VARIANCE REQUEST
Iowa Department of Natural Resources

1.	Date:	8/4/09	14.	Decision: approved
2.	Reviewer/Engr.:	Larry Bryant		Date: ~~8/3/09~~ 8/4/09
3.	Date Received:	7/28/09		
4.	Facility Name:	Elkader, City of STP		
5.	Facility Number:	6-22-23-0-01		
6.	County Number:	22 (Clayton)	15.	Appealed:
7.	Program Area:	CP (Wastewater Construction)		Date:
8.	Facility Type:	C02 (Pumping)		
9.	Subject Area:	344 (Pump Clogging Protection)		
10.	Rule Reference:	567 IAC 64.2(9)a		
11.	Design Std. Ref.:	13.4.2 (Protection Against Clogging)		
12.	Consulting Engr.:	MSA Professional Services		
13.	Variance Rule:	567 IAC 64.2(9)c		

16. Description of Variance Request:
The City of Elkader is updating three remote existing pumping stations to provide for increased pumping capacity, remote alarm notification, onsite emergency standby power, emergency pumping capability and flood protection. At one of the existing stations (West Lift Station), the proposed configuration will raise the existing wet well structure by approximately 6-feet and add a new valve vault. The proposed pump and piping orientation using the existing wet well structure and influent line precludes placement of a removable trash basket assembly over the existing influent line. The existing lift station firm capacity is estimated to be 80 gpm and the current arrangement does not have a dedicated emergency power source and the tops of the existing lift station structures are located below the estimated 100-year flood elevation. The station is being designed with firm capacity for an ultimate peak hour wet weather flow of 220 gpm (800 population equivalent) and will have an onsite emergency generator, portable pump connection and remote alarm notification. The site is constrained between the Turkey River to the east and a state highway to the west. A sheet piling retaining wall around the station in addition to raising the site and structure elevations are proposed for flood protection. See the attached plans.

17. Applicant's/Consulting Engineer's Justification:
"The reason the variance is being requested is the proposed configuration of the lift station prevents the installation of the trash basket. Furthermore the lift station has operated without a trash basket for the last 20 years"..."and the operator reports that there has not been a problem with clogging of pumps. The proposed pumps to be installed can pass a 3-inch sphere, which should alleviate any plugging concerns."

18. Department's Justification:

Recommend variance approval (conditional):

Pump passage of a 3-inch sphere is required for all pumping stations except grinder pumps and does not justify a variance for omission of a trash basket. Successful operation of the existing lift station without clogging for a long time period (20-years) without a trash basket is significant (removal of an existing functional trash basket that had been in use would pose a concern) but does not in and of itself guarantee that future clogging without a trash basket will not occur.

Retrofit of the existing structure and the constraints associated with the existing site do appear to pose a unique situation that makes installation of a screening method difficult although not impossible if the site layout were altered significantly or a new separate upstream screening manhole were installed. 10-States Standards and currently proposed revisions to the Iowa design standards (not yet final) recommend consideration of screening for all pump stations but only require screening for pump stations handling wastewater from 30-inch or larger diameter sewers. The influent sewer to this pumping station is 8-inches in diameter. Elkader's four other remote lift stations as well as the main plant lift station will have means of upstream screening protection. The remote monitoring system for the West Lift Station includes conditions for pump failure, high pump temperature and high wet well level conditions. The operator interface is also specified to maintain a history of the 100 most recent alarm events. Each of the 2 pumps installed will be capable of handling the projected PHWW design flow.

Approval is recommended with the following condition:

> If in the future any bypassing should occur at the West Lift Station that is attributable to clogging of the pumps, the City shall take any necessary steps required to install screening protection for this lift station.

19. Precedents Used:
The following variance precedents requesting omission of a trash basket were found. These exclude prior variances granted for specialized chopper or grinder pumps:
-City of Asbury (approved 1/18/08)
-City of Boyden (denied 3/6/90)
-Diamondhead Sanitary District (approved 2/26/08)
-City of Fort Dodge (approved 12/9/02)
-City of Halbur (denied 3/8/99)
-City of Nashua (approved 10/1/07)
-City of New London (denied 8/31/99)
City of Promise City (denied 10/30/08)

20. Staff Reviewer:		Date: 8/4/09
21. Supervisor:	(for Satya Chennupati)	Date: 8-4-09
22. Authorized by:		Date: 8/4/2009

Fields of Opportunities

STATE OF IOWA

CHESTER J. CULVER, GOVERNOR
PATTY JUDGE, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
RICHARD A. LEOPOLD, DIRECTOR

August 5, 2009

Jennifer Cowsert, City Administrator
City of Elkader
207 North Main Street
P.O. Box 427
Elkader, IA 52043

RE: Variance Request - Iowa Wastewater Facilities Design Standards Section 13.4.2

Dear Ms. Cowsert:

This letter is in response to MSA Professional Services' request on behalf of the City for a variance from Section 13.4.2 of the Iowa Wastewater Facilities Design Standards. Section 13.4.2 of the Iowa Wastewater Facilities Design Standards states that "All pumping stations handling raw wastewater shall have provisions for screening to protect the pumps from clogging or damage".

This variance is approved for the West Lift Station only. We agree that retrofit of the existing lift station at this site presents unique circumstances that make installation of a conventional trash basket arrangement difficult. Other factors included in our determination supporting approval of this variance were proposed improvements including the addition of remote alarm notification and affirmation that that the existing lift station has operated for a significant time period (20 years) without any screening protection or incidences of pump clogging. However, since the prior successful operation of the existing lift station without screening protection does not necessarily guarantee that future pump clogging without a trash basket will not occur, the following condition will be included in the construction permit issued for this project:

- If in the future any bypassing should occur at the West Lift Station that is attributable to clogging of the pumps, the City shall take any necessary steps required to install screening protection for this lift station.

Please contact me at (515) 281-6759 or larry.bryant@dnr.iowa.gov if you have any questions.

502 EAST 9th STREET / DES MOINES, IOWA 50319-0034
PHONE 515-281-5918 FAX 515-281-8895 www.iowadnr.gov

Sincerely,

Larry Bryant, P.E.
IDNR Wastewater Engineering Section

cc: Jason Miller, P.E./MSA/Ankeny, IA
Clint Wienen, P.E./MSA/Galena, IL

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561 IAC 10.9
(1) ✓
(2) ✓
(3) ✓
(4) ✓
(5) NA
(6) Not necessary, if petitioner does not wish to cite precedent as justification
(7) NA
(8) NA
(9) Engr., City, operator ✓
(10) NA

July 28, 2009

Iowa Department of Natural Resources – Wastewater Section
Attn: Mr. Larry Bryant
502 East 9th Street
Des Moines, Iowa 50319-0034

Re: Petition for Trash Basket Variance Request
MSA Project No: 4940713

Dear Mr. Bryant:

We are requesting a variance request on behalf of the City of Elkader from Iowa Wastewater Facilities Design Standards, Chapter 13, Wastewater Pumping Stations and Force Mains, Paragraph 13.4.2. Paragraph 13.4.2 states "All pumping stations handling raw wastewater shall have provisions for screening to protect the pumps from clogging or damage. Trash baskets constructed of corrosion resistant material and easily removable for cleaning may be used for small pumping stations". We are requesting this variance for the West Lift Station which is a part of the Distal Lift Station Project in the City of Elkader. } 561 IAC 10.9(2) ✓

The reason the variance is being requested is the proposed configuration of the lift station prevents the installation of a trash basket. Furthermore the lift station has operated without a trash basket for the last 20 years without a trash basket installed and the operator reports that there has not been a problem with clogging of pumps. The proposed pumps to be installed can pass a 3-inch sphere, which should alleviate any plugging concerns. 10.9(4) ✓

Contact information for the Owner is as follows:

City of Elkader
207 N. Main Street
Elkader, IA 52043
Telephone No.: 563-245-2098 } 561 IAC 10.9(1) ✓

variance request is to omit trash basket 10.9(3) ✓

Contact information for the Operator is as follows:

People Service
Kim Werger
Cell No. 319-830-1201

Name
July 28, 2009

If you have any questions or need further documentation, feel free to contact me at 815-777-9333.

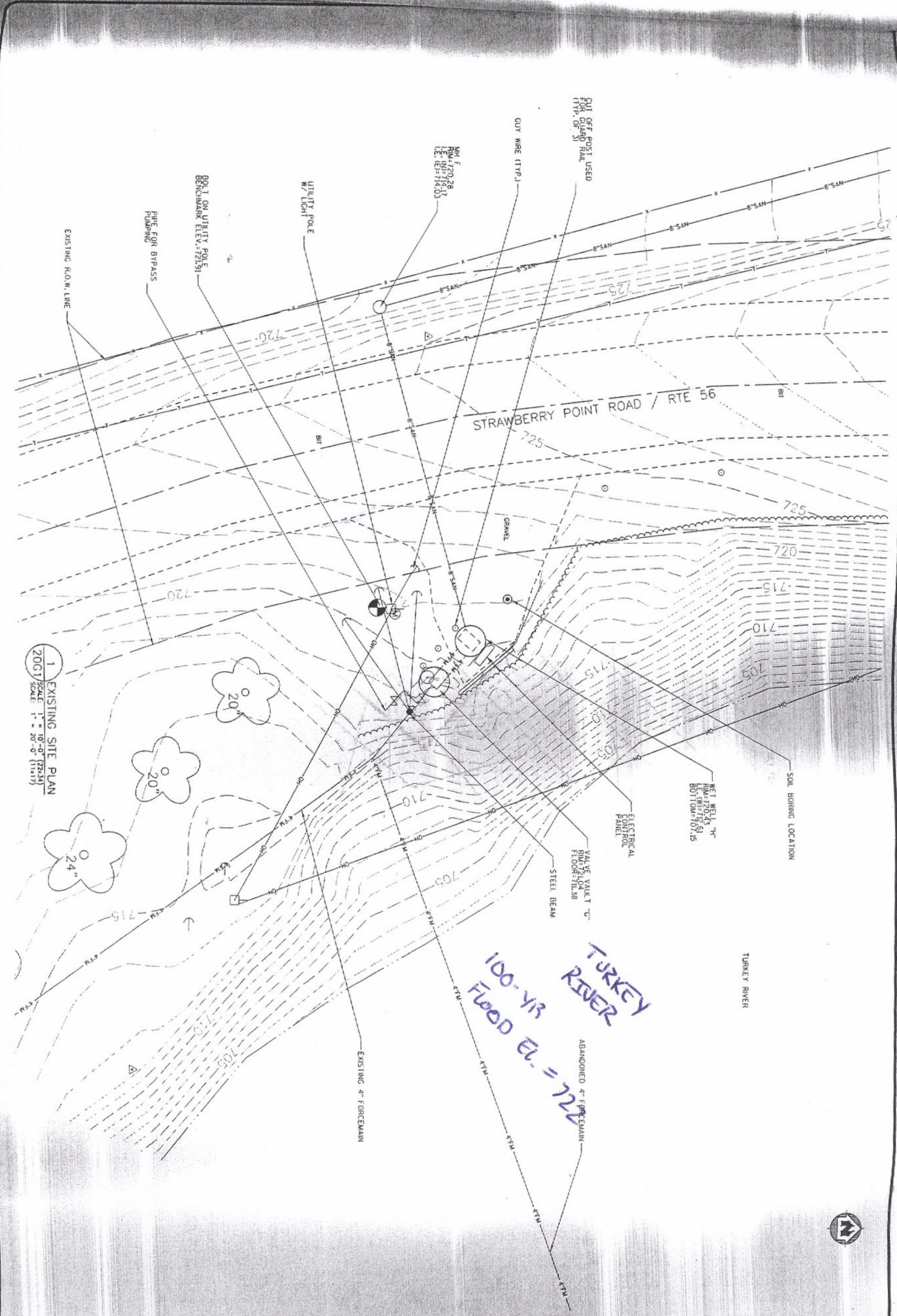
Sincerely,

MSA Professional Services, Inc.

Clint Wienen

Clint Wienen
Project Engineer

Cc: File
City of Elkader
Jason Miller



WEST L.S. EXISTING SITE PLAN	PROJECT NO.: 4940713	F.B.: 2007-08	NO. / DATE / REVISION / BY	FILE NO. 4940713
DISTAL PUMP STATIONS CITY OF ELKADER CLAYTON COUNTY, IOWA	PLOT DATE: OCTOBER 2008	DRAWN BY: BS, CG		SHEET 20G1
	SCALE: AS SHOWN	CHECKED BY: CW		

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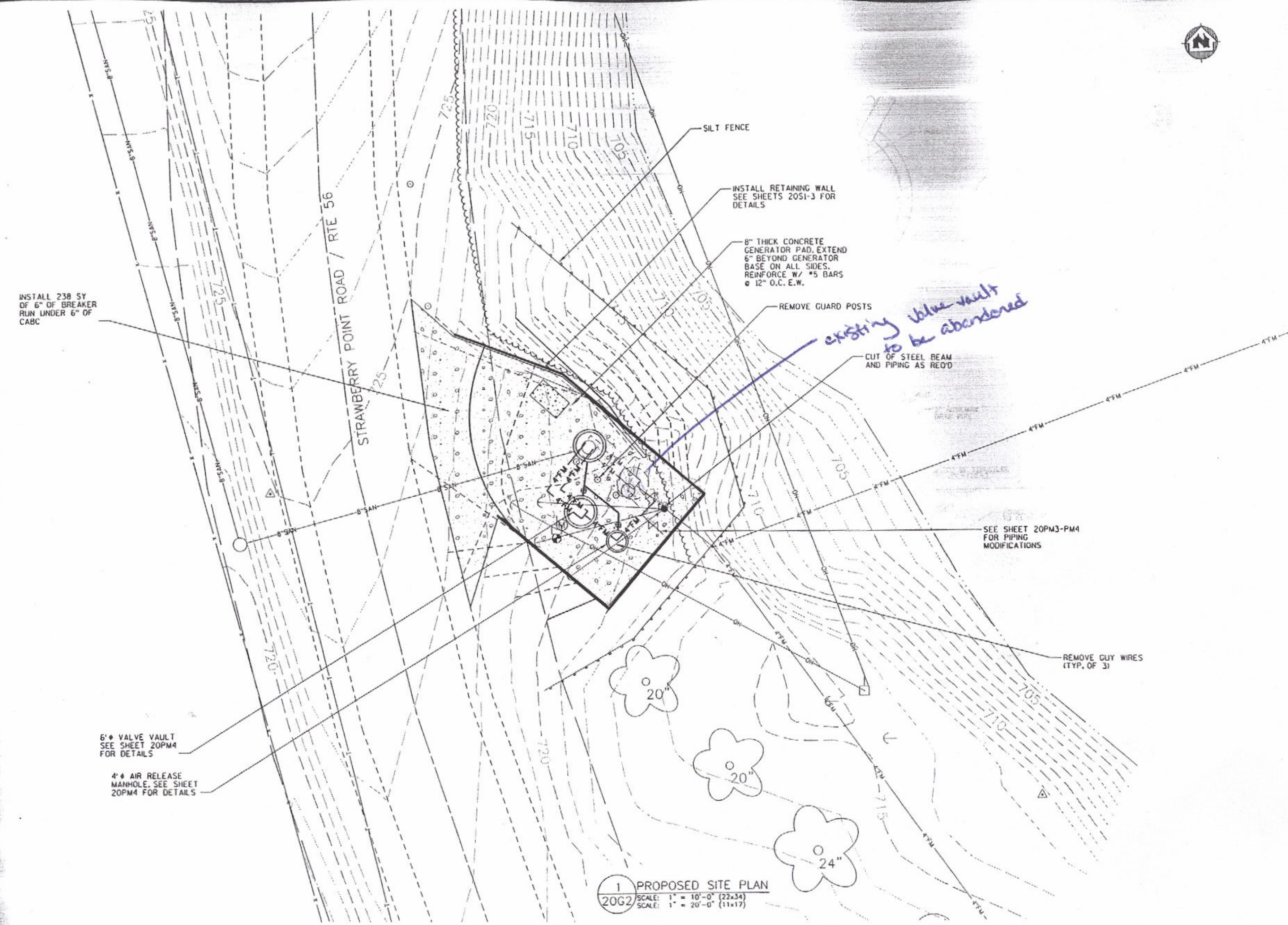
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
9563 US Route 20 West, Suite 104 Galena, IL 61036
815-777-9033 1-888-672-0003 Fax: 815-777-3185
Web Address: www.msa-ps.com

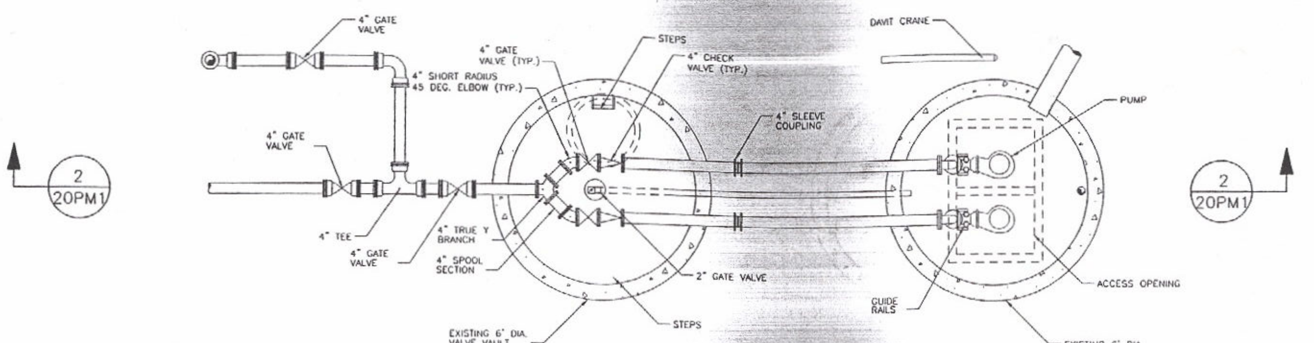


WEST L.S. PROPOSED SITE PLAN	PROJECT NO.: 4940713	F.B.: 2007-08	FILE NO. 4940713
DISTAL PUMP STATIONS CITY OF ELKADER CLAYTON COUNTY, IOWA	PLOT DATE: OCTOBER 2008	DRAWN BY: BS, GG	SHEET 20G2
	SCALE: AS SHOWN	CHECKED BY: CW	

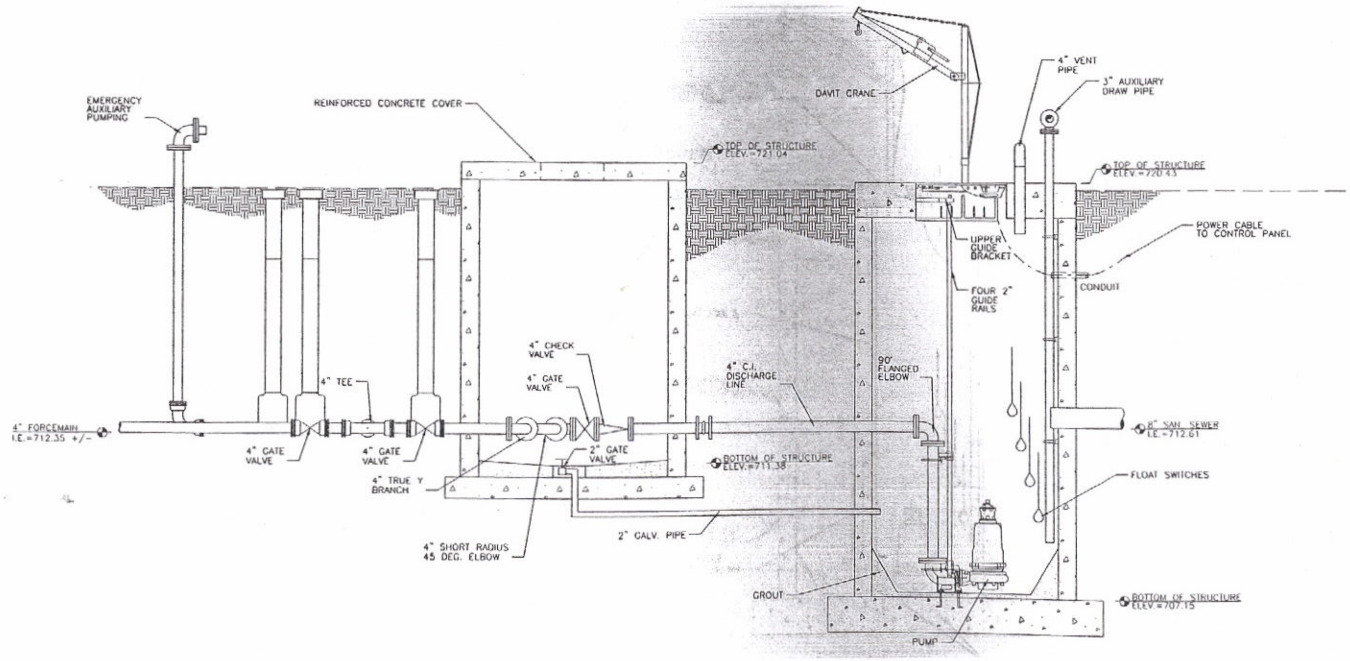
NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
9567 US Route 20 West, Suite 104 Galena, IL 61036
815-777-9333 1-888-672-0000 Fax: 815-777-3155
Web Address: www.msa-ps.com



1 PLAN VIEW
20PM1 N.T.S.



2 SECTIONAL VIEW
20PM1 N.T.S.

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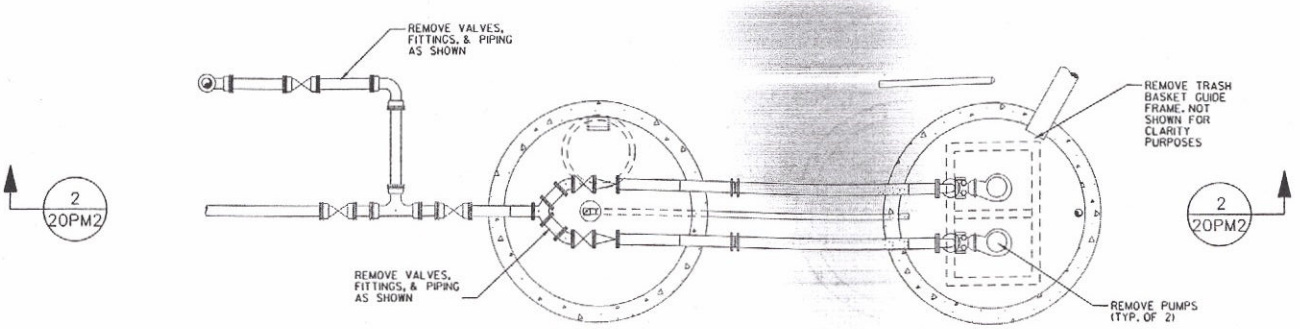
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
5567 US Route 20 West, Suite 164 Galena, IL 61036
815-777-9333 1-888-672-0000 Fax: 815-777-3155
Web Address: www.msa-ps.com
© MSA PROFESSIONAL SERVICES

NO.	DATE	REVISION	BY

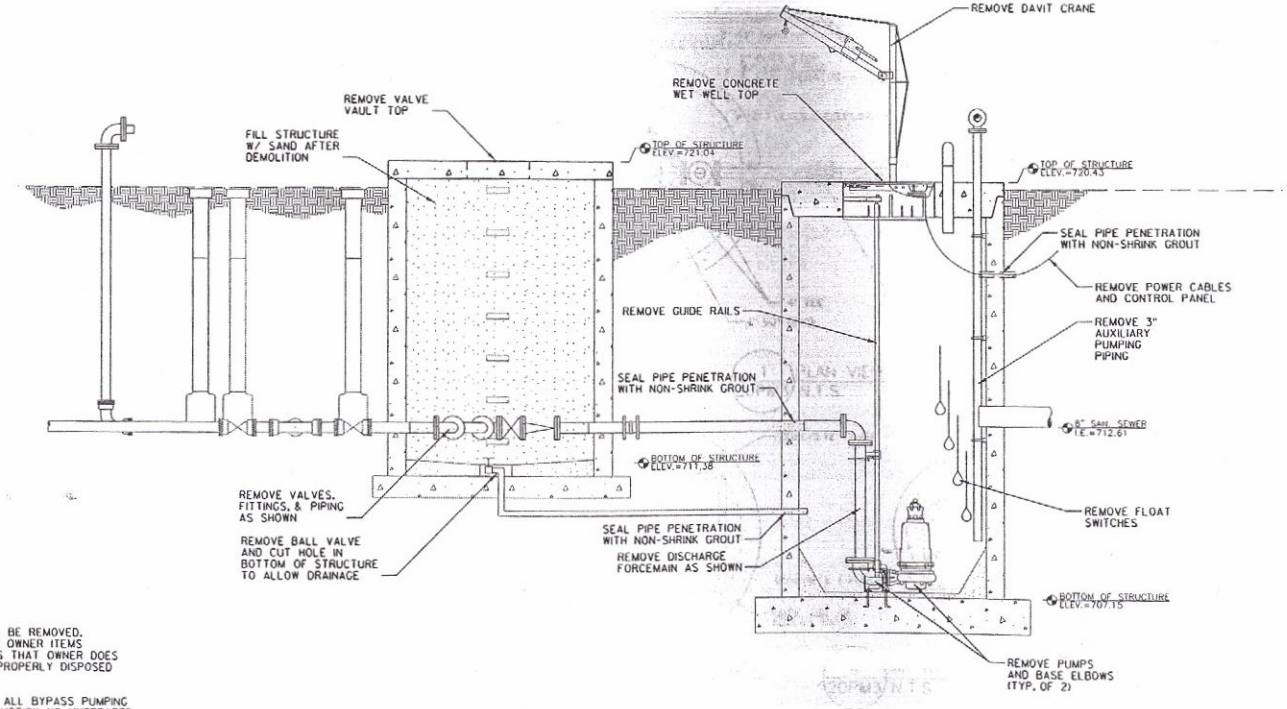
EXISTING WEST LIFT STATION
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO.: 4940713
PLOT DATE: OCTOBER 2008
SCALE: AS SHOWN
F.B.: 2007-08
DRAWN BY: BS, GC
CHECKED BY: CW

FILE NO. 4940713
SHEET 20PM1



1 / 20PM2 PLAN VIEW N.T.S.



2 / 20PM2 SECTIONAL VIEW N.T.S.

NOTES:

1. ALL ITEMS THAT ARE BOLD SHALL BE REMOVED. CONTRACTOR SHALL CONFIRM WITH OWNER ITEMS THAT ARE TO BE SALVAGED. ITEMS THAT OWNER DOES NOT WANT TO RETAIN SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.
2. CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING NECESSARY TO COMPLETE CONSTRUCTION. NO UNTREATED WASTEWATER SHALL BE DISCHARGED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINES OCCURED AS A RESULT OF NEGLIGENT BYPASS PUMPING OPERATIONS.

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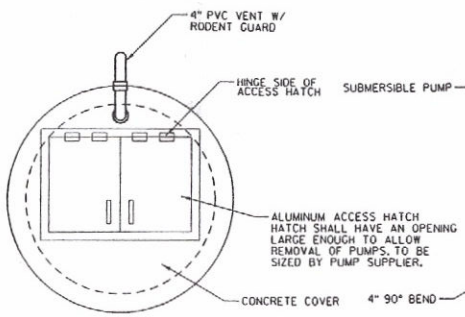
Web Address: www.msa-ps.com

WEST L. S. DEMOLITION PLAN
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713 | AUS DATE: OCTOBER 2008 | SCALE: AS SHOWN | DRAWN BY: BS, GG | CHECKED BY: CW | DATE: 2007-08

FILE NO. 4940713

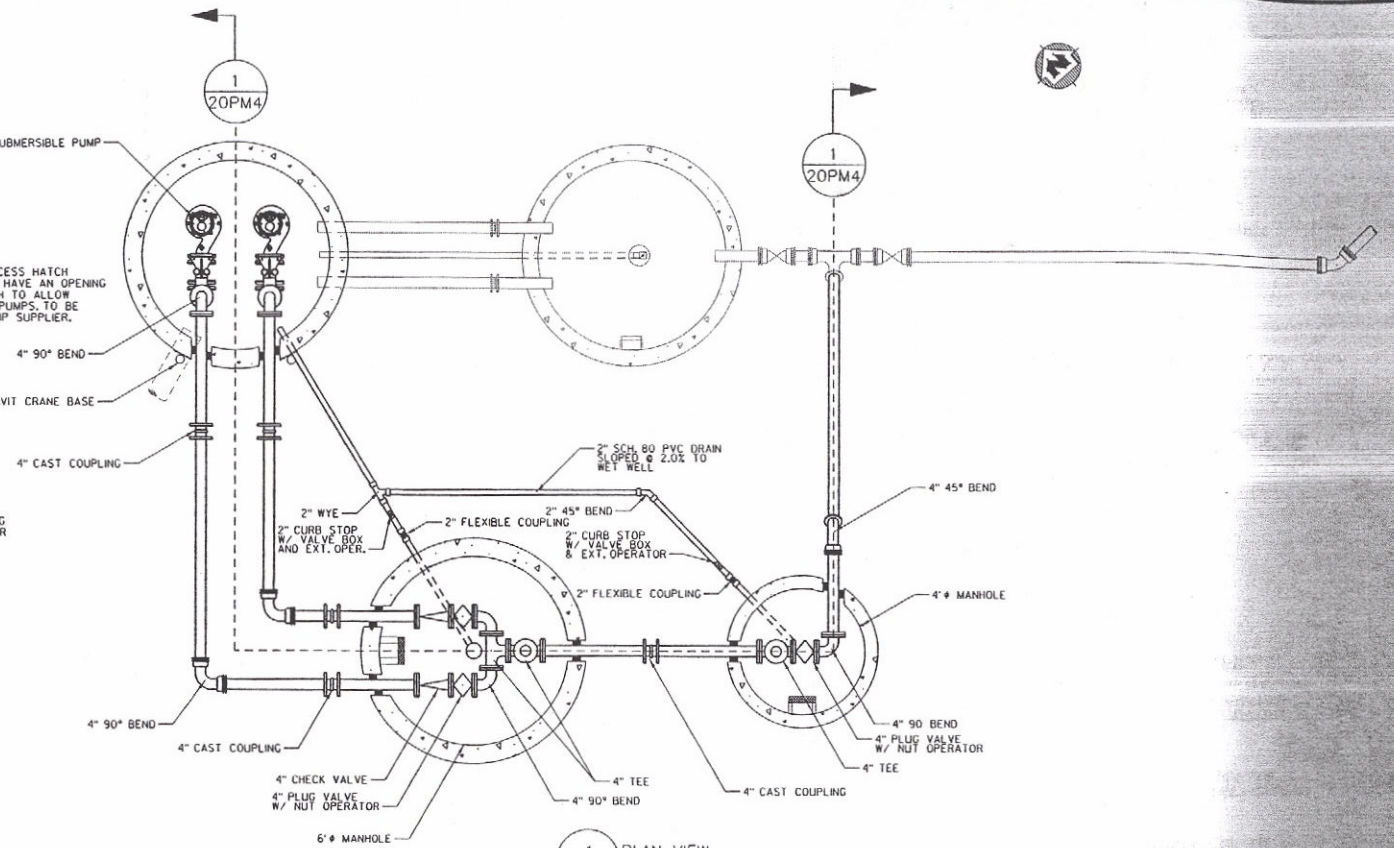
SHEET 20PM2



2 / 20PM3 WET WELL COVER N.T.S.

NOTES:

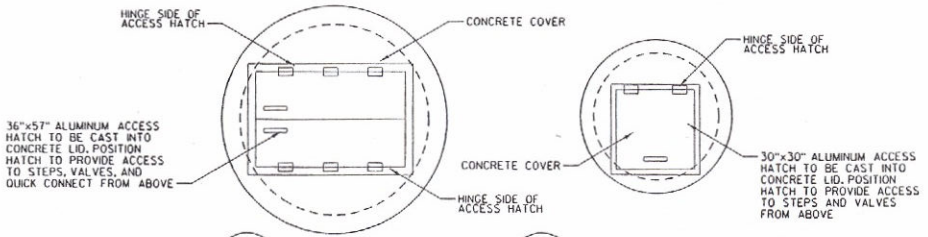
1. ACCESS HATCH SHALL BE CAPABLE OF SUPPORTING 300 PSF.
2. ALL HARDWARE AND FASTENERS TO BE STAINLESS STEEL. EQUIPMENT SUPPLIER IS SOLELY RESPONSIBLE FOR COORDINATING AND PROVIDING HATCH DETAILS AND DIMENSIONS W/ CONTRACTOR PRIOR TO DELIVERY.



1 / 20PM3 PLAN VIEW N.T.S.

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING NECESSARY TO COMPLETE CONSTRUCTION. NO UNTREATED WASTEWATER SHALL BE DISCHARGED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINES OCCURED AS A RESULT OF NEGLIGENT BYPASS PUMPING OPERATIONS.
2. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT SECTIONS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROCEDURES.
3. PROVIDE GUIDE RAIL EQUIPMENT FOR REMOVAL AND REPLACEMENT OF PUMPS.
4. PIPING WITHIN WET WELL SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATION 33 32 13.10.
5. PIPING, VALVES, FITTINGS, ETC. WITHIN VALVE VAULT AND AIR RELEASE MANHOLE SHALL BE PAINTED WITH EPOXY PAINT IN ACCORDANCE WITH SPECIFICATION 09 96 00.



3 / 20PM3 VALVE VAULT COVER N.T.S.

4 / 20PM3 AIR RELEASE M.H. COVER N.T.S.

NOTES:

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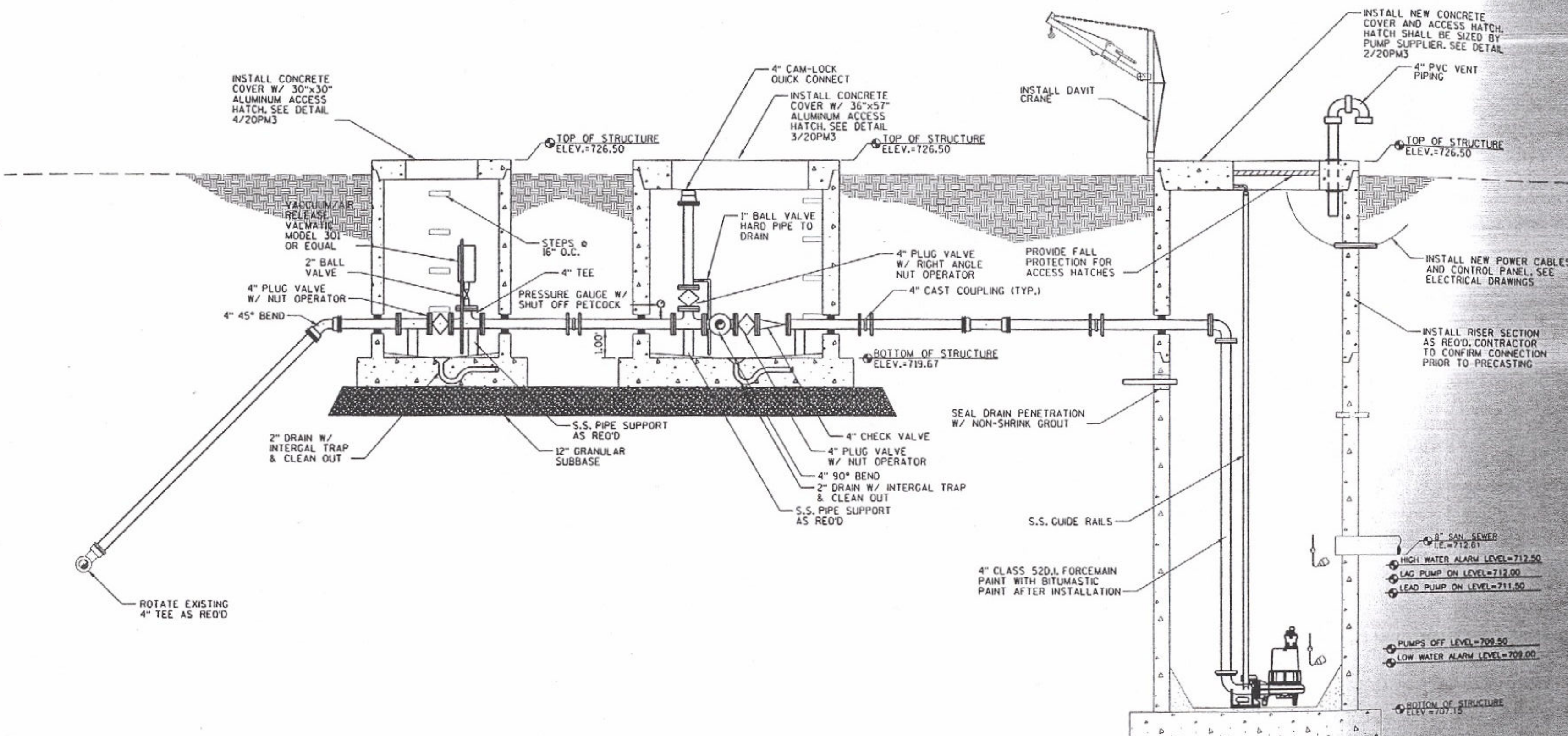
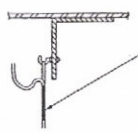
LIFT STATION PLAN VIEW
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713
FILE: 2507-06
SCALE: AS SHOWN
DRAWN BY: BES, GC
CHECKED BY: CW

FILE NO. 4940713
SHEET 20PM3



1 SECTIONAL VIEW
20PM4 N.T.S.



2 CABLE SUPPORT DETAIL
20PM4 N.T.S.

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING NECESSARY TO COMPLETE CONSTRUCTION. NO UNTREATED WASTEWATER SHALL BE DISCHARGED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINES OCCURED AS A RESULT OF NEGLIGENT BYPASS PUMPING OPERATIONS.
2. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT SECTIONS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROCEDURES.
3. PROVIDE GUIDE RAIL EQUIPMENT FOR REMOVAL AND REPLACEMENT OF PUMPS.
4. PIPING WITHIN WET WELL SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATION 33 32 13.10.
5. PIPING, VALVES, FITTINGS, ETC. WITHIN VALVE VAULT AND AIR RELEASE MANHOLE SHALL BE PAINTED WITH EPOXY PAINT IN ACCORDANCE WITH SPECIFICATION 09 96 00.

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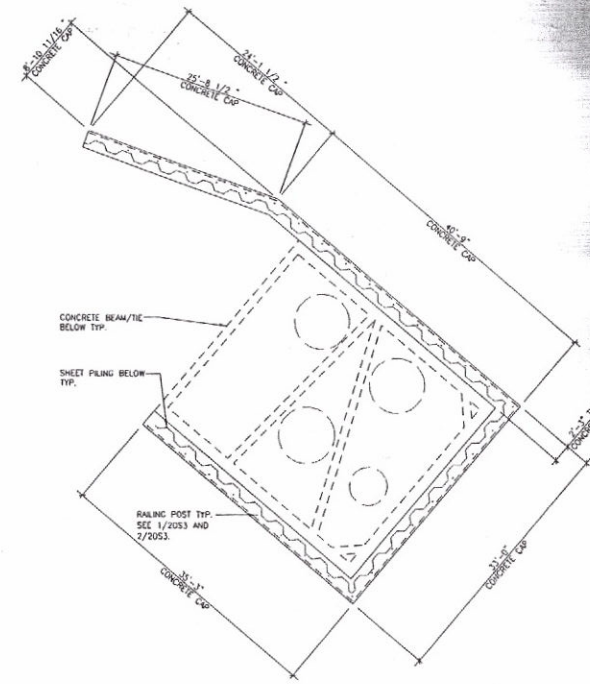
LIFT STATION SECTIONAL VIEW
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713
SCALE AS SHOWN
2007-05
DRAWN BY: BS, GG
CHECKED BY: CW

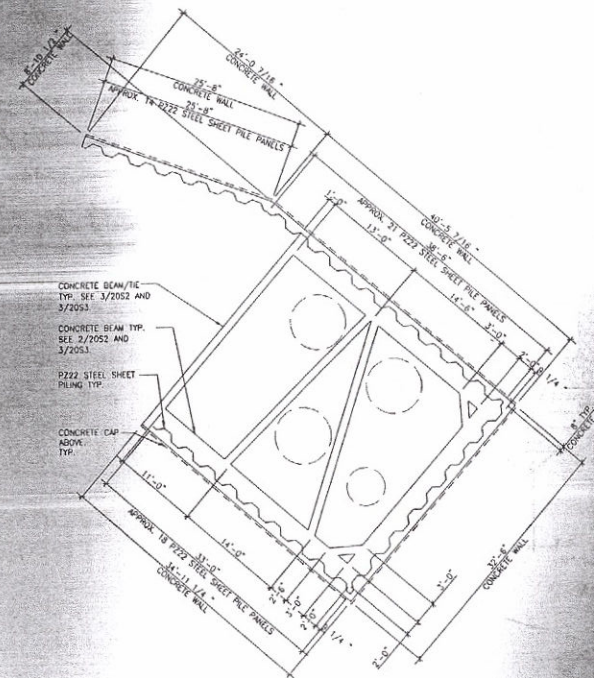
4940713
20PM4



A SHEET PILING RETAINING WALL - CAP PLAN

SCALE: 1/8"=1'-0" (22x34)
SCALE: 1/16"=1'-0" (11x17)

NOTES:
1. SEE SHEET 20S2 FOR WALL ELEVATIONS, TYPICAL WALL SECTION, AND PHOTOGRAPHS.
2. SEE SHEET 20S3 FOR TYPICAL DETAILS.



B SHEET PILING RETAINING WALL - BEAM PLAN

SCALE: 1/8"=1'-0" (22x34)
SCALE: 1/16"=1'-0" (11x17)

NOTES:
1. SEE SHEET 20S2 FOR WALL ELEVATIONS, TYPICAL WALL SECTION, AND PHOTOGRAPHS.
2. SEE SHEET 20S3 FOR TYPICAL DETAILS.
3. CONTRACTOR SHALL DETERMINE MOST EFFECTIVE ARRANGEMENT AND QUANTITY OF SHEET PILE PANELS TO ACHIEVE GEOMETRY DEPICTED ON THE DRAWINGS.

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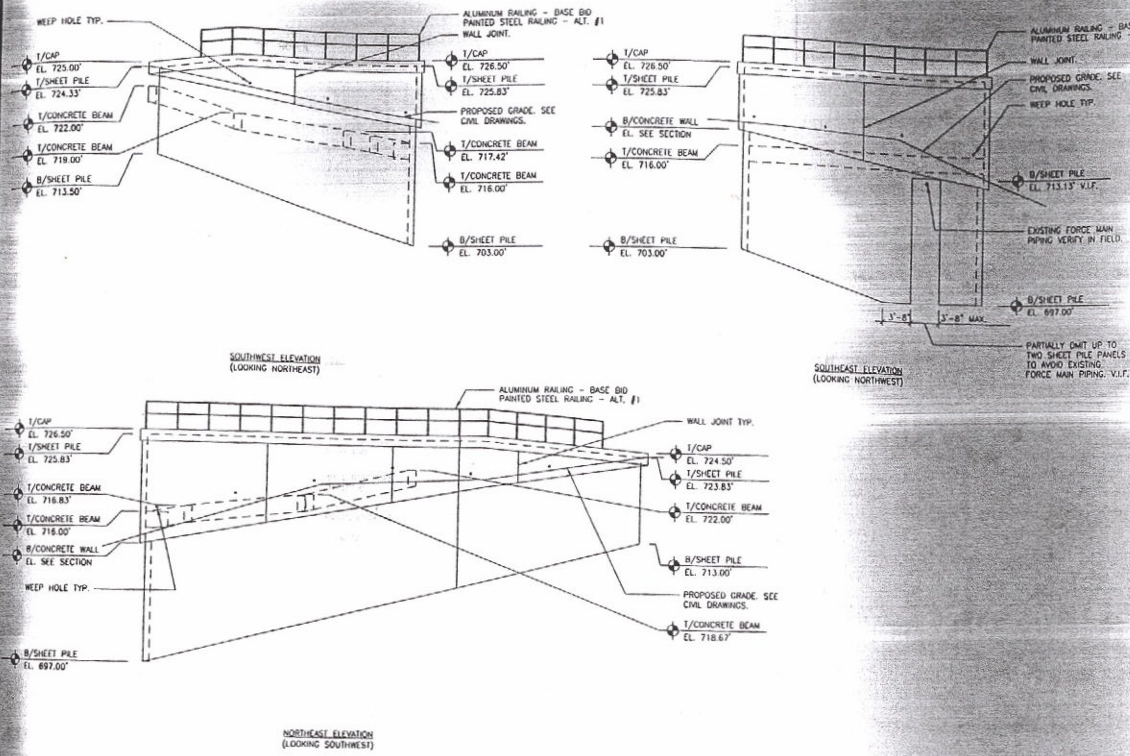
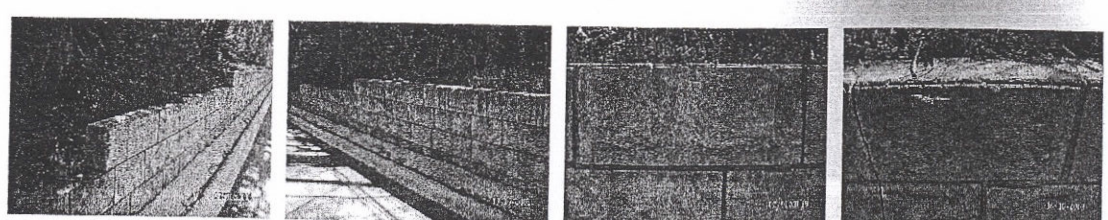
WEST L.S. SHEET PILING PLAN
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713
SCALE: AS SHOWN
DRAWN BY: BS, DC
CHECKED BY: CW
FILE: 2007-08

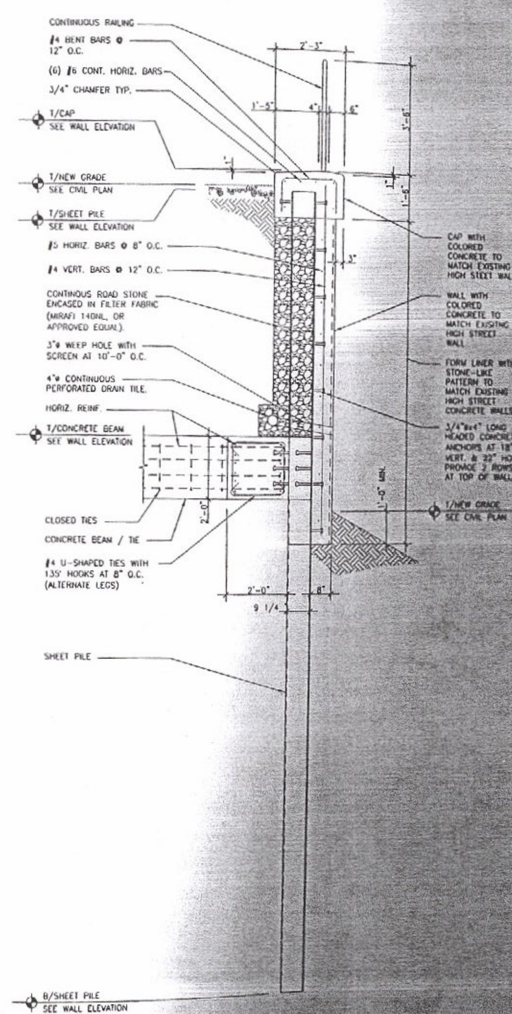
FILE NO. 4940713
SHEET 20S1



1 WALL ELEVATIONS
SCALE: 1/8"=1'-0" (22x34)
SCALE: 1/16"=1'-0" (11x17)



2 PHOTOGRAPHS
EXISTING CONCRETE RETAINING WALL ALONG HIGH STREET IN ELKADER.



3 TYPICAL SECTION
SCALE: 1/2" = 1'-0" (22x34)
SCALE: 1/4" = 1'-0" (11x17)

WEST L.S. SHEET PILING ELEVATIONS
DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713
SCALE: AS SHOWN
2007-08

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4940713
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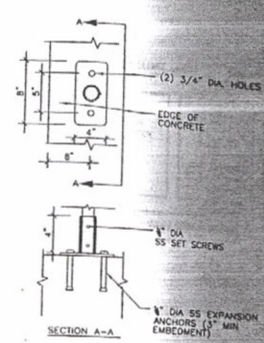
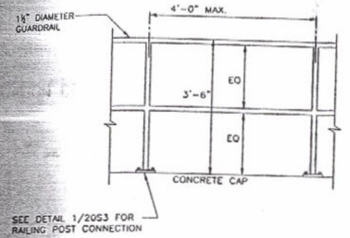


1 POST MOUNTING DETAIL

NOT TO SCALE



GENERAL NOTE

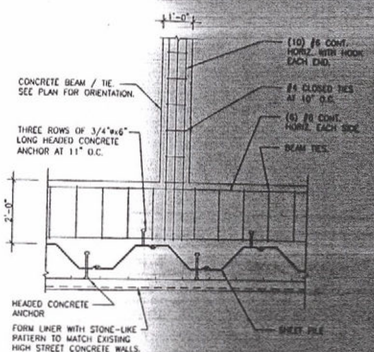
CONNECTIONS NOT DETAILED OR SHOWN SHALL BE DESIGNED BY MANUFACTURER

ALTERNATE #1

REMOVAL OF ALUMINUM RAILING SYSTEM AND REPLACEMENT WITH STEEL PIPE RAILING SYSTEM CONFORMING TO ASTM A501 OR ASTM A53, TYPE E OR S, GRADE B (35 KSI MIN.) WITH HIGH PERFORMANCE COATING SYSTEM.

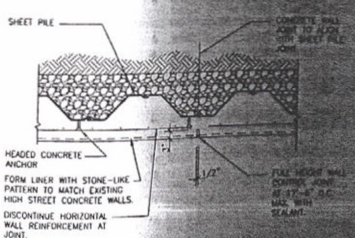
2 TYPICAL ALUMINUM RAIL DETAIL

NOT TO SCALE



3 TYPICAL CONCRETE BEAM DETAIL

SCALE: 1/2" = 1'-0" (22x34)
SCALE: 1/4" = 1'-0" (11x17)



4 TYPICAL WALL JOINT DETAIL

SCALE: 1/2" = 1'-0" (22x34)
SCALE: 1/4" = 1'-0" (11x17)

WEST L.S. SHEET PILING DETAILS

DISTAL PUMP STATIONS
CITY OF ELKADER
CLAYTON COUNTY, IOWA

PROJECT NO. 4940713 | F.B. 2007-08 | SCALE: AS SHOWN | DRAWN BY: BS, CG | CHECKED BY: CW

FILE NO. 4940713

SHEET 20S3

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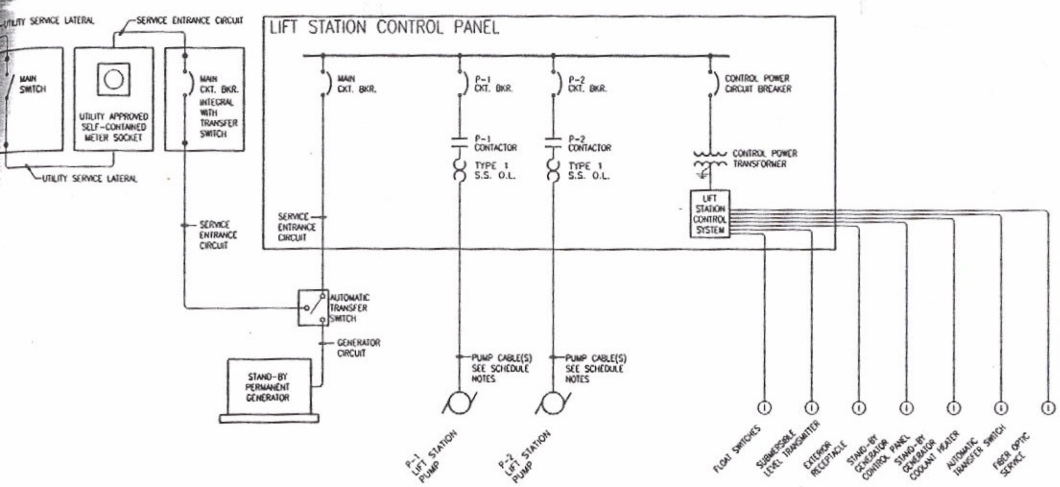


LIFT STATION ELECTRICAL ONE-LINE DIAGRAM

LIFT STATION ELECTRICAL DATA														
ELECTRIC SERVICE ENTRANCE				PUMP DATA						STAND-BY POWER EQUIPMENT			
ERVICE ATERAL	UTILITY METER LOAD BREAK SWITCH	SERVICE ENTRANCE CIRCUIT	SERVICE DISCONNECT SWITCH	HORSEPOWER	CIRCUIT BREAKER	CONTACTOR	SSRV	AFD	CABLE(S)	PERMANENT GENERATOR	AUTOMATIC TRANSFER SWITCH	GENERATOR CIRCUIT	GENERATOR CIRCUIT BREAKER
1-3"	100A/3Ø,4W/NF	4#3 & #8G IN 1-1 1/4"C	100A/3Ø,4W/100AF	20	150AF/50AT - MCP	FVNR - SIZE 2			1	50 KW	100A	4#3 & #8G IN 1-1 1/4"C	100A

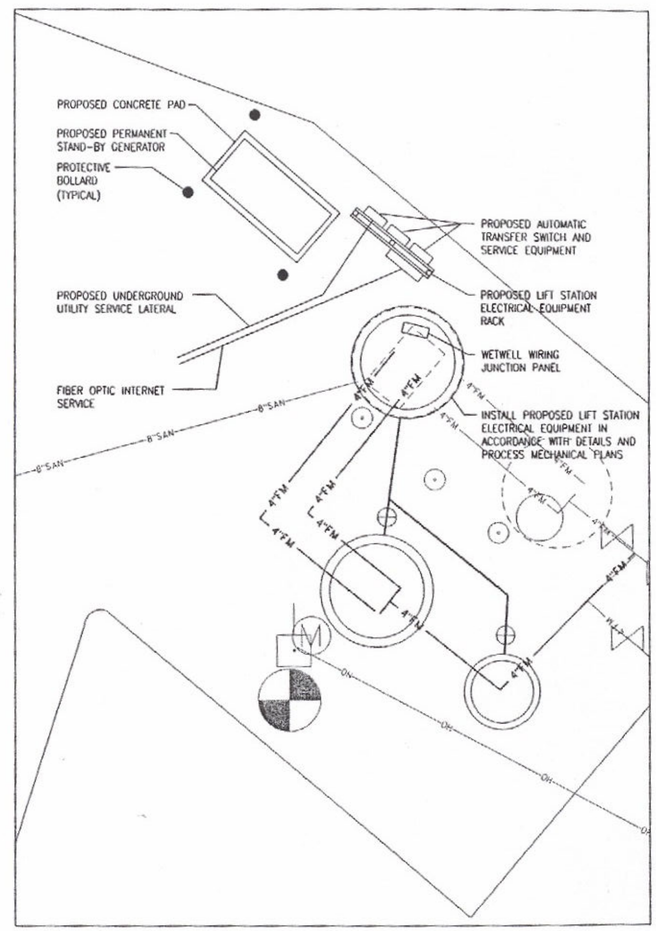
WITH PUMP MANUFACTURER AND DETERMINE NUMBER AND SIZE OF PUMP CABLES. SIGNAL CABLE FOR HIGH TEMPERATURE AND SEAL FAIL SENSOR WIRING MAY BE PROVIDED AS A SEPARATE CABLE OR INTEGRAL TO THE PUMP
E BASED ON PUMP MANUFACTURER DESIGN.
BLE CONDUITS AS NEEDED TO SATISFY NEC REQUIREMENTS FOR CONDUIT FILL. PUMP SENSOR CABLES MAY BE ROUTED IN SAME CONDUIT AS PUMP POWER CABLES.

LIFT STATION ELECTRICAL REQUIREMENTS:

1. UTILITY POLE-MOUNTED TRANSFORMER: POLE BY UTILITY REQUIREMENTS FOR UTILITY INSTALLATION OF POLE-MOUNTED TRANSFORMERS. UTILITY TRANSFORMERS SHALL PROVIDE THE SCHEDULED ELECTRIC SERVICE TO THE FACILITY.
2. UTILITY SERVICE LATERAL: PROVIDE CONDUITS FOR UTILITY INSTALLATION OF SERVICE LATERAL CONDUCTORS AS SCHEDULED.
3. UTILITY METER LOAD-BREAK SWITCH: PROVIDE NON-FUSIBLE DISCONNECT SWITCH PER UTILITY REQUIREMENTS AND AS SCHEDULED. SWITCH SHALL BE PAD-LOCKABLE IN THE CLOSED POSITION.
4. UTILITY APPROVED SELF-CONTAINED METER SOCKET: PROVIDE METER SOCKET SUITABLE FOR THE ELECTRIC SERVICE SCHEDULED AND PER UTILITY REQUIREMENTS FOR UTILITY INSTALLATION OF METER.
5. SERVICE ENTRANCE CIRCUIT: PROVIDE SERVICE ENTRANCE CIRCUIT AS SCHEDULED.
6. SERVICE DISCONNECT SWITCH: PROVIDE FUSIBLE SERVICE DISCONNECT SWITCH AS SCHEDULED.
7. AUTOMATIC TRANSFER SWITCH: PROVIDE AUTOMATIC TRANSFER SWITCH IN WEATHER-PROOF, TAMPER-PROOF, EXTERIOR ENCLOSURE AS SCHEDULED.
8. STAND-BY PERMANENT GENERATOR: PROVIDE STAND-BY GENERATOR, ENCLOSURE, FUEL SYSTEM, AND CONCRETE PAD AS SCHEDULED, SPECIFIED, AND DETAILED.
9. GENERATOR CIRCUIT: PROVIDE GENERATOR CIRCUIT AS SCHEDULED.
10. LIFT STATION CONTROL PANEL COMPONENTS: PROVIDE LIFT STATION CONTROL PANEL INTERNAL COMPONENTS AS SCHEDULED.
11. PORTABLE GENERATOR: NOT APPLICABLE.
12. P-1 & P-2 MOTOR CONTROLLERS: PROVIDE MOTOR CONTROL COMPONENTS AS SCHEDULED. INSTALL PUMP CABLES AS DETAILED. PUMP CABLES SHALL BE PROVIDED BY PUMP MANUFACTURER AND SIZED FOR THE FULL LOAD OF THE PUMP MOTOR. PUMP CABLES MAY INCLUDE SENSOR (HIGH TEMPERATURE AND SEAL FAIL) WIRING OR SECOND CABLE MAY BE PROVIDED FOR THIS PURPOSE.
13. CONTROL POWER SYSTEM: CONTROL PANEL SUPPLIER SHALL BE RESPONSIBLE FOR SIZING CONTROL POWER COMPONENTS BASED ON THE CONNECTED LOAD OF THE BRANCH CIRCUITS FED BY THE CONTROL POWER SYSTEM.

LIFT STATION ELECTRICAL REQUIREMENTS CONT'D:

14. FLOAT SWITCHES: PROVIDE AND INSTALL THREE FLOAT SWITCHES AS DETAILED. FLOAT SWITCH CABLES SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLES SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED.
15. SUBMERSIBLE LEVEL TRANSMITTER: PROVIDE AND INSTALL ONE SUBMERSIBLE LEVEL SENSOR AS DETAILED. LEVEL SENSOR CABLE SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS FOR INTRINSICALLY SAFE SYSTEMS. MANUFACTURER SUPPLIED CABLES SHALL BE ROUTED TO CONTROL PANEL AND SHALL NOT BE SPLICED.
16. FLOW METER: NOT APPLICABLE.
17. FLOW METER VAULT FLOAT SWITCH: NOT APPLICABLE.
18. FLOW METER VAULT SUMP PUMP: NOT APPLICABLE.
19. EXTERIOR RECEPTACLE: PROVIDE AND INSTALL ONE EXTERIOR WEATERPROOF/GFCI RECEPTACLE, HUBBELL #8300, OR EQUAL, AT THE EQUIPMENT MOUNTING RACK AS DETAILED. ROUTE 2#10 & #10G IN 3/4"C TO 20A/1P CIRCUIT BREAKER IN CONTROL PANEL.
20. STAND-BY GENERATOR CONTROL PANEL: ROUTE 4#14 SIGNAL CONDUCTORS IN 3/4" TO LIFT STATION CONTROL PANEL. COORDINATE WITH GENERATOR SUPPLIER AND CONNECT GENERATOR RUN AND GENERATOR FAIL OUTPUT SIGNALS TO THESE CONDUCTORS.
21. STAND-BY GENERATOR COOLANT HEATER: PROVIDE RECEPTACLE MOUNTED INSIDE GENERATOR HOUSING FOR GENERATOR BLOCK HEATER. ROUTE 2#10 & #10G IN 3/4"C TO 30A/1P CIRCUIT BREAKER IN CONTROL PANEL. COORDINATE EXACT REQUIREMENTS WITH GENERATOR MANUFACTURER.
22. AUTOMATIC TRANSFER SWITCH: ROUTE 2#14 SIGNAL CONDUCTORS IN 3/4" TO LIFT STATION CONTROL PANEL. COORDINATE WITH GENERATOR SUPPLIER AND CONNECT UTILITY POWER FAIL OUTPUT SIGNAL TO THESE CONDUCTORS. INSTALL CONTROL WIRING BETWEEN TRANSFER SWITCH AND GENERATOR CONTROL PANEL AS REQUIRED BY GENERATOR MANUFACTURER. GENERATOR BATTERY CHARGER SHALL BE LOCATED INSIDE TRANSFER SWITCH, WIRE AS DIRECTED BY MANUFACTURER.
23. FIBER OPTIC INTERNET SERVICE: COORDINATE WITH OWNER'S SERVICE PROVIDER FOR CONTROL SYSTEM CONNECTION TO FIBER OPTIC INTERNET SERVICE.



WEST LIFT STATION ELECTRICAL PLAN
REFER TO PROCESS MECHANICAL PLANS FOR SCALE AND NORTH-SOUTH ORIENTATION

32007-0068

Iowa Department of Natural Resources
Wastewater Section
Construction Permit Application
SCHEDULE E, Wastewater Pump Station

DATE PREPARED	PROJECT IDENTITY	DNR USE
12/11/08	Elkader Distal Lift Stations - West Lift Station	PROJECT NO.
DATE REVISED		PERMIT NO.

1.

Design Basis	Initial	Design Year ( )
Residential Area, Acres	80	80
Population, Persons		
PHDW Flow, MGD	0.160	.163
Industrial Area, Acres	N/A	N/A
PHDW Flow, MGD	N/A	N/A
Other _____ , Acres	N/A	N/A
PHDW Flow, MGD	N/A	N/A
Peak Hourly Infiltration, MGD	0.070	0.077
Peak Hourly Inflow, MGD	0.070	0.077
Total PHDW Flow, MGD	0.160	.163
Total PHWW Flow, MGD	0.300	0.317

2. Provide pump information

Pump No.	Type	Opening (in)	HP	Capacity GPM	TDH (ft.) Computed	TDH (ft.) Rated	Operating Level On	Operating Level Off
1	Submersible	4	20	220	133	135	711.50	709.50
2	Submersible	4	20	220	133	135	711.50	709.50
3								
4								
5								
Sump								

Are pumps specified as being capable of passing three-inch diameter spheres? Yes ☒ No ☐
Can remaining pumps handle PHWW flow with largest pump out of service? Yes ☒ No ☐

3. Wet-well effective volume 423 gallons. Maximum retention time: Initial flow 16 minutes.
Design flow 15 minutes.

4. Is forced air ventilation provided? No
Continuous: wet-well Yes dry-well No Intermittent: wet-well _____ dry-well _____
dry-well _____ air changes/hour dry-well _____ air changes/hour
Are spark-proof materials specified? Yes ☒ No ☐

5. Force main: Is profile of force main provided? Yes ☐ No ☒
Size 4 in. Length 3,050 ft. Detention time at ADW design flow 1.08 hours.
Pipe material ductile iron Joint elastometric
Minimum cover 5.5 ft. Minimum velocity 2.0 fps
Number of high points 1 Are air relief valves provided? Yes ☒ No ☐
Number of thrust blocks provided? _____ At location(s) _____
Is pressure test specified? Yes ☐ No ☒ Does installation conform to AWWA C600? Yes ☐ No ☐
If no, explain _____

6. Are valves provided on the suction & discharge lines? Yes ☒ No ☐
Type: Discharge g & c Suction N/A

7. Is an alarm system provided? Yes ☒ No ☐ Type SCADA with alarm dialer
Indicate where audio/visual warning signals will be located control panel

8. Method of pump control transducer with backup floats

9. Are the pumps protected from clogging? Yes ☐ No ☒
Method of cleaning vacuum truck
Method of pump removal guide rails Are lifting hook/arms provided? yes

10. Are permanent emergency piping bypass connections provided? yes
Is an emergency power supply available? yes
Describe station operation in an emergency (equipment, piping, bypass, etc.) trash pump or generator

11. Is the wastewater pump station located in a floodplain? Yes ☒ No ☐
Elevation of 100 year flood (MSL) 722.00 Elevation of 25 year flood (MSL) _____

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