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MEMORANDUM

To: Katie Butler, California Coastal Commission

From: Chris Potter, P.E.; Brad Porter, P.E

Date: November 6, 2014

Subject: Emergency Repair of Moss Landing Road Flap Gates and Culverts

M&N Job No.: 8669

The purpose of this memo is submit documentation for a CA Coastal Commission emergency permit.

APPLICATION FOR EMERGENCY PERMIT

1. November 6, 2014 Request: in person by telephone by mail X
Date/Time
2. Monterey County Resource Management Agency Paul Greenway, Co. Public Works
Name(s) of Property Owners Name(s) of Representative(s)

Address: 168 W. Alisal Street, 2nd Floor, Salinas, CA 93901

Phone Number: (831) 755-4800
3. Location of Emergency Work: Moss Landing Road in Moss Landing, CA (see attached)
4. Evidence of applicant's interest in property on which emergency work is to be performed: see attached memo
5. Assessor's Parcel Number: 133211001000
6. Contractor, or person(s) who will do emergency work/address/phone number (if different from representative). To be determined. Contract is currently out to bid.
7. Nature and cause of emergency (brief description): see attached memo
8. The circumstances during the emergency that appeared to justify the course(s) of action taken, including the probable consequence of failing to take action: see attached memo
9. Method and preventive work requested (e.g., rip-rap, bulkhead, etc.): see attached memo
10. Timing of emergency work (estimate as to when work will be performed: Repair work is targeted for the next -0.5' tidal elevation or lower, estimated to next occur after 11/20/14.

CALIFORNIA COASTAL COMMISSION

725 FRONT ST., SUITE 300
 SANTA CRUZ, CA 95060-4508
 (831) 427-4863
 FAX (831) 427-4877

**APPLICATION FOR EMERGENCY PERMIT**

PLEASE NOTE: The following information and attachments **must** be submitted in writing in order to receive an Emergency Permit pursuant to Public Resources Code Section 30624(a). If the emergency situation is such that a verbal authorization is given by the District Director to commence emergency work, the application for emergency permit must still be submitted by the property owner within 3 days of the disaster or discovery of the danger. 14 CCR 13139.

1. _____ Request: in person by telephone by mail
 Date/Time
2. _____ Name(s) of Property Owners _____ Name(s) of Representative(s)
 Address: _____ Address:
 Phone Number: _____ Phone Number:
3. Location of Emergency Work:
4. Evidence of applicant's interest in property on which emergency work is to be performed
5. Assessor's Parcel Number:
6. Contractor, or person(s) who will do emergency work/address/phone number (if different from representative).
7. Nature and cause of emergency (brief description):
8. The circumstances during the emergency that appeared to justify the course(s) of action taken, including the probable consequence of failing to take action:
9. Method and preventive work requested (e.g., rip-rap, bulkhead, etc.):
10. Timing of emergency work (estimate as to when work will be performed – generally a period of 24 to 72 hours after the emergency occurrence):

ATTACHMENTS – Please provide the following:

1. If time permits, evidence of approval by local planning department.
2. Site plan showing proposed and existing development on the subject parcel.
3. Vicinity map (road map) with location of project site marked. For rural areas, please also provide a parcel map.

MEMORANDUM

To: Lisa Mangione, USACE; Jacob Martin, U.S. Fish & Wildlife Service; Joel Casagrande, NOAA Fisheries.

From: Chris Potter, P.E. and Brad Porter, P.E.

Cc: Katerina Galacatos, USACE; Carl Holm, Monterey Co. Resource Management Agency; Paul Greenway, Monterey Co. Public Works; Jaclyn Gnusti, P.E. Moffatt & Nichol; Kim Sanders, Central Coast RWQCB; Katie Butler, CA Coastal Commission; Linda Connolly, CA Dept. of Fish & Wildlife

Date: October 30, 2014

Subject: Emergency Inspection and Repair of Moss Landing Road Flap Gates and Culverts

M&N Job No.: 8669

Summary: Request for USACE Nationwide Permit 3 for Maintenance

Introduction

Monterey County Resource Management Agency (MCRMA) declared a Proclamation of Local Emergency and issued a Board Order for Resolution in regards to the failure of a culvert system underneath Moss Landing Road in Moss Landing, CA (see Attachments 1 and 2) that has allowed seawater to enter into Moro Cojo Slough. This failure has resulted in damage to structures, including critical utilities and County roadways, and allowed saltwater contamination into a fresh water slough threatening critical groundwater resources. Moffatt & Nichol was retained by MCRMA to assist with the emergency investigation into the cause of the failure and design of repairs to the culvert system. During the recent dive investigation, the cause of the failure was determined to be deteriorated tide gates on the culvert headwall (see Attachment 3). This failure can be readily remedied by removing the gates, performing repair and maintenance at a shop, and reinstalling them, which will result in restoration to their former functionality. This work will be performed in accordance with Nationwide Permit 3-Maintenance.

Figure 1 shows the location of the culvert system, where Moss Landing Road intersects with Highway 1.

Background

The existing tidal gate for Moro Cojo Slough was installed in the spring of 1989. It consists of three parallel concrete pipes crossing under the northern end of Moss Landing Road. Each pipe has a flap gate on the northern end to keep saltwater from Moss Landing Harbor from entering the freshwater Moro Cojo Slough on the southern side of the road. The inlets and outlets to the culverts are shown in Figures 2 and 3, respectively.

Moss Landing Harbor is an active small boat marina with about 600 slips for recreational and commercial boats. Moro Cojo Slough is a freshwater slough that is used for agricultural irrigation upstream (south and eastward) of the culverts. The roadway above the culverts, Moss Landing Road, connects Sandholdt Road and the town of Moss Landing with Hwy 1. It is a main thoroughfare in the area. Utilities such as a sanitary sewer line and a large (4-5 ft) pipe to the former National Refractories Plant run underneath the roadway and above the culverts. Figure 4 shows the project site.

MCRMA recently received a report of leaking and increased water levels east of Hwy 1. Evidence of the leak includes visible swirling water behind the headwall of the culvert system, surging of water at the intake of the culvert when the flap gates are closed, and loss of soil adjacent to the flap gate and culvert system.

MCRMA performed some initial investigations that included placing a video camera in the pipes at low tide on October 9. The video shows that the culvert is severely degraded in some areas, which may compromise the ability of the system to function properly. There is strong visual evidence that seawater is traveling into the pipe system in a manner that was not designed for with the resulting effect of loss of supporting soil in the area adjacent to the pipes.



Figure 1. Project Location Map





Figure 2. Culvert Inlets on Moro Cojo Slough (5.8 ft high tide October 8, 2014)



Figure 3. Culvert Outlets and Flap Gates; Initial Investigation with video camera in pipe (low tide 5pm October 9, 2014).



Figure 4. Project Site Map

Description of Problem

Private properties located east of Hwy 1 rely on well water for potable and agricultural use and could be impacted by prolonged exposure to increased salinity from seawater intrusion. As a result of the failure of the culvert system, the well-being of the residents, including their animals, who live nearby and depend on these water sources are at risk. MCRMA is in the process of obtaining salinity testing performed by Elkhorn Slough Foundation to assess potential impact to water wells in the immediate vicinity.

In addition to saltwater intrusion issues, the soil that supports the pipes is the same soil that supports the roadway and the utilities under the roadway. While no loss of roadway stability has been observed, the side wall to the large diameter pipe to the National Refractories site is now exposed. MCRMA believes that the design of that utility is based on having adequate supporting soil. MCRMA believes that the exposed side wall is a direct result of the water traveling into the flap gate and culvert system in a manner not intended.

Culvert Dive Inspection

Due to the time-sensitive nature of the emergency, it was determined that the most expedient method to inspect the condition of the culverts was to perform a dive inspection without the construction of any cofferdams and without dewatering the culverts. This underwater inspection was performed on October 24, 2014. The findings of the inspection are detailed in Attachment 3: Moss Landing Site Visit and Dive Inspection Report.



The culvert system is made up of three 48-inch diameter pipes, largely made up of Reinforced Concrete Pipe (RCP) with a 12 foot section of corrugated metal pipe that connects to the tidal gate/headwall. During the dive inspection, it was discovered that corrosion of the metal tidal gate is the source of the saltwater intrusion into the Slough. Two of the three metal gates are leaking due to corrosion at the bottom of the metal gate.

Description of Proposed Culvert Repairs

The repair of the culvert that drains the Moro Cojo Slough into Moss Landing Harbor will be performed by repairing the faulty tidal gates of the system. The repair will be performed as follows: The metal gates will be removed at low tide by removing the bolts that connect them to the concrete head wall. This work will be performed at a low tide from the Harbor side similar to the work shown in Figure 3. Workers will wade into the water or work from a boat, when most of the gate will be exposed to the air, remove the bolts including two or three that will be underwater. A boom crane on the shore will lift them up to a truck to transport them for repair offsite. A solid flange will temporarily be bolted in place over the pipe opening where the tide gate was, a so-called "blind flange" to stop saltwater flow into the slough.

The two leaking gates will be repaired by welding new stainless steel patches to the damaged areas. The gates will then be brought back to the site within a few days at a low tide. The blind flanges will be removed and the repaired gates bolted back into place and the culvert restored to their original functional condition. During the repair of the two leaking gates, the third tide gate will still be operational.

The following approach and method are proposed in an effort to minimize or eliminate impact to the environment:

- There will be no change or modification to the structure, this project will only include repairs to existing infrastructure;
- The work will largely be done in the exposed air with hand tools and the crane to lift it out of the way;
- It is expected to take 3 to 4 hours to remove the gates and place the blind flanges. And a similar amount of time to replace them once they are repaired;
- There will be no excavation required nor alteration to the structure or the harbor bottom.

MCMRA intends to conduct this repair work within the next 30 days, and as early as next week due to the lower tides.

If you require any further information, please contact Chris Potter at (925) 944-5411, or cpotter@moffattnichol.com.

References

Attachment 1: Proclamation of Local Emergency

Attachment 2: Board Order for Resolution

Attachment 3: Moss Landing Site Visit and Dive Inspection Report



Attachment 1: Proclamation of Local Emergency





Monterey County

168 West Alisal Street,
1st Floor
Salinas, CA 93901
831.755.5066

Board Report

Legistar File Number: RES 14-102

October 14, 2014

Introduced: 10/13/2014

Version: 1

Current Status: Agenda Ready

Matter Type: BoS Resolution

Adopt Resolution to:

Ratify the Proclamation of Local Emergency due to the conditions of saltwater intrusion into groundwater sources and inundation near the Moro Cojo Slough, causing conditions of extreme peril to the safety of persons and property nearby.

..Report

RECOMMENDATION:

It is recommended that the Board of Supervisors:

Ratify the Proclamation of Local Emergency due to the conditions of saltwater intrusion into groundwater sources and inundation near the Moro Cojo Slough, causing conditions of extreme peril to the safety of persons and property nearby.

SUMMARY:

Beginning October 9th, a failure in the flap gate in the culvert system underneath Moss Landing Road has led to saltwater intrusion in the Moro Cojo Slough. The culvert, which provides drainage and typically prevents saltwater from re-entering the system through the flap gate, cannot function as designed, and therefore currently is ineffective. While the flap gate is currently non-functional, the threat of increased failure throughout the culvert as a whole is present if action is not taken immediately to remediate the situation.

The failure results in seawater intrusion into the area surrounding the Slough, impacting critical groundwater resources for local residents, including their animals. Prolonged exposure of increased salinity can impact water wells in the immediate area that provide potable water for multiple properties. Impacts to groundwater supplies would affect those who depend on these sources for drinking water.

DISCUSSION:

The elevation difference between the ocean and the Moro Cojo Slough is typically 4-5 feet at high tide, and can reach even larger spans with the instance of a "King Tide". This elevation difference, combined with the inability of the culvert to provide effective drainage, results in an additional threat of damage, both to Moss Landing Road and structures located nearby including critical utilities.

The conditions of extreme peril warranted and necessitated the proclamation of the existence of a local emergency and immediate action to mitigate the effects of failure in the flap gate and culvert system. Action by the Board of Supervisors as recommended herein will ratify the Proclamation of Local Emergency.

CAO and RMA-PW will update the Board of Supervisors periodically concerning the emergency and efforts to restore the full functionality of the culvert, protecting against saltwater intrusion into groundwater resources and inundation of the surrounding areas.

OTHER AGENCY INVOLVEMENT:

The mitigation efforts of the foregoing conditions affecting the Moro Cojo Slough include Monterey County Resource Management Agency; Planning Department and Monterey County Public Works Department, Monterey County Health Department - Environmental Health Division, the California Coastal Commission (original jurisdiction for permit authority), Moss Landing Harbor District, US Army Corp of Engineers, US Fish and Wildlife Services, Water Board, and State Fish and Wildlife. RMA has engaged with the firm of Moffett and Nichol to assist with design and permitting of this project.

FINANCING:

This proclamation of local emergency will impact the General Fund in emergency contracts, engineering services, and overtime costs incurred by RMA-Public Works, which may be requested for reimbursement from the General Fund at the end of the fiscal year.

Prepared by:

Approved by:

Sherrie L. Collins
Emergency Services Manager

Nicholas E. Chiulos
Assistant CAO

Date: _____

Date: _____

Attachments: Resolution, Proclamation for October 14th, 2014

Attachment 2: Board Order for Resolution





Monterey County

168 West Alisal Street,
1st Floor
Salinas, CA 93901
831.755.5066

Board Order

Upon motion of Supervisor Parker, seconded by Supervisor Potter and carried by those members present, the Board of Supervisors hereby:

Adopted Resolution 14-299 and ratified the Proclamation of Local Emergency due to the conditions of saltwater intrusion into groundwater sources and inundation near the Moro Cojo Slough, causing conditions of extreme peril to the safety of persons and property nearby.

PASSED AND ADOPTED on this 14th day of October 2014, by the following vote, to wit:

AYES: Supervisors Armenta, Salinas, Parker and Potter
NOES: None
ABSENT: None
RECUSED: Supervisor Calcagno

I, Gail T. Borkowski, Clerk of the Board of Supervisors of the County of Monterey, State of California, hereby certify that the foregoing is a true copy of an original order of said Board of Supervisors duly made and entered in the minutes thereof of Minute Book 77 for the meeting on October 14, 2014.

Dated: October 15, 2014
File Number: RES 14-102

Gail T. Borkowski, Clerk of the Board of Supervisors
County of Monterey, State of California

By Denise Hancock
Deputy

**PROCLAMATION OF A LOCAL EMERGENCY
BY THE MONTEREY COUNTY BOARD OF SUPERVISORS**

Resolution No.14-299

In the Matter of Proclaiming the Existence)
of a Local Emergency within Monterey County)
Dated October 14, 2014 (4/5th vote required.....)

RECITALS:

WHEREAS, the California Emergency Services Act (Government Code section 8630,et seq.) establishes procedures for proclaiming emergencies and for responding promptly to the needs that arise during emergencies; and

WHEREAS, Section 2.68.060 of the Monterey County Code and Section 8630 of the Government Code empower the County Administrative Officer or his designee to proclaim the existence of a local emergency when the County is affected by a public calamity and the Board of Supervisors is not in session, subject to confirmation of the Board of Supervisors within seven days thereafter, and

WHEREAS, due to a failure in the flap gate and culvert system underneath Moss Landing Road, seawater intrusion through the Moro Cojo Slough has occurred and contamination threatens the critical groundwater resources around the Slough; and

WHEREAS, the continued failure of the flap gate and culvert system will result in damage to structures including critical utilities and County roadways; and

WHEREAS, prolonged exposure of increased salinity can impact water wells in the immediate area that provide potable water for multiple properties; and

WHEREAS, as a result of these circumstances conditions of peril exist to the safety and well-being of the residents, including their animals, who live nearby and depend on these water sources, and immediate action is necessary to address these public health and safety issues; and

WHEREAS, the aforementioned conditions of extreme peril warrant and necessitate the proclamation of the existence of a local emergency and immediate action is necessary to mitigate the effects of the local emergency; and

WHEREAS, this emergency does not allow a delay resulting from permits related to construction, particularly those relating to coastal areas or other environmentally sensitive zones, and immediate action is necessary to respond to the emergency and prevent further damage to critical infrastructure, **NOW, THEREFORE**,

BE IT RESOLVED, by the Board of Supervisors in and for the County of Monterey as follows:

1. The above recitals are true and correct.
2. A local emergency as defined in Government Section 8558c and Public Contract Code Section 1102 is hereby proclaimed to exist throughout said County.

3. During the existence of said local emergency the powers, functions, and duties of the County Administrative Officer and the Emergency Organization of this County shall be those prescribed by State law and the ordinances, resolutions, and approved plans of the County of Monterey in order to mitigate the effects of said local emergency.

4. During the existence of said local emergency, the powers, functions, and duties of the County Administrative Officer and the Public Works Director shall be those prescribed in State and local law in order to mitigate the effects of the local emergency.

5. Pursuant to Public Contract Code Sections 20134, 22050, and 20395, the Public Works Director or his designee is hereby authorized to engage independent contractors and engineering services to complete all necessary work to mitigate the effects of said local emergency. Contracts for this work may be executed without prior Board approval of the plans, specifications, and working details, without giving notice for bids to let contracts.

PASSED AND ADOPTED upon motion of Supervisor Parker, seconded by Supervisor Potter and carried this 14th day of October 2014, by the following vote, to wit:

AYES: Supervisors Armenta, Calcagno, Salinas, Parker and Potter

NOES: None

ABSENT: None.

RECUSED: Supervisor Calcagno

I, Gail T. Borkowski, Clerk of the Board of Supervisors of the County of Monterey, State of California, hereby certify that the foregoing is a true copy of an original order of said Board of Supervisors duly made and entered in the minutes thereof of Minute Book 77 for the meeting on October 14, 2014.

Dated: October 15, 2014
File Number: RES 14-102

Gail T. Borkowski, Clerk of the Board of Supervisors
County of Monterey, State of California



By Denise Hancock
Deputy

Attachment 3: Moss Landing Site Visit and Dive Inspection Report



SITE VISIT REPORT-DIVE

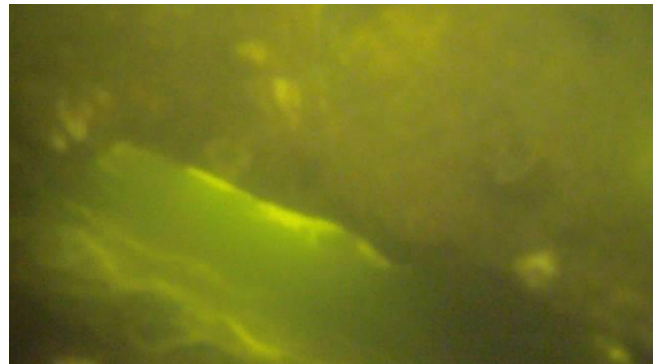
DATE:	October 27, 2104	DATE OF SITE VISIT:	October 24 11:00 am to 7:00 pm
TO:	File	TIME ON SITE:	6 pm (10/18) 10:30 am (10/19)
FROM:	Brad Porter, PE	OTHERS PRESENT:	Power Dive Team, Charlie Pearce Dive Supervisor
PROJECT:	ML Culvert Emergency	WEATHER:	Partly overcast 75 deg.
M&N File No.	8699	CONSTRUCTION PHASE:	Dive Inspection

Item	Photo/Video
<p>1. Performed 3 dives into the pipes to observe source of leakage, and measure joint openings in pipes</p> <p>Dive 1: 12:35 pm start (4.0 ft tide)-initial observations into Pipe 1,2,3</p> <p>Dive 2: 1:30 pm start (3.7 ft tide)-Took video and measured pipe 1 joint separations</p> <p>Dive 3 4:15 pm start (0.3 ft tide) Measured Pipe s 2,3 joint separations</p> <p>Low Tide (5pm) waded on outside of gates from shore to feel bottom of gates to confirm holes in throat of gate.</p> <p>2. Pipe #1 (see figure 1 attached) observed strong vertical gushing of water inside of pipe at tide gate on inside of pipe. Felt hole in bottom of tide gate throat. 4 ft differential head at time. This is the main source or leakage and the ripples seen from the slough side of the pipe.</p>	 <p>1. Pipe 1 vertical gushing water behind gate</p>  <p>2. Pipe 1, right side of Hole in throat of gate</p>

3. Pipe 2-Observed swirling of water behind gate, but not the gushing. Felt down to bottom of pipe and felt a open cracks in an inverted "T" shape, along the seam of the throat with the flange (bottom of T) and longitudinal along the throat, like the butt joint when they rolled the throat.



3.-Pipe 1-Left side of Hole in throat of gate



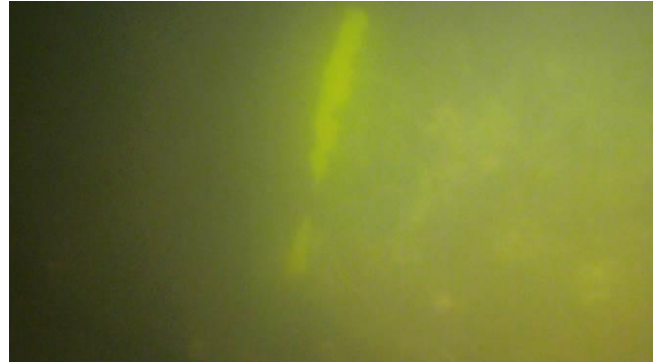
4. Pipe 2 Hole in seam of throat to flange on gate



5. Pipe 2 Hole in throat and connection to flange on gate

4. Pipe 3-Observed minor leakage at top of gate from gasket, appears to be from mussels in fouling the seal to the joint.

5. Pipe 3- At CMP joints to RCP observed not leakage. Observed some leakage in Pipes 2 and 3 at this joint and section of the pipe.



6 Pipe 2, hole in throat (butt joint weld?)



8. Pipe 3-Leakage from gasket, mussel fouling



9. Pipe 3 CMP joints to RCP pipe, no leakage observed

6. At low tide waded from harbor side outside of tide gates and was able to feel hole in bottom of gates 1 and 2.

7. Aside from minor leakage at the CMP to RCP section in pipes 1 and 2, and the gasket in pipe 3 the cause of leakage into the slough it caused by leakage from the deteriorated tide gates at the bottom.



10. CMP to RCP joint in Pipe 1, minor leakage



11. Tide Gate: Door, gasket, throat and headwall



12. Tide Gates at Low Tide (5:40 pm)

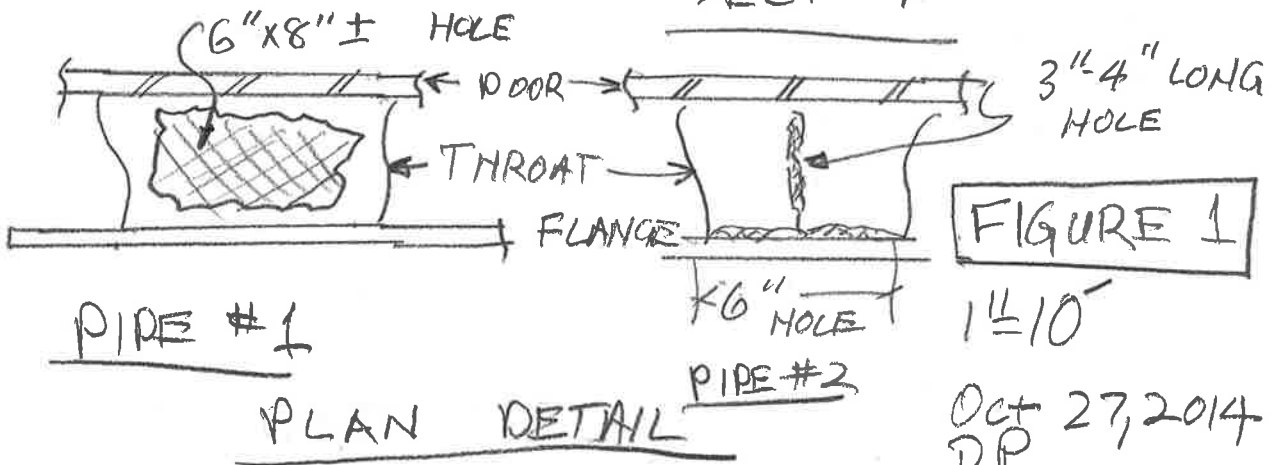
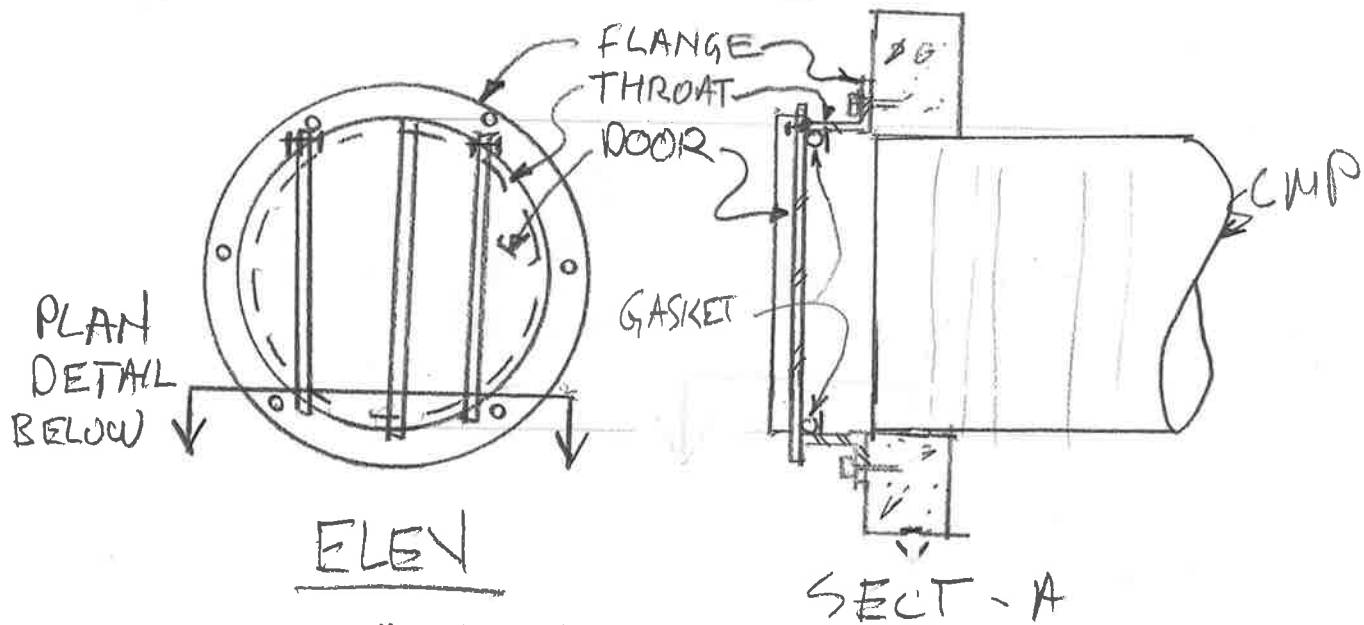
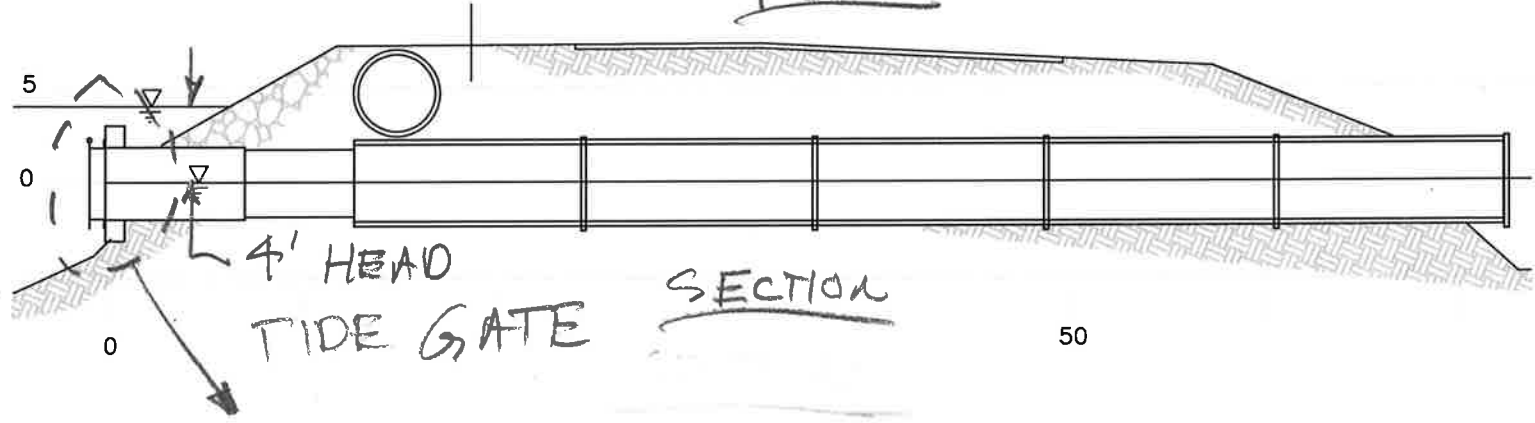
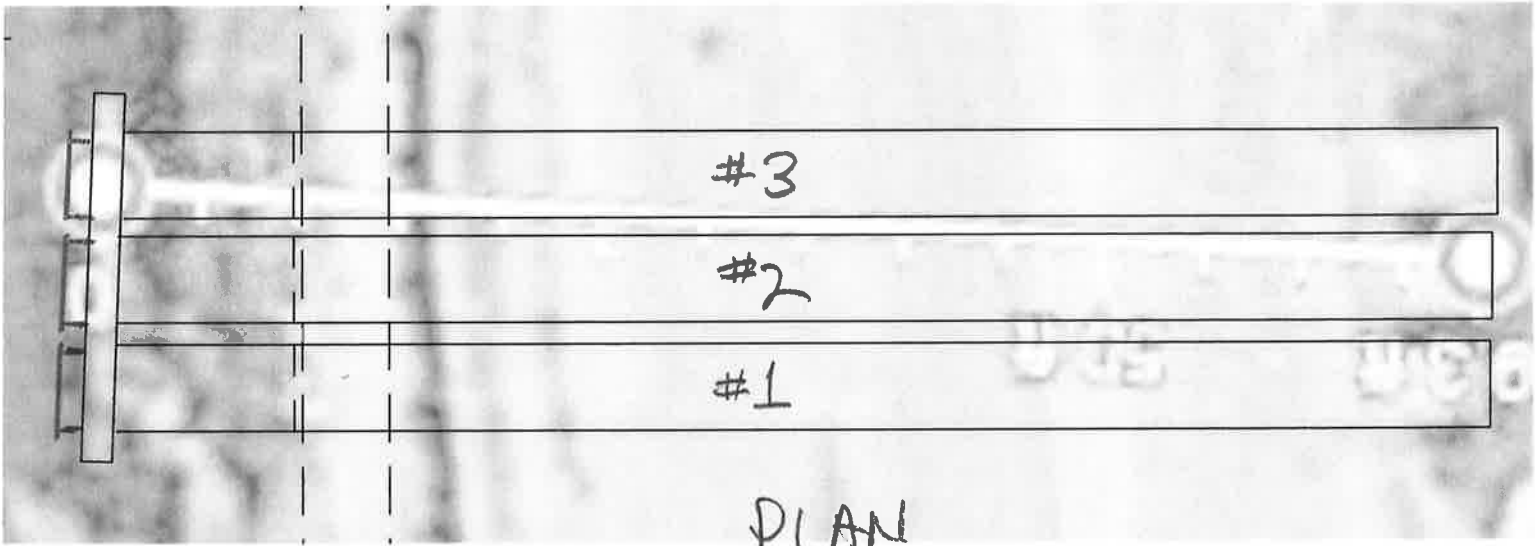


FIGURE 1

1 1/2 - 10'

OCT 27, 2014
BP