



US Army Corps
of Engineers
Seattle District

Public Notice of Application for Permit

US Army Corps of Engineers
Regulatory Branch
Post Office Box 3755
Seattle, WA 98124-3755
Telephone: (206) 348-3999
ATTN: Danette L. Guy,
Project Manager

Public Notice Date: July 19, 2021
Expiration Date: August 18, 2021

Reference No.: NWS-2017-431
Name: J.E. McAmis
(facility improvements)

The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. The Washington Department of Ecology (Ecology) will review the work separately pursuant to Section 401 of the CWA, with applicable provisions of State water pollution control laws.

APPLICANT: J.E. McAmis, Inc.
Attention: Mr. Scott Vandegrift
612 County Drive
Chico, California 95928
Telephone: (530) 891-5061

AGENT: Maul Foster & Alongi, Inc.
Attention: Mr. Ryan Crotty
109 E 13th Street
Vancouver, Washington 98660
Telephone: (360) 947-2203

LOCATION: In the Old Mouth Cowlitz Channel, near Longview, Cowlitz County, Washington.

WORK: Repair, replace, and redevelop existing facilities and infrastructure. Proposed work includes replacing the existing sheet pile and timber bulkhead with and OpenCell® bulkhead, installing eight mooring dolphins, and constructing an outfall and splash pad. Work landward of the ordinary high water mark includes grading and replacement of gravel on existing roads.

ADDITIONAL INFORMATION: The bulkhead sheet pile face would be installed with a vibratory hammer. After the bulkhead face is installed up to 354 cubic (CY) of concrete rubble would be removed from the existing bankline and disposed of in an approved upland location. No more than 16,000 CY of structural fill would be discharged behind the sheet pile wall for bulkhead construction. Up to 43 CY of riprap would be discharged for construction of the outfall splash pad and, replacement of existing riprap. Eight mooring dolphins consisting of two, 24-inch diameter steel piles would be installed using a vibratory hammer. Please see section below for details on the proposed compensatory mitigation.

PURPOSE: Construct a barge moorage and transloading structure at J.E. McAmis' existing marine construction yard for continued operations.

Copies of this public notice which have been mailed or otherwise physically distributed feature project drawings in black and white. The electronic version features those drawings in color, which we think more accurately communicates the scope of project impacts. To access the electronic version of this public notice, go to the Seattle District's web page at <http://www.nws.usace.army.mil/> and under the heading Open Public Comment Periods select Regulatory Public Notices. Recently-issued public notices are listed in chronological order of the date of issuance. Select and view the listing for this project.

The location of the ordinary high water mark shown on the project drawings have not yet been verified by the U.S. Army Corps of Engineers (Corps). If the Corps determines the boundaries of the wetland/waters are substantially inaccurate a new public notice may be published.

MITIGATION: The applicant has proposed to enhance and create shallow water habitat area on the peninsula separating the Old Mouth Cowlitz River channel from the Cowlitz River. Work would include excavating up to 20,000 CY of material increase the size of the existing wetland and hydraulically connect it to the Old Mouth Cowlitz River. The area would be planted with appropriate native vegetation.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat. A preliminary determination indicates that the activity will affect endangered or threatened species, or their critical habitat. Consultation under Section 7 of the ESA is required.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). If the U.S. Army Corps of Engineers (Corps) determines that the proposed action may adversely affect EFH for federally managed fisheries in Washington waters, the Corps will initiate EFH consultation with the NMFS. The Corps' final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

CULTURAL RESOURCES: The Corps has reviewed the latest published version of the National Register of Historic Places, Washington Information System for Architectural and Archaeological Records Data and other sources of information. Historic properties are recorded near the proposed project. However, they do not occur in the permit area. The permit area has been so extensively disturbed by modern development that little likelihood exists for the proposed project to impinge upon an undisturbed historic property. The Corps invites responses to this public notice from Native American Nations or tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns regarding historic properties and sites of religious and cultural significance at or near the project area. After receipt of comments from this public notice, the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Nations in accordance with Section 106 of the National Historic Preservation Act, as appropriate.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

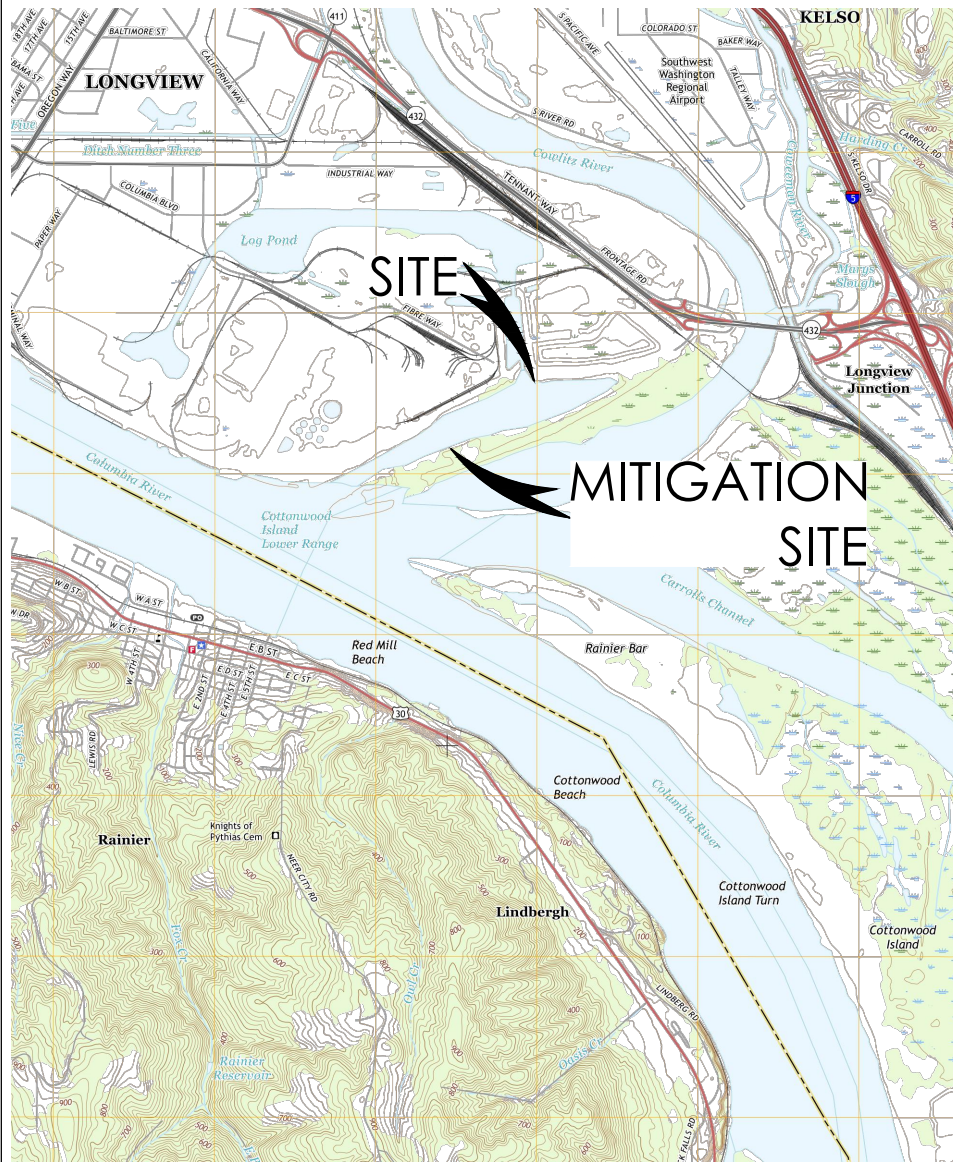
COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether authorizing the work would not be contrary to the public interest. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. All e-mail comments should be sent to danette.l.guy@usace.army.mil. Conventional mail comments should be sent U.S. Army Corps of Engineers, Regulatory Branch, Post Office Box 3755, Seattle, Washington, 98124-3755. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commenter's name, address, and phone number. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration. Please include the following name and reference number:

J.E. McAmis, NWS-2014-431

Encl: Figures (20 of pages)

SITE VICINITY MAP

PERMIT DOCUMENT



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- S1 - MATERIAL LIST AND CONFIGURATION
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ADJACENT PROPERTY OWNERS:

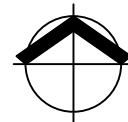
1. WESTROCK
2. KAPSTONE KRAFT PAPER CORPORATION
3. WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
4. COWLITZ COUNTY

HORIZONTAL DATUM: NAD83, WASHINGTON
STATE PLANE SOUTH, US SURVEY FEET
VERTICAL DATUM: COLUMBIA RIVER DATUM (CRD)

LATITUDE: 46.10° N S10 & 11 T7N R2W
LONGITUDE: 122.91° W

MFA JOB #:	1618.01.01	REFERENCE #:	NWS-2017-431
CHECKED:	J. ELLIOTT	APPLICANT NAME:	J.E. MCAMIS, INC.
DRAWN:	M. TARBERT	PROPOSED PROJECT:	SITE IMPROVEMENTS PROJECT
DATE:	9/22/2020	PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
 MAUL FOSTER ALONGI 3140 NE Broadway Street Portland, OR 97232 971.544.2139 (p) 971.544.2140 (f) www.maulfooster.com	WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER		
	SHEET # OF #: 1 OF 20		

Date: Update submitted April 23, 2021

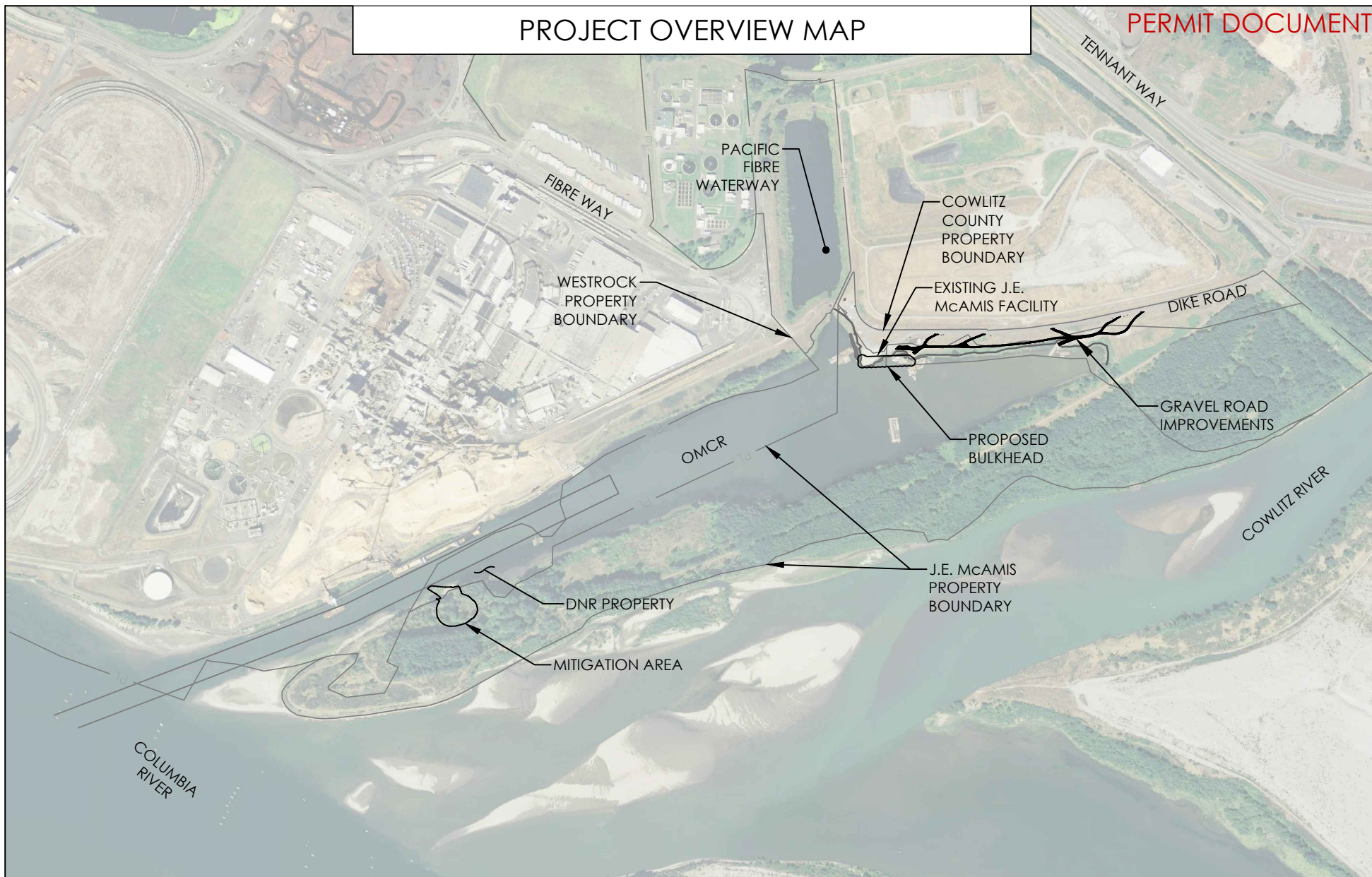


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PROJECT OVERVIEW MAP

PERMIT DOCUMENT

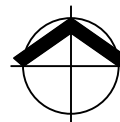


MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: M. TARBERT
 DATE: 9/22/2020

 MAUL FOSTER ALONGI
 3140 NE Broadway Street
 Portland, OR 97232
 971.544.2139 (p) 971.544.2140 (f)
 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 2 OF 20

Date: Update submitted April 23, 2021

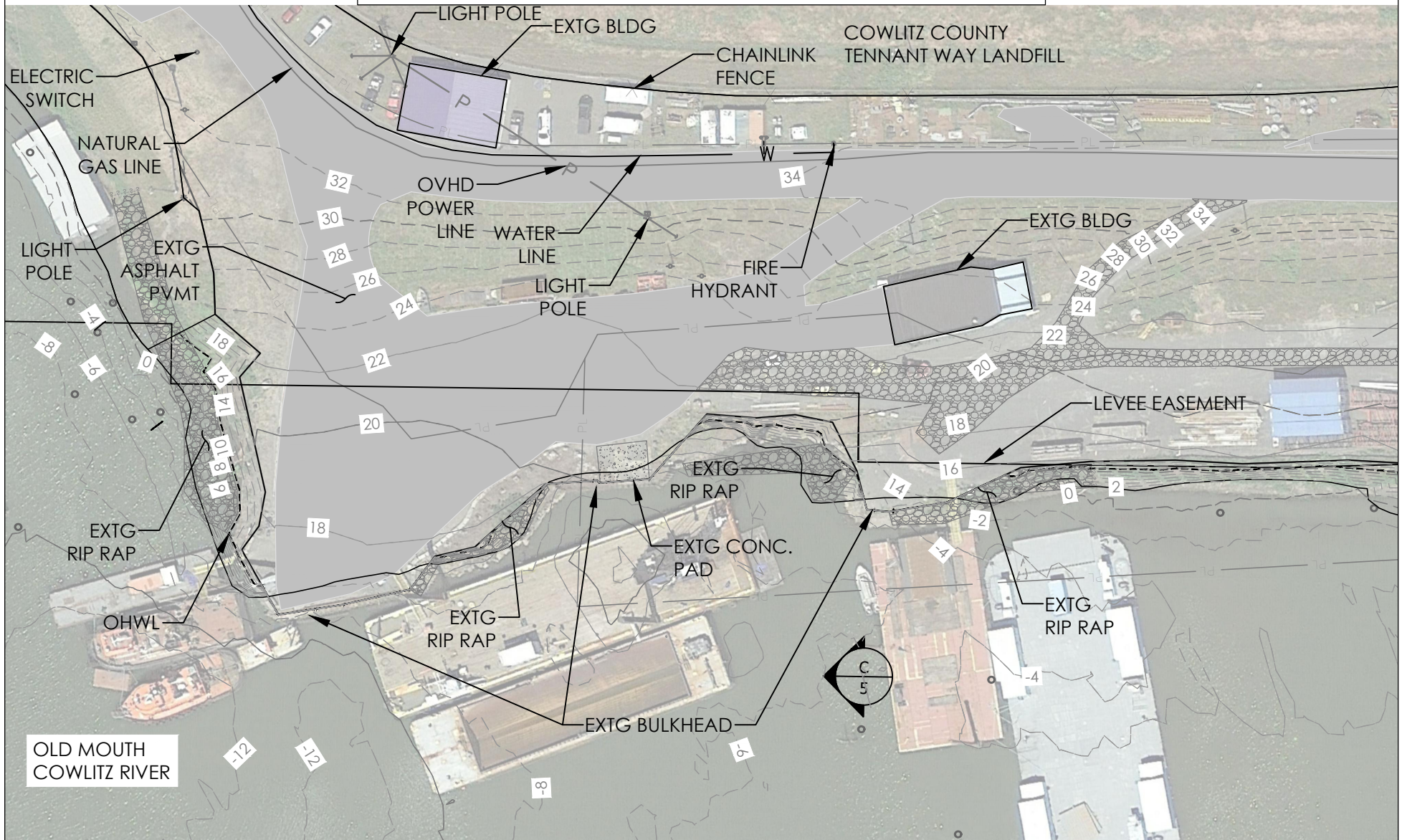


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SITE EXISTING CONDITIONS

PERMIT DOCUMENT

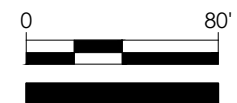
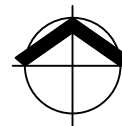


MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: M. TARBERT
 DATE: 9/23/2020

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 3140 NE Broadway Street
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 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: (IF ANY) OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 3 OF 20

Date: Update submitted April 23, 2021

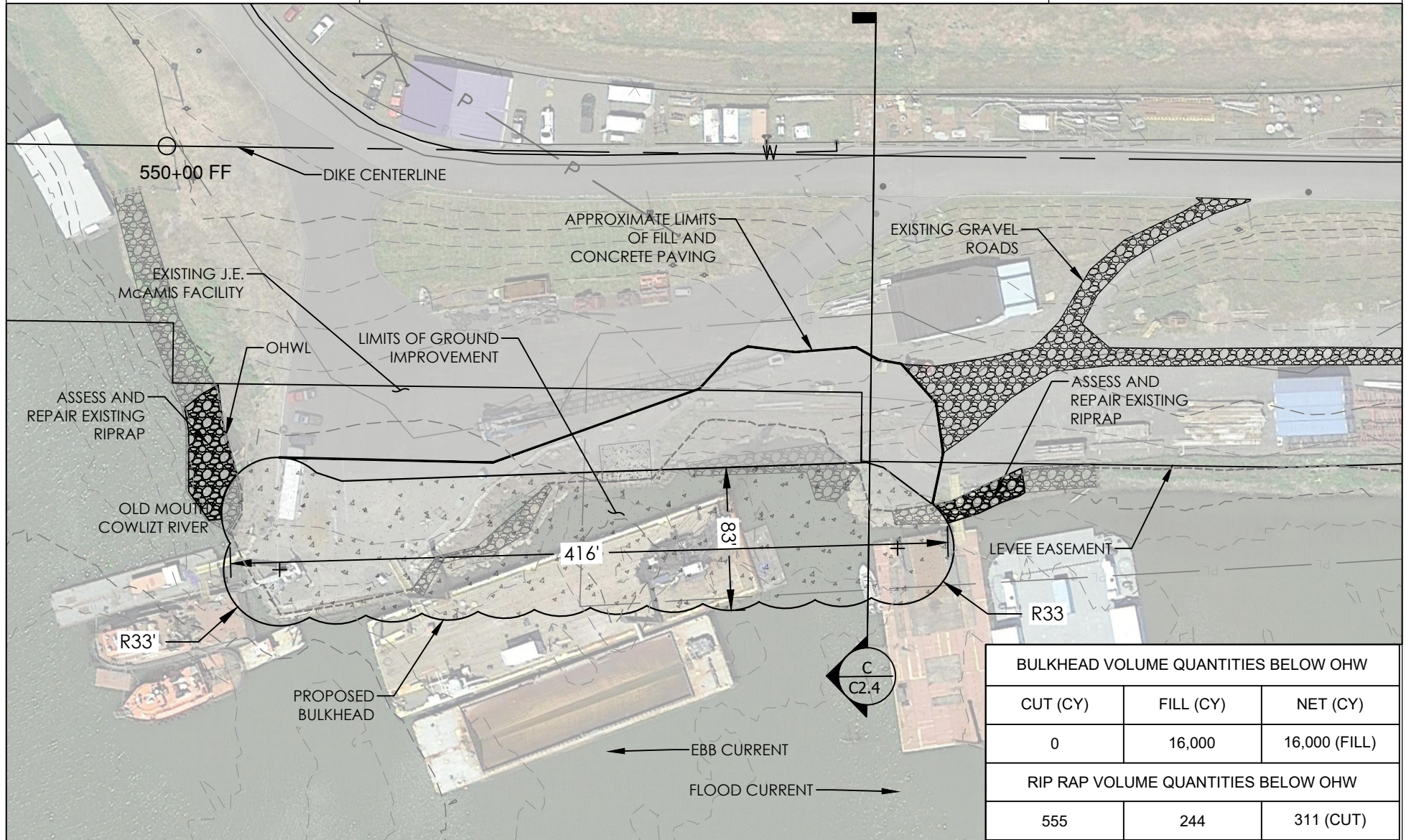


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BULKHEAD IMPROVEMENTS PLAN

PERMIT DOCUMENT



BULKHEAD VOLUME QUANTITIES BELOW OHW

CUT (CY)	FILL (CY)	NET (CY)
0	16,000	16,000 (FILL)

RIP RAP VOLUME QUANTITIES BELOW OHW

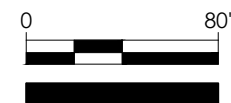
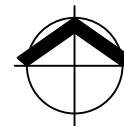
555	244	311 (CUT)
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MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: T. SHABRAM
 DATE: 10/18/2020

 MAUL FOSTER ALONGI
 3140 NE Broadway Street
 Portland, OR 97232
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 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: (IF ANY) OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 5 OF 20

Date: Update submitted April 23, 2021

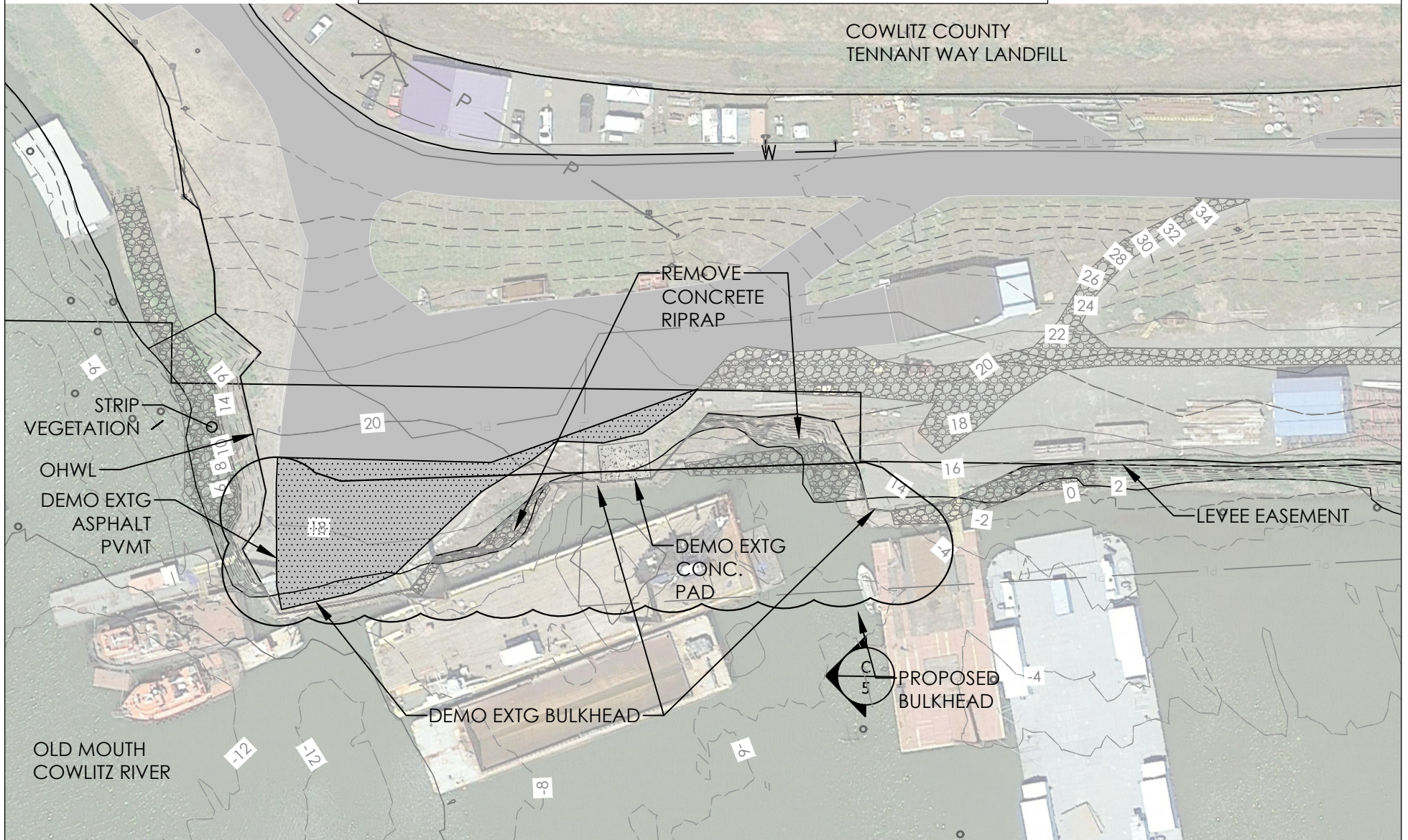



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SHEET
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BULKHEAD DEMOLITION PLAN

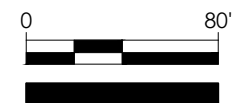
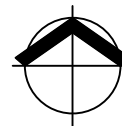
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MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: M. TARBERT
 DATE: 9/24/2020
 MAUL FOSTER ALONGI
 3140 NE Broadway Street
 Portland, OR 97232
 971.544.2139 (p) 971.544.2140 (f)
 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 6 OF 20

Date: Update submitted April 23, 2021

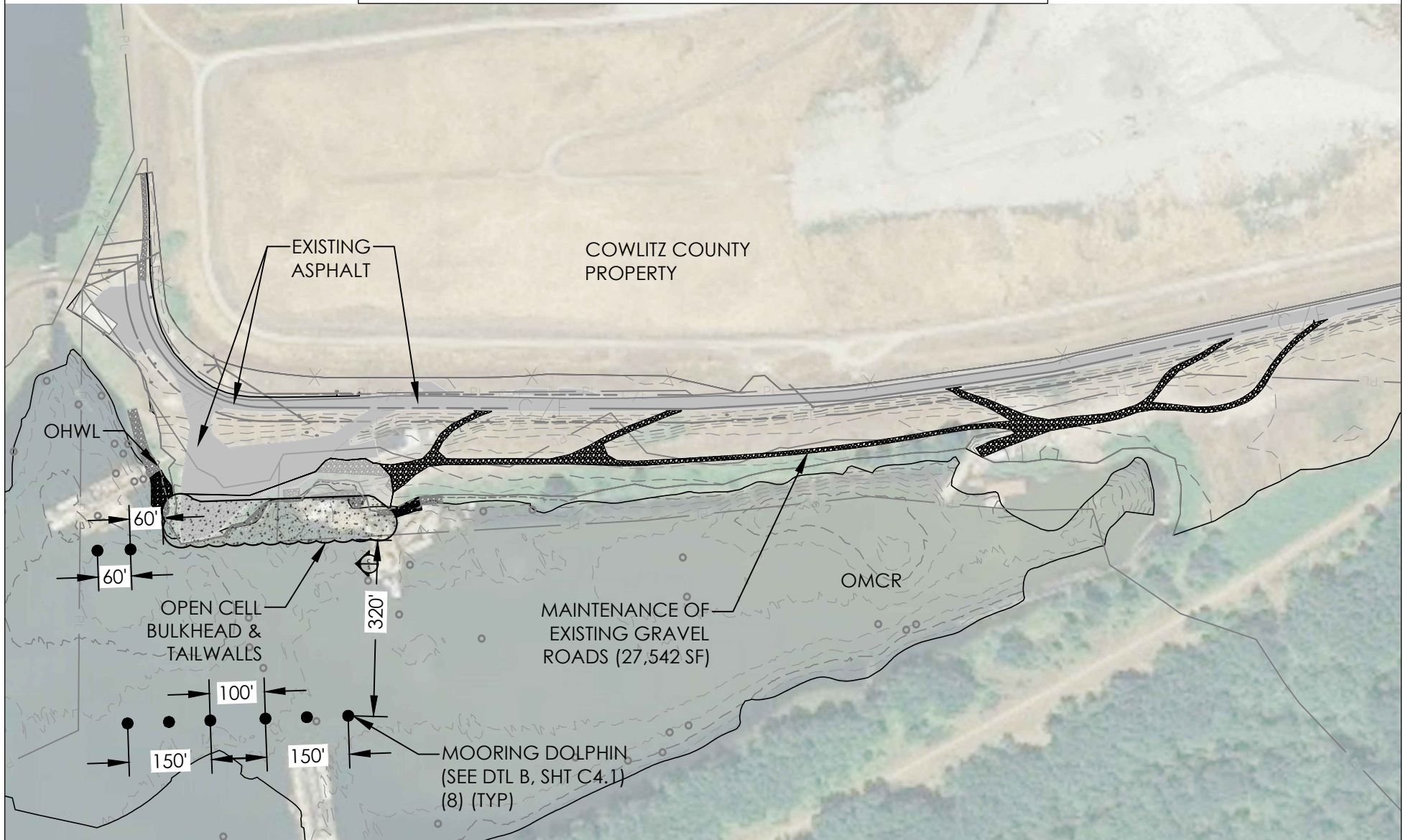


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SITE IMPROVEMENTS PLAN

PERMIT DOCUMENT

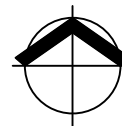


MFA JOB #: 1618.01.01
 CHECKED: E. BAKKOM
 DRAWN: T. SHABRAM
 DATE: 10/10/2020

MAUL FOSTER ALONGI
 3140 NE Broadway Street
 Portland, OR 97232
 971.544.2139 (p) 971.544.2140 (f)
 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 7 OF 20

Date: Update submitted April 23, 2021

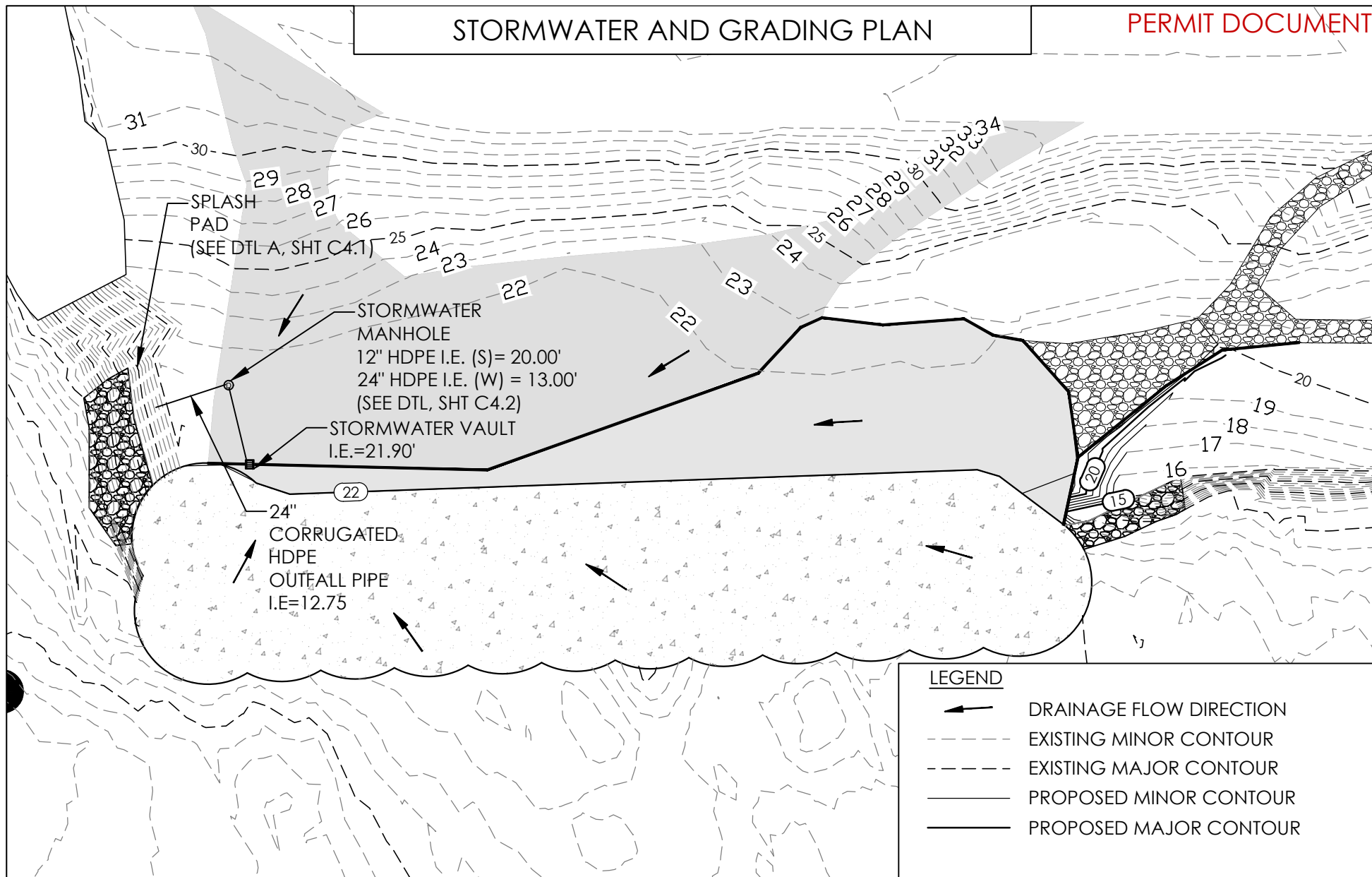


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STORMWATER AND GRADING PLAN

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LEGEND

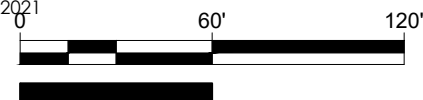
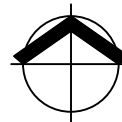
-  DRAINAGE FLOW DIRECTION
-  EXISTING MINOR CONTOUR
-  EXISTING MAJOR CONTOUR
-  PROPOSED MINOR CONTOUR
-  PROPOSED MAJOR CONTOUR

MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: M. TARBERT
 DATE: 10/17/2020

 MAUL FOSTER ALONGI
 3140 NE BROADWAY STREET
 Portland, OR 97232
 971.544.2139 (p) 971.544.2140 (f)
 www.maulfoster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 8 OF 20

Date: Update submitted April 23, 2021

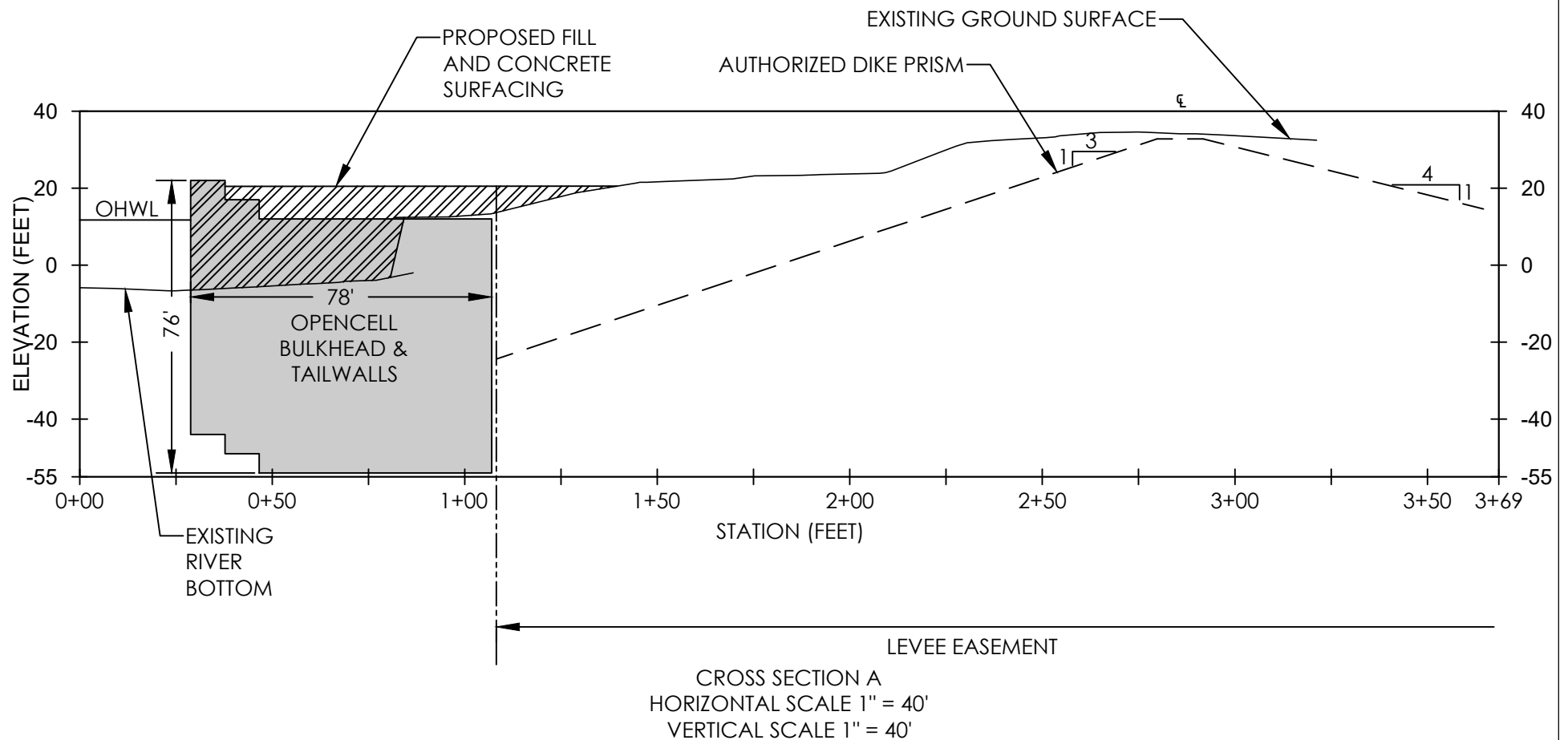


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BULKHEAD CROSS SECTION

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MFA JOB #: 1618.01.01

CHECKED: J. ELLIOTT

DRAWN: T. SHABRAM

DATE: 7/9/2020



MAUL FOSTER ALONGI

3140 NE Broadway Street

Portland, OR 97232

971.544.2139 (p) 971.544.2140 (f)

www.maulfoster.com

REFERENCE #: NWS-2017-431

APPLICANT NAME: J.E. MCAMIS, INC.

PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT

PROJECT ADDRESS: 100 TENNANT WAY

LONGVIEW, WASHINGTON

WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER

SHEET # OF #: 9 OF 20

Date: Update submitted April 23, 2021

0 40' 80'

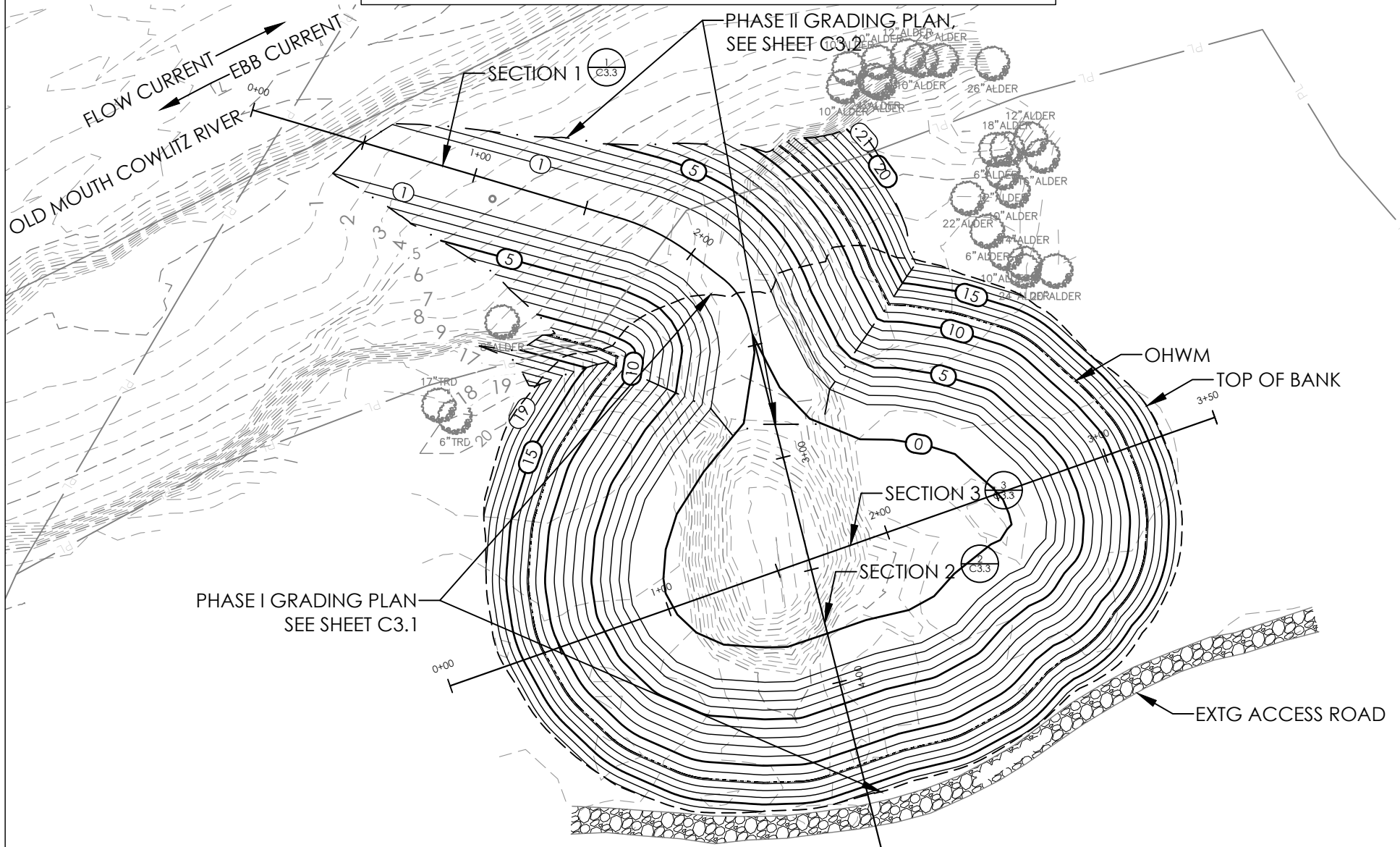


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MITIGATION SITE FINAL GRADING PLAN

PERMIT DOCUMENT

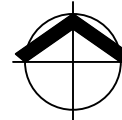


MFA JOB #: 1618.01.01
 CHECKED: J. ELLIOTT
 DRAWN: T. SHABRAM
 DATE: 10/18/2020

MAUL FOSTER ALONGI
 3140 NE Broadway Street
 Portland, OR 97232
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 www.maulfooster.com

REFERENCE #: NWS-2017-431
 APPLICANT NAME: J.E. MCAMIS, INC.
 PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
 PROJECT ADDRESS: 100 TENNANT WAY
 LONGVIEW, WASHINGTON
 WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER
 SHEET # OF #: 10 OF 20

Date: Update submitted April 23, 2021

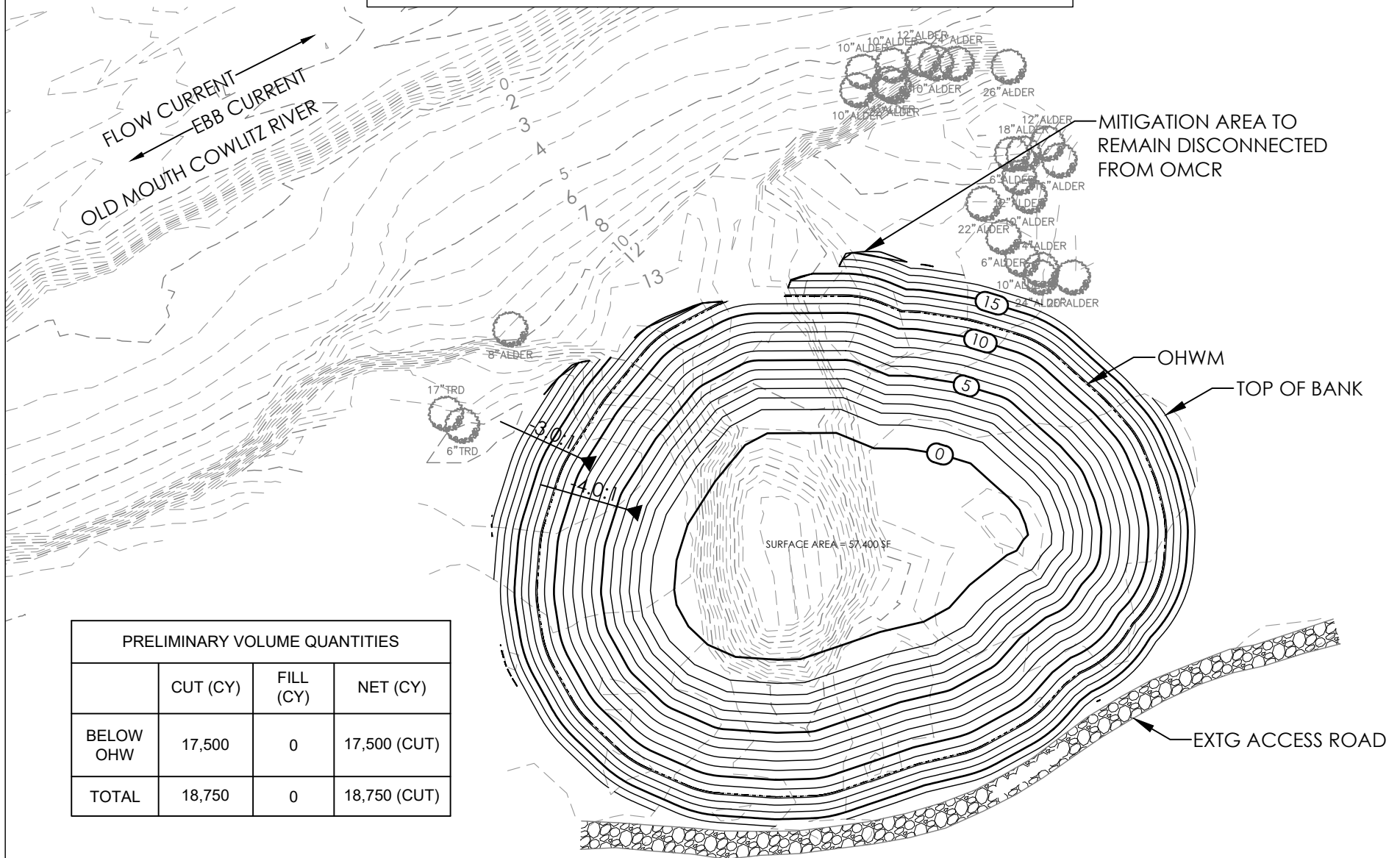


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MITIGATION SITE PHASE I GRADING PLAN

PERMIT DOCUMENT



PRELIMINARY VOLUME QUANTITIES

	CUT (CY)	FILL (CY)	NET (CY)
BELOW OHW	17,500	0	17,500 (CUT)
TOTAL	18,750	0	18,750 (CUT)

MFA JOB #: 1618.01.01

CHECKED: J. ELLIOTT

DRAWN: T. SHABRAM

DATE: 9/15/2020

 MAUL FOSTER ALONGI
3140 NE Broadway Street
Portland, OR 97232
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www.maulfooster.com

REFERENCE #: NWS-2017-431

APPLICANT NAME: J.E. MCAMIS, INC.

PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT

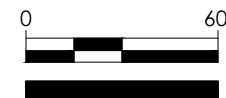
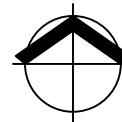
PROJECT ADDRESS: 100 TENNANT WAY

LONGVIEW, WASHINGTON

WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER

SHEET # OF #: 11 OF 20

Date: Update submitted April 23, 2021

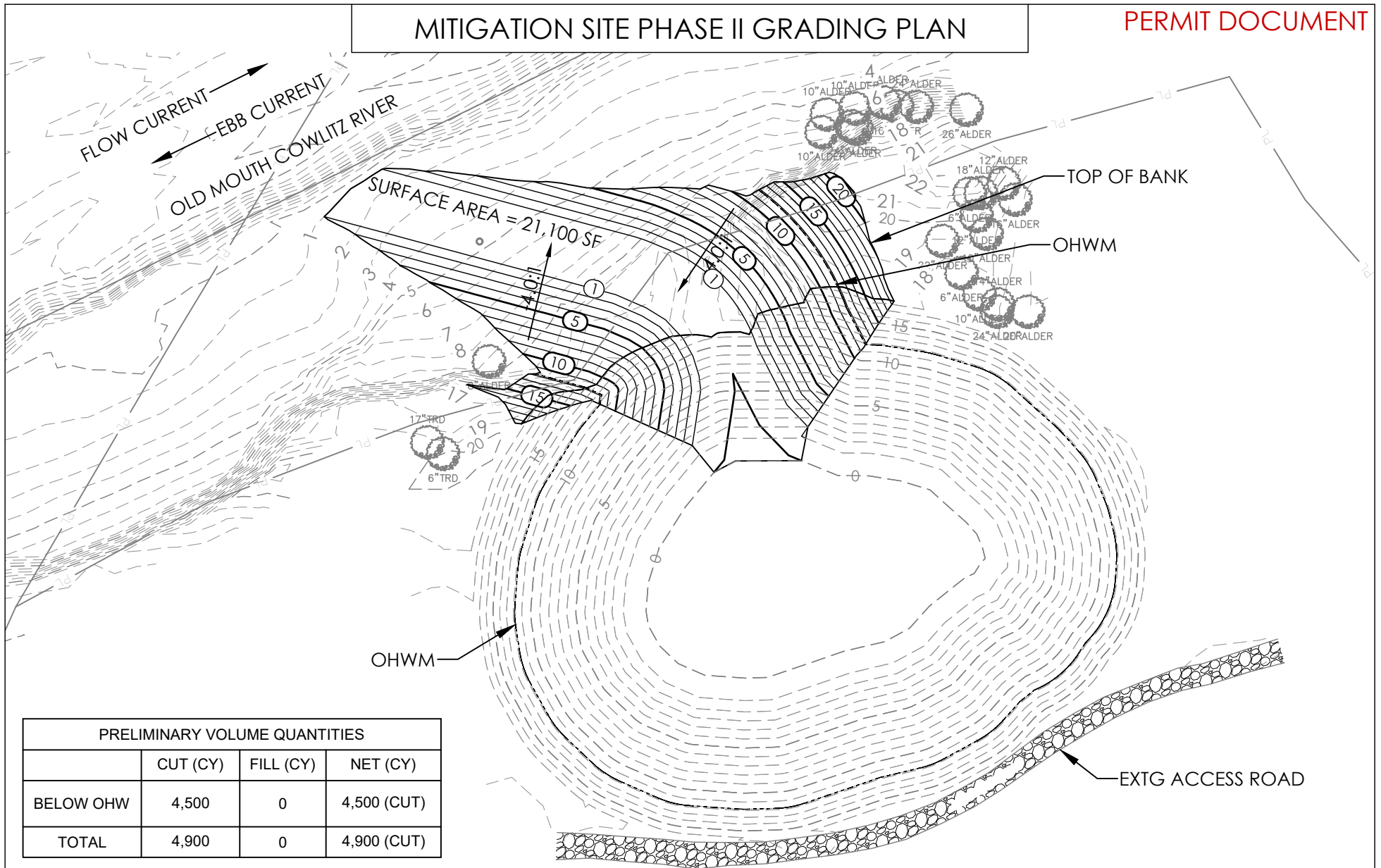


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MITIGATION SITE PHASE II GRADING PLAN

PERMIT DOCUMENT

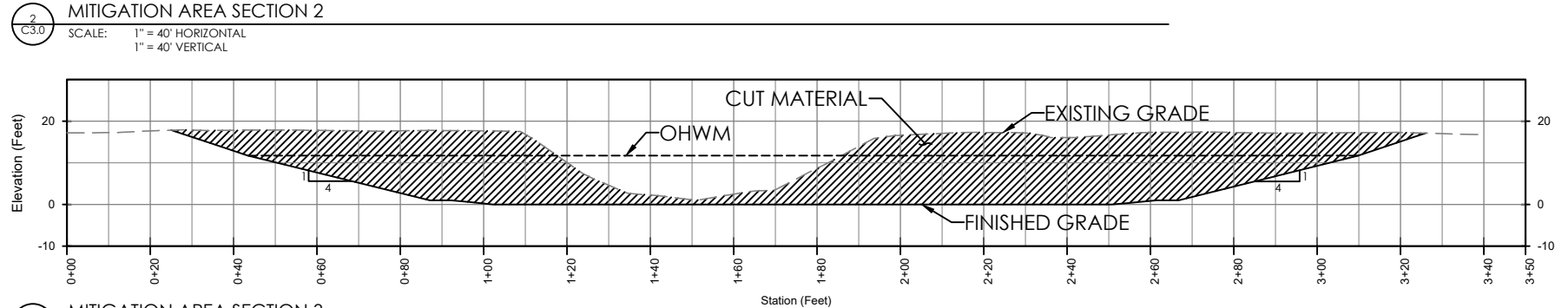
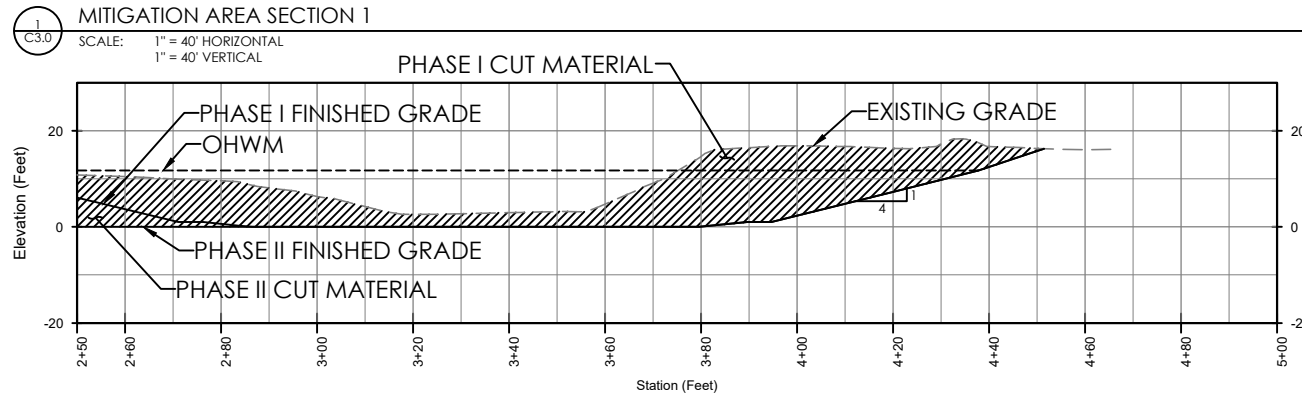
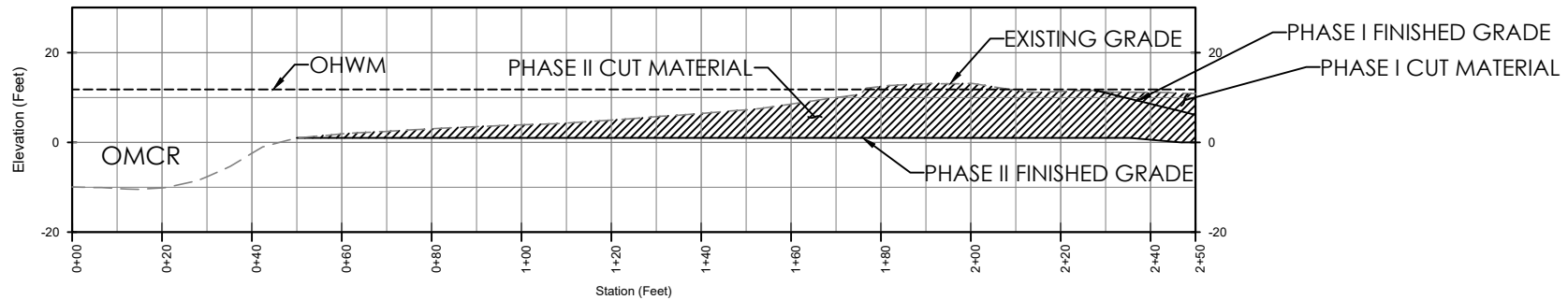


PRELIMINARY VOLUME QUANTITIES			
	CUT (CY)	FILL (CY)	NET (CY)
BELOW OHW	4,500	0	4,500 (CUT)
TOTAL	4,900	0	4,900 (CUT)

MFA JOB #:	1618.01.01	REFERENCE #:	NWS-2017-431	Date:Update submitted April 23, 2021	<div><div><div>0</div><div>60'</div></div></div> <div>NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.</div>	SHEET C3.2
CHECKED:	J. ELLIOTT	APPLICANT NAME:	J.E. MCAMIS, INC.			
DRAWN:	T. SHABRAM	PROPOSED PROJECT:	SITE IMPROVEMENTS PROJECT			
DATE:	9/15/2020	PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON			
<div>MAUL FOSTER ALONGI 3140 NE Broadway Street Portland, OR 97232 971.544.2139 (p) 971.544.2140 (f) www.maulfoster.com</div>		WATERWAY: [IF ANY]	OLD MOUTH COWLITZ RIVER			
		SHEET # OF #:	12OF 20			

MITIGATION SITE CROSS SECTIONS

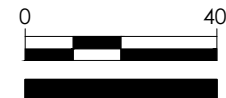
PERMIT DOCUMENT



MFA JOB #:	1618.01.01	REFERENCE #:	NWS-2017-431
CHECKED:	J. ELLIOTT	APPLICANT NAME:	J.E. MCAMIS, INC.
DRAWN:	T. SHABRAM	PROPOSED PROJECT:	SITE IMPROVEMENTS PROJECT
DATE:	9/16/2020	PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
		WATERWAY: [IF ANY]	OLD MOUTH COWLITZ RIVER
		SHEET # OF #:	13 OF 20

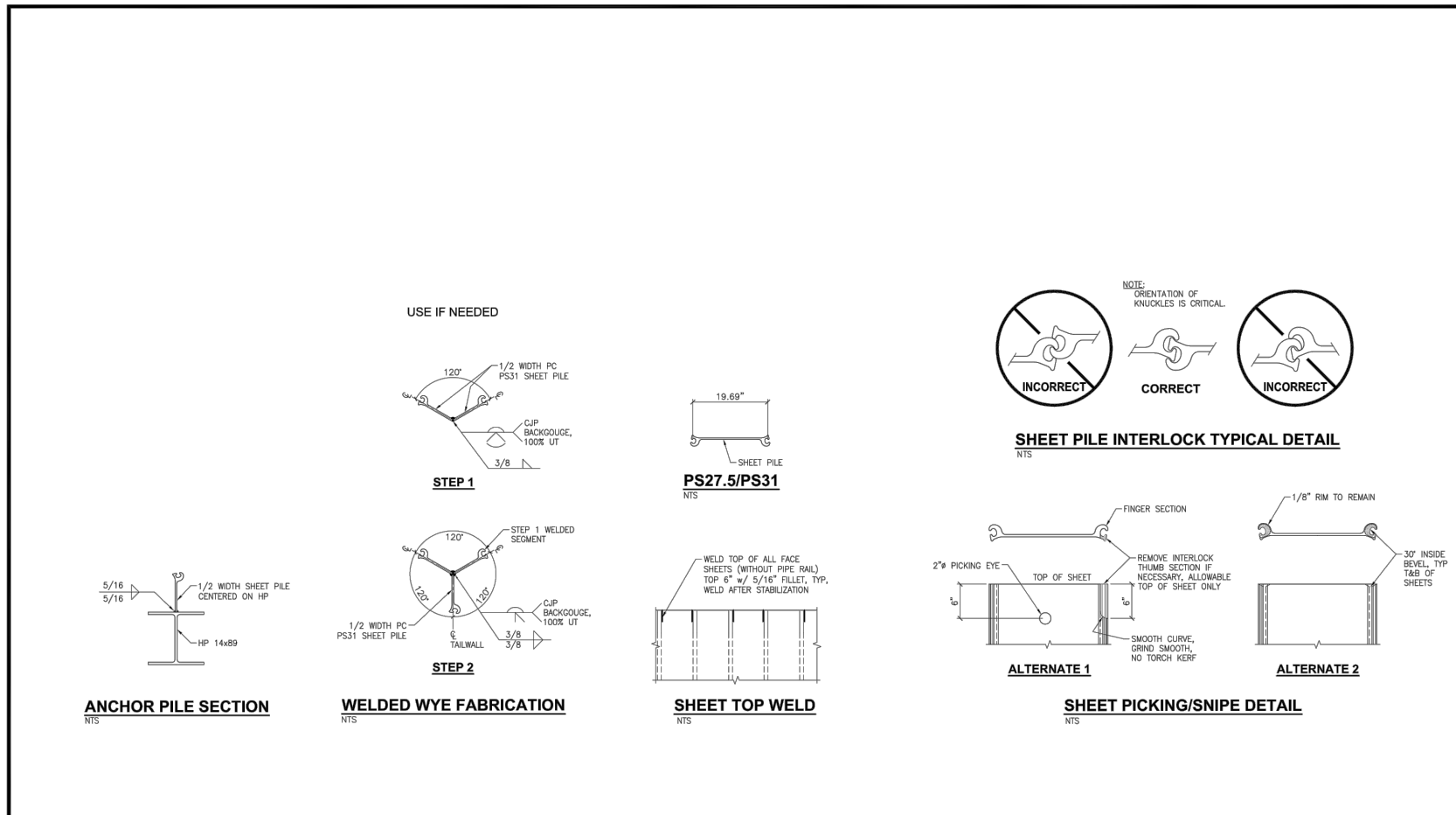
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REV	DATE	DESCRIPTION

DATE: _____

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Anchorage, Alaska 99503
Phone: 907.561.1011
Fax: 907.563.4220
www.pndengineers.com



OPEN CELL SHEET PILE™ STRUCTURE

STANDARD DETAILS

DESIGNED BY:	CC	DATE:	02/28/2019	SHEET NO:	1	OF	2
CHECKED BY:	DCT	PROJECT NO:	XXXXXX				

MFA JOB #: 1618.01.01

CHECKED: N/A

DRAWN: N/A

DATE: ~~01/06/2020~~



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REFERENCE #: NWS-2017-431

APPLICANT NAME: J.E. MCAMIS, INC.

PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT

PROJECT ADDRESS: 100 TENNANT WAY

LONGVIEW, WASHINGTON

WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER

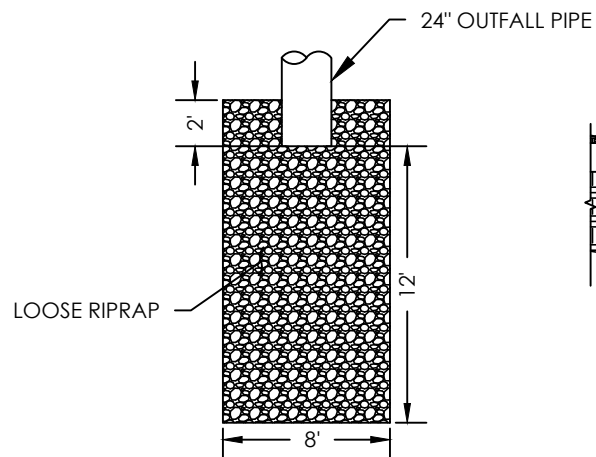
SHEET # OF #: 14 OF 20

Date: Update submitted April 23, 2021

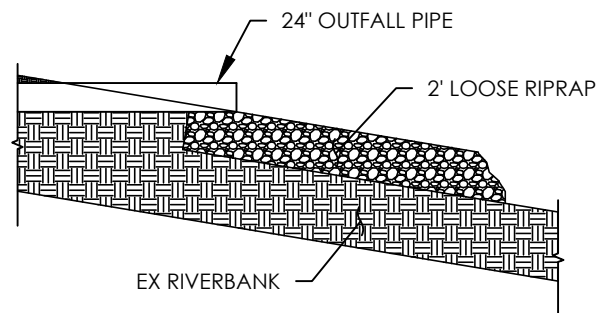
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BULKHEAD DETAILS II

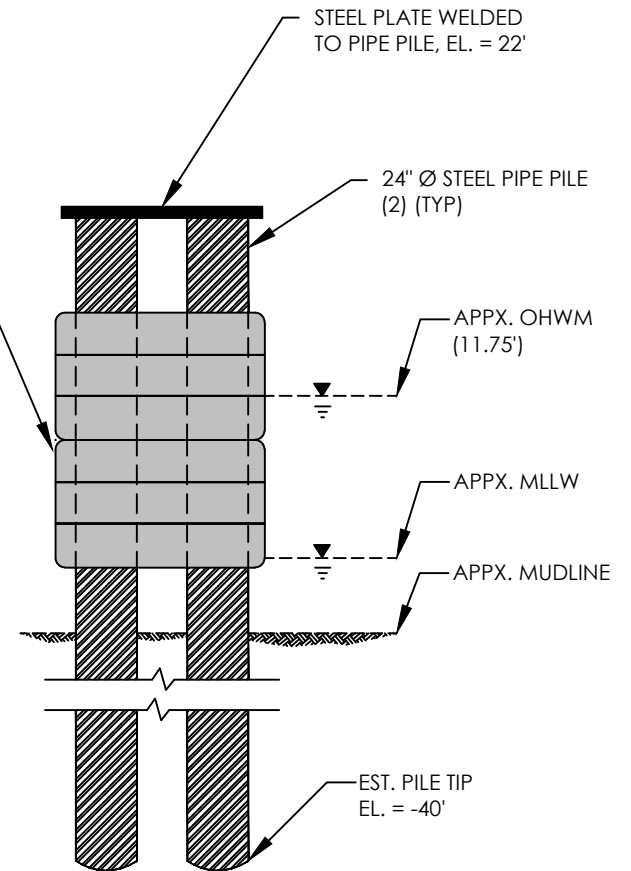
PERMIT DOCUMENT




A STORMWATER OUTFALL PROTECTION DETAIL
NTS



FENDERING
SYSTEM



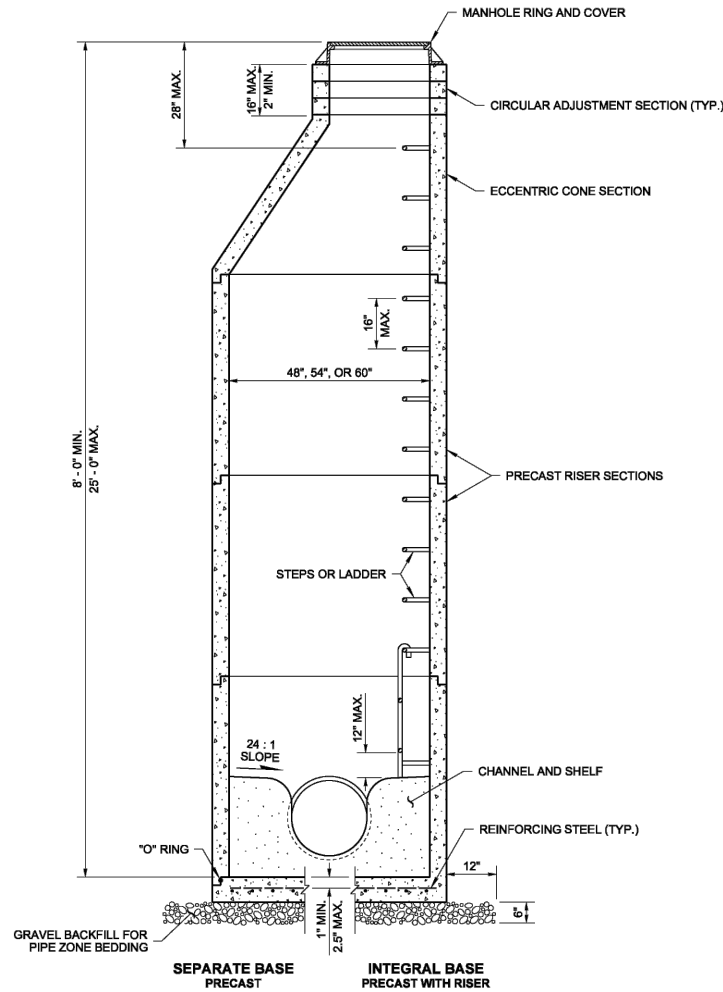
B MOORING DOLPHIN DETAIL
NTS

MFA JOB #:	1618.01.01	REFERENCE #:	NWS-2017-431	Date:Update submitted April 23, 2021	SHEET C4.1
CHECKED:	J. ELLIOTT	APPLICANT NAME:	J.E. MCAMIS, INC.		
DRAWN:	T. SHABRAM	PROPOSED PROJECT:	SITE IMPROVEMENTS PROJECT		
DATE:	9/14/2020	PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON		
 MAUL FOSTER ALONGI 3140 NE Broadway Street Portland, OR 97232 971.544.2139 (p) 971.544.2140 (f) www.maulfooster.com	WATERWAY: [IF ANY]		OLD MOUTH COWLITZ RIVER		
	SHEET # OF #:		15OF 20		

BULKHEAD DETAILS III

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DRAWN BY: LISA CYFORD



NOTES

- Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum.
- For pipe allowances, see **Standard Plan B-10.20**.

MANHOLE DIMENSION TABLE

DIAM.	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"



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MANHOLE TYPE 1

STANDARD PLAN B-15.20-01

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Pasco Bakotich III 02-07-12



STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

MFA JOB #: 1618.01.01

CHECKED: J. ELLIOTT

DRAWN: T. SHABRAM

DATE: 9/16/2020

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REFERENCE #: NWS-2017-431

APPLICANT NAME: J.E. MCAMIS, INC.

PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT

PROJECT ADDRESS: 100 TENNANT WAY

LONGVIEW, WASHINGTON

WATERWAY: [IF ANY] OLD MOUTH COWLITZ RIVER

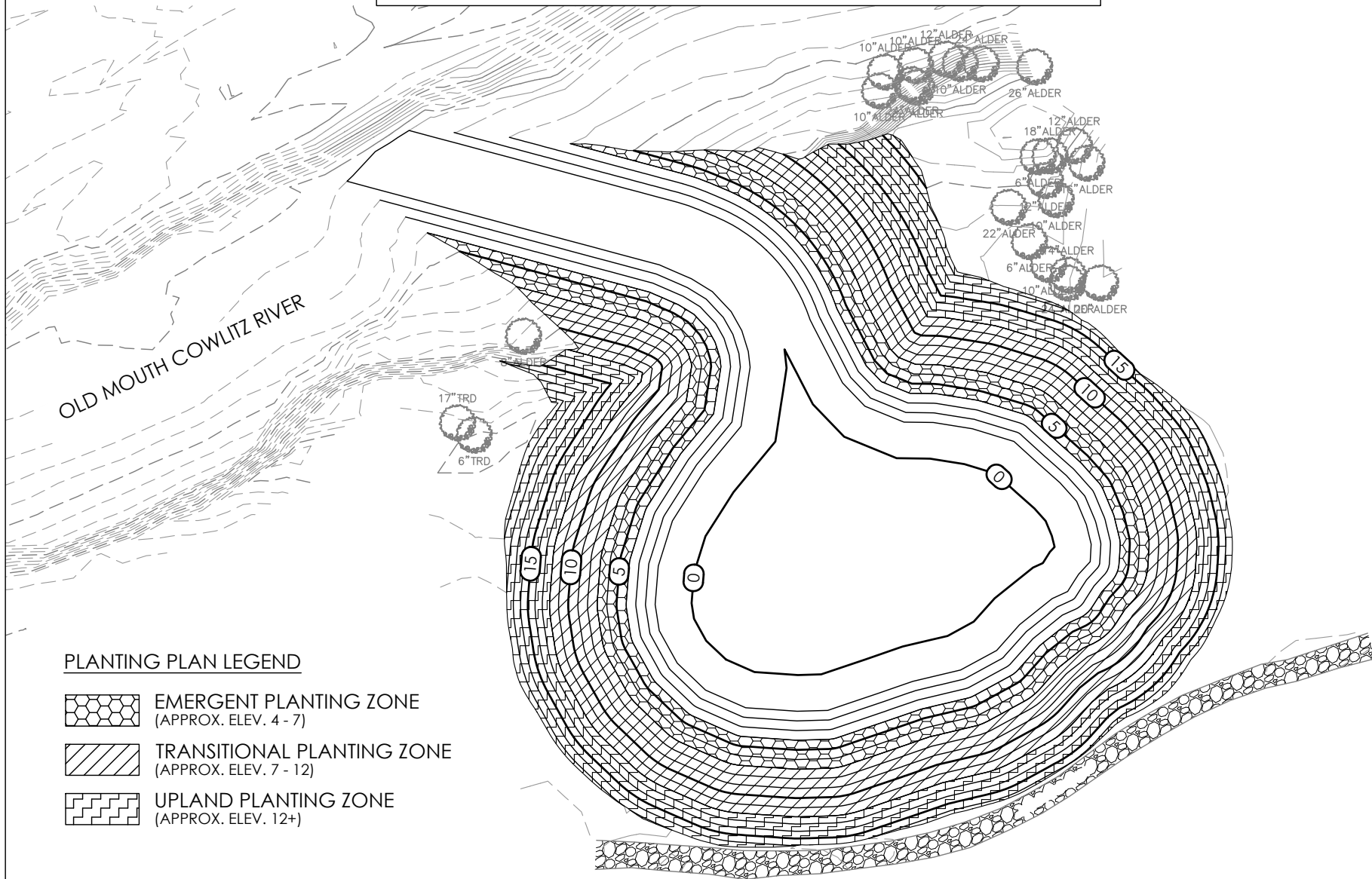
SHEET # OF #: 16 OF 20

Date: Update submitted April 23, 2021

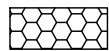
SHEET
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MITIGATION SITE PLANTING PLAN

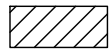
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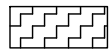
PLANTING PLAN LEGEND



EMERGENT PLANTING ZONE
(APPROX. ELEV. 4 - 7)



TRANSITIONAL PLANTING ZONE
(APPROX. ELEV. 7 - 12)



UPLAND PLANTING ZONE
(APPROX. ELEV. 12+)

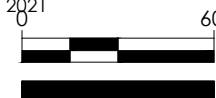
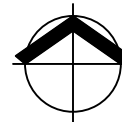
MFA JOB #: 1618.01.01
CHECKED: E. BAKKOM
DRAWN: C. RILEY
DATE: 9/15/2020



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APPLICANT NAME: J.E. MCAMIS, INC.
PROPOSED PROJECT: SITE IMPROVEMENTS PROJECT
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SHEET # OF #: 17 OF 20

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MITIGATION SITE PLANT SCHEDULE

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TREES (UPLAND/TRANSITIONAL PLANTING ZONE)

<u>COMMON NAME</u>	<u>BOTANICAL NAME</u>
WESTERN RED CEDAR	THUJA PLICATA
OREGON ASH	FRAXINUS LATIFOLIA
OREGON WHITE OAK	QUERCUS GARRYANA
BLACK COTTONWOOD	POPULUS BALSAMIFERA
CASCARA	RHAMNUS PURSHIANA
RED ALDER	ALNUS RUBRA
SCOUER WILLOW	SALIX SCOUERIANA

SHRUBS (TRANSITIONAL/EMERGENT PLANTING ZONE)

<u>COMMON NAME</u>	<u>BOTANICAL NAME</u>
PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS
RED TWIG DOGWOOD	CORNUS SERICEA
WESTERN HAZELNUT	CORYLUS CORNUTA
MOCK ORANGE	PHILADELPHUS LEWISII
OCEAN SPRAY	HOLODISCUS DISCOLOR
RED FLOWERING CURRANT	RIBES SANGUINEUM
DOUGLAS' SPIREA	SPIRAEA DOUGLASII
SNOWBERRY	SYMPHORICARPOS ALBUS
TALL OREGON GRAPE	MAHONIA AQUIFOLIUM
THIMBLEBERRY	RUBUS PARVIFLORUS
BLACK TWINBERRY	LONICERA INVOLUCRATA

SHRUBS (CONTINUED)


<u>COMMON NAME</u>	<u>BOTANICAL NAME</u>
SWAMP ROSE	ROSA PISOCARPA
NOOTKA ROSE	ROSA NUTKANA

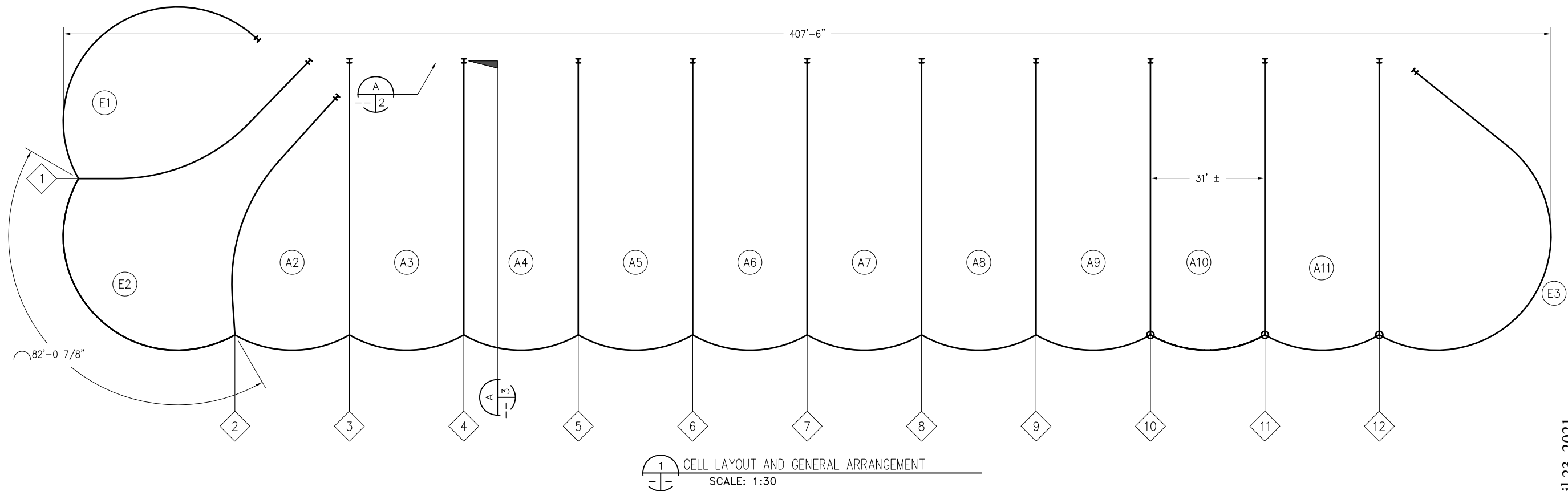
GRASSES, SEDGES & RUSHES (EMERGENT PLANTING ZONE)

<u>COMMON NAME</u>	<u>BOTANICAL NAME</u>
COMMON RUSH	JUNCUS EFFUSUS 'PACIFICA'
SAWBEAK SEDGE	CAREX STIPATA
SLOUGH SEDGE	CAREX OBNUPTA
SMALL-FRUITED BULRUSH	SCIRPUS MICROCARPUS
HARDSTEM BULRUSH	SCIRPUS ACUTUS
COMMON SPIKERUSH	ELEOCHARIS PALUSTRIS
TUFTED HAIRGRASS	DESCHAMPSIA CESPITOSA
BUR-REED	SPARGANIUM EMERSUM
WESTERN MANNAGRASS	GLYCERIA OCCIDENTALIS
BLUE WILD RYE	ELYMUS GLAUCUS

LIVE STAKES (TRANSITIONAL/EMERGENT PLANTING ZONE)

<u>COMMON NAME</u>	<u>BOTANICAL NAME</u>
SITKA WILLOW	SALIX SITCHENSIS
PACIFIC WILLOW	SALIX LUCIDA LASIANDRA
RED TWIG DOGWOOD	CORNUS SERICEA
BLACK COTTONWOOD	POPULUS BALSAMIFERA

MFA JOB #:	1618.01.01	REFERENCE #:	NWS-2017-431	Date: Update submitted April 23, 2021	SHEET L1.1
CHECKED:	E. BAKKOM	APPLICANT NAME:	J.E. MCAMIS, INC.		
DRAWN:	C. RILEY	PROPOSED PROJECT:	SITE IMPROVEMENTS PROJECT		
DATE:	9/13/2020	PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON		
 MAUL FOSTER ALONGI 3140 NE Broadway St. Portland, OR 97232 971.544.2139 (p) 971.544.2140 (f) www.maulfooster.com		WATERWAY: [IF ANY]	OLD MOUTH COWLITZ RIVER		
		SHEET # OF #:	18 OF 20		

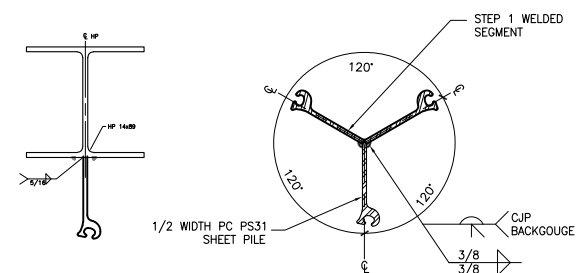



BILL OF MATERIALS - TAIL WALLS						
TAIL MARKER	TOTAL PCS	DESCRIPTION	LENGTH		NOTE	WT (LBS)
			FT	IN		
1	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
2	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
3	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
4	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
5	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
6	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
7	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
8	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
9	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
10	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
11	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
12	45	PS 27.5 FLATWEB SHEETPILE	65	0	A572	

BILL OF MATERIALS - WYE PILE AND ANCHOR PILE						
MARKER	TOTAL PCS	DESCRIPTION	LENGTH		NOTE	WT (LBS)
			FT	IN		
WYE PILES	12	1/2 PS 27.5 FLATWEB SHEETPILE +HP14X89	65	0	A572	
ANCHOR	14	1/2 +1 PS 27.5 WELDED WYE	65	0	A572	

OPEN CELL® AND OPEN CELL SHEET PILE®
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THE OPEN CELL SYSTEM IS PATENTED
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PATENT – US 7,018,141 B2
PATENT – US 7,488,140 B2

BILL OF MATERIALS - FACE ARCS/END CELLS						
ARC MARKER	TOTAL PCS	DESCRIPTION	LENGTH		NOTE	WT (LBS)
			FT	IN		
A1	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A2	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A3	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A4	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A5	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A5	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A6	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A7	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A8	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A9	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A10	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
A11	19	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
E1	54	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
E2	50	PS 27.5 FLATWEB SHEETPILE	65	0	A572	
E3	64	PS 27.5 FLATWEB SHEETPILE	65	0	A572	

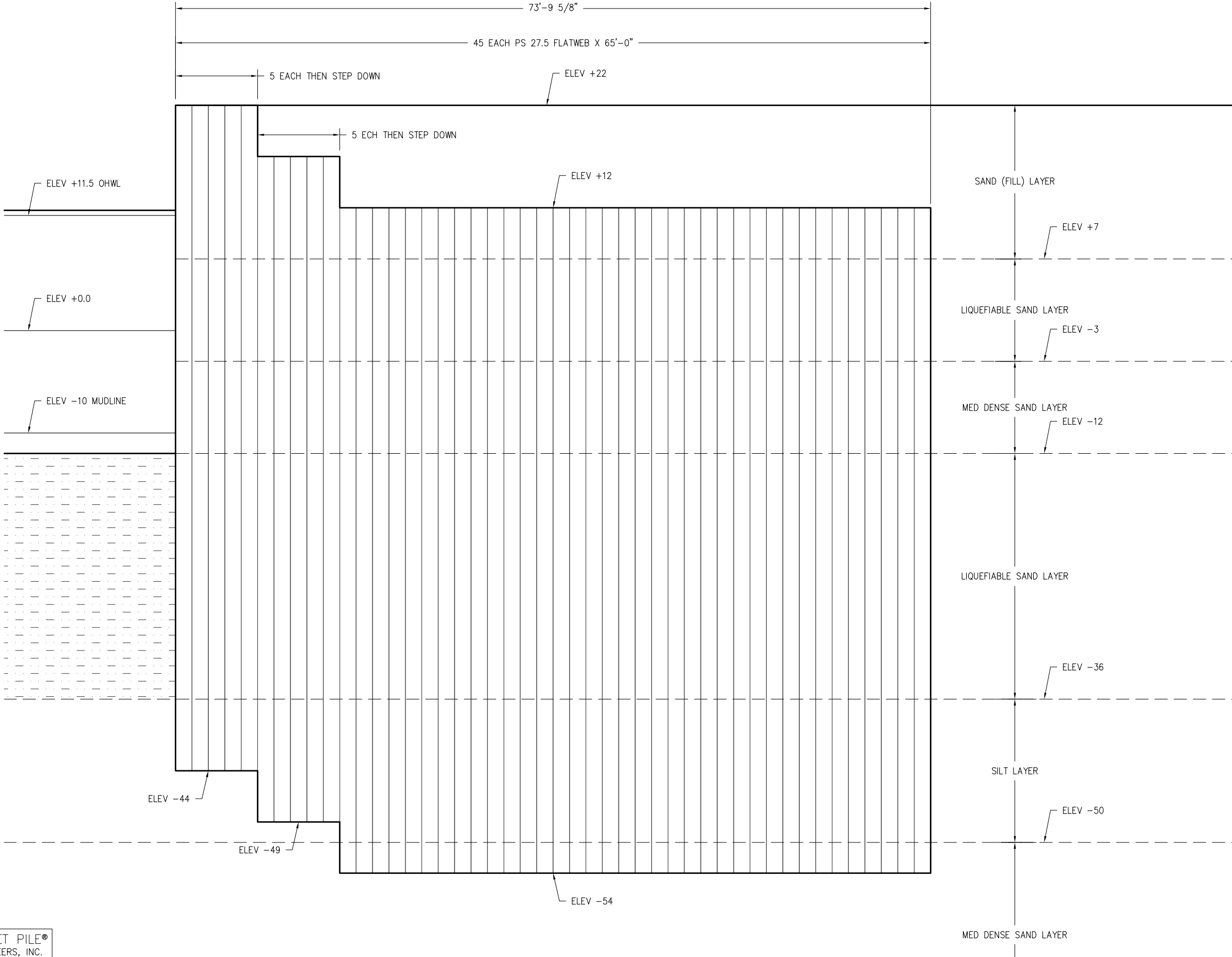


 ANCHOR AND WYE PILE
SCALE: 1/2" = 1'-0"

Date: Update submitted April 23, 2021

[illegible]

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PATENT - US 7,018,141 B2
PATENT - US 7,488,140 B2



A TYPICAL TAIL WALL
SCALE: 1"=10'-0"

Date: Update submitted April 23, 2021

REVISIONS			
REV	DATE	FOR REVIEW	DESCRIPTION
0			
DESIGNED BY: MH2			
DRAWN BY: MH2			
CHECKED BY:			
DATE: FEB 2019			
SCALE: NOTED			
PROJECT NO: 194023			
SHEET NO:			

PROJECT: **JE McAMIS CONST CO
EQUIPMENT YARD BULKHEAD**

TITLE: **OPENCELL(TM) BULKHEAD CONCEPT
TYPICAL TAIL WALL**