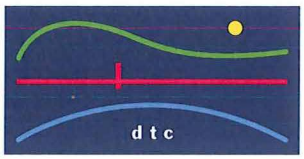
ENGINEERED
SOLUTIONS



LAND
STRUCTURES
WATER

October 3, 2012

Mr. Brian Snyder, AIA, LEED AP, CDT
Senior Associate
The Geddis Partnership Architects
71 Old Post Road – Suite 101
PO Box 1020
Southport, CT 06890

SUBJECT: Stratford Platt Street Pump Station
DTC Study Report
DTC Project No. 12-402-000

Dear Brian:

We have completed our assessment of the Stormwater Pump Station at the end of Platt Street. The following outlines our review of existing conditions, and our recommendations for improvements:

Background

The Town of Stratford owns and maintains a stormwater lift station located east of the end of Platt Street. This station was constructed in the 1970's to help to provide flood relief for the current Ashcroft factory property, as well as the existing East Main Street Railroad underpass. The station consists of a 9'-2" x 16'-6" x 16'-6" high concrete structure built into an earthen berm separating tidal and non-tidal areas. The station is equipped with two 7.5 HP vertical shaft pumps, pump controller, and a still well housing pump float switches. The station pump controller is located in the below grade motor platform. The elevation of the existing pump motors, motor controls, and electrical panel put them at risk of tidal inundation for storms in excess of the 10 year tidal event. The station electrical service is provided via an overhead and underground electrical service originating at and existing utility pole at the end of Platt Street. A 48" RCP is present to convey gravity low level flows, and to feed stormwater to the pump station wet well. The 48" pipe is equipped with a flap type tide gate on the tidal side of the station to protect against tidal inflow, and a bar rack to screen inland flows prior to reaching the lift station. The station wet well is provided with a metal bar screen to further limit debris from effecting the pump operation. The pump discharges are via two 10" discharge lines through the pump station wall and equipped with flap type tide gates. The pump station is capped with a steel I-beam roof structure, plate steel decking, and a hinged steel cover. The entire structure is surrounded by a six foot high chain link fence with barbed wire cap.

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Existing Condition Assessment

A visual inspection of the existing station was performed to assess potential station improvements.

- The existing electrical underground service has been compromised and is the likely cause of a significant electrical short observed in the pump controller.
- Since power and pump controls are non functional the operational condition of the existing pump motors can not be properly assessed.
- Similarly, the condition and function of the existing float controls can not be properly evaluated.
- The existing flap gates on the 48" pipe and the pump discharge lines are in need of replacement.
- The existing steel roof structure, roof plates, and access hatch are all severely corroded and require refinishing, repair and/or replacement.
- The existing wet well bar screen is in need of refinishing.
- The existing chain link fence is rusted and should be repaired and refinished or replaced.
- The 48" inlet bar screen is covered in debris affecting its inlet capacity.

Recommended Improvements

After review, we have developed the following station improvement options:

Full Station Upgrade

Under this option, the entire station would be rehabilitated to current standards. This option improves station efficiency, improves station security, and provides a higher level of protection from flooding impacts on the station itself. Improvements under this option include:

- Remove existing fence and metal roof system.
- Remove existing pumps, motor controls, electrical panel, and level controls
- Remove existing motor level concrete deck.
- Install new underground electrical service from Platt Street to station (including replacement of existing overhead line to utility pole in ROW)
- Install new submersible pumps, slide rail system, and discharge lines. Proposed pumps would be sized to match the pumping capacity of the existing pumps.
- Install new standpipe and new pressure transducer for level monitoring
- Install a new concrete slab top on the existing station. Include new locking metal hatches in the new concrete top section.
- Install new surface mount heavy duty stainless steel electrical and control cabinet.
- Install new pump controls and electrical service panel
- Clean and paint existing bar screen system and reinstall.
- Install new "duckbill" type rubber tide gates on the 48" discharge pipe (already being procured by the Town), and the pump discharge lines.

A conceptual level cost for these improvements is approximately $75,000-$85,000

Partial Station Upgrade

Under this option, only minimal improvements would be made to the station; primarily intended to restore functionality to the station operation. Improvements under this option include:

- Repair and repaint existing fence and gate
- Repair, replace, and/or refurbish the existing station metal roof system. Resurface existing steel roof structural members.
- Replace existing station top hatch with a new light duty metal hatch.
- Remove existing motor controls, electrical panel, and level controls
- Remove existing pumps and return to the manufacturer for evaluation and possible refurbishment
- Install new underground electrical service from the existing utility pole in the ROW to the station (assumes existing overhead line to utility pole in ROW to remain)
- Install new pressure transducer for level monitoring in existing standpipe
- Install new surface mount heavy duty stainless steel electrical and control cabinet.
- Install new pump controls and electrical service panel
- Clean and paint existing bar screen system and reinstall.
- Install new "duckbill" type rubber tide gates on the 48" discharge pipe (already being procured by the Town), and the pump discharge lines.

A conceptual level cost for these improvements is approximately $30,000-$40,000

Existing Station Capacity

The drainage area draining to the existing station has been delineated and field reviewed. Based on this assessment, the overall drainage area is estimated at approximately 105 acres. An assessment of drainage area coverage conditions, and flow times of concentration was also made. Overall, stormwater flows to the existing station are orders of magnitude greater than the pumping capacity (estimated at less than 5 CFS) of the station during elevated tidal conditions. In order to remedy this situation, the existing pump station would need to be replaced in its entirety with a station with greatly increased capacity. To provide protection to low lying areas including the Ashcroft parking area and the East Main Street underpass for a 10 year inland storm and tidal levels exceeding the High Tide Line (HTL=4.0 NGVD-29), station capacity would need to be on the order of 40-50 CFS. Cost for a station of this size would easily top $500,000. It may be possible to divert a portion of the drainage area away from the new station in order to decrease pumped flows, thus reducing the station size and cost. This option is outside the overall scope of this study, but would be worth pursuing if increasing station capacity is being considered.

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We appreciate this opportunity to work with you on this assessment project. If you have any questions regarding this report, please do not hesitate to contact me at (203) 239-4200.

Sincerely,

J. Andrew Bevilacqua, P.E.
Associate & Manager of Civil Engineering
Diversified Technology Consultants, Inc.

Enclosure: Figures 1-6

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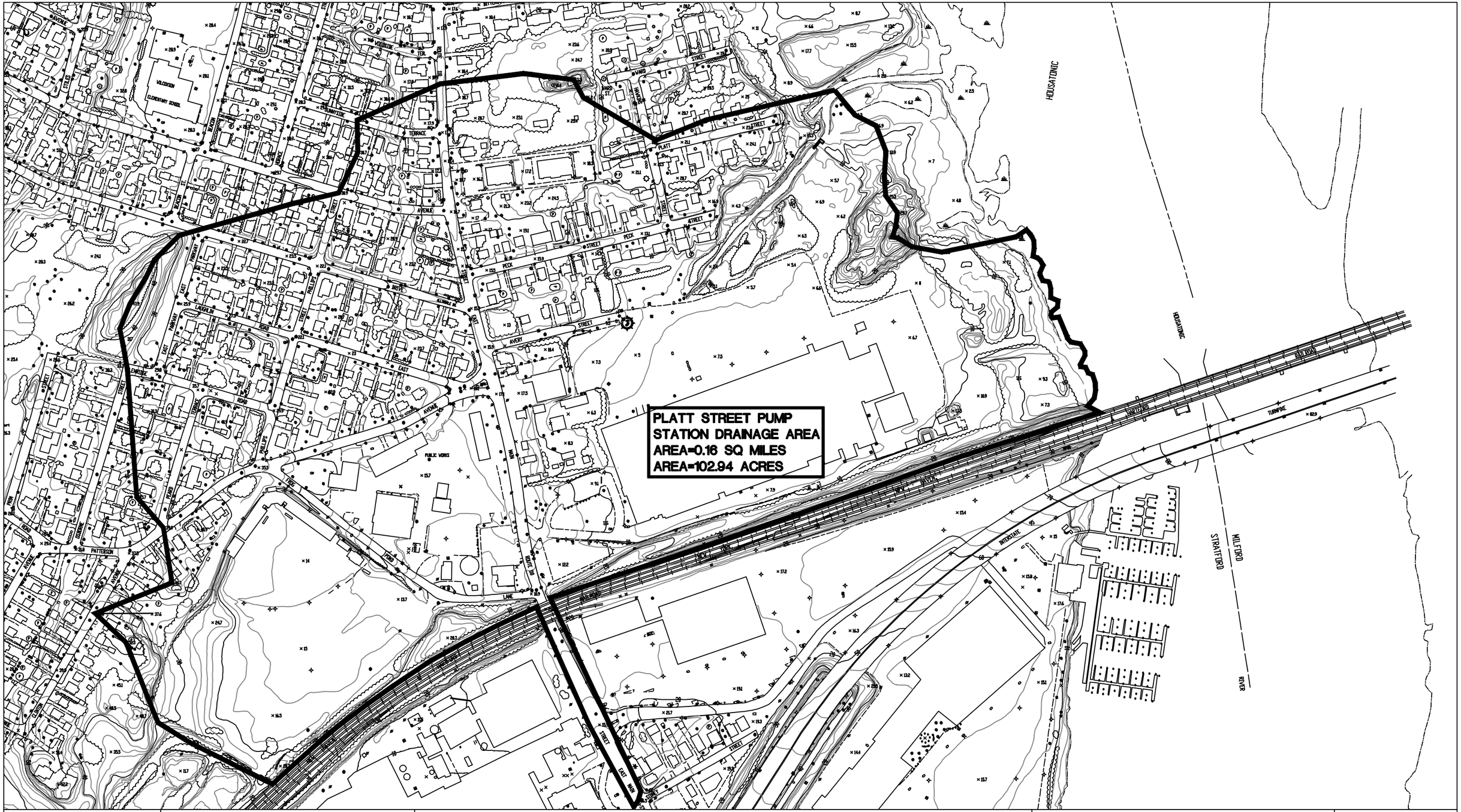

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GRAPHIC SCALE

300 0 150 300

(IN FEET)

NORTH

PLATT STREET PUMP STATION DRAINAGE STUDY

STRATFORD, CONNECTICUT

DRAINAGE AREA MAP

FIG.1

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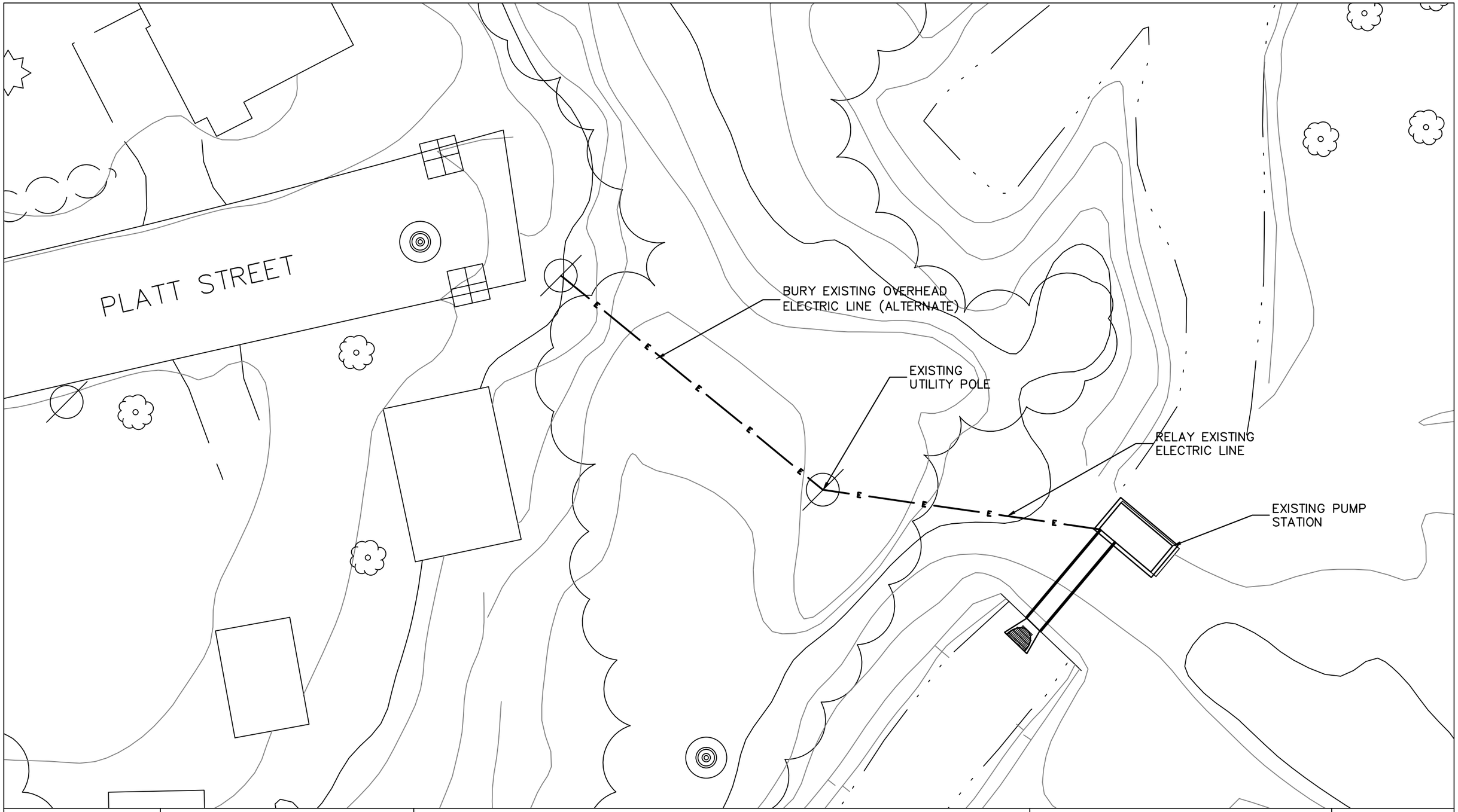
SCALE:	AS NOTED
DATE:	10/03/2012
DTC NUMBER:	12-402-106



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NORTH

GRAPHIC SCALE

20 0 10 20

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PLATT STREET PUMP STATION
DRAINAGE STUDY

STRATFORD, CONNECTICUT

UNDERGROUND ELECTRIC LOCATION PLAN

FIG.2

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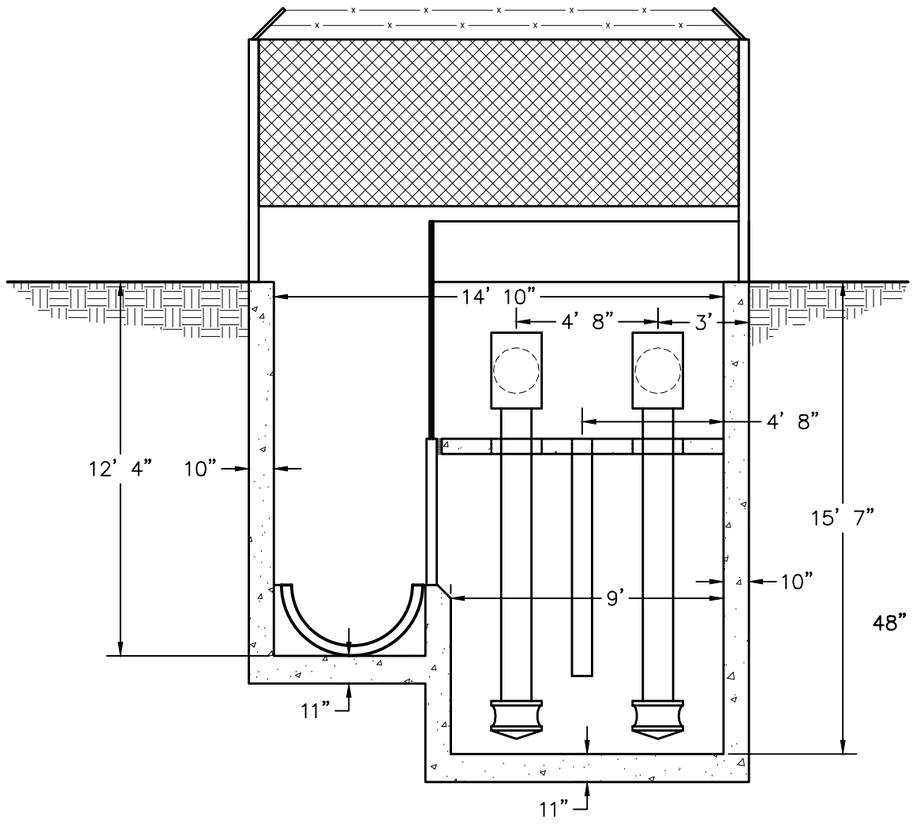
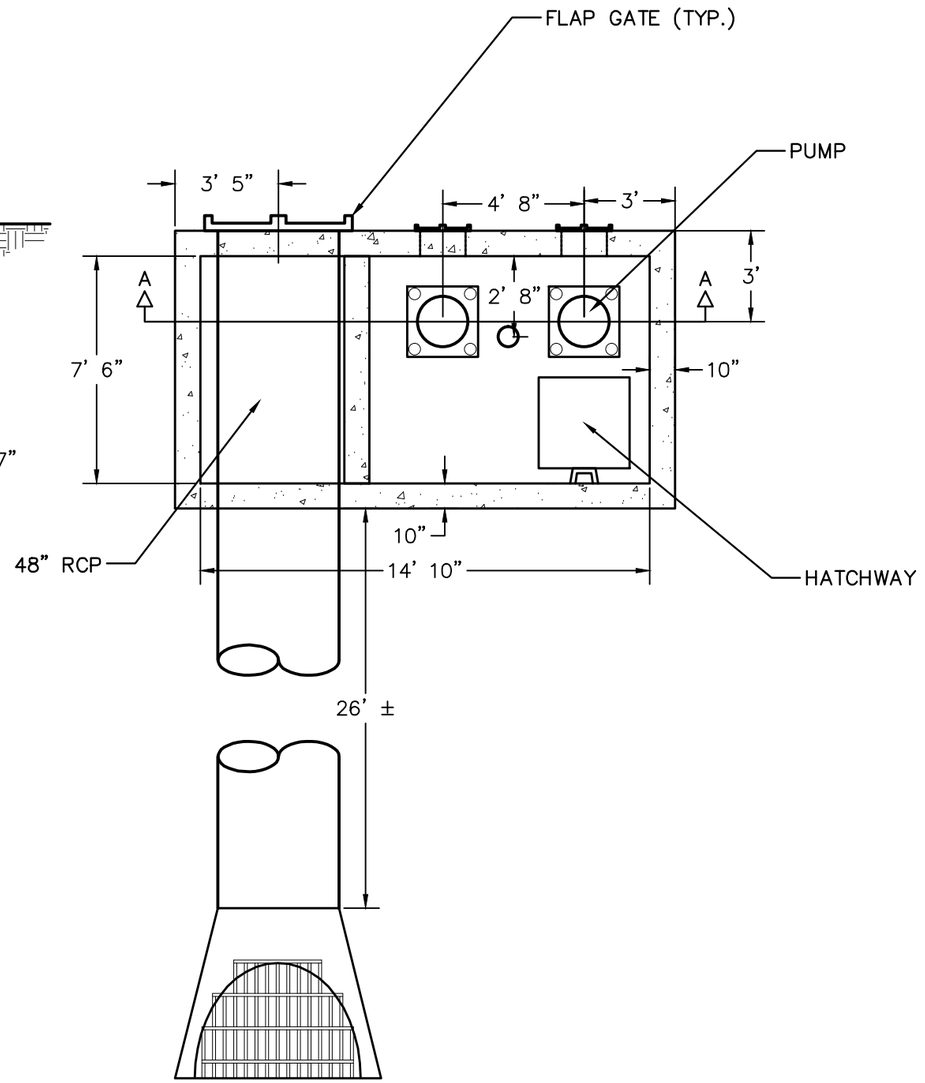
DTC NUMBER:	12-402-106



SECTION A–A



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PLATT STREET PUMP STATION
DRAINAGE STUDY

STRATFORD, CONNECTICUT

EXISTING CONDITIONS PLAN

FIG.3

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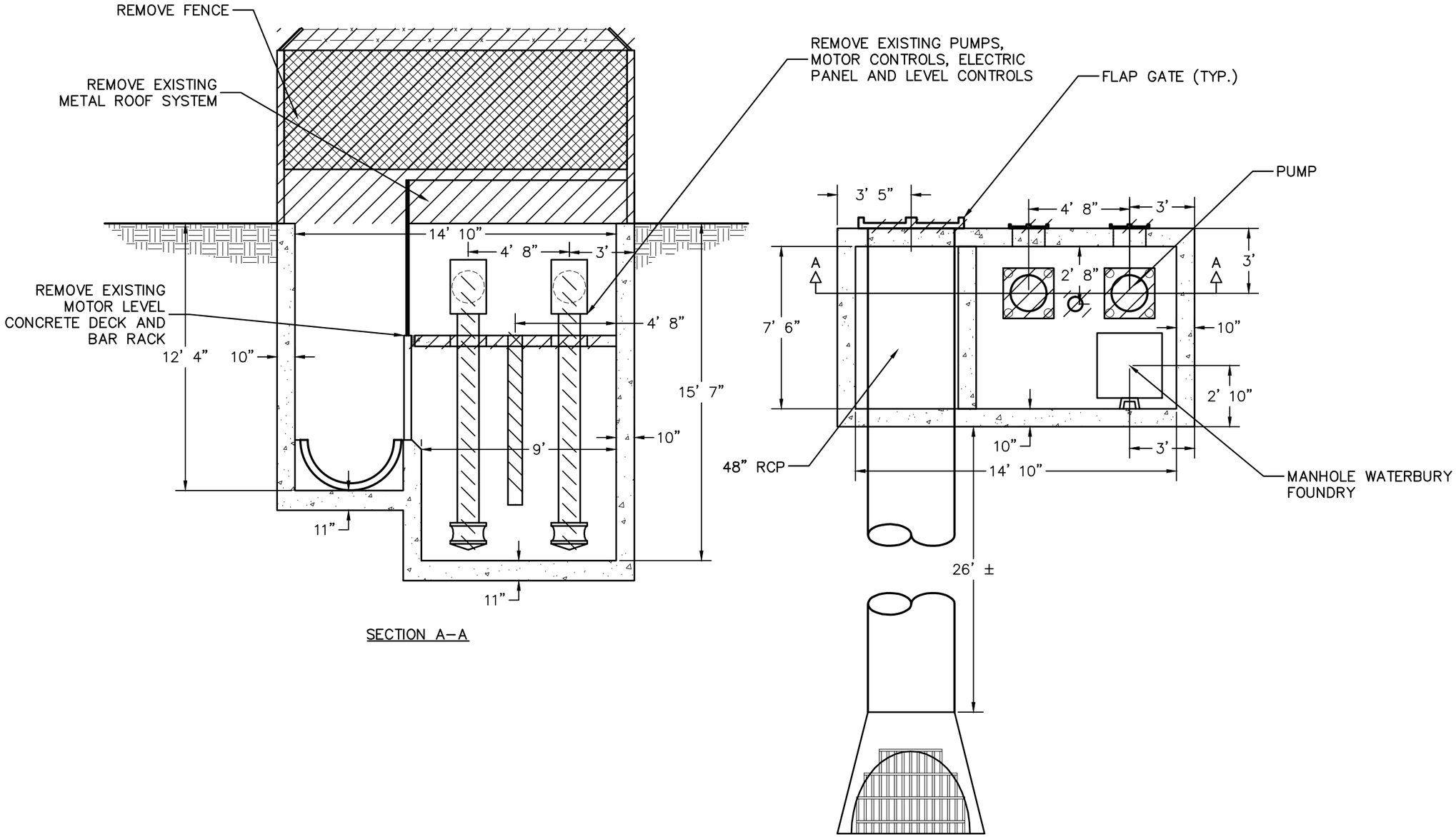

SECTION A–A

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PLATT STREET PUMP STATION DRAINAGE STUDY

STRATFORD, CONNECTICUT

FULL STATION UPGRADE DEMOLITION PLAN

FIG.4

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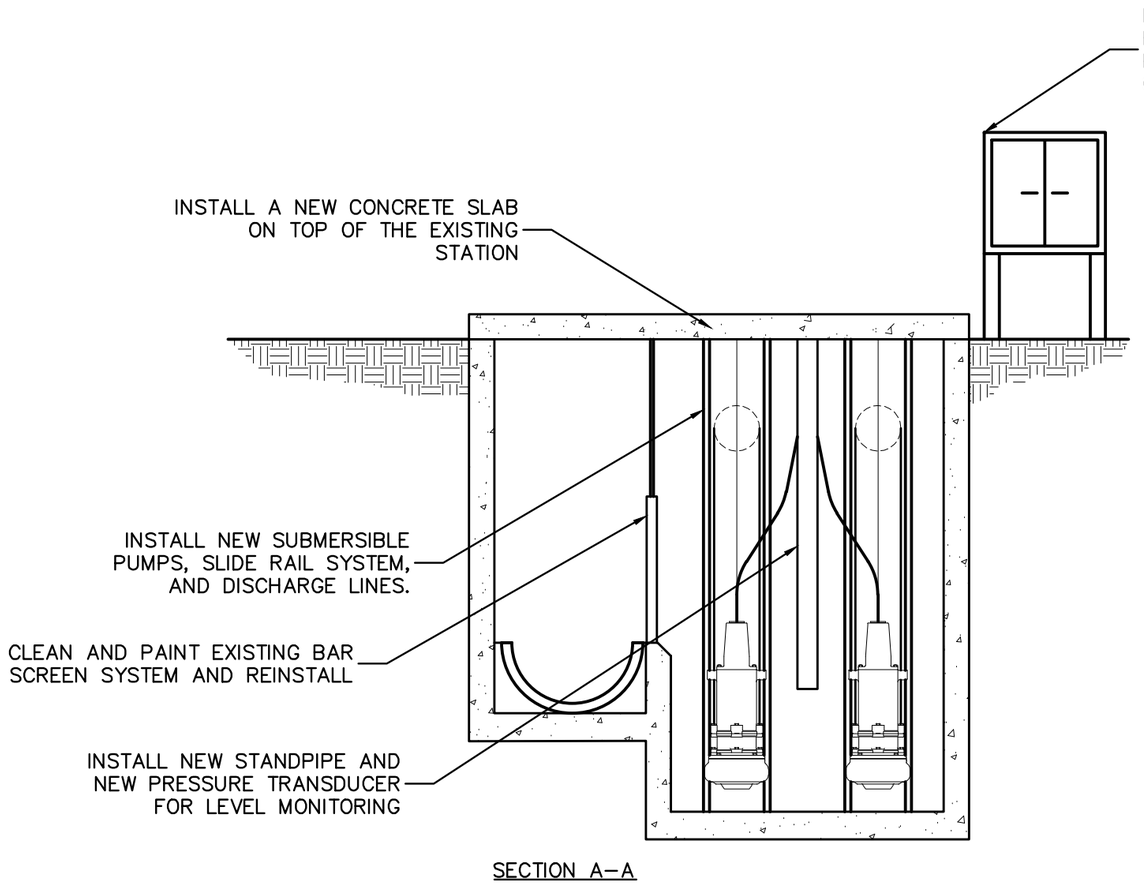
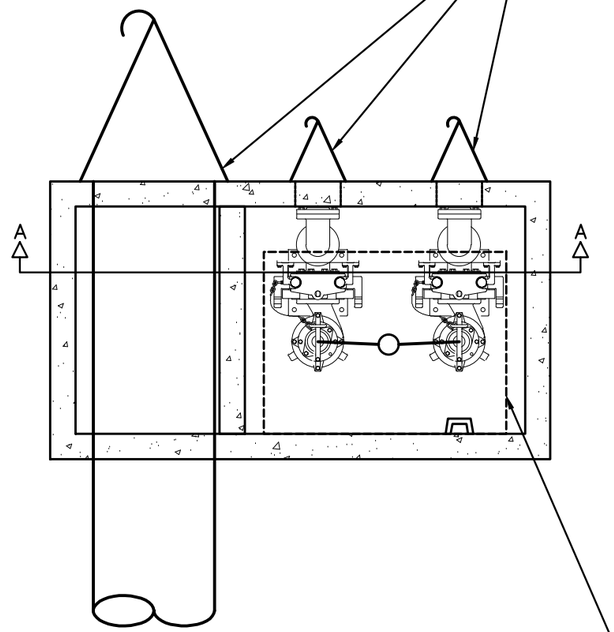
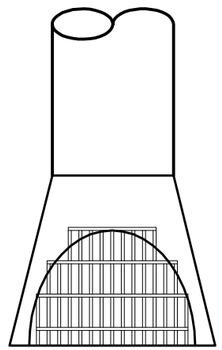
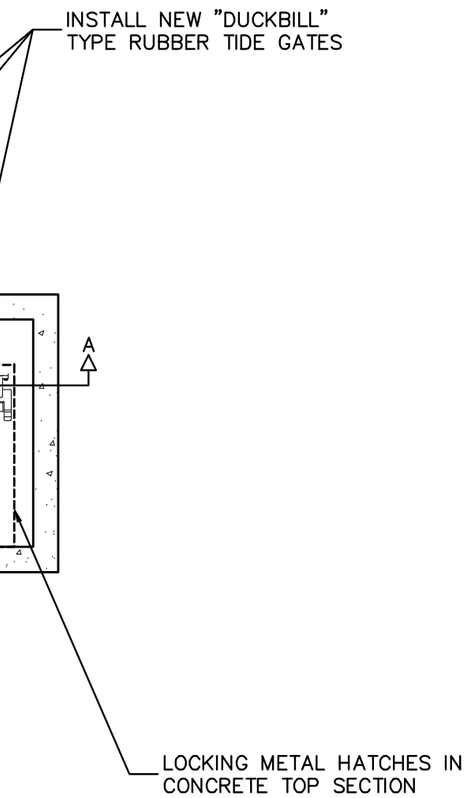


SECTION A–A







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PLATT STREET PUMP STATION DRAINAGE STUDY

STRATFORD, CONNECTICUT

FULL STATION UPGRADE PROPOSED STATION IMPROVEMENTS

FIG.5

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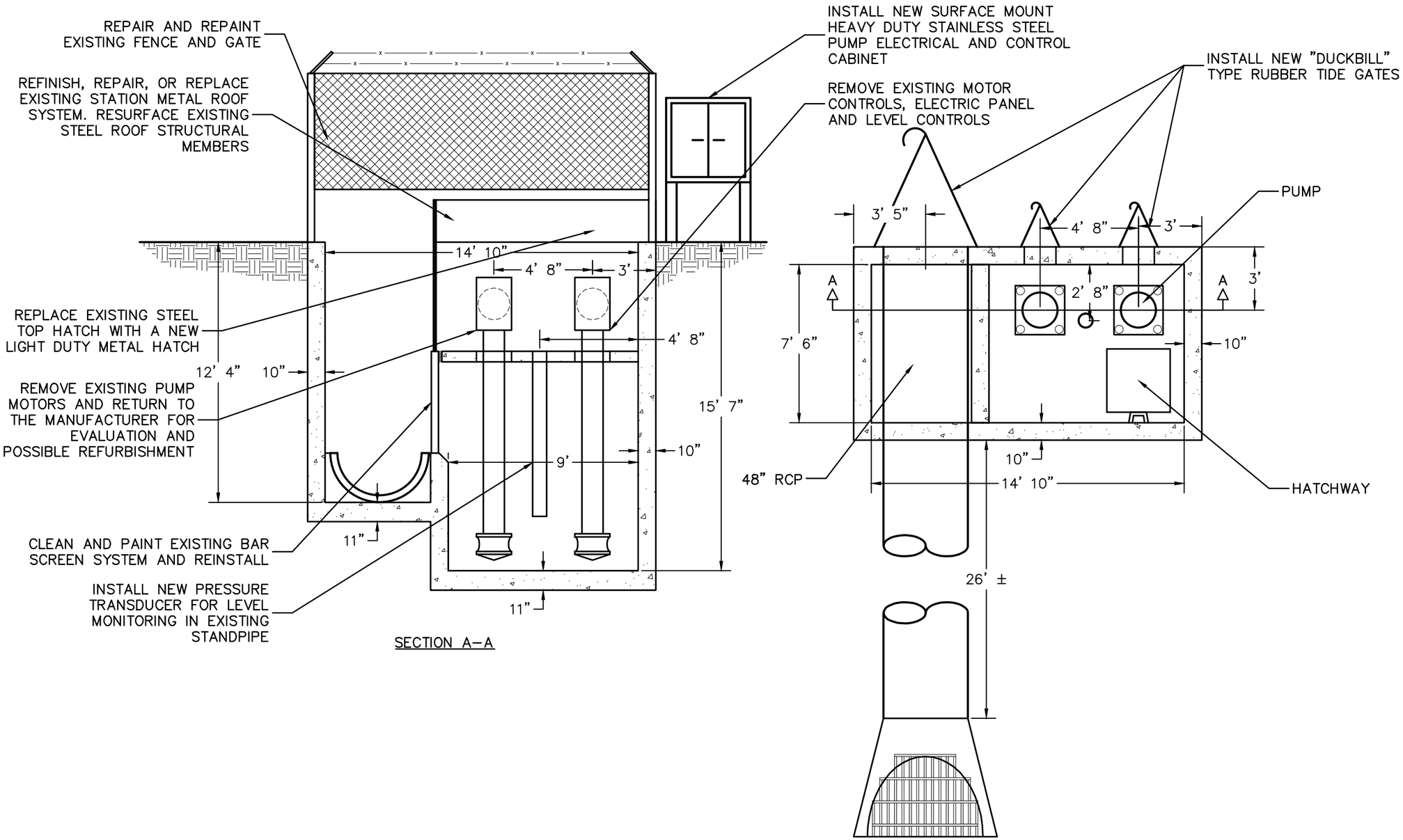

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PLATT STREET PUMP STATION DRAINAGE STUDY

STRATFORD, CONNECTICUT

PARTIAL STATION UPGRADE IMPROVEMENTS

FIG.6

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