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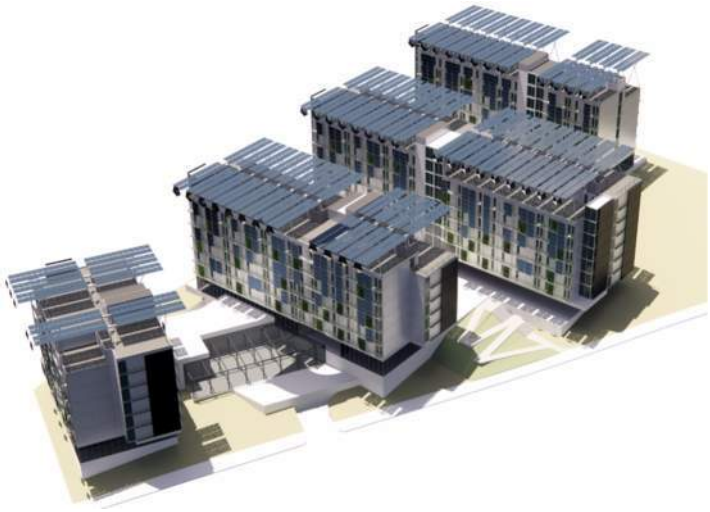
Combined Sewer System Off-Site Improvement Evaluation
for
South End Development

76 Second Avenue, City of Albany, New York

THE SEVENTY-SIX



Issued: August 7, 2020

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Chazen Project No. 32019.00

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1.0 INTRODUCTION

1.1 Statement of Purpose

South End Development, LLC (SED) is currently advancing a mixed-use redevelopment project, featuring 239 residential units and roughly 50,000 SF of commercial space. At completion, the Seventy-Six will be the first Triple Net Zero development of its scale, not only in New York State, but in the Nation. To accomplish Net Zero Water and the International Living Future Institute (ILFI) Net Positive Water Imperative, we've identified on-site treatment and reuse strategies, as well as off-site infrastructure improvements that will be constructed to meet and exceed the requirements of the City of Albany Department of Water & Water Supply and benefit the City's combined sewer system.

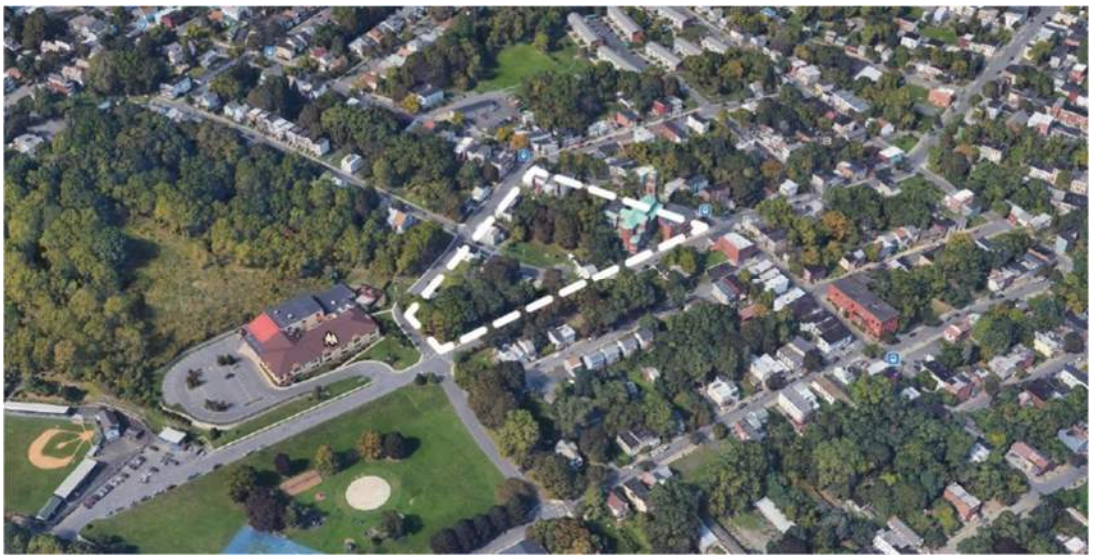
However, in alignment with the significant sustainability goals of SED, the design team has taken a wholistic approach to water protection that considers stewardship of the entire Bouck sewershed/watershed. Through the evaluation outlined herein, we've identified additional opportunities for improvements to off-site watersheds that could broaden the positive impact to the City's combined sewer system and reduce combined sewer overflows (CSO's) to the Hudson River.

1.2 Project Site

The Seventy-Six project site is bounded by Second Avenue, Krank Street, Leonard Street and Seymore Street, as shown in the figure below. This area is located within the City of Albany Bouck sewershed, which is a combined sewer system that conveys flow to the Albany County Water Purification District South Plant during low-flow conditions, and to the Hudson River during high-flow conditions. Refer to **Appendix A, Figure 1,** that depicts the Bouck Sewershed and project site boundaries, as well as portions of the record infrastructure downgradient of the project site.

All sanitary sewer flow and stormwater runoff generated by the project site currently discharges to the City's combined sewer system; thereby, contributing to the volume of combined sewer overflow at the Hudson River.

Figure
Project Site Boundary



2.0 EXISTING CITY OF ALBANY COMBINED SEWER INFRASTRUCURE

The City of Albany is one of six municipalities included in the Albany Pool Communities Long Term Control Plan (LTCP), which was developed as part of a consent order with NYSDEC. The LTCP requires the planning and implementation of strategies designed to control and abate CSO's, in accordance with a specified compliance schedule.

The evaluation presented herein, is specific to a portion of the 600-acre Bouck sewershed, which is tributary to the Albany County Water Purification District - South Plant. The South Plant, which treats wastewater from approximately 90% of the City of Albany and the Port of Albany, was designed for 19 MGD, and is permitted for a maximum of 29 MGD. The Bouck sewershed is controlled by the Bouck Street Regulator, as further described below. According to the 2011 data outlined in the LTCP, the Bouck sewershed contributes the second largest CSO volume at 94.1 MGY, which is discharged to the Hudson River over the course of 637 overflow hours during a total of 58 overflow events.

2.1 Bouck Street Regulator

The Bouck Street Regulator is located within the S Pearl Street right-of-way, near the intersection with Bouck Street. This structure functions as a flow regulator to discharge flow to the County Interceptor sewer main during low-flow conditions (dry weather), and discharge combined sanitary and stormwater flow to the Hudson River during high-flow conditions (wet weather). In 2018, the City of Albany performed an optimization project at the structure, as part of an emergency contract. This project replaced the failed 12" discharge pipe to the County Interceptor with a new 30" discharge pipe, and also increased the height of the internal weir to 18". These modifications were designed to reduce overflow volume to the Hudson River, by diverting a larger volume of sanitary sewer flow to the County Interceptor sewer for conveyance to the South Plant. The City did not provide data for the reduction in volume that was achieved. Plans for the 2018 Bouck Street Regulator Optimization Project are included in Appendix B.

2.2 First Avenue Diversion Chamber & Storm Relief Sewer

The First Ave Diversion Chamber was constructed in or around 1949, in conjunction with a storm relief sewer that ranges from 54 to 66" in size. This diversion chamber was designed to split flow during high-flow conditions between the undersized 36" brick combined sewer main and the new 54" RCP storm relief main, which was installed parallel with the combined sewer pipe, from the intersection of First Ave and Benjamin St, to the Bouck Street Regulator. Catch basins were installed along this route to collect and convey a large volume of stormwater through the storm relief main. The storm relief main does not have any direct sanitary service connections and conveys a significant volume of stormwater flow. However, it cannot be considered a separate storm sewer due to the combined sewer flow received from the First Ave Diversion Chamber and the connection/flow through the Bouck Street Regulator. Record Plans for the 1949 Storm Relief Sewer project are included in **Appendix C**.

3.0 PROPOSED IMPROVEMENTS

Since combined sewer overflows occur during wet weather conditions, the separation of stormwater runoff from the combined sewer is the most proactive way to eliminate overflows. Sewer separation is identified as one of six CSO control measures to be implemented under the Albany Pool Community LTCP. While the Bouck Street Regulator Optimization project met the goal of the City and the LTCP to reduce the volume of combined sewer overflow, it stopped shy of separating stormwater from sanitary sewer and did not provide capacity relief for the upgradient combined sewer mains.
In alignment with the significant sustainability goals of SED, we've evaluated a portion of the Bouck Sewershed in proximity to the project site, in order to identify opportunities for off-site improvements to broaden the positive impact to the City's combined sewer system. In addition to the project site, this evaluation included the following watersheds:

- Leonard/Krank/Odell Streets: stormwater runoff in these roadways currently flows downhill (south) and is collected by catch basins at intersections that discharge directly to the combined sewer mains.
- Liebel Street: stormwater runoff in this roadway currently flows downhill (east) and is collected by catch basins at the intersection with Leonard Street that discharge directly to the combined sewer main.
- Low Point at Headwall: existing low point located southwest of the intersection of First Ave and Cherry Hill St, that collects a portion of the McCarty Ave properties, Elmendorf St, and the surrounding vegetated area. This low point discharges through a 15" culvert to the combined sewer.
- West Swale at School: existing swale flowing east that collects portions of properties on Putnam Street and Van Orden Avenue, and the vegetated area to the west of the school. It appears that the swale conveys runoff to a catch basin that discharges directly to the combined sewer. *Additional field investigation would be required to verify.*
- West Sediment Basin: existing sediment basin located west of the American Little League fields that collects runoff from the vegetated area of the former McCarty Ave Landfill. There are several existing swales that convey runoff to the sediment basin, and it appears that there is an existing pipe network (36-54" dia.) that conveys only stormwater. However, this pipe network connects to the 54" combined sewer main at a point roughly 950-lf west of the First Ave Diversion Chamber. *Additional field investigation would be required to verify.*

Refer to **Appendix D, Figure 3**, for a map depicting the Watershed Areas Evaluated for Potential Off-Site Improvements.

The following sections outline the base improvements that are proposed as part of the Seventy-Six project, as well as potential off-site improvements that could be implemented in partnership with the City of Albany to broaden the positive impact to the combined sewer system.

3.1 Base Project Improvements

Base On-Site Improvements

The Seventy-Six project is designed to meet Net Zero Water, as well as the ILFI Net Positive Water Imperative. While these are complex certifications, simply put, the project will:

- Employ water reducing fixtures and programs to significantly reduce potable water demand from City infrastructure;
- Harvest, treat and reuse 100% of rainwater on-site for greywater and irrigation applications;
- Treat and reuse on-site as much wastewater as local and state regulations allow for greywater applications; and
- Discharge excess treated wastewater to a new storm sewer within Seymour Street that will connect to the storm relief main.

On-site reuse of 100% of rainwater that falls on the property, will result in a baseline annual reduction of **2.55 MGY** (million gallons per year) of stormwater, which will be eliminated from the combined sewer system.

Base Off-Site Improvements

In addition to the reduction accomplished by reuse, approximately 400-lf of separate storm sewer will be constructed within Seymour Street, between Krank Street and Benjamin Street, which will connect to the storm relief main. Excess treated wastewater from the project site will be discharged to the separate storm sewer, to provide capacity relief to the existing 12, 15, and 18" combined sewer mains that surround the project site.

Installation of this storm sewer alignment will also allow for disconnection of stormwater from the following additional off-site areas:

- Southern portion of Leonard Street: will be collected in new catch basins at the intersection of Krank and Seymour Street.
- Krank and Odell Streets: the existing catch basins at the southern ends of each street will be disconnected from the 12" combined sewer mains, replaced with new structures, and conveyed to the new storm sewer.

These off-site improvements will be completed by SED as part of the base project, and will result in an additional reduction of **2.95 MGY** of stormwater, that will be eliminated from the small diameter combined sewer mains and conveyed to the larger stormwater relief main. Refer to **Appendix D, Figure 4**, for a Proposed Off-Site Infrastructure Improvement Plan.

3.2 Potential Off-Site Improvements Led by City

The base project improvements described above are sufficient to meet and exceed the requirements of the City Of Albany for both stormwater and wastewater. However, we've identified additional off-site improvements that could be implemented by the City to broaden the positive impact.

Sanitary Sewer Capacity Improvements – Liebel/Leonard/Seymour Street

The existing combined sewer mains in Liebel Street, Leonard Street, and Seymour Street are 12", 15", and 18", respectively. Stormwater runoff could be disconnected from the small diameter combined sewer mains through the following City led improvements:

- Liebel/Leonard Street: disconnect the existing catch basins at the intersection of the two roads from the combined sewer. Replace the catch basins and extend a new separate storm sewer to the SED constructed storm sewer at the intersection of Krank and Seymour Streets.
- West Swale at School: disconnect the existing catch basin at the bottom of the swale from the combined sewer and convey to the separate storm sewer above.

Sanitary Sewer Capacity Improvements - First Ave/Benjamin St

There is an existing 54" combined sewer main that runs along First Ave, from the American Little League to the First Ave Diversion Chamber. At the intersection of First Ave and Benjamin St, the combined sewer is downsized to a 36" main. This system appears to operate as intended under normal sanitary low-flow conditions, but the capacity is exceeded during high-flow (wet weather) conditions where a portion of the flow is diverted to the 54" storm relief main.

The following potential improvements could be implemented to mitigate the insufficient capacity in the 36" combined sewer:

- Disconnect the Low-Point at Headwall watershed: the existing low point located southwest of the intersection of First Ave and Cherry Hill St, currently discharges through a 15" culvert to the combined sewer. This culvert and headwall are in poor to failing condition. There are existing catch basins in First Avenue directly adjacent to this area, that connect to the 54" storm relief main. The 15" culvert could be replaced in a new headwall, and redirected to the existing catch basins, to provide capacity relief to the 36" combined sewer main.
- Disconnect the West Sediment Basin watershed: extend a separate storm sewer from the sediment basin to the 54" storm relief main, to provide capacity relief to the 36" combined sewer main.
- Provide a 12" overflow from the 36" combined sewer main to the 12" combined sewer main running east in First Ave. If splitting the flow between the 12" and 36" mains does not provide sufficient capacity, then replace the 12" combined sewer main in First Ave from Cherry Hill St to S Pearl St with a larger diameter main.

The above improvements could be implemented in multiple construction phases to provide incremental benefit over time. However, the goal would be to eliminate enough stormwater volume from the combined sewer, to allow the 36" main to convey the full sanitary flow. If that is accomplished, then the First Ave Diversion Chamber could be eliminated.

Stormwater Bypass at Bouck Street Regulator

Following the sanitary sewer capacity improvements outlined above, the 54" storm relief main would operate as a separate storm sewer up until the point that it connects/flows through the Bouck Street Regulator. As such, construction of a stormwater bypass around the Bouck Street Regulator, with connection to the 91" discharge pipe to the Hudson River, would be the final step in successfully establishing a separate stormwater collection system in the South End. While we recognize that there are substantial design, construction, and cost considerations to create this bypass, the benefit to the combined sewer system and the reduction in the volume of overflows to the Hudson River would be significant.

4.0 SUMMARY

The mission of SED is to provide sustainable development that is environmentally conscious, as well as economically and socially considerate. While the sustainable goals of the Seventy-Six are lofty, they are goals that are necessary to revitalize the historic South End neighborhood, and maximize benefit to both the residents and the infrastructure. The evaluation herein, focuses on the most critical environmental concern in Albany, which is the volume and intensity of combined sewer overflows.

As a standalone project, the base improvements that are included in the Seventy-Six project, will result in a reduction of 5.5 MGY of stormwater flow from the City of Albany's combined sewer system through sustainable design and construction of off-site separate storm sewer. However, SED is committed to going further, recognizing that watershed-wide stewardship is the responsibility of our generation. The following provides a summary of each of the watersheds that have been evaluated herein.

Table 1
Summary of Watersheds Evaluated for Off-Site Improvements
& Potential Stormwater Reductions

Watershed Designation	Area (acres)	Annual Precipitation (feet)	Annual Runoff Volume (acre-feet)	Annual Runoff Volume (MGY)
Project Site (Base Project)	**2.39**	**3.28**	**7.84**	**2.55**
Leonard/Krank/Odell Streets (Base Project)	**2.76**	**3.28**	**9.05**	**2.95**
Liebel Street	*4.80*	*3.28*	*15.74*	*5.13*
West Swale at School	*6.28*	*3.28*	*20.60*	*6.71*
Low Point at Headwall	*6.30*	*3.28*	*20.66*	*6.73*
West Sediment Basin	*15.09*	*3.28*	*49.50*	*16.13*
			Base Project Stormwater Reduction	**5.50**
			Potential Stormwater Reduction Through Off-Site Improvements	***34.70***

As demonstrated above, collaboration with the City has the potential to eliminate an additional 34.70 MGY of stormwater from the combined sewer system, for a total potential reduction of **40.2 MGY**. Through shared investment, we believe the improvements evaluated herein are viable because they will reduce the City's annual sanitary sewer treatment cost and position the City to further expand separate storm sewer infrastructure in the South End. We're excited for the progression and successful completion of the Seventy-Six project, and are looking forward to partnering with the City of Albany to realize the substantial environmental benefits and improved functionality of the combined sewer system.

Appendix A
Bouck Sewershed & Record Infrastructure Maps

Legend

- 2-foot Contours
- 🟥 Bouck Sewershed Boundary
- Project Site
- Combined Sewer Mains
- Combined Sewer Manholes
- CSO Outfall 013
- ⋈ Stormwater Control Valve
- Stormwater Relief Mains
- Ⓓ Stormwater Relief Manholes
- CB Catch Basins Not In Record Maps
- Separate Storm Sewer

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547 River Street
Troy, NY. 12180
Phone: (518) 273-0055

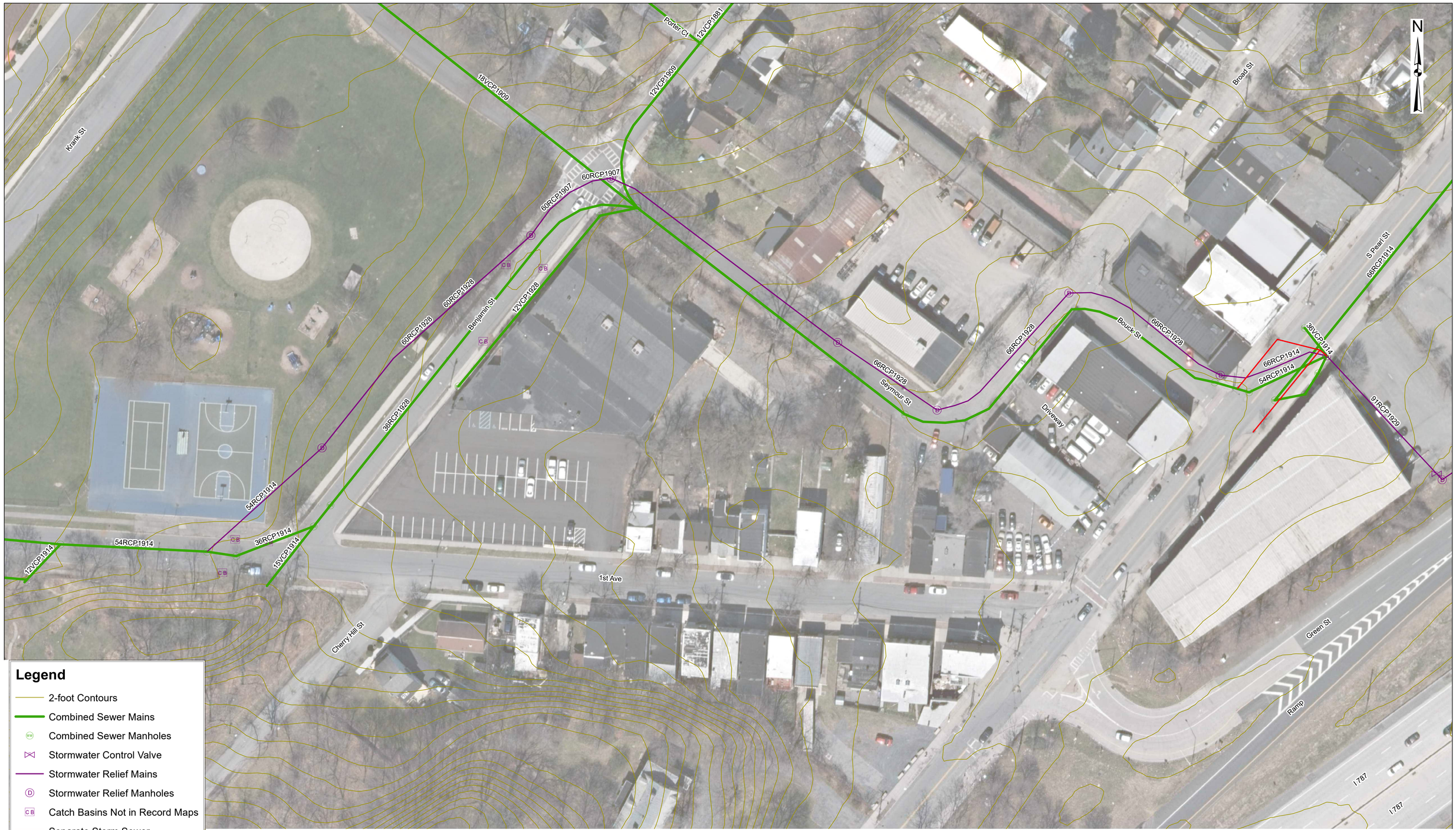
North Country Office:
20 Elm Street
Glens Falls, NY. 12801
Phone: (518) 812-0513

South End Development - The Seventy-Six

Bouck Sewershed & Partial City of Albany Record Infrastructure Map

City of Albany, Albany County, New York

Drawn:	ZFB
Date:	08/04/2020
Scale:	1:5,000
Project:	32019.00
Figure:	1



Legend

- 2-foot Contours
- Combined Sewer Mains
- Combined Sewer Manholes
- Stormwater Control Valve
- Stormwater Relief Mains
- Stormwater Relief Manholes
- Catch Basins Not in Record Maps
- Separate Storm Sewer

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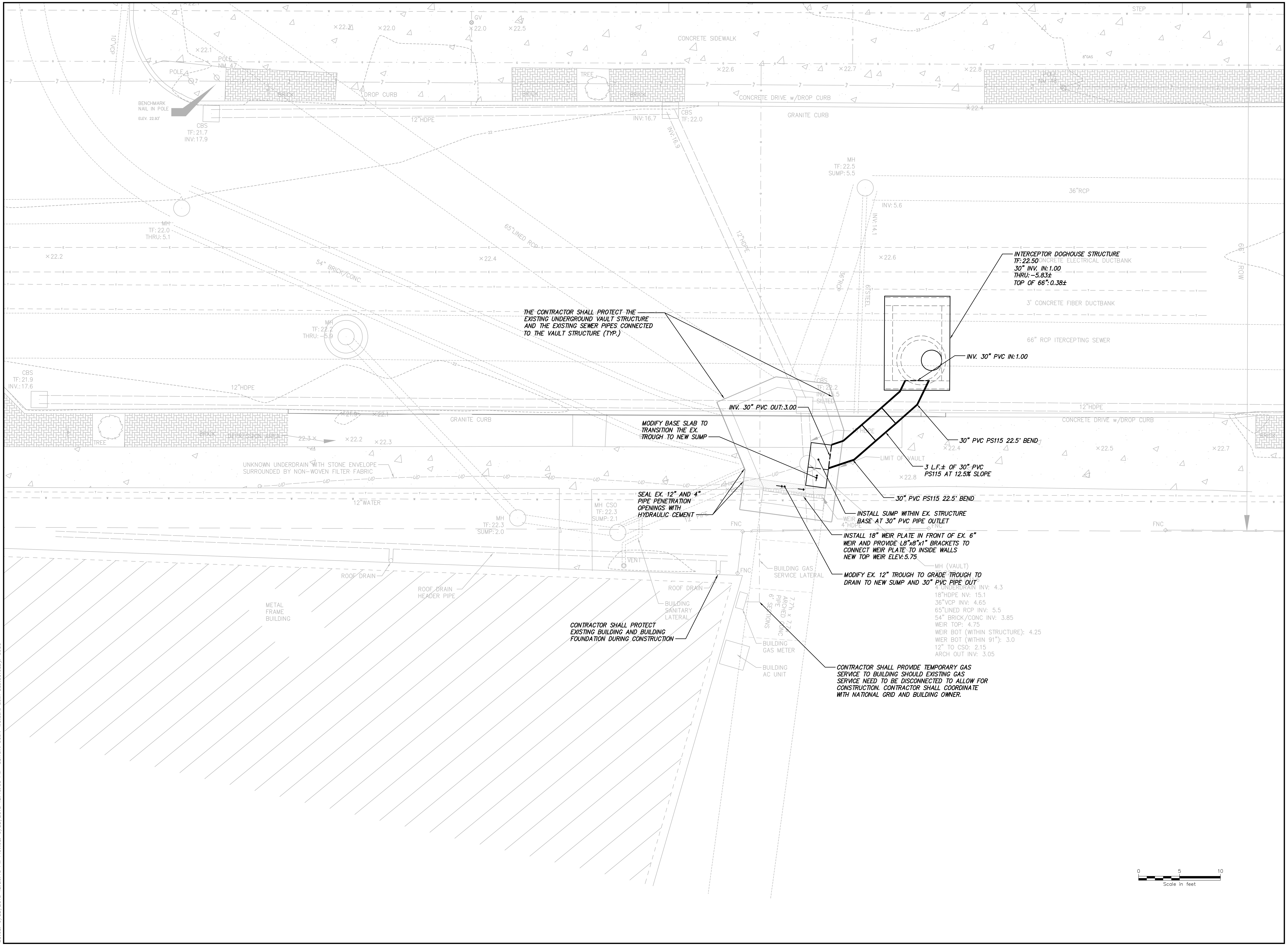
South End Development - The Seventy-Six

Partial City of Albany Record Infrastructure Map

City of Albany, Albany County, New York

Drawn:	ZFB
Date:	08/04/2020
Scale:	1:450
Project:	32019.00
Figure:	2

Appendix B
2018
Bouck Street Regulator Optimization Project


INTERCEPTOR DOGHOUSE STRUCTURE
TF: 22.50
30" INV. IN: 1.00
THRU: -5.83±
TOP OF 66": 0.38±
INV. 30" PVC IN: 1.00
THE CONTRACTOR SHALL PROTECT THE EXISTING UNDERGROUND VAULT STRUCTURE AND THE EXISTING SEWER PIPES CONNECTED TO THE VAULT STRUCTURE (TYP.)
INV. 30" PVC OUT: 3.00
MODIFY BASE SLAB TO TRANSITION THE EX. TROUGH TO NEW SUMP
30" PVC PS115 22.5° BEND
3 L.F.± OF 30" PVC PS115 AT 12.5% SLOPE
30" PVC PS115 22.5° BEND
SEAL EX. 12" AND 4" PIPE PENETRATION OPENINGS WITH HYDRAULIC CEMENT
INSTALL SUMP WITHIN EX. STRUCTURE BASE AT 30" PVC PIPE OUTLET
INSTALL 18" WEIR PLATE IN FRONT OF EX. 6" WEIR AND PROVIDE L8"x8"x1" BRACKETS TO CONNECT WEIR PLATE TO INSIDE WALLS NEW TOP WEIR ELEV: 5.75
MODIFY EX. 12" TROUGH TO GRADE TROUGH TO DRAIN TO NEW SUMP AND 30" PVC PIPE OUT
MH (VAULT)
4" UNDERDRAIN INV: 4.3
18"HDPE NV: 15.1
36"VCP INV: 4.65
65"LINED RCP INV: 5.5
54" BRICK/CONC INV: 3.85
WEIR TOP: 4.75
WEIR BOT (WITHIN STRUCTURE): 4.25
WIER BOT (WITHIN 91"): 3.0
12" TO CSO: 2.15
ARCH OUT INV: 3.05
CONTRACTOR SHALL PROTECT EXISTING BUILDING AND BUILDING FOUNDATION DURING CONSTRUCTION
CONTRACTOR SHALL PROVIDE TEMPORARY GAS SERVICE TO BUILDING SHOULD EXISTING GAS SERVICE NEED TO BE DISCONNECTED TO ALLOW FOR CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH NATIONAL GRID AND BUILDING OWNER.
CONCRETE SIDEWALK
CONCRETE DRIVE w/DROP CURB
GRANITE CURB
DROP CURB
BENCHMARK NAIL IN POLE
POLE
TREE
CBS TF: 21.7 INV: 17.9
CBS TF: 22.0
INV: 16.7
12"HDPE
MH TF: 22.5 SUMP: 5.5
INV: 5.6
36"RCP
MH TF: 22.0 THRU: 5.1
65"LINED RCP
54" BRICK/CONC
CONCRETE ELECTRICAL DUCTBANK
3' CONCRETE FIBER DUCTBANK
66" RCP ITERCEPTING SEWER
66' ROW
MH TF: 22.2 THRU: -5.9
CBS TF: 21.9 INV.: 17.6
UNKNOWN UNDERDRAIN WITH STONE ENVELOPE SURROUNDED BY NON-WOVEN FILTER FABRIC
12" WATER
MH TF: 22.3 SUMP: 2.0
MH CSO TF: 22.3 SUMP: 2.1
VENT
LIMIT OF VAULT
FNC
ROOF DRAIN
ROOF DRAIN HEADER PIPE
METAL FRAME BUILDING
BUILDING GAS SERVICE LATERAL
BUILDING SANITARY LATERAL
BUILDING GAS METER
BUILDING AC UNIT
0 5 10
Scale in feet

CHA
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Albany, NY 12205-0269
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CITY OF ALBANY WATER DEPT.

THE CITY OF ALBANY DEPARTMENT OF WATER AND WATER SUPPLY

BOUCK STREET REGULATOR OPTIMIZATION PROJECT

No.	Submittal / Revision	App'd.	By	Date
1	ISSUED TO CITY	MEH	SHW	5/16/2018
2	REVISIONS TO STRUCTURE	MEH	SHW	6/12/2018
3	REVISIONS TO LAYOUT & STRUCTURE	MEH	SHW	6/15/2018
4	REVISIONS TO LAYOUT & STRUCTURE	MFM	SHW	6/22/2018

SUBSURFACE LAYOUT PLAN

Designed By:	Drawn By:	Checked By:
SHW	SHW	MEH
Issue Date:	Project No:	Scale:
5/16/2018	31063	AS SHOWN

Drawing No.:
C-102

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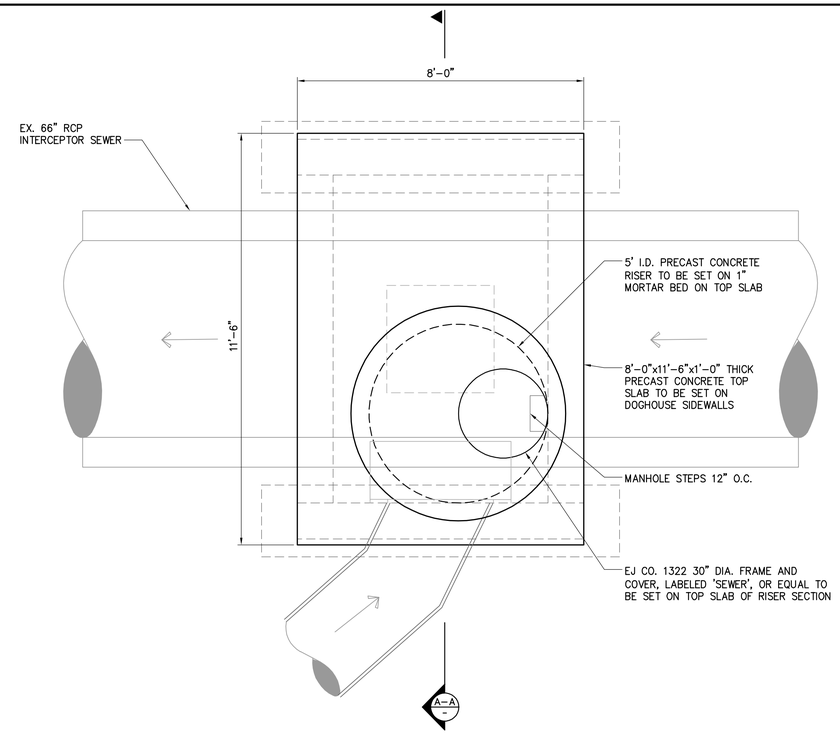

INTERCEPTOR DOGHOUSE STRUCTURE PLAN VIEW (TOP SLAB)
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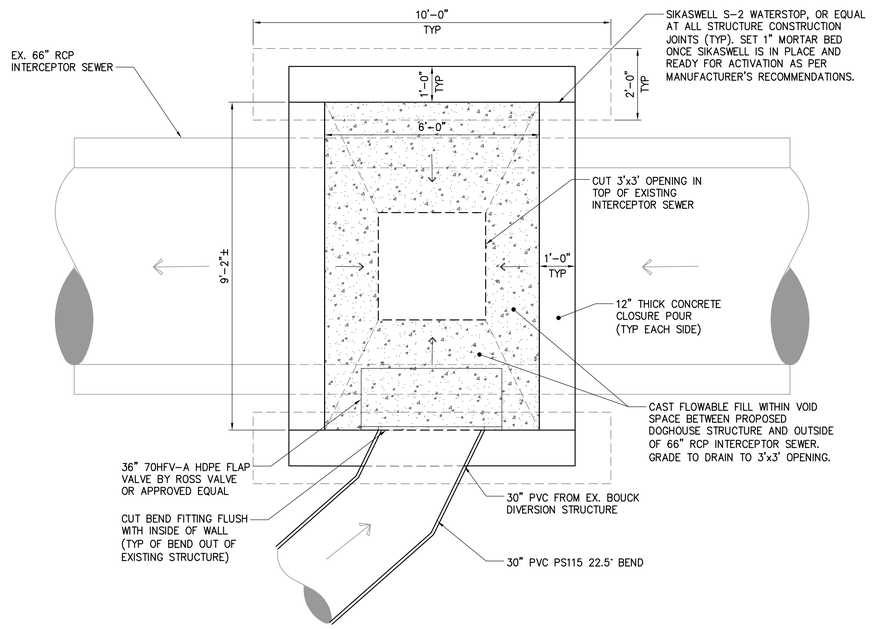

INTERCEPTOR DOGHOUSE STRUCTURE PLAN VIEW (INSIDE STRUCTURE)
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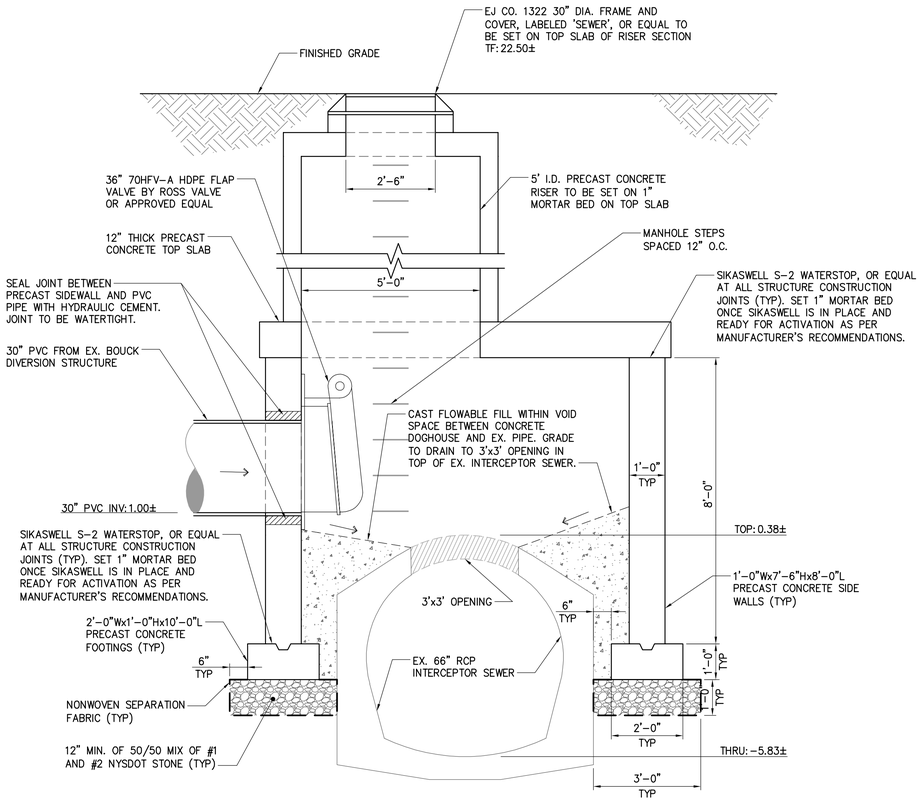

INTERCEPTOR DOGHOUSE STRUCTURE SECTION A-A
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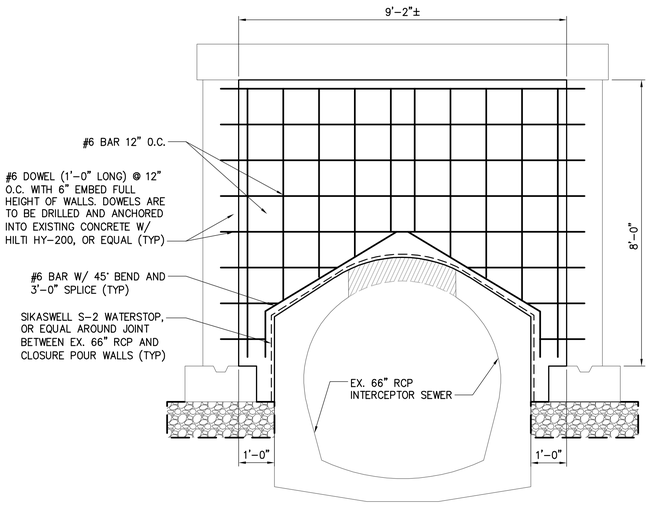

TYPICAL CLOSURE POUR WALL SECTION DETAIL
SCALE: 1/2"=1'-0"

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Albany, NY 12205-0269
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THE CITY OF ALBANY
DEPARTMENT OF WATER
AND WATER SUPPLY

BOUCK STREET
REGULATOR
OPTIMIZATION
PROJECT

No.	Submittal / Revision	App'd.	By	Date
1	ISSUED TO CITY	MEH	SHW	5/16/2018
2	REVISIONS TO STRUCTURE	MEH	SHW	6/12/2018
3	REVISIONS TO LAYOUT & STRUCTURE	MEH	SHW	6/15/2018
4	REVISIONS TO LAYOUT & STRUCTURE	MFM	SHW	6/22/2018

INTERCEPTOR
DOGHOUSE
STRUCTURE
DETAILS

Designed By:	Drawn By:	Checked By:
SHW	SHW	RPC
Issue Date:	Project No:	Scale:
5/16/2018	31063	AS SHOWN

Drawing No.:
S-604

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Appendix C
First Ave Diversion Chamber Record Maps

CITY OF ALBANY, N.Y.

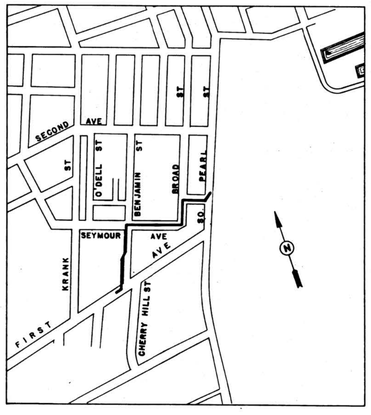
IMPROVEMENT OF SEWERAGE SYSTEM

CONTRACT NO. 13

FOR CONSTRUCTING

STORM RELIEF SEWERS

MARCH 1949



PROJECT L

SPECIFICATIONS

The following notes, supplement, alter or revise the Standard Specifications of the City of Albany, N.Y. in accordance with the provisions of the information for Bidders forming part of this contract.

Item 1 - Removing, Carting and Storing Old Material shall include the demolition, removal and disposal of material of existing sewers and appurtenances, and of sidewalks, as required.

Item 7 - Reinforced Concrete Pipe; shall conform to the A.S.T.M. classifications indicated on these Plans. Bid prices shall cover the cost of the concrete pipe as classified.

Item 8 - Cast Iron Pipe, shall meet the requirments for A.W.W.A. Class A pipe. The bid price shall include properly poured and caulked joints of virgin lead.

Item 10 - Vitrified Clay Pipe Sewer; shall include the cost of any branches, bends, reducers, increasers, tees or other fittings required which shall in all cases be measured as straight pipe.

Item 31 - Relaying Curb. The bid price shall include the furnishing of any new straight or circular granite curb necessary to complete the work and to provide an entire granite curb job, conforming to the requirements of Items 28-29.

Item 32a - Broken Stone Cement Concrete Sidewalks including Foundation. Sidewalks to be replaced shall conform to this item.

Item 42 - Replacing Pavement. Pavement to be replaced shall be of the same type as the pavement removed. One bid price for this item shall cover the cost of any pavement replaced, regardless of type and shall include all necessary reinforcement and concrete and gravel foundation required. Pavement as replaced shall extend 18 inches beyond both sides of the trench.

Item 43a - First Class Concrete - broken stone aggregate.
Item 44a - Second Class Concrete - broken stone aggregate
Item 45a - Third Class Concrete - broken stone aggregate

Payment for concrete in manholes, monolithic sewers, cradles, special sewer structures and similar work shall be made under the above appropriate items where called for on the Plans.

Item 48 - Broken Stone
Item 49 - Screened Gravel

Payment shall not be made under these items for material used in backfilling trenches or for underdrain construction but only when such materials are used elsewhere on written order by the Engineer.

Item 52 - Miscellaneous Iron and Steel. All reinforcement for structures, except that required for replacing pavement shall be paid for under this item and shall meet the requirements of item 47. Manhole steps shall be wrought iron heavily hot dipped galvanized and shall be paid for under this item. The bid price shall include the cost of galvanizing.

Particular attention is called to the necessity that the flow be properly maintained in all existing sewers at all times. The cost of so doing shall be considered as included in the various bid items.

That part of the requirements under the last paragraph, of "Information for Bidders - General Conditions" on Page 17 is waived under this Contract.

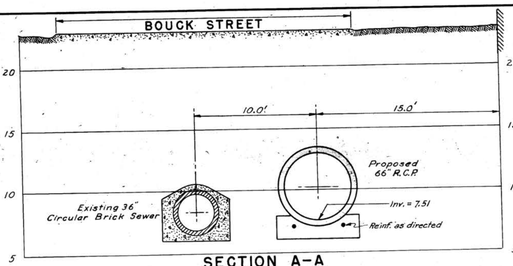
All concrete shall be first class except pipe cradles and concrete refill, which shall be third class.

All pipe connections to catch basins shall be concrete culvert pipe - standard strength

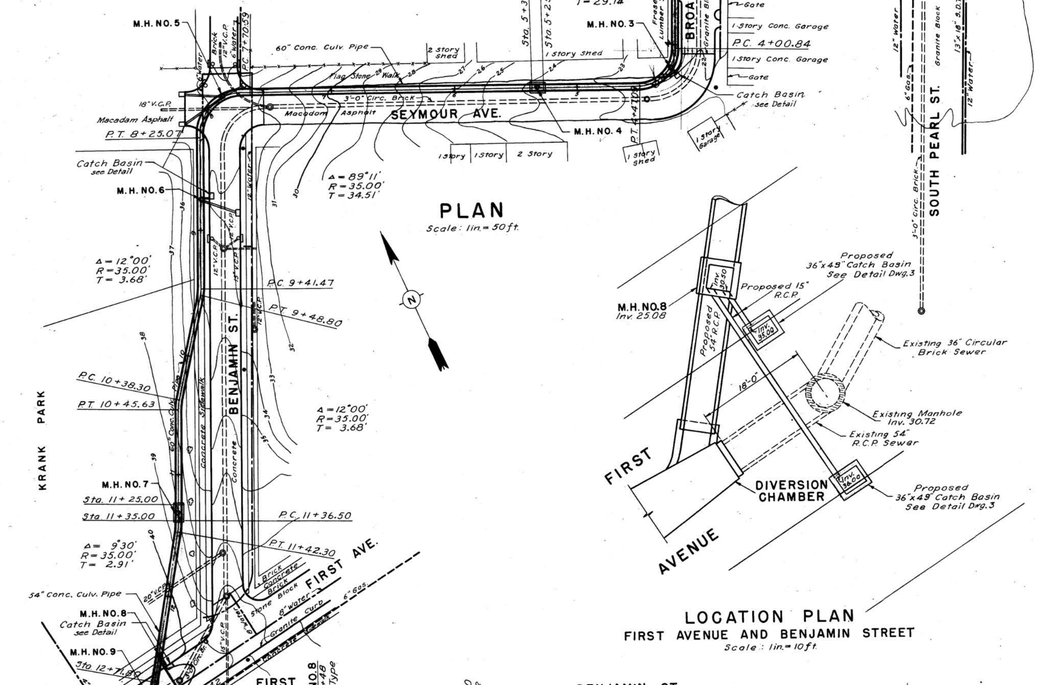
PARSONS, BRINCKERHOFF, HOGAN & MACDONALD
ENGINEERS NEW YORK
BY S. Stebbins Hogan
LICENSE NO. 21593

ERASTUS CORNING 2nd
MAYOR
Arthur T. Bunch
CITY ENGINEER

PARSONS, BRINCKERHOFF, HOGAN & MACDONALD
ENGINEERS NEW YORK

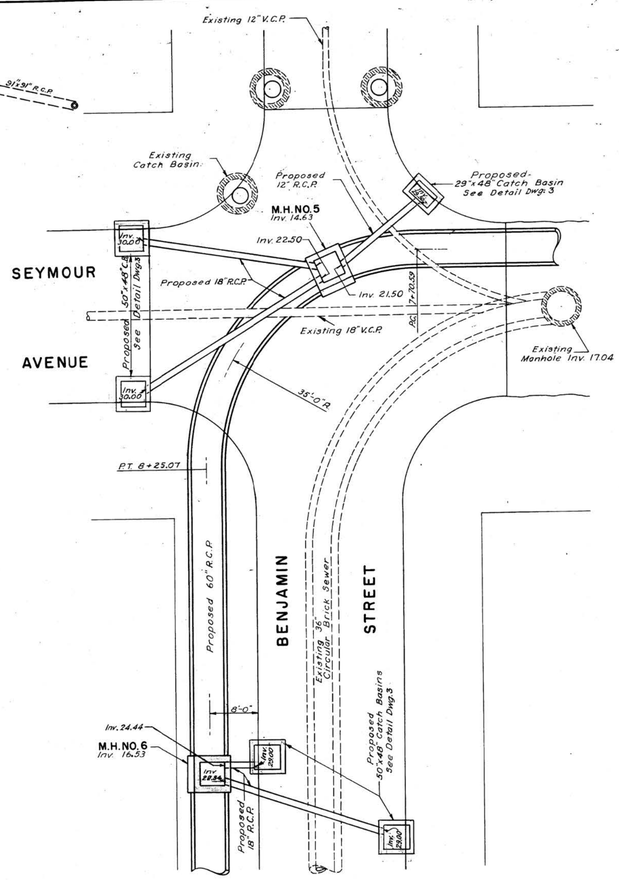


SECTION A-A
Scales: Horiz. 1in = 5ft. Vert. 1in = 5ft.

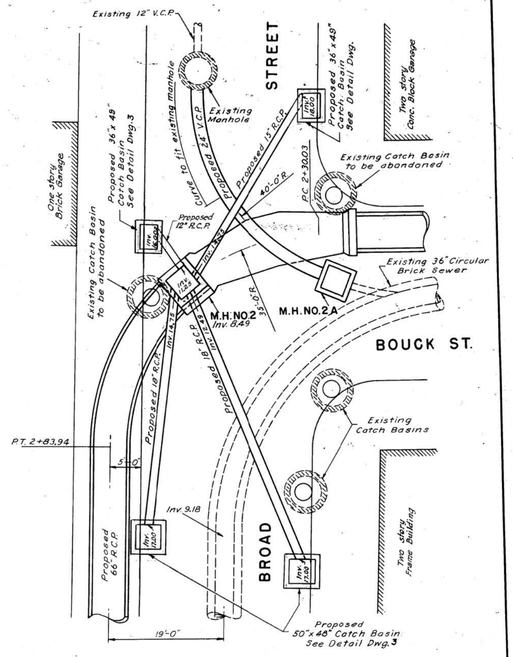


PLAN
Scale: 1in. = 50ft.

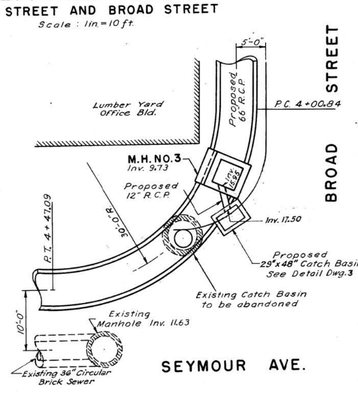
LOCATION PLAN
FIRST AVENUE AND BENJAMIN STREET
Scale: 1in. = 10ft.



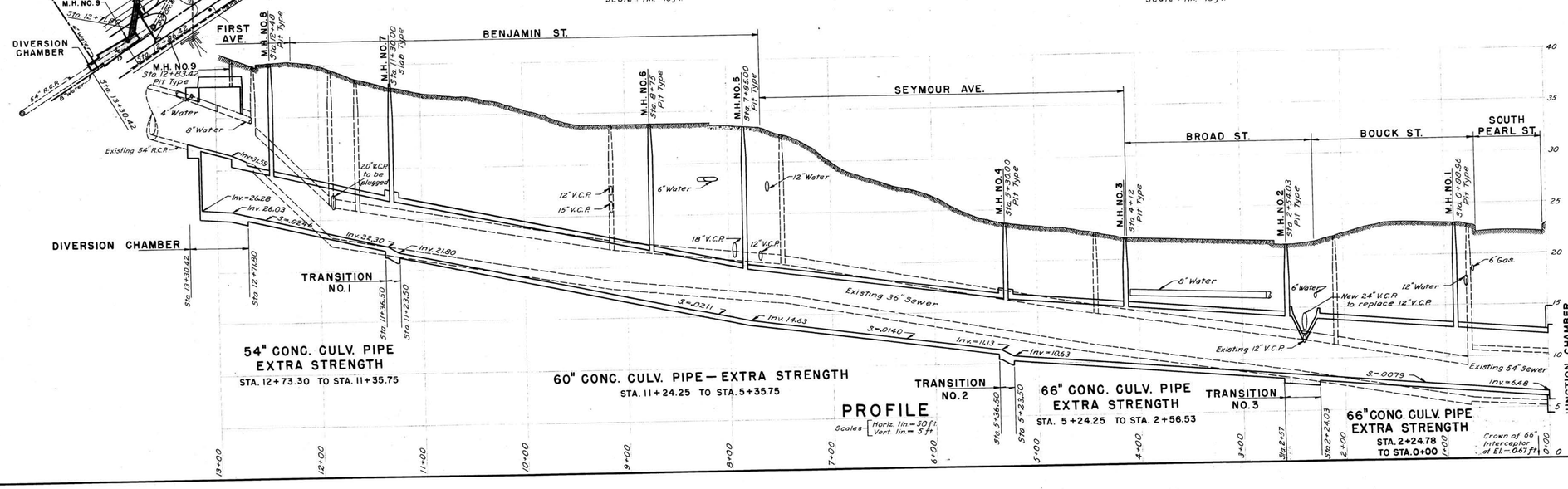
LOCATION PLAN
SEYMOUR AVENUE AND BENJAMIN STREET
Scale: 1in. = 10ft.



LOCATION PLAN
BOUCK STREET AND BROAD STREET
Scale: 1in. = 10ft.



LOCATION PLAN
SEYMOUR AVENUE AND BROAD STREET
Scale: 1in. = 10ft.



54" CONC. CULV. PIPE EXTRA STRENGTH
STA. 12+73.30 TO STA. 11+35.75

60" CONC. CULV. PIPE — EXTRA STRENGTH
STA. 11+24.25 TO STA. 5+35.75

66" CONC. CULV. PIPE EXTRA STRENGTH
STA. 5+24.25 TO STA. 2+56.53

66" CONC. CULV. PIPE EXTRA STRENGTH
STA. 2+24.78 TO STA. 0+00

PROFILE
Scales: Horiz. 1in = 50ft. Vert. 1in = 5ft.

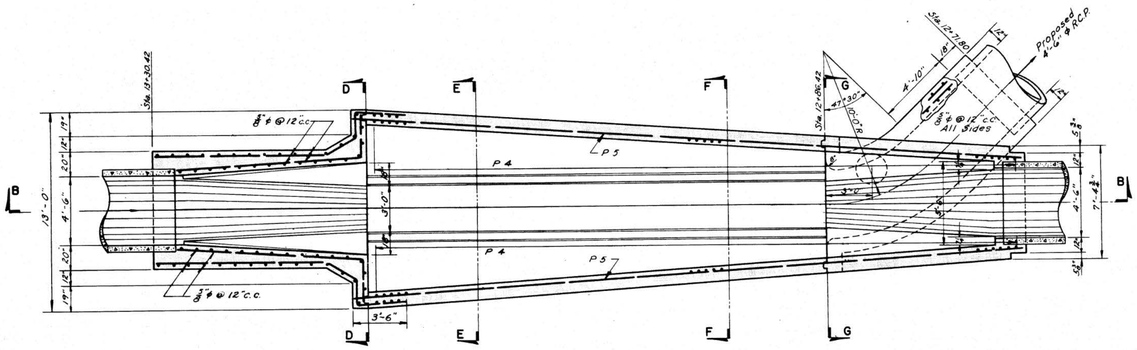
CITY OF ALBANY
IMPROVEMENT OF SEWERAGE SYSTEM
CONTRACT NO. 13
STORM RELIEF SEWERS
PROJECT L
BENJAMIN, SEYMOUR AVE., BROAD & BOUCK ST.S
PLAN & PROFILE

SCALE AS SHOWN	MARCH 1949	DWG NO.

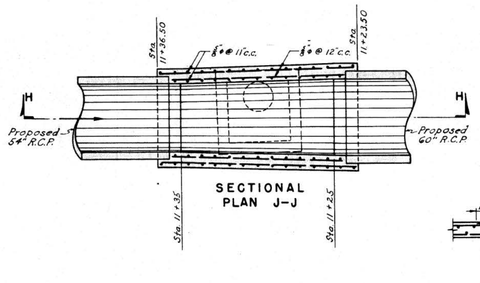
ARTHUR L. BUSH, CITY ENGINEER
ERASTUS CORNING 2nd., MAYOR

AA 563

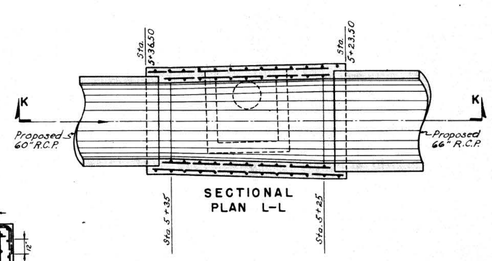
PARSONS, BRINCKERHOFF, HOGAN & MACDONALD
ENGINEERS NEW YORK



SECTIONAL PLAN C-C

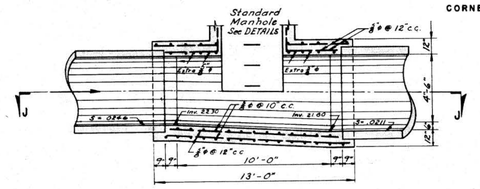


SECTIONAL PLAN J-J

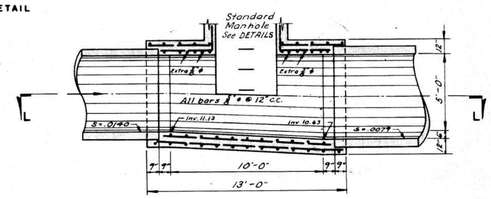


SECTIONAL PLAN L-L

CORNER DETAIL



SECTION H-H



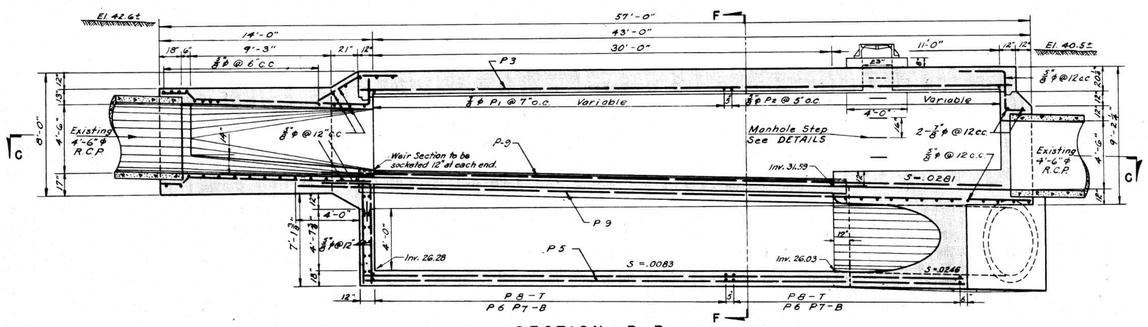
SECTION K-K

TRANSITION NO.1

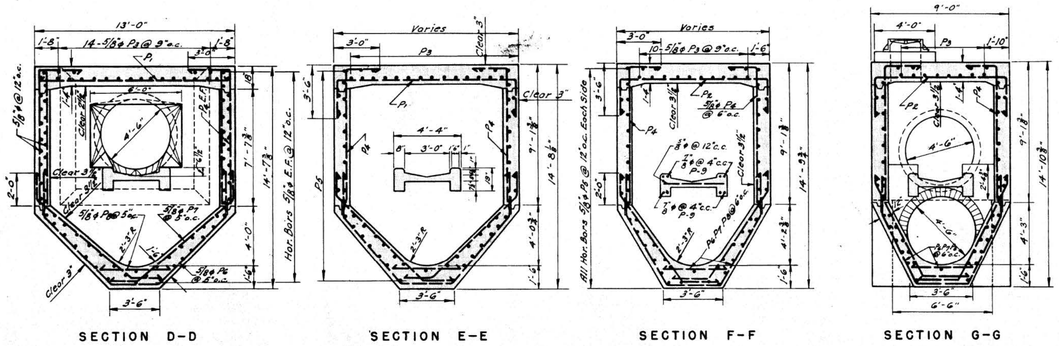
Scale: 1/4 Inch = 1 Ft.

TRANSITION NO.2

Scale: 1/4 Inch = 1 Ft.



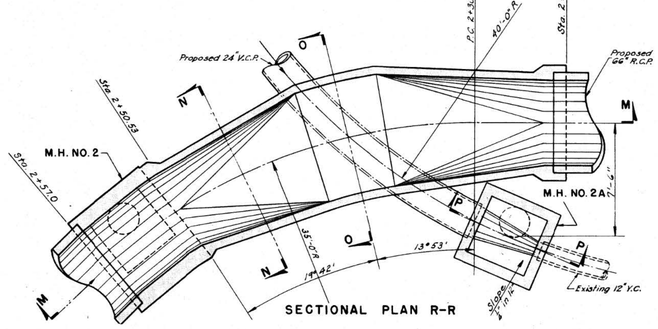
SECTION B-B



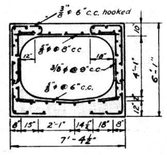
SECTION D-D SECTION E-E SECTION F-F SECTION G-G

DIVERSION CHAMBER

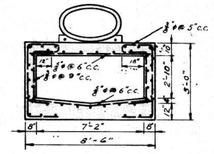
Scale: ¼ in. = 1 ft.



SECTIONAL PLAN R-R



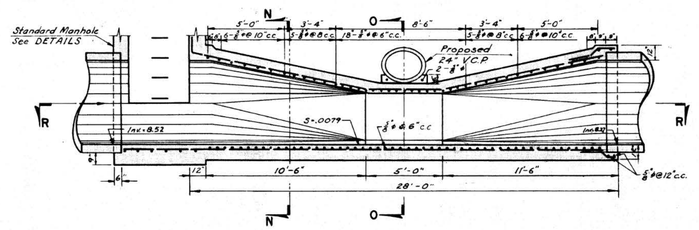
SECTION N-N



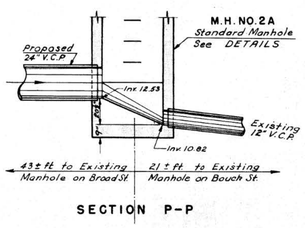
SECTION O-O

Note: All longitudinal reinforcing bars ⅞" ϕ @ 12" c.c.

Ground El. 21.50



SECTION M-M



SECTION P-P

TRANSITION NO. 3

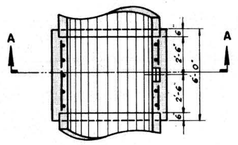
Scale: 1/4 Inch = 1 Ft.

CITY OF ALBANY
IMPROVEMENT OF SEWERAGE SYSTEM
CONTRACT NO. 13
STORM RELIEF SEWERS
PROJECT L
BENJAMIN, SEYMOUR AVE., BROAD & BOUCK STS
STRUCTURAL DETAILS

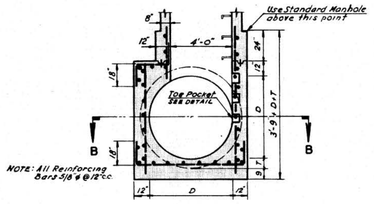
SCALE AS SHOWN	MARCH 1949	DWG. NO. 2

ARTHUR L. BUSH, CITY ENGINEER
ERASTUS CORNING 2nd, MAYOR

PARSONS, BRINCKERHOFF, HOGAN & MACDONALD
ENGINEERS NEW YORK

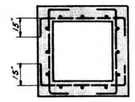


SECTIONAL PLAN B-B

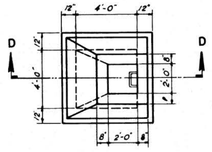


SECTION A-A

MANHOLE FOR
54" PIPE & LARGER

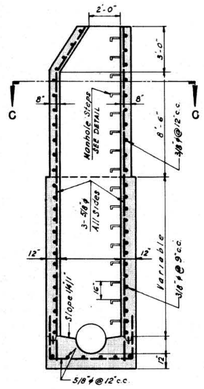


SECTION C-C

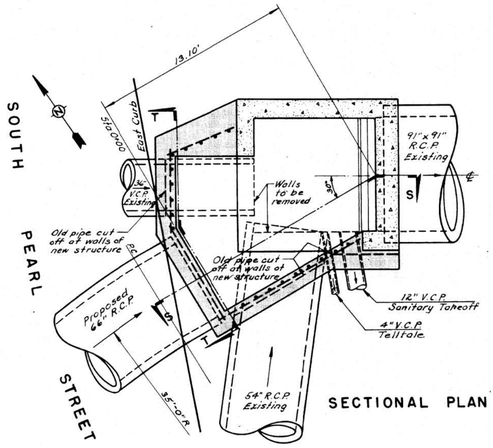


PLAN OF TYPICAL MANHOLE

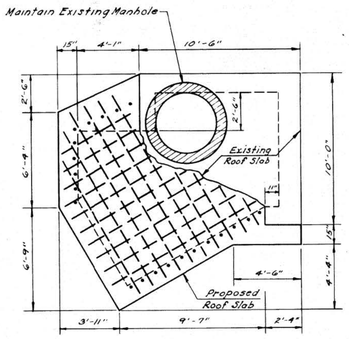
Scale: 1/4 in = 1ft.



SECTION D-D

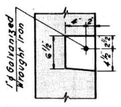


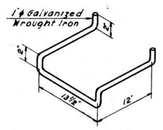
SECTIONAL PLAN V-V

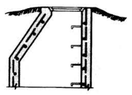


Notes:
All bars 5/8" ϕ @ 12" c.c.
Allow 30" of existing bars for tying in new roof slab.

DETAILS OF ROOF SLAB

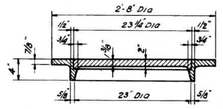






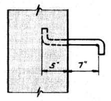
SLAB TYPE MANHOLE

All Manholes Frames & Covers to be equipped with Townsend Lock or equivalent

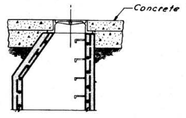


SLAB TYPE

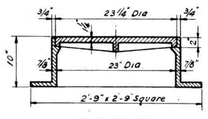
TOE POCKET



MANHOLE STEP



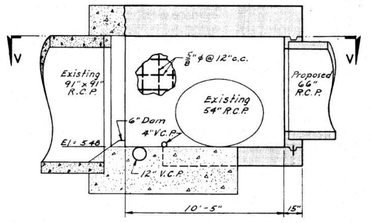
PIT TYPE MANHOLE



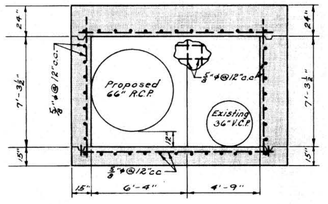
PIT TYPE.

MANHOLE FRAMES & COVERS

MANHOLE DETAILS

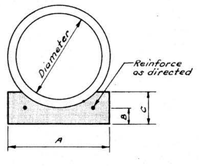


SECTION S-S



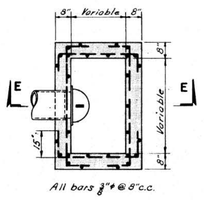
Notes:
Arrangement of bars in base same as in roof.
3/4" ϕ @ 12" c.c. to be dowelled 12" into old base & extending 12" into new base.

SECTION T-T



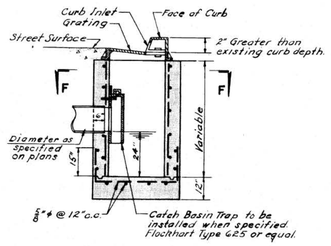
CRADLE DETAIL
To be used as directed

Diameter	A	B	C
12"	16"	4"	8"
15"	20"	4½"	9"
18"	23"	5"	10"
42"	51"	8"	16"
54"	66"	10"	20"
60"	72"	11"	22"
66"	80"	12"	24"

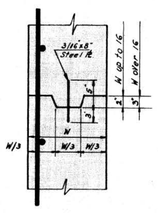


All bars 3/8" ϕ @ 8" c.c.

PLAN E-E



SECTION F-F



CONSTRUCTION JOINT

CATCH BASIN
Scale: 3/8 in = 1 ft.

TYPICAL DETAILS

JUNCTION CHAMBER

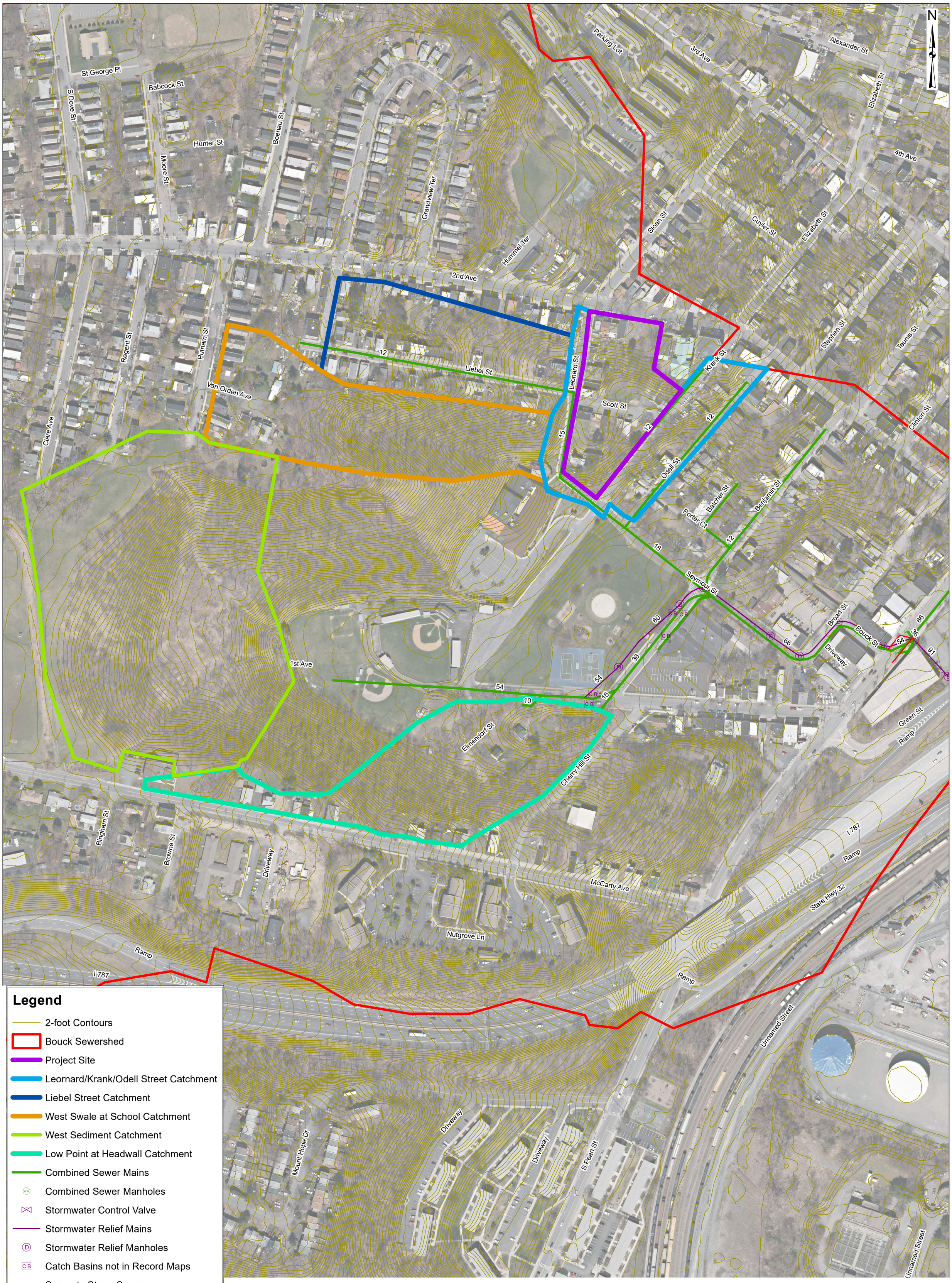
CONVERSION OF EXISTING MANHOLE "A" ON THE
McCARTY AVE. AND BOUCK ST. SEWERS
Scale: 1/4 in. = 1 ft.

CITY OF ALBANY
IMPROVEMENT OF SEWERAGE SYSTEM
CONTRACT NO. 13
STORM RELIEF SEWERS
PROJECT L
BENJAMIN, SEYMOUR AVE., BROAD & BOUCK STS.
STRUCTURAL & TYPICAL DETAILS

SCALE AS SHOWN	MARCH 1949	DWG NO. 3

ARTHUR L. BUSH, CITY ENGINEER
ERASTUS CORNING 2nd, MAYOR

Appendix D
Off-Site Infrastructure Improvement Plans



Legend

- 2-foot Contours
- Bouck Sewershed
- Project Site
- Leornard/Krank/Odell Street Catchment
- Liebel Street Catchment
- West Swale at School Catchment
- West Sediment Catchment
- Low Point at Headwall Catchment
- Combined Sewer Mains
- Combined Sewer Manholes
- Stormwater Control Valve
- Stormwater Relief Mains
- Stormwater Relief Manholes
- Catch Basins not in Record Maps
- Separate Storm Sewer

THE Chazen COMPANIES
Proud to be Employee Owned
Engineers
Land Surveyors
Planners
Environmental & Safety Professionals
Landscape Architects

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C.

Dutchess County Office:
21 Fox Street
Poughkeepsie, NY. 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street
Troy, NY. 12180
Phone: (518) 273-0055

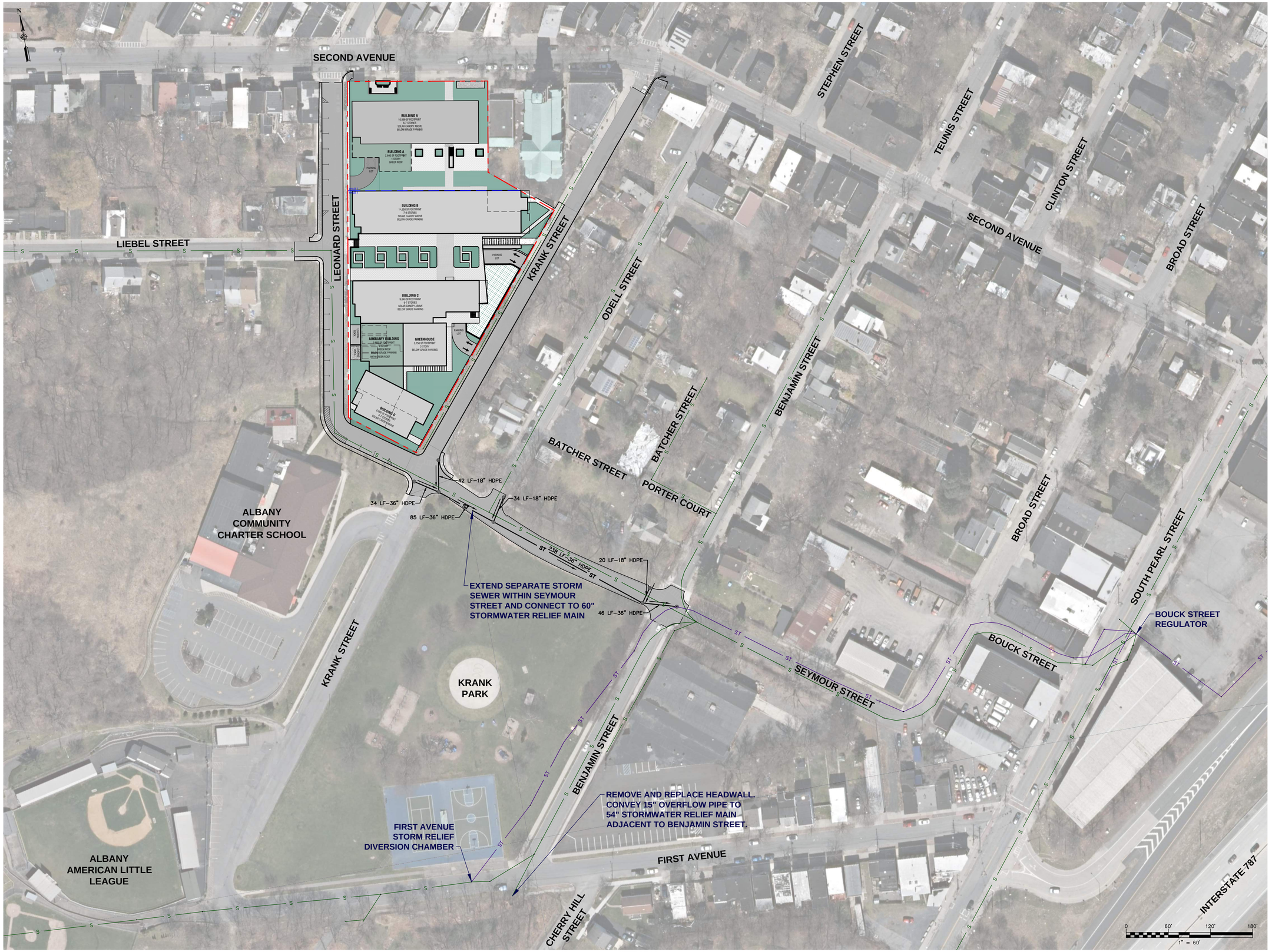
North Country Office:
20 Elm Street
Glens Falls, NY. 12801
Phone: (518) 812-0513

South End Develoipment - The Seventy-Six

Watershed Areas Evaluated for Potential Off-Site Improvements

City of Albany, Albany County, New York

Drawn:	ZFB
Date:	08/04/2020
Scale:	1:1,500
Project:	32019.00
Figure:	3



THE SEVENTY-SIX

Parcel 76, 76 Second Avenue, City of Albany, NY

Owner: South End Development LLC

Architect:
Garrison-Architects
45 Main Street
Brooklyn, NY 11201

Civil Engineer:
The Chazen Companies
547 River St,
Troy, NY 12180
p (518) 273-0055
Chazen Project No. 32019.00

Revision Schedule

Revision Number	Revision Description	Revision Date

Schematic Design

Scale:	AS NOTED
Date:	08/04/2020
Project No:	2005
Drawn by:	KC/SM
Checked by:	RK

Seal & Signature:

DOB Stamp & Signature

DOB Scan:

Drawing Title:

Proposed Off-Site Infrastructure Improvement Plan

Drawing Number:

FIG-4

DWG.No: