR RELEASE VALVE	MIN	MINIMUM
B.C.	BACK OF CURB	M.H.	MANHOLE
B.F.V.	BUTTERFLY VALVE	MJ	MECHANICAL JOINT
BF	BLIND FACE	OG	ORIGINAL GRADE
BO	BLOW OFF	P	PROPERTY LINE
CB	CATCH BASIN	PP	POWER POLE
CL	CLASS	PUE	PUBLIC UTILITY EASEMENT
C.I.	CURB INLET	RT.	RIGHT
℄	CENTER LINE	R/W	RIGHT-OF-WAY
CONC	CONCRETE	SS	SANITARY SEWER
D/W	DRIVEWAY	SSL	SANITARY SEWER LATERAL
D.I.	DUCTILE IRON	STA	STATION
EL	ELEVATION	S/W	SIDEWALK
EP	EDGE OF PAVEMENT	STD	STANDARD
EX	EXISTING	SD	STORM DRAIN
FG	FINISH GRADE	TEL	TELEPHONE
FH	FIRE HYDRANT	TC	TOP OF CURB
G.V.	GATE VALVE	TP	TELEPHONE POLE
INV	INVERT	TYP	TYPICAL
L/S	LANDSCAPING	UNO	UNLESS NOTED OTHERWISE
LT.	LEFT	WM	WATER MATER
MAX	MAXIMUM	WV	WATER VALVE
		W	WATER

	AGENCY	APPROVED BY	DATE
POWER	COOS-CURRY ELECTRIC		
DOMESTIC WATER	HARBOR WATER DISTRICT		
SANITARY SEWER	HARBOR SANITARY		
STORM DRAINAGE	CURRY COUNTY		
STREETS	CURRY COUNTY		
ENGINEERING	PORT OF BROOKINGS HARBOR		

CONSTRUCTION AUTHORIZED TO PROCEED IN ACCORDANCE WITH APPROVED PLANS WHEN ALL PERMITS HAVE BEEN ISSUED AND PRE-CONSTRUCTION MEETING HAS CONCLUDED.

BY _____ TITLE _____ DATE _____

VICINITY MAP
NO SCALE



LEGEND

	EXISTING	PROPOSED
WATER LINE	W W W	W W W
SANITARY SEWER LINE	SS SS	SS SS SS
STORM SEWER LINE	SD SD	SD SD SD
GAS LINE	GAS GAS	
OVERHEAD UTILITIES	OU OU	OU OU OU
POWER LINE (UG)	UE UE	UE UE UE
COMMUNICATION LINE	T	T
FENCE	X	X
CENTERLINE		
PROPERTY LINE		
EASEMENT BOUNDARY		
SWALE / WATERWAY FLOW		
SEDIMENT FENCE		
TOP & TOE OF SLOPES (CUT OR FILL)		

SURVEYOR
ROBERTS & ASSOCIATES LAND SURVEYING, INC.
611 SPRUCE STREET
BROOKINGS, OR 97415
(541) 469-0162
CONTACT: RICH ROBERTS

PROJECT ENGINEER
EMC ENGINEERS / SCIENTISTS
450 CONESTOGA DRIVE
JACKSONVILLE, OR 97530
(541) 261-9929
CONTACT: JACK AKIN, P.E.

HORIZONTAL DATUM
OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET

GEOTECHNICAL NOTE
THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE PROJECT ENGINEER FOR REQUIRED REMEDIATION. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER FOR REQUIRED SITE OBSERVATIONS AND TESTING OF ALL FILLS.

PROJECT LOCATION
PORT OF BROOKINGS - HARBOR MARINA IN HARBOR, CURRY COUNTY, OREGON
LATITUDE / LONGITUDE : 42.048427° , -124.268158°
MAP: 41S13W05D - TL 3200, 2100

DATE	SET	DESCRIPTION	REVIEW & APPROVED BY ENGINEER
		PRELIMINARY - REVIEW 70% SUBMITTAL	X
10/11/2023	X	PRELIMINARY - REV. REVIEW 90% SUBMITTAL	X
		CONSTRUCTION DOCUMENTS SUBMITTAL SET	
		CONSTRUCTION DOCUMENTS SUBMITTAL SET	
		RECORD DRAWINGS	

SHEET INDEX

C1.0 COVER SHEET - GENERAL NOTES
C2.0 EXISTING CONDITIONS
C2.02 SD LINE "A" PLAN & PROFILE
C2.03 SD LINE "B" PLAN & PROFILE
C2.1 PROPOSED SITE PLAN
C2.2 PROPOSED FACILITIES PLAN
C2.3 PROPOSED WWTP DETAILS
C2.9 DOCK DEMOLITION PLAN
C3.0 DOCK REPAIR PLAN
C3.1 DOCK REPAIR DETAILS

DRAWING SCALE NOTE
SCALES ARE AS SHOWN WHEN PRINTED AT 22"X34" SIZE.
WHEN PRINTED AT 11'X17", SCALES ARE REDUCED BY 50% - TYP.

Oregon 811
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REVISIONS	BY:

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- Engineers/Scientists, LLC

PRELIMINARY NOT FOR CONSTRUCTION

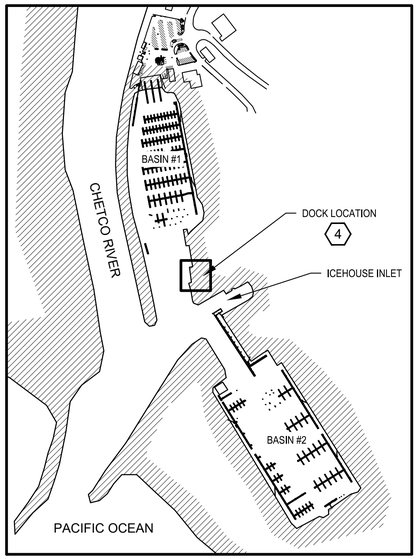
PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY: JW
DATE: 23 OCT 2023
JOB No: 023-2302
SHEET No: C1.0
COVER SHEET

C:\JOBS\EMC Projects\023-2302 Port of Brookings WWTP\Port of Brookings WWTP.dwg, 10/23/2023 10:30:37 AM

EXISTING CONDITIONS NOTES

1. ICE HOUSE DOCK
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT. (CURRENTLY CONDEMNED). SEE SHEETS C2.9, C3.0 & C3.1
5. PACIFIC SEAFOOD BUILDING
6. COLD STORAGE BUILDING
7. EXISTING 40 " DP. CONCRETE BOX CULVERT W/ STEEL PLATE COVERS CONTAINING UTILITY LINES FROM ICE HOUSE BUILDING TO COLD STORAGE BUILDING
8. APPROX. EDGE OF AC PAVING
9. APPROX. EDGE OF CONCRETE SLAB
10. COMPACTED GRAVEL SURFACE
11. COLD STORAGE LOADING DOCK RAMP
12. LOADING DOCK RAMP CONCRETE WALLS
13. POWER / LIGHT POLE
14. ATON TOWER PAD
15. SEA WALL
16. STEEL BOLLARDS
17. CONCRETE PAD
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)



DOCK LOCATION PLAN

PORT OF BROOKINGS SCALE: NONE

NORTH

NOTE:
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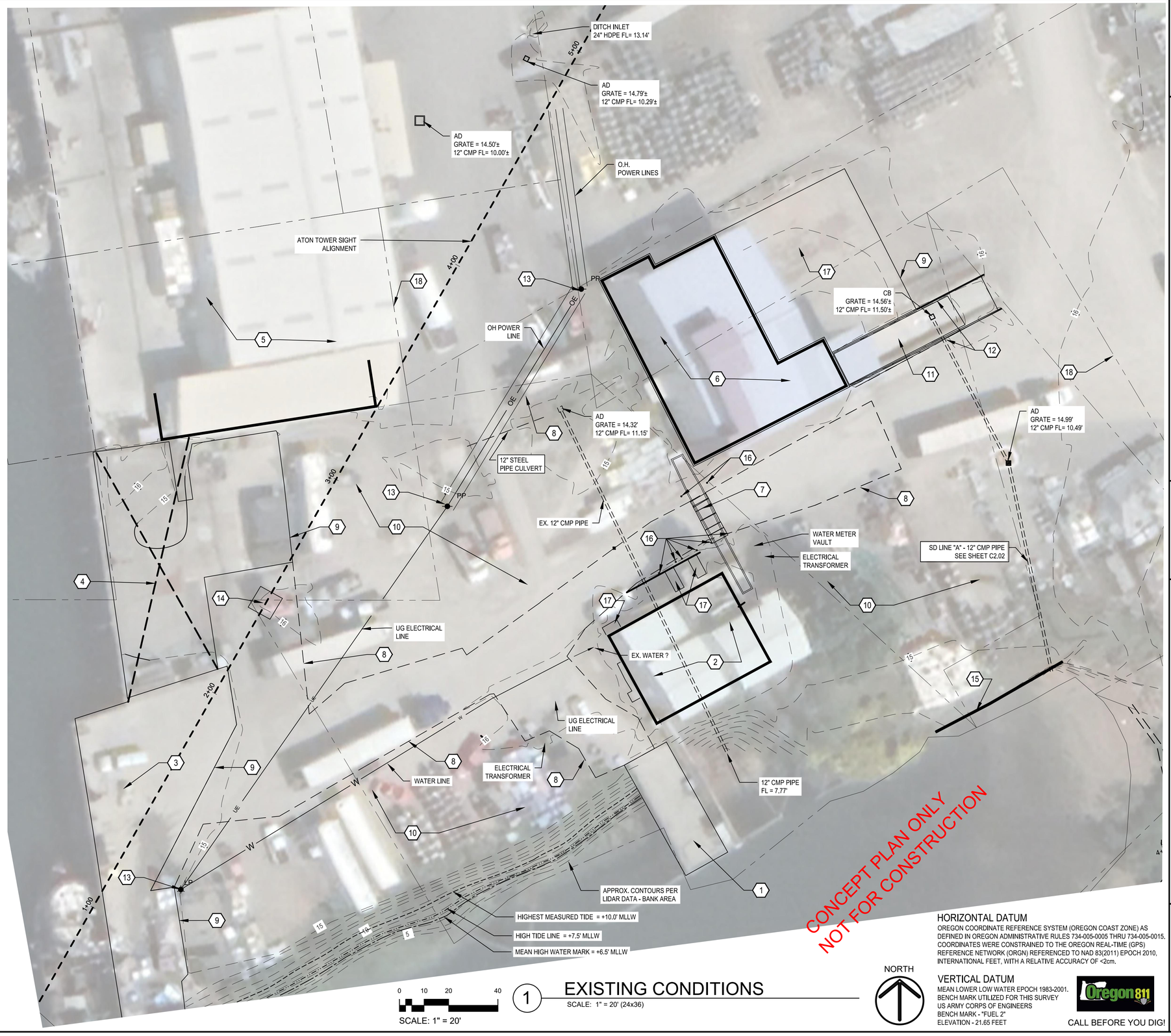
IF DISCREPANCIES AND/OR (INCLUDING BUT NOT LIMITED TO) UNKNOWN UTILITIES, ELECTRICAL, COMMUNICATION LINES, ARE DISCOVERED, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR RESOLUTION AND THE PORT OF BROOKINGS - HARBOR WILL BE RESPONSIBLE FOR CORRECTIONS AND/OR RELOCATION OF SUCH ELEMENTS AS REQUIRED.

NOTE:
ALL EXISTING UG UTILITIES TO BE PROTECTED DURING CONSTRUCTION



0 10 20 40

SCALE: 1" = 20'

1 EXISTING CONDITIONS

SCALE: 1" = 20' (24x36)

NORTH

HORIZONTAL DATUM

OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

VERTICAL DATUM

MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET

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PORT OF BROOKINGS HARBOR

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PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C2.0**
	EXISTING CONDITIONS

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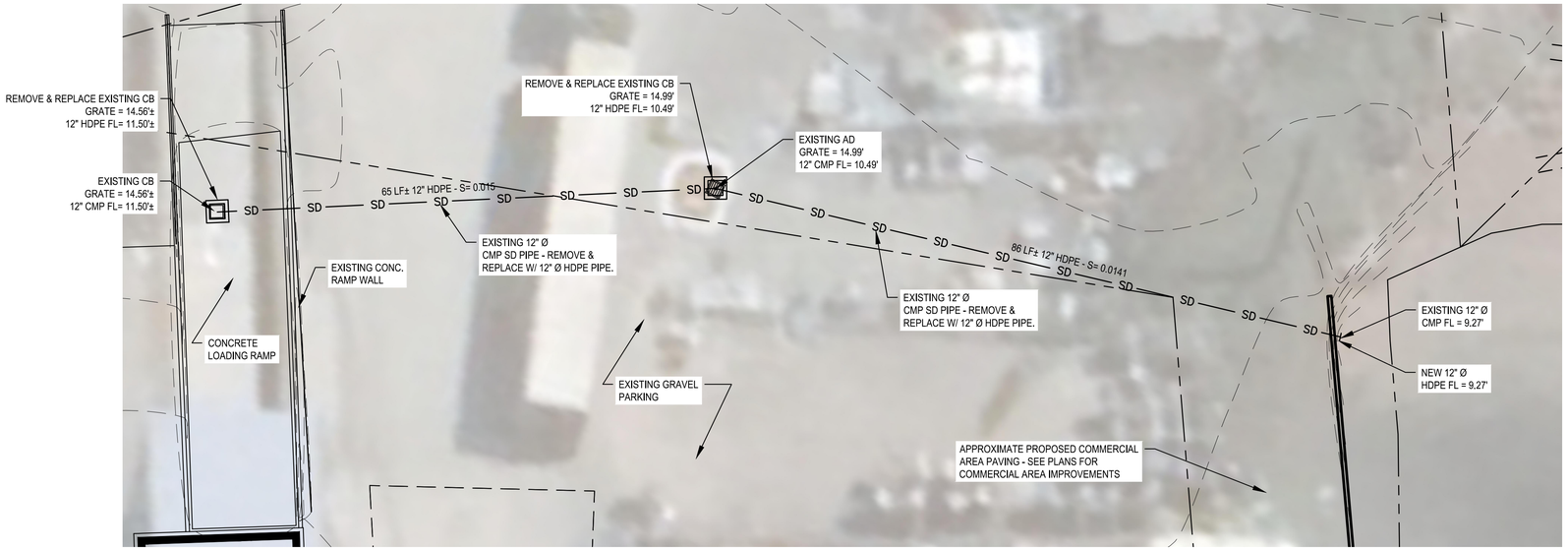
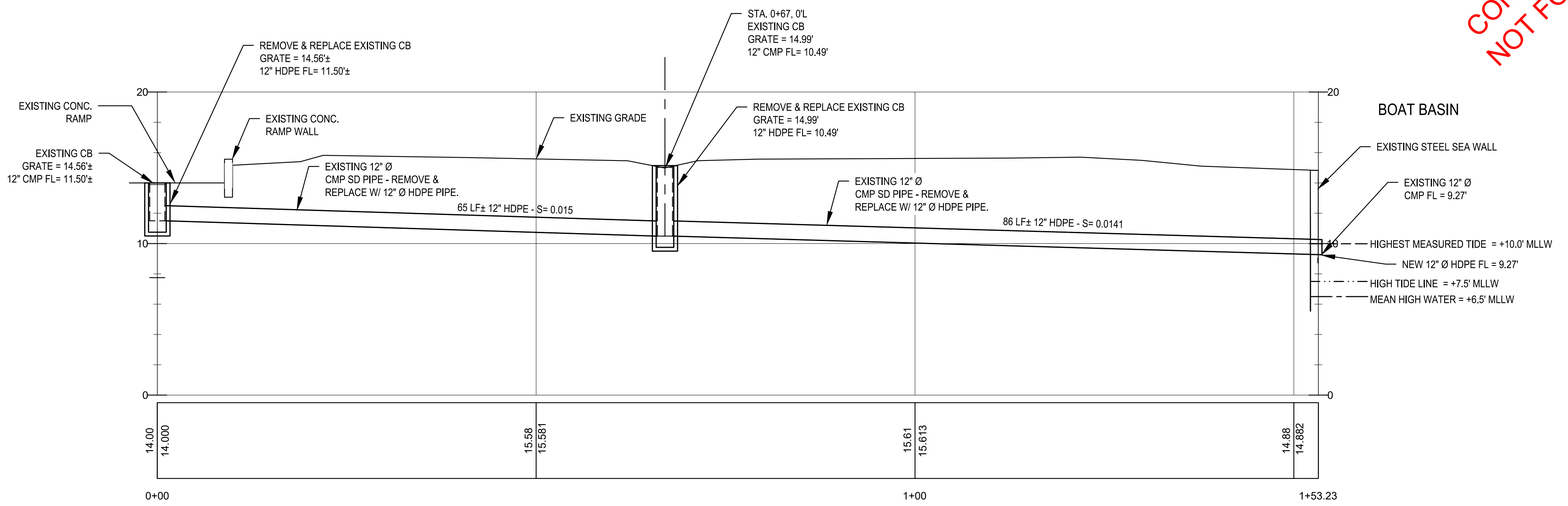


1 PLAN - EXISTING 12" SD LINE A

SCALE: 1" = 10' (24x36)

NORTH



2 PROFILE - EXISTING 12" SD LINE A

SCALE: H - 1" = 10'
V - 1" = 5'

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
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NOTE:
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PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C2.02**

SD LINE
PLAN & PROFILE

140
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CONCEPT PLAN ONLY
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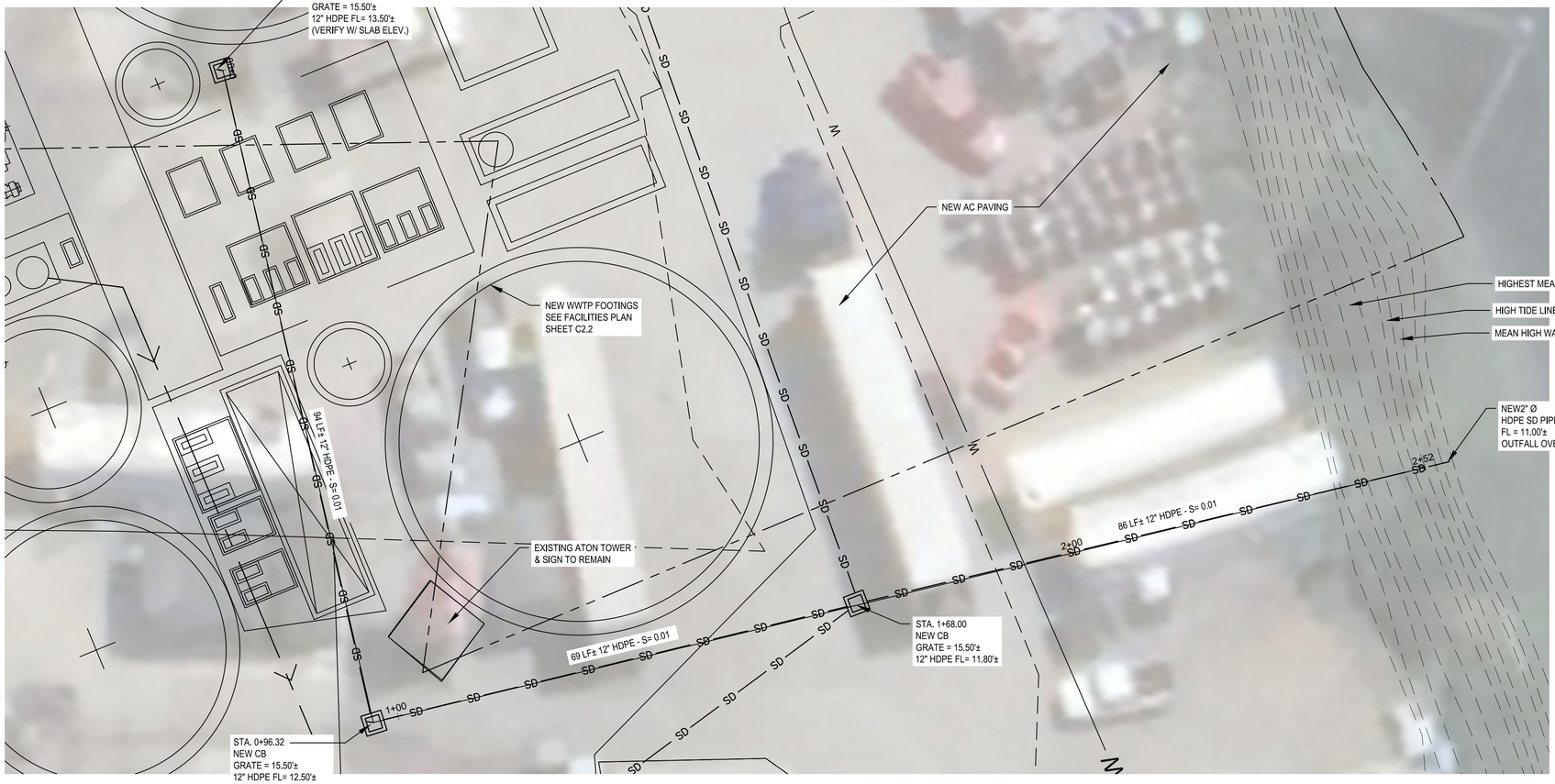
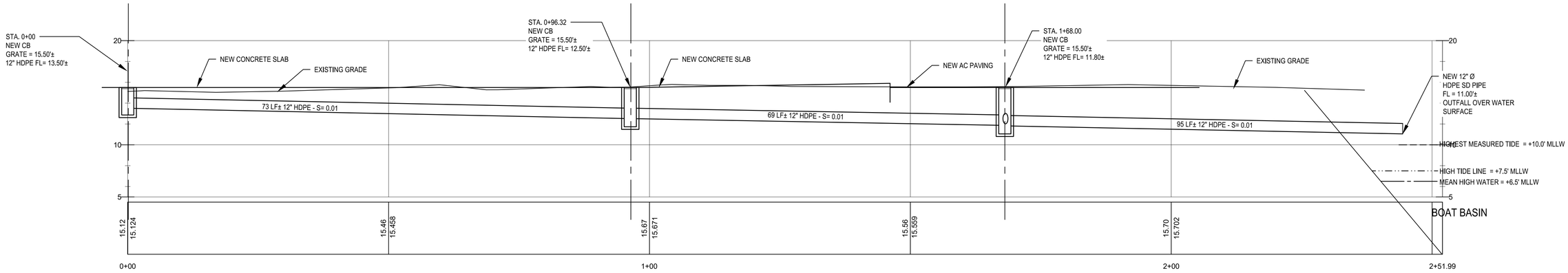


1 PLAN - PROPOSED 12" SD LINE B

SCALE: 1" = 10' (24x36)

NORTH



2 PROFILE - PROPOSED 12" SD LINE B

SCALE: H - 1" = 10'
V - 1" = 5'

VERTICAL DATUM
MEAN LOWER LOW WATER EPOCH 1983-2001.
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PORT OF BROOKINGS HARBOR

16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415

PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C2.03**
	SD LINE PLAN & PROFILE

141

PROPOSED SITE PLAN NOTES

1. ICE HOUSE DOCK
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT. (CURRENTLY CONDEMNED). SEE REPAIR DRAWINGS, SHEETS C2.9, C3.0 & C3.1
5. PACIFIC SEAFOOD BUILDING
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7. EXISTING 40" DP. CONCRETE BOX CULVERT W/ STEEL PLATE COVERS CONTAINING UTILITY LINES FROM ICE HOUSE BUILDING TO COLD STORAGE BUILDING
8. APPROX. EDGE OF AC PAVING = REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB REMOVE AS REQUIRED
10. COMPACTED GRAVEL SURFACE
11. COLD STORAGE LOADING DOCK RAMP
12. LOADING DOCK RAMP CONCRETE WALLS
13. POWER / LIGHT POLE TO BE RELOCATED
14. ATON TOWER PAD TO REMAIN
15. SEA WALL
16. STEEL BOLLARDS - RELOCATE AS REQUIRED
17. CONCRETE PAD
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)
19. WASTE WATER TREATMENT PLANT - SEE FACILITIES PLAN C2.2 & C2.3 FOR DETAILS
20. REMOVE EXISTING AC PAVING - INSTALL NEW AC PAVING OVER 4" CRUSHED ROCK BASE - TYP.
21. EXISTING CMP SD PIPE TO BE ABANDONED IN-PLACE
22. REMOVE EXISTING SD PIPE
23. REMOVE EXISTING AD
24. RELOCATE EXISTING SD AS REQUIRED
25. NEW CB W/ OIL SEPARATOR
26. NEW 12"Ø HDPE SD PIPE
27. NEW 6"Ø PVC 3034 SD PIPE FROM TRENCH DRAIN
28. 6" PIPE FROM DOSING TO OUTFALL
29. EXISTING 6" SD OUTFALL - 6X4X4 TEE VERTICAL OUTFALL AFFIXED TO BULKHEAD AND EXTENDING 20LF WESTWARD TO DISCHARGE.
30. 6" PIPE FROM ADJACENT FACILITY TO THE EQUALIZATION TANK
31. STATIONARY BARGE W/ MOBILE CRANE
32. DEBRIS REMOVAL & MATERIAL STAGING AREA

NOTE:
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NOTE:
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DITCH INLET
24" HDPE FL= 13.14'

AD
GRATE = 14.79'±
12" CMP FL= 10.29'±

AD
GRATE = 14.50'±
12" CMP FL= 10.00'±

O.H. POWER LINES

ATON TOWER SIGHT ENVELOPE

OH POWER LINE TO BE RELOCATED

STA. 0+00, NEW CB
GRATE = 15.50'
12" PVC FL= 13.50'

MAX. TANK HEIGHT
18'-0" - TYP U.N.O.

TANK HEIGHT
44'-0"

STA. 0+96.32
NEW CB
GRATE = 15.50'
12" PVC FL= 12.50'

94 LF 12" HDPE S= 01

69 LF 12" HDPE S= 01

154 LF 12" HDPE S= 01

98 LF 12" HDPE S= 01

NEW CONCRETE PAD
18,130 SQ. FT. ±

EX. WATER

NEW CB
GRATE = 15.50'
12" PVC FL= 13.50'

STA. 1+68.00
NEW CB
GRATE = 15.50'
12" PVC FL= 11.80'

SD LINE "B" - 12" HDPE PIPE
SEE SHEET C2.03

WATER LINE

UG ELECTRICAL LINE TO BE RELOCATED

NEW SD OUTFALL OVER WATER SURFACE
FL = 11.00'±

APPROX. CONTOURS PER LIDAR DATA - BANK AREA

TO LOWER HARBOR ROAD

TRUCKING ROUTE TO LOWER HARBOR RD, SEE SHEET C2.9

REPLACE EX. W/ NEW CB
GRATE = 14.56'±
12" CMP FL= 11.50'±

REPLACE EX. W/ NEW CB
GRATE = 14.99'
12" PVC FL= 10.49'

TRUCKING ROUTE TO LOWER HARBOR RD, SEE SHEET C2.9

WATER METER VAULT

ELECTRICAL TRANSFORMER

SD LINE "A" - 12" HDPE PIPE
SEE SHEET C2.02

PROPOSED COMMERCIAL AREA AC PAVING - SEE PLANS FOR COMMERCIAL AREA IMPROVEMENTS

NEW CB
GRATE = 15.50'
12" PVC FL= 13.50'

MATCH EXISTING FLOW LINE

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

0 10 20 40
SCALE: 1" = 20'

1 PROPOSED SITE PLAN
SCALE: 1" = 20' (24x36)

NORTH

HORIZONTAL DATUM

OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

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PORT OF BROOKINGS HARBOR

16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415

PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	C2.1
	PROPOSED SITE PLAN

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PROPOSED FACILITIES PLAN NOTES

1. TANK FOOTINGS - SEE DETAIL 7, SHEET C2.3
2. ICE HOUSE BUILDING
3. CONCRETE DOCK (NO IMPROVEMENTS)
4. CONCRETE DOCK, APPROX. 3,600 SQ. FT.(CURRENTLY CONDEMNED). SEE SHEETS C2.9, C3.0 & C3.1
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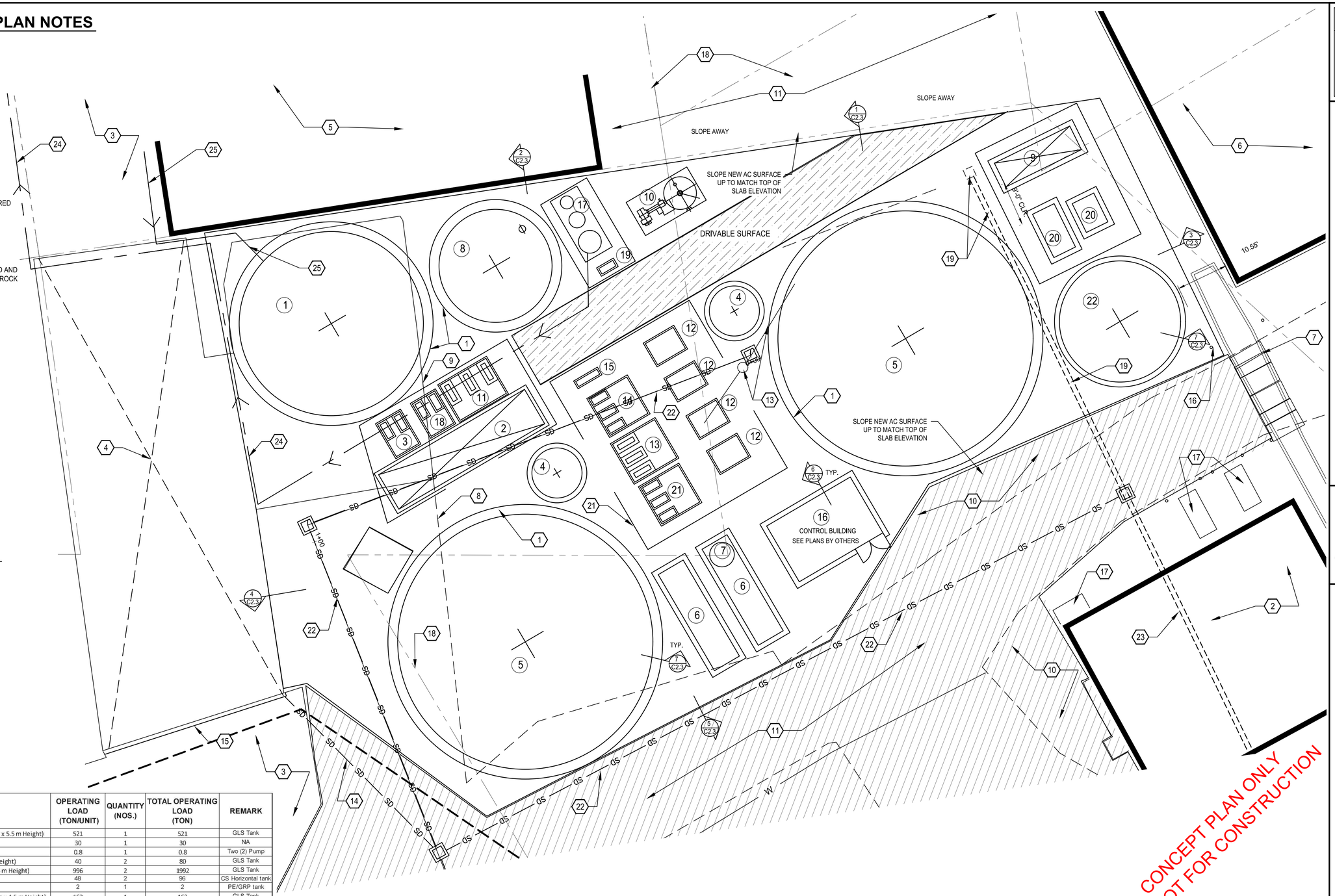
8. APPROX. EDGE OF AC PAVING - REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB REMOVE AS REQUIRED
10. EXISTING COMPACTED GRAVEL SURFACE
11. EXISTING AC SURFACE TO BE REMOVED, PREPARED AND RE-SURFACED WITH AC PAVING OVER 4" CRUSHED ROCK
12. 7" THICK CONCRETE SLAB FOR NEW WWTP - SEE SHEET C2.3 FOR DETAILS
13. POWER / LIGHT POLE TO BE RELOCATED
14. PVC TRENCH DRAIN - CONNECT TO SD SYSTEM
15. TRENCH DRAIN FOR NEW DOCK - SEE DRAWINGS UNDER SEPARATE COVER
16. STEEL BOLLARDS - RELOCATE AS REQUIRED
17. CONCRETE PAD TO REMAIN
18. PROPERTY BOUNDARY LINES (PER COUNTY TAXMAPS)
19. REMOVE EXISTING SD SYSTEM AS SHOWN. SEE SHEET C2.1
20. NOT USED
21. NOT USED
22. NEW SD DRAINAGE SYSTEM - SEE SHEET C2.1
23. EXISTING SD PIPE TO BE ABANDONED IN-PLACE.
24. EXISTING 6" SD OUTFALL - 6X4X4 TEE VERTICAL OUTFALL AFFIXED TO BULKHEAD AND EXTENDING 20LF WESTWARD TO DISCHARGE. SEE SHEET C2.1
25. 6" PIPE FROM ADJACENT FACILITY TO THE EQUALIZATION TANK



S.No	DESCRIPTION	OPERATING LOAD (TON/UNIT)	QUANTITY (NOS.)	TOTAL OPERATING LOAD (TON)	REMARK
1	EQUALIZATION TANK, 505m3, ABOVE GROUND, (11.4 m dia x 5.5 m Height)	521	1	521	GLS Tank
2	DAF UNIT, 90m3/h.	30	1	30	NA
3	DAF FEED PUMP SKID	0.8	1	0.8	Two (2) Pump
4	ANOXIC TANK, 35m3, ABOVE GROUND, (3.1 m dia x 5.5 m Height)	40	2	80	GLS Tank
5	AERATION TANK, 970m3, ABOVE GROUND, (15.8 m dia x 5.5 m Height)	996	2	1992	GLS Tank
6	MBR TANK, 38.6 m3	48	2	96	CS Horizontal tank
7	CIP TANK, 1000 Litres	2	1	2	PE/GRP tank
8	SLUDGE HOLDING TANK, 153m3, ABOVE GROUND, (7.0 m dia x 4.5 m Height)	162	1	162	GLS Tank
9	SLUDGE DEWATERING SYSTEM	6.5	1	6.5	Under Shed
10	ODOR CONTROL SYSTEM (OCS)	3.5	1	3.5	
11	DAF RECIRCULATION PUMP	0.4	1	0.4	Under Shed
12	AIR BLOWER	1.6	4	6.4	Under Shed
13	RAS/WAS PUMPS SKID	0.9	1	0.9	Under Shed
14	MBR PERMEATE PUMPS SKID	0.7	1	0.7	Under Shed
15	UV SYSTEM	0.2	1	0.2	Under Shed
16	CONTROL ROOM, (6.0 m L x 4.0 m W x 4.5 m H)	NA	1	NA	
17	DOSING SYSTEM SKID	3	1	3	Under Shed
18	Waste Water Transfer Pump SKID	1.5	1	1.5	Under Shed
19	SLUDGE DEWATERING FEED PUMPS	0.3	1	0.3	Under Shed
20	POLYMER PREPARATION & DOSING SYSTEM	5	1	5	Under Shed
21	Backwash (CIP/CEB) Pump SKID	0.5	1	0.5	Under Shed
22	TREATED WATER TANK, 574m3, ABOVE GROUND, (7.5 m dia x 13.5 m Height)	585	1	585	GLS Tank

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0 5 10 20
SCALE: 1" = 10'

NOTE:
SEE SHEET C2.3 FOR INDIVIDUAL COMPONENT CONCRETE MOUNTING DETAILS

1 PROPOSED FACILITIES PLAN
SCALE: 1" = 10' (24x36)

NOTE:
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BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET

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DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	C2.2
	PROPOSED FACILITIES PLAN

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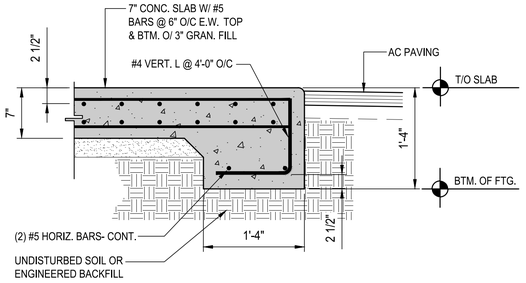
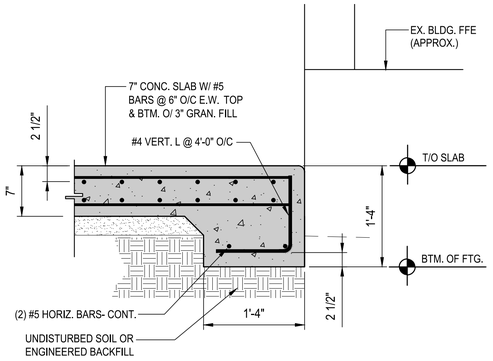


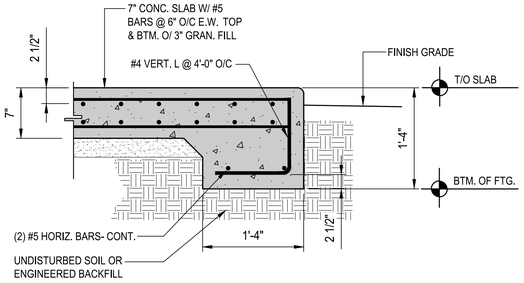
1 SLAB EDGE DETAIL

SCALE: 1" = 1'-0"



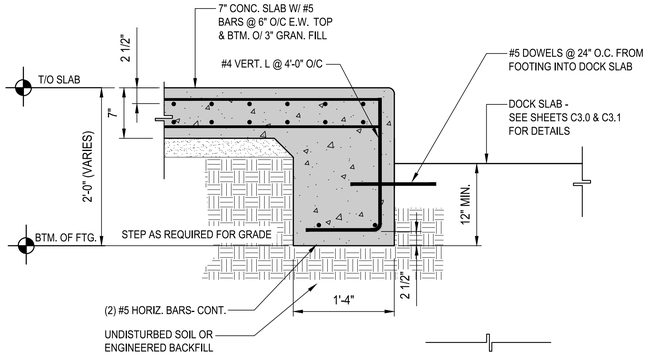
2 SLAB EDGE @ BUILDING

SCALE: 1" = 1'-0"



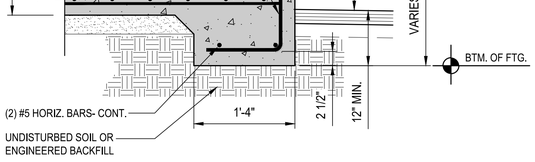
3 SLAB EDGE DETAIL

SCALE: 1" = 1'-0"



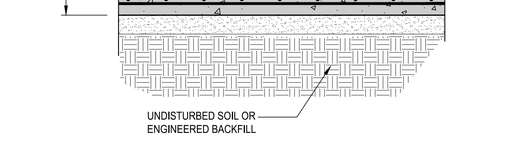
4 SLAB EDGE @ DOCK

SCALE: 1" = 1'-0"



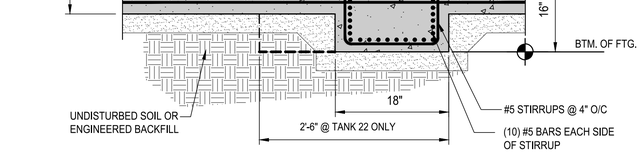
5 SLAB EDGE @ DRIVEWAY

SCALE: 1" = 1'-0"



6 SLAB @ CONTROL BLDG.

SCALE: 1" = 1'-0"



7 FOOTINGS @ TANK LOCATIONS

SCALE: 1" = 1'-0"

ANCHOR BOLT SCHEDULE

Bolt Grade	f_b	=	**4.6**
Bolt Yield Strength	Y_b	=	**34.8** ksi
Bolt Ultimate Strength	U_b	=	**58** ksi
Bolt Size	d	=	**1** in
No. of Anchor Bolts	N_{ab}	=	**48**
Shear Resistance		=	**Tankbase Friction**
Anchorage Tension Capacity	C_t	=	**10** Kips
Anchorage Shear Capacity	C_s	=	**10** Kips

NOTE:
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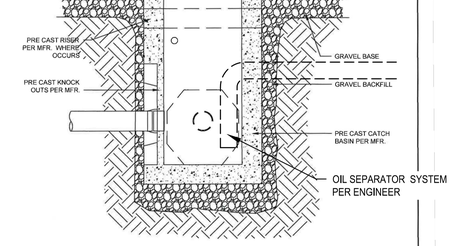
NOTES:
1) PREFABRICATED UNITS FROM ADVANTAGE PRE CAST OR APPROVED OTHER
ADVANTAGE PRE CAST
1302 CANDLEWOOD DR NORTH
KEIZER, OREGON 97303
2) CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING. & BIKE FRIENDLY
DITCH INLET GRATE: 1/4" F.B.
C.O. SALEM GRATE: 1/4" F.B. GALVANIZED
O.D.O.T. GRATE 5/8" F.B.
3) SIZE OF STD. CATCH BASIN SHALL BE A MIN. OF 29"X27". SIZE WILL BE DETERMINED BY CITY TO SATISFY DRAINAGE CAPACITY ISSUES IN ACCORDANCE W/ CITY'S STORM DRAIN MASTER PLAN



SECTION

CITY OF BROOKINGS - STANDARD DETAIL (MODIFIED)
CATCH BASIN — **4.23**
APPROVED BY RESOLUTION 17-R-1102 — DATE: 4/10/17

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

Oregon 811
CALL BEFORE YOU DIG!

REVISIONS | BY:

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JV Office: 660 E. Main St., Suite 103, Medford, OR, 97504
Ph: 541-474-9434 * Cell: 541-261-9929 * Fax 541-727-5488
emc@emcengineersscientists.com http://www.emcengineersscientists.com
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PRELIMINARY NOT FOR CONSTRUCTION

PORT OF BROOKINGS HARBOR

16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415

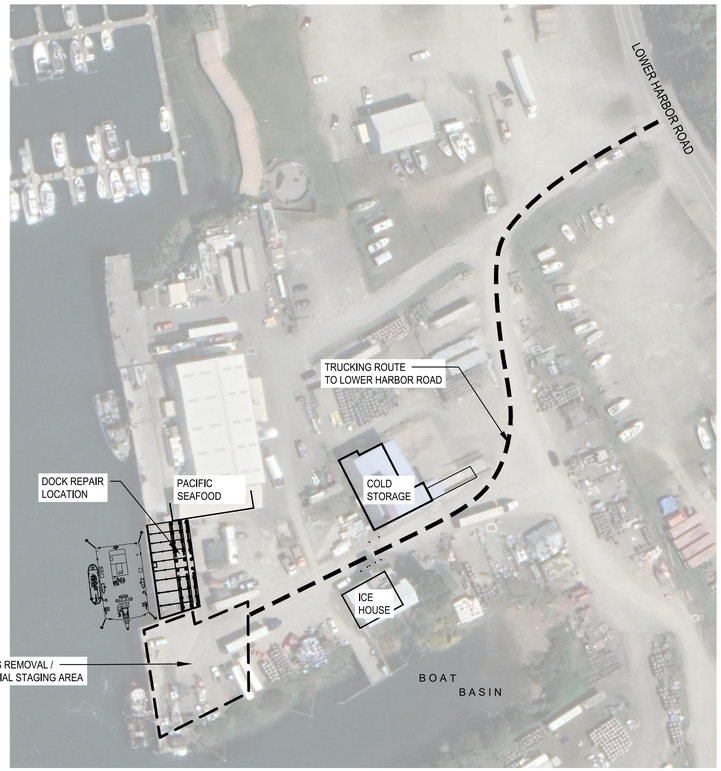
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C2.3**
	PROPOSED WWTP DETAILS

C:\JOBS\EMC Projects\023-2302 Port of Brookings WWTP\Port of Brookings WWTP.dwg, 10/23/2023 10:31:14 AM

DOCK DEMO PLAN NOTES

1. EXISTING DOCK AND/OR CONCRETE TO REMAIN
2. APPROXIMATE LIMITS OF DOCK REPAIR (1,900 SQ. FT. ±)
3. DEMOLISH EXISTING CONCRETE DECK AND PLYWOOD SHEATHING - INSPECT EXISTING SUPPORT TIMBERS AND FRAMING FOR DECAY / DAMAGE.
4. REMOVE EXISTING DOCK CRANE AS REQUIRED
5. NOT USED
6. NOT USED
7. NOT USED
8. EXISTING AC PAVING / CONCRETE- REMOVE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB
10. DEBRIS REMOVAL & MATERIAL STAGING AREA
11. WOOD PILINGS & CAPS TO REMAIN - TYPICAL
12. STATIONARY BARGE W/ MOBILE CRANE



2 LOCATION PLAN
SCALE: NONE

NORTH

NOTE:
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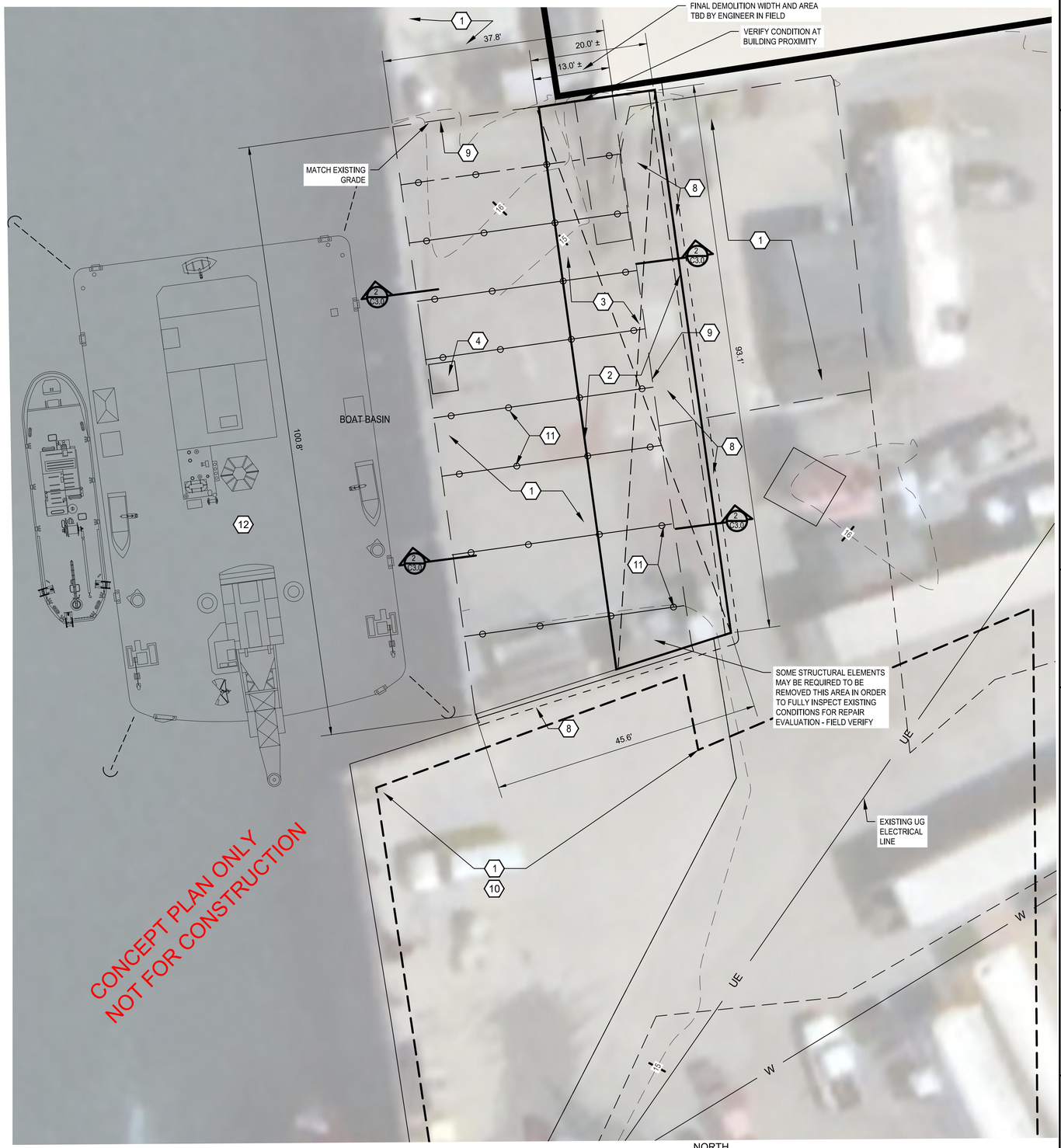
HORIZONTAL DATUM

OREGON COORDINATE REFERENCE SYSTEM (OREGON COAST ZONE) AS DEFINED IN OREGON ADMINISTRATIVE RULES 734-005-0005 THRU 734-005-0015. COORDINATES WERE CONSTRAINED TO THE OREGON REAL-TIME (GPS) REFERENCE NETWORK (ORGN) REFERENCED TO NAD 83(2011) EPOCH 2010, INTERNATIONAL FEET, WITH A RELATIVE ACCURACY OF <2cm.

VERTICAL DATUM

MEAN LOWER LOW WATER EPOCH 1983-2001.
BENCH MARK UTILIZED FOR THIS SURVEY
US ARMY CORPS OF ENGINEERS
BENCH MARK - "FUEL 2"
ELEVATION - 21.65 FEET



0 5 10 20
SCALE: 1" = 10'

1 DOCK DEMOLITION PLAN
SCALE: 1" = 10' (24x36)

NORTH

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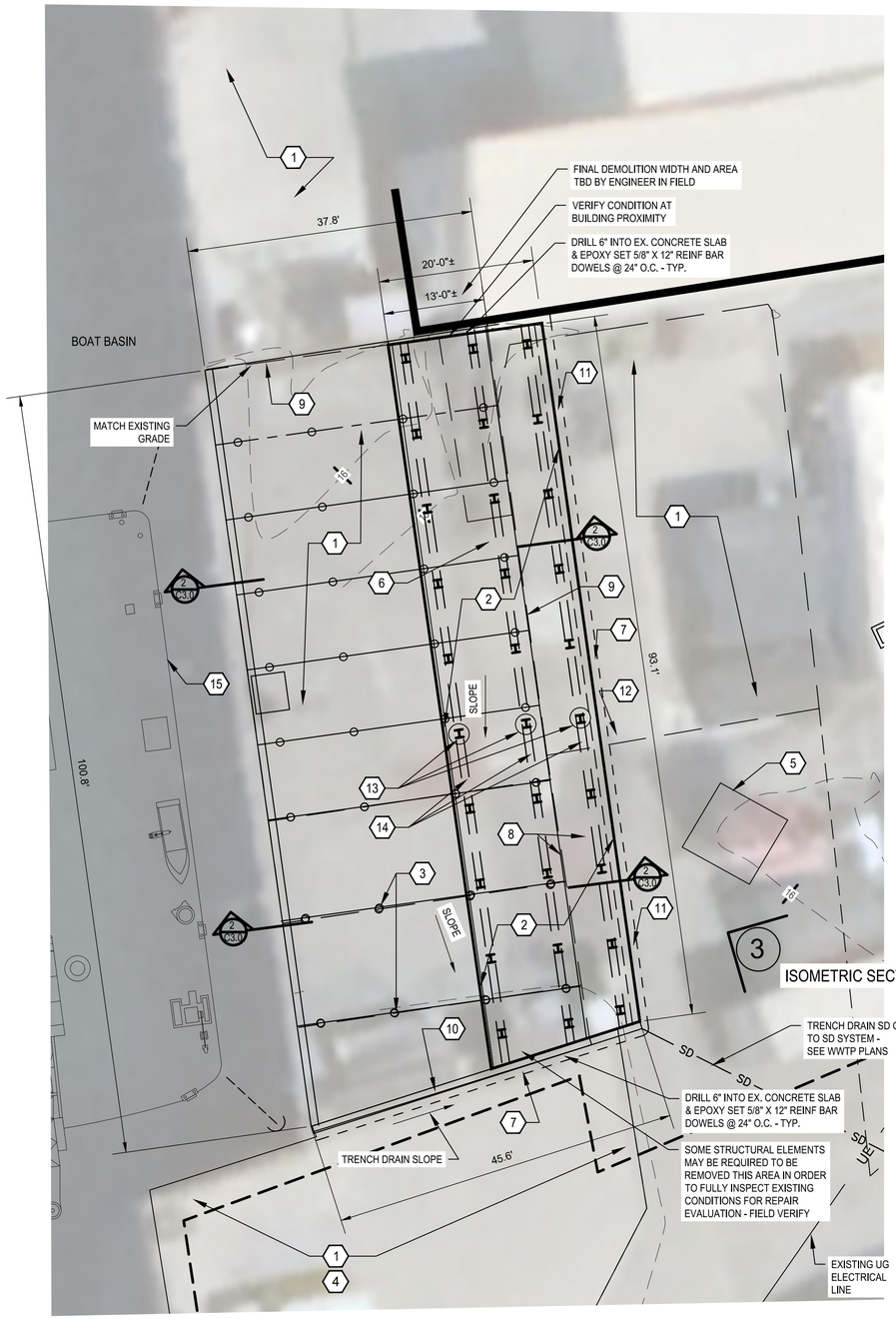
PORT OF BROOKINGS HARBOR
16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415
PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302

SHEET No:
C2.9
DOCK DEMO PLAN

DOCK REPAIR PLAN NOTES

1. EXISTING DOCK AND/OR CONCRETE TO REMAIN
2. APPROXIMATE LIMITS OF DOCK REPAIR (1,900 SQ. FT. ±)
3. EXISTING WOOD PILING AND PILING CAP TO REMAIN - TYP.
4. MATERIAL STAGING AREA
5. EXISTING ATON TOWER & SIGN TO REMAIN
6. NEW 8" THICK REINFORCED CONCRETE SLAB OVER 2"X36" 18 GA. G90 GALV. STEEL FLOOR DECK - TYPICAL
7. REMOVE & REPLACE EXISTING CONCRETE AS REQUIRED
8. APPROX. EDGE OF AC PAVING - REMOVE & REPLACE AS REQUIRED
9. APPROX. EDGE OF EXISTING CONCRETE SLAB
10. NEW TRENCH DRAIN - SEE SHEET C3.1 FOR DETAILS
11. 12"X36" (OR AS REQ'D) DP. EDGE FOOTING - DOWEL INTO NEW CONC. SLAB. SEE DOWELING INSTRUCTIONS THIS SHEET.
12. MATCH EXISTING GRADE @ SLAB / AC LINE -TYP.
13. NEW W12X53 "H" PILINGS X 45' LONG PER ENGINEER - TYP.
14. NEW STEEL BEAM PILING CAPS
15. STATIONARY BARGE W/ MOBILE CRANE



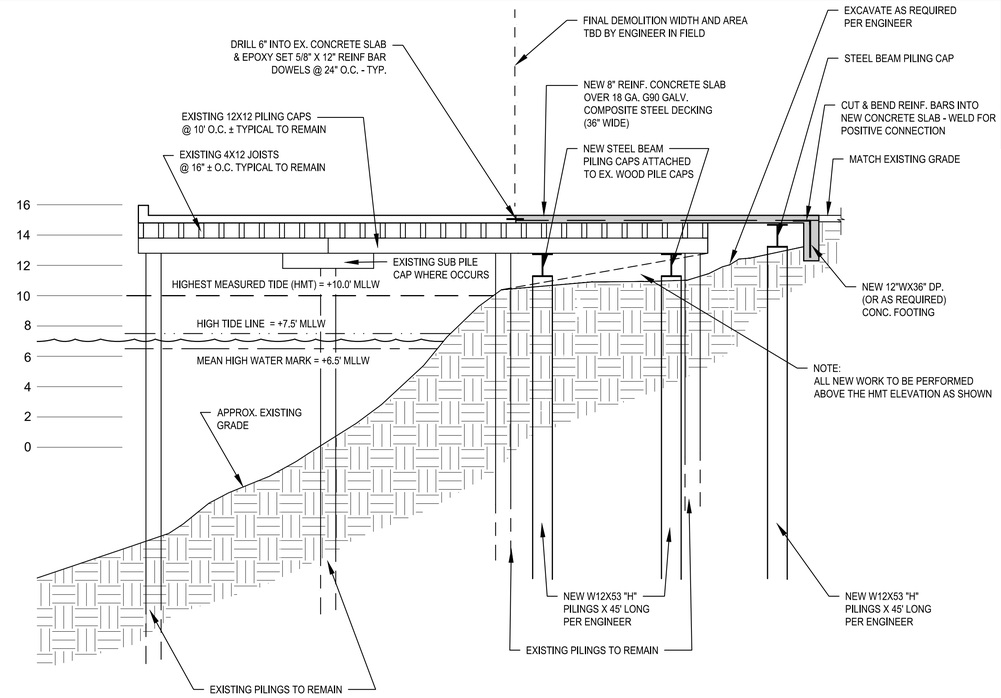
0 5 10 20

SCALE: 1" = 10'

1 DOCK REPAIR PLAN

SCALE: 1" = 10' (24x36)

NORTH



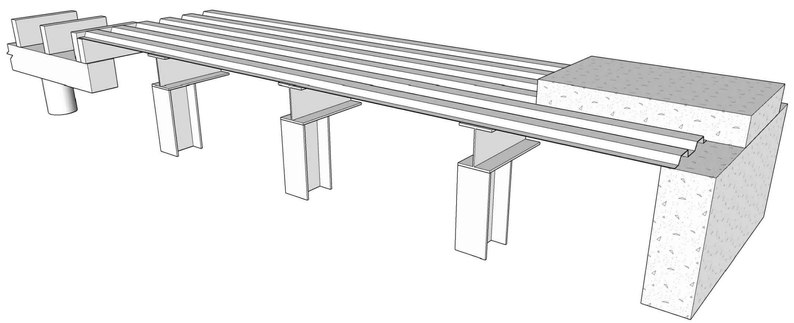
2 DOCK SECTION - TYPICAL REPAIR AREA

SCALE: 1" = 5'

0 2.5 5 10

SCALE: 1" = 5'

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION



3 ISOMETRIC SECTION

SCALE: NONE LOOKING NORTHWEST

TRENCH DRAIN SD OUTLET TO SD SYSTEM - SEE WWTP PLANS

DRILL 6" INTO EX. CONCRETE SLAB & EPOXY SET 5/8" X 12" REINF BAR DOWELS @ 24" O.C. - TYP.

SOME STRUCTURAL ELEMENTS MAY BE REQUIRED TO BE REMOVED THIS AREA IN ORDER TO FULLY INSPECT EXISTING CONDITIONS FOR REPAIR EVALUATION - FIELD VERIFY

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ELEVATION - 21.65 FEET

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PRELIMINARY NOT FOR CONSTRUCTION

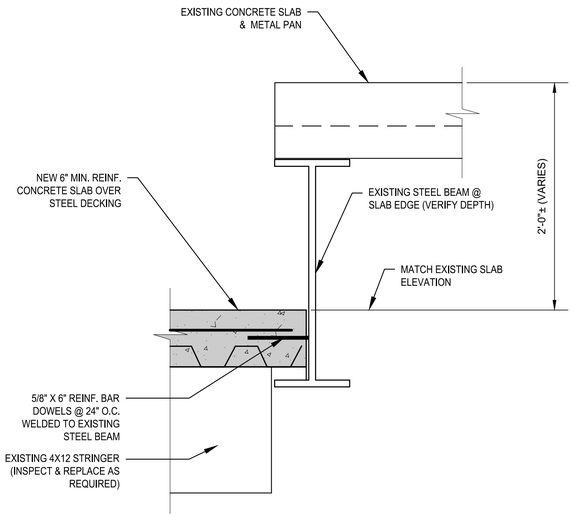
PORT OF BROOKINGS HARBOR

16330 LOWER HARBOR ROAD, BROOKINGS, OR 97415

PROPOSED WASTEWATER TREATMENT PLANT
STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C3.0** DOCK REPAIR PLAN

Oregon 811 CALL BEFORE YOU DIG!

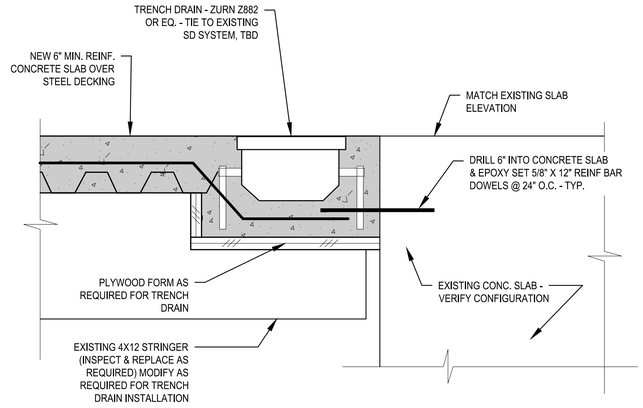


1 CONNECTION @ NORTH SLAB EDGE

SCALE: 1.5" = 1'-0"

0 6" 1' 2'

GRAPHIC SCALE

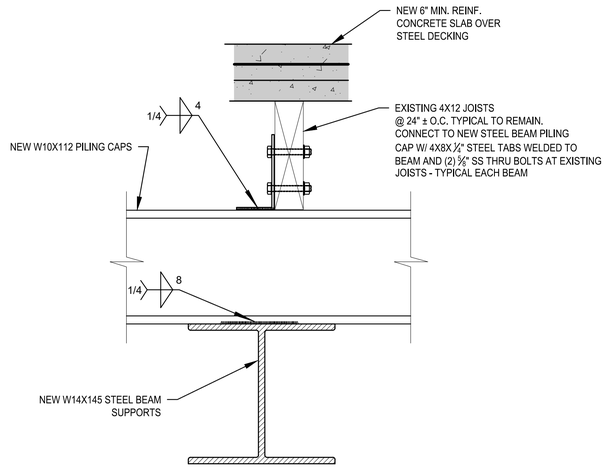


2 CONNECTION @ SOUTH SLAB EDGE

SCALE: 1.5" = 1'-0"

0 6" 1' 2'

GRAPHIC SCALE



3 CONNECTION TO NEW PILING CAPS

SCALE: 1.5" = 1'-0"

TYPICAL AT EACH CROSSING

0 6" 1' 2'

GRAPHIC SCALE

CONCEPT PLAN ONLY
NOT FOR CONSTRUCTION

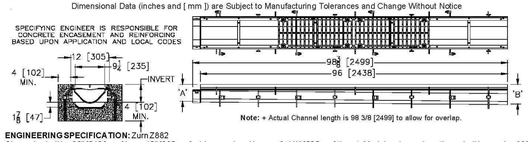
ZURN **Z882**

12 [305] WIDE REVEAL TRENCH DRAIN
SYSTEM WITH STEEL FRAME

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Note: + Actual Channel length is 98 3/8 [2499] to allow for overlap.

ENGINEERING SPECIFICATION: ZurnZ882
Channels shall be 96" [2438mm] long, 12" [305mm] wide reveal and have a 9-1/4" [235mm] throat. Modular channel sections shall be made of 0% water absorbent High Density Polyethylene (HDPE). Shall have a positive mechanical connection between channel sections that will not separate during the installation and shall mechanically lock into the concrete surround every 12" [305mm]. Channels shall weigh less than 5.05 lbs. [2.29kg] per linear foot, have a smooth, 3° [76mm] radiused self cleaning bottom with a Manning's coefficient of 0.009 and 1.04% or neutral 0% built in slope. Channels shall have rebar clips standard to secure trench in its final location. Shall be provided with standard DGC grates that lock down to frame. Zurn 12" [305mm] wide reveal ductile iron slotted grate conforming to ASTM specification A536-84, Grade 80-55-06. Ductile iron grate is rated class C per the DIN EN1433 top load classifications. Supplied in 24" [608mm] nominal lengths with 13/16" [21mm] wide slots, and 1-1/2" [38mm] bearing depth. Grate has an open area of 80.8 sq. in per ft. [171.027 sq. mm per meter]. The 1/4" [6mm] thick heavy-duty carbon steel frame assembly conforms to ASTM specification A36 with 10 - 4" [102mm] long concrete anchors per 96" [2438mm]. Grate lockdown bars are to be integral to the frame. The frame is supplied with a powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames Shall be produced in the U.S.A.

PREFIX OPTIONS (Check/specify appropriate options)

___ Z Eight-foot High Density Polyethylene (HDPE) Channel, Heavy-Duty Frame with Anchor Studs *

SUFFIX OPTIONS (Check/specify appropriate options)

Outlet Adapters Add/Each

___ -E1 Closed End Cap
___ -E4 4 [102] No-Hub End Outlet
___ -E6 6 [152] No-Hub End Outlet
___ -E8 8 [203] No-Hub End Outlet
___ -U4 4 [102] No-Hub Bottom Outlet
___ -U6 6 [152] No-Hub Bottom Outlet
___ -U8 8 [203] No-Hub Bottom Outlet

Grate Options (Load Classifications are per DIN EN1433)

___ -BDC Black Acid Resistant Epoxy Coated Ductile Grate - Class C
___ -BDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
___ -BDF Black Acid Resistant Epoxy Coated Ductile Grate - Class F
___ -DC Ductile Iron Solid Cover - Class E
___ -DGC Ductile Iron Slotted Grate - Class C *
___ -DGE Ductile Iron Slotted Grate - Class E
___ -DGF Ductile Iron Slotted Grate - Class F
___ -GDC Galvanized Ductile Slotted Grate - Class C
___ -GDE Galvanized Ductile Slotted Grate - Class E
___ -GDF Galvanized Ductile Slotted Grate - Class F
___ -GHPD Galvanized Heel-Proof Ductile Grate - Class B
___ -GHPDE Galvanized Heel-Proof Ductile Slotted Grate - Class E
___ -HPD Heel-Proof Ductile Slotted Grate - Class B
___ -HPDE Heel-Proof Ductile Slotted Grate - Class E
___ -HPDE Heel-Proof Ductile Slotted Grate - Class E
___ -RFGC Reinforced Slotted Galvanized Grate - Class C
___ -RPGC Reinforced Perforated Galvanized Grate - Class C
___ -RPGRC Reinforced Perforated Galvanized Reverse Punch Grate - Class C

Trench No.	'A' Shallow Inv.	'B' Deep Inv.	Flow (cfs)	Flow (gpm)	Flow (lps)
8201	6.25 [159]	7.25 [184]	1.241	557	35
8202	7.25 [184]	8.25 [210]	1.725	774	49
8203	8.25 [210]	9.25 [235]	2.226	999	63
8203N	9.25 [235]	9.25 [235]	-	-	-
8204	9.25 [235]	10.25 [260]	2.745	1232	78
8205	10.25 [260]	11.25 [286]	3.271	1468	93
8206	11.25 [286]	12.25 [311]	3.808	1709	108
8206N	12.25 [311]	12.25 [311]	-	-	-
8207	12.25 [311]	13.25 [337]	4.347	1951	123
8208	13.25 [337]	14.25 [362]	4.893	2196	139
8209	14.25 [362]	15.25 [387]	5.443	2443	155
8209N	15.25 [387]	15.25 [387]	-	-	-
8210	15.25 [387]	16.25 [413]	5.996	2691	170
8211	16.25 [413]	17.25 [438]	6.551	2940	186
8212	17.25 [438]	18.25 [464]	7.106	3189	202

___ -RFSC Reinforced Slotted Stainless Steel Grate - Class C
___ -RPSC Reinforced Perforated Stainless Steel Grate - Class C
___ -RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

Miscellaneous Options

___ -CBF Black Acid Resistant Coated Top Frame
___ -JC Joint Connector
___ -SW Sidewall Extensions - 11 [279] High
___ -SW2 Double Sidewall Extensions - 22 [559] High
___ -VP Vandal-Proof Lockdown

MADE in the U.S.A.

___ -ADA-USA Meets Americans with Disabilities Act Requirements - Class C
___ -BG Galvanized Steel Bar Grate - Class D
___ -DGC-USA Ductile Iron Slotted Grate - Class C
___ -DGE-USA Ductile Iron Slotted Grate - Class E
___ -FG Fabricated Galvanized Steel Slotted Grate - Class A
___ -FS Fabricated Stainless Steel Slotted Grate - Class A
___ -GADA-USA Galvanized Ductile ADA Slotted Grate - Class C
___ -GDC-USA Galvanized Ductile Slotted Grate - Class C
___ -GDE-USA Galvanized Ductile Slotted Grate - Class E
___ -GHPDE-USA Galvanized Ductile Slotted Grate - Class E
___ -HPDE-USA Heel-Proof Ductile Slotted Grate - Class E
___ -GG Fiberglass Grate - Class A
___ -PG Perforated Galvanized Steel Grate - Class A
___ -PS Perforated Stainless Steel Grate - Class A
___ -SBG-L Stainless Steel Bar Grate - Class C

Miscellaneous Options

___ -DB Bottom Dome Strainer

* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | **Zurn Industries Limited**
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. G
Date: 12/15/17
C.N. No. 139333
Prod. | Dwg. No. Z882

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STORM DRAIN IMPROVEMENTS

DRAWN BY:	JW
DATE:	23 OCT 2023
JOB No:	023-2302
SHEET No:	**C3.1**

DOCK REPAIR DETAILS

Oregon 811
CALL BEFORE YOU DIG!

INFORMATION ITEM – A

DATE: November 15, 2023
RE: FEMA PW-189 Dredging Update
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: Travis Webster, Port Manager

CONSTRUCTION

- Clamshell dredging was rescheduled due to another project lasting longer for Billeter Marine. Billeter is now scheduled to dredge in the beginning of December.
- Dragflow dredge is under fabrication and scheduled to arrive in January 2024.
- 3,500 feet of 8" HDPE pipe arrived. Fusion weld training was done, pipe sections with flanges were made and installed from the sediment basin to the Kite Field. We decided to make the pipe sections shorter for easier handling, and more accessible for dredge connections. More flanges were ordered as a result of more pipe sections. All pipe welding is completed.
- Construction of the sediment basin walls was completed this month. A total of 223 concrete blocks were installed to form the perimeter of the basin. We used more blocks because we decided to use two blocks high throughout the entire wall section.
- The Port is anticipating dredging from January 16 to March 15, 2024

ADMINISTRATION

- The Port has five payment requests in with FEMA totaling $709,002. The oldest request is at 74 days as of November 3 for $562,107. This request included the dredge and generator. The other four requests are 21 days and less as of November 3.

DOCUMENTS

- FEMA Project Schedule, 4 pages
- Construction & Fabrication Pictures, 14 pages

FEMA - POBH PROJECT SCHEDULE

11/8/2023

FEMA PW189 Dredging 2023

#	Description	AUGUST					SEPTEMBER																									
		28	29	30	31	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29	2	3	4	5	6	9	10
		M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T
1	McLennan - Erosion Control																							A	A								
2	Grading / Dirt Berm	A																															
3	Set Forms - Block Wall Footing	A	A		A	A		A																			A	A			A		
4	Strip Forms - Block Wall Footing				A								A																			A	
5	Pour Concrete - Block Wall Footing			A								A																			A		
5a	Set Forms, Pour and Strip - Outfall Slab																																
6	Delivery of Concrete Blocks - 215 Full / 8 Half													50									63									53	
7	Place Concrete Blocks													50									63									54	
~~8~~	~~Place Fabric/Plastic on Block walls~~																																
9	Install Weir Forms & Boards																																
10	Backfill against Block walls																																
11	Install Fencing at Sediment Basin																																
12	HDPE Pipe Delivery																																
13	HDPE Pipe Welding Training																																
14	Pipe Welding																																
15	Layout Pipe - Basin 2																																
16	Excavate - Pipe Road & Ramp Crossings																																
17	Lay Pipe and Backfill Road & Ramp Crossings																																
18	Layout Pipe - Sediment Basin																																
19	Clamshell Dredging (Boat Yard - Travel Lift Area)																																
20	DRP120 Dredge Delivery																																
21	Assemble Dredge																																
22	Training / Dredging Basin 2																																
23	Dredging Basin 2 (March 2024)																																

A = Actuals

FEMA - POBH PROJECT SCHEDULE

11/8/2023

FEMA PW189 Dredging 2023

#	Description	OCTOBER															NOVEMBER																
		11	12	13	16	17	18	19	20	23	24	25	26	27	30	31	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23
		W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T
1	McLennan - Erosion Control																																
2	Grading / Dirt Berm																																
3	Set Forms - Block Wall Footing	A																															
4	Strip Forms - Block Wall Footing		A																														
5	Pour Concrete - Block Wall Footing	A																															
5a	Set Forms, Pour and Strip - Outfall Slab		A	A	A																												
6	Delivery of Concrete Blocks - 215 Full / 8 Half														57																		
7	Place Concrete Blocks														57																		
8	~~Place Fabric/Plastic on Block walls~~																																
9	Install Weir Forms & Boards															A																	
10	Backfill against Block walls																																
11	Install Fencing at Sediment Basin																																
12	HDPE Pipe Delivery		A																														
13	HDPE Pipe Welding Training										A																						
14	Pipe Welding										A	A	A	A	A	A		A	A														
15	Layout Pipe - Basin 2										A	A	A	A																			
16	Excavate - Pipe Road & Ramp Crossings								A	A																							
17	Lay Pipe and Backfill Road & Ramp Crossings										A						A																
18	Layout Pipe - Sediment Basin										A																						
19	Clamshell Dredging (Boat Yard - Travel Lift Area)																																
20	DRP120 Dredge Delivery																																
21	Assemble Dredge																																
22	Training / Dredging Basin 2																																
23	Dredging Basin 2 (March 2024)																																

A = Actuals

FEMA - POBH PROJECT SCHEDULE

11/8/2023

FEMA PW189 Dredging 2023

#	Description							DECEMBER																								
		24	27	28	29	30	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29	1	2	3	4	5	8
		F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M
1	McLennan - Erosion Control																																
2	Grading / Dirt Berm																																
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4	Strip Forms - Block Wall Footing																																
5	Pour Concrete - Block Wall Footing																																
5a	Set Forms, Pour and Strip - Outfall Slab																																
6	Delivery of Concrete Blocks - 215 Full / 8 Half																																
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9	Install Weir Forms & Boards																																
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12	HDPE Pipe Delivery																																
13	HDPE Pipe Welding Training																																
14	Pipe Welding																																
15	Layout Pipe - Basin 2																																
16	Excavate - Pipe Road & Ramp Crossings																																
17	Lay Pipe and Backfill Road & Ramp Crossings																																
18	Layout Pipe - Sediment Basin																																
19	Clamshell Dredging (Boat Yard - Travel Lift Area)																																
20	DRP120 Dredge Delivery																																
21	Assemble Dredge																																
22	Training / Dredging Basin 2																																
23	Dredging Basin 2 (March 2024)																																

A = Actuals

FEMA - POBH PROJECT SCHEDULE

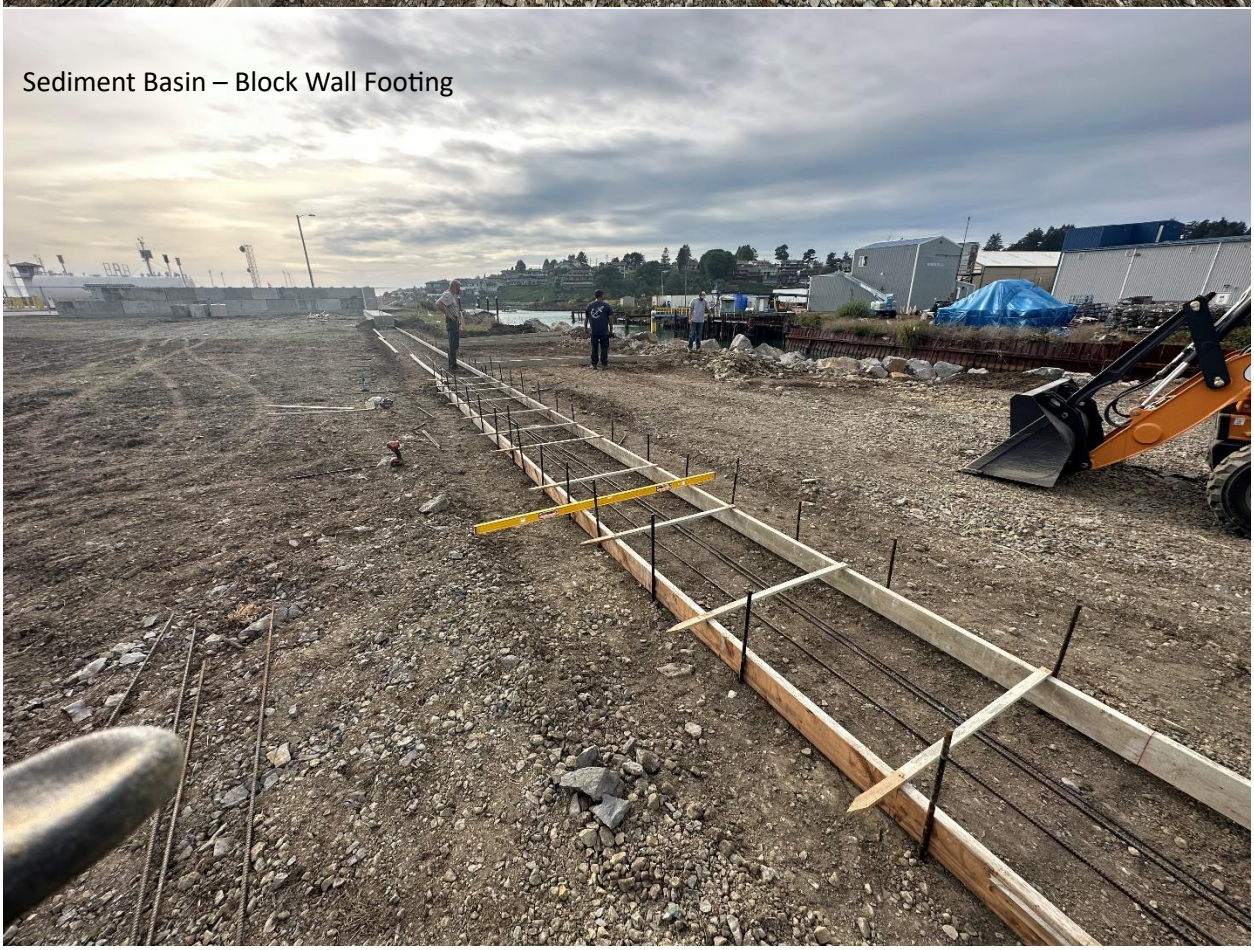
11/8/2023

FEMA PW189 Dredging 2023

#	Description	JANUARY													
		9	10	11	12	15	16	17	18	19	22	23	24	25	26
		T	W	T	F	M	T	W	T	F	M	T	W	T	F
1	McLennan - Erosion Control														
2	Grading / Dirt Berm														
3	Set Forms - Block Wall Footing														
4	Strip Forms - Block Wall Footing														
5	Pour Concrete - Block Wall Footing														
5a	Set Forms, Pour and Strip - Outfall Slab														
6	Delivery of Concrete Blocks - 215 Full / 8 Half														
7	Place Concrete Blocks														
~~8~~	~~Place Fabric/Plastic on Block walls~~														
9	Install Weir Forms & Boards														
10	Backfill against Block walls														
11	Install Fencing at Sediment Basin														
12	HDPE Pipe Delivery														
13	HDPE Pipe Welding Training														
14	Pipe Welding														
15	Layout Pipe - Basin 2														
16	Excavate - Pipe Road & Ramp Crossings														
17	Lay Pipe and Backfill Road & Ramp Crossings														
18	Layout Pipe - Sediment Basin														
19	Clamshell Dredging (Boat Yard - Travel Lift Area)														
20	DRP120 Dredge Delivery														
21	Assemble Dredge														
22	Training / Dredging Basin 2														
23	Dredging Basin 2 (March 2024)														

A = Actuals


Sediment Basin – Block Wall Footing


Sediment Basin – Block Wall Footing

Sediment Basin – Block Wall Footing

Sediment Basin – Placing Blocks

Sediment Basin – Outfall

Sediment Basin – Outfall


Sediment Basin – Outfall


Sediment Basin – Outfall

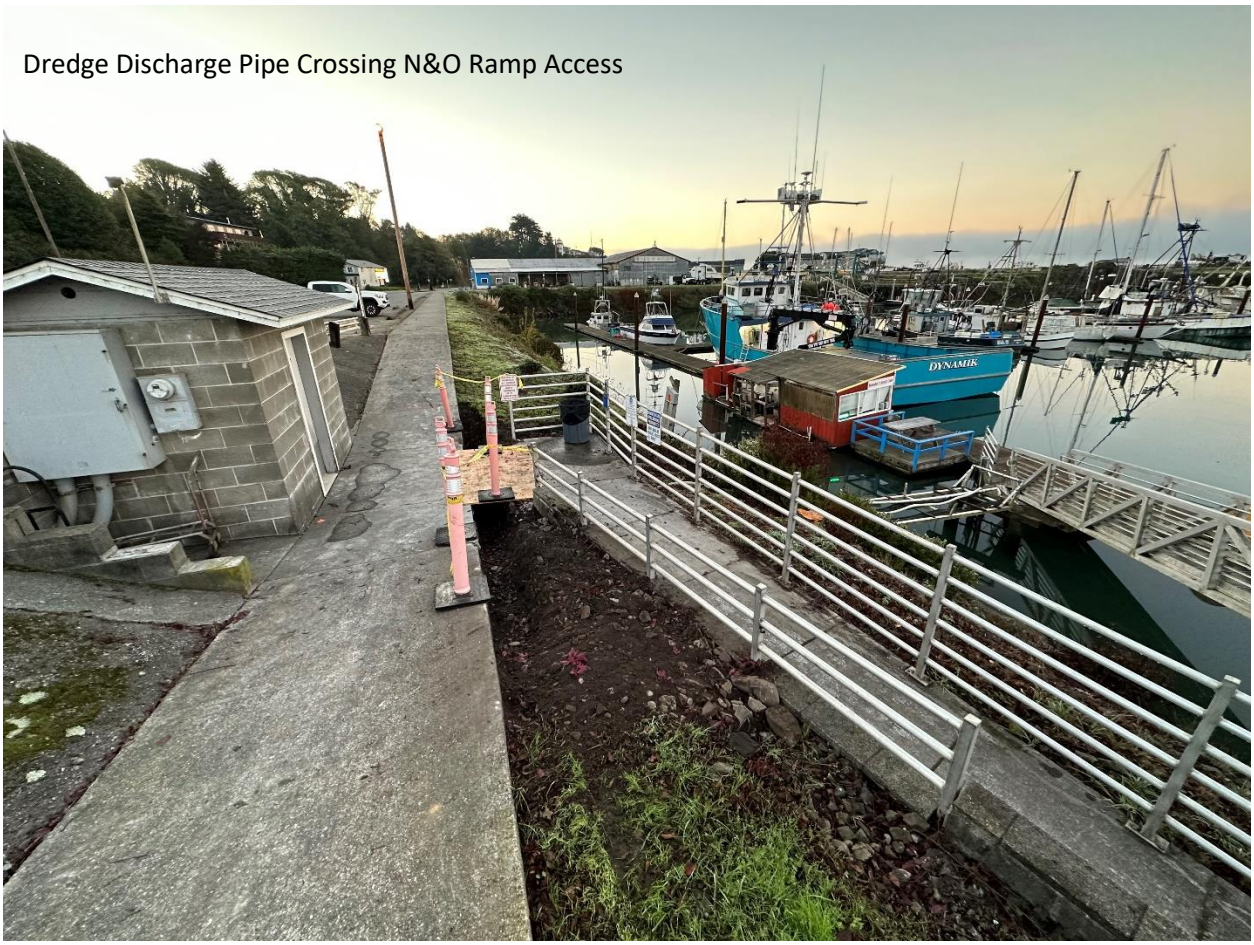
Sediment Basin – Outfall

Sediment Basin – Outfall

Dredge Discharge Pipe Crossing N&O Ramp Access


Dredge Discharge Pipe Crossing N&O Ramp Access

Dredge Discharge Pipe Crossing N&O Ramp Access



Dredge Discharge Pipe Crossing Fuel Dock Access Road


Dredge Discharge Pipe Delivery


Dredge Discharge Pipe Delivery


Dredge Discharge Pipe Fusion Weld Training
R0405
McELROY


Dredge Discharge Pipe Fusion Welding
McELROY

Dredge Discharge Pipe Installation under Hallmark

Dredge Discharge Pipe Installation along Basin 2 East Side

Dredge Discharge Pipe Installation along Basin 2 East Side & Boat Yard

Dredge Discharge Pipe Installation along Boat Yard


Dredge Discharge Pipe Installation along Basin 2 Kite Field


Dredge Discharge Pipe Storage Kite Field


Sediment Basin with Discharge Pipe and Existing Grade Markers

INFORMATION ITEM – B

DATE: November 15, 2023
RE: Boardwalk Condition
TO: Honorable Board President and Harbor District Board Members
ISSUED BY: Travis Webster, Port Manager

OVERVIEW

- Boardwalk failure at North end continues to move after each storm.
- Port staff has monitored this ongoing issue since 2017 when a small gap began to appear.
- EMC was asked to advise the Port on any threats to public safety.
- Port inspected and documented the continued movement.
- Repairs and replacement plans are in our Natural Hazard Mitigation Plan and Strategic Business Plan.
- Securing funding will be difficult due to not being considered critical infrastructure and small amounts of revenue generated from the boardwalk through events.
- Port installed a fence to protect public safety.
- Port disconnected electrical and joists to reduce chances of further damage.
- Currently failure is progressing South down boardwalk.
- Shoring installed 1996 is failing which is causing the failure.
- Staff will attempt to reposition deck to original location. If attempt is unsuccessful staff will disassemble the failing section completely.

DOCUMENTS

- EMC recommendation on North Basin Boardwalk, 13 pages
- Diagram and timeline of failing section, 9 pages

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emc@emcengineersscientists.com; http://www.emcengineersscientists.com
- Engineers/Scientists, LLC

3/25/17

MEMO-32517-01

To: Gary Dehlinger
Manager, Port of Brookings
From: Jack Akin
EMC-Engineers/Scientists, LLC
RE: North Basin Boardwalk

Introduction

On Friday, March 10th, Jack Akin of EMC-Engineers/Scientists, LLC (EMC), at the request of Gary Dehlinger, Port of Brookings Manager, inspected the North Basin boardwalk (see Exhibit 1 – Site Location), to advise the Port on the threat of its use to public safety.

General Description

The boardwalk is a wood structure supported and anchored by 16" dia. wood piles. The piles were driven to an unknown depth. The walking deck is of 2" x 12" x 20' planks and rests atop two rows of piles as seen in the attached photos (see Exhibit 2 for southward and eastward views, and Exhibit 3 for a better view of the deck sub-structure). Lateral support against live-loading is provided by pile-to-pile 4" x 10" cross-bracing. The outer pile row is driven into the Port basin mudline, and the inner row through the soils comprising the slope.

The soil slope beneath the deck is retained by 4 inch thick concrete wall sections that are supported by steel H-beams that have been driven to an unknown depth into the Port basin mudline (see Exhibit 6 upper photo for a top view of beam-concrete wall section system). The side slope native soils (see excavator tooth-marks in top photo of Exhibit 3) seem to have originally been excavated to above the elevation of the inner row of piles, and then, after construction of the concrete panel/H-beam system, the rest of the slope to the wall was backfilled. Plastic sheeting appears to have been placed beneath the top four feet or so of the backfill. This assumption is only based on the observation of plastic sheeting protruding out beneath the top concrete panel section along the west face of the wall.

The slope stabilization and boardwalk systems are observed to be designed and to have been constructed as two entirely independent systems. The retaining wall sections observed southward of the damaged areas appear vertical, more or less level, and are not pressed against the deck-supporting outer row of wood piles (see Exhibit 5).

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emc@emcengineersscientists.com; http://www.emcengineersscientists.com
- Engineers/Scientists, LLC

Damage Assessment

As seen in Exhibit 4, a stress crack has developed between the boardwalk and the bordering concrete sidewalk slab. The crack shows a movement westward of the boardwalk structure itself. The NW corner of the concrete sidewalk slab and anchor bolt on the deck NE corner, as seen in the lower photo in Exhibit 4, has been broken away. The bolt pinning the 4" x 10" cross-brace (connecting the inner pile to the outer pile on the north end of the deck) appears to be slightly bent off-center (see lower photo in Exhibit 3).

Though some loss is indicated, this backfilled section of the sideslope profile appears fairly stable from north to south beneath the boardwalk, except in the damaged north area. This north area, seen in the foreground in the top photo of Exhibit 2, shows considerably more soil loss in the assumed fill area. This area is also nearly entirely outside of the deck and is exposed to stormwater. It also appears that the soils in this area have to some extent lost some of its cohesion and pressed against the retaining wall. Subsequently the wall sections have been pressed against the H-beam supports and moved the wall to press against the outer piles (see Exhibit 5).

Analysis

It appears that the soils comprising the sideslope north of the boardwalk have become unstable and have consequently pressed the retaining wall against the outer deck-supporting piles, pulling the boardwalk westward with its deflection.

Based on these observations, stormwater has 1) reduced soil cohesion, eroded soils and destabilized the soil mass; and 2) created one or more slip surfaces that allows its soil friction to be overcome by the slope and the mass to shift westward.

For preliminary purposes only, a Rankine analysis is taken, utilizing backfill slope and internal soil friction angles, both conservatively estimated to be 30 degrees. Thus a horizontal K_a of 0.75 is estimated. Projecting a plane of rupture per Rankine-derived theoretic equivalent soil wedge (see figures in Exhibit 7), a soil load of about 3500 psf (25 psi) is assumed to be retained by the concrete sections. Since the larger sections are assumed to be 10 feet wide, the walls are rigid, and are supported at both ends by the H-piles, 35,000 pounds are assumed to be supported at each edge, to result on a uniformly loaded 260 psi along edge, after adding 2000 pounds from the concrete panel. Sheer strength of the weakest concrete (about 870 psi) after adding 2000 pounds from the concrete panel is more than adequate design against this slope.. A W-6 H-beam with 36 ksi F_y of 25' in length (estimated to be a minimum of 10.2 kips from a point of fixity) can be assumed to adequately support this load.

Since the above analysis (given the assumptions presented) indicates that the design of this retaining wall is adequate to maintain slope stability, the observed failure needs to be explained. Thereby solutions can be considered.

The presence of water behind a wall has a marked effect on the pressures applied to the wall. When the water intersect the walls, a hydrostatic pressure will exert against the wall, together with uplift pressures along the base of the wall. Even when there is no water in direct contact with the wall, such as when adequate drainage is provided, there is an increased pressure on the wall due to the increase earth pressure. The effect of water behind the wall is significant; the total force may be more than double that applied for dry backfill.

The height to which water can rise in the backfill, and the volume of flow, are both of prime concern. To determine these the ground water conditions must be established. These may be best derived form the observation of groundwater conditions prior construction using piezometers.

Where inadequate drainage is provided behind a retaining structure (may well be retained by installed plastic sheeting), there may be a damming effect which would result in raising groundwater levels locally and in the general areas. Such a rise seems to have adversely affected the stability of the slope and the retaining wall.

The stability of the retaining structure and the wall contained by it is determined by computing factors of safety (or stability factors), which may be defined in general terms as:

F_s = Moments or forces aiding stability / moments or forces causing instability
Factors of safety should be calculated for the following separate modes of failure and should apply to the 1 in 10 year groundwater condition:

(a) sliding of the wall outwards from the retaining soil,
(b) overturning of the retaining wall about its toe,
(c) foundation bearing failure, and
(d) larger scale slope or other failure in the surrounding soil.

The forces that produce overturning and sliding also produce the foundation bearing pressures and, therefore, (a) and (b) above are inter-related with (c) in these soils.

In cases where the foundation material is soil, overturning stability is usually satisfied if bearing criteria are satisfied. However, overturning stability may be critical for strong foundation materials such as rock and so on.

The main purpose of retaining wall construction is of course to retain soil and that is why soil lateral earth pressure is major concern in the design. Sliding soil wedge theory is the basis for most of theories by which lateral earth pressure is computed.

The wedge theory suggests that a triangular wedge of soil would slide down if the retaining wall was removed suddenly and the wall has to sustain this wedge of soil. Exhibit 7 shows free body lateral forces acting on retaining walls.

The Rankine method of Lateral Earth Pressure Calculation is selected for the purposes of this report (see 2nd page of Exhibit 7: Free body of lateral forces acting on retaining wall).

This equation, which was derived by William Rankine, is the development of the coulomb formula. The Rankine method does not take the friction between wall and soil into account.

This makes it a conservative way for designing retaining walls. The Rankine lateral earth pressure equation is the same for both zero-wall friction and level backfill soil:

$$K_a = \cos\beta \frac{\cos\beta - \sqrt{\cos^2\beta - \cos^2\emptyset}}{\cos\beta + \sqrt{\cos^2\beta - \cos^2\emptyset}}$$

$$K_{a\ horizontal} = \cos\delta K_a$$

Where:

β: Backfill slope angle
$\emptyset$: Internal friction angle of soil

Conclusions and Recommendations

The retaining wall has been moved, apparently as pressed by the downslope migration of soils that are openly exposed to stormwater. Inadequate drainage and a likely slip surface displacement, perhaps created by the placement of a plastic sheet liner below upper fill, has pressed against the retaining wall and pushed the concrete sections up against the support piles at or adjacent to the north corner of the boardwalk.

The slope failure appears checked by the braced support pile system and its use does not appear to be an immediate threat to public safety.

However, loss of material and slipping of soil mass will continue. The holding strength of the braced pile supports depends on unknowns, including depth of the piles to an elevation of tight soils (fixity).

Though soil data in this area is not available, geo-engineering study has been performed in 2011 at areas in the Port south of this area. Also, designs from previous dock & pile projects at the Port are kept are archived at the Port office. Remedy will likely include the removal and replacement of soils atop correctly installed geotextile.

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- Engineers/Scientists, LLC

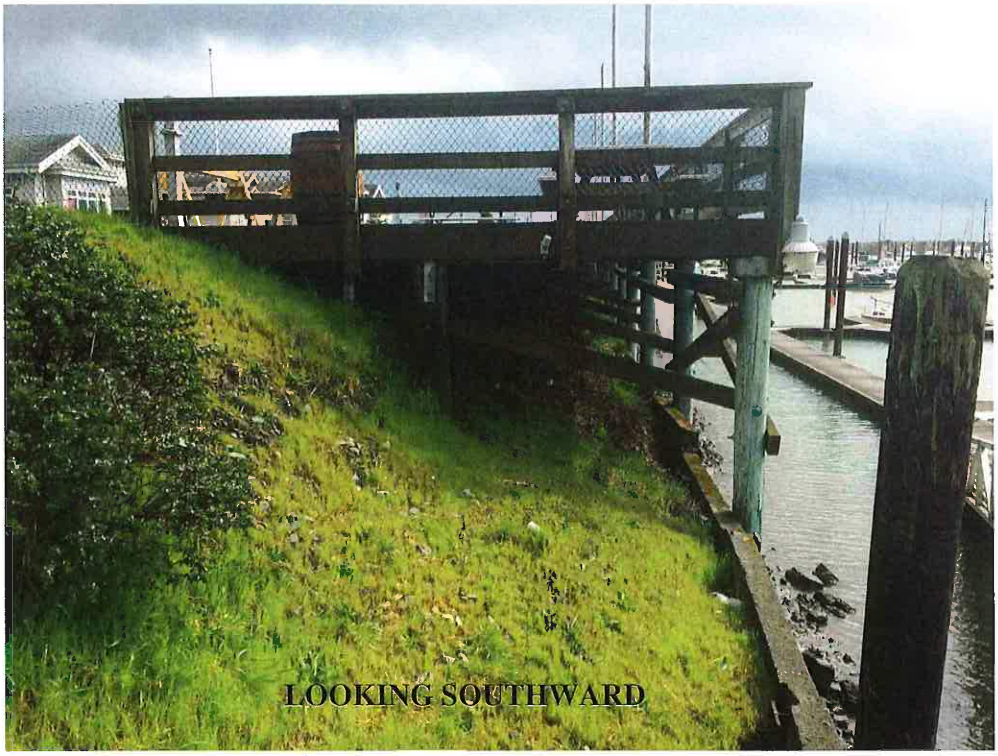
Meanwhile it is recommended that a bi-weekly inspection (going to weekly if no significant crack width or length is observed after six observations) be logged that would include 1) width and length of stress crack shown in Exhibit 4, and the condition of Pins A and B, shown on the first page of Exhibit 7. If the crack increases to a width of six inches or greater, or if Pins A and/or B fail, a qualified professional engineer should be consulted immediately.

Sincerely

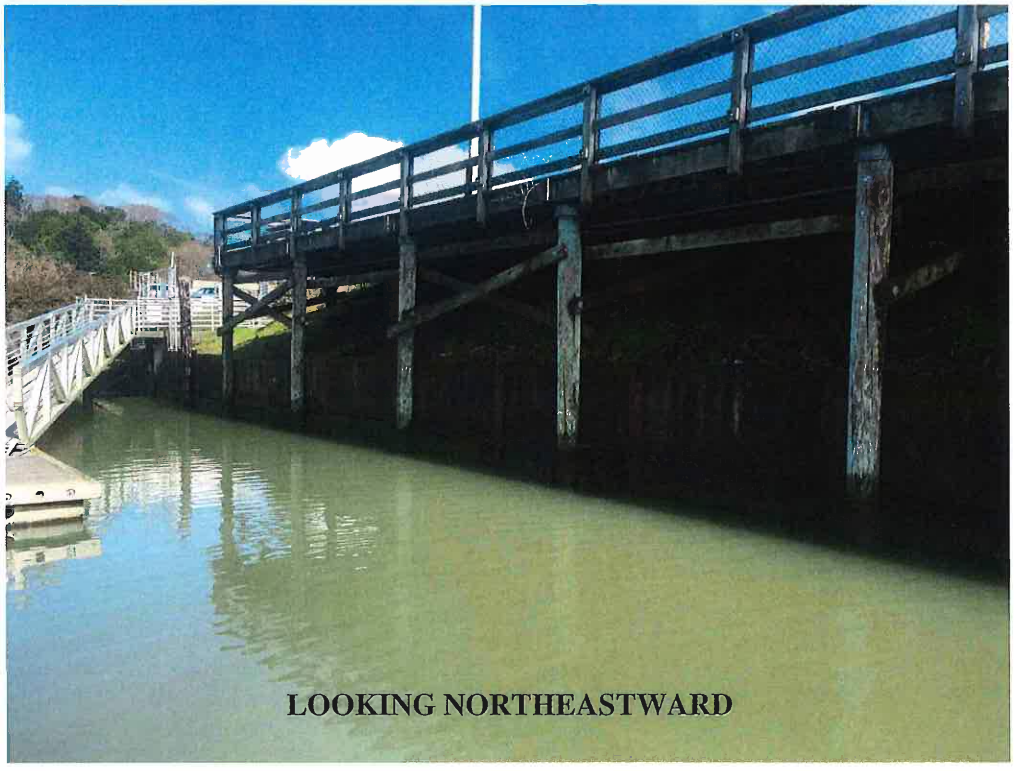
Jack (John) Akin, MS, PE, IC, HMS, CAI
EMC-Engineers/Scientists, LLC

Exhibit 1 - STRESS CRACK AT TOP OF DECK

Exhibit 2 - NORTH BOAT BASIN BOARDWALK



LOOKING SOUTHWARD



LOOKING NORTHEASTWARD

EXHIBIT 3 – BOARDWALK SUPPORT STRUCTURE

Exhibit 4 **STRESS CRACK AT TOP OF DECK**

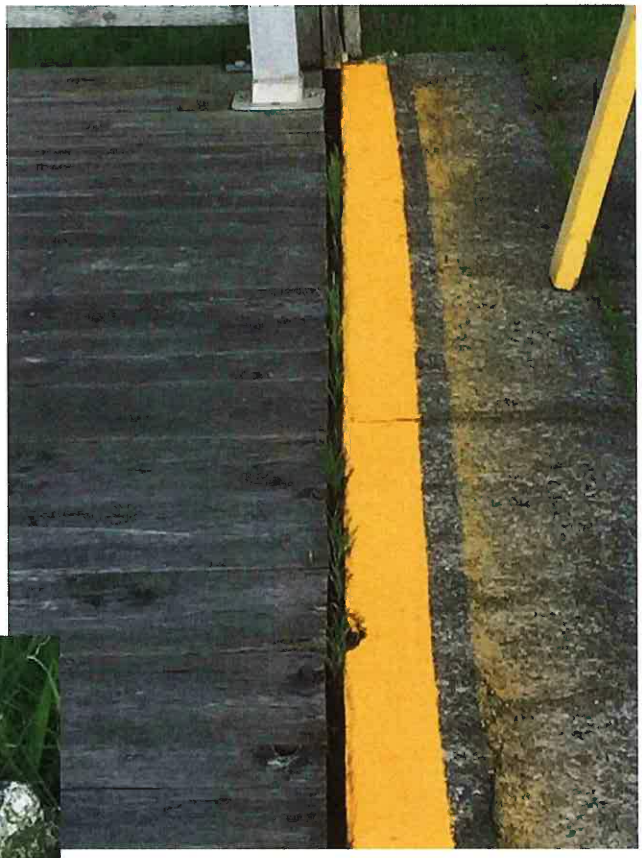


Exhibit 5 CONCRETE WALL SECTIONS PRESSED AGAINST SUPPORT COLUMNS

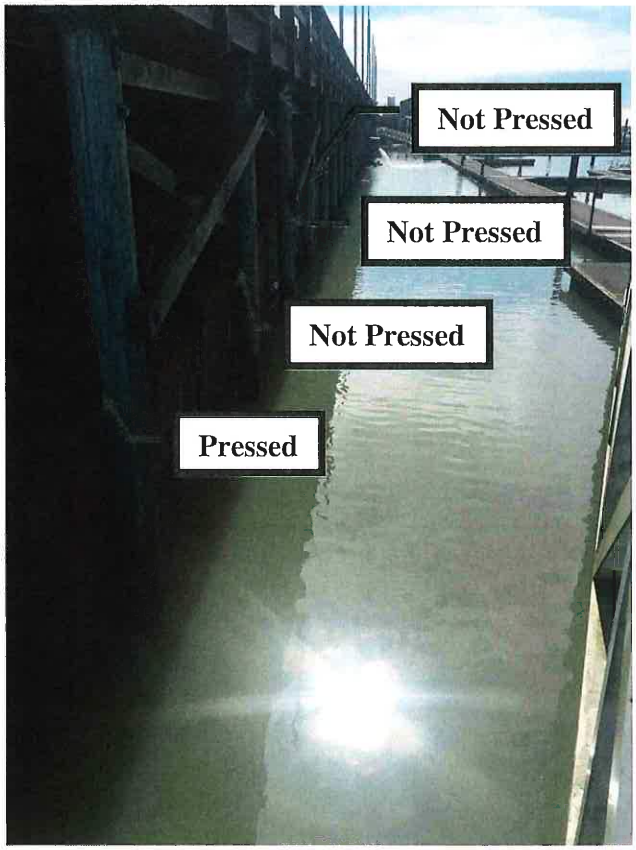
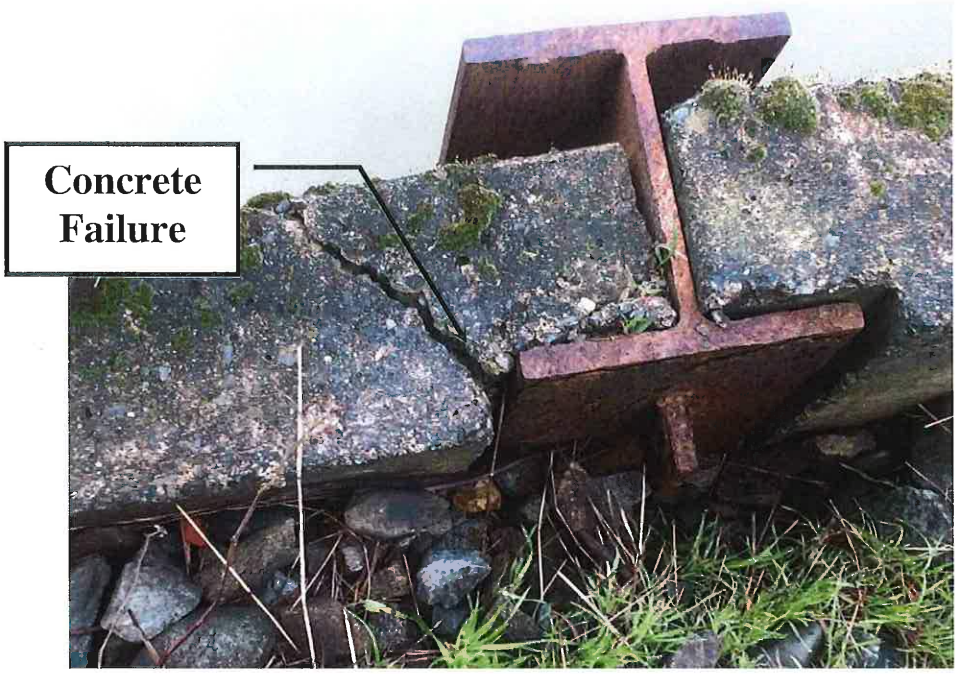


Exhibit 6 **CONCRETE FAILURE AT H-PILE**



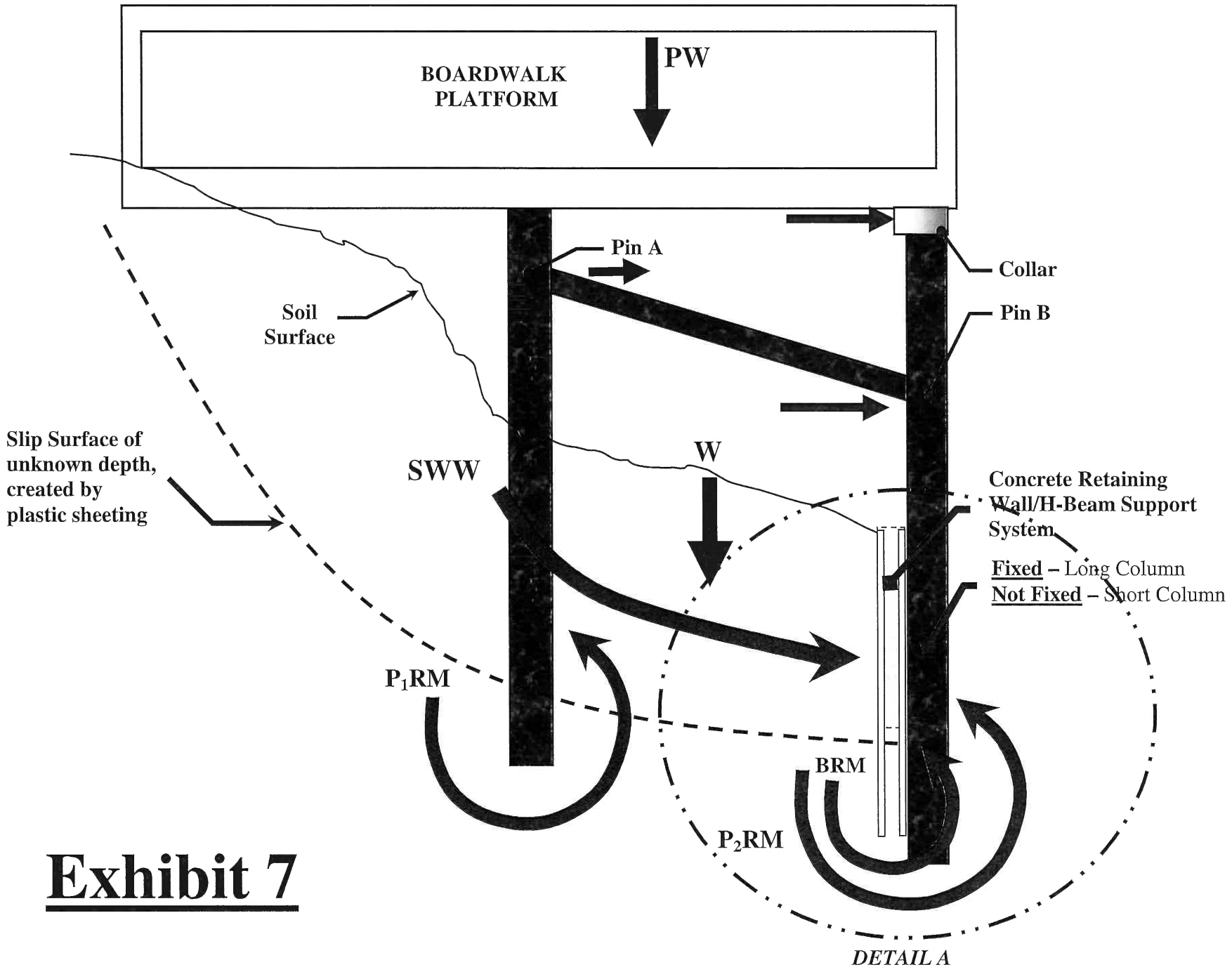

BOARDWALK
PLATFORM
PW
Pin A
Collar
Pin B
Soil
Surface
Slip Surface of
unknown depth,
created by
plastic sheeting
SWW
W
Concrete Retaining
Wall/H-Beam Support
System
Fixed – Long Column
Not Fixed – Short Column
P1RM
BRM
P2RM
DETAIL A

Exhibit 7

DETAIL A

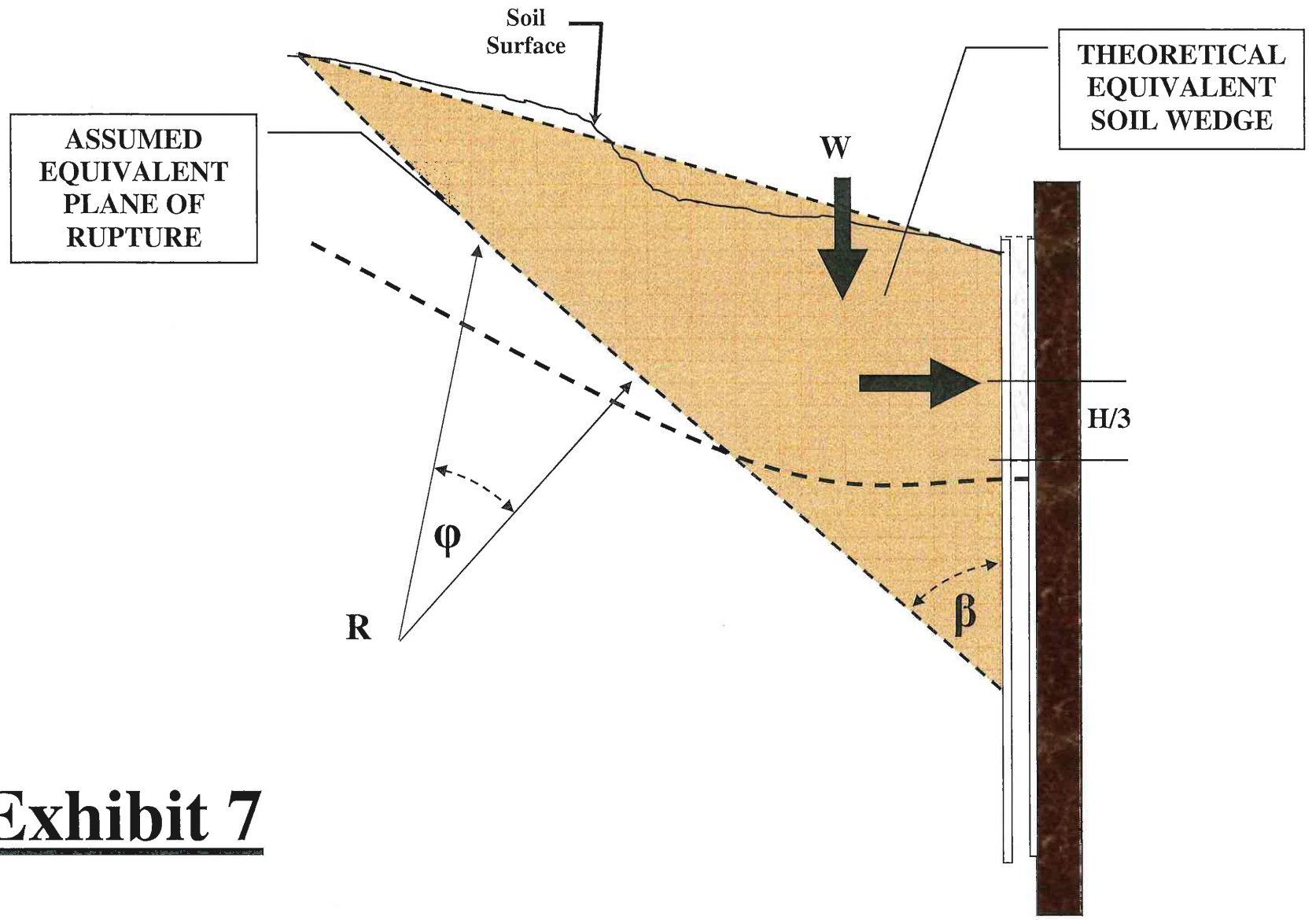
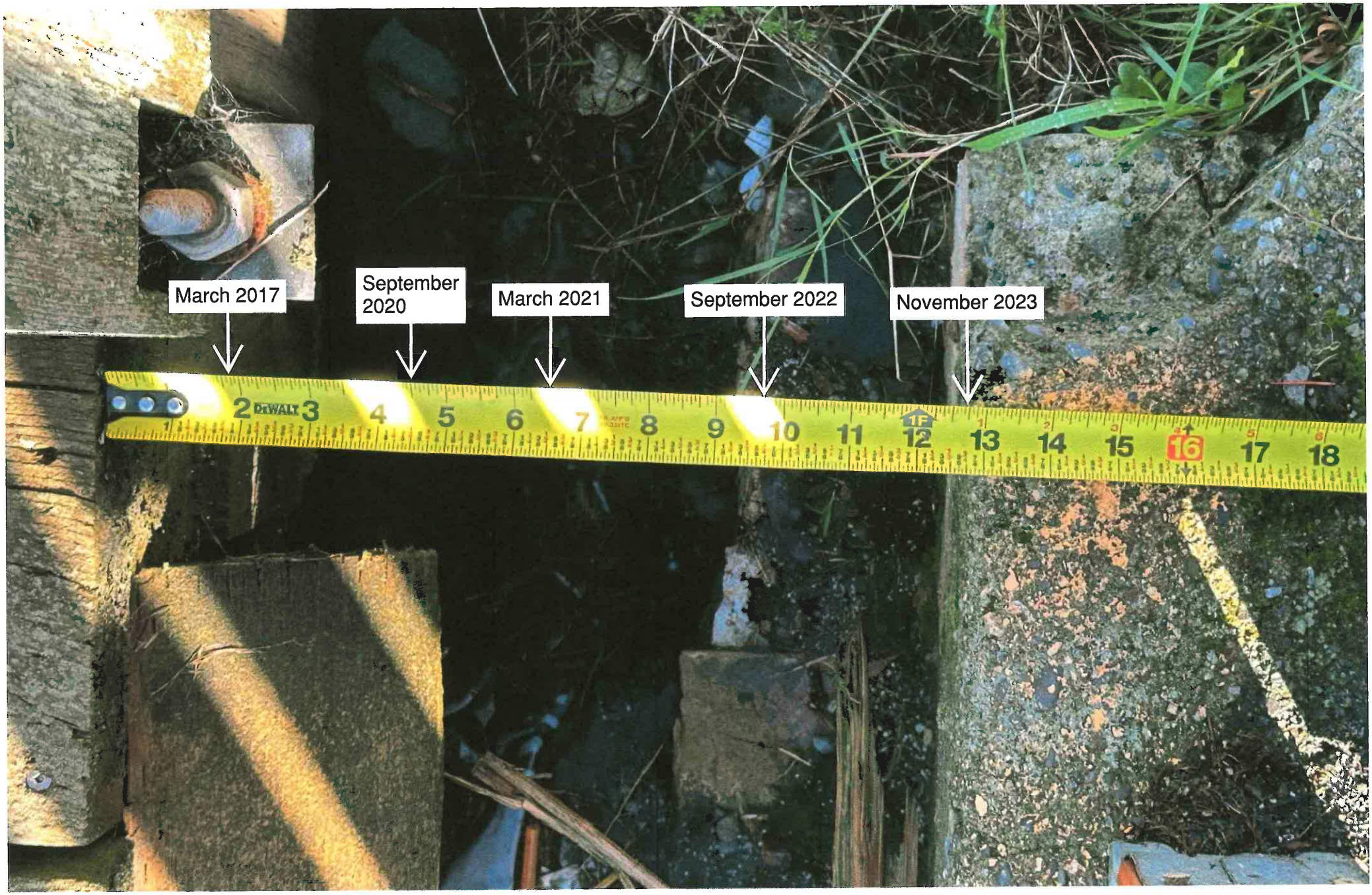
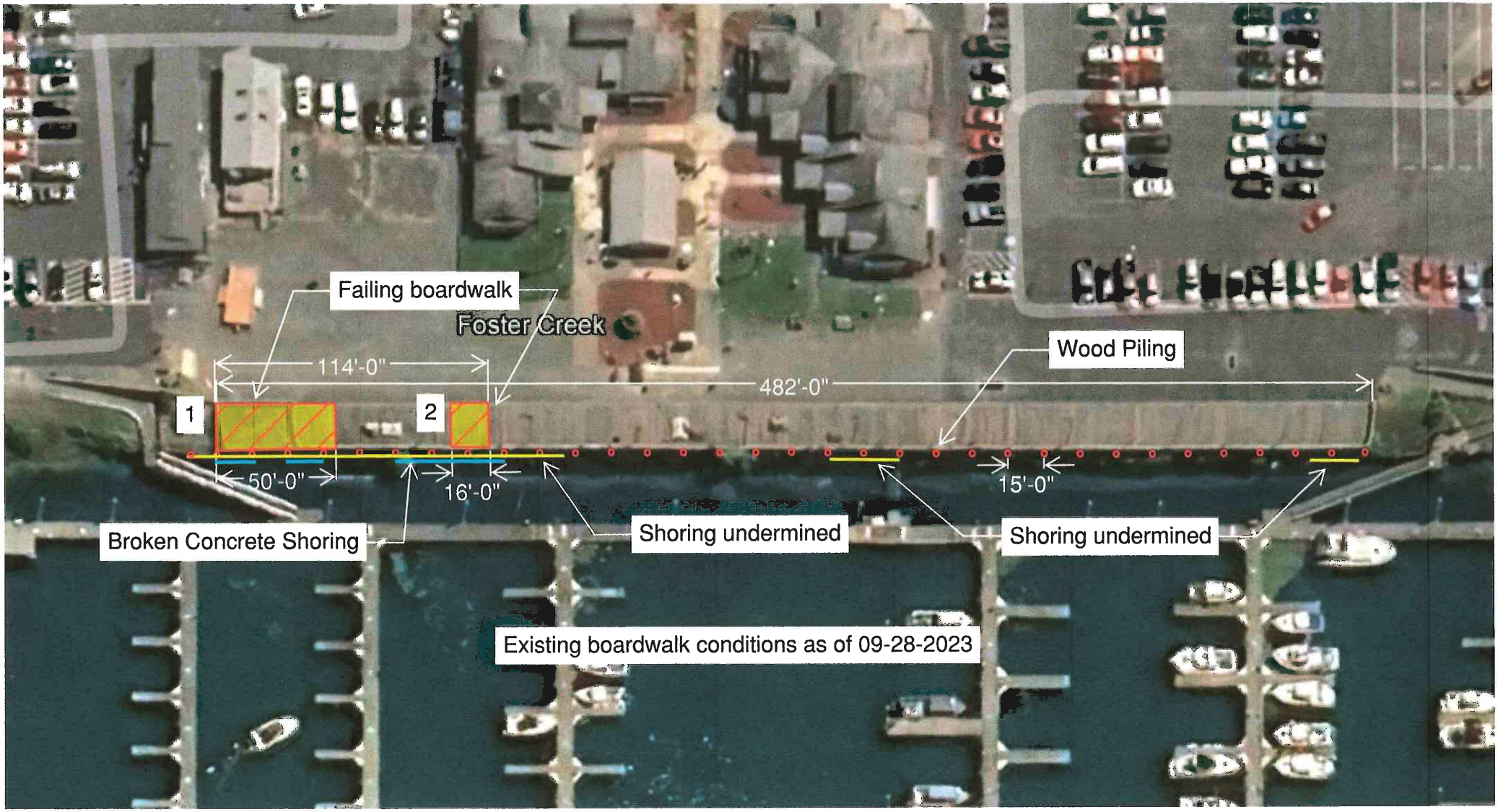
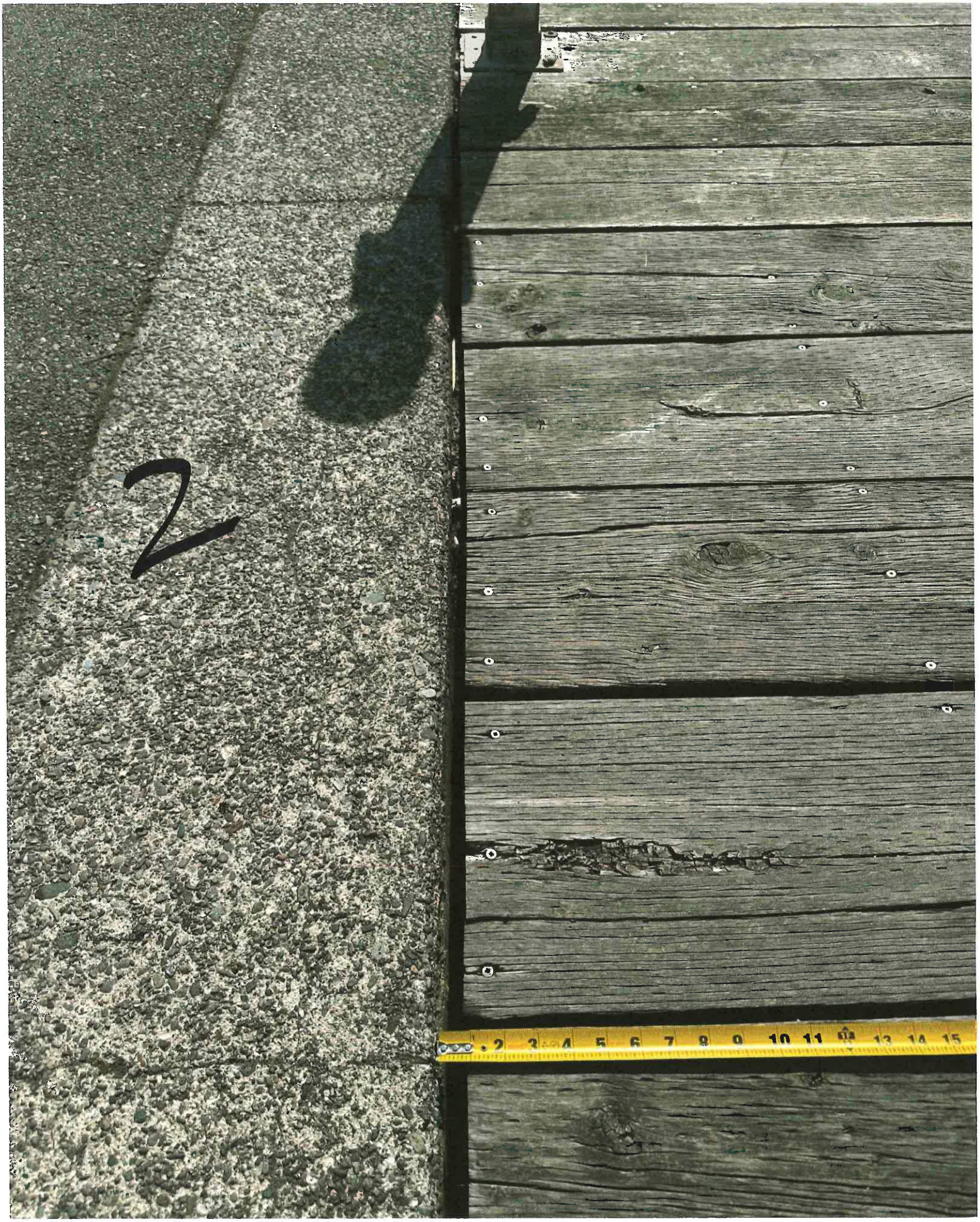


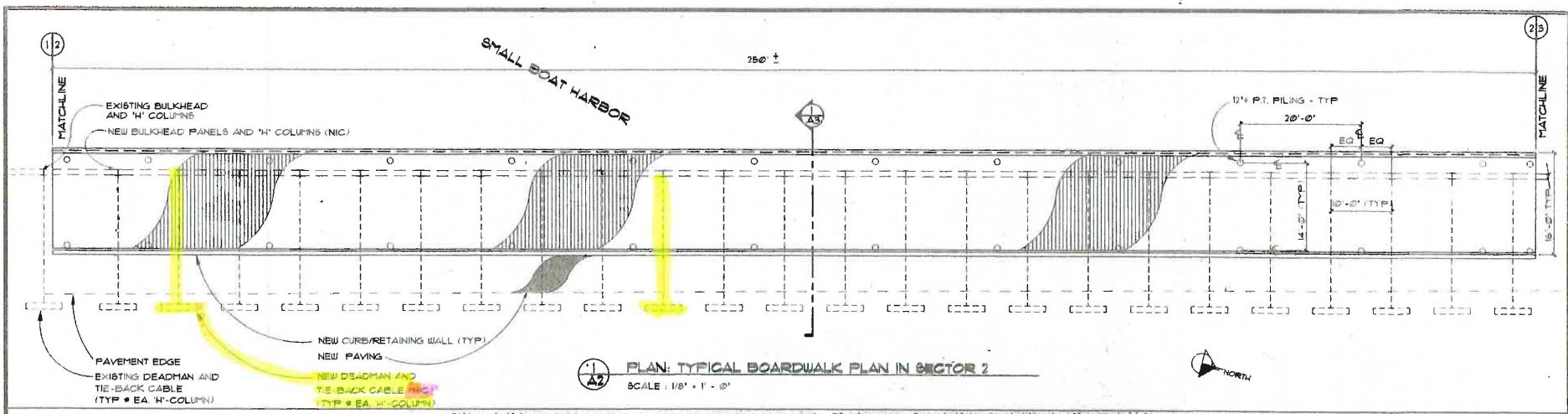
Exhibit 7


March 2017
September 2020
March 2021
September 2022
November 2023
DEWALT


Failing boardwalk
Foster Creek
114'-0"
482'-0"
Wood Piling
1
2
50'-0"
16'-0"
15'-0"
Broken Concrete Shoring
Shoring undermined
Shoring undermined
Existing boardwalk conditions as of 09-28-2023

1
6
7
8
9
10
11
12
13
14
15
16
17
18


2



PLAN: TYPICAL BOARDWALK PLAN IN SECTOR 2

SCALE : 1/8" = 1' - 0"

PILING SPECIFICATIONS / NOTES

MATERIALS

Timber -

Douglas fir shall conform to the grading requirements of the Western Wood Products Associated grade beams and stringers, Select Structural.

Redwood shall conform to the grading requirements of the Redwood Inspection Service grade #1.

Fasteners -

MALLEABLE IRON - castings shall conform to current ASTM specifications, designation A 47, Grade 35018.

CAST IRON - shall conform to current ASTM specifications, designation A 48, Class #30.

ROLLED STEEL - plates, bars, and shapes shall conform to current ASTM specifications, designation A 36.

NAILS, SPIKES AND DRIFT BOLTS - shall be made of wrought iron or rolled steel, round, as called for on the plan. Where special heads are not specified, the manufacturer's standard heads will be acceptable. Nails and spikes used for fastening timbers shall be of a type having grooved, barbed, or otherwise deformed shanks for greater holding power.

THROUGH BOLTS - shall be made of rolled steel with U.S. standard square or hexagon heads and nuts unless otherwise specified on the plans.

WASHERS - Cast washers shall be made of malleable or gray iron. The outside diameter shall be not less than 3½ times the diameter of the bolt on which it is used and its thickness equal to the diameter of the bolt. The diameter of the hole shall be 1/8" larger than the diameter of the bolt.
Plate washers shall be made of wrought iron or rolled steel. The outside diameters shall be not less than 3½ times the diameter of the bolt on which it is used, and they shall not be less than ¼" thick. The diameter of the hole shall be 1/8" larger than the diameter of the bolt.

PACKING SPOOLS AND SEPARATORS - shall be made of malleable or cast iron, to a size and shape called for on the plans. The diameter of the hole shall be 1/8" larger than the diameter of the bolt.

LAG SCREWS - including steel drive dowels and spikes with spirally grooved shanks shall be made of rolled steel. Heads for lag screws shall be U.S., standard unless otherwise specified.

Piles -

SIZE - The piles in each bent of a pile trestle shall be selected for uniformity of size to facilitate placing of the brace fibers. Piles shall conform to AREA 1st Class Group 1 requirements. Piles have been furnished in lengths in excess of what may be required due to the lack of subsurface information. In the events piles are found to be much in excess of the required lengths, they shall be shortened at the small end before driving, as may be directed by the engineer, in order to preserve the desired diameter of pile at the cut-off.

POINTING - Piles shall be cut perpendicular to the axis of the pile, where necessary, points may be trimmed to form a truncated pyramid 4 to 6 in. square at the end and with length of trimming not to exceed twice the tip diameter of the pile.

Handling and Storage of Material -

a. All material shall be handled to avoid structural damage or unnecessary disfiguring.
b. Piling or timber that has been treated with preservatives shall be handled with extreme care in unloading and assembling to avoid damage to the timber which would expose untreated wood. These materials shall be preferably handled with rope slings. Sharp-pointed bars, peavies, hooks, tongs or similar tools shall not be used, except as approved by the engineer.
c. Treated lumber shall be close-stacked in a manner that will prevent long timbers or prefrained material from sagging or becoming crooked

Untreated lumber shall be open-stacked on suitable skids at least 1 foot above the ground and above possible high water; it shall be piled in a manner to shed water and to prevent warping. When required, it shall be protected from the weather by suitable covering.

d. Piling shall be stacked in a manner to prevent excessive bending. Hardware received at the job site shall be protected from corrosion by storing under cover or by a protective coating.

Preservative Treatment -

All piling shall be treated in accordance with AREA specifications piles with a creosote coal tar treatment retention of 12 lbs/cubic foot min.
All timbers shall be treated in accordance with AREA specifications for lumber, timbers, and bridge ties with a creosote coal tar treatment retention of 8 lbs/cubic foot min.

WORKMANSHIP

Workmanship shall be of the best quality in each class of work. Competent workmen shall be employed and all framing shall be true and exact. No blocking or shimming will be permitted, except as otherwise provided herein.

Framing of Timber -

a. All cuts or abrasions made in or suffered by treated lumber shall be carefully trimmed and then field treated by the application of two saturating coats of hot creosote oil. All holes bored in treated material shall be field treated with hot creosote oil using a swab, in such a manner that the entire surface of the hole receives thorough penetration. All countersunk recesses for bolts which would form pockets to retain water shall be treated as for cuts and then filled with a suitable mastic after the bolt is placed.
b. Sills shall have a true and even bearing on foundation piles, timber pilllages, caps or pedestals. All earth shall be removed from around sills so that there will be free air circulation around them.
c. Posts in framed bents shall be sawed to proper length (vertical or batter) and shall have an even bearing on caps and sills.
d. Caps shall be sized to a uniform depth and placed to a uniform and even bearing on piles or posts.
e. Sash and sway bracing, cover bracing and girts shall bear firmly against the piles or timber to which secured. When necessary, fillers shall be placed to avoid bending the bracing more than 1" out of line when the bracing bolts or other fastenings are drawn up tight. Built-up fillers will not be permitted and such filler shall be a single piece of creosoted lumber of like kind to that in the brace with a width of not less than 6" and a length of not less than 12".
f. Stringers shall be sized to provide a uniform depth and even bearing at supports. They shall be assembled in the structure according to the plans.
g. All fastenings, including bolts, dowels, lag screws, timber connectors and other type fastenings shall be placed in accordance with the plans, drawn up securely, and on completion of the structure shall be retightened. Unless otherwise shown on the plans, holes for dowels and drift bolts shall be bored 1/16" smaller than the nominal diameter of the dowel or bolt used, holes shall not be bored deeper than the length of the dowel or bolt. Holes for machine bolts and rods other than dowels and drift bolts shall be bored the same size as the nominal diameter of the bolt or rod used. Holes for lag screws shall be bored with a bit not larger than the body of the screw at the base of the thread.

Screw-type fastenings shall be screwed into place for the entire length of the fastening. Driving with a maul or other tool will not be permitted.

Piles -

a. Cut-off - The tops of piles shall be pulled into line if necessary, fixed in position, cut off to a true plane as shown on the plans, and at the elevation shown on the plans. Piles shall show a solid head at the plane of the cut-off.
b. Treatment - After the cut-off has been made, the tops of treated piles shall be saturated with hot preservative, followed by two coats of hot sealing compound. The sealing compound shall be a mixture of creosote coal-tar pitch, mixed to about the consistency of vaseline, and brushed thoroughly into the wood.
c. Pile covering - Where the plans call for a heavy roofing material or metal pile covering, it shall be placed on the tops of the piles immediately after treatment, the edges bent down over the sides of the pile, neatly trimmed, and fastened with roofing nails.
d. Placing caps - Caps shall be placed while the piles are held in correct position. Where drift bolts are used for making the connections, the caps and tops of piles shall be bored the same diameter as the drift bolt and to a depth of 3" less than its length. Where the connection is made with straps and bolts see (f) below for boring and treatment of holes.
e. Bracing - Piling shall not be trimmed or cut to facilitate the framing of sway or longitudinal bracing. Where necessary, filler blocks shall be used between the pile and brace to establish the bracing in a true plane.
f. Holes for bolts - Holes shall be bored the same diameter as the the bolt.
When holes are bored in treated piles, caps or bracing in the field, the entire hole shall be swabbed with hot preservative and sealing compound just before the bolt is placed. Bolts shall be cleaned of rust and scale, and dipped in hot sealing compound before placing. All unused holes shall be plugged at each end with tight fitting treated wooden plugs.
g. General field treatment - Where it is necessary to disturb the surface of treated piles or timber, or where the surface has been damaged in handling, such surfaces shall be treated with a liberal quantity of hot preservative followed by two applications of hot sealing compound.

Types of Hammers -

Pile driving shall not be started on any project until approval is secured from the engineer as to the type and weight of the hammer to be used.

Where a drop hammer is used, the striking ram shall weigh not less than 3000 lb. The fall shall be so regulated as to avoid injury to the pile.

Driving -

a. Leads - Pile driver leads shall be constructed in such a manner as to afford freedom of movement of the hammer, and they shall be held in position by guys or stiff braces to insure support for the pile during driving. Inclined leads shall be used to drive batter piles.
b. Followers - The use of followers shall be avoided if practicable and shall be used only with the written permission of the engineer.
c. Collars - Where the heads of piles tend to split when being driven, pile heads shall be protected with strap-iron bands applied with a banding tool. Two bands minimum shall be installed prior to driving pile and shall be replaced if damaged during driving.
d. Driving cap - The heads of piles shall be protected while being driven with a driving cap (bonnet) of approved design. The cap shall be shaped to fit over the head of the pile to provide lateral support, and to uniformly distribute the hammer blow. Pile heads shall be trimmed to fit snugly into the cap.
e. Line - Piles shall be driven as accurately as possible in the correct location, true to line both laterally and longitudinally, and to the vertical or batter lines as indicated on the plans. On sloping ground or under difficult conditions of driving, the pile shall be started in a hole or guiding template or other necessary means provided to insure driving in the proper location. In case a pile works out of line in driving, it shall be properly aimed before it is cut off or braced, and the distance that it may be pulled shall be determined by the engineer.
f. Jetting - shall not be done unless specifically permitted by the engineer. When water jets are used, the number of jets and the volume and pressure of water shall be sufficient to freely erode the material adjacent to the pile. The plant shall have sufficient capacity to deliver at least 100 psi pressure at two 3/4" nozzles.

Before the desired penetration is reached, the jets shall be removed and the pile finally set under normal driving by at least 50 blows from a gravity or single-acting hammer or 200 blows from a double-acting steam hammer.

g. Drilling - When it has been satisfactorily demonstrated to the engineer that piling cannot be driven in the regular manner by jetting, holes may be drilled to facilitate the driving.

Where drilling is permitted, the holes drilled shall have a diameter not more than 1" larger than the tip diameter of the pile and the drilling will continue only through the strata of hard material obstructing the driving. Where the hard material extends below the desired penetration, the drilling shall be stopped above that penetration level and the pile finally set under normal driving in accordance to the bearing required. At least 50 blows from a gravity or single-acting hammer or 200 blows from a double-acting steam hammer shall be used if possible to do so without damaging the pile.

h. Delay - When driving is interrupted before final penetration is reached, record for bearing capacity shall not be taken until at least 12" penetration or refusal has been obtained after driving has been resumed.
i. Replacing - Any pile pile driven too far out of line, driven below cut-off elevation, or so injured in driving or straightening as to impair its structural value as a pile under the conditions of use, shall be pulled and replaced by a new pile.
j. Bearing capacity - Piles shall be driven to support a bearing load of 17 tons. The pile capacity will be based upon pile set as determined by the engineer.

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PROJECT NO. 96221

PROJECT
PORT OF BROOKINGS-HARBOR
BOARDWALK
LOWER HARBOR ROAD
HARBOR, OREGON 97415

SHEET TITLE
PLAN / PILING SPECIFICATIONS

DATE: JULY 1996

SHEET: A2 OF 3


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