COMMITMENT & INTEGRITY
DRIVE RESULTS

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WOODARD &CURRAN

MEMORANDUM

TO: Sean Currier – Public Works Director

FROM: Kyle Corbeil, P.E.

DATE: March 11, 2016

RE: Ammo Park Sewer Capacity

As requested, we have reviewed the sewer main capacity for the segment installed in Ammo Park connecting to the Carey Circle sewer that serves the Town's Business Park, particularly with regard to the proposed MRC/Fiberight Solid Waste Processing Facility.

Construction plans were provided for review that were designed by Down to Earth Professional Land Services, Inc. and titled as follows:

- Sanitary Sewer Plan and Profile, Maine Ground Developers, Inc., Ammo Park Connector Road, Hampden Maine

The installed sewer is 8-inch diameter SDR 35 PVC, with an approximate length of 3,000 feet and connects to the 12-inch diameter sewer on Carey Circle.

Based on the lowest slope section of sewer main, which has a slope of 0.005 feet/feet, we calculated the overall capacity of this main as 1.57 cfs or 700 gpm.

While the existing sewer main is sufficient for the current use, the planned MRC/Fiberight solid waste processing facility is planning a connection that would significantly increase its use. The new MRC/Fiberight facility plans to include a wastewater pump station located along the proposed access road and a 6-inch forcemain connecting it to the Ammo Park sewer main.

In addition, due to a requirement to replace the backfill material used in the original construction of the Ammo Park sewer main, there has been a discussion regarding the need to increase the pipe size. Increasing the pipe size would require replacement of the manhole structures to ensure that watertight connections can be installed.

Based on the size and existing use of the sewer main, there is adequate capacity to connect the proposed wastewater pump station, contingent on an appropriate design flow rate. The pumping rate of the proposed wastewater pump station must be evaluated prior to Town approval and acceptance so that the overall capacity of the existing sewer main is not exceeded.

We have not received planning documents that include the design information for the proposed wastewater pump station. The Applicant for the MRC/Fiberight facility should consider that design flow rates exceeding 500 gpm may exceed the capacity of the sewer main to serve existing users and will require additional downstream impacts analysis.

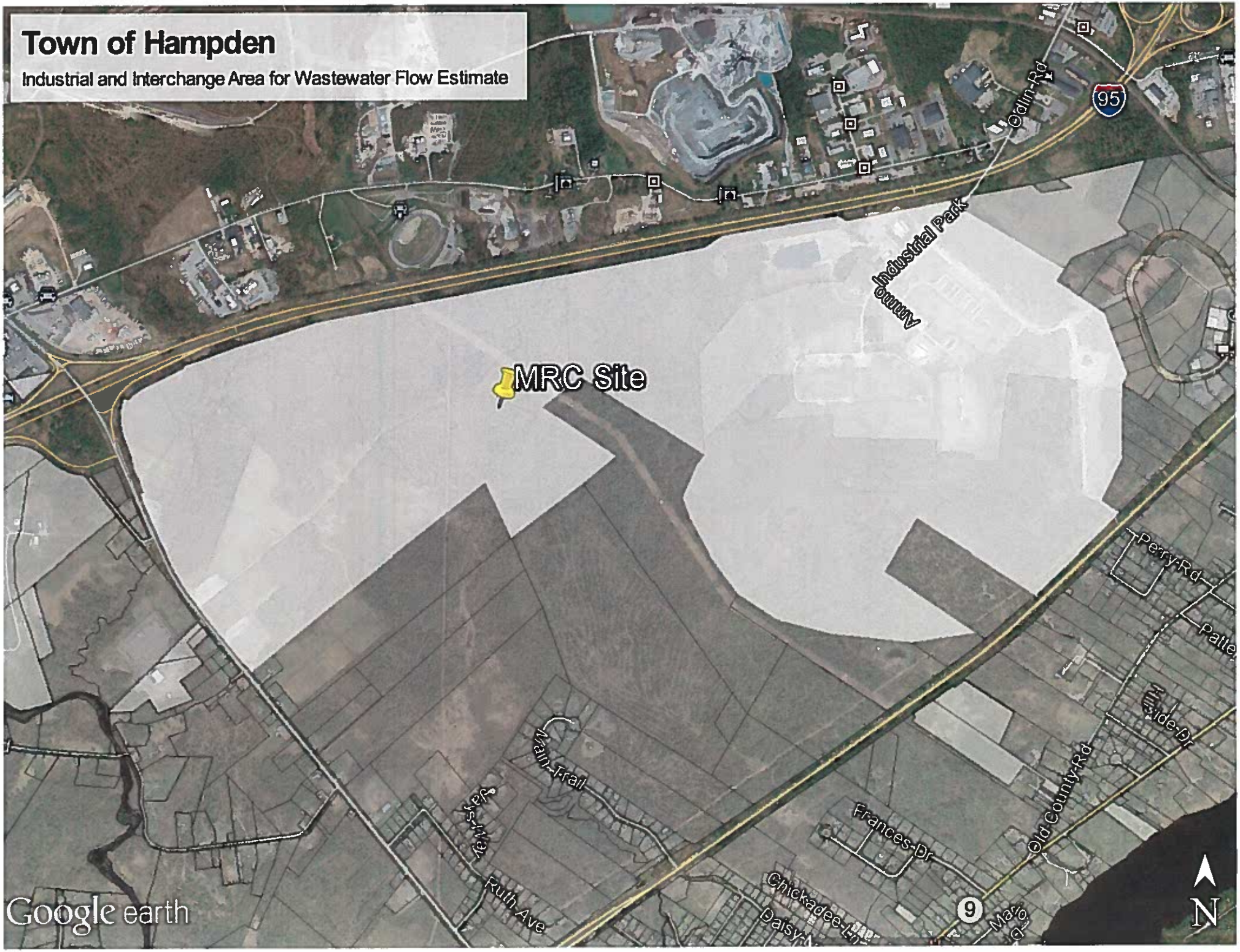
The following was taken from the December 21, 2015 MRC/Fiberight Request for Information memo from Woodard & Curran to Sean Currier regarding wastewater pump station design considerations for the proposed MRC/Fiberight facility and bears repeating.

Below is a list of other related wastewater infrastructure items that the Applicant should consider in their application as they prepare for submittal:

1. Operations and Maintenance costs for new wastewater infrastructure should be factored into the Applicant's economic analysis of preferred waste treatment processes as these will be used by the Town of Hampden to establish the sewer usage fees.

2. The Applicant must demonstrate that connection of new wastewater infrastructure to the existing 8" PVC sewer in the Ammo Industrial Park will not exceed the capacity of the existing sewer and associated structures.

3. Pump stations required as a result of this application and proposed in the Site Application will be designed by the applicant to handle the anticipated flow (current and future). The pump station(s) will be consistent with the type, pumps, controls and other equipment already in use in the Town of Hampden.


Town of Hampden
Industrial and Interchange Area for Wastewater Flow Estimate
MRC Site
Industrial Park
Odlin Rd
95
Perry Rd
Main Trail
Jays Way
Ruth Ave
Frances Dr
Chickadee Ln
Daisy
Old County Rd
9
N
Google earth

	Peaking Factor	Average Total Flow	
		(gpd)	(cfs)
Total ADF =	1	208,128	0.32
Total MMF =	1.2	249,754	0.39
Total MDF =	3	624,385	0.97
Total PHF =	5	1,040,641	1.61

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WOODARD & CURRAN

1 MERCHANTS PLAZA
SUITE 501
BANGOR, MAINE 04401
TEL.(207)945-5105

CLIENT: Hampden, ME
PROJECT: MRC/Fiberight Site Plan Application
DESIGNED BY: Kyle Corbeil — DATE: 12/29/2015
CHECKED BY: — DATE: Rev (3/11/2016)
PROJECT NO.: 213351

Map/Book/Lot	Name	Zone	Category 1	Category 2	Address	Source	Lot Size Acres	Max. Lots	L
Existing Users on System (Includes future buildout of properties currently served)									
10-0-061	Quarry	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	31.74	NA	
10-0-056-05	Portland Air Freight	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	9.2	NA	gal/day/
10-0-056-3	Freightliner of Maine/Formerly Thibodeau	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	3.26	NA	gal/day/
10-0-056	Ammo Industrial Park	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	208.09	138	gal/day/
10-0-056-4	Ammo Industrial Park Lot	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	1.5	0	gal/day/
									Total Existing F
Existing Users on System and Not Connected									
Future Growth Potential									
09-0-041-A	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	11.91	11	gal/day/
14-0-006	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.06	1	gal/day/
09-0-041	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	22.5	22	gal/day/
09-0-040	Interchange/Industrial Lot	Industrial	Industrial Building		Cold Brook Rd	Hampden GIS Lot Data	28.63	14	gal/day/
09-0-039	Interchange/Industrial Lot	Industrial	Industrial Building		Cold Brook Rd	Hampden GIS Lot Data	78.24	39	gal/day/
14-0-007	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.94	1	gal/day/
14-0-008	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.93	1	gal/day/
09-0-035-A	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	8.99	8	gal/day/
15-0-015	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.16	1	gal/day/
09-0-035	Interchange/Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	55.2	27	gal/day/
09-0-038	Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	37.61	18	gal/day/
09-0-037	Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	23.45	11	gal/day/
09-0-036	MRC Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	87.69	NA	gal/day/
09-0-036	MRC Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data		NA	gal/day/
10-0-056	Industrial Lot	Industrial	Industrial Building		NA	Hampden GIS Lot Data	58.36	29	gal/day/
10-0-058	Industrial Lot	Industrial	Industrial Building		NA	Hampden GIS Lot Data	12.26	6	gal/day/
10-0-056-2	Industrial 2 Lot	Industrial 2	Industrial Building		Route 202	Hampden GIS Lot Data	219.1	109	gal/day/
									Total Future

	Quantities	Units
	Existing	
Sewer Diameter	8	inches
Sewer Length	3000	LF
VF of Manhole	100	VF
Existing Infiltration	1464	GPD
	Future	
Sewer Diameter	8	inches
Sewer Length	20000	LF
VF of Manhole	50	VF
Infiltration	9141	GPD
Total Infiltration	10605	GPD

	Peaking Factor	Average Total Flow	
		(gpd)	(cfs)
Total ADF =	1	208,128	0.32
Total MMF =	1.2	249,754	0.39
Total MDF =	3	624,385	0.97
Total PHF =	5	1,040,641	1.61

	Quantities	Units
	Existing	
Sewer Diameter	8	inches
Sewer Length	3000	LF
VF of Manhole	100	VF
Existing Infiltration	1464	GPD
	Future	
Sewer Diameter	8	inches
Sewer Length	20000	LF
VF of Manhole	50	VF
Infiltration	9141	GPD
Total Infiltration	10605	GPD

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PROJECT NO.: 213351

Map/Book/Lot	Name	Zone	Category 1	Category 2	Address	Source	Lot Size Acres	Max. Lots	Units	Unit Flow (gal/unit-day)	Quantity Units	WEF Flow (gpd ADF)	Notes
Existing Users on System (Includes future buildout of properties currently served)													
10-0-061	Quarry	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	31.74	NA		0			
10-0-056-05	Portland Air Freight	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	9.2	NA	gal/day/employee	20	6	120	Employee count based on parking spaces
10-0-056-3	Freightliner of Maine/Formerly Thibodeau	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	3.26	NA	gal/day/employee/	20	42	840	Employee count based on parking spaces
10-0-056	Ammo Industrial Park	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	208.09	138	gal/day/employee/lot	20	5	13,800	Estimated 1.5 acre lots, no min. area in this zone
10-0-056-4	Ammo Industrial Park Lot	Industrial 2	Industrial Building		Industrial Park Way	Hampden GIS Lot Data	1.5	0	gal/day/employee	20	5	100	
									Total Existing Flow *(Includes I/I for Existing Sewer)* =			16,324	
Existing Users on System and Not Connected													
									Total "Not Connected" Flow =			0	
Future Growth Potential													
09-0-041-A	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	11.91	11	gal/day/employee/lot	20	5	1,100	Assume Industrial Use
14-0-006	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.06	1	gal/day/employee/lot	20	5	100	Assume Industrial Use
09-0-041	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	22.5	22	gal/day/employee/lot	20	5	2,200	Assume Industrial Use
09-0-040	Interchange/Industrial Lot	Industrial	Industrial Building		Cold Brook Rd	Hampden GIS Lot Data	28.63	14	gal/day/employee/lot	20	5	1,400	
09-0-039	Interchange/Industrial Lot	Industrial	Industrial Building		Cold Brook Rd	Hampden GIS Lot Data	78.24	39	gal/day/employee/lot	20	5	3,900	
14-0-007	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.94	1	gal/day/employee/lot	20	5	100	Assume Industrial Use
14-0-008	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.93	1	gal/day/employee/lot	20	5	100	Assume Industrial Use
09-0-035-A	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	8.99	8	gal/day/employee/lot	20	5	800	Assume Industrial Use
15-0-015	Interchange Lot	Interchange	Industrial Building	Hotel/Motel/Rest	Cold Brook Rd	Hampden GIS Lot Data	1.16	1	gal/day/employee/lot	20	5	100	Assume Industrial Use
09-0-035	Interchange/Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	55.2	27	gal/day/employee/lot	20	5	2,700	
09-0-038	Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	37.61	18	gal/day/employee/lot	20	5	1,800	
09-0-037	Industrial Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	23.45	11	gal/day/employee/lot	20	5	1,100	
09-0-036	MRC Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data	87.69	NA	gal/day/employee	20	70	1,400	Assume 70 empl. as stated in Solid Waste Applic.
09-0-036	MRC Lot	Industrial	Industrial Building		Future Access Rd	Hampden GIS Lot Data		NA	gal/day/employee/lot	150000	1	150,000	From material submitted to Town 12/22/2015
10-0-056	Industrial Lot	Industrial	Industrial Building		NA	Hampden GIS Lot Data	58.36	29	gal/day/employee/lot	20	5	2,900	
10-0-058	Industrial Lot	Industrial	Industrial Building		NA	Hampden GIS Lot Data	12.26	6	gal/day/employee/lot	20	5	600	
10-0-056-2	Industrial 2 Lot	Industrial 2	Industrial Building		Route 202	Hampden GIS Lot Data	219.1	109	gal/day/employee/lot	20	5	10,900	
									Total Future Flow *(Includes I/I for Future Sewer)* =			190,341	
									Total Flow =			206,665	