Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

December 21, 2015

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

Jeff Cummins, Director
Division of Enforcement
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, NPDES Permitting and Enforcement Branch
Water Protection Division
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Fairmount Road Pump Station and SSO Storage Basin
Minor Project Modification
IOAP Project No. S_FF_CC_81316_M_03_C_A
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Fairmount Road Pump Station and SSO Storage Basin project (IOAP Project No. S_FF_CC_81316_M_03_C_A). As we discussed in our December 9, 2015, meeting at EPA Region 4 offices in Atlanta, we are requesting the project completion date be revised from December 31, 2015 to March 31, 2016.

Project Description

The Fairmount Road Pump Station and SSO Storage Basin is a 4.2 MGD pump station and a 3.4 MG storage basin originally proposed to be completed by December 31, 2016. The pump station and storage basin are sized to eliminate SSOs up to the 1.82-inch cloudburst storm event.

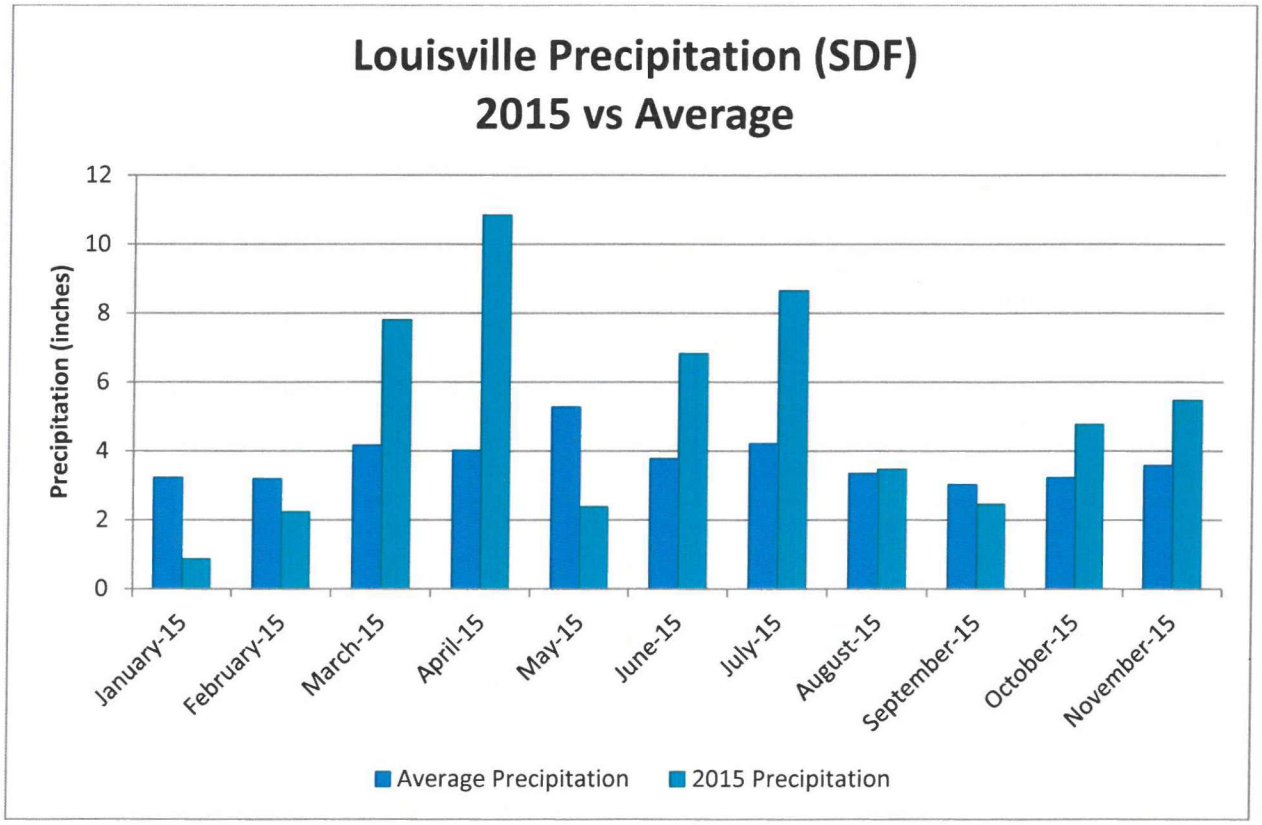
Project Modification Request

This project modification request does not change the size or level of control for the project. The modification only requests a revision of the completion date to March 31, 2016, with the understanding that MSD will implement a Wet Weather Standard Operating Procedure (SOP) to minimize the frequency, duration, and volume of sanitary sewer overflows associated with the Fairmount Road Pump Station during the time period from January 1, 2016 until project substantial completion. The Wet Weather SOP will utilize the existing pump station, a new inlet drop structure and wet weather storage basin (which are operational), a temporary

diversion weir, and a portable basin dewatering pump to enable the facility to control the 1.82-inch cloudburst storm without causing SSOs, which is the approved level of control for this project.

Technical Justification

Construction of the Fairmount Road Pump Station and SSO Storage Basin has been impacted by unusually severe weather in 2015. On December 9, 2015, we indicated that this year is likely to go on record in the top 10 wettest years ever, and based on recent precipitation this has in fact happened. The storms of March, April, June, and July were particularly severe as shown in the following figure:

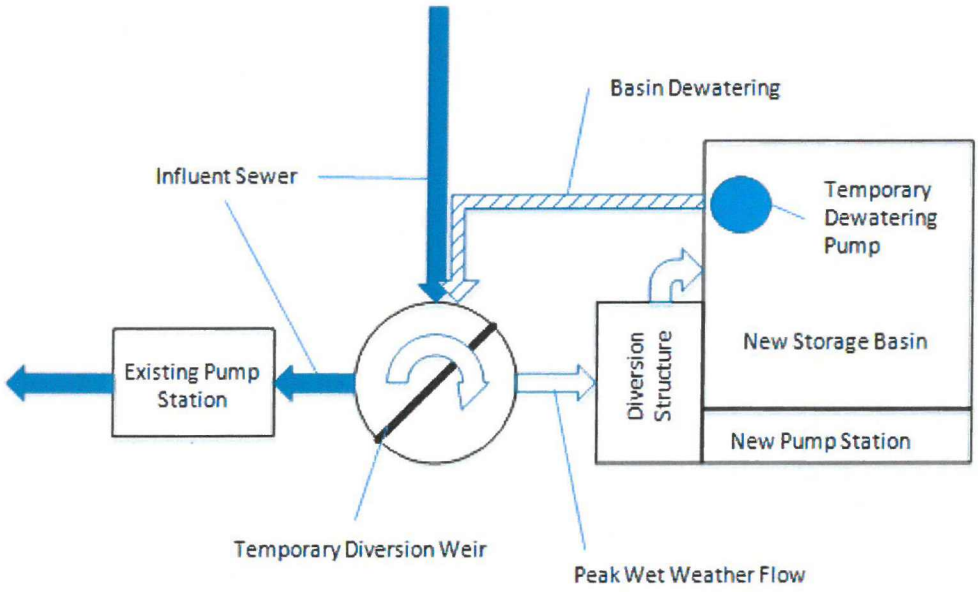


It is worth noting that flooding resulting from the storms in April, 2015, resulted in a Federal Disaster declaration. The construction site experienced significant flooding during these events. In addition, unusually cold and snowy weather in February impacted concrete work scheduled for that time period. Ice, snow, and cold temperatures caused the Contractor to stop rebar placement and wall forming due to safety concerns.

As a result of these severe and unusual weather impacts, the Contractor will not be able to achieve substantial completion prior to the current required date. Based on information provided us by the Contractor, it appears that substantial completion of the project can be expected by March 31, 2016. MSD proposes to mitigate the impacts of this delayed substantial completion date through the operation of temporary facilities that will allow the project to achieve the target level of control of a 1.82-inch 3-hour cloudburst storm by December 31, 2015.

Mitigation Approach

A schematic illustrating the mitigation approach is shown below:



During dry weather all flows will continue to be pumped by the existing Fairmount Road Pump Station. During wet weather when flows exceed the capacity of the existing pump station, a temporary static diversion weir will send the excess flow to the new storage basin. When flow drops below the capacity of the existing pump station, the temporary dewatering pump will pump from the storage basin to the diversion manhole, where it will route to the existing pump station. Given the limitations of the temporary pump system, the storage basin may take longer than 24 hours to empty, raising the potential for odor generation. Should odors become a problem, MSD will add a granular chlorine compound to the storage basin to control the odors.

MSD has already installed the temporary diversion weir and the temporary dewatering pump, and a successful test of the system was completed on December 18, 2015. A detailed Wet Weather SOP has been developed to guide both MSD and Contractor staff during operation. A copy of the Wet Weather SOP is attached for your reference.

Based on the mitigation approach described, we believe environmental impacts will be minimized from this delay in achieving substantial completion, and we request approval to the minor modification to change the substantial completion date to March 31, 2016.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact me at (502) 540-6136.

Sincerely,

Angela L. Akridge, PE
Chief Engineer

cc: Tony Parrott Paula Purifoy

Attachments

X:\Data\IOAP\2014 IOAP\2014 Modification\Mod Letters\ Fairmount Road – Dec 21, 2015.docx

WET WEATHER

STANDARD OPERATING PROCEDURE

Temporary Flow Diversion with Wetwell Bypass
Fairmount Road Pump Station and
Sanitary Sewer Overflow Storage Basin

Louisville and Jefferson County
Metropolitan Sewer District

700 West Liberty Street
Louisville, KY 40203

Revision Date:
December 21, 2015

Table of Contents

OVERVIEW

This document outlines the wet weather standard procedure to temporarily operate the Fairmount Road Pump Station and SSO Storage Basin in conjunction with the existing pump station at Fairmount Road if wet weather flow diversion needs to occur before the new pump station wetwell is complete. The Basin would only be used during wet weather events. The basin contractor, Judy Construction Co., will be responsible for operating the temporary facilities during this period. MSD will remain responsible for operation of the existing Fairmount Road Pump Station.

FLOW DIVERSION SCHEME

A temporary weir will be installed in Manhole #116,106. This weir elevation will be set to El. 509.0. Modeling concluded that the existing pump station can handle up to a 0.65-inch rainfall without reaching that wet well elevation. When the existing pump station receives wet weather flows in excess of available capacity the wet well level will rise above the level of the temporary weir and the additional flow will travel over the weir into the influent drop structure for the new Fairmount Road Pump Station and SSO Basin. The modeled peak flow rate into the basin during the 2-year cloudburst storm is 7.8 MGD. A detail of the weir can be seen in Appendix A. A 2-inch pump will be placed behind the weir to pump any dry-weather leakage back over to the upstream side of the weir.

To fill the basin and isolate the wetwell, gates G001, G002, G003, and G006 shall be locked out and tagged out in the closed position. Gate G004 shall be locked and tagged open. Gate G005 shall be operational and normally open. See Sheet D-7 in Appendix B.

After overtopping the weir, flow will enter a 42” drop pipe and travel into the influent drop structure. As the water level rises in the influent drop structure, flow will travel through a static upflow screen with a peak design flow rate of 18.1 MGD. The screen shall facilitate removal of solids greater than 1/6 inch. If the screen becomes blinded, flow can bypass the screen through a fixed weir at Elevation 509.0. Flow will then enter the Wetwell Bypass chamber through Gate G004 and flow into the Basin through Gate G005.

DEWATERING

Overflow will be stored in the basin until it can be paced back into the system. To dewater the Basin, an 8” hydraulic submersible diesel pump with a 2 MGD capacity will be placed into the sump of the storage basin. This pump will utilize a 175 gallon diesel storage tank with an auxiliary 500 gallon tank. Secondary spill containment will be provided in accordance with local regulations. The discharge line will exit the basin through Hatch H022 and will travel along the west side of the basin and back into MH #116,106. The discharge line shall be securely anchored to prevent accidental disconnection from vibrations or the weight of water in the line. During installation of the weir, the top of this manhole will be removed. When the top is put back in place, it will be turned so that the manhole lid is oriented above the upstream side of the weir. This will allow discharge back into the gravity sewer system. Flow will travel to the existing Fairmount Road Pump Station. The basin dewatering pumps were tested on December 18, 2015, prior to the facility being put into use. Testing guidelines can be found in Appendix D.

MSD (Mike Brazel, Marc Thomas, Greg Powell, or Jay Thomas) will notify Judy Construction Co. when dewatering activities can begin by monitoring flows and water levels at the existing Fairmount Road Pump Station. To eliminate a complex control scheme for returning flow to the system, the basin pump will be turned on and allowed to run continuously until dewatering is completed. If the pump is dewatering the

basin at a faster rate than the existing gravity system can handle, flow will recirculate back over the weir and follow the flow path back into the basin. During dewatering, Gate G005 between the Influent Drop Chamber and the Basin shall be in the open position. See Sheet D-7 in Appendix B.

If the basin level begins to rise and approaches elevation 505 during dewatering, the pumps shall be turned off, and Gate G005 shall be closed.

During dewatering the discharge line will be inspected several times daily by the contractor. Should any leaks be found in the discharge line(s), the dewater pumps will be immediately turned off until the leaks are repaired. MSD shall be notified of any leaks or overflows. The 100 year flood level of the Big Run Creek is Elevation 515.5. The rim elevation of Manhole #116,106 is Elevation 515.76. If the creek nears the 100 year flood elevation, the discharge line will be pulled from the manhole and the lid will be closed.

The influent box will be pumped down after any storage event. This will be done by placing an electric submersible solids handling pump into the influent box. This pump will discharge into the basin.

WASH-DOWN

Wash-down activities shall be completed within 24 hours of basin dewatering completion.

The influent box shall be dewatered and washed down before the basin wash-down begins. The static upflow screen will be inspected through Hatch H016 and will be sprayed down manually as needed. The walls of the influent drop structure and wetwell bypass chamber shall be sprayed down manually through hatches H015, H016, and H017.

The tipping buckets and the automatic wall wash-down system will be used to clean the storage basin after its initial dewatering. The automatic wall wash-down system will be operated first through hand mode at the control panel in the electrical room. After wall wash-down is complete, the tipping buckets will be filled by operating the valves in hand mode at the tipping bucket control panel in the electrical room.

For the standard operating procedure for wall and tipping bucket wash-down, see Appendix B.

MONITORING

An auto dialer will be connected to a level instrument in the influent drop structure. The auto-dialer will notify Judy Construction Co. contacts located on the notification tree on page 4 when the influent drop structure water surface elevation reaches El. 480.0.

There will also be an auto-dialer on a level instrument in the basin. If the level reaches El. 499.0, the auto-dialer will notify Judy Construction Co. to allow someone to get to the site to be ready to perform emergency shutdown if required. Once Judy is on-site they should monitor the basin level. If the Elevation reaches 506.5, Judy shall immediately perform Emergency Shutdown.

One level transducer will be provided by MSD to monitor the water depth in the basin. This level transducer will have a 30-foot measuring range and will be provided with a 75-foot cable. The level transducer is equipped with a waterproof enclosed display so that level can be read on-site. Level Transducer 1 will be placed in the basin sump.

Judy Construction Co. will be required to physically staff and monitor the site 24/7 during basin filling for the first storage event only. During any subsequent events, Judy will be required to visit the site at the initiation of an event, but can leave after an initial inspection takes place confirming proper gate positions, fuel levels, and pump readiness. Judy Construction Co. shall monitor the weather and if an event occurs that could potentially flood the site, they will be required to monitor and pull pump discharge lines if the Big Run Creek approaches the Manhole # 116,106 rim elevation.

Judy Construction Co. will be required to physically staff and monitor the site 24/7 during dewatering and wash-down activities.

ODOR CONTROL

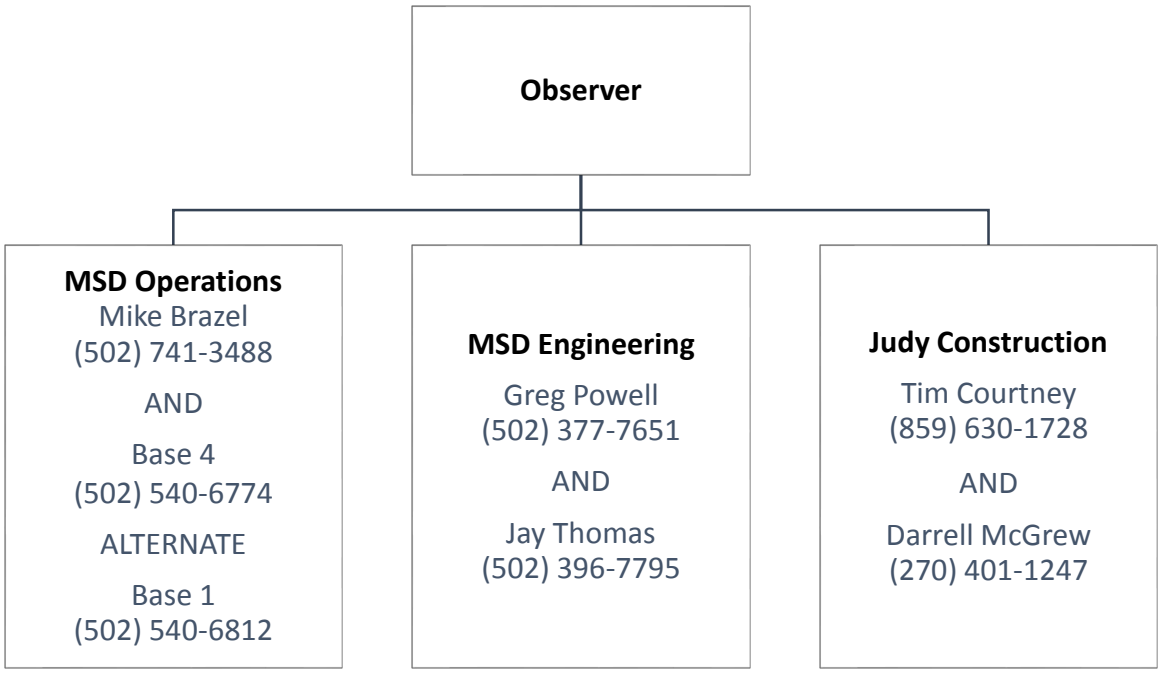
Odor issues will be handled by MSD on an as needed basis. Odor should only be an issue if the basin volume is held for several days. In this case, if dewatering is not possible due to high flows in the gravity system, pumps will be turned on to allow the basin volume to circulate back into the manhole. MSD will manually add granular chlorine from hatch H015 in the influent drop structure. Gate G005 shall be in the open position.

EMERGENCY SHUTDOWN

The basin will be shut down at a high water elevation of 506.5. This will be achieved by closing the 42" sluice gate, G005 between the influent drop structure and the basin. The contractor will utilize the Level Transmitter in the basin to manually read basin water level and manually close the gate. To better protect the unfinished wetwell from any splashing in the basin, temporary blocking will be placed in the two 8' x 3' overflow weirs between the basin and the wetwell. These temporary bulkheads are not considered watertight and are not meant to handle the pressure of water behind them.

After gate G005 is shut, the contractor shall monitor the site as well as the low manhole, #97365, for overflows. This manhole is located two manholes south of Fairmount Road on the west side of Big Run Creek. Any overflows observed shall immediately be reported to MSD Customer Relations at (502) 587-0603. In addition, overflows observed shall also be reported to all contacts in the notification tree.

NOTIFICATION TREE



The notification tree above shall be used for the facility. All parties above shall be contacted during the following events:

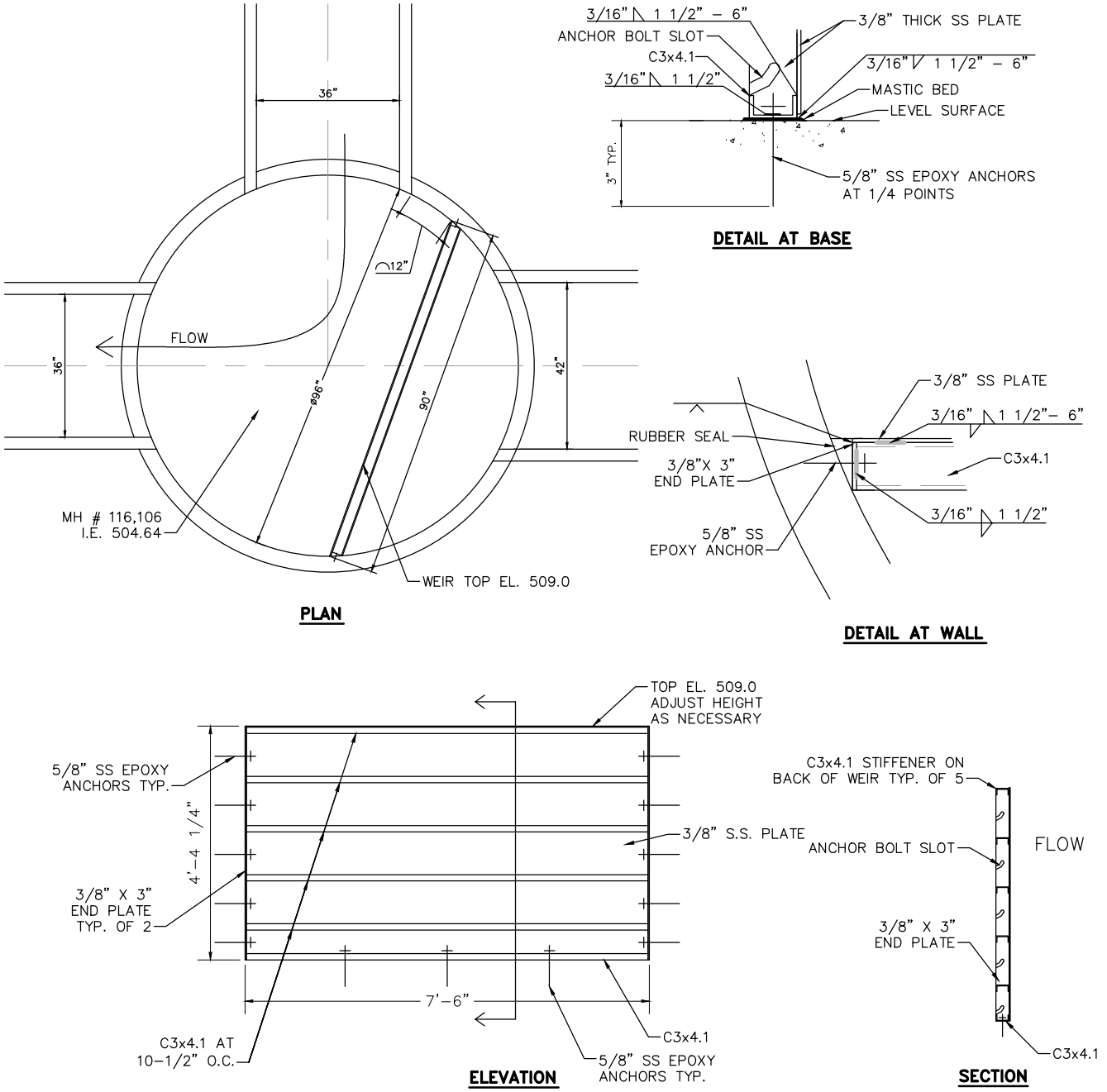
1. Initiation of a Storage Event - Influent Drop Structure Begins Filling (WSE 480.0)
2. Potential Shutdown Event – Rising Water Level in Basin to El. 499.0
3. Emergency Shutdown - High Water Level in the Basin (WSE 506.5)
4. Dewatering commencement and at 8 hour intervals during dewatering
5. Completion of wash-down with empty basin and influent drop structure
6. Overflow or Discharge
7. Equipment Failure

Events 1 and 2 will use level instrument with an auto dialer to automatically call Judy Construction Co. After receiving the call from the auto dialer, Judy will immediately notify the parties from MSD Operations and MSD Engineering. For event 2, the auto dialer cannot differentiate between a rising and falling water level. The auto dialer will make a false call when the basin is being dewatered if the level falls to El. 499. During dewatering, Judy will be on site to differentiate this situation.

In the event of an overflow or discharge the Observer shall immediately be report the overflow to MSD Customer Relations at (502) 587-0603. In addition, overflows observed shall also be reported to all contacts in the notification tree. MSD respondents will follow MSD's Standard Overflow Response Protocol (SORP). The MSD observer will record the start time, stop time, volume discharged, and the location.

EQUIPMENT CATALOG

Equipment Number	Equipment Name	Location	Notes
G001	36” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked CLOSED
G002	36” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked CLOSED
G003	48” x 24” Sluice Gate/Actuator	Wetwell	Locked CLOSED
G004	42” x 42” Sluice Gate/Actuator	Influent Drop Structure	Locked OPEN
G005	42” x 42” Sluice Gate/Actuator	Basin	Operational OPEN
G006	36” x 36” Sluice Gate/Actuator	Basin	Locked CLOSED
S001	13’-3” x 7’-6” Hydrostatic Upflow Screen	Influent Drop Structure	Check after each event and spray down if required.
T001	Tipping Bucket #1	Basin	Operated in LOCAL at control panel inside electrical building
T002	Tipping Bucket #2	Basin	Operated in LOCAL at control panel inside electrical building
T003	Tipping Bucket #3	Basin	Operated in LOCAL at control panel inside electrical building
T004	Tipping Bucket #4	Basin	Operated in LOCAL at control panel inside electrical building
T005	Tipping Bucket #5	Basin	Operated in LOCAL at control panel inside electrical building
T006	Tipping Bucket #6	Basin	Operated in LOCAL at control panel inside electrical building
W001	7.5-ft weir	MH# 116,106	Fixed Weir inspect periodically
L001	Level Transducer #1	Basin	0-30 ft Range with Local Display
P001	Heidra 200 Hydraulic Submersible Pump with 8” discharge into MH #116,106	Basin	Allied Pump Rental Josh Mangan (859) 321-1578
P002	Pump to dewater influent drop structure, discharge into basin	Influent Drop Structure	Allied Pump Rental Josh Mangan (859) 321-1578
P003	Pump Behind Weir	MH #116,106	Allied Pump Rental Josh Mangan (859) 321-1578
A001	Auto-dialer #1	Influent Drop Structure	Allied Pump Rental Josh Mangan (859) 321-1578
A002	Auto-dialer #2	Basin	Allied Pump Rental Josh Mangan (859) 321-1578
X001	Wall Washdown System	Basin	Operated in LOCAL at control panel inside electrical building



WEIR DETAIL

NOT TO SCALE

APPENDIX B
Basin Wash-down Standard Operating Procedure

Description

The basin tipping buckets and automatic wall wash-down systems will be operated in hand mode from the wash-down control panel in the electrical building. A complete sequence will include one wall flushing cycle and two tipping bucket cycles.

Components

- Flushing Nozzles
- Three (3) Tipping Buckets – 1,315 gallons each
- Two (2) Tipping Buckets – 1,400 gallons each
- One (1) Tipping Bucket – 225 gallons
- Various Control/Isolation Valves (Motor-actuated ball valves)
- Solenoid Valves (Drain Valves)
- Four (4) Hotboxes for Valve Freeze Protection
- Tipping Bucket Proximity/Limit Switches
- Wall Flushing and Tipping Bucket Local Control Station

Controls

The Wall Flushing and Tipping Bucket Systems will operate through the Tipping Bucket Local Control Panel (TBCP). When the LOCAL/REMOTE/MANUAL switch on the TBCP is in the LOCAL position, the wall flushing nozzles and tipping buckets can be controlled manually through the HMI including the control of individual flush zones and individual buckets and wash cycles.

Operation

The wall flushing system is divided into zones. There are a total of five (5) wall flushing zones that use a series of high pressure flush nozzles to automatically spray down basin walls. These Zones consist of South Zone 1, South Zone 2, West Zone, North Zone 1, and North Zone 2. Each zone is isolated by its own 2-1/2" motorized ball valve.

To initiate a wall flushing sequence, "Solenoid Valve South Wall Washdown 1" shall be turned to the open position and the nozzles should be allowed to spray for ten minutes before the valve is closed. After the South Zone 1 valve is closed, South Zone 2 shall be opened and allowed to spray for ten minutes. This sequence shall be performed on all zones in the following order: South Zone 1, South Zone 2, West Zone, North Zone 1, and then North Zone 2.

To initiate a tipping bucket sequence, a 2-1/2" motorized ball valve on the fill piping to Tipping Bucket #1 (T001) shall be opened by turning "Solenoid Valve Tipping Bucket #1" to the open position. When the bucket is filled via the non-potable water system, the bucket automatically spills washing any sediment/debris longitudinally through the flushing lane to the west side of the SSO Basin. The switch shall be turned to the close position after the tipping bucket spills. This sequence shall be performed on

all tipping buckets in the following order: Tipping Bucket #1, Tipping Bucket #2, Tipping Bucket #3, Tipping Bucket #4, Tipping Bucket #5, and Tipping Bucket #6. Tipping Buckets #1-5, located on the east side of the basin, wash sediment longitudinally through the flushing lanes to the west side of the basin. Tipping Bucket #6, located in the north-west corner of the basin, washes the basin laterally within the sump channel along the west side of the basin.

The tipping bucket sequence is repeated for a second time to complete the full washdown sequence. The basin dewatering pump shall be run as needed during the basin washdown process to keep water from standing on the floor of the basin.

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CODED NOTES:

1. PROVIDE STILLING WELL PER DETAIL ON SHEET D-14.
2. HUBBELL POWER SYSTEMS, INC HOTBOX MODEL HB3H OR EQUAL, INTERIOR FLOOR 70"x26".
3. HUBBELL MODEL HB3NS OR EQUAL, INTERIOR FLOOR 83"x26".
4. REMOVABLE BOLLARD 1' FROM EDGE OF WETWELL AND VALVE VAULT. SPACE EVERY 5 FEET. SEE DETAIL SHEET S-19 (TYP. OF 8)
5. 6" GOOSENECK VENT. SEE DETAIL ON SHEET D-14.
6. FLUSH MOUNT FLOOR SLEEVE DBI-SALA MODEL 8510311 AND HEAVY DUTY SLEEVE CAP DBI-SALA MODEL 8510827 TO ACCOMMODATE ADJUSTABLE OFFSET DAVIT MASTS DBI-SALA MODEL NUMBERS 8518001 AND 8518006. CENTERLINE OF SLEEVE SHALL BE LOCATED A MINIMUM OF 23-1/2" AND MAXIMUM 27-1/2" FROM CENTERLINE OF ACCESS LADDER, OR IF NO LADDER, FROM CENTERLINE OF ACCESS HATCH.
7. DIMENSIONS ARE CLEAR OPENING.
8. HANDRAIL DIRECTLY BEHIND HOTBOX SHALL BE 36" HIGH TO ALLOW HOTBOX TO OPEN.
9. SURFACE MOUNTED BOLLARD 5' FROM EDGE OF BASIN. SPACE EVERY FIVE FEET. SEE DETAIL SHEET S-19 (TYP. OF 4)
10. PROVIDE ONE (1) SURFACE MOUNTED BOLLARD AS SHOWN TO PROTECT GOOSENECK VENT.

Place 8" hydraulic pump in this hatch

Place hydraulic power pack and 500 gallon fuel tank next to the basin on gravel road area

Run pump discharge pipe along this side of basin wall

Place discharge of pump into manhole on west side of the metal weir plate

Install a metal weir plate to El. 509

Gate Normally Open

Gate Closed when basins is full

Wet weather flow

Dry weather flow

Wet Weather Flow

190'-0"

100'-0"

32'-8"

89'-6"

10'-0"

5'-0"

10'-0"

BASIN

WETWELL

FUTURE WETWELL

VALVE VAULT

CONTROL/ ELECTRICAL ROOM

CHEMICAL FEED/ EQUIPMENT ROOM

CONTROL BUILDING SEE SHEET D-8

CATWALK PLATFORM

LIFT OFF SLAB

INCLINED WALK

ALUMINUM HANDRAIL

102/120 INTAKE HOOD, IH1

58/70 DUCT DOWN

123/156 INTAKE HOOD, IH2

68/94 DUCT DOWN

102/120 INTAKE HOOD, IH4

123/156 INTAKE HOOD, IH3

SUPPLY FAN, SF1

74/74 DUCT DOWN

SUPPLY FAN, SF2

SUPPLY FAN, SF3

74/74 DUCT DOWN

ROOF CURB

EXHAUST FAN, EF1

EXHAUST FAN, EF2

EXHAUST FAN, EF3

EXHAUST FAN, EF4

7' x 3' FLOOR PLATE FOR TIPPING BUCKET ACCESS

19' x 4' FLOOR PLATE FOR TIPPING BUCKET ACCESS (TYP. OF 2)

18' x 4' FLOOR PLATE FOR TIPPING BUCKET ACCESS (TYP. OF 3)

36" X 36" ALUM. ACCESS HATCH TYP. OF 5

36" X 60" ALUM. ACCESS HATCH TYP. OF 2

36" X 78" ALUM. ACCESS HATCH

54" x 36" ALUM. ACCESS HATCH (TYP. OF 4)

60" x 42" ALUM. ACCESS HATCH (TYP. OF 3)

48" x 48" ALUM. ACCESS HATCH (TYP. OF 5)

8" ø CAST IRON FLOOR BOX AND COVER FOR CLEANOUT ACCESS; NEENAH SERIES R-7506-D OR EQUAL. (TYP. OF 2)

42" INFLUENT DROP SEWER

36" SEWER

PROP. 24" SEWER INSIDE EX. 36" (SEE DETAIL ON SHEET C-8)

8' MH #116,106 RIM EL. 515.76 I.E. 504.64

FENCE

WETWELL BYPASS CHAMBER

INFLUENT GRINDER/ SCREEN CHAMBER

FLOOR PLATE FOR SLUICE GATE REMOVAL

FLOOR PLATE FOR FUTURE SLUICE GATE (SEE DETAIL ON S-18)

ALUM. HANDRAIL

WALL MOUNTED FENCE SEE DETAIL ON SHEET C-10

H001 H002 H003 H004 H005 H006 H007 H008 H009 H010 H011 H012 H013 H014 H015 H016 H017 H018 H019 H020 H021 H022 H023 H024

EL. 523.0 EL. 522.31 EL. 522.50 EL. 522.5 EL. 522.0 EL. 523.00

INTAKE HOOD SCHEDULE

SYMBOL	CFM	THROAT WIDTH (IN)	THROAT LENGTH (IN)	E.S.P. (IN.W.C.)	THROAT AREA (SQ FT)	WEIGHT (LBS)	REMARKS
IH1	18,000	58	70	0.1	28.2	235	1, 2, 3, 4
IH2	29,000	68	94	0.1	44.4	399	1, 2, 3, 4
IH3	29,000	68	94	0.1	44.4	399	1, 2, 3, 4
IH4	18,000	58	70	0.1	28.2	235	1, 2, 3, 4

REMARKS
1. PROVIDE 12 INCH CURB.
2. PROVIDE ALUMINUM CONSTRUCTION.
3. PROVIDE HI-PRO POLYESTER POWDER COAT.
4. PROVIDE 0.5 INCH ALUMINUM BIRDSCREEN.

FAN SCHEDULE

SYMBOL	CFM	E.S.P. (IN.W.C.)	RPM	MOTOR HP	POWER	DRIVE	WEIGHT (LBS)	INLET DBA (DB)	GREENHECK MODEL	REMARKS
EF1 - 4	58,000	0.25	713	20	460/60/3	BELT	1,770	88	TBI-CA-4L50	1, 2, 3, 4, 5, 7, 8, 12
EF5	700	0.25	734	1/4	115/60/1	BELT	141	58	SBE-1H20	6, 9, 10, 11, 12
SF1 - 3	46,000	0.5	550	10	460/60/3	BELT	1,118	84	RBCS-3H72-100	1, 2, 3, 4, 6, 8, 12

NOTES
1. PROVIDE NEMA 3R DISCONNECT SWITCH.
2. PROVIDE AMCA TYPE B SPARK RESISTANT CONSTRUCTION.
3. PROVIDE HI-PRO POLYESTER POWDER COAT.
4. PROVIDE MOTOR COVER.
5. PROVIDE OUTLET GUARD.
6. PROVIDE INLET GUARD.
7. PROVIDE EXPLOSION PROOF MOTOR.
8. PROVIDE 12 INCH ROOF CURB.
9. PROVIDE GRAVITY DAMPER.
10. PROVIDE FLUSH EXTERIOR WALL HOUSING
11. PROVIDE NEMA 1 DISCONNECT.
12. PROVIDE BIRD SCREEN.

ROOF PLAN
1/8" = 1'-0"
0 1 2 4 8
FEET

Professional Engineer's Seal

RECORD DWGS:		
CHECKED BY:	DES	3/28/14
DESIGNED BY:	DND	3/28/14
DRAWN BY:	DND	3/28/14
FILE NAME: D-101.dwg		
PLOT DATE: 3/28/2014		

PLANS PREPARED AND SUBMITTED BY:

MSD
Louisville and Jefferson County Metropolitan Sewer District
700 W. Liberty Street - Louisville, Kentucky 40203-1913
502-587-0603 - WWW.MSDLOUKY.ORG

NO.	REVISION	DATE

SHEET TITLE: BASIN ROOF PLAN

PROJECT TITLE: FAIRMOUNT ROAD PUMP STATION & SANITARY SEWER OVERFLOW STORAGE BASIN

BUDGET I.D.	H09167
CONTRACT NO.	15657
RECORD NO.	15657

DRAWING NO: D-1

26 OF 89

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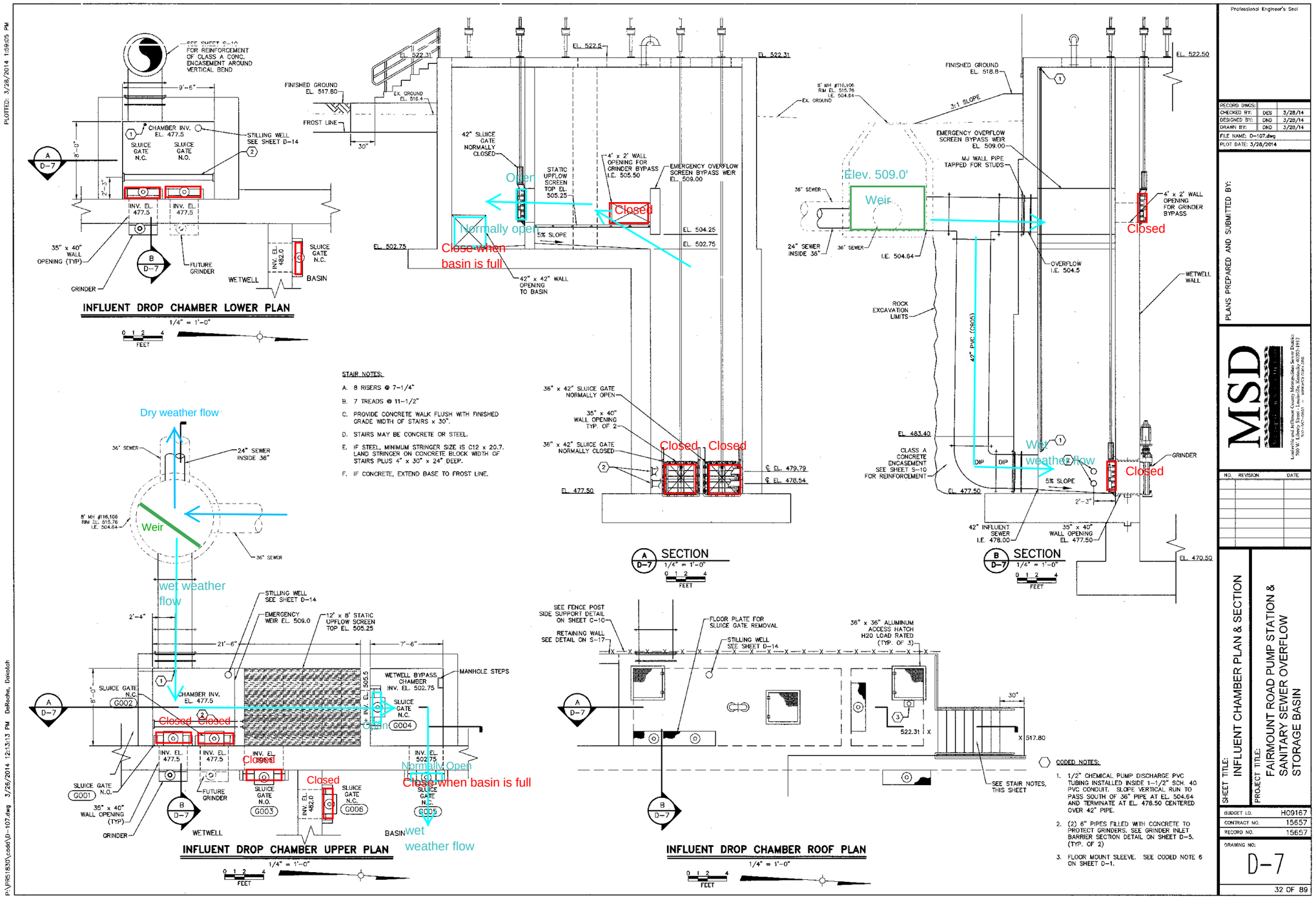
APPENDIX D - Gate Position and Flow Diagram



APPENDIX E
Basin Dewatering Pump Test

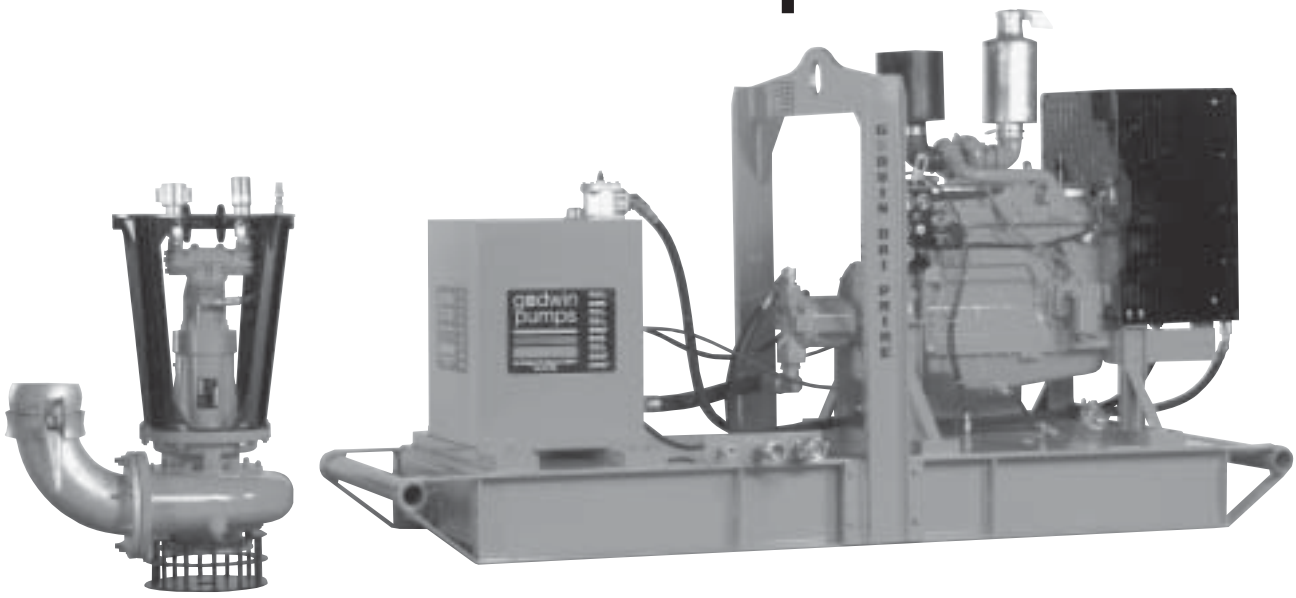
Prior to putting the basin into operation, a successful basin dewatering pump test must be completed. To perform a test on the pumps, the basin shall be filled with two feet of clean water and pumped down until dry. Groundwater shall be considered acceptable for use in the tests. The pump shall be able to run continuously and dewater the basin into manhole #116,106 without any leaks from the discharge line or the discharge manhole. The basin pump discharge line shall be fully supported on the interior basin wall using pipe supports. The discharge line shall also be anchored to the west exterior wall of the basin along its path to manhole #116,106. The Contractor shall submit proposed pumps and discharge line anchoring methods for approval by MSD.

This test was successfully completed on December 18, 2015.

APPENDIX F
Equipment Datasheets

Datasheets will be added to this document for the pumps and auto-dialers that will be rented for temporary use in the facility. Shop drawings for the equipment will be submitted to MSD for review and approval.

Heidra® 200 Hydraulic Submersible Pumps



The Heidra 200 hydraulic submersible pump is a self-contained, diesel powered 8" (200mm) pump available for heavy duty municipal and industrial dewatering and solids handling pumping applications. The Heidra 200 offers flow rates up to 3100 gpm (703.7 M^3/hr.) with up to 180' (54.9M) of total dynamic head and solids handling capability of 3-1/8" (79mm) in diameter. The unit consists of a sturdy cast iron submersible pumpend and hydraulic power pack mounted on a rugged steel skid. A variable displacement hydraulic piston pump on the power pack delivers hydraulic fluid to a fixed displacement piston motor that drives the pumpend's shaft, bearings, and cast steel impeller. Simple engine throttle adjustments allow changes to pump flow and head performance.

Features

- Rugged construction of cast iron pumpend with cast chromium steel impeller.
- Flow rates to 3100 gpm (703.7 M^3/hr.) and heads to 180 feet (54.9M).
- Unique double mechanical seal immersed in isolated oil bath for unlimited dry running capability.
- Integral 175 gallon (662 liter) fuel tank capacity provides over 24 hours of continuous operation.
- Safety shutdown system incorporated into engine controls prevents equipment damage from engine fault or failure.
- Impeller designed for general pumping with solids up to 3-1/8" (79mm) in diameter.
- "Quick-Disconnect" hydraulic fittings simplify setup, installation, and shutdown.
- Standard John Deere 6068T or Caterpillar 3116TA engine. Also available with other diesel engines or electric drive motor.

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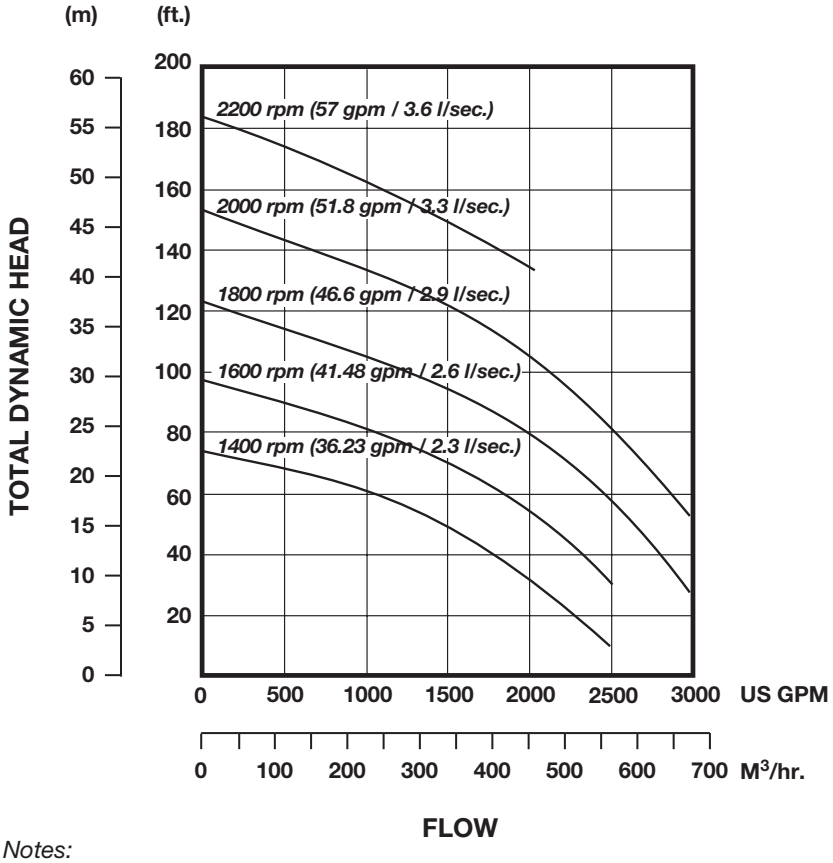
Heidra® 200 Performance Curve



Notes:

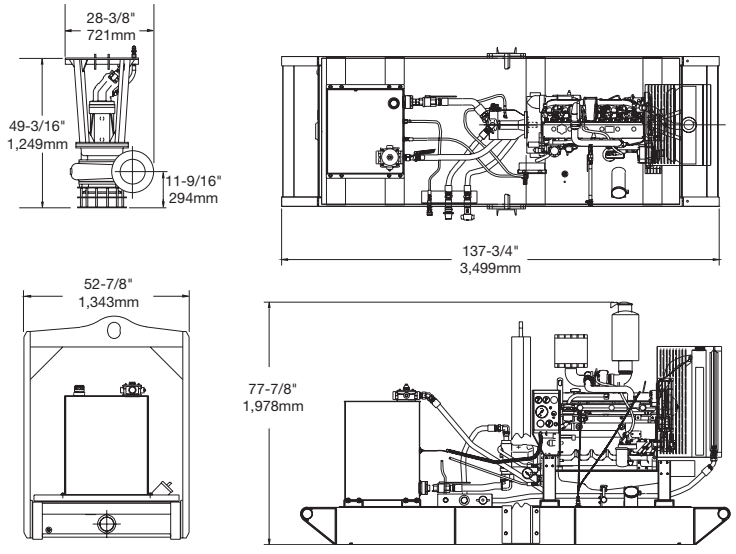
1. Impeller diameter: 11-3/8" (290 mm)
2. Performance curves based on diesel engine speed
3. Requires hydraulic system pressure to 4000 psi (276 BAR)

Performance data based on water testing at sea level and 68° F. Larger diameter pipes may be required for maximum flows.

Dimensions

Heidra 200 — shown with John Deere 6068T, Skid Base
Pump Weight: 780 lbs. (354 kg.)

Complete pumpset is supplied with one each of 1-1/4" X 50' (32mm x 15.25M) high pressure feed and return hoses and one 1/2" X 50' (13mm x 15.25M) low pressure case drain hose.



Specifications

Submersible Pump:

Hydraulic Motor: Fixed Piston
Drive Pressure: Up to 4000 psi (276 BAR)
Hydraulic Flow: Up to 57 gpm (3.6 l/sec.)
Hydraulic Line Length: 100 feet / 30.5M (longer runs with larger hose)
Solids Handling: Up to 3-1/8" (79mm) diameter
Pump Speed: Up to 2200 rpm
Impeller Diameter: 11-3/8" (290mm)
Discharge Flange: 8" (200mm) ASA 150
Hydraulic Connections: 1-1/4" (32mm) Quick Disconnect
Strainer: Nylon coated with 2-3/4" (70mm) apertures

Power Pack:

John Deere 6068T Engine
Horsepower: 147 hp (110 kw) @ 2200 rpm
Fuel Consumption: 7.2 gph (27 lph)
Caterpillar 3116TA Engine
Horsepower: 143 hp (107 kw) @ 2200 rpm
Fuel Consumption: 7.6 gph (29 lph)
Fuel Tank Capacity: 175 gallons (662 liters)
Output
Hydraulic Flow: 57 gpm (3.7 l/sec.)
Pressure: 4000 psi (276 BAR)
Control: From engine speed and pressure compensated
Hydraulic System: Two pipe, open circuit
Reservoir: 80 gallon (303 liters)
Control Valve: Pressure compensated on/off valve
Connections: 1-1/4" (32mm) Quick Disconnect feed and return
1/2" (13mm) Quick Disconnect case drain
Supply Line: 125 micron, pleated gauze
Return Line: 20 micron

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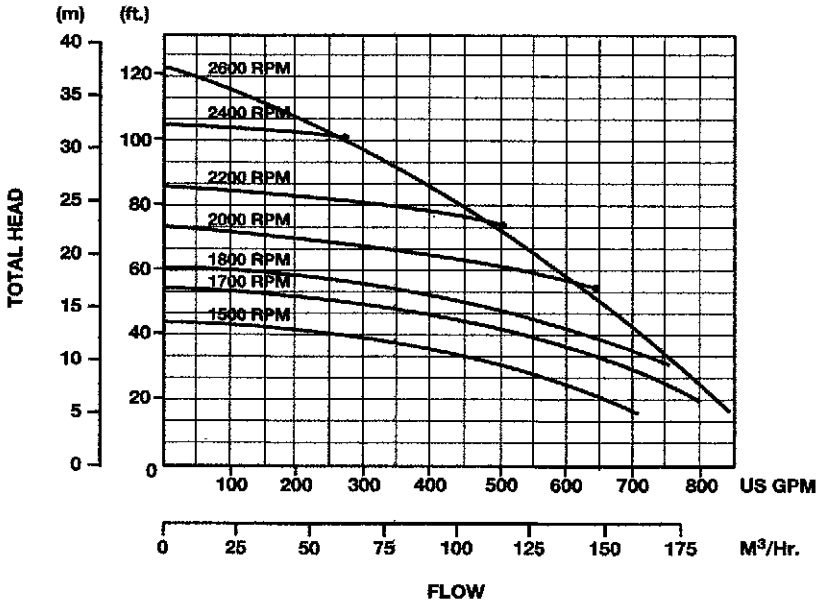
GPASL.050.903

Heidra 100 Performance Curve



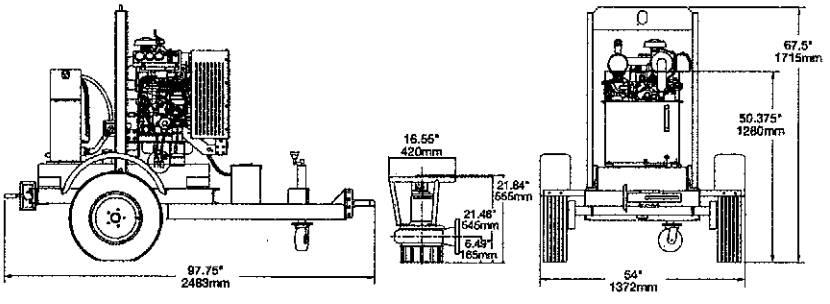
Performance data listed in table and curves based on water tests at sea level and 68° F (20° C). Larger diameter pipes may be required for maximum flows.

Dimensions

Weights (approx.)

Pump

Aluminum	90 lbs. (41 kg.)
Cast iron	141 lbs. (64 kg.)
Power Pack	1,230 lbs. (558 kg.)



Materials

Pump Casing and Suction Cover:
Aluminum or Cast Iron
Front & Rear Wearplates:
Cast Iron
Pump Shaft:
Mild Steel
Impeller:
Cast Steel
Bearing & Seal Housing:
Cast Iron
Mechanical Seal:
Double mechanical seal in oil bath
Inboard: Silicone Carbide
Outboard: Carbon on Ceramic
Lifting Bracket:
Fabricated Mild Steel tube & plate

Specifications

Submersible Pump:

Hydraulic Motor: Gear Type
Drive Pressures: 3350 psi (231 BAR)
Flow: 8.8 gpm (.56 l/sec.)
Pump Speed: Up to 2200 RPM
Impeller Diameter: 8.4" (213mm)
Solids Handling: 2" (50mm), max.
Discharge: Flanged 4" (100mm) ASA 150
Hydraulic Discharge Connections:
3/4" (19mm) Quick Disconnect
feed and return
1/2" (13mm) Quick Disconnect case drain
Strainer: M.S. Fabrication nylon coated with 1.75" (44mm) square apertures

Power Pack:

Engine: Yanmar 3TNV88, 23 hp (17kw) @ 2000 RPM
Hydraulic System: Two pipe open circuit
Hydraulic Reservoir: 10 gallon (37.8 liter) capacity
Control: Through variable engine speed
Hydraulic Pump: Gear type
Output Flow: 8.8 gpm (.56 l/sec.)
Output pressure: Up to 3350 psi (231 BAR)
Suction Filter: 125 micron pleated gauze
Return Line Filter: 20 micron
Hydraulic Pipe Connections: 3/4" (19mm) API

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