AMENDED TRAFFIC IMPACT STUDY

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

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Introduction

Pennoni Associates, Inc., has completed a Traffic Impact Study (TIS) associated with a proposed office building located at 1 Holtec Boulevard in the City of Camden, Camden County, New Jersey. The development consists of a 2-story, 51,586 SF office building, a 2,065 SF pole barn, and an existing surface parking lot adjacent to the main office building within the greater Holtec campus comprised will be expanded by 190 parking spaces. The proposed development will be accessed through an existing full movement driveway on Holtec Boulevard, which currently provides access to an existing parking lot. The site driveway will provide access to the proposed office building parking lot, which will provide a total of 274 additional parking spaces.

The existing site is bounded by Broadway (CR 551) to the east and north, the Holtec Driveway to the west, and Holtec Boulevard to the south. The development is anticipated to be completed in 2024.

The project study area is depicted on **Figure 1**, the overall facility site plan is depicted on **Figure 2**, and the ground floor site plan of the proposed office building is depicted on **Figure 3**.

Study Area

The study area defined for this TIS includes the following intersections:

- Broadway (CR 551) and Jefferson Street
- Broadway (CR 551) and Chelton Avenue
- Broadway (CR 551) and Holtec Driveway
- Broadway (CR 551) and Holtec Boulevard/Morgan Boulevard
- Holtec Boulevard/Morgan Boulevard and I-676 SB Ramp/Covanta Driveway
- Morgan Boulevard and I-676 NB Ramp/Master Street

The signal timing for the traffic signals at Broadway (CR 551) and Jefferson Street was obtained from the City of Camden. The signal timings for Broadway (CR 551) and Holtec Boulevard, Holtec Boulevard/Morgan Boulevard and I-676 SB Ramp/Covanta Driveway, and Morgan Boulevard and I-676 NB Ramp/Master Street were obtained from NJDOT.

Existing Roadway Facilities

The existing roadways within the study area are summarized below:

- **Broadway (CR 551) –** Broadway (CR 551) is a north-south oriented roadway and falls under both Urban Minor Arterial and Urban Principal Arterial roadway classifications within the study area. Broadway (CR 551) is of varying width and designated as a two-way. Within the study area, Broadway (CR 551) consists of one (1) travel lane in each direction and no parking on either side of the roadway. Sidewalk is present intermittently on both sides of the roadway. The speed limit is unposted on Broadway (CR 551), but is assumed to be 25 MPH.
- **Holtec Boulevard/Morgan Boulevard –** Holtec Boulevard/Morgan Boulevard is an east-west oriented roadway and falls under both Urban Minor Arterial and Urban Principal Arterial roadway classifications within the study area. Holtec Boulevard/Morgan Boulevard is of varying width and designated as a two-way. Within the study area, Holtec Boulevard/Morgan Boulevard consists of one (1) or more travel lanes in each direction and no parking on either side of the roadway. Sidewalk is present intermittently on both sides of the roadway. The speed limit is unposted on Holtec Boulevard/Morgan Boulevard, but is assumed to be 25 MPH.
- **I-676 Off Ramps –** The I-676 Off Ramps are north-south Urban Interstate roadways. Both ramps are approximately 26' wide and designated as a one-way. Within the study area, both ramps consist of two (2) travel lanes in the northbound and southbound directions, respectively, and no parking on either side of both roadways. There is no sidewalk present on either side of either roadway. While the speed limit is unposted on either ramp, it is assumed to be 25 MPH.
- **Jefferson Street –** Jefferson Street is an east-west oriented Urban Local roadway. Jefferson Street is approximately 28' wide and designated as a two-way. Within the study area, Jefferson Street consists of travel lanes in the eastbound and westbound directions and parking on both sides of the roadway. Sidewalk is present intermittently on both sides of the roadway. The speed limit is unposted on Jefferson Street, but assumed to be 25 MPH.

- **Chelton Avenue –** Chelton Avenue is an east-west Urban Local roadway. Chelton Avenue is approximately 29' wide and designated as a two-way. Within the study area, Chelton Avenue consists of travel lanes in the eastbound and westbound direction with no parking on either side of the roadway. Sidewalk is present intermittently on both sides of the roadway. The speed limit is unposted on Chelton Avenue, but assumed to be 25 MPH.

Existing Intersections

The existing intersections within the study area are summarized below:

- **Broadway (CR 551) and Jefferson Street –** The intersection of Broadway (CR 551) and Jefferson Street is a signalized intersection. The eastbound approach consists of one (1) shared left/through/right lane. The westbound approach consists of one (1) shared left/through/right lane. The northbound approach consists of one (1) shared left/through/right lane. The southbound approach consists of one (1) shared left/through/right lane.

- **Broadway (CR 551) and Chelton Avenue –** The intersection of Broadway (CR 551) and Chelton Avenue is an unsignalized intersection. The eastbound and westbound approaches both consist of one (1) shared left/through/right turn lane. The northbound and southbound approaches both consist of one (1) shared left/through/right lane. The eastbound and westbound approaches of Chelton Avenue are stop controlled.

- **Broadway (CR 551) and Holtec Driveway –** The intersection of Broadway (CR 551) and Holtec Driveway is an unsignalized intersection. The westbound approach consists of one (1) dedicated left lane and one (1) dedicated right lane. The northbound approach consists of one (1) shared through/right lane. The southbound approach consists of one (1) shared left/through lane. The northbound approach of Holtec Driveway is stop controlled.

- **Broadway (CR 551) and Holtec Boulevard/Morgan Boulevard** – The intersection of Broadway (CR 551) and Holtec Boulevard/Morgan Boulevard is a signalized intersection. Both the eastbound and westbound approaches consist of one (1) dedicated left lane, one (1) dedicated through lane, and one (1) shared through/right lane. The northbound approach consists of one (1) dedicated left lane, one (1) dedicated through lane, and one (1) dedicated right lane. The southbound approach consists of one (1) dedicated left lane and one (1) shared through/right lane. The traffic signal is a 4-phase signal with push buttons for crossing Broadway and Holtec Boulevard. It is linked with the Holtec Boulevard/Morgan Boulevard and I-676 SB Ramp/Covanta Driveway intersection under one controller.

- **Morgan Boulevard and I-676 SB Ramp/Covanta Driveway** – The intersection of Holtec Boulevard/Morgan Boulevard and I-676 SB Ramp/Covanta Driveway is a signalized intersection. The westbound approach consists of one (1) dedicated left lane, and two (2) dedicated through lanes. The northbound approach consists of one (1) shared left/right lane. The southbound approach consists of one (1) dedicated left lane, and one (1) shared through/right lane. The traffic signal is a 4-phase signal with push buttons for crossing I-676 SB Ramp/Covanta Driveway. It is linked with the Broadway (CR 551) and Holtec Boulevard intersection under one controller.

- **Morgan Boulevard and I-676 NB Ramp/Master Street –** The intersection of Morgan Boulevard and I-676 NB Ramp/Master Street is a signalized intersection. The eastbound approach consists of two (2) dedicated through lanes. The westbound approach consists of one (1) dedicated through lane, and one (1) shared through/right lane. The northbound approach consists of one (1) dedicated left turn lane, and one (1) shared left/through lane. The southbound approach consists of one (1) shared left/right lane. The traffic signal is a 3-phase signal.

Data Collection

Manual turning movement counts were conducted on Tuesday, November 1st, 2022, during the AM peak period between 7:00 – 9:00 AM and during the PM peak period between 4:00 – 6:00 PM at the intersections of:

- Broadway (CR 551) and Jefferson Street
- Broadway (CR 551) and Chelton Street
- Broadway (CR 551) and Holtec Driveway
- Broadway (CR 551) and Holtec Boulevard
- Morgan Boulevard and I-676 SB Ramp/Covanta Driveway
- Morgan Boulevard and I-676 NB Ramp/Master Street

The turning movement counts are provided in **Appendix A**.

Study Methodology

Capacity Analysis

Two analysis years are being considered: existing baseline traffic conditions and opening year analysis. The opening year analyses includes an assessment of the operational conditions of the study intersections under "No Build" and "Build" scenarios.

The performance of the study intersections for each analysis scenario was evaluated through a qualitative measure of operating conditions called Levels of Service (LOS). Six Levels of Service (LOS) are defined with letter designations from 'A' to 'F' with Level of Service 'A' representing delays up to ten seconds and Level of Service 'F' indicating delays exceeding eighty seconds. Level of Service 'C' or better is considered acceptable, with a threshold of Level of Service 'D' in urban areas. Levels of Service are determined through analysis procedures outlined in the *Highway Capacity Manual, Sixth Edition* (Transportation Research Board, Washington, D.C.). Under certain circumstances, *HCM 6th Editi*on cannot be used to analyze an intersection due to certain restrictions such as a signal with non-NEMA phasing or an intersection that has U-turns; under those circumstances, Synchro *Lanes, Volumes, and Timings* output methodologies will be utilized.

Levels of Service for signalized intersections are based on average delay experienced by motorists passing the intersection. The delay is based on the results of the capacity analysis (rate of demand flow to capacity) and other important variables such as quality of progression, cycle length, and ratio of green time.

Levels of Service for unsignalized intersections are defined in terms of delay to vehicles entering from the side road and turning left from a major road. Delay is a function of the capacity of the approach and degree of saturation. The capacity is based on the distribution of gaps in the major street traffic stream, driver judgment in selecting a gap through which to execute the desired maneuver, and follow-up time required by each driver in a queue.

The Level of Service Criteria for signalized and unsignalized intersections is provided in Table 1 and Table 2.

Table 1- Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay (Seconds per Vehicle)
A	≤ 10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Table 2- Level of Service Criteria for Unsignalized Intersections

Level of Service	Control Delay (Seconds per Vehicle)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

The operational analyses of the study intersections under all conditions were performed using the *Synchro* Version 11 software.

2022 Existing Conditions

Analysis of Existing Conditions

Capacity Analysis

Under the 2022 Existing Conditions, all study intersections operate at a LOS D or better and all approaches/movements operate at a LOS D or better except for the southbound approach of the I-676 SB Off-Ramp at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway which operates at LOS E (78.4 sec.) during the PM peak period.

The results of the capacity analysis are summarized in **Table 3**. *Synchro HCM 6th Edition* output summaries for the 2022 Existing Condition can be found in **Appendix B.**

Figure 4 illustrates the projected 2022 Existing Condition traffic volumes.

Table 3 – 2022 Existing Condition Delay and LOS

Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
Broadway (CR 551) & Jefferson Street (signalized)	EB Approach	C	30.0	C	28.6
	WB Approach	C	26.2	C	26.5
	NB Approach	A	3.4	A	3.3
	SB Approach	A	3.2	A	3.6
	Overall	**A**	**9.8**	**A**	**8.1**
Broadway (CR 551) & Chelton Street (unsignalized)	EB Approach	B	10.8	B	11.9
	WB Approach	B	10.3	B	10.7
	Overall	**A**	**4.0**	**A**	**3.8**
Broadway (CR 551) & Holtec Driveway (unsignalized)	NB Approach	A	10.4	A	10.8
	Overall	**A**	**1.9**	**A**	**2.7**
Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard (signalized)	EB Approach	D	39.1	D	45.7
	WB Approach	A	0.7	A	3.7
	NB Approach	D	45.9	D	40.2
	SB Approach	D	51.7	D	49.7
	Overall	**C**	**24.0**	**C**	**31.9**
Morgan Boulevard & I-676 SB Off-Ramp/Covanta Driveway (signalized)	EB Approach	A	1.2	A	0.8
	WB Approach	D	53.6	D	47.9
	NB Approach	A	0.6	A	0.6
	SB Approach	D	47.6	E	78.4
	Overall	**D**	**35.6**	**D**	**42.5**
Morgan Boulevard & I-676 NB Off-Ramp/Master Street (signalized)	EB Approach	B	10.5	A	9.6
	WB Approach	B	10.3	A	9.1
	NB Approach	C	32.4	C	29.9
	SB Approach	B	15.1	B	15.6
	Overall	**B**	**18.2**	**B**	**14.7**
Holtec Boulevard & Existing Site Driveway (unsignalized)	SB Approach	A	0.0	A	9.0
	Overall	**A**	**0.0**	**A**	**6.3**

2024 No Build Conditions

Background Growth

To account for general traffic growth in the area, an annual background growth rate is applied to existing traffic volumes on the study area roadways. An annual background growth rate of 1.00% has been established by NJDOT for Urban Local roadways in Camden County.

Through consultation with both Camden County and the City of Camden, no adjacent developments were identified that would have an additional adverse impact on the adjacent roadway network. The established NJDOT background growth rate was conservatively used to account for any increase in background traffic growth.

Figure 5 illustrates the projected 2022 No-Build Conditions traffic volumes.

Analysis of No Build Conditions

Capacity Analysis

Under the 2024 No-Build Conditions, all study intersections operate at a LOS D or better and all approaches/movements operate at a LOS D or better except for the southbound approach of the I-676 SB Off-Ramp at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway which continues to operate at LOS F (81.9 sec.) during the PM peak period.

The results of the capacity analysis are summarized in Table 4. *Synchro HCM 6th Edition* output summaries for the 2024 No-Build Conditions can be found in Appendix C.

Table 4 - 2024 No-Build Condition Delay and LOS

Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
Broadway (CR 551) & Jefferson Street (signalized)	EB Approach	C	30.2	C	28.7
	WB Approach	C	26.2	C	26.5
	NB Approach	A	3.4	A	3.3
	SB Approach	A	3.2	A	3.6
	Overall	**A**	**9.8**	**A**	**8.1**
Broadway (CR 551) & Chelton Street (unsignalized)	EB Approach	B	10.9	B	12.0
	WB Approach	B	10.4	B	10.7
	Overall	**A**	**4.0**	**A**	**3.7**
Broadway (CR 551) & Holtec Driveway (unsignalized)	NB Approach	A	10.4	A	10.9
	Overall	**A**	**1.9**	**A**	**2.8**
Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard (signalized)	EB Approach	D	39.2	D	45.9
	WB Approach	A	0.7	A	3.8
	NB Approach	D	46.0	D	40.2
	SB Approach	D	51.8	D	50.0
	Overall	**C**	**24.1**	**C**	**32.1**
Morgan Boulevard & I-676 SB Off-Ramp/Covanta Driveway (signalized)	EB Approach	A	1.3	A	0.8
	WB Approach	D	53.9	D	48.0
	NB Approach	A	0.6	A	0.6
	SB Approach	D	48.1	F	81.9
	Overall	**D**	**35.9**	**D**	**44.2**
Morgan Boulevard & I-676 NB Off-Ramp/Master Street (signalized)	EB Approach	B	10.6	A	9.6
	WB Approach	B	10.4	A	9.1
	NB Approach	C	32.5	C	29.9
	SB Approach	B	15.3	B	15.7
	Overall	**B**	**18.4**	**B**	**14.8**
Holtec Boulevard & Existing Site Driveway (unsignalized)	SB Approach	A	0.0	A	9.1
	Overall	**A**	**0.0**	**A**	**6.8**

Analysis of No-Build – Optimized Conditions

Under No-Build conditions with the existing signal timings, there is a reported LOS F (81.9 sec.) for the southbound approach of the I-676 SB Off-Ramp at the Morgan Boulevard signal in the PM peak period. The approach LOS F is a result of the delay on southbound left turn lane (140.5 sec.). The timings at the intersection of I-676 SB Off-Ramp at the Morgan Boulevard have been optimized in the No-Build condition utilizing *Synchro 11* software's "optimize splits" functionality to mitigate the existing LOS F. The optimization of the timings, which involves the shifting 7 seconds from Broadway (CR 551) Phase to the I-676 ramp phase, improves the movement to LOS E, improves the approach to LOS D, and reduces the 95th percentile queue on theI-676 ramp by approximately 130'.

The below **Table 5** provides the optimized intersection delays for the intersection of Morgan Boulevard and I-676 SB Off-Ramp and the intersection of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551), which are operated by the same controller. The *Synchro 11* output summaries can be found in **Appendix D**.

Table 5 - 2024 No-Build Condition Delay and LOS - Optimized

Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard (signalized)	EB Approach	D	41.0	D	47.9
	WB Approach	A	0.7	A	3.3
	NB Approach	D	50.3	D	45.8
	SB Approach	E	57.5	E	59.7
	Overall	**C**	**26.4**	**D**	**36.5**
Morgan Boulevard & I-676 SB Off-Ramp/Covanta Driveway (signalized)	EB Approach	A	1.5	A	1.1
	WB Approach	E	55.9	D	49.9
	NB Approach	A	0.5	A	0.4
	SB Approach	D	40.8	D	41.9
	Overall	**D**	**34.0**	**C**	**25.4**

2024 Build Conditions

Development Description

The proposed development is a 2-story office building and pole barn at 1 Holtec Boulevard in the City of Camden, New Jersey. The proposed office building will be 51,586 SF. The proposed development will be accessed through an existing full movement driveway on along Holtec Boulevard, which currently provides access to an existing parking lot which will be expanded by 274 spaces. An existing surface parking lot adjacent to the main office building within the greater Holtec campus will also be expanded by 190 parking spaces.

The overall facility site plan is depicted on **Figure 2** and the proposed office building site plan is illustrated on **Figure 3**.

Trip Generation

The trips generated by the proposed residential building were estimated in accordance with the methodology outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. ITE defines a trip as a "single or one-direction vehicle movement with either the origin or the destination (exiting or entering) inside a study site." The trip generation was calculated for the Land Use Code 710 – General Office Building, which is described as a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted.

Table 6 below provides a breakdown of the estimated vehicular trips generated by the site during the roadway peak period (7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM) for analysis of the 2024 Build Conditions:

Table 6 - Trip Generation

Land Use Description	Independent Variable	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
LUC 710 – General Office Building	1000 Sq. Ft. GFA	83	12	95	16	80	96

Summaries of the trip generation are provided in **Appendix E**.

The NJ State Highway Access Code defines a development as a significant generator of traffic if it generates 100 or more peak hour trips. The proposed 2-story office building generates a maximum of 96 peak hour trips and therefore does not meet the definition of a significant traffic generator.

Trip Distribution

New trips associated with the proposed office building is based on the existing roadway network patterns and the location of the proposed driveway. The distribution and site trips are provided in **Figure 6** and **Figure 7**.

Figure 8 illustrates the projected 2024 Build traffic volumes.

Analysis of Build Conditions

Capacity Analysis

The impact of the proposed office building development was evaluated for the AM and PM roadway peak periods with stop control at the proposed site driveway and utilizing the optimized signal timings at the intersections of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551) and Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway. Under the Build Conditions, all study intersections continue to operate at an overall LOS D or better and all approaches operate at a LOS D or better with the following exceptions:

- The southbound approach of Broadway (CR 551) at the intersection of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551) continues to operate at LOS E during the PM peak period with delays of 64.0 seconds.
- The westbound approach of Morgan Boulevard at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway continues to operate at LOS E during both the AM peak periods with a delay of 59.1 seconds.

The addition of the site trips to the roadway network does not result in a degradation in overall or approach LOS and a maximum increase in approach delay of 9.0 seconds and maximum increase in overall intersection delay of 3.2 seconds.

The results of the capacity analysis are summarized in **Table 7**. *Synchro HCM 6th Edition* output summaries for the 2024 Build Conditions can be found in **Appendix F.**

Table 7 - 2024 Build Condition Delay and LOS

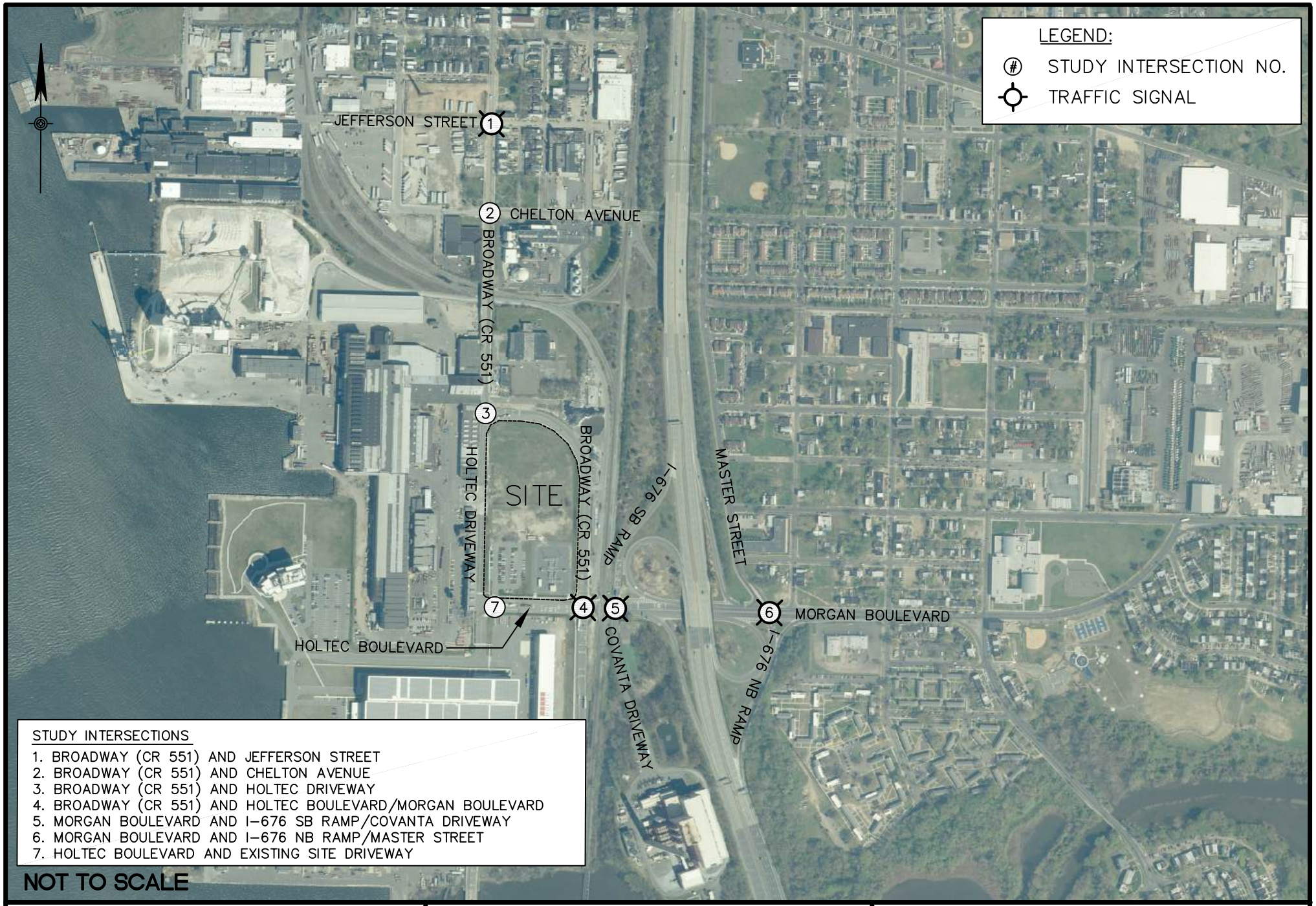
Intersection	Approach	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
Broadway (CR 551) & Jefferson Street (signalized)	EB Approach	C	30.2	C	28.7
	WB Approach	C	26.2	C	26.5
	NB Approach	A	3.4	A	3.3
	SB Approach	A	3.2	A	3.6
	Overall	**A**	**9.7**	**A**	**8.0**
Broadway (CR 551) & Chelton Street (unsignalized)	EB Approach	B	11.0	B	12.0
	WB Approach	B	10.4	B	10.8
	Overall	**A**	**3.9**	**A**	**3.7**
Broadway (CR 551) & Holtec Driveway (unsignalized)	NB Approach	B	12.0	A	10.9
	Overall	**A**	**1.8**	**A**	**2.7**
Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard (signalized)	EB Approach	D	39.5	D	50.9
	WB Approach	A	0.6	A	3.6
	NB Approach	D	50.1	D	47.9
	SB Approach	D	53.9	E	64.0
	Overall	**C**	**23.9**	**D**	**39.7**
Morgan Boulevard & I-676 SB Off-Ramp/Covanta Driveway (signalized)	EB Approach	A	1.5	A	0.7
	WB Approach	E	59.1	D	50.1
	NB Approach	A	0.5	A	0.4
	SB Approach	D	38.9	D	45.6
	Overall	**D**	**36.0**	**C**	**26.8**
Morgan Boulevard & I-676 NB Off-Ramp/Master Street (signalized)	EB Approach	B	10.7	A	9.7
	WB Approach	B	10.7	A	9.2
	NB Approach	C	33.2	C	29.8
	SB Approach	B	15.6	B	15.8
	Overall	**B**	**18.8**	**B**	**14.7**
Holtec Boulevard & Site Driveway (unsignalized)	SB Approach	A	9.0	A	9.5
	Overall	**A**	**0.4**	**A**	**7.0**

Conclusions

A summary of the findings of the report is presented below:

- Under the Existing condition, the study intersections operate at LOS D or better and all study approaches operate at LOS D or better during the AM and PM peak periods with the exception of the southbound approach of the I-676 SB Off-Ramp at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway which operates at LOS E (78.4 sec.) during the PM peak period.
- Under the No-Build condition with existing timings, all study intersections operate at LOS D or better and all study approaches operate at LOS D or better during the AM and PM peak periods except for the southbound approach of the I-676 SB Off-Ramp at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway which continues to operate at LOS F (81.9 sec.) during the PM peak period.
- Under the optimized No-Build condition, the traffic signals at the intersections of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551) and Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway were optimized using *Synchro 11* software's "optimize splits" functionality. With signal timing optimization, the LOS F on the southbound approach of the I-676 SB Off-Ramp at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway is eliminated. The southbound approach of Broadway (CR 551) at the intersection of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551) operates at LOS E during both the AM and PM peak periods with delays of 57.5 and 59.7 seconds, respectively, and the westbound approach of Morgan Boulevard at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway operates at LOS E during the AM peak period with a delay of 55.9 seconds.
- Under the Build condition with optimized signal timings, the study intersections continue to operate at a LOS D or better and all approaches operate at a LOS D or better during the AM and PM peak periods with the following exceptions:
    - The southbound approach of Broadway (CR 551) at the intersection of Holtec Boulevard/Morgan Boulevard and Broadway (CR 551) continues to operate at LOS E during the AM peak period with delays of 64.0 seconds.
    - The westbound approach of Morgan Boulevard at the intersection of Morgan Boulevard and I-676 SB Off-Ramp/Covanta Driveway operates at LOS E during the AM peak period with a delay of 59.1 seconds.

In conclusion, the construction of the proposed office building and pole barn at 1 Holtec Boulevard will not result in a significant increase in traffic on the adjacent roadway network and will not result in an appreciable impact to the operation or traffic flow at the signalized and unsignalized intersections within the study area.



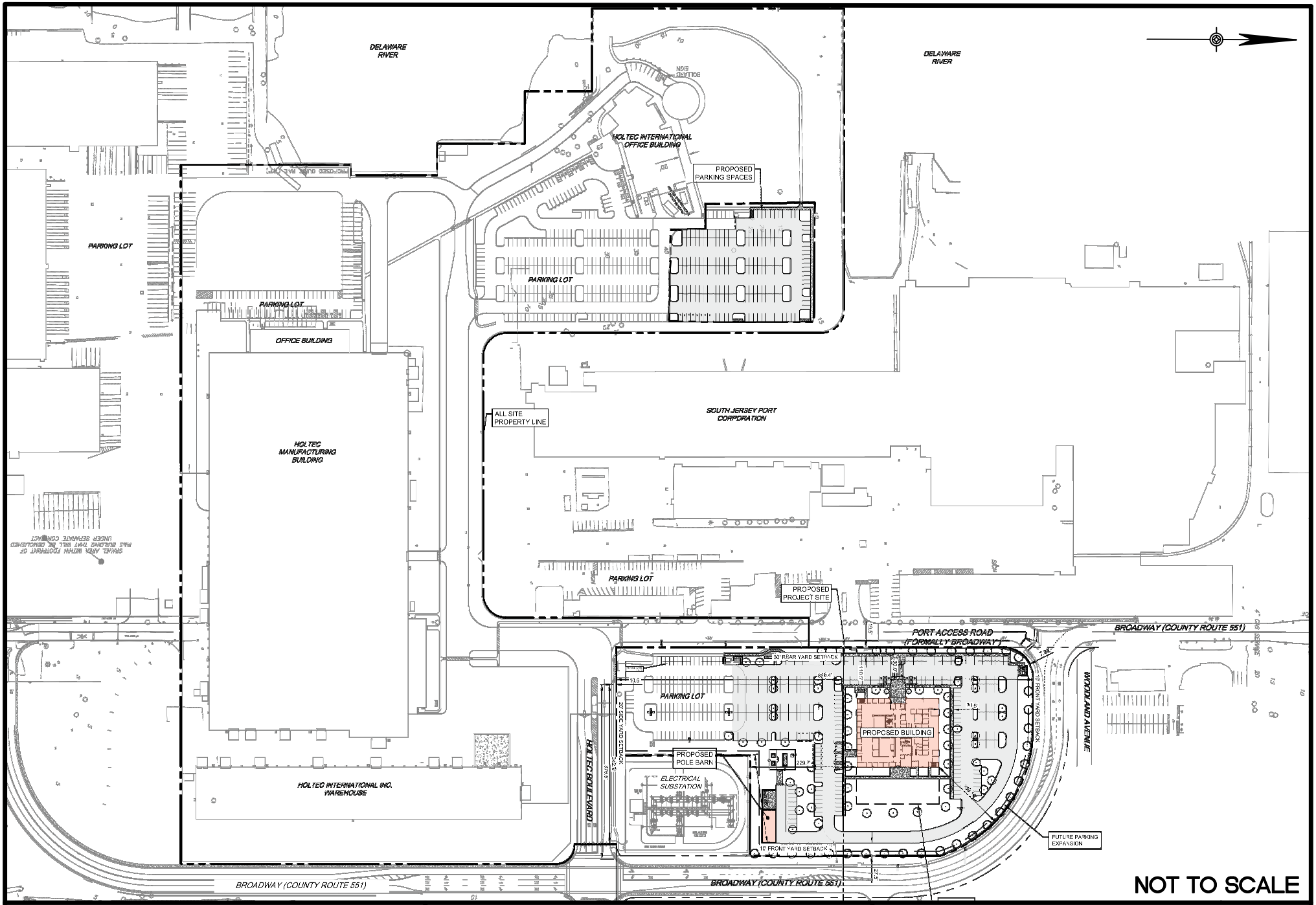
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HOLTEC OFFICE BUILDING

Proposed Office Building Development
Camden, New Jersey

FIGURE 1

Project Area



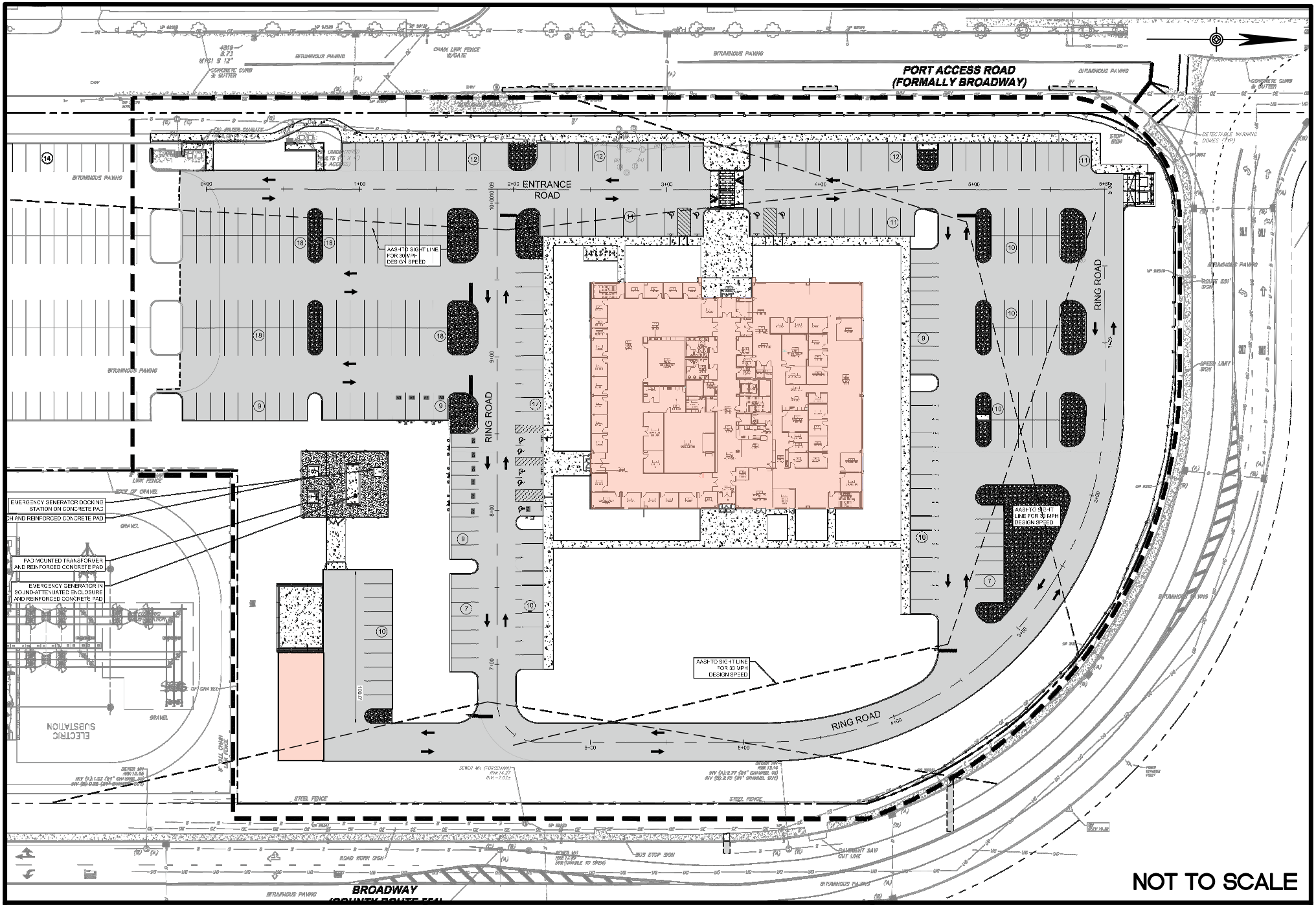
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
515 GROVE STREET
HADDON HEIGHTS, NJ

HOLTEC OFFICE BUILDING

Proposed Office Building Development
Camden, New Jersey

FIGURE 2

Site Plan
Overall Facility



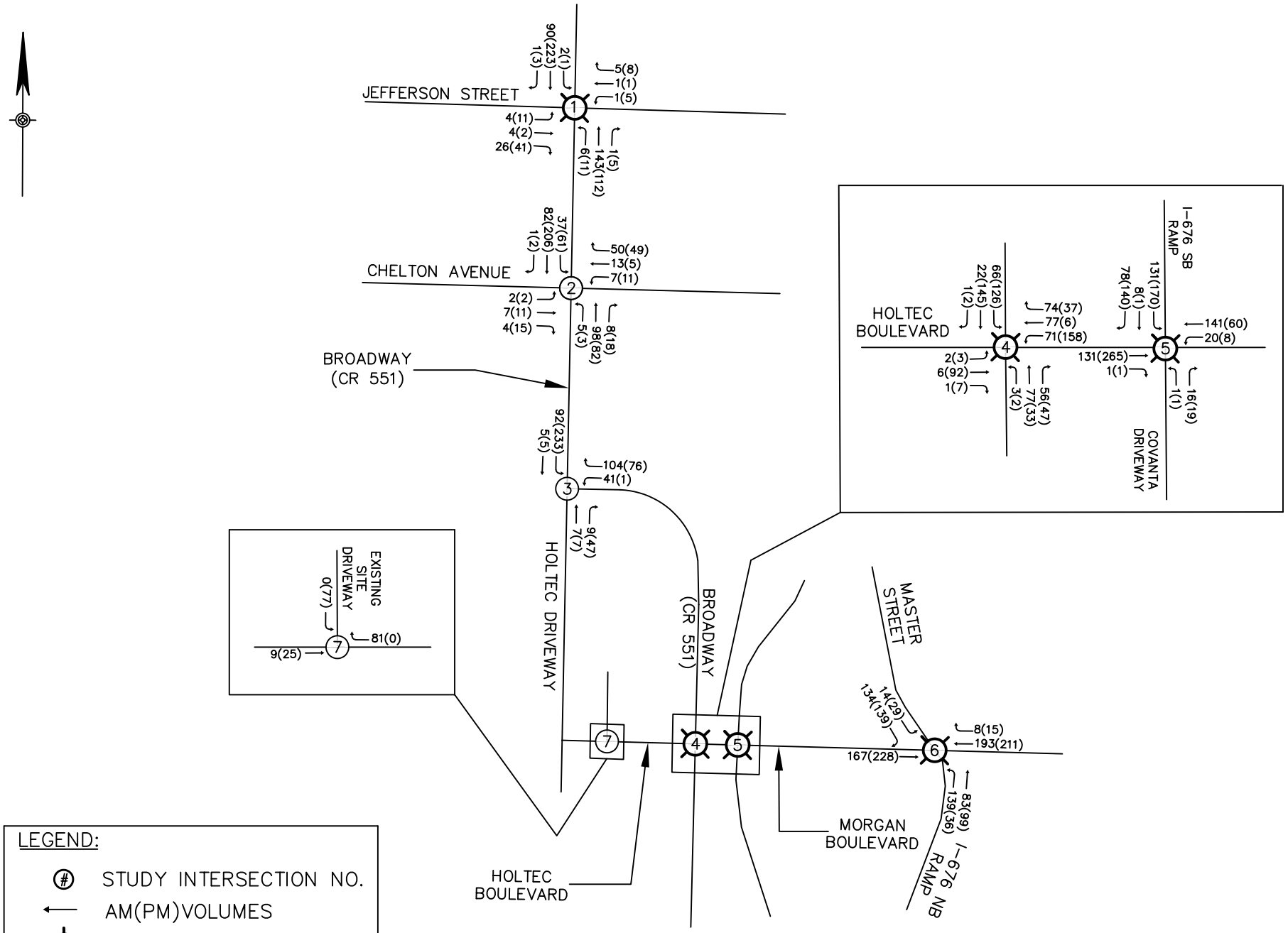
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
515 GROVE STREET
HADDON HEIGHTS, NJ

HOLTEC OFFICE BUILDING

Proposed Office Building Development
Camden, New Jersey

FIGURE 3

Site Plan
Proposed Office Building



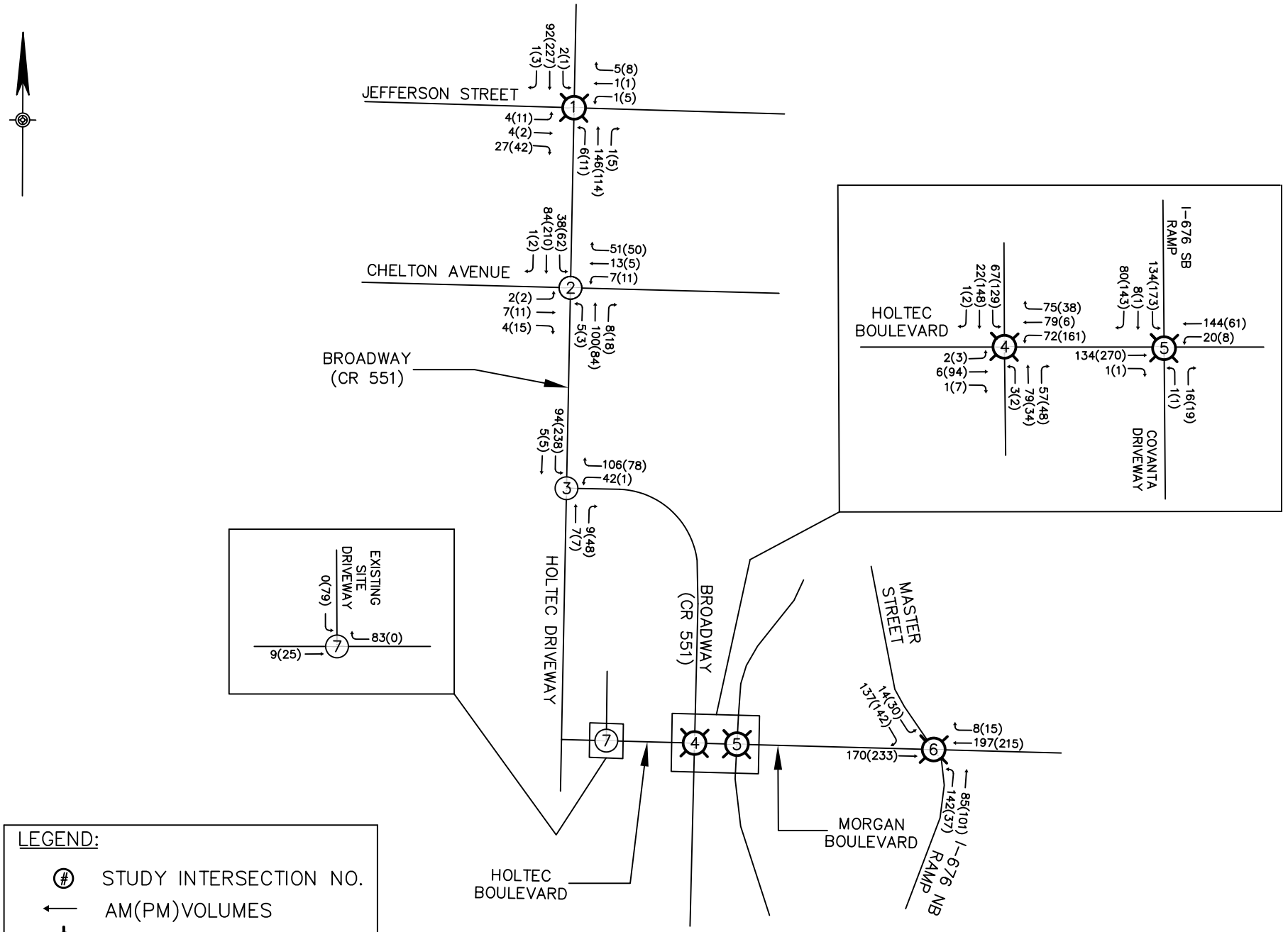
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
515 GROVE STREET
HADDON HEIGHTS, NJ

HOLTEC OFFICE BUILDING

Proposed Office Building Development
Camden, New Jersey

FIGURE 4

2022 Existing Condition
Peak Hour Traffic Volumes



LEGEND:

- (#) STUDY INTERSECTION NO.
- ← AM(PM)VOLUMES
- TRAFFIC SIGNAL

NOT TO SCALE

Pennoni

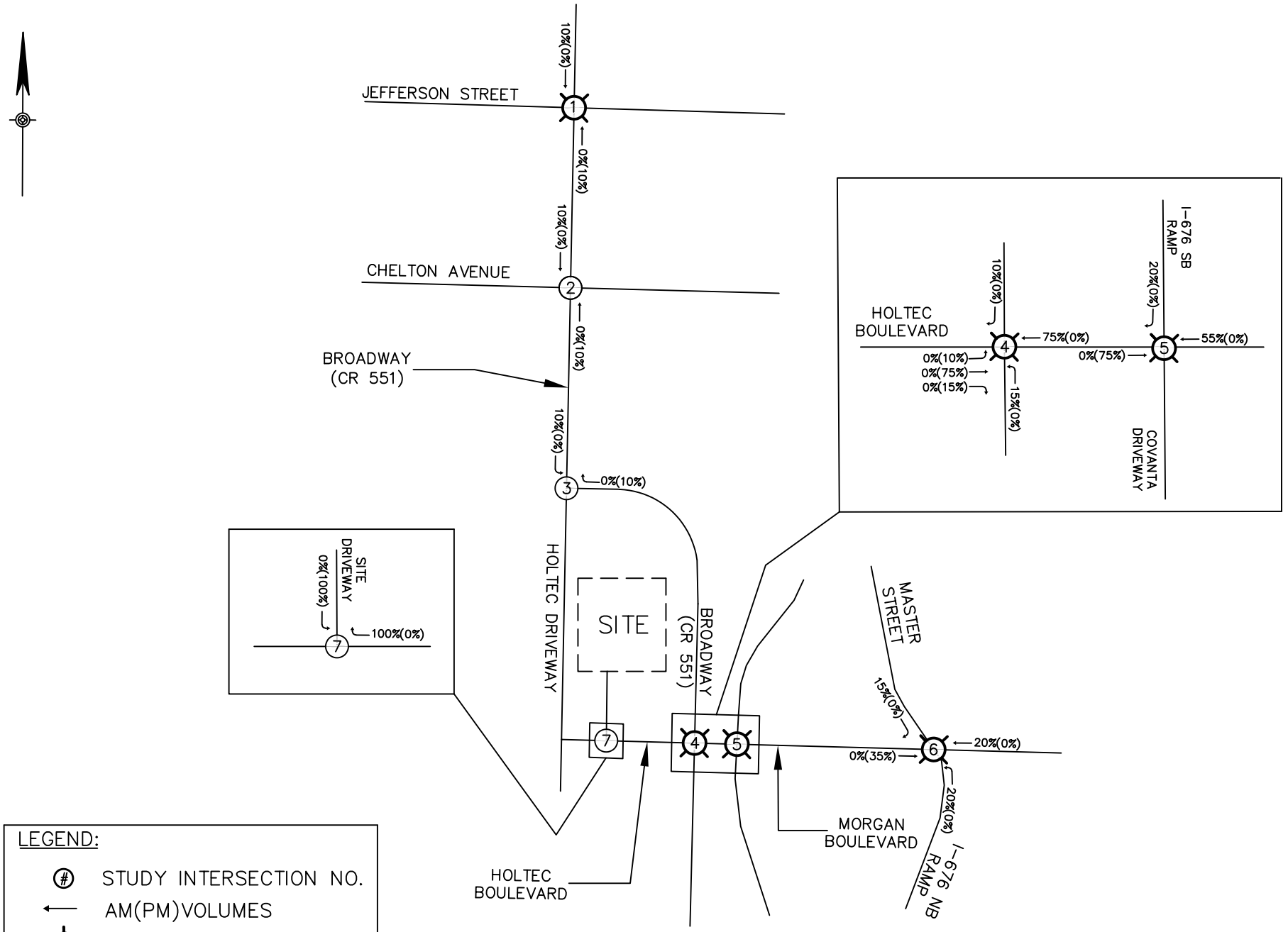
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
515 GROVE STREET
HADDON HEIGHTS, NJ

HOLTEC OFFICE BUILDING

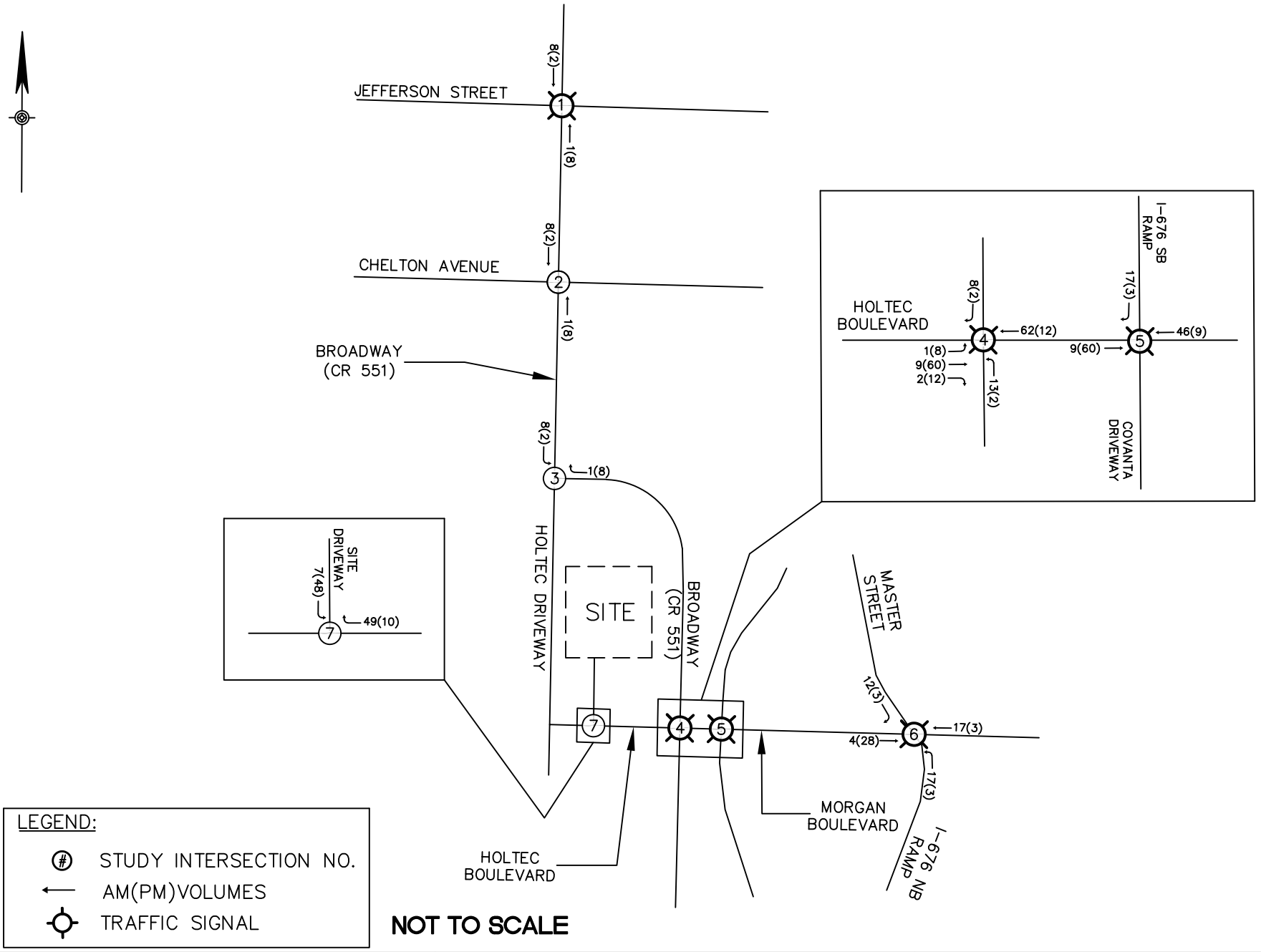
Proposed Office Building Development
Camden, New Jersey

FIGURE 5

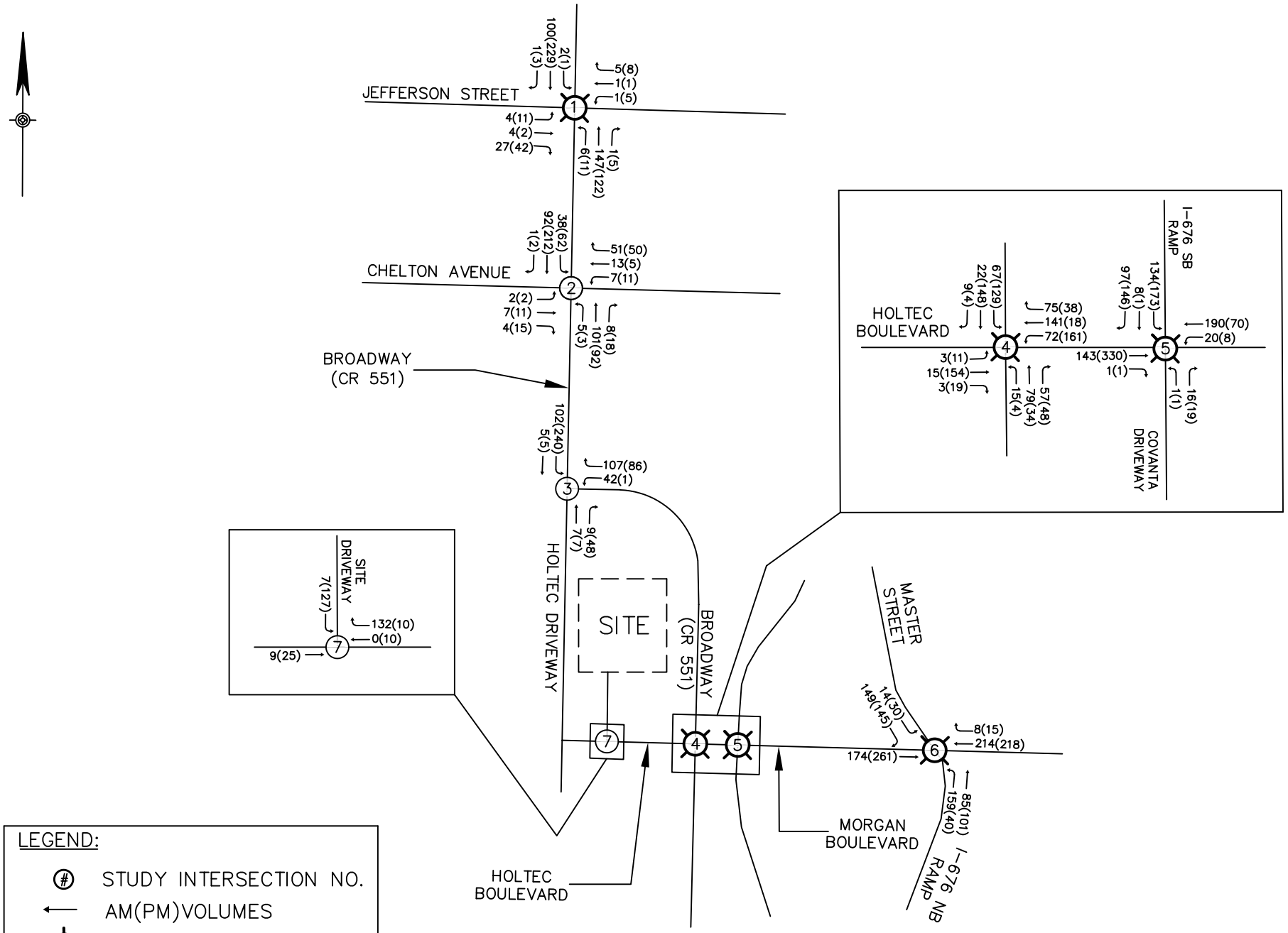
2024 No-Build Condition
Peak Hour Traffic Volumes



PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 515 GROVE STREET HADDON HEIGHTS, NJ	**HOLTEC OFFICE BUILDING** Proposed Office Building Development Camden, New Jersey	**FIGURE 6** Trip Distribution



PENNONI ASSOCIATES INC. CONSULTING ENGINEERS 515 GROVE STREET HADDON HEIGHTS, NJ	**HOLTEC OFFICE BUILDING** Proposed Office Building Development Camden, New Jersey	**FIGURE 7** Peak Hour Site Trips



LEGEND:

- (#) STUDY INTERSECTION NO.
- ← AM(PM)VOLUMES
- TRAFFIC SIGNAL

NOT TO SCALE

Pennoni

PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
515 GROVE STREET
HADDON HEIGHTS, NJ

HOLTEC OFFICE BUILDING

Proposed Office Building Development
Camden, New Jersey

FIGURE 8

2024 Build Condition
Peak Hour Traffic Volumes

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX A
Data Collection

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Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022

Turning Movement Data

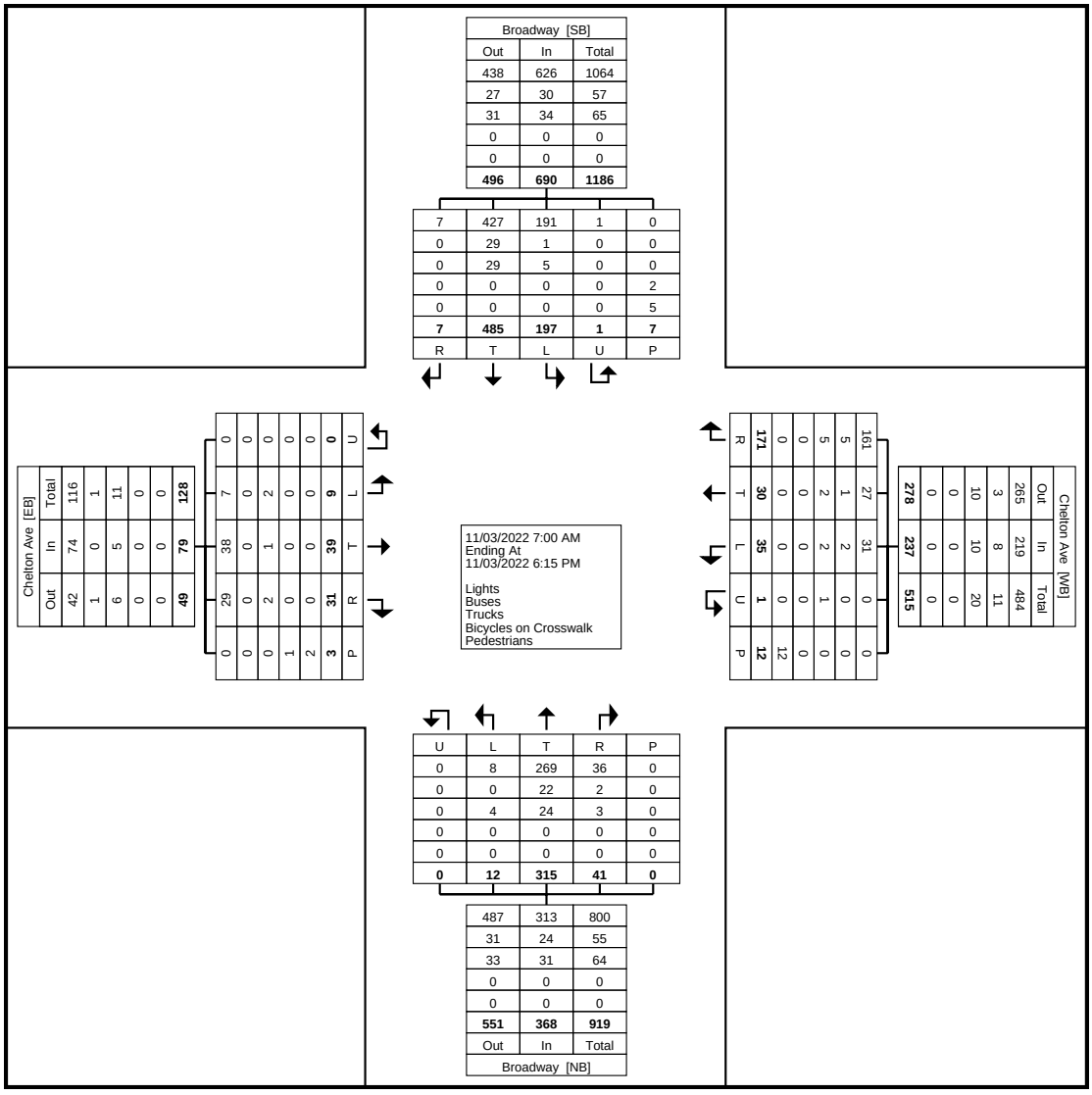
Start Time	Chelton Ave Eastbound						Chelton Ave Westbound						Broadway Northbound						Broadway Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	3	1	0	0	5	4	2	6	0	1	12	0	13	2	0	0	15	16	13	0	0	0	29	61
7:15 AM	1	0	0	0	0	1	0	1	8	0	1	9	1	33	2	0	0	36	5	12	0	0	0	17	63
7:30 AM	0	1	2	0	0	3	3	1	13	0	3	17	2	23	1	0	0	26	13	23	1	0	1	37	83
7:45 AM	0	3	0	0	0	3	2	3	18	0	0	23	2	25	4	0	0	31	11	21	0	0	0	32	89
Hourly Total	2	7	3	0	0	12	9	7	45	0	5	61	5	94	9	0	0	108	45	69	1	0	1	115	296
8:00 AM	2	2	0	0	0	4	0	5	8	0	0	13	0	21	2	0	0	23	8	13	0	0	0	21	61
8:15 AM	0	1	2	0	1	3	2	4	11	0	0	17	1	29	1	0	0	31	5	25	0	0	0	30	81
8:30 AM	0	4	0	0	0	4	2	0	8	0	0	10	1	30	1	0	0	32	10	19	0	1	0	30	76
8:45 AM	0	3	2	0	0	5	2	3	11	0	0	16	1	15	3	0	0	19	13	14	0	0	0	27	67
Hourly Total	2	10	4	0	1	16	6	12	38	0	0	56	3	95	7	0	0	105	36	71	0	1	0	108	285
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	3	0	0	0	3	2	1	13	0	1	16	0	27	5	0	0	32	17	42	1	0	1	60	111
4:15 PM	0	1	3	0	1	4	2	1	14	0	4	17	1	16	2	0	0	19	12	46	0	0	4	58	98
4:30 PM	1	5	9	0	1	15	4	2	15	0	0	21	1	22	7	0	0	30	12	63	1	0	1	76	142
4:45 PM	1	2	3	0	0	6	3	1	7	0	2	11	1	17	4	0	0	22	20	55	0	0	0	75	114
Hourly Total	2	11	15	0	2	28	11	5	49	0	7	65	3	82	18	0	0	103	61	206	2	0	6	269	465
5:00 PM	0	1	1	0	0	2	3	2	7	1	0	13	0	11	2	0	0	13	13	45	0	0	0	58	86
5:15 PM	1	2	3	0	0	6	1	1	6	0	0	8	0	15	1	0	0	16	13	37	2	0	0	52	82
5:30 PM	1	5	3	0	0	9	2	0	12	0	0	14	1	6	1	0	0	8	20	29	2	0	0	51	82
5:45 PM	1	3	2	0	0	6	3	3	14	0	0	20	0	12	3	0	0	15	9	28	0	0	0	37	78
Hourly Total	3	11	9	0	0	23	9	6	39	1	0	55	1	44	7	0	0	52	55	139	4	0	0	198	328
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	9	39	31	0	3	79	35	30	171	1	12	237	12	315	41	0	0	368	197	485	7	1	7	690	1374
Approach %	11.4	49.4	39.2	0.0	-	-	14.8	12.7	72.2	0.4	-	-	3.3	85.6	11.1	0.0	-	-	28.6	70.3	1.0	0.1	-	-	-
Total %	0.7	2.8	2.3	0.0	-	5.7	2.5	2.2	12.4	0.1	-	17.2	0.9	22.9	3.0	0.0	-	26.8	14.3	35.3	0.5	0.1	-	50.2	-
Lights	7	38	29	0	-	74	31	27	161	0	-	219	8	269	36	0	-	313	191	427	7	1	-	626	1232
% Lights	77.8	97.4	93.5	-	-	93.7	88.6	90.0	94.2	0.0	-	92.4	66.7	85.4	87.8	-	-	85.1	97.0	88.0	100.0	100.0	-	90.7	89.7
Buses	0	0	0	0	-	0	2	1	5	0	-	8	0	22	2	0	-	24	1	29	0	0	-	30	62
% Buses	0.0	0.0	0.0	-	-	0.0	5.7	3.3	2.9	0.0	-	3.4	0.0	7.0	4.9	-	-	6.5	0.5	6.0	0.0	0.0	-	4.3	4.5
Trucks	2	1	2	0	-	5	2	2	5	1	-	10	4	24	3	0	-	31	5	29	0	0	-	34	80
% Trucks	22.2	2.6	6.5	-	-	6.3	5.7	6.7	2.9	100.0	-	4.2	33.3	7.6	7.3	-	-	8.4	2.5	6.0	0.0	0.0	-	4.9	5.8
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	33.3	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	28.6	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	12	-	-	-	-	-	0	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	66.7	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	71.4	-	-

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Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022



Turning Movement Data Plot

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Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

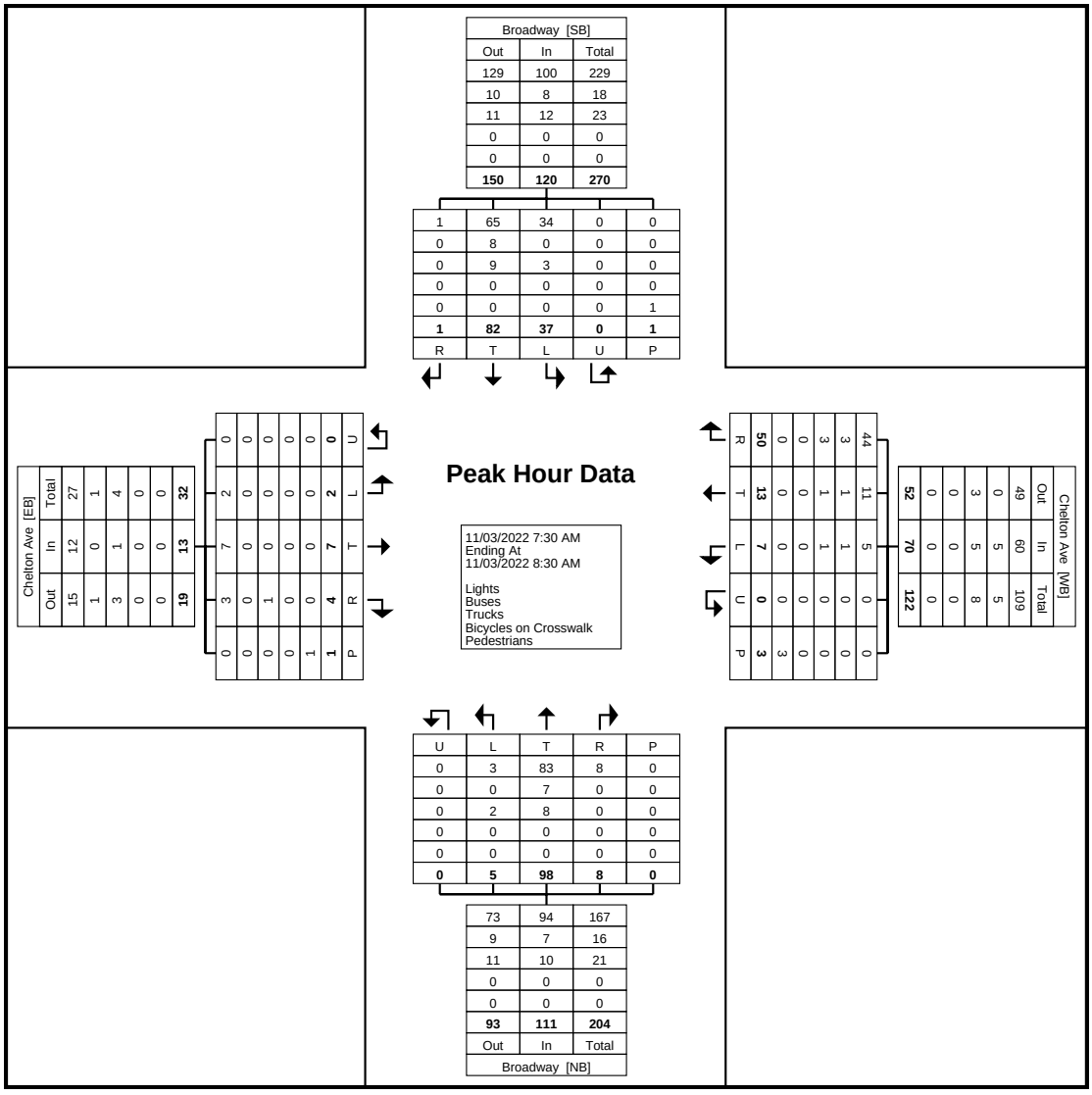
Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Chelton Ave Eastbound						Chelton Ave Westbound						Broadway Northbound						Broadway Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	1	2	0	0	3	3	1	13	0	3	17	2	23	1	0	0	26	13	23	1	0	1	37	83
7:45 AM	0	3	0	0	0	3	2	3	18	0	0	23	2	25	4	0	0	31	11	21	0	0	0	32	89
8:00 AM	2	2	0	0	0	4	0	5	8	0	0	13	0	21	2	0	0	23	8	13	0	0	0	21	61
8:15 AM	0	1	2	0	1	3	2	4	11	0	0	17	1	29	1	0	0	31	5	25	0	0	0	30	81
Total	2	7	4	0	1	13	7	13	50	0	3	70	5	98	8	0	0	111	37	82	1	0	1	120	314
Approach %	15.4	53.8	30.8	0.0	-	-	10.0	18.6	71.4	0.0	-	-	4.5	88.3	7.2	0.0	-	-	30.8	68.3	0.8	0.0	-	-	-
Total %	0.6	2.2	1.3	0.0	-	4.1	2.2	4.1	15.9	0.0	-	22.3	1.6	31.2	2.5	0.0	-	35.4	11.8	26.1	0.3	0.0	-	38.2	-
PHF	0.250	0.583	0.500	0.000	-	0.813	0.583	0.650	0.694	0.000	-	0.761	0.625	0.845	0.500	0.000	-	0.895	0.712	0.820	0.250	0.000	-	0.811	0.882
Lights	2	7	3	0	-	12	5	11	44	0	-	60	3	83	8	0	-	94	34	65	1	0	-	100	266
% Lights	100.0	100.0	75.0	-	-	92.3	71.4	84.6	88.0	-	-	85.7	60.0	84.7	100.0	-	-	84.7	91.9	79.3	100.0	-	-	83.3	84.7
Buses	0	0	0	0	-	0	1	1	3	0	-	5	0	7	0	0	-	7	0	8	0	0	-	8	20
% Buses	0.0	0.0	0.0	-	-	0.0	14.3	7.7	6.0	-	-	7.1	0.0	7.1	0.0	-	-	6.3	0.0	9.8	0.0	-	-	6.7	6.4
Trucks	0	0	1	0	-	1	1	1	3	0	-	5	2	8	0	0	-	10	3	9	0	0	-	12	28
% Trucks	0.0	0.0	25.0	-	-	7.7	14.3	7.7	6.0	-	-	7.1	40.0	8.2	0.0	-	-	9.0	8.1	11.0	0.0	-	-	10.0	8.9
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (7:30 AM)

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Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

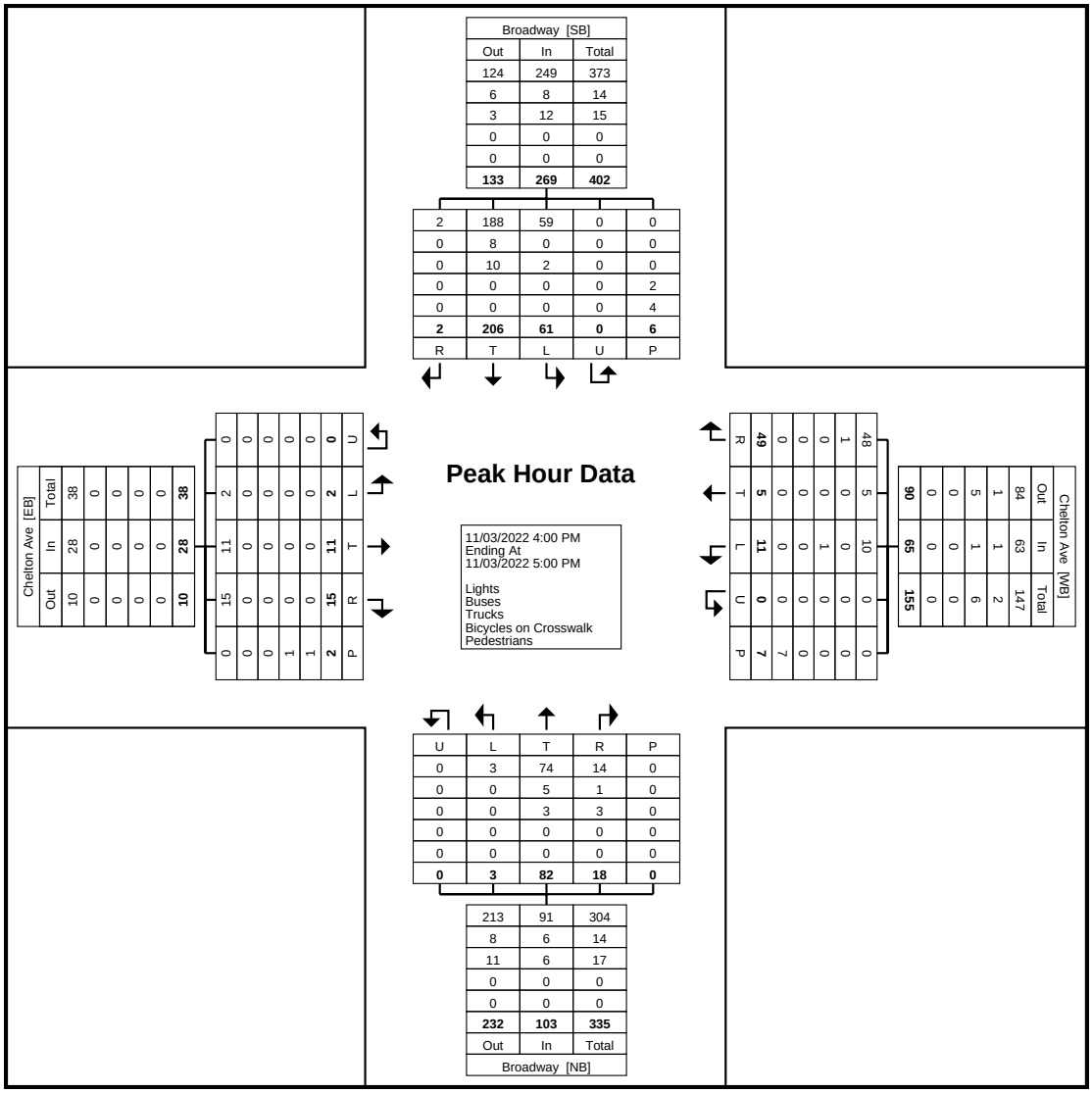
Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Chelton Ave Eastbound						Chelton Ave Westbound						Broadway Northbound						Broadway Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	0	3	0	0	0	3	2	1	13	0	1	16	0	27	5	0	0	32	17	42	1	0	1	60	111
4:15 PM	0	1	3	0	1	4	2	1	14	0	4	17	1	16	2	0	0	19	12	46	0	0	4	58	98
4:30 PM	1	5	9	0	1	15	4	2	15	0	0	21	1	22	7	0	0	30	12	63	1	0	1	76	142
4:45 PM	1	2	3	0	0	6	3	1	7	0	2	11	1	17	4	0	0	22	20	55	0	0	0	75	114
Total	2	11	15	0	2	28	11	5	49	0	7	65	3	82	18	0	0	103	61	206	2	0	6	269	465
Approach %	7.1	39.3	53.6	0.0	-	-	16.9	7.7	75.4	0.0	-	-	2.9	79.6	17.5	0.0	-	-	22.7	76.6	0.7	0.0	-	-	-
Total %	0.4	2.4	3.2	0.0	-	6.0	2.4	1.1	10.5	0.0	-	14.0	0.6	17.6	3.9	0.0	-	22.2	13.1	44.3	0.4	0.0	-	57.8	-
PHF	0.500	0.550	0.417	0.000	-	0.467	0.688	0.625	0.817	0.000	-	0.774	0.750	0.759	0.643	0.000	-	0.805	0.763	0.817	0.500	0.000	-	0.885	0.819
Lights	2	11	15	0	-	28	10	5	48	0	-	63	3	74	14	0	-	91	59	188	2	0	-	249	431
% Lights	100.0	100.0	100.0	-	-	100.0	90.9	100.0	98.0	-	-	96.9	100.0	90.2	77.8	-	-	88.3	96.7	91.3	100.0	-	-	92.6	92.7
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	5	1	0	-	6	0	8	0	0	-	8	15
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.0	-	-	1.5	0.0	6.1	5.6	-	-	5.8	0.0	3.9	0.0	-	-	3.0	3.2
Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	3	3	0	-	6	2	10	0	0	-	12	19
% Trucks	0.0	0.0	0.0	-	-	0.0	9.1	0.0	0.0	-	-	1.5	0.0	3.7	16.7	-	-	5.8	3.3	4.9	0.0	-	-	4.5	4.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	33.3	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	66.7	-	-

Camden County, NJ
Broadway & Chelton Ave
Thursday, November 3, 2022
Location: 39.918289, -75.119781

Count Name: Broadway & Chelton Ave
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (4:00 PM)

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Camden County, NJ
Broadway & Holt Driveway
Thursday, November 3, 2022
Location: 39.915401, -75.119792

Count Name: Broadway & Holt Driveway
Site Code:
Start Date: 11/03/2022

Turning Movement Data

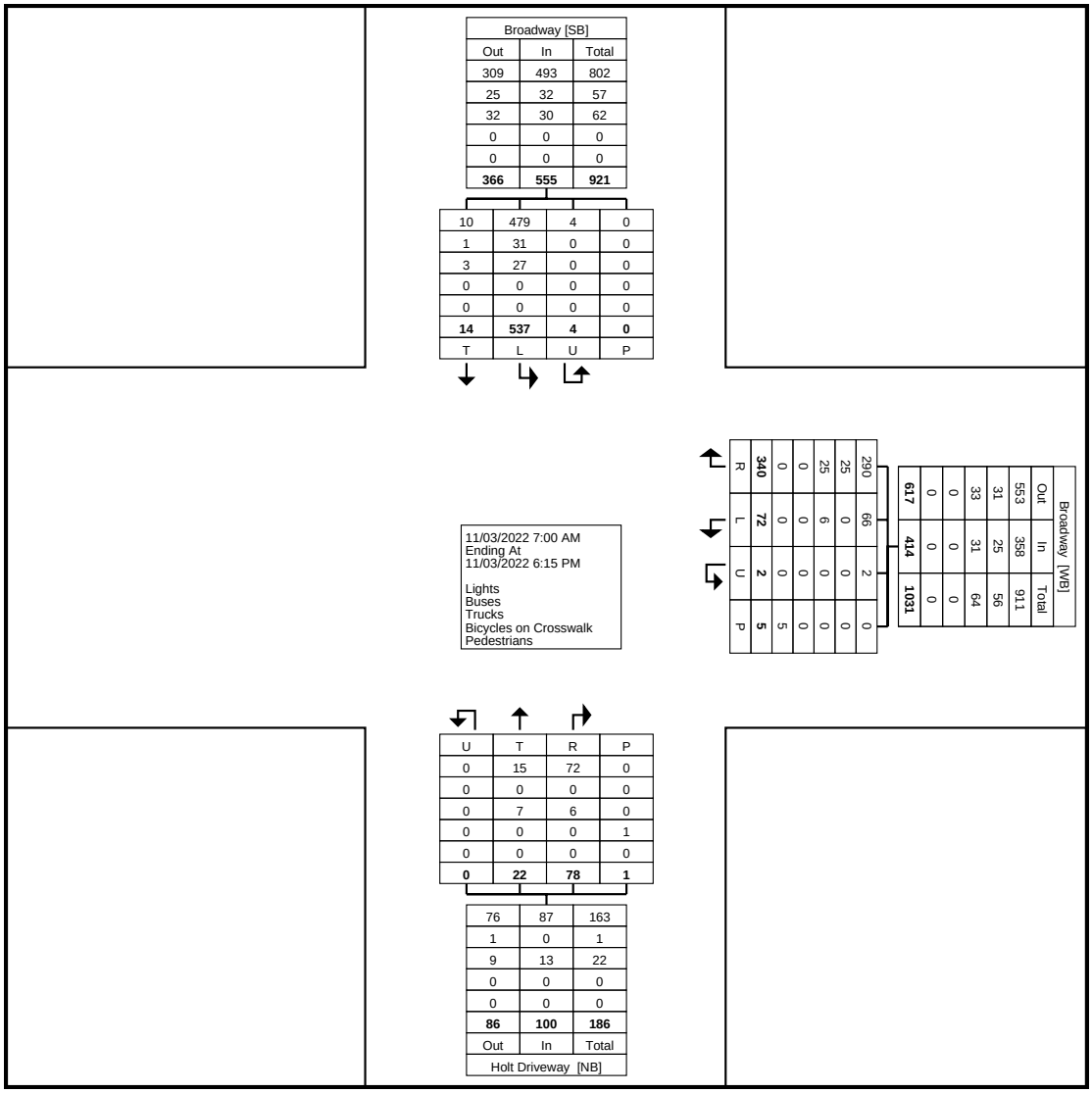
Start Time	Broadway Westbound					Holt Driveway Northbound					Broadway Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:00 AM	12	16	0	0	28	1	1	0	0	2	18	1	0	0	19	49
7:15 AM	9	36	0	1	45	1	0	0	0	1	8	1	1	0	10	56
7:30 AM	11	24	0	1	35	1	2	0	0	3	29	0	0	0	29	67
7:45 AM	19	30	0	1	49	2	3	0	0	5	19	3	0	0	22	76
Hourly Total	51	106	0	3	157	5	6	0	0	11	74	5	1	0	80	248
8:00 AM	6	20	0	0	26	2	2	0	0	4	15	1	0	0	16	46
8:15 AM	5	30	1	0	36	2	2	0	0	4	29	1	0	0	30	70
8:30 AM	5	29	0	0	34	4	4	0	0	8	19	2	1	0	22	64
8:45 AM	3	17	1	0	21	2	3	0	0	5	18	0	0	0	18	44
Hourly Total	19	96	2	0	117	10	11	0	0	21	81	4	1	0	86	224
9:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	26	0	0	26	0	6	0	0	6	42	0	0	0	42	74
4:15 PM	0	22	0	2	22	3	6	0	0	9	49	3	0	0	52	83
4:30 PM	0	22	0	0	22	1	4	0	1	5	73	2	0	0	75	102
4:45 PM	1	20	0	0	21	2	5	0	0	7	64	0	0	0	64	92
Hourly Total	1	90	0	2	91	6	21	0	1	27	228	5	0	0	233	351
5:00 PM	0	12	0	0	12	1	32	0	0	33	47	0	0	0	47	92
5:15 PM	1	14	0	0	15	0	6	0	0	6	39	0	1	0	40	61
5:30 PM	0	8	0	0	8	0	1	0	0	1	31	0	0	0	31	40
5:45 PM	0	13	0	0	13	0	1	0	0	1	37	0	1	0	38	52
Hourly Total	1	47	0	0	48	1	40	0	0	41	154	0	2	0	156	245
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	72	340	2	5	414	22	78	0	1	100	537	14	4	0	555	1069
Approach %	17.4	82.1	0.5	-	-	22.0	78.0	0.0	-	-	96.8	2.5	0.7	-	-	-
Total %	6.7	31.8	0.2	-	38.7	2.1	7.3	0.0	-	9.4	50.2	1.3	0.4	-	51.9	-
Lights	66	290	2	-	358	15	72	0	-	87	479	10	4	-	493	938
% Lights	91.7	85.3	100.0	-	86.5	68.2	92.3	-	-	87.0	89.2	71.4	100.0	-	88.8	87.7
Buses	0	25	0	-	25	0	0	0	-	0	31	1	0	-	32	57
% Buses	0.0	7.4	0.0	-	6.0	0.0	0.0	-	-	0.0	5.8	7.1	0.0	-	5.8	5.3
Trucks	6	25	0	-	31	7	6	0	-	13	27	3	0	-	30	74
% Trucks	8.3	7.4	0.0	-	7.5	31.8	7.7	-	-	13.0	5.0	21.4	0.0	-	5.4	6.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	100.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	5	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	0.0	-	-	-	-	-	-	-

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Camden County, NJ
Broadway & Holt Driveway
Thursday, November 3, 2022
Location: 39.915401, -75.119792

Count Name: Broadway & Holt Driveway
Site Code:
Start Date: 11/03/2022



Turning Movement Data Plot

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Thursday, November 3, 2022
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Turning Movement Peak Hour Data (7:30 AM)

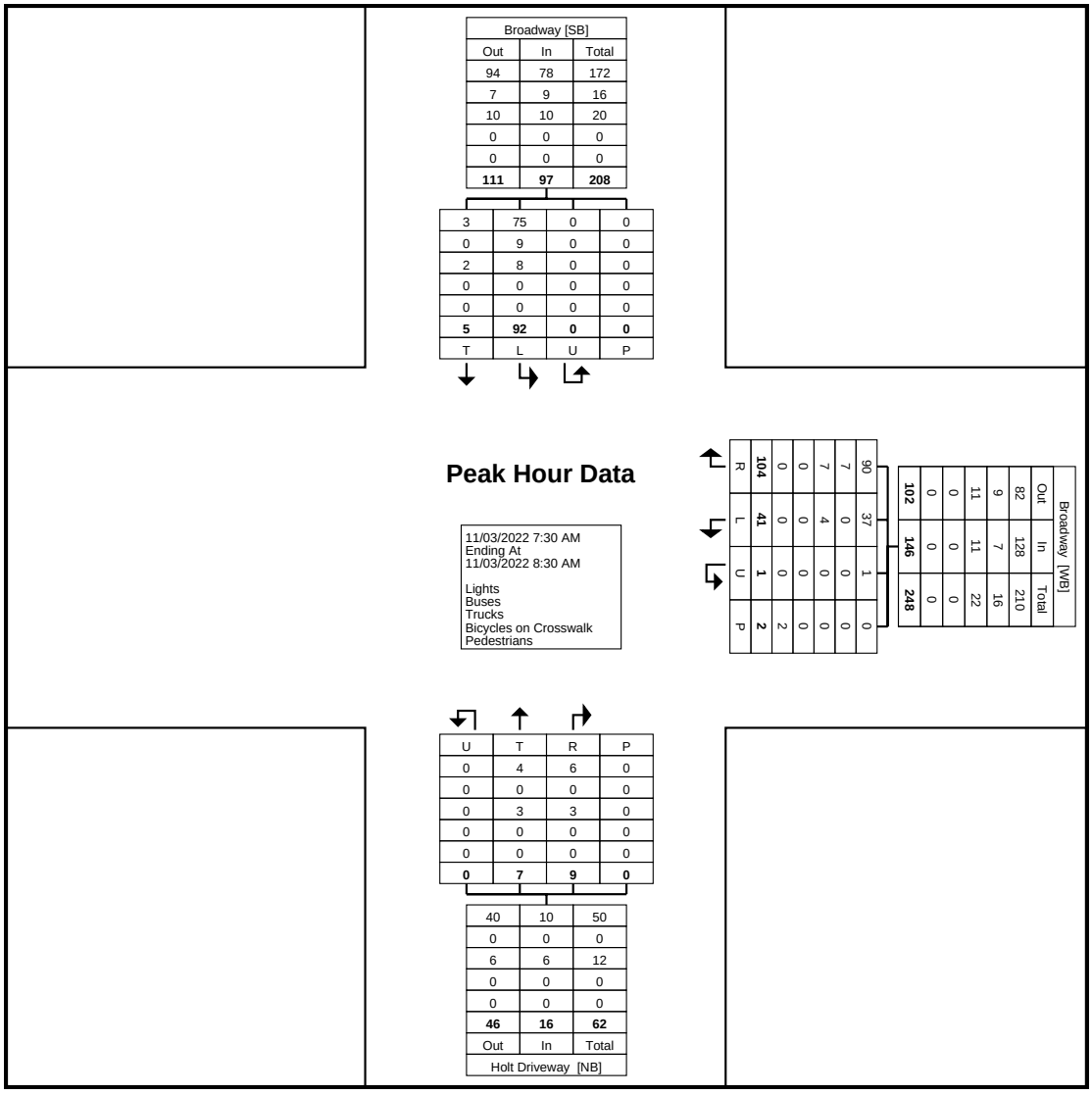
Start Time	Broadway Westbound					Holt Driveway Northbound					Broadway Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:30 AM	11	24	0	1	35	1	2	0	0	3	29	0	0	0	29	67
7:45 AM	19	30	0	1	49	2	3	0	0	5	19	3	0	0	22	76
8:00 AM	6	20	0	0	26	2	2	0	0	4	15	1	0	0	16	46
8:15 AM	5	30	1	0	36	2	2	0	0	4	29	1	0	0	30	70
Total	41	104	1	2	146	7	9	0	0	16	92	5	0	0	97	259
Approach %	28.1	71.2	0.7	-	-	43.8	56.3	0.0	-	-	94.8	5.2	0.0	-	-	-
Total %	15.8	40.2	0.4	-	56.4	2.7	3.5	0.0	-	6.2	35.5	1.9	0.0	-	37.5	-
PHF	0.539	0.867	0.250	-	0.745	0.875	0.750	0.000	-	0.800	0.793	0.417	0.000	-	0.808	0.852
Lights	37	90	1	-	128	4	6	0	-	10	75	3	0	-	78	216
% Lights	90.2	86.5	100.0	-	87.7	57.1	66.7	-	-	62.5	81.5	60.0	-	-	80.4	83.4
Buses	0	7	0	-	7	0	0	0	-	0	9	0	0	-	9	16
% Buses	0.0	6.7	0.0	-	4.8	0.0	0.0	-	-	0.0	9.8	0.0	-	-	9.3	6.2
Trucks	4	7	0	-	11	3	3	0	-	6	8	2	0	-	10	27
% Trucks	9.8	6.7	0.0	-	7.5	42.9	33.3	-	-	37.5	8.7	40.0	-	-	10.3	10.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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Thursday, November 3, 2022
Location: 39.915401, -75.119792

Count Name: Broadway & Holt Driveway
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Turning Movement Peak Hour Data Plot (7:30 AM)

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Turning Movement Peak Hour Data (4:15 PM)

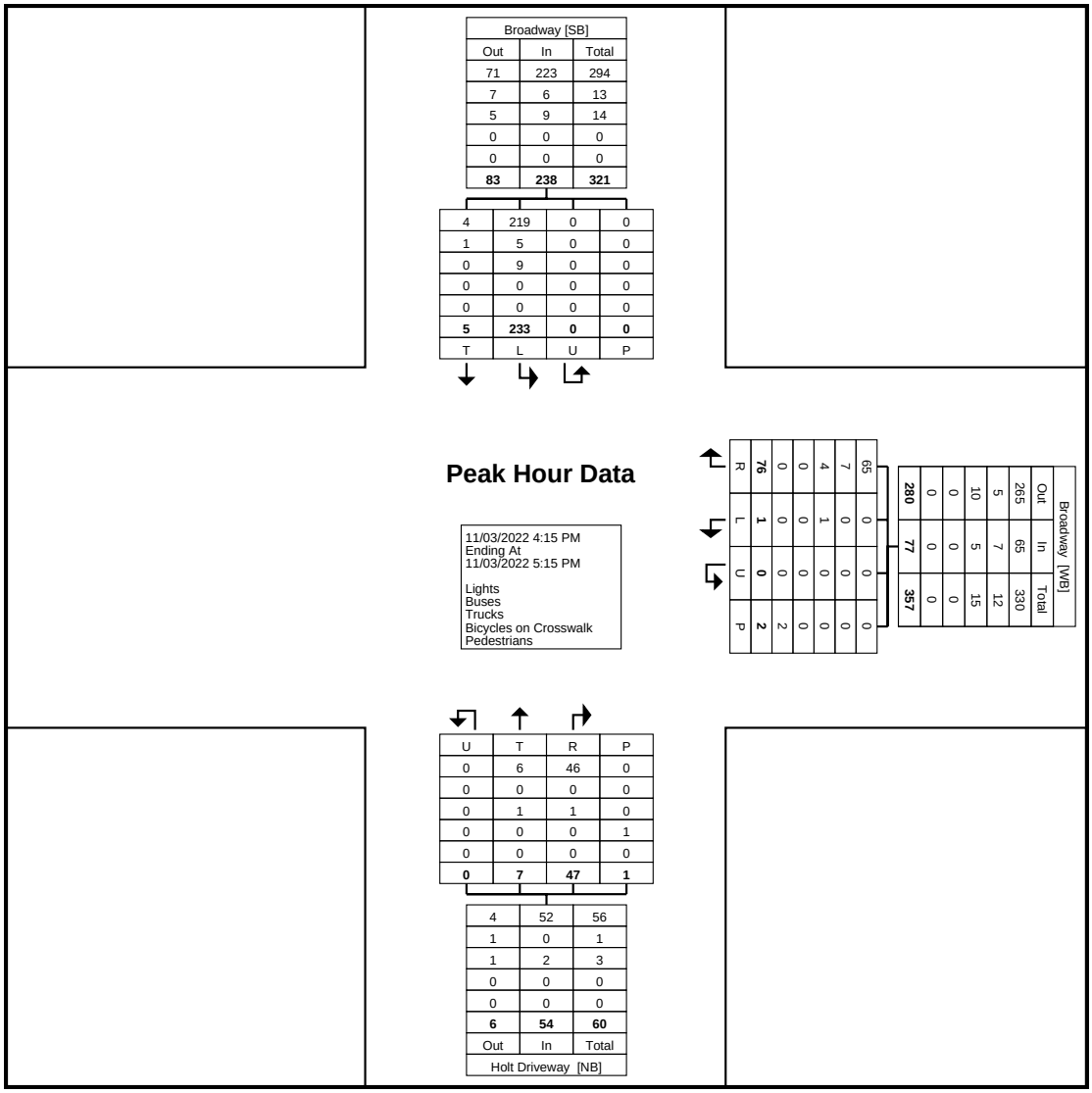
Start Time	Broadway Westbound					Holt Driveway Northbound					Broadway Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
4:15 PM	0	22	0	2	22	3	6	0	0	9	49	3	0	0	52	83
4:30 PM	0	22	0	0	22	1	4	0	1	5	73	2	0	0	75	102
4:45 PM	1	20	0	0	21	2	5	0	0	7	64	0	0	0	64	92
5:00 PM	0	12	0	0	12	1	32	0	0	33	47	0	0	0	47	92
Total	1	76	0	2	77	7	47	0	1	54	233	5	0	0	238	369
Approach %	1.3	98.7	0.0	-	-	13.0	87.0	0.0	-	-	97.9	2.1	0.0	-	-	-
Total %	0.3	20.6	0.0	-	20.9	1.9	12.7	0.0	-	14.6	63.1	1.4	0.0	-	64.5	-
PHF	0.250	0.864	0.000	-	0.875	0.583	0.367	0.000	-	0.409	0.798	0.417	0.000	-	0.793	0.904
Lights	0	65	0	-	65	6	46	0	-	52	219	4	0	-	223	340
% Lights	0.0	85.5	-	-	84.4	85.7	97.9	-	-	96.3	94.0	80.0	-	-	93.7	92.1
Buses	0	7	0	-	7	0	0	0	-	0	5	1	0	-	6	13
% Buses	0.0	9.2	-	-	9.1	0.0	0.0	-	-	0.0	2.1	20.0	-	-	2.5	3.5
Trucks	1	4	0	-	5	1	1	0	-	2	9	0	0	-	9	16
% Trucks	100.0	5.3	-	-	6.5	14.3	2.1	-	-	3.7	3.9	0.0	-	-	3.8	4.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	100.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	0.0	-	-	-	-	-	-	-

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Count Name: Broadway & Holt Driveway
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Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (4:15 PM)

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Camden County, NJ
Broadway & Holtec Blvd
Thursday, November 3, 2022
Location: 39.912638, -75.118081

Count Name: Broadway & Holtec Blvd
Site Code:
Start Date: 11/03/2022

Turning Movement Data

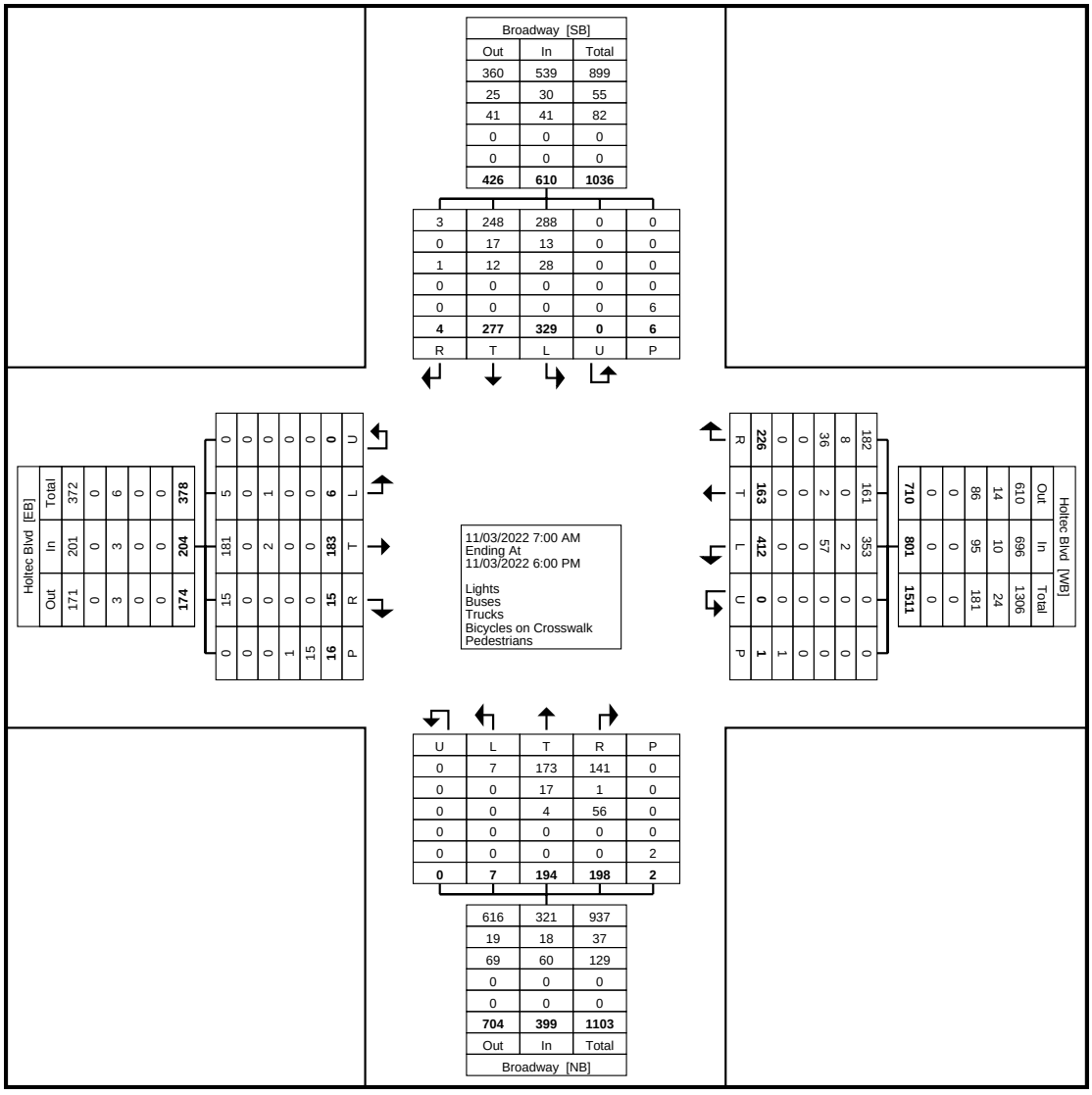
Start Time	Holtec Blvd Eastbound							Holtec Blvd Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:00 AM	0	1	0	0	0	0	1	7	29	19	0	0	0	55	1	10	5	0	0	0	16	9	8	0	0	0	0	17	89
7:15 AM	0	1	0	0	0	1	1	15	16	32	0	0	0	63	0	19	13	0	0	0	32	8	4	1	0	0	0	13	109
7:30 AM	0	1	1	0	0	3	2	20	11	17	0	0	1	48	1	19	5	0	0	0	25	18	13	0	0	0	2	31	106
7:45 AM	1	0	1	0	0	1	2	20	19	32	0	0	0	71	3	21	12	0	0	0	36	18	5	0	0	0	0	23	132
Hourly Total	1	3	2	0	0	5	6	62	75	100	0	0	1	237	5	69	35	0	0	0	109	53	30	1	0	0	2	84	436
8:00 AM	0	3	0	0	0	1	3	17	21	11	0	0	0	49	0	17	13	0	0	0	30	13	5	0	0	0	0	18	100
8:15 AM	0	3	0	0	0	0	3	17	16	15	0	0	0	48	0	19	18	0	0	0	37	20	9	0	0	0	0	29	117
8:30 AM	1	0	0	0	0	0	1	17	21	16	0	0	0	54	0	20	13	0	0	0	33	15	3	1	0	0	0	19	107
8:45 AM	0	3	0	0	0	1	3	22	22	12	0	0	0	56	0	10	17	0	0	0	27	14	8	0	0	0	2	22	108
Hourly Total	1	9	0	0	0	2	10	73	80	54	0	0	0	207	0	66	61	0	0	0	127	62	25	1	0	0	2	88	432
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	41	3	1	0	4	46	31	1	13	1	0	0	46	0	11	23	1	0	0	35	32	17	0	0	0	0	49	176
4:15 PM	1	18	2	0	0	0	21	27	2	13	0	0	0	42	1	7	14	0	0	0	22	28	24	1	0	0	0	53	138
4:30 PM	2	25	1	0	0	2	28	23	1	12	0	0	0	36	1	8	12	0	0	0	21	38	39	0	0	0	0	77	162
4:45 PM	0	18	0	0	0	0	18	63	2	7	0	0	0	72	0	12	9	0	0	0	21	27	39	1	0	0	0	67	178
Hourly Total	4	102	6	1	0	6	113	144	6	45	1	0	0	196	2	38	58	1	0	0	99	125	119	2	0	0	0	246	654
5:00 PM	0	31	4	0	0	1	35	45	1	5	0	0	0	51	0	6	11	1	0	0	18	33	43	0	0	0	0	76	180
5:15 PM	0	20	1	0	0	0	21	38	0	3	0	0	0	41	0	11	12	2	0	0	25	23	21	0	0	0	1	44	131
5:30 PM	0	10	0	0	0	0	10	27	0	7	0	0	0	34	0	1	6	1	0	1	8	13	18	0	0	0	0	31	83
5:45 PM	0	8	1	0	0	2	9	23	1	11	0	0	0	35	0	3	10	0	0	1	13	20	21	0	0	0	1	41	98
Hourly Total	0	69	6	0	0	3	75	133	2	26	0	0	0	161	0	21	39	4	0	2	64	89	103	0	0	0	2	192	492
Grand Total	6	183	14	1	0	16	204	412	163	225	1	0	1	801	7	194	193	5	0	2	399	329	277	4	0	0	6	610	2014
Approach %	2.9	89.7	6.9	0.5	0.0	-	-	51.4	20.3	28.1	0.1	0.0	-	-	1.8	48.6	48.4	1.3	0.0	-	-	53.9	45.4	0.7	0.0	0.0	-	-	-
Total %	0.3	9.1	0.7	0.0	0.0	-	10.1	20.5	8.1	11.2	0.0	0.0	-	39.8	0.3	9.6	9.6	0.2	0.0	-	19.8	16.3	13.8	0.2	0.0	0.0	-	30.3	-
Lights	5	181	14	1	0	-	201	353	161	181	1	0	-	696	7	173	137	4	0	-	321	288	248	3	0	0	-	539	1757
% Lights	83.3	98.9	100.0	100.0	-	-	98.5	85.7	98.8	80.4	100.0	-	-	86.9	100.0	89.2	71.0	80.0	-	-	80.5	87.5	89.5	75.0	-	-	-	88.4	87.2
Buses	0	0	0	0	0	-	0	2	0	8	0	0	-	10	0	17	1	0	0	-	18	13	17	0	0	0	-	30	58
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.5	0.0	3.6	0.0	-	-	1.2	0.0	8.8	0.5	0.0	-	-	4.5	4.0	6.1	0.0	-	-	-	4.9	2.9
Trucks	1	2	0	0	0	-	3	57	2	36	0	0	-	95	0	4	55	1	0	-	60	28	12	1	0	0	-	41	199
% Trucks	16.7	1.1	0.0	0.0	-	-	1.5	13.8	1.2	16.0	0.0	-	-	11.9	0.0	2.1	28.5	20.0	-	-	15.0	8.5	4.3	25.0	-	-	-	6.7	9.9
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	6.3	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	15	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	93.8	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

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Count Name: Broadway & Holtec Blvd
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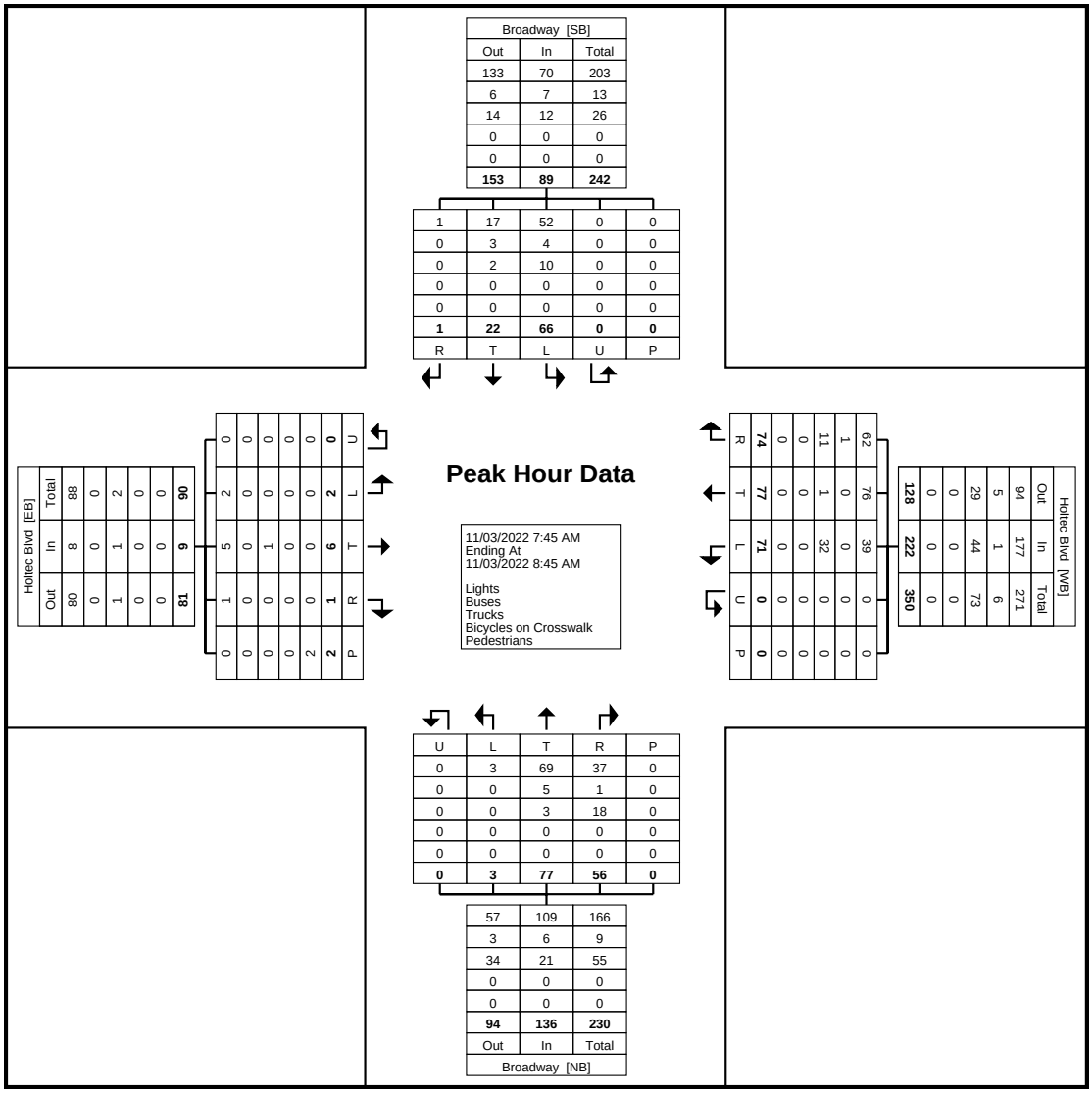
Count Name: Broadway & Holtec Blvd
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Holtec Blvd Eastbound							Holtec Blvd Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:45 AM	1	0	1	0	0	1	2	20	19	32	0	0	0	71	3	21	12	0	0	0	36	18	5	0	0	0	0	23	132
8:00 AM	0	3	0	0	0	1	3	17	21	11	0	0	0	49	0	17	13	0	0	0	30	13	5	0	0	0	0	18	100
8:15 AM	0	3	0	0	0	0	3	17	16	15	0	0	0	48	0	19	18	0	0	0	37	20	9	0	0	0	0	29	117
8:30 AM	1	0	0	0	0	0	1	17	21	16	0	0	0	54	0	20	13	0	0	0	33	15	3	1	0	0	0	19	107
Total	2	6	1	0	0	2	9	71	77	74	0	0	0	222	3	77	56	0	0	0	136	66	22	1	0	0	0	89	456
Approach %	22.2	66.7	11.1	0.0	0.0	-	-	32.0	34.7	33.3	0.0	0.0	-	-	2.2	56.6	41.2	0.0	0.0	-	-	74.2	24.7	1.1	0.0	0.0	-	-	-
Total %	0.4	1.3	0.2	0.0	0.0	-	2.0	15.6	16.9	16.2	0.0	0.0	-	48.7	0.7	16.9	12.3	0.0	0.0	-	29.8	14.5	4.8	0.2	0.0	0.0	-	19.5	-
PHF	0.500	0.500	0.250	0.000	0.000	-	0.750	0.888	0.917	0.578	0.000	0.000	-	0.782	0.250	0.917	0.778	0.000	0.000	-	0.919	0.825	0.611	0.250	0.000	0.000	-	0.767	0.864
Lights	2	5	1	0	0	-	8	39	76	62	0	0	-	177	3	69	37	0	0	-	109	52	17	1	0	0	-	70	364
% Lights	100.0	83.3	100.0	-	-	-	88.9	54.9	98.7	83.8	-	-	-	79.7	100.0	89.6	66.1	-	-	-	80.1	78.8	77.3	100.0	-	-	-	78.7	79.8
Buses	0	0	0	0	0	-	0	0	0	1	0	0	-	1	0	5	1	0	0	-	6	4	3	0	0	0	-	7	14
% Buses	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	1.4	-	-	-	0.5	0.0	6.5	1.8	-	-	-	4.4	6.1	13.6	0.0	-	-	-	7.9	3.1
Trucks	0	1	0	0	0	-	1	32	1	11	0	0	-	44	0	3	18	0	0	-	21	10	2	0	0	0	-	12	78
% Trucks	0.0	16.7	0.0	-	-	-	11.1	45.1	1.3	14.9	-	-	-	19.8	0.0	3.9	32.1	-	-	-	15.4	15.2	9.1	0.0	-	-	-	13.5	17.1
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Camden County, NJ
Broadway & Holtec Blvd
Thursday, November 3, 2022
Location: 39.912638, -75.118081

Count Name: Broadway & Holtec Blvd
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (7:45 AM)

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Camden County, NJ
Broadway & Holtec Blvd
Thursday, November 3, 2022
Location: 39.912638, -75.118081

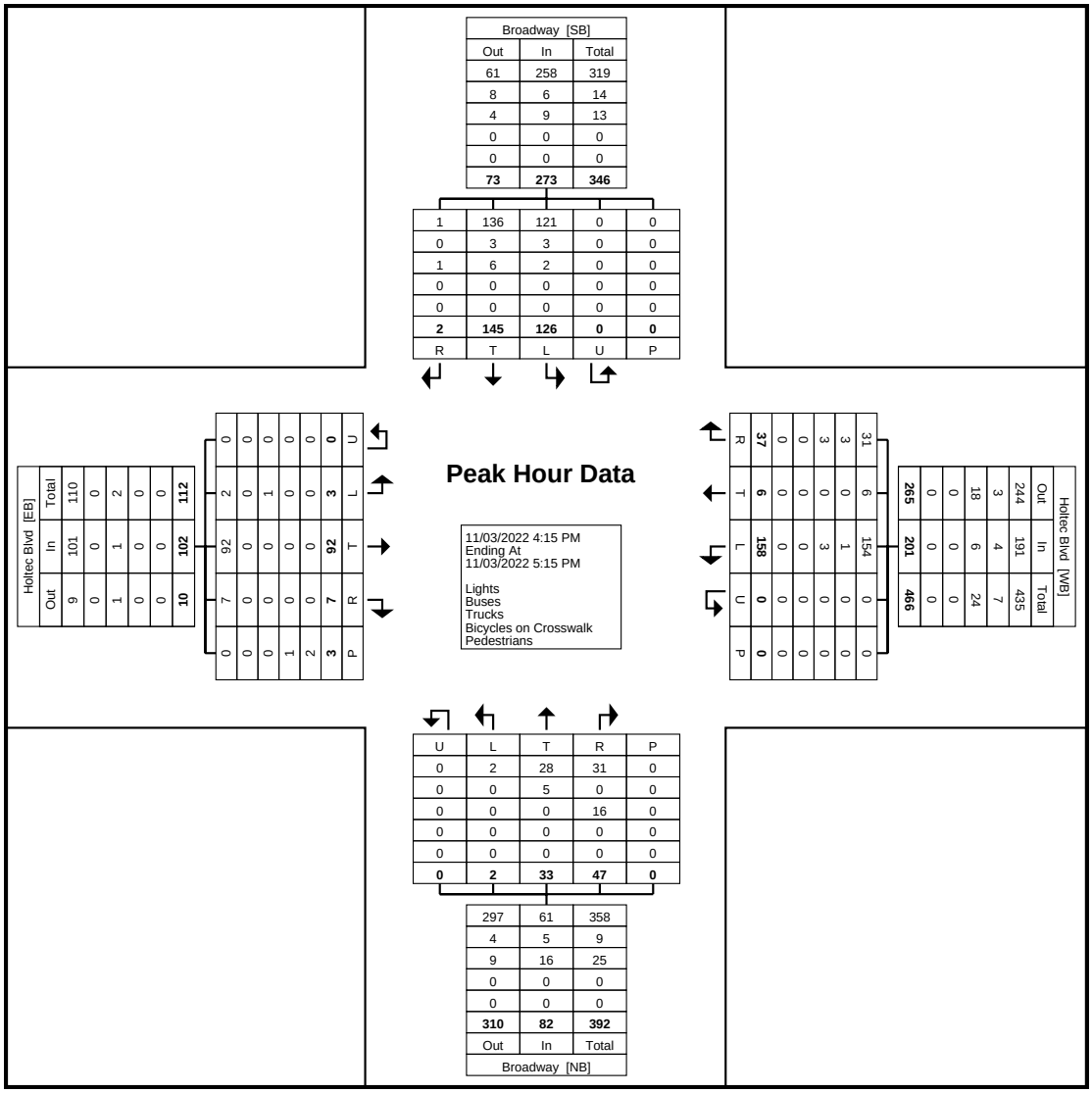
Count Name: Broadway & Holtec Blvd
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Holtec Blvd Eastbound							Holtec Blvd Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
4:15 PM	1	18	2	0	0	0	21	27	2	13	0	0	0	42	1	7	14	0	0	0	22	28	24	1	0	0	0	53	138
4:30 PM	2	25	1	0	0	2	28	23	1	12	0	0	0	36	1	8	12	0	0	0	21	38	39	0	0	0	0	77	162
4:45 PM	0	18	0	0	0	0	18	63	2	7	0	0	0	72	0	12	9	0	0	0	21	27	39	1	0	0	0	67	178
5:00 PM	0	31	4	0	0	1	35	45	1	5	0	0	0	51	0	6	11	1	0	0	18	33	43	0	0	0	0	76	180
Total	3	92	7	0	0	3	102	158	6	37	0	0	0	201	2	33	46	1	0	0	82	126	145	2	0	0	0	273	658
Approach %	2.9	90.2	6.9	0.0	0.0	-	-	78.6	3.0	18.4	0.0	0.0	-	-	2.4	40.2	56.1	1.2	0.0	-	-	46.2	53.1	0.7	0.0	0.0	-	-	-
Total %	0.5	14.0	1.1	0.0	0.0	-	15.5	24.0	0.9	5.6	0.0	0.0	-	30.5	0.3	5.0	7.0	0.2	0.0	-	12.5	19.1	22.0	0.3	0.0	0.0	-	41.5	-
PHF	0.375	0.742	0.438	0.000	0.000	-	0.729	0.627	0.750	0.712	0.000	0.000	-	0.698	0.500	0.688	0.821	0.250	0.000	-	0.932	0.829	0.843	0.500	0.000	0.000	-	0.886	0.914
Lights	2	92	7	0	0	-	101	154	6	31	0	0	-	191	2	28	30	1	0	-	61	121	136	1	0	0	-	258	611
% Lights	66.7	100.0	100.0	-	-	-	99.0	97.5	100.0	83.8	-	-	-	95.0	100.0	84.8	65.2	100.0	-	-	74.4	96.0	93.8	50.0	-	-	-	94.5	92.9
Buses	0	0	0	0	0	-	0	1	0	3	0	0	-	4	0	5	0	0	0	-	5	3	3	0	0	0	-	6	15
% Buses	0.0	0.0	0.0	-	-	-	0.0	0.6	0.0	8.1	-	-	-	2.0	0.0	15.2	0.0	0.0	-	-	6.1	2.4	2.1	0.0	-	-	-	2.2	2.3
Trucks	1	0	0	0	0	-	1	3	0	3	0	0	-	6	0	0	16	0	0	-	16	2	6	1	0	0	-	9	32
% Trucks	33.3	0.0	0.0	-	-	-	1.0	1.9	0.0	8.1	-	-	-	3.0	0.0	0.0	34.8	0.0	-	-	19.5	1.6	4.1	50.0	-	-	-	3.3	4.9
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	66.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Camden County, NJ
Broadway & Holtec Blvd
Thursday, November 3, 2022
Location: 39.912638, -75.118081

Count Name: Broadway & Holtec Blvd
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (4:15 PM)

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Camden County, NJ
Broadway & Jefferson St
Thursday, November 3, 2022
Location: 39.919549, -75.119781

Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022
Page No: 1

Turning Movement Data

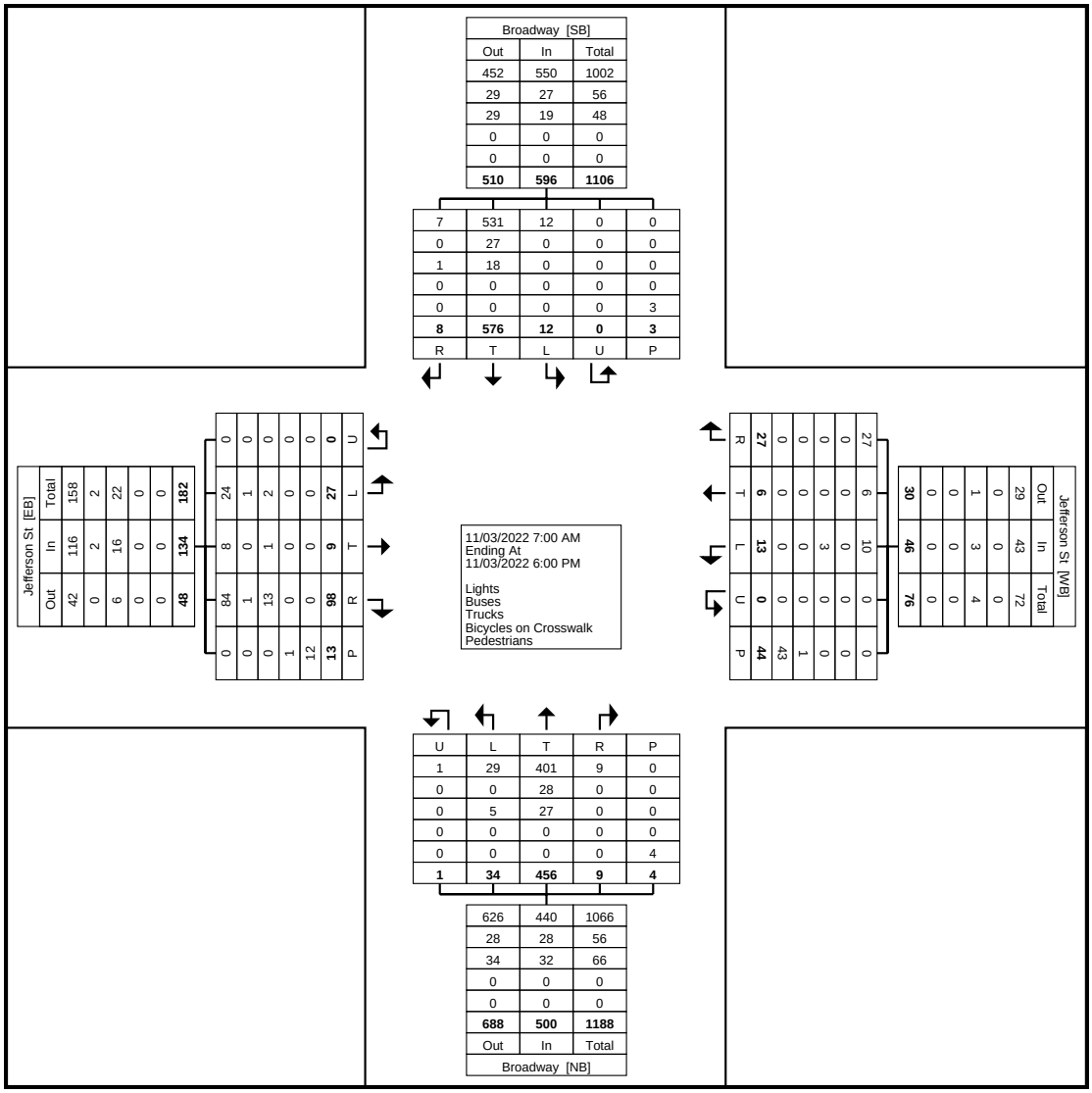
Start Time	Jefferson St Eastbound							Jefferson St Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:00 AM	2	0	0	1	0	0	3	3	1	0	1	0	0	5	3	20	0	0	0	0	23	0	25	1	0	0	1	26	57
7:15 AM	2	0	2	2	0	1	6	1	0	0	1	0	4	2	4	38	1	0	0	0	43	1	11	0	0	0	0	12	63
7:30 AM	3	1	7	8	0	1	19	0	0	0	1	0	3	1	3	33	0	0	0	0	36	0	22	0	0	0	0	22	78
7:45 AM	0	0	1	4	0	0	5	0	0	0	0	0	0	0	2	40	0	0	0	0	42	1	25	0	0	0	0	26	73
Hourly Total	7	1	10	15	0	2	33	4	1	0	3	0	7	8	12	131	1	0	0	0	144	2	83	1	0	0	1	86	271
8:00 AM	1	0	0	3	0	0	4	1	0	2	0	0	1	3	1	31	0	0	0	0	32	0	18	0	0	0	0	18	57
8:15 AM	0	3	2	1	0	1	6	0	0	1	1	0	3	2	0	39	1	0	0	0	40	1	25	0	0	0	0	26	74
8:30 AM	0	0	2	3	0	2	5	1	1	2	0	0	5	4	3	35	0	0	0	0	38	2	23	1	0	0	1	26	73
8:45 AM	1	0	2	0	0	0	3	1	0	1	0	0	2	2	3	22	0	0	0	0	25	0	24	0	0	0	0	24	54
Hourly Total	2	3	6	7	0	3	18	3	1	6	1	0	11	11	7	127	1	0	0	0	135	3	90	1	0	0	1	94	258
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	3	1	0	8	0	0	12	1	0	2	1	0	1	4	7	33	0	0	0	0	40	1	48	0	0	0	0	49	105
4:15 PM	2	0	1	6	0	0	9	0	0	0	2	0	3	2	1	25	1	0	0	0	27	0	52	0	0	0	0	52	90
4:30 PM	2	1	3	12	0	1	18	1	0	1	0	0	2	2	0	33	3	0	1	0	37	0	60	2	0	0	1	62	119
4:45 PM	4	0	2	9	0	1	15	3	0	1	1	0	8	5	3	21	1	0	0	1	25	0	63	1	0	0	0	64	109
Hourly Total	11	2	6	35	0	2	54	5	0	4	4	0	14	13	11	112	5	0	1	1	129	1	223	3	0	0	1	227	423
5:00 PM	1	1	2	3	0	2	7	0	0	3	1	0	3	4	0	21	0	0	0	2	21	1	51	0	0	0	0	52	84
5:15 PM	2	0	1	5	0	3	8	0	2	1	2	0	2	5	2	22	1	0	0	1	25	1	48	2	0	0	0	51	89
5:30 PM	2	1	2	3	0	0	8	1	0	0	0	0	3	1	2	18	0	0	0	0	20	0	45	1	0	0	0	46	75
5:45 PM	2	1	0	3	0	1	6	0	2	1	1	0	4	4	0	25	1	0	0	0	26	4	36	0	0	0	0	40	76
Hourly Total	7	3	5	14	0	6	29	1	4	5	4	0	12	14	4	86	2	0	0	3	92	6	180	3	0	0	0	189	324
Grand Total	27	9	27	71	0	13	134	13	6	15	12	0	44	46	34	456	9	0	1	4	500	12	576	8	0	0	3	596	1276
Approach %	20.1	6.7	20.1	53.0	0.0	-	-	28.3	13.0	32.6	26.1	0.0	-	-	6.8	91.2	1.8	0.0	0.2	-	-	2.0	96.6	1.3	0.0	0.0	-	-	-
Total %	2.1	0.7	2.1	5.6	0.0	-	10.5	1.0	0.5	1.2	0.9	0.0	-	3.6	2.7	35.7	0.7	0.0	0.1	-	39.2	0.9	45.1	0.6	0.0	0.0	-	46.7	-
Lights	24	8	21	63	0	-	116	10	6	15	12	0	-	43	29	401	9	0	1	-	440	12	531	7	0	0	-	550	1149
% Lights	88.9	88.9	77.8	88.7	-	-	86.6	76.9	100.0	100.0	100.0	-	-	93.5	85.3	87.9	100.0	-	100.0	-	88.0	100.0	92.2	87.5	-	-	-	92.3	90.0
Buses	1	0	1	0	0	-	2	0	0	0	0	0	-	0	0	28	0	0	0	-	28	0	27	0	0	0	-	27	57
% Buses	3.7	0.0	3.7	0.0	-	-	1.5	0.0	0.0	0.0	0.0	-	-	0.0	0.0	6.1	0.0	-	0.0	-	5.6	0.0	4.7	0.0	-	-	-	4.5	4.5
Trucks	2	1	5	8	0	-	16	3	0	0	0	0	-	3	5	27	0	0	0	-	32	0	18	1	0	0	-	19	70
% Trucks	7.4	11.1	18.5	11.3	-	-	11.9	23.1	0.0	0.0	0.0	-	-	6.5	14.7	5.9	0.0	-	0.0	-	6.4	0.0	3.1	12.5	-	-	-	3.2	5.5
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	7.7	-	-	-	-	-	-	2.3	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	12	-	-	-	-	-	-	43	-	-	-	-	-	-	4	-	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	92.3	-	-	-	-	-	-	97.7	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

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Camden County, NJ
Broadway & Jefferson St
Thursday, November 3, 2022
Location: 39.919549, -75.119781

Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022



Turning Movement Data Plot

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Camden County, NJ
Broadway & Jefferson St
Thursday, November 3, 2022
Location: 39.919549, -75.119781

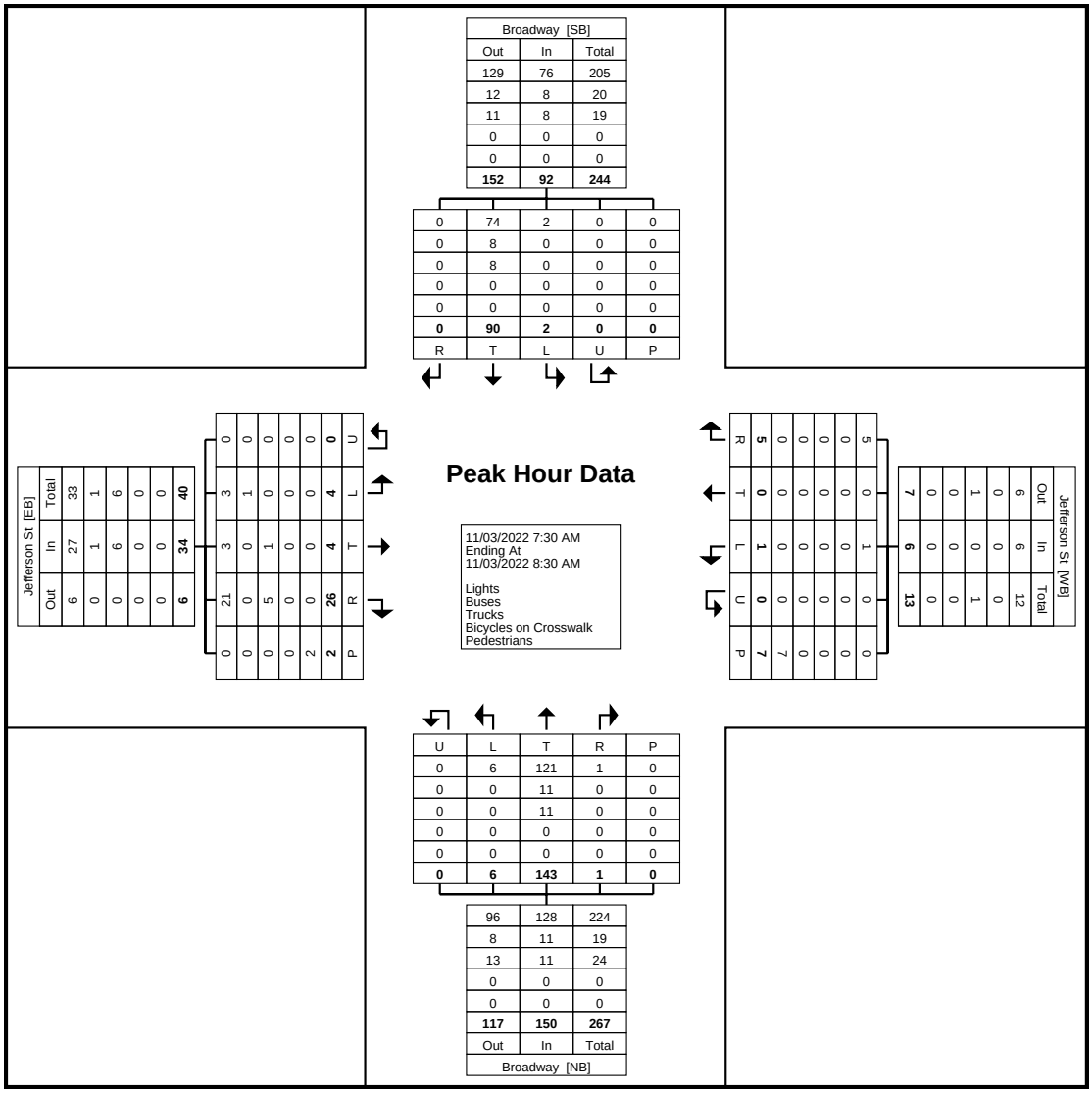
Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Jefferson St Eastbound							Jefferson St Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:30 AM	3	1	7	8	0	1	19	0	0	0	1	0	3	1	3	33	0	0	0	0	36	0	22	0	0	0	0	22	78
7:45 AM	0	0	1	4	0	0	5	0	0	0	0	0	0	0	2	40	0	0	0	0	42	1	25	0	0	0	0	26	73
8:00 AM	1	0	0	3	0	0	4	1	0	2	0	0	1	3	1	31	0	0	0	0	32	0	18	0	0	0	0	18	57
8:15 AM	0	3	2	1	0	1	6	0	0	1	1	0	3	2	0	39	1	0	0	0	40	1	25	0	0	0	0	26	74
Total	4	4	10	16	0	2	34	1	0	3	2	0	7	6	6	143	1	0	0	0	150	2	90	0	0	0	0	92	282
Approach %	11.8	11.8	29.4	47.1	0.0	-	-	16.7	0.0	50.0	33.3	0.0	-	-	4.0	95.3	0.7	0.0	0.0	-	-	2.2	97.8	0.0	0.0	0.0	-	-	-
Total %	1.4	1.4	3.5	5.7	0.0	-	12.1	0.4	0.0	1.1	0.7	0.0	-	2.1	2.1	50.7	0.4	0.0	0.0	-	53.2	0.7	31.9	0.0	0.0	0.0	-	32.6	-
PHF	0.333	0.333	0.357	0.500	0.000	-	0.447	0.250	0.000	0.375	0.500	0.000	-	0.500	0.500	0.894	0.250	0.000	0.000	-	0.893	0.500	0.900	0.000	0.000	0.000	-	0.885	0.904
Lights	3	3	6	15	0	-	27	1	0	3	2	0	-	6	6	121	1	0	0	-	128	2	74	0	0	0	-	76	237
% Lights	75.0	75.0	60.0	93.8	-	-	79.4	100.0	-	100.0	100.0	-	-	100.0	100.0	84.6	100.0	-	-	-	85.3	100.0	82.2	-	-	-	-	82.6	84.0
Buses	1	0	0	0	0	-	1	0	0	0	0	0	-	0	0	11	0	0	0	-	11	0	8	0	0	0	-	8	20
% Buses	25.0	0.0	0.0	0.0	-	-	2.9	0.0	-	0.0	0.0	-	-	0.0	0.0	7.7	0.0	-	-	-	7.3	0.0	8.9	-	-	-	-	8.7	7.1
Trucks	0	1	4	1	0	-	6	0	0	0	0	0	-	0	0	11	0	0	0	-	11	0	8	0	0	0	-	8	25
% Trucks	0.0	25.0	40.0	6.3	-	-	17.6	0.0	-	0.0	0.0	-	-	0.0	0.0	7.7	0.0	-	-	-	7.3	0.0	8.9	-	-	-	-	8.7	8.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	-	7	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Camden County, NJ
Broadway & Jefferson St
Thursday, November 3, 2022
Location: 39.919549, -75.119781

Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (7:30 AM)

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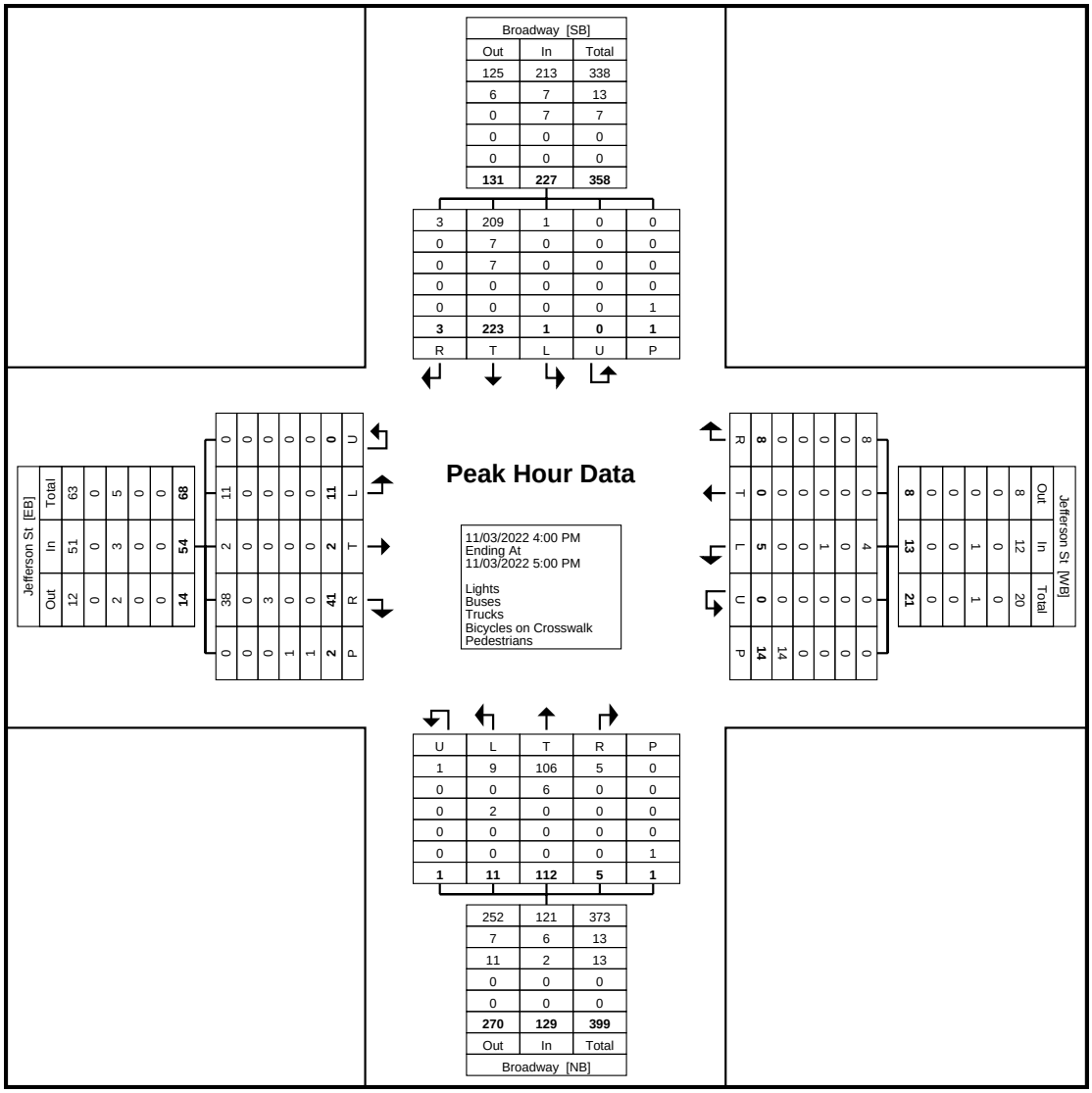
Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Jefferson St Eastbound							Jefferson St Westbound							Broadway Northbound							Broadway Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
4:00 PM	3	1	0	8	0	0	12	1	0	2	1	0	1	4	7	33	0	0	0	0	40	1	48	0	0	0	0	49	105
4:15 PM	2	0	1	6	0	0	9	0	0	0	2	0	3	2	1	25	1	0	0	0	27	0	52	0	0	0	0	52	90
4:30 PM	2	1	3	12	0	1	18	1	0	1	0	0	2	2	0	33	3	0	1	0	37	0	60	2	0	0	1	62	119
4:45 PM	4	0	2	9	0	1	15	3	0	1	1	0	8	5	3	21	1	0	0	1	25	0	63	1	0	0	0	64	109
Total	11	2	6	35	0	2	54	5	0	4	4	0	14	13	11	112	5	0	1	1	129	1	223	3	0	0	1	227	423
Approach %	20.4	3.7	11.1	64.8	0.0	-	-	38.5	0.0	30.8	30.8	0.0	-	-	8.5	86.8	3.9	0.0	0.8	-	-	0.4	98.2	1.3	0.0	0.0	-	-	-
Total %	2.6	0.5	1.4	8.3	0.0	-	12.8	1.2	0.0	0.9	0.9	0.0	-	3.1	2.6	26.5	1.2	0.0	0.2	-	30.5	0.2	52.7	0.7	0.0	0.0	-	53.7	-
PHF	0.688	0.500	0.500	0.729	0.000	-	0.750	0.417	0.000	0.500	0.500	0.000	-	0.650	0.393	0.848	0.417	0.000	0.250	-	0.806	0.250	0.885	0.375	0.000	0.000	-	0.887	0.889
Lights	11	2	6	32	0	-	51	4	0	4	4	0	-	12	9	106	5	0	1	-	121	1	209	3	0	0	-	213	397
% Lights	100.0	100.0	100.0	91.4	-	-	94.4	80.0	-	100.0	100.0	-	-	92.3	81.8	94.6	100.0	-	100.0	-	93.8	100.0	93.7	100.0	-	-	-	93.8	93.9
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	6	0	0	0	-	6	0	7	0	0	0	-	7	13
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	5.4	0.0	-	0.0	-	4.7	0.0	3.1	0.0	-	-	-	3.1	3.1
Trucks	0	0	0	3	0	-	3	1	0	0	0	0	-	1	2	0	0	0	0	-	2	0	7	0	0	0	-	7	13
% Trucks	0.0	0.0	0.0	8.6	-	-	5.6	20.0	-	0.0	0.0	-	-	7.7	18.2	0.0	0.0	-	0.0	-	1.6	0.0	3.1	0.0	-	-	-	3.1	3.1
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	50.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	14	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	50.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

Camden County, NJ
Broadway & Jefferson St
Thursday, November 3, 2022
Location: 39.919549, -75.119781

Count Name: Broadway & Jefferson St
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (4:00 PM)

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Camden County, NJ
Holtec Blvd & I676 SB Off Ramp
Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022

Turning Movement Data

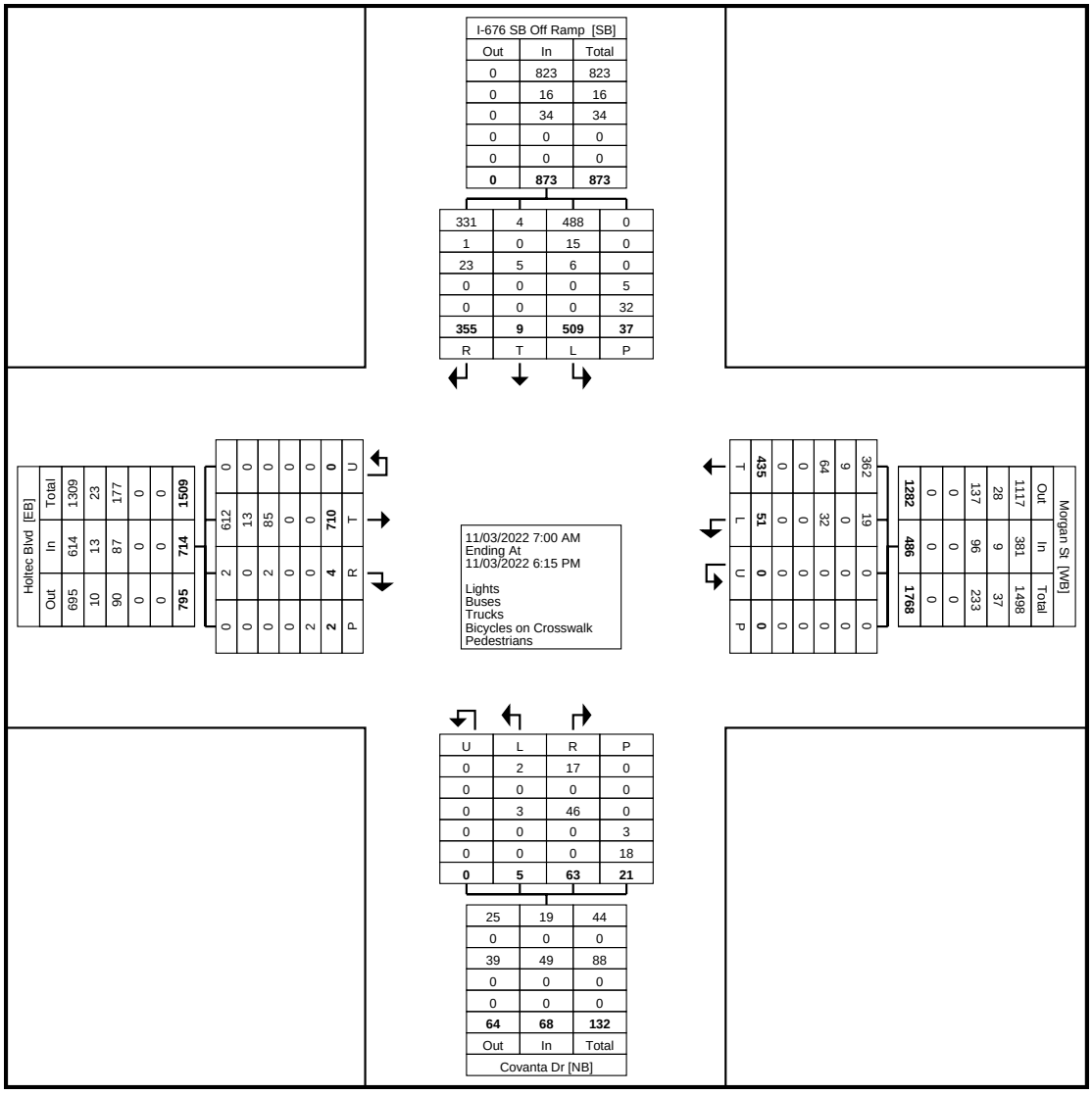
Start Time	Holtec Blvd Eastbound						Morgan St Westbound					Covanta Dr Northbound						I-676 SB Off Ramp Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:00 AM	18	0	0	0	0	18	4	36	0	0	40	0	0	0	0	0	0	14	1	13	0	2	28	86
7:15 AM	19	1	0	0	0	20	5	47	0	0	52	1	5	1	0	1	7	20	0	16	0	2	36	115
7:30 AM	25	0	0	0	0	25	3	37	0	0	40	0	6	0	0	1	6	18	0	13	0	4	31	102
7:45 AM	29	0	1	0	0	30	7	51	0	0	58	0	0	1	0	1	1	35	1	26	1	0	63	152
Hourly Total	91	1	1	0	0	93	19	171	0	0	190	1	11	2	0	3	14	87	2	68	1	8	158	455
8:00 AM	30	0	0	0	0	30	5	22	0	0	27	0	5	0	0	0	5	35	2	17	1	3	55	117
8:15 AM	44	0	0	0	0	44	5	31	0	0	36	0	2	0	0	1	2	31	3	16	1	1	51	133
8:30 AM	28	0	0	0	0	28	3	37	0	0	40	0	8	0	0	2	8	30	2	16	0	1	48	124
8:45 AM	33	0	1	0	0	34	5	39	0	0	44	0	6	1	0	1	7	28	0	17	0	2	45	130
Hourly Total	135	0	1	0	0	136	18	129	0	0	147	0	21	1	0	4	22	124	7	66	2	7	199	504
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	99	0	0	0	0	99	1	23	0	0	24	3	3	2	0	1	8	29	0	20	0	2	49	180
4:15 PM	58	0	0	0	1	58	2	20	0	0	22	0	4	5	0	3	9	41	0	24	0	2	65	154
4:30 PM	72	1	0	0	0	73	5	12	0	0	17	0	0	1	0	3	1	39	0	22	0	2	61	152
4:45 PM	53	0	0	0	0	53	1	15	0	0	16	1	4	1	0	0	6	46	0	56	0	1	102	177
Hourly Total	282	1	0	0	1	283	9	70	0	0	79	4	11	9	0	7	24	155	0	122	0	7	277	663
5:00 PM	82	0	0	0	1	82	0	13	0	0	13	0	1	3	0	1	4	44	0	37	1	0	82	181
5:15 PM	53	0	0	0	0	53	2	16	0	0	18	0	0	1	0	1	1	39	0	25	0	3	64	136
5:30 PM	35	0	0	0	0	35	2	20	0	0	22	0	0	0	0	3	0	35	0	12	2	6	49	106
5:45 PM	32	0	0	0	0	32	1	16	0	0	17	0	2	1	0	2	3	25	0	17	2	6	44	96
Hourly Total	202	0	0	0	1	202	5	65	0	0	70	0	3	5	0	7	8	143	0	91	5	15	239	519
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	710	2	2	0	2	714	51	435	0	0	486	5	46	17	0	21	68	509	9	347	8	37	873	2141
Approach %	99.4	0.3	0.3	0.0	-	-	10.5	89.5	0.0	-	-	7.4	67.6	25.0	0.0	-	-	58.3	1.0	39.7	0.9	-	-	-
Total %	33.2	0.1	0.1	0.0	-	33.3	2.4	20.3	0.0	-	22.7	0.2	2.1	0.8	0.0	-	3.2	23.8	0.4	16.2	0.4	-	40.8	-
Lights	612	1	1	0	-	614	19	362	0	-	381	2	7	10	0	-	19	488	4	323	8	-	823	1837
% Lights	86.2	50.0	50.0	-	-	86.0	37.3	83.2	-	-	78.4	40.0	15.2	58.8	-	-	27.9	95.9	44.4	93.1	100.0	-	94.3	85.8
Buses	13	0	0	0	-	13	0	9	0	-	9	0	0	0	0	-	0	15	0	1	0	-	16	38
% Buses	1.8	0.0	0.0	-	-	1.8	0.0	2.1	-	-	1.9	0.0	0.0	0.0	-	-	0.0	2.9	0.0	0.3	0.0	-	1.8	1.8
Trucks	85	1	1	0	-	87	32	64	0	-	96	3	39	7	0	-	49	6	5	23	0	-	34	266
% Trucks	12.0	50.0	50.0	-	-	12.2	62.7	14.7	-	-	19.8	60.0	84.8	41.2	-	-	72.1	1.2	55.6	6.6	0.0	-	3.9	12.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	14.3	-	-	-	-	-	13.5	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	-	18	-	-	-	-	-	32	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	85.7	-	-	-	-	-	86.5	-	-

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Camden County, NJ
Holtec Blvd & I676 SB Off Ramp
Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022



Turning Movement Data Plot

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Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (7:45 AM)

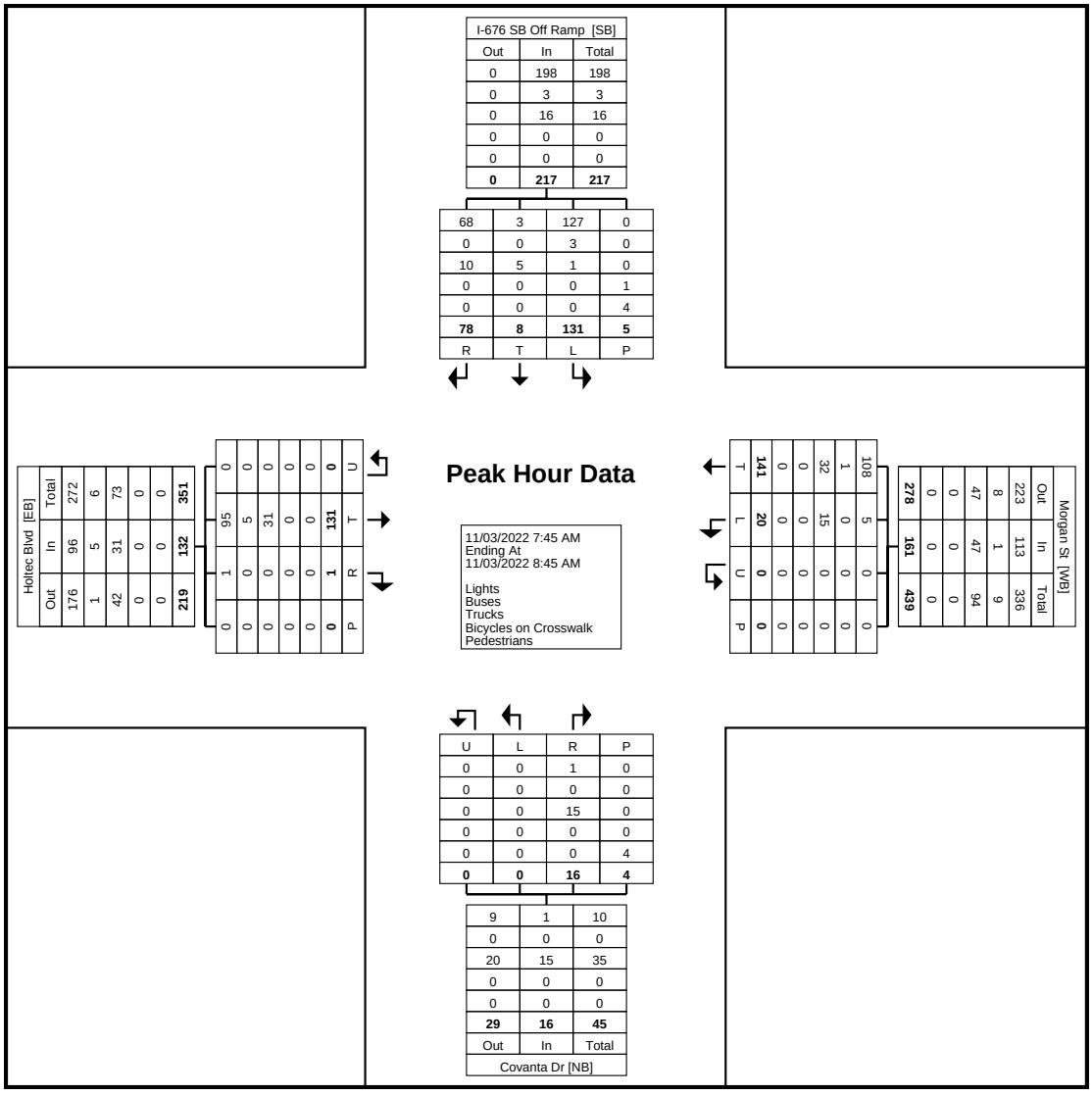
Start Time	Holtec Blvd Eastbound						Morgan St Westbound					Covanta Dr Northbound						I-676 SB Off Ramp Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:45 AM	29	0	1	0	0	30	7	51	0	0	58	0	0	1	0	1	1	35	1	26	1	0	63	152
8:00 AM	30	0	0	0	0	30	5	22	0	0	27	0	5	0	0	0	5	35	2	17	1	3	55	117
8:15 AM	44	0	0	0	0	44	5	31	0	0	36	0	2	0	0	1	2	31	3	16	1	1	51	133
8:30 AM	28	0	0	0	0	28	3	37	0	0	40	0	8	0	0	2	8	30	2	16	0	1	48	124
Total	131	0	1	0	0	132	20	141	0	0	161	0	15	1	0	4	16	131	8	75	3	5	217	526
Approach %	99.2	0.0	0.8	0.0	-	-	12.4	87.6	0.0	-	-	0.0	93.8	6.3	0.0	-	-	60.4	3.7	34.6	1.4	-	-	-
Total %	24.9	0.0	0.2	0.0	-	25.1	3.8	26.8	0.0	-	30.6	0.0	2.9	0.2	0.0	-	3.0	24.9	1.5	14.3	0.6	-	41.3	-
PHF	0.744	0.000	0.250	0.000	-	0.750	0.714	0.691	0.000	-	0.694	0.000	0.469	0.250	0.000	-	0.500	0.936	0.667	0.721	0.750	-	0.861	0.865
Lights	95	0	1	0	-	96	5	108	0	-	113	0	1	0	0	-	1	127	3	65	3	-	198	408
% Lights	72.5	-	100.0	-	-	72.7	25.0	76.6	-	-	70.2	-	6.7	0.0	-	-	6.3	96.9	37.5	86.7	100.0	-	91.2	77.6
Buses	5	0	0	0	-	5	0	1	0	-	1	0	0	0	0	-	0	3	0	0	0	-	3	9
% Buses	3.8	-	0.0	-	-	3.8	0.0	0.7	-	-	0.6	-	0.0	0.0	-	-	0.0	2.3	0.0	0.0	0.0	-	1.4	1.7
Trucks	31	0	0	0	-	31	15	32	0	-	47	0	14	1	0	-	15	1	5	10	0	-	16	109
% Trucks	23.7	-	0.0	-	-	23.5	75.0	22.7	-	-	29.2	-	93.3	100.0	-	-	93.8	0.8	62.5	13.3	0.0	-	7.4	20.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	80.0	-	-

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Camden County, NJ
Holtec Blvd & I676 SB Off Ramp
Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (7:45 AM)

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Holtec Blvd & I676 SB Off Ramp
Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022

Turning Movement Peak Hour Data (4:15 PM)

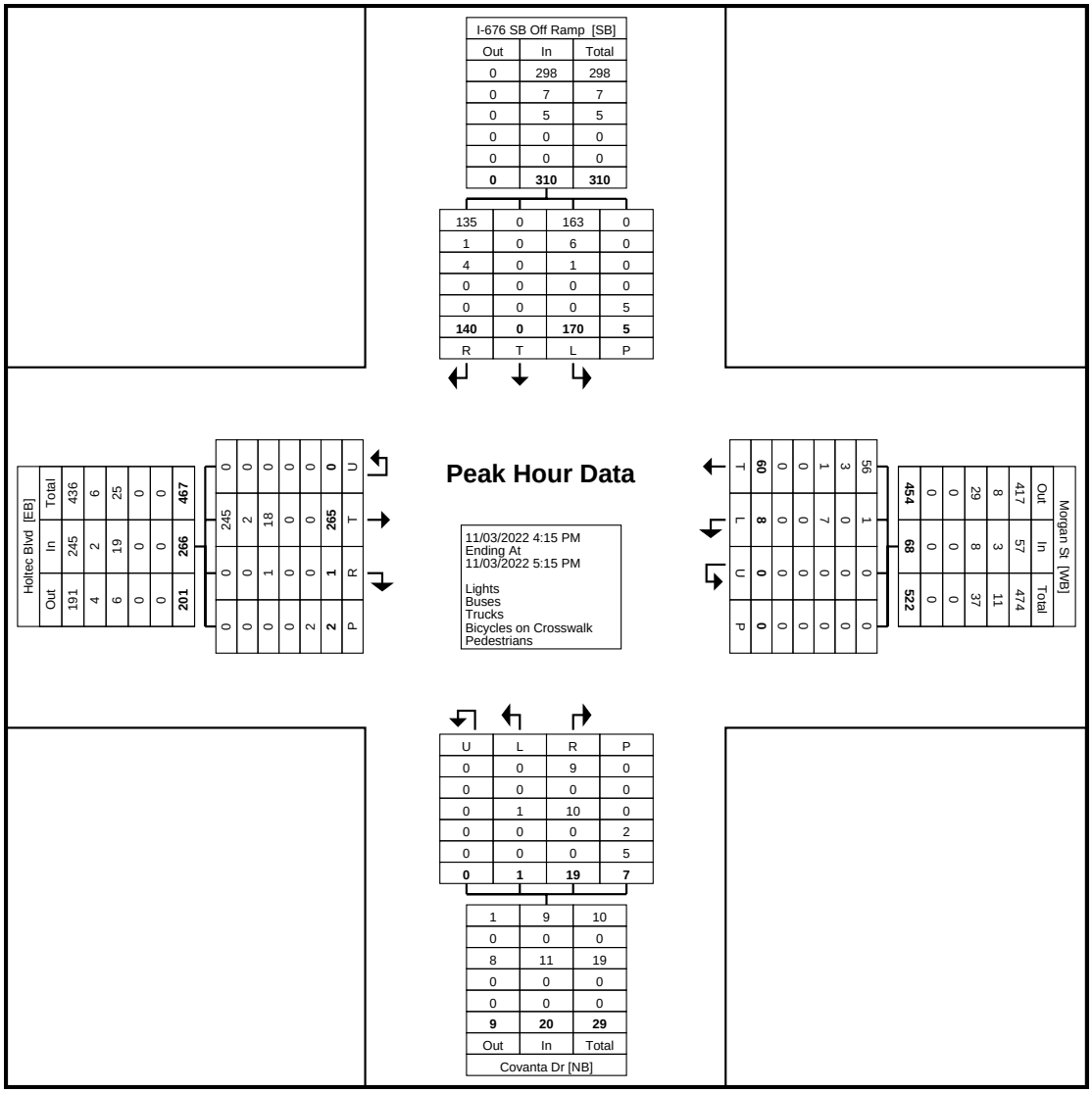
Start Time	Holtec Blvd Eastbound						Morgan St Westbound					Covanta Dr Northbound						I-676 SB Off Ramp Southbound						Int. Total
	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:15 PM	58	0	0	0	1	58	2	20	0	0	22	0	4	5	0	3	9	41	0	24	0	2	65	154
4:30 PM	72	1	0	0	0	73	5	12	0	0	17	0	0	1	0	3	1	39	0	22	0	2	61	152
4:45 PM	53	0	0	0	0	53	1	15	0	0	16	1	4	1	0	0	6	46	0	56	0	1	102	177
5:00 PM	82	0	0	0	1	82	0	13	0	0	13	0	1	3	0	1	4	44	0	37	1	0	82	181
Total	265	1	0	0	2	266	8	60	0	0	68	1	9	10	0	7	20	170	0	139	1	5	310	664
Approach %	99.6	0.4	0.0	0.0	-	-	11.8	88.2	0.0	-	-	5.0	45.0	50.0	0.0	-	-	54.8	0.0	44.8	0.3	-	-	-
Total %	39.9	0.2	0.0	0.0	-	40.1	1.2	9.0	0.0	-	10.2	0.2	1.4	1.5	0.0	-	3.0	25.6	0.0	20.9	0.2	-	46.7	-
PHF	0.808	0.250	0.000	0.000	-	0.811	0.400	0.750	0.000	-	0.773	0.250	0.563	0.500	0.000	-	0.556	0.924	0.000	0.621	0.250	-	0.760	0.917
Lights	245	0	0	0	-	245	1	56	0	-	57	0	2	7	0	-	9	163	0	134	1	-	298	609
% Lights	92.5	0.0	-	-	-	92.1	12.5	93.3	-	-	83.8	0.0	22.2	70.0	-	-	45.0	95.9	-	96.4	100.0	-	96.1	91.7
Buses	2	0	0	0	-	2	0	3	0	-	3	0	0	0	0	-	0	6	0	1	0	-	7	12
% Buses	0.8	0.0	-	-	-	0.8	0.0	5.0	-	-	4.4	0.0	0.0	0.0	-	-	0.0	3.5	-	0.7	0.0	-	2.3	1.8
Trucks	18	1	0	0	-	19	7	1	0	-	8	1	7	3	0	-	11	1	0	4	0	-	5	43
% Trucks	6.8	100.0	-	-	-	7.1	87.5	1.7	-	-	11.8	100.0	77.8	30.0	-	-	55.0	0.6	-	2.9	0.0	-	1.6	6.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	28.6	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	71.4	-	-	-	-	-	100.0	-	-

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Holtec Blvd & I676 SB Off Ramp
Thursday, November 3, 2022
Location: 39.91263, -75.117426

Count Name: Holtec Blvd & I-676 SB Off Ramp
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (4:15 PM)

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Camden County, NJ
Morgan St & Master St/I676 NB Off Ramp
Thursday, November 3, 2022
Location: 39.912604, -75.114601

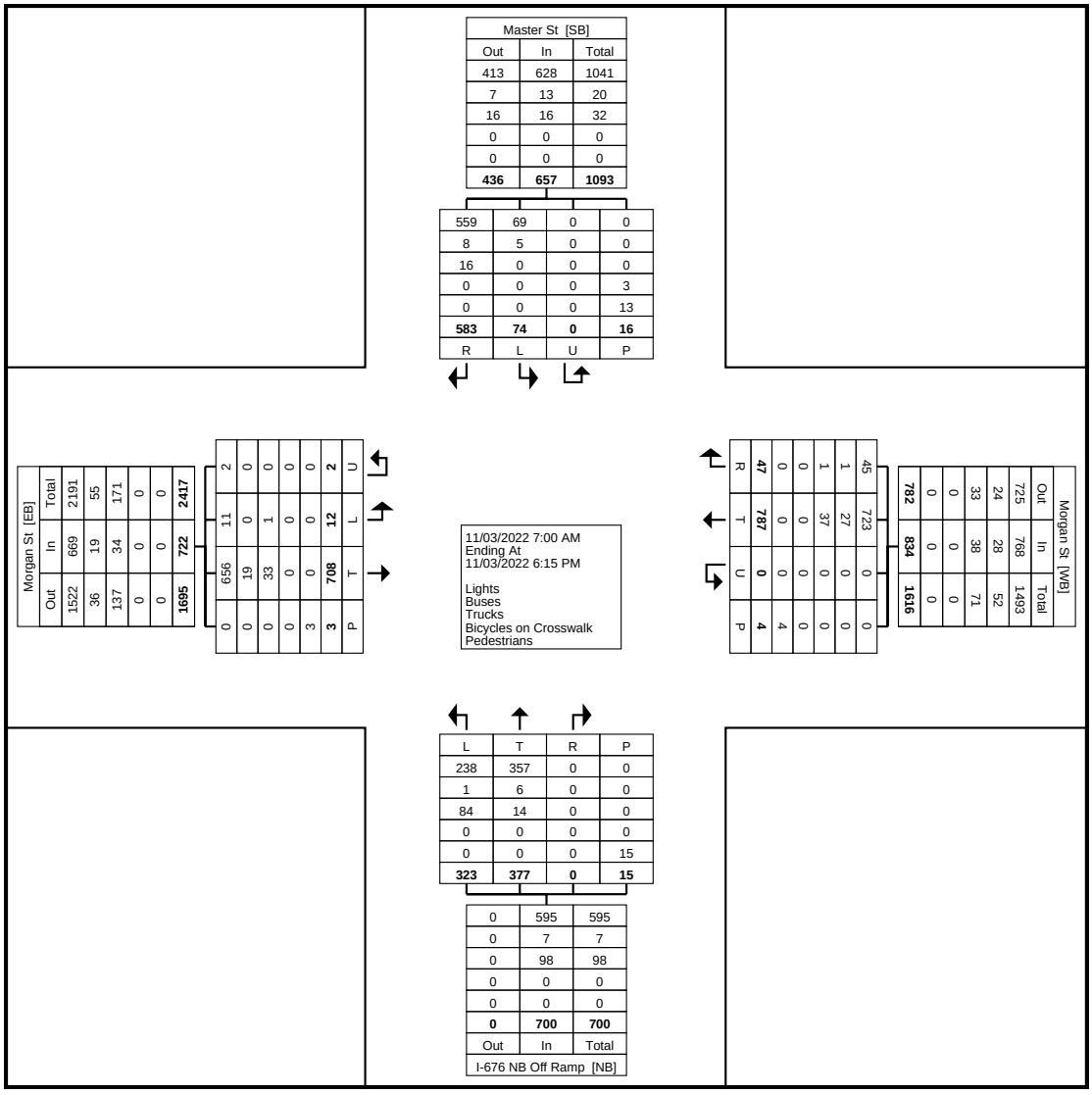
Count Name: Morgan St & Master St/I-676 NB Off Ramp
Site Code:
Start Date: 11/03/2022

Turning Movement Data

Start Time	Morgan St Eastbound					Morgan St Westbound						I-676 NB Off Ramp Northbound						Master St Southbound						Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	
7:00 AM	1	17	0	0	18	41	3	0	0	0	44	34	22	0	0	1	56	0	21	17	0	0	38	156
7:15 AM	2	28	0	3	30	51	3	1	0	0	55	32	24	0	0	1	56	0	14	13	0	0	27	168
7:30 AM	0	23	0	0	23	51	1	0	0	1	52	31	36	0	0	1	67	4	21	20	0	0	45	187
7:45 AM	0	34	0	0	34	55	5	0	0	0	60	48	22	0	0	0	70	1	22	22	0	0	45	209
Hourly Total	3	102	0	3	105	198	12	1	0	1	211	145	104	0	0	3	249	5	78	72	0	0	155	720
8:00 AM	1	46	0	0	47	40	1	0	0	0	41	23	21	0	0	0	44	5	15	10	0	1	30	162
8:15 AM	0	43	0	0	43	37	1	0	0	0	38	33	22	0	0	2	55	1	20	11	0	1	32	168
8:30 AM	0	44	0	0	44	61	1	0	0	0	62	35	18	0	0	0	53	7	25	9	0	0	41	200
8:45 AM	0	40	0	0	40	44	3	2	0	0	49	35	23	0	0	1	58	3	15	25	0	1	43	190
Hourly Total	1	173	0	0	174	182	6	2	0	0	190	126	84	0	0	3	210	16	75	55	0	3	146	720
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	2	59	0	0	61	50	4	0	0	0	54	14	24	0	0	1	38	10	16	20	0	3	46	199
4:15 PM	2	57	0	0	59	53	5	1	0	1	59	7	21	0	0	1	28	4	17	14	0	1	35	181
4:30 PM	1	55	2	0	58	57	3	0	0	1	60	6	23	0	0	1	29	12	15	16	0	1	43	190
4:45 PM	0	57	0	0	57	51	2	0	0	0	53	9	31	0	0	0	40	3	14	27	0	0	44	194
Hourly Total	5	228	2	0	235	211	14	1	0	2	226	36	99	0	0	3	135	29	62	77	0	5	168	764
5:00 PM	1	70	0	0	71	52	0	0	0	0	52	0	28	0	0	0	28	4	15	25	0	2	44	195
5:15 PM	2	54	0	0	56	42	2	1	0	0	45	5	22	0	0	3	27	6	18	21	0	1	45	173
5:30 PM	0	44	0	0	44	53	5	0	0	0	58	7	20	0	0	2	27	8	16	19	0	3	43	172
5:45 PM	0	37	0	0	37	49	3	0	0	1	52	4	20	0	0	1	24	6	30	20	0	2	56	169
Hourly Total	3	205	0	0	208	196	10	1	0	1	207	16	90	0	0	6	106	24	79	85	0	8	188	709
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	12	708	2	3	722	787	42	5	0	4	834	323	377	0	0	15	700	74	294	289	0	16	657	2913
Approach %	1.7	98.1	0.3	-	-	94.4	5.0	0.6	0.0	-	-	46.1	53.9	0.0	0.0	-	-	11.3	44.7	44.0	0.0	-	-	-
Total %	0.4	24.3	0.1	-	24.8	27.0	1.4	0.2	0.0	-	28.6	11.1	12.9	0.0	0.0	-	24.0	2.5	10.1	9.9	0.0	-	22.6	-
Lights	11	656	2	-	669	723	41	4	0	-	768	238	357	0	0	-	595	69	275	284	0	-	628	2660
% Lights	91.7	92.7	100.0	-	92.7	91.9	97.6	80.0	-	-	92.1	73.7	94.7	-	-	-	85.0	93.2	93.5	98.3	-	-	95.6	91.3
Buses	0	19	0	-	19	27	1	0	0	-	28	1	6	0	0	-	7	5	7	1	0	-	13	67
% Buses	0.0	2.7	0.0	-	2.6	3.4	2.4	0.0	-	-	3.4	0.3	1.6	-	-	-	1.0	6.8	2.4	0.3	-	-	2.0	2.3
Trucks	1	33	0	-	34	37	0	1	0	-	38	84	14	0	0	-	98	0	12	4	0	-	16	186
% Trucks	8.3	4.7	0.0	-	4.7	4.7	0.0	20.0	-	-	4.6	26.0	3.7	-	-	-	14.0	0.0	4.1	1.4	-	-	2.4	6.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	18.8	-	-
Pedestrians	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	15	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	81.3	-	-

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Turning Movement Data Plot

Camden County, NJ
Morgan St & Master St/I676 NB Off Ramp
Thursday, November 3, 2022
Location: 39.912604, -75.114601

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Turning Movement Peak Hour Data (7:45 AM)

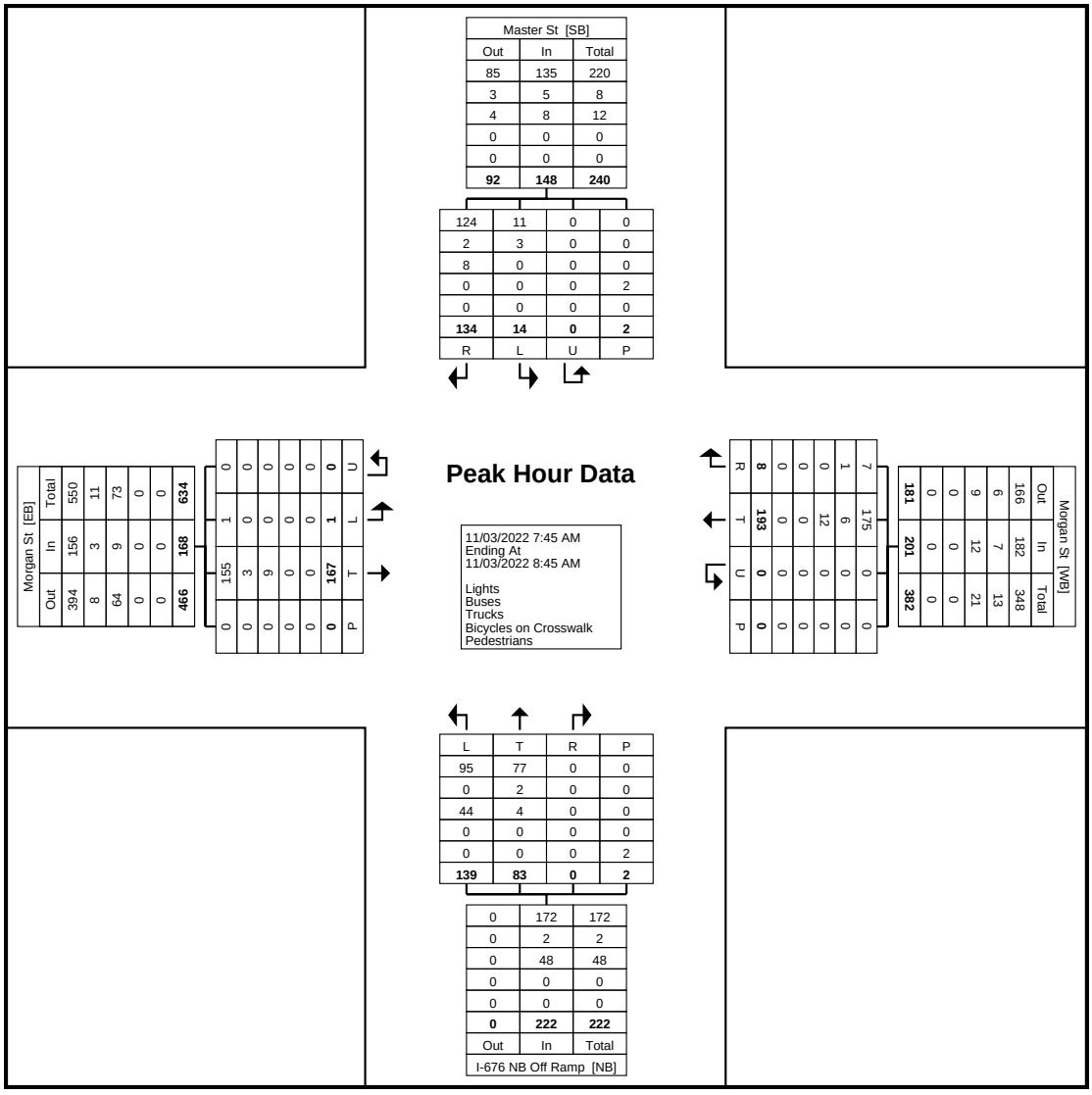
Start Time	Morgan St Eastbound					Morgan St Westbound						I-676 NB Off Ramp Northbound						Master St Southbound						Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	
7:45 AM	0	34	0	0	34	55	5	0	0	0	60	48	22	0	0	0	70	1	22	22	0	0	45	209
8:00 AM	1	46	0	0	47	40	1	0	0	0	41	23	21	0	0	0	44	5	15	10	0	1	30	162
8:15 AM	0	43	0	0	43	37	1	0	0	0	38	33	22	0	0	2	55	1	20	11	0	1	32	168
8:30 AM	0	44	0	0	44	61	1	0	0	0	62	35	18	0	0	0	53	7	25	9	0	0	41	200
Total	1	167	0	0	168	193	8	0	0	0	201	139	83	0	0	2	222	14	82	52	0	2	148	739
Approach %	0.6	99.4	0.0	-	-	96.0	4.0	0.0	0.0	-	-	62.6	37.4	0.0	0.0	-	-	9.5	55.4	35.1	0.0	-	-	-
Total %	0.1	22.6	0.0	-	22.7	26.1	1.1	0.0	0.0	-	27.2	18.8	11.2	0.0	0.0	-	30.0	1.9	11.1	7.0	0.0	-	20.0	-
PHF	0.250	0.908	0.000	-	0.894	0.791	0.400	0.000	0.000	-	0.810	0.724	0.943	0.000	0.000	-	0.793	0.500	0.820	0.591	0.000	-	0.822	0.884
Lights	1	155	0	-	156	175	7	0	0	-	182	95	77	0	0	-	172	11	75	49	0	-	135	645
% Lights	100.0	92.8	-	-	92.9	90.7	87.5	-	-	-	90.5	68.3	92.8	-	-	-	77.5	78.6	91.5	94.2	-	-	91.2	87.3
Buses	0	3	0	-	3	6	1	0	0	-	7	0	2	0	0	-	2	3	1	1	0	-	5	17
% Buses	0.0	1.8	-	-	1.8	3.1	12.5	-	-	-	3.5	0.0	2.4	-	-	-	0.9	21.4	1.2	1.9	-	-	3.4	2.3
Trucks	0	9	0	-	9	12	0	0	0	-	12	44	4	0	0	-	48	0	6	2	0	-	8	77
% Trucks	0.0	5.4	-	-	5.4	6.2	0.0	-	-	-	6.0	31.7	4.8	-	-	-	21.6	0.0	7.3	3.8	-	-	5.4	10.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-

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Camden County, NJ
Morgan St & Master St/I676 NB Off Ramp
Thursday, November 3, 2022
Location: 39.912604, -75.114601

Count Name: Morgan St & Master St/I-676 NB Off Ramp
Site Code:
Start Date: 11/03/2022



Turning Movement Peak Hour Data Plot (7:45 AM)

Camden County, NJ
Morgan St & Master St/I676 NB Off Ramp
Thursday, November 3, 2022
Location: 39.912604, -75.114601

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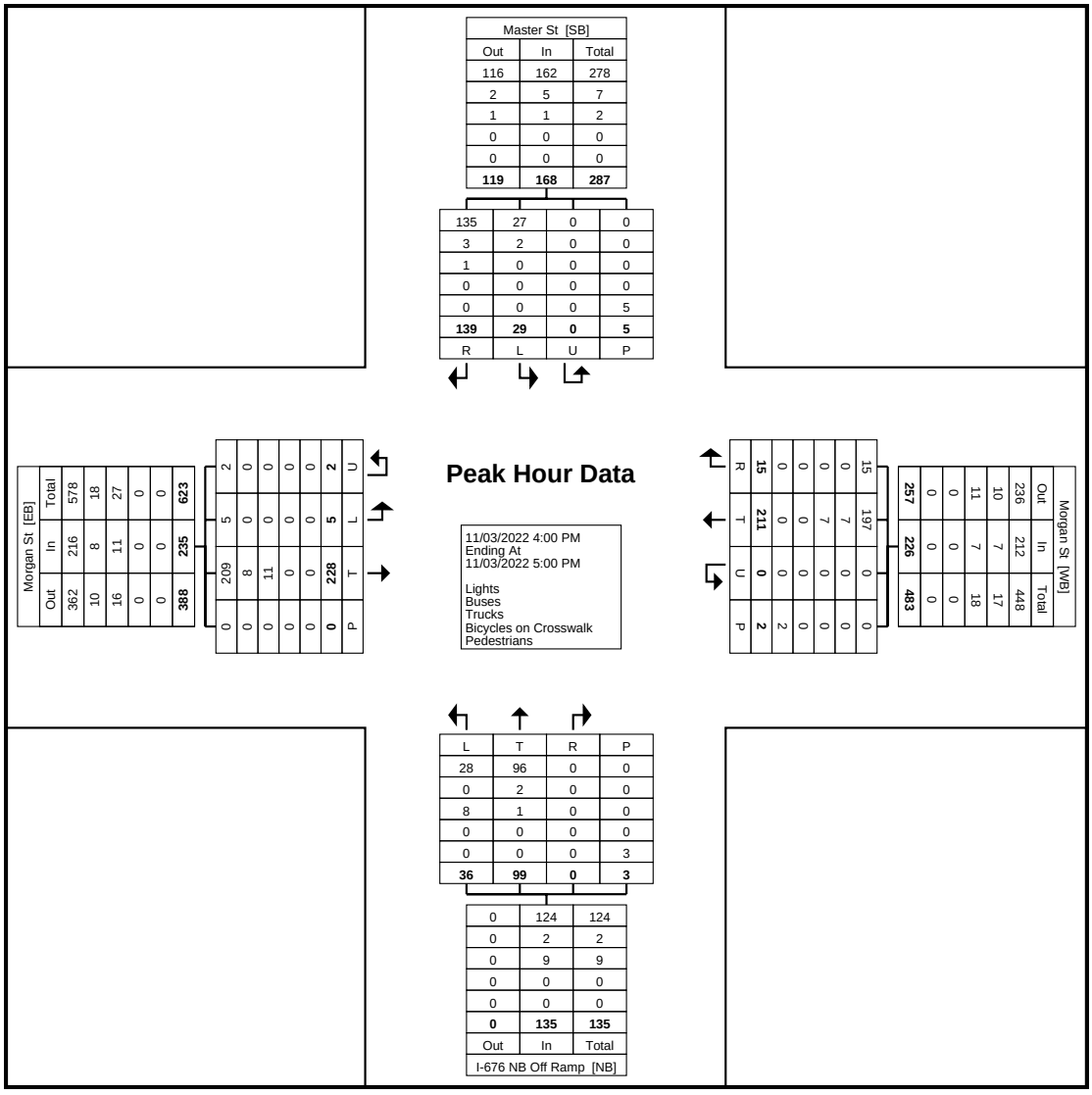
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Morgan St Eastbound					Morgan St Westbound						I-676 NB Off Ramp Northbound						Master St Southbound						
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Right	Right on Red	U-Turn	Peds	App. Total	Int. Total
4:00 PM	2	59	0	0	61	50	4	0	0	0	54	14	24	0	0	1	38	10	16	20	0	3	46	199
4:15 PM	2	57	0	0	59	53	5	1	0	1	59	7	21	0	0	1	28	4	17	14	0	1	35	181
4:30 PM	1	55	2	0	58	57	3	0	0	1	60	6	23	0	0	1	29	12	15	16	0	1	43	190
4:45 PM	0	57	0	0	57	51	2	0	0	0	53	9	31	0	0	0	40	3	14	27	0	0	44	194
Total	5	228	2	0	235	211	14	1	0	2	226	36	99	0	0	3	135	29	62	77	0	5	168	764
Approach %	2.1	97.0	0.9	-	-	93.4	6.2	0.4	0.0	-	-	26.7	73.3	0.0	0.0	-	-	17.3	36.9	45.8	0.0	-	-	-
Total %	0.7	29.8	0.3	-	30.8	27.6	1.8	0.1	0.0	-	29.6	4.7	13.0	0.0	0.0	-	17.7	3.8	8.1	10.1	0.0	-	22.0	-
PHF	0.625	0.966	0.250	-	0.963	0.925	0.700	0.250	0.000	-	0.942	0.643	0.798	0.000	0.000	-	0.844	0.604	0.912	0.713	0.000	-	0.913	0.960
Lights	5	209	2	-	216	197	14	1	0	-	212	28	96	0	0	-	124	27	58	77	0	-	162	714
% Lights	100.0	91.7	100.0	-	91.9	93.4	100.0	100.0	-	-	93.8	77.8	97.0	-	-	-	91.9	93.1	93.5	100.0	-	-	96.4	93.5
Buses	0	8	0	-	8	7	0	0	0	-	7	0	2	0	0	-	2	2	3	0	0	-	5	22
% Buses	0.0	3.5	0.0	-	3.4	3.3	0.0	0.0	-	-	3.1	0.0	2.0	-	-	-	1.5	6.9	4.8	0.0	-	-	3.0	2.9
Trucks	0	11	0	-	11	7	0	0	0	-	7	8	1	0	0	-	9	0	1	0	0	-	1	28
% Trucks	0.0	4.8	0.0	-	4.7	3.3	0.0	0.0	-	-	3.1	22.2	1.0	-	-	-	6.7	0.0	1.6	0.0	-	-	0.6	3.7
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Camden County, NJ
Morgan St & Master St/I676 NB Off Ramp
Thursday, November 3, 2022
Location: 39.912604, -75.114601

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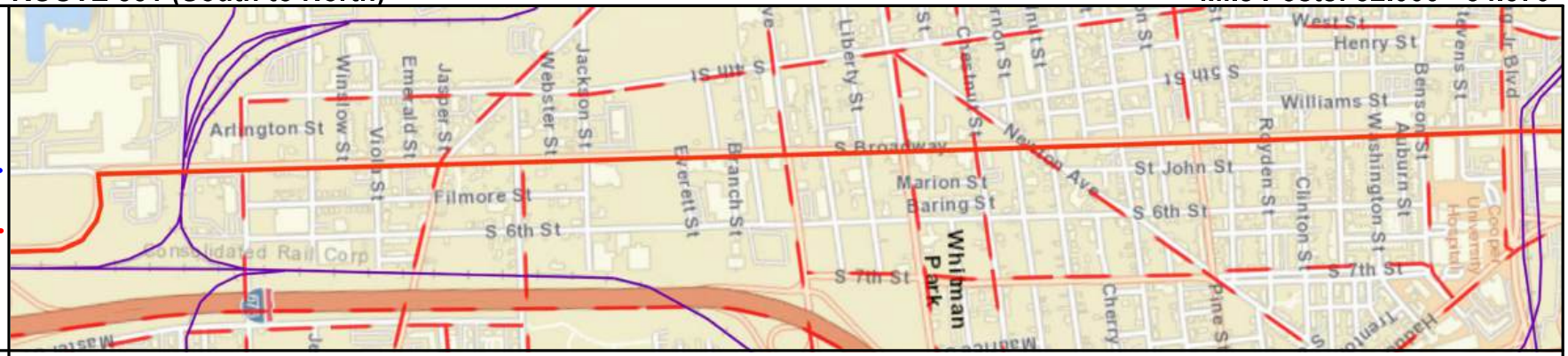
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Turning Movement Peak Hour Data Plot (4:00 PM)

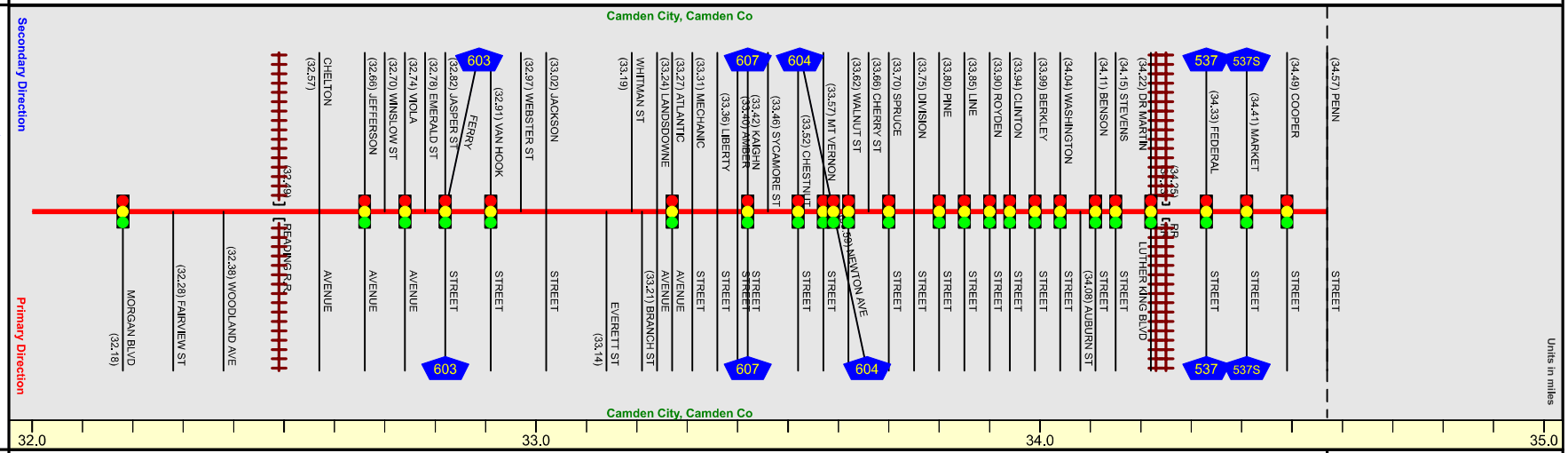
ROUTE 551 (South to North)

Mile Posts: 32.000 - 34.570



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	

Interstate Route 287 · US Route 22 · NJ Route 33 · County Road 689 · Interchange Number 2 · Grade Separated Interchange · Traffic Signal · Traffic Monitoring Sites WIM AVC VOL · Road Underpass · Road Overpass · Dyn Msg Sign DMS



Street Name	Broadway
Jurisdiction	County
Functional Class	Urban Minor Arterial · Urban Principal Arterial
Federal Aid - NHS Sy	NHS · IM - Transit Term.
Control Section	
Speed Limit	25
Number of Lanes	2
Med. Type	None
Med. Width	
Pavement	36
Shoulder	
Traffic Volume	3,792 (2019) · 4,511 (2018)
Traffic Sta. ID	7-4660 · 7-4453
Structure No.	0455160
Enlarged Views	See Enlarged View #14

End Rt. 551 MP=34.57

SRI = 00000551__

Date last inventoried: June 2012

Page Created: June, 2020

MP 1.00 - 1.30



Beginning of Ramp

End of Ramp

Ramp

SRI RAMP IDENTIFICATION

I 676 at Morgan Boulevard

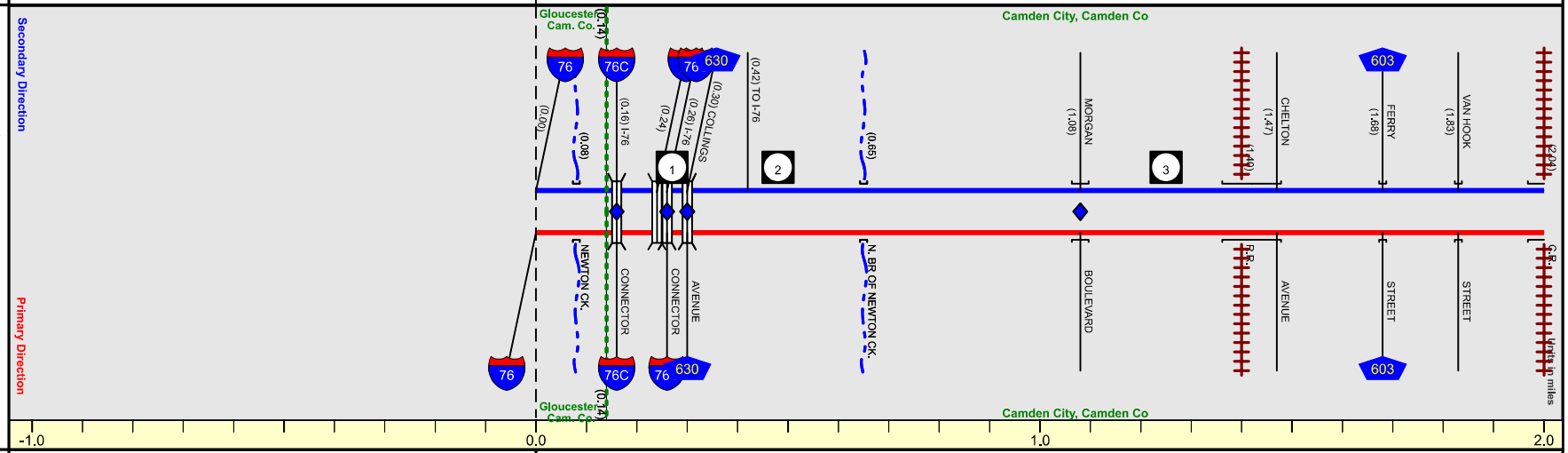
SRI = 00000676__

I-676 (South to North)

Mile Posts: 0.000 - 2.000



Pavement	36	48	36
Shoulder	12		
Number of Lanes	3	4	3
Speed Limit	55		
Street Name	Martin Luther King Memorial Highway		



Street Name	Martin Luther King Memorial Highway		
Jurisdiction	N.J.D.O.T.		
Functional Class	Urban Interstate		
Federal Aid - NHS Sy	STRAHNET Inter.		
Control Section	0417	0418	
Speed Limit	55		
Number of Lanes	3	4	3
Med. Type	Positive		
Med. Width	VAR		26
Pavement	36	48	36
Shoulder	12	10	12
Traffic Volume			
Traffic Sta. ID			
Structure No.	0418163 0418162	0418150 4500008 0418151	0418154 0418153 0418155 0418156 0418156 0418156 0418157 0418158
Enlarged Views	See Enlarged View #43		

Begin I-676 MP=0.00

SRI = 00000676__

Date last inventoried: May 2018

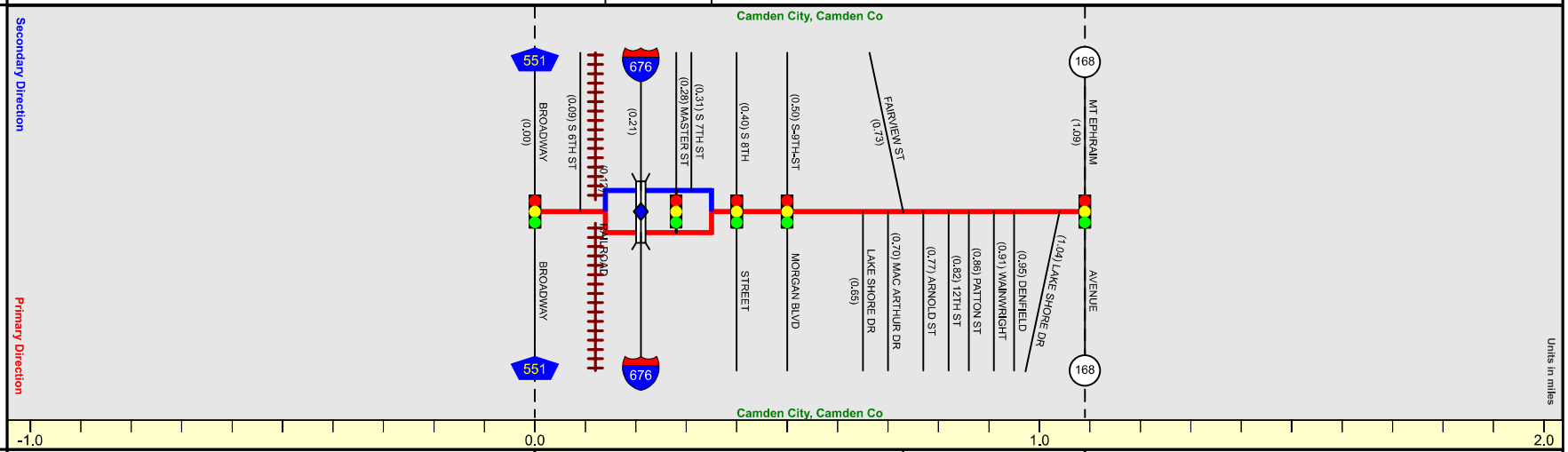
Page Created: June, 2020

MORGAN BLVD (West to East)

Mile Posts: 0.000 - 1.090



Pavement		24	
Shoulder			
Number of Lanes		2	
Speed Limit		25	
Street Name		Morgan Boulevard	



Street Name		Morgan Boulevard		Fairview Street	
Jurisdiction		Municipal			
Functional Class		Urban Principal Arterial		Urban Minor Arterial	
Federal Aid - NHS Sy		NHS		STP	
Control Section	Begin Morgan Blvd MP=0.00				End Morgan Blvd MP=1.09
Speed Limit		25			
Number of Lanes		2			
Med. Type		None	Positive	None	
Med. Width			4		
Pavement		60	24	48	28
Shoulder					
Traffic Volume					
Traffic Sta. ID					
Structure No.			0418155		
Enlarged Views					

SRI = 04081537__

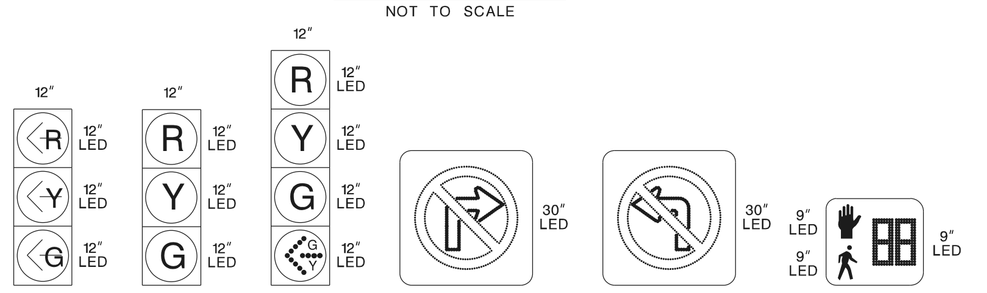
Date last inventoried: May 2014

Page Created: June, 2020

STATE	FEDERAL PROJECT NO.
N.J.	*

SIGNAL LEGEND

NOT TO SCALE



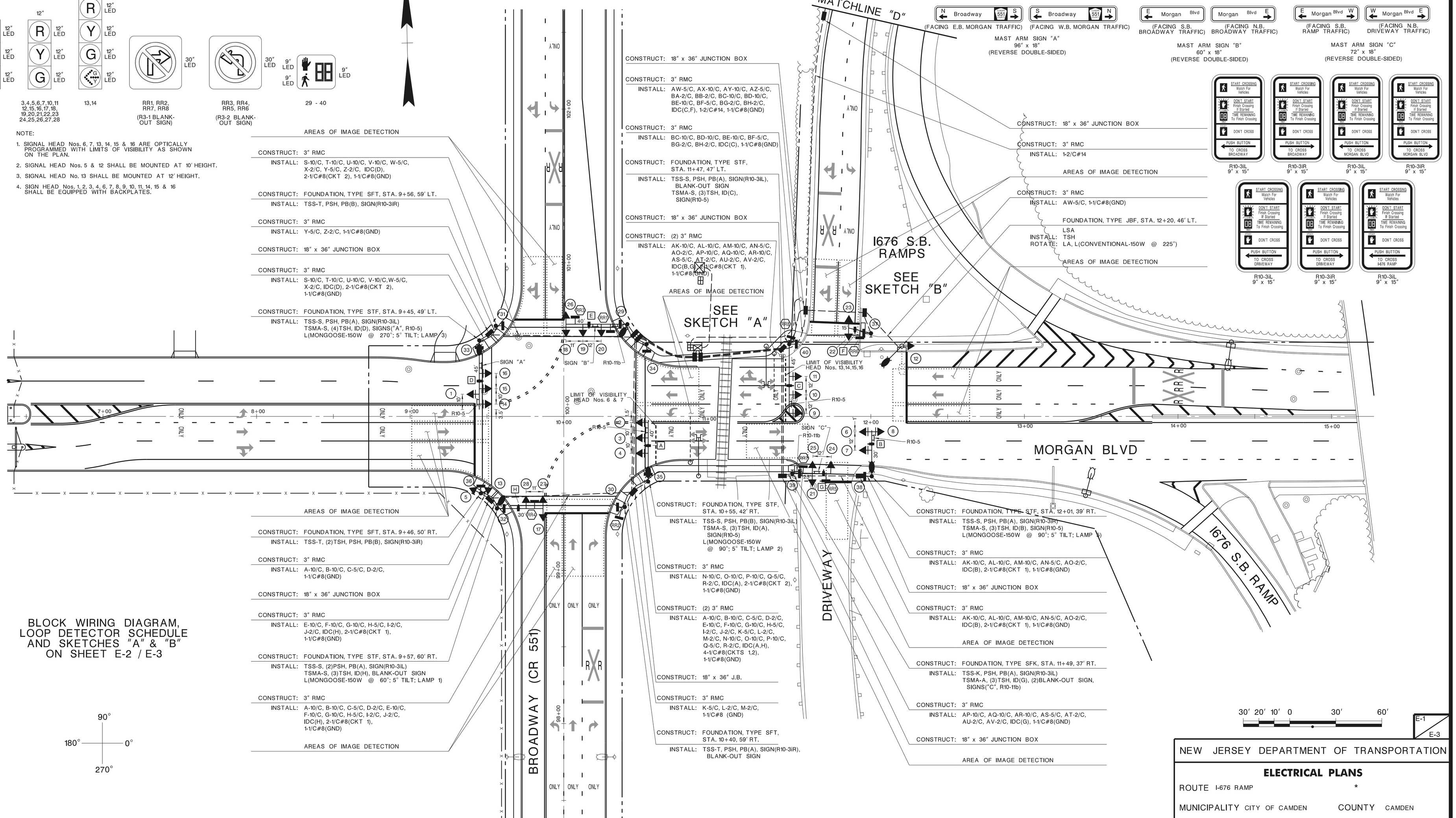
1,2,8,9 | 3,4,5,6,7,10,11 12,15,16,17,18, 19,20,21,22,23 24,25,26,27,28 | 13,14 | RR1, RR2, RR7, RR8 (R3-1 BLANK-OUT SIGN) | RR3, RR4, RR5, RR6 (R3-2 BLANK-OUT SIGN) | 29 - 40

NOTE:

1. SIGNAL HEAD Nos. 6, 7, 13, 14, 15 & 16 ARE OPTICALLY PROGRAMMED WITH LIMITS OF VISIBILITY AS SHOWN ON THE PLAN.
2. SIGNAL HEAD Nos. 5 & 12 SHALL BE MOUNTED AT 10' HEIGHT.
3. SIGNAL HEAD No. 13 SHALL BE MOUNTED AT 12' HEIGHT.
4. SIGN HEAD Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 14, 15 & 16 SHALL BE EQUIPPED WITH BACKPLATES.

SIGN LEGEND

NOT TO SCALE



AREAS OF IMAGE DETECTION

CONSTRUCT: 3" RMC
INSTALL: S-10/C, T-10/C, U-10/C, V-10/C, W-5/C, X-2/C, Y-5/C, Z-2/C, IDC(D), 2-1/C#8(CKT 2), 1-1/C#8(GND)

CONSTRUCT: FOUNDATION, TYPE SFT, STA. 9+56, 59' LT.
INSTALL: TSS-T, PSH, PB(B), SIGN(R10-3iR)

CONSTRUCT: 3" RMC
INSTALL: Y-5/C, Z-2/C, 1-1/C#8(GND)

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: 3" RMC
INSTALL: S-10/C, T-10/C, U-10/C, V-10/C,W-5/C, X-2/C, IDC(D), 2-1/C#8(CKT 2), 1-1/C#8(GND)

CONSTRUCT: FOUNDATION, TYPE STF, STA. 9+45, 49' LT.
INSTALL: TSS-S, PSH, PB(A), SIGN(R10-3iL) TSMA-S, (4)TSH, ID(D), SIGNS("A", R10-5) L(MONGOOSE-150W @ 270°; 5° TILT; LAMP 3)

AREAS OF IMAGE DETECTION

CONSTRUCT: FOUNDATION, TYPE SFT, STA. 9+46, 50' RT.
INSTALL: TSS-T, (2)TSH, PSH, PB(B), SIGN(R10-3iR)

CONSTRUCT: 3" RMC
INSTALL: A-10/C, B-10/C, C-5/C, D-2/C, 1-1/C#8(GND)

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: 3" RMC
INSTALL: E-10/C, F-10/C, G-10/C, H-5/C, I-2/C, J-2/C, IDC(H), 2-1/C#8(CKT 1), 1-1/C#8(GND)

CONSTRUCT: FOUNDATION, TYPE STF, STA. 9+57, 60' RT.
INSTALL: TSS-S, (2)PSH, PB(A), SIGN(R10-3iL) TSMA-S, (3)TSH, ID(H), BLANK-OUT SIGN L(MONGOOSE-150W @ 60°; 5° TILT; LAMP 1)

CONSTRUCT: 3" RMC
INSTALL: A-10/C, B-10/C, C-5/C, D-2/C, E-10/C, F-10/C, G-10/C, H-5/C, I-2/C, J-2/C, IDC(H), 2-1/C#8(CKT 1), 1-1/C#8(GND)

AREAS OF IMAGE DETECTION

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: 3" RMC
INSTALL: AW-5/C, AX-10/C, AY-10/C, AZ-5/C, BA-2/C, BB-2/C, BC-10/C, BD-10/C, BE-10/C, BF-5/C, BG-2/C, BH-2/C, IDC(C,F), 1-2/C#14, 1-1/C#8(GND)

CONSTRUCT: 3" RMC
INSTALL: BC-10/C, BD-10/C, BE-10/C, BF-5/C, BG-2/C, BH-2/C, IDC(C), 1-1/C#8(GND)

CONSTRUCT: FOUNDATION, TYPE STF, STA. 11+47, 47' LT.
INSTALL: TSS-S, PSH, PB(A), SIGN(R10-3iL), BLANK-OUT SIGN TSMA-S, (3)TSH, ID(C), SIGN(R10-5)

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: (2) 3" RMC
INSTALL: AK-10/C, AL-10/C, AM-10/C, AN-5/C, AO-2/C, AP-10/C, AQ-10/C, AR-10/C, AS-5/C, AT-2/C, AU-2/C, AV-2/C, IDC(B,G), 1-1/C#8(CKT 1), 1-1/C#8(GND)

AREAS OF IMAGE DETECTION

CONSTRUCT: FOUNDATION, TYPE STF, STA. 10+55, 42' RT.
INSTALL: TSS-S, PSH, PB(B), SIGN(R10-3iL) TSMA-S, (3)TSH, ID(A), SIGN(R10-5) L(MONGOOSE-150W @ 90°; 5° TILT; LAMP 2)

CONSTRUCT: 3" RMC
INSTALL: N-10/C, O-10/C, P-10/C, Q-5/C, R-2/C, IDC(A), 2-1/C#8(CKT 2), 1-1/C#8(GND)

CONSTRUCT: (2) 3" RMC
INSTALL: A-10/C, B-10/C, C-5/C, D-2/C, E-10/C, F-10/C, G-10/C, H-5/C, I-2/C, J-2/C, K-5/C, L-2/C, M-2/C, N-10/C, O-10/C, P-10/C, Q-5/C, R-2/C, IDC(A,H), 4-1/C#8(CKTS 1,2), 1-1/C#8(GND)

CONSTRUCT: 18" x 36" J.B.

CONSTRUCT: 3" RMC
INSTALL: K-5/C, L-2/C, M-2/C, 1-1/C#8 (GND)

CONSTRUCT: FOUNDATION, TYPE SFT, STA. 10+40, 59' RT.
INSTALL: TSS-T, PSH, PB(A), SIGN(R10-3iR), BLANK-OUT SIGN

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: 3" RMC
INSTALL: 1-2/C#14

AREAS OF IMAGE DETECTION

CONSTRUCT: 3" RMC
INSTALL: AW-5/C, 1-1/C#8(GND)

FOUNDATION, TYPE JBF, STA. 12+20, 46' LT.
INSTALL: LSA TSH
ROTATE: LA, L(CONVENTIONAL-150W @ 225°)

AREAS OF IMAGE DETECTION

CONSTRUCT: FOUNDATION, TYPE STF, STA. 12+01, 39' RT.
INSTALL: TSS-S, PSH, PB(A), SIGN(R10-3iR) TSMA-S, (3)TSH, ID(B), SIGN(R10-5) L(MONGOOSE-150W @ 90°; 5° TILT; LAMP 1)

CONSTRUCT: 3" RMC
INSTALL: AK-10/C, AL-10/C, AM-10/C, AN-5/C, AO-2/C, IDC(B), 2-1/C#8(CKT 1), 1-1/C#8(GND)

CONSTRUCT: 18" x 36" JUNCTION BOX

CONSTRUCT: 3" RMC
INSTALL: AK-10/C, AL-10/C, AM-10/C, AN-5/C, AO-2/C, IDC(B), 2-1/C#8(CKT 1), 1-1/C#8(GND)

AREA OF IMAGE DETECTION

CONSTRUCT: FOUNDATION, TYPE SFK, STA. 11+49, 37' RT.
INSTALL: TSS-K, PSH, PB(A), SIGN(R10-3iL) TSMA-A, (3)TSH, ID(G), (2)BLANK-OUT SIGN, SIGNS("C", R10-11b)

CONSTRUCT: 3" RMC
INSTALL: AP-10/C, AQ-10/C, AR-10/C, AS-5/C, AT-2/C, AU-2/C, AV-2/C, IDC(G), 1-1/C#8(GND)

CONSTRUCT: 18" x 36" JUNCTION BOX

AREA OF IMAGE DETECTION

R10-3iL 9" x 15" | R10-3iR 9" x 15" | R10-3iL 9" x 15" | R10-3iR 9" x 15"
R10-3iL 9" x 15" | R10-3iR 9" x 15" | R10-3iL 9" x 15"

BLOCK WIRING DIAGRAM, LOOP DETECTOR SCHEDULE AND SKETCHES "A" & "B" ON SHEET E-2 / E-3

30' 20' 10' 0 30' 60'

E-1 / E-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL PLANS

ROUTE I-676 RAMP *

MUNICIPALITY CITY OF CAMDEN COUNTY CAMDEN

BROADWAY (CR 551) / I-676 RAMP & MORGAN BLVD

Shropshire Associates LLC
220 White Horse Pike, Suite 203, Atco, NJ 08004
P: 609.768.9696 F: 609.774.9944 www.sallc.org
RANDAL C. BARRANGER
New Jersey Professional Engineer License No. 48333
24 JUN 16
DATE

CONTROL SECTION NO. *

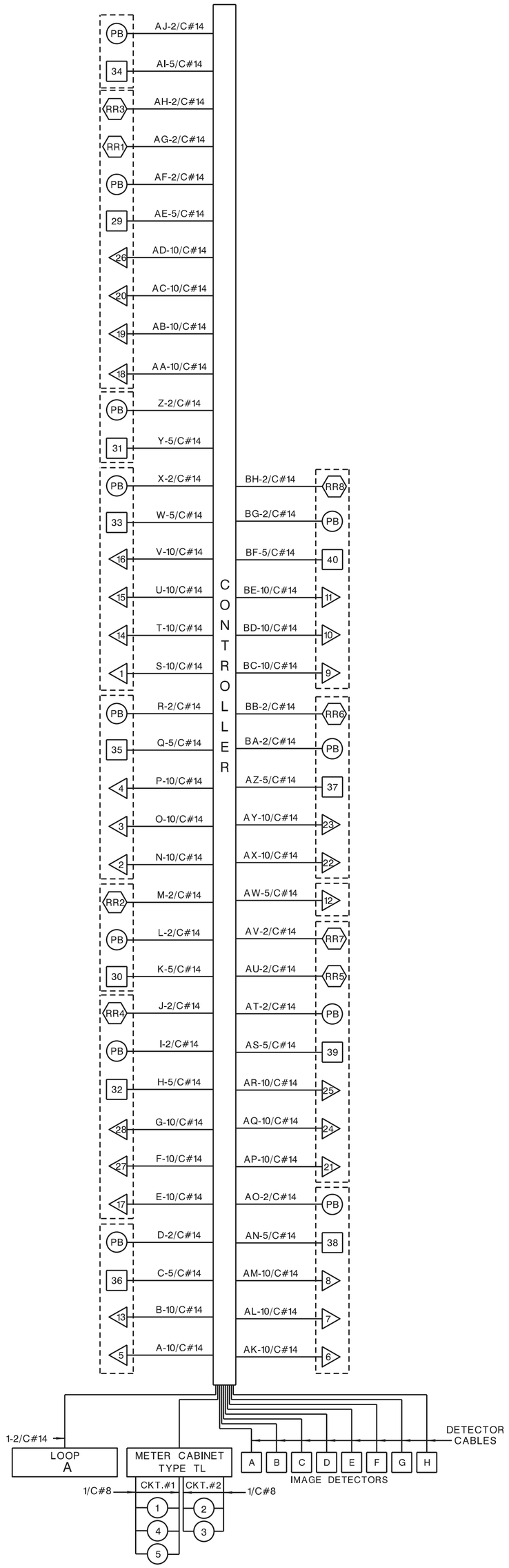
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STATE	FEDERAL PROJECT NO.
N.J.	*

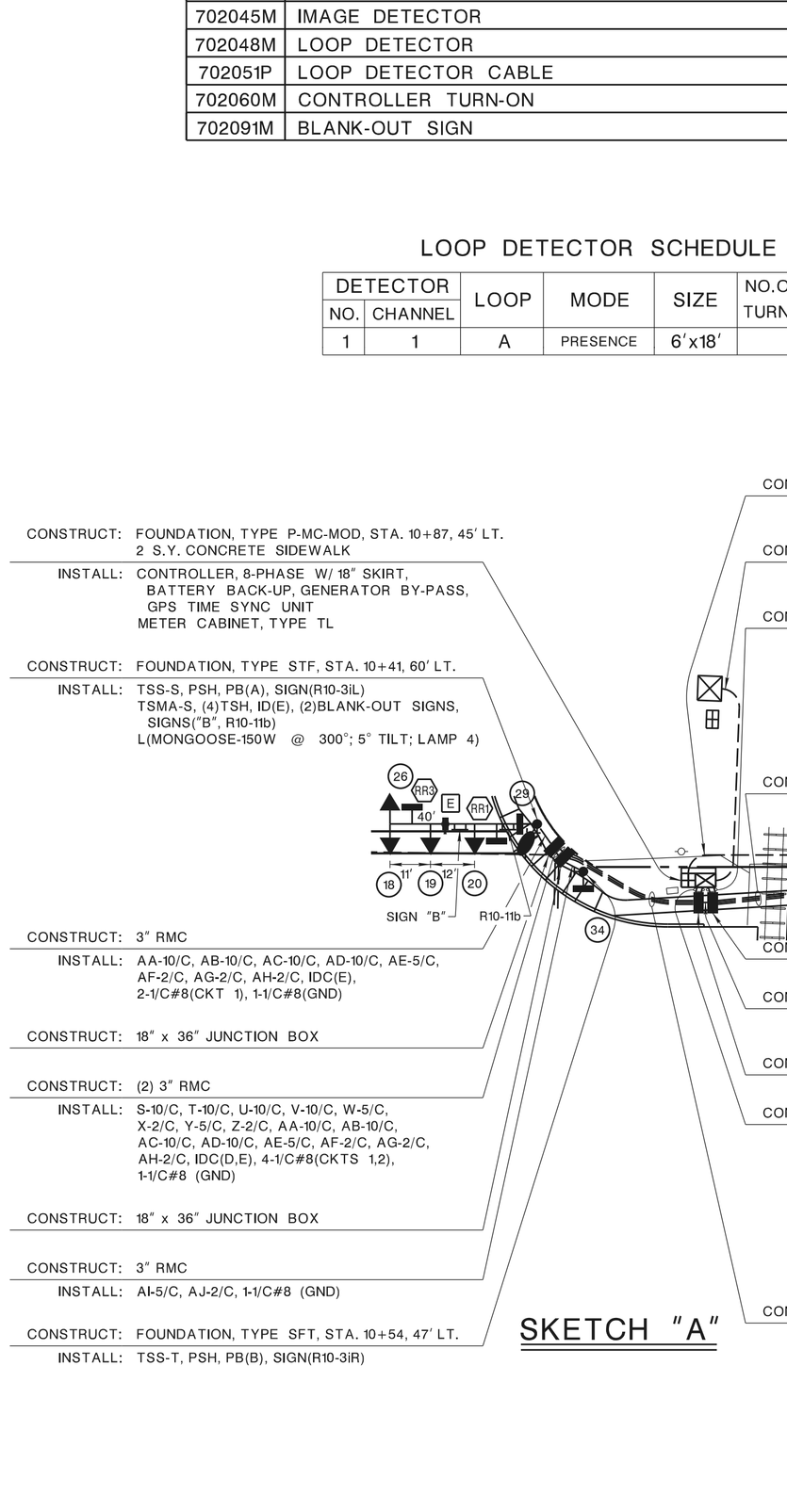
BLOCK WIRING DIAGRAM



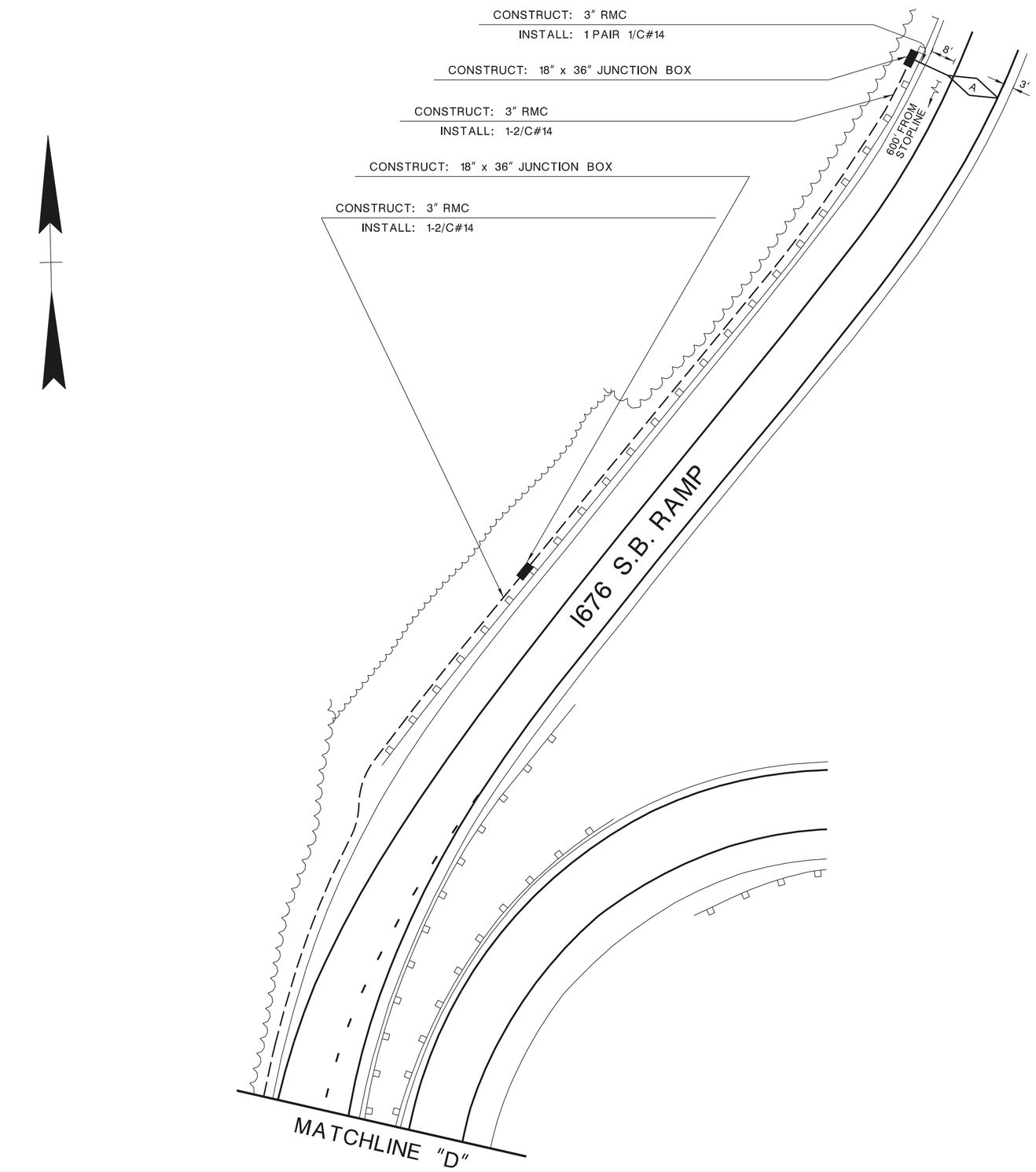
ITEM NUMBER	TO BE CONSTRUCTED	CONTRACT QUANTITY
701015P	2" RIGID METALLIC CONDUIT	50 LF
701021P	3" RIGID METALLIC CONDUIT	1450 LF
701024P	4" RIGID METALLIC CONDUIT	10 LF
701102M	18" x 36" JUNCTION BOX	12 UNITS
701123M	FOUNDATION, TYPE SFT	5 UNITS
701132M	FOUNDATION, TYPE P-MC(MODIFIED)	1 UNIT
701138M	FOUNDATION, TYPE STF	6 UNITS
701144M	FOUNDATION, TYPE SFK	1 UNIT
701171M	METER CABINET, TYPE TL	1 UNIT
701192P	GROUND WIRE, NO. 8 AWG	850 LF
701201P	MULTIPLE LIGHTING WIRE, NO. 8 AWG	1550 LF
701213P	SERVICE WIRE, NO. 6 AWG	150 LF
702009M	CONTROLLER, 8 PHASE	1 UNIT
702012M	TRAFFIC SIGNAL STANDARD, ALUMINUM	6 UNITS
702015M	TRAFFIC SIGNAL STANDARD, STEEL	6 UNITS
702021M	TRAFFIC SIGNAL MAST ARM, ALUMINUM	2 UNITS
702024M	TRAFFIC SIGNAL MAST ARM, STEEL	6 UNITS
702027P	TRAFFIC SIGNAL CABLE, 2 CONDUCTOR	3100 LF
702030P	TRAFFIC SIGNAL CABLE, 5 CONDUCTOR	2150 LF
702033P	TRAFFIC SIGNAL CABLE, 10 CONDUCTOR	4500 LF
702036M	TRAFFIC SIGNAL HEAD	28 UNITS
702039M	PEDESTRIAN SIGNAL HEAD	12 UNITS
702042M	PUSH BUTTON	12 UNITS
702045M	IMAGE DETECTOR	8 UNITS
702048M	LOOP DETECTOR	45 LF
702051P	LOOP DETECTOR CABLE	725 LF
702060M	CONTROLLER TURN-ON	1 UNIT
702091M	BLANK-OUT SIGN	6 UNITS

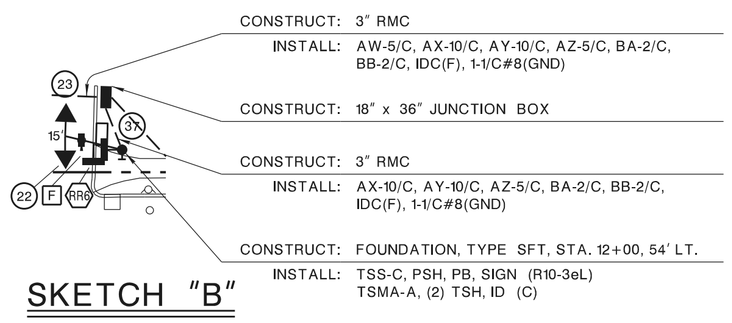
LOOP DETECTOR SCHEDULE

DETECTOR NO.	DETECTOR CHANNEL	LOOP	MODE	SIZE	NO. OF TURNS	MH
1	1	A	PRESENCE	6'x18'		



SKETCH "A"





SKETCH "B"

30' 20' 10' 0 30' 60'

E-2 / E-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL PLANS

ROUTE I-676 RAMP *

MUNICIPALITY CITY OF CAMDEN COUNTY CAMDEN

BROADWAY (CR 551) / I-676 RAMP & MORGAN BLVD

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2121 White Horse Pike, Suite 203, Arco, NJ 08004
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pen table =

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ID =

STATE	FEDERAL PROJECT NO.
N.J.	*

TRAFFIC SIGNAL TIMING AND OPERATION
BROADWAY (C.R. 551) / MORGAN BOULEVARD
CITY OF CAMDEN, CAMDEN COUNTY

120-SECOND VARIABLE CYCLE

NORMAL OPERATION

SIGNAL INDICATIONS

	PHASE	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR SIGNALS	RR GATES	TIME (SEC)
A.	BROADWAY (C.R. 551) R.O.W.	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 24
	CHANGE (OUTER)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
B.	I-676 RAMP/DVWY R.O.W.	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 15
	CHANGE (OUTER)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CHANGE (INNER)	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
C.	MORGAN BLVD. R.O.W.	<R-	G	G	<R-	G	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 14
	CHANGE (OUTER)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
D.	MORGAN BLVD. LAG LEFTS	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5 - 7
	CHANGE (OUTER)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CHANGE (INNER)	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
PRE-EMPTION	END OF RAILROAD PRE-PULSE	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	TRACK CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	TRACK CLEARANCE - BREAKAWAY	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	CHANGE	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	RED CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	HOLD	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	RETURN - GATE ASCENDING	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	CHANGE	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	RETURN TO NORMAL (PHASE B)	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	EMERGENCY FLASH	<R-	R	Y	<R-	R	Y	Y	R	R	R	R	DARK	DARK	DARK	NRT	NLT	NLT	NRT	OFF	UP	-

WITH PEDESTRIAN ACTUATION

SIGNAL INDICATIONS

	PHASE	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR SIGNALS	RR GATES	TIME (SEC)
A.	BROADWAY (C.R. 551) R.O.W.	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	W	W	OFF	OFF	OFF	OFF	OFF	UP	7
	PEDESTRIAN CLEARANCE	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	FDW	FDW	OFF	OFF	OFF	OFF	OFF	UP	25
	CHANGE (OUTER)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
B.	I-676 RAMP/DVWY R.O.W.	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	6
	CHANGE (OUTER)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CHANGE (INNER)	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
C.	MORGAN BLVD. R.O.W.	<R-	G	G	<R-	G	G	G	R	R	R	R	W	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7
	PEDESTRIAN CLEARANCE	<R-	G	G	<R-	G	G	G	R	R	R	R	FDW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	20
	CHANGE (OUTER)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
D.	MORGAN BLVD. LAG LEFTS	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (OUTER)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	INSIDE CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	CHANGE (INNER)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	CHANGE (INNER)	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2

RAILROAD PRE-EMPTION OPERATION

SIGNAL INDICATIONS

	PHASE	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR SIGNALS	RR GATES	TIME (SEC)
ϕA TO PRE-EMPT	BROADWAY (C.R. 551) R.O.W.	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	D/W	D/W	OFF	OFF	OFF	OFF	OFF	UP	-
	R.R. PRE-PULSE PEDESTRIAN	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	F/DW	F/DW	OFF	OFF	OFF	OFF	OFF	UP	4
	R.R PRE-PULSE CHANGE (OUTER)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	R.R. PRE-PULSE CLEARANCE	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	TRACK CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	TRACK CLEARANCE - BREAKAWAY	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	CHANGE	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	RED CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	HOLD	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	RETURN - GATE ASCENDING	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	CHANGE	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	RETURN TO NORMAL (PHASE B)	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
ϕB TO PRE-EMPT	I-676 RAMP/DVWY R.O.W.	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	R.R. PRE-PULSE EXTENSION	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	R.R PRE-PULSE CHANGE (OUTER)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	R.R. PRE-PULSE CLEARANCE	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	TRACK CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	TRACK CLEARANCE - BREAKAWAY	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	CHANGE	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	RED CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	HOLD	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	RETURN - GATE ASCENDING	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	CHANGE	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	RETURN TO NORMAL (PHASE B)	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
ϕC TO PRE-EMPT	MORGAN BLVD. R.O.W.	<R-	G	G	<R-	G	G	G	R	R	R	R	D/W	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	R.R. PRE-PULSE PEDESTRIAN	<R-	G	G	<R-	G	G	G	R	R	R	R	F/DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	R.R PRE-PULSE CHANGE (OUTER)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	R.R. PRE-PULSE CLEARANCE	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	TRACK CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	TRACK CLEARANCE - BREAKAWAY	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	CHANGE	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	RED CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	HOLD	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	RETURN - GATE ASCENDING	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	CHANGE	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	RETURN TO NORMAL (PHASE B)	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
ϕD TO PRE-EMPT	MORGAN BLVD. LAG LEFTS	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	R.R. PRE-PULSE EXTENSION	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	R.R PRE-PULSE CHANGE (OUTER)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	R.R. PRE-PULSE CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	TRACK CLEARANCE	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	TRACK CLEARANCE - BREAKAWAY	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	CHANGE	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	RED CLEARANCE	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	HOLD	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	RETURN - GATE ASCENDING	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	CHANGE	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	CLEARANCE	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	RETURN TO NORMAL (PHASE B)	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-

NOTES:

1. THE MEMORY CIRCUITS SHALL BE **OFF**.
2. THE VEHICLE INTERVAL SHALL BE SET AT 4-SECONDS.
3. THE MANUAL CONTROL SHALL BE DISCONNECTED.
4. WITH PEDESTRIAN PUSHBUTTON ACTUATION, THE CYCLE LENGTH WILL BE EXCEEDED.
5. A QUEUE DETECTOR PRE-EMPTION SHALL BE PROVIDED ON THE I-676 SOUTHBOUND RAMP. THE QUEUE DETECTION SHALL EMPLOY A 10-SECOND DELAY BEFORE ACCEPTING ACTUATION.
6. UPON ACTUATION OF THE QUEUE DETECTOR PRE-EMPTION, ALL MINIMUM GREEN, YELLOW CHANGE, RED CLEARANCE AND PEDESTRIAN CLEARANCE TIMES SHALL BE GUARANTEED FOLLOWED BY GREEN TIME TO PHASE "B" FOR THE DURATION OF THE ACTUATION PLUS 15-SECONDS.
7. THE MINIMUM QUEUE DETECTOR PRE-EMPTION RE-SERVICE TIME SHALL BE SET AT 4-MINUTES.
8. UPON COMPLETION OF THE QUEUE DETECTOR PRE-EMPTION, R.O.W. SHALL BE GIVEN TO MORGAN BOULEVARD AND NORMAL OPERATION SHALL RESUME.
9. RAILROAD PRE-EMPTION SUPERCEDES THE QUEUE PRE-EMPTION FOR THE I-676 SOUTHBOUND RAMP.
10. PHASE B SHALL HAVE A DYNAMIC MAX / MAX 3 OPTION INSTALLED WITH THE FOLLOWING PARAMETERS:
    a. THE NUMBER OF SUCCESSIVE MAX TERMINATIONS (MAX-OUTS) SHALL BE SET AT 2.
    b. THE INCREMENT ADJUSTMENT TIME OR MAX 3 ADJUST SHALL BE SET TO 10-SECONDS.
    c. THE DYNAMIC MAXIMUM GREEN LIMIT TIME OR MAX 3 LIMIT SHALL BE SET TO 45-SECONDS.
    d. THE NUMBER OF SUCCESSIVE GAP TERMINATIONS (GAP-OUTS) SHALL BE SET AT 2.
11. DURING TRANSITION INTO RAILROAD PRE-EMPTION CONTROL THE MINIMUM GREEN TIME SHALL BE SET AT 4-SECONDS, AND THE PEDESTRIAN CHANGE INTERVAL SHALL BE SET AT 4-SECONDS.
12. ALL RAILROAD EQUIPMENT AND HARDWARE (FLASHING RED LIGHT SIGNALS, AUTOMATIC GATES, MAST MOUNTED CROSSBUCKS AND ACCOMPANYING SIGNS) ARE OWNED, OPERATED AND MAINTAINED BY CONSOLIDATED RAIL CORPORATION (CONRAIL).

REFERENCE

REVISION DESCRIPTION	BY	CHECKED	DATE

date = .
file = .
pen table = '
ID = .

E-3 / E-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL PLANS

ROUTE I-676 RAMP *

MUNICIPALITY CITY OF CAMDEN COUNTY CAMDEN

BROADWAY (CR 551) / I-676 RAMP & MORGAN BLVD

Shropshire Associates LLC
227 White Horse Pike, Suite 203, Atco, NJ 08004
P: 609.768.0160 F: 609.714.3944 www.ssllc.org

RANDAL C. BARRANGER
New Jersey Professional Engineer License No. 48383
24 JUN 16 DATE

CONTROL SECTION NO. *

STATE	FEDERAL PROJECT NO.
N.J.	*

SIGNAL LEGEND

NOT TO SCALE

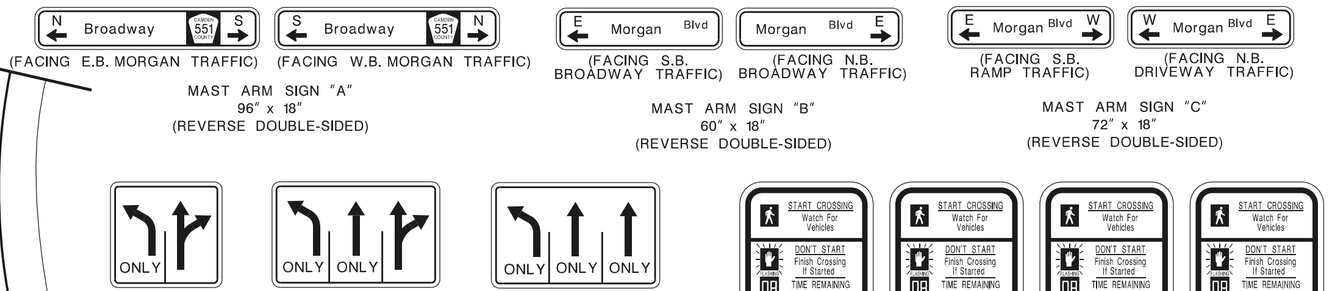
1,2,8,9 — 3,4,5,6,7,10,11,12,15,16,17,18,19,20,21,22,23,24,25,26,27,28 — 13,14 — RR1, RR2, RR7, RR8 (R3-1 BLANK-OUT SIGN) — RR3, RR4, RR5, RR6 (R3-2 BLANK-OUT SIGN) — 29 - 40

NOTE:

1. SIGNAL HEAD Nos. 6, 7, 13, 14, 15 & 16 ARE OPTICALLY PROGRAMMED WITH LIMITS OF VISIBILITY AS SHOWN ON THE PLAN.
2. SIGNAL HEAD Nos. 5 & 12 SHALL BE MOUNTED AT 10' HEIGHT.
3. SIGNAL HEAD No. 13 SHALL BE MOUNTED AT 12' HEIGHT.
4. SIGN HEAD Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 14, 15 & 16 SHALL BE EQUIPPED WITH BACKPLATES.

SIGN LEGEND

NOT TO SCALE



(FACING E.B. MORGAN TRAFFIC) (FACING W.B. MORGAN TRAFFIC)

MAST ARM SIGN "A"
96" x 18"
(REVERSE DOUBLE-SIDED)

(FACING S.B. BROADWAY TRAFFIC) (FACING N.B. BROADWAY TRAFFIC)

MAST ARM SIGN "B"
60" x 18"
(REVERSE DOUBLE-SIDED)

(FACING S.B. RAMP TRAFFIC) (FACING N.B. DRIVEWAY TRAFFIC)

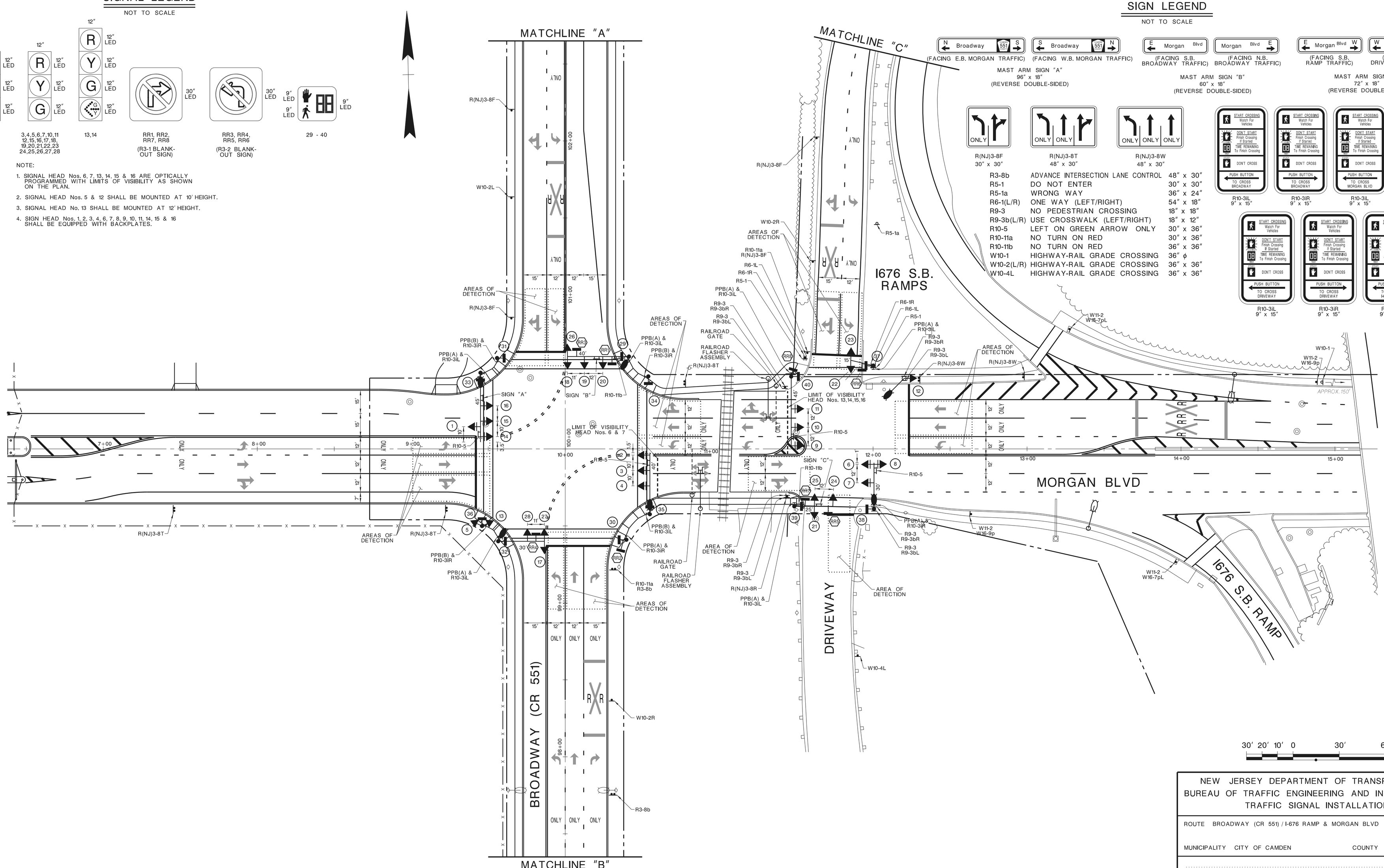
MAST ARM SIGN "C"
72" x 18"
(REVERSE DOUBLE-SIDED)

R(NJ)3-8F 30" x 30" — R(NJ)3-8T 48" x 30" — R(NJ)3-8W 48" x 30"

R3-8b	ADVANCE INTERSECTION LANE CONTROL	48" x 30"
R5-1	DO NOT ENTER	30" x 30"
R5-1a	WRONG WAY	36" x 24"
R6-1(L/R)	ONE WAY (LEFT/RIGHT)	54" x 18"
R9-3	NO PEDESTRIAN CROSSING	18" x 18"
R9-3b(L/R)	USE CROSSWALK (LEFT/RIGHT)	18" x 12"
R10-5	LEFT ON GREEN ARROW ONLY	30" x 36"
R10-11a	NO TURN ON RED	30" x 36"
R10-11b	NO TURN ON RED	36" x 36"
W10-1	HIGHWAY-RAIL GRADE CROSSING	36" ϕ
W10-2(L/R)	HIGHWAY-RAIL GRADE CROSSING	36" x 36"
W10-4L	HIGHWAY-RAIL GRADE CROSSING	36" x 36"

R10-3IL 9" x 15" — R10-3IR 9" x 15" — R10-3IL 9" x 15" — R10-3IR 9" x 15"

R10-3IL 9" x 15" — R10-3IR 9" x 15" — R10-3IL 9" x 15"



30' 20' 10' 0 30' 60'

TSP-1 / TSP-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC ENGINEERING AND INVESTIGATIONS
TRAFFIC SIGNAL INSTALLATION

ROUTE BROADWAY (CR 551) / I-676 RAMP & MORGAN BLVD

MUNICIPALITY CITY OF CAMDEN COUNTY CAMDEN

DESIGN AUTHORIZED - BUREAU OF TRAFFIC SIGNAL & SAFETY ENGINEERING DATE

SUBMITTED
CHECKED
AUTHORIZED

DRAWN
CHECKED

SCALE: 1" = 30'

TS

REVISION DESCRIPTION	CADD	BY	C'K'D	DATE

pen table =
date =
REFERENCE
file =
ID =

STATE	FEDERAL PROJECT NO.
N.J.	*

REFERENCE

pen table =

date =

file =

ID =

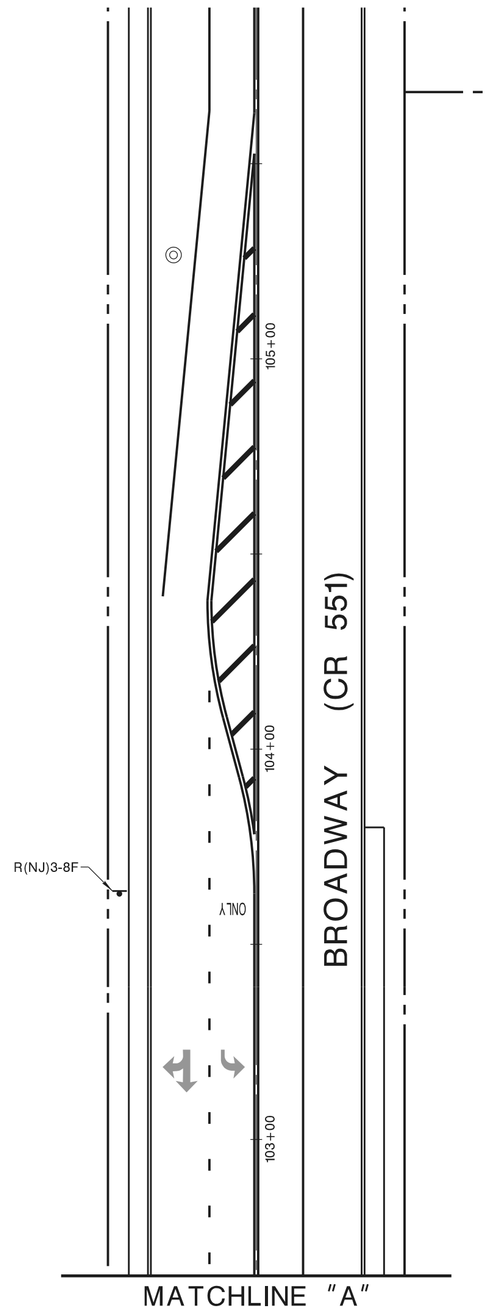
SIGN LEGEND

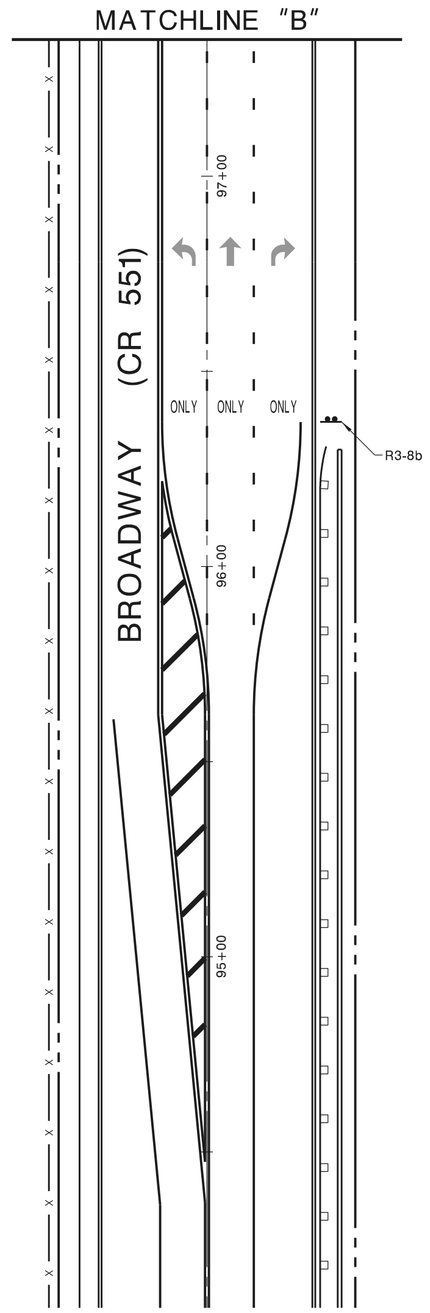
NOT TO SCALE

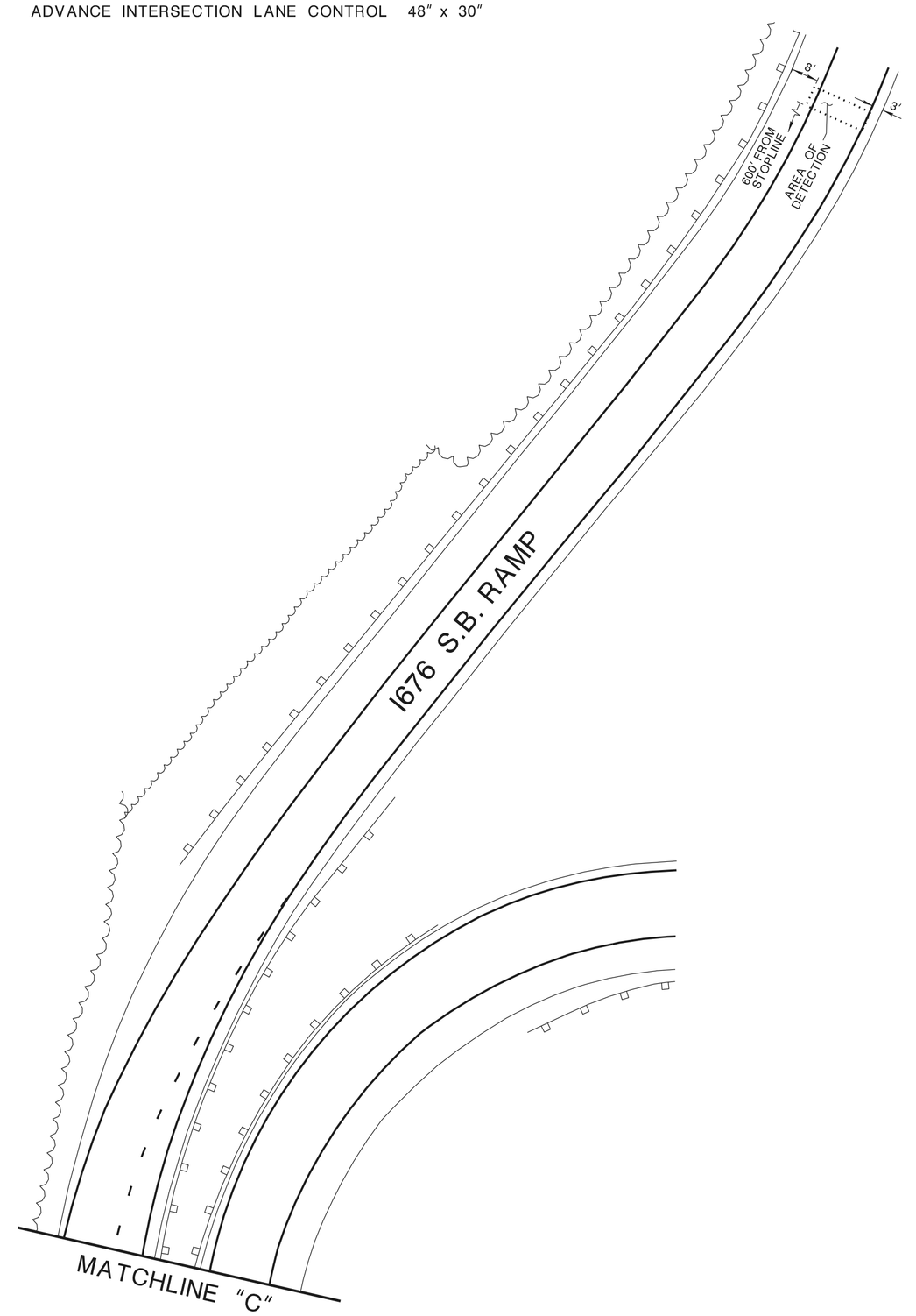


R(NJ)3-8F
30" x 30"

R3-8b ADVANCE INTERSECTION LANE CONTROL 48" x 30"







30' 20' 10' 0 30' 60'

TSP-2
TSP-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC ENGINEERING AND INVESTIGATIONS
TRAFFIC SIGNAL INSTALLATION

ROUTE BROADWAY (CR 551) / I-676 RAMP & MORGAN BLVD

MUNICIPALITY CITY OF CAMDEN COUNTY CAMDEN

DESIGN AUTHORIZED - BUREAU OF TRAFFIC SIGNAL & SAFETY ENGINEERING DATE

SUBMITTED .....
CHECKED .....
AUTHORIZED .....

DRAWN .....
CHECKED .....

SCALE: 1" = 30'

TS

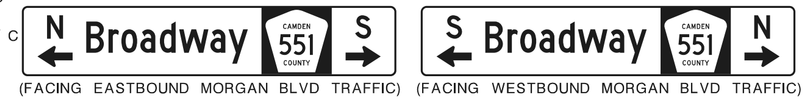
REVISION DESCRIPTION	CADD	BY	C'K'D	DATE

STATE	FEDERAL PROJECT NO.
N.J.	*

SIGN LEGEND

NOT TO SCALE

LETTERS
Broadway: 8" C
N, S: 6" D



(FACING EASTBOUND MORGAN BLVD TRAFFIC)

(FACING WESTBOUND MORGAN BLVD TRAFFIC)

SIGN "A"
96" x 18"
(DOUBLE-SIDED)

COLORS:
LEGEND - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)
SHIELD - YELLOW ON BLUE (RETROREFLECTIVE)

LETTERS
Morgan: 8" C
Blvd: 5" C
E: 6" D



(FACING S.B. BROADWAY TRAFFIC)



(FACING N.B. BROADWAY TRAFFIC)

SIGN "B"
60" x 18"
(DOUBLE-SIDED)

COLORS:
LEGEND - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)

LETTERS
Morgan: 8" C
Blvd: 5" C
E, W: 6" D



(FACING S.B. RAMP TRAFFIC)



(FACING N.B. DRIVEWAY TRAFFIC)

SIGN "C"
72" x 18"
(DOUBLE-SIDED)

COLORS:
LEGEND - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)

LETTERS 4" D / 4" D



R5-1
30" x 30"

COLORS:
SYMBOL - RED
(RETROREFLECTIVE)
LEGEND & BACKGROUND -
WHITE (RETROREFLECTIVE)

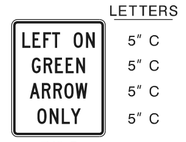
LETTERS 6" D / 6" D



R5-1a
36" x 24"

COLORS:
LEGEND - WHITE
(RETROREFLECTIVE)
BACKGROUND - RED
(RETROREFLECTIVE)

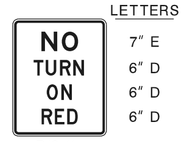
LETTERS 5" C / 5" C / 5" C / 5" C



R10-5
30" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

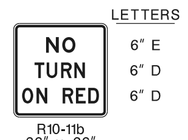
LETTERS 7" E / 6" D / 6" D / 6" D



R10-11a
30" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

LETTERS 6" E / 6" D / 6" D



R10-11b
36" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

LETTERS 4" C / 4" C



R3-8b
48" x 30"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)



R(NJ)3-8F
30" x 30"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

LETTERS 4" C / 4" C



R(NJ)3-8T
48" x 30"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)



R(NJ)3-8W
48" x 30"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

LETTERS 5" D / 5" D



R6-1L
54" x 18"

COLORS:
LEGEND - BLACK
BACKGROUND - BLACK
ARROW - WHITE
(RETROREFLECTIVE)



R6-1L
54" x 18"

COLORS:
LEGEND - BLACK
BACKGROUND - BLACK
ARROW - WHITE
(RETROREFLECTIVE)



R9-3a
18" x 18"

COLORS:
CIRCLE & DIAGONAL - RED
(RETROREFLECTIVE)
SYMBOL - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)

LETTERS 3" C / 3" B



R9-3bL
18" x 12"

LETTERS 3" C / 3" B



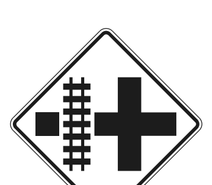
R9-3bR
18" x 12"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)



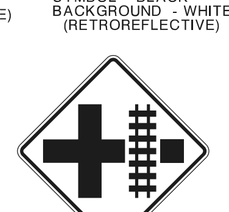
W10-1
36" R

COLORS:
LEGEND - BLACK
BACKGROUND - YELLOW
(RETROREFLECTIVE)



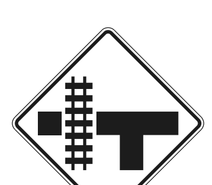
W10-2L
36" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - YELLOW
(RETROREFLECTIVE)



W10-2R
36" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - YELLOW
(RETROREFLECTIVE)



W10-4L
36" x 36"

COLORS:
LEGEND - BLACK
BACKGROUND - YELLOW
(RETROREFLECTIVE)



M6-1R (INTERSTATE)
21" x 15"

COLORS:
LEGEND - WHITE
(RETROREFLECTIVE)
BACKGROUND - BLUE
(RETROREFLECTIVE)



M6-2R (INTERSTATE)
21" x 15"

COLORS:
LEGEND - WHITE
(RETROREFLECTIVE)
BACKGROUND - BLUE
(RETROREFLECTIVE)

LETTERS 2" D / 8" C / 2" D



M1-6
24" x 24"

COLORS:
LEGEND - YELLOW
(RETROREFLECTIVE)
BACKGROUND - BLUE
(RETROREFLECTIVE)

LETTERS 6" C*



M3-3
24" x 12"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
* FIRST LETTER 10%
LARGER

LETTERS 6" C*



M3-1
24" x 12"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
* FIRST LETTER 10%
LARGER

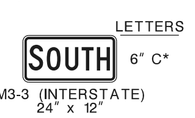
LETTERS 2.5" E / 10" C



M1-1
30" x 24"

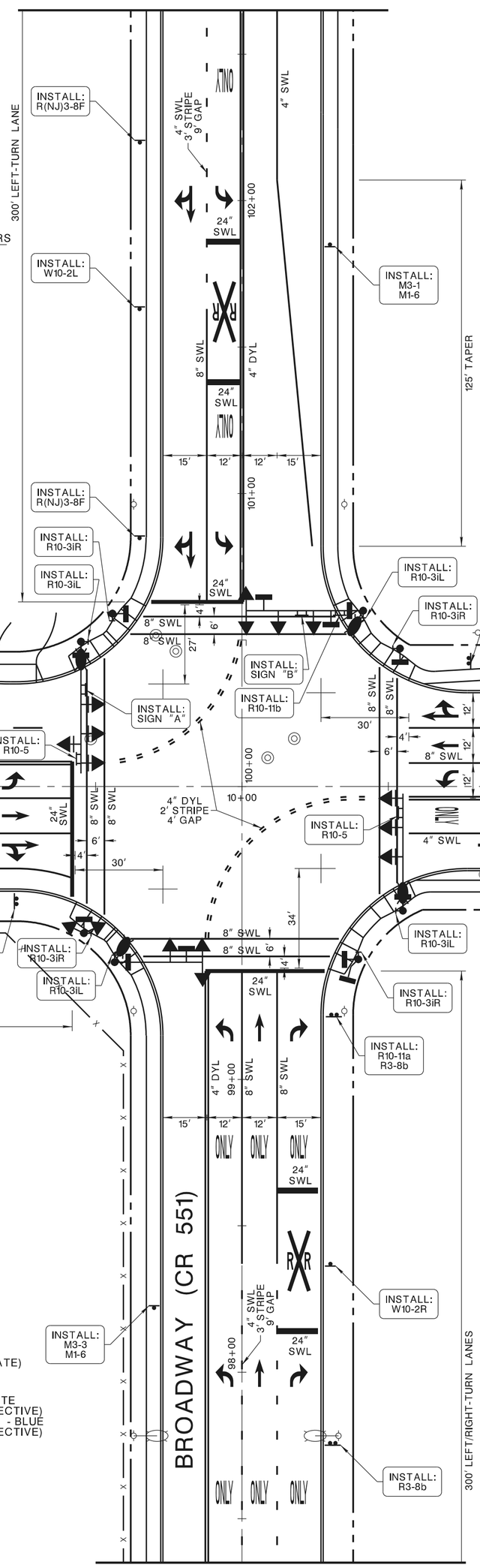
COLORS:
LEGEND - WHITE
(RETROREFLECTIVE)
TOP - RED
(RETROREFLECTIVE)
BOTTOM - BLUE
(RETROREFLECTIVE)

LETTERS 6" C*



M3-3 (INTERSTATE)
24" x 12"

COLORS:
LEGEND - WHITE
(RETROREFLECTIVE)
BACKGROUND - BLUE
(RETROREFLECTIVE)
* FIRST LETTER 10%
LARGER



LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS DRIVEWAY 0.6" B

R10-3iL
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS DRIVEWAY 0.6" B

R10-3iR
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS LATE RAMP 0.6" B

R10-3iL
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS BROADWAY 0.6" B

R10-3iL
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS BROADWAY 0.6" B

R10-3iR
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS MORGAN BLVD 0.6" B

R10-3iL
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

LETTERS
START CROSSING Watch For Vehicles 0.6" B
DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing 0.6" B
DON'T CROSS 0.6" B
PUSH BUTTON TO CROSS MORGAN BLVD 0.6" B

R10-3iR
9" x 15"

COLORS:
LEGEND - BLACK
BACKGROUND - WHITE
(RETROREFLECTIVE)
08, HAND SYMBOL - ORANGE
(RETROREFLECTIVE)

GENERAL NOTES

1. ALL SIGNS, SIGNALS AND MARKINGS TO BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D.
2. EXISTING MARKINGS NOT IN CONFORMANCE WITH THIS PLAN ARE TO BE REMOVED BY THE GRINDING METHOD.
3. WITH THE INSTALLATION OR GRINDING OF THE PAVEMENT MARKINGS, RAISED PAVEMENT MARKINGS (RPM) MUST BE INSTALLED, REPLACED OR REMOVED, WHERE APPLICABLE, TO COINCIDE WITH THE NEW PAVEMENT MARKINGS. THE RPM'S MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS.

STRIPING LEGEND

SWL - SOLID WHITE LINE
BWL - BROKEN WHITE LINE
SYL - SOLID YELLOW LINE
DYL - DOUBLE YELLOW LINE

30' 20' 10' 0 30' 60'

PAY ITEM NO.	STD. ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
	610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN, 4"	3200 LF
	610009M	TRAFFIC MARKINGS, THERMOPLASTIC	1900 SF
	612003P	SIGNS	220 SF

REVISION	DESCRIPTION	BY	C'K'D	DATE

SS-1
SS-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNING & STRIPING PLAN

BROADWAY (CR 551)/I-676 RAMP & MORGAN BLVD

CITY OF CAMDEN, CAMDEN COUNTY

Shropshire Associates LLC
379 West Main Street, Suite 203, Atco, NJ 08004
t: 609.714.0033 f: 609.714.9944 www.sallc.org

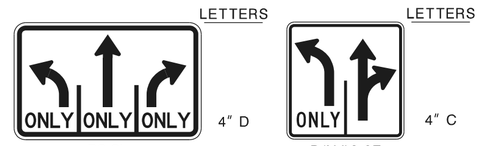
RANDAL C. BARRANGER
New Jersey Professional Engineer License No. 46333

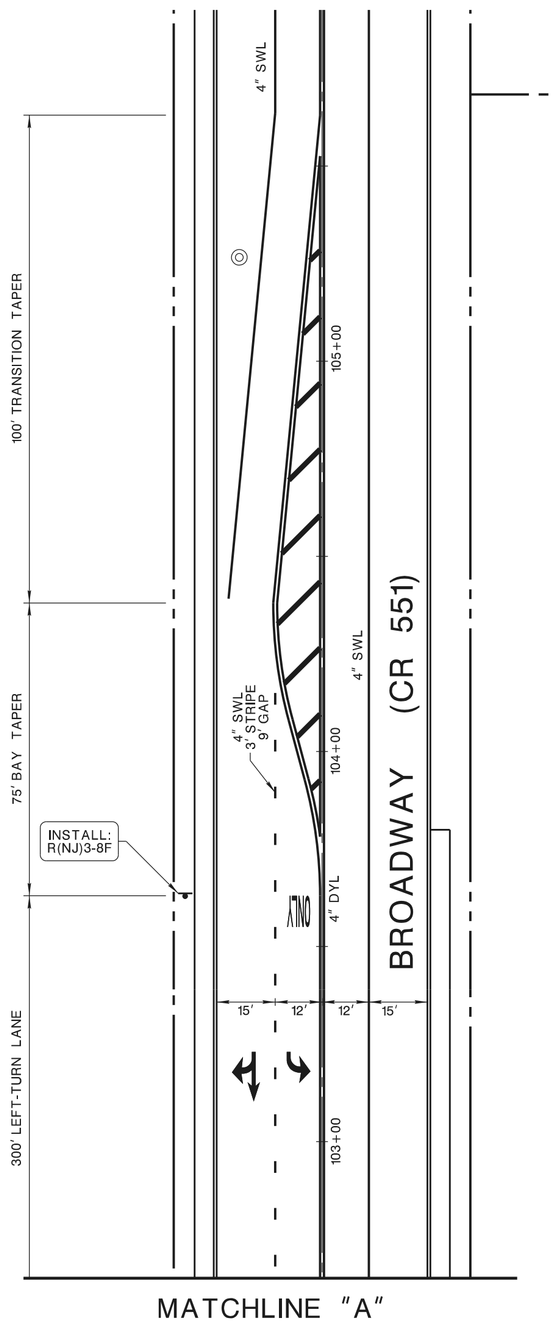
24 JUN 16
DATE

STATE	FEDERAL PROJECT NO.
N.J.	*

SIGN LEGEND

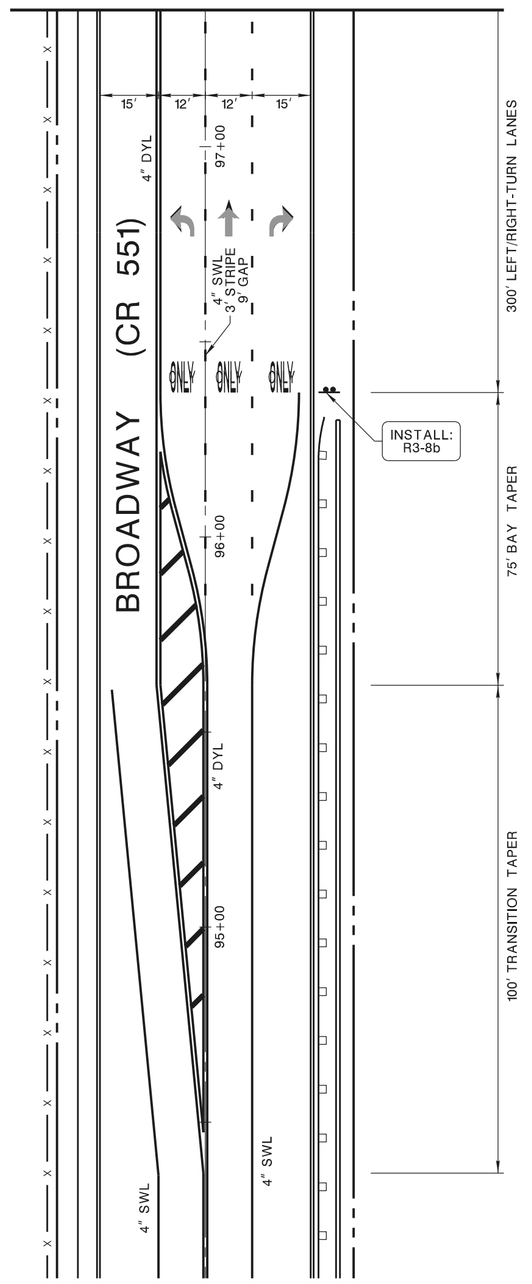
NOT TO SCALE

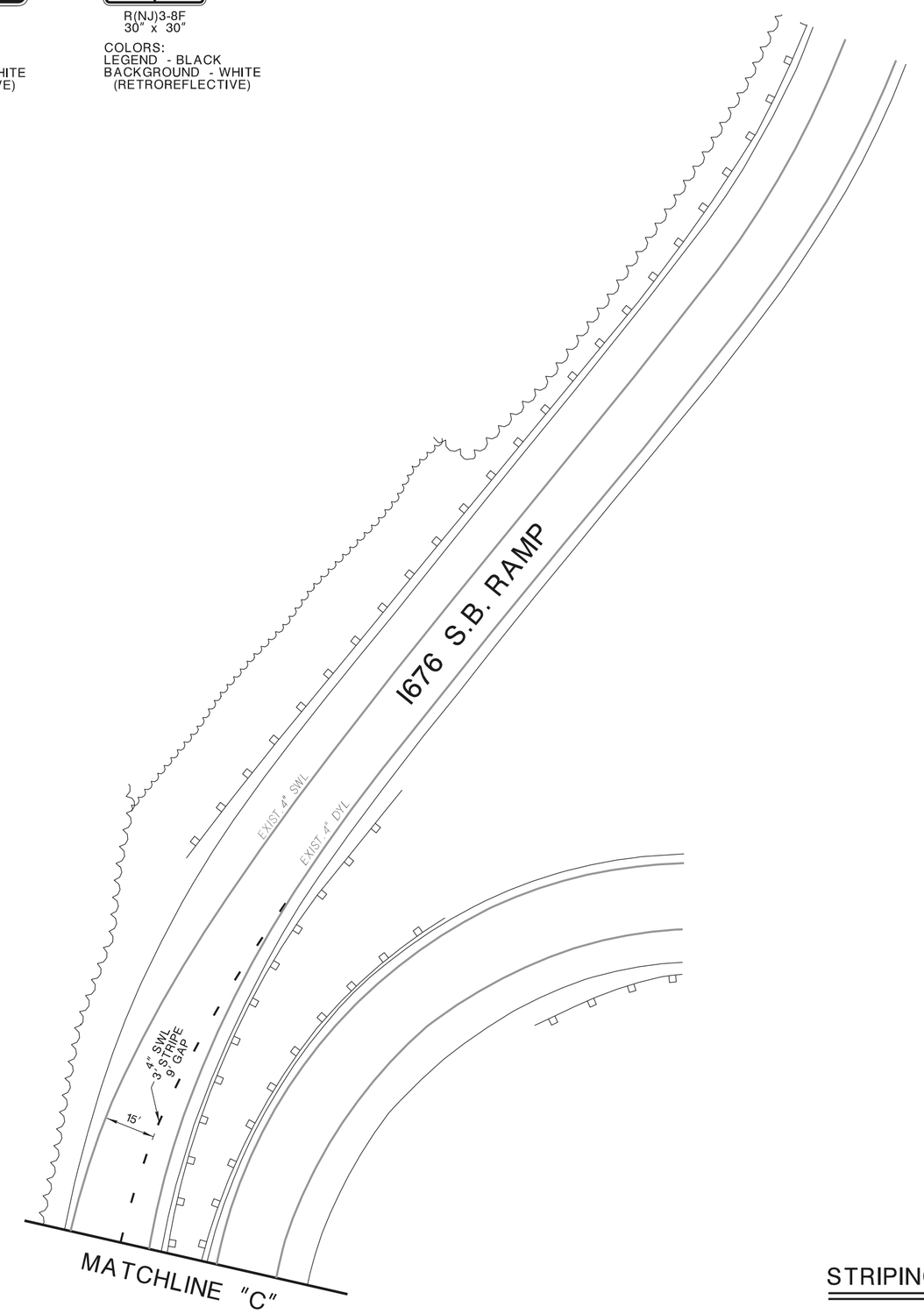




MATCHLINE "A"

MATCHLINE "B"





MATCHLINE "C"

STRIPING LEGEND

SWL - SOLID WHITE LINE
BWL - BROKEN WHITE LINE
SYL - SOLID YELLOW LINE
DYL - DOUBLE YELLOW LINE

30' 20' 10' 0 30' 60'

GENERAL NOTES

1. ALL SIGNS, SIGNALS AND MARKINGS TO BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D.
2. EXISTING MARKINGS NOT IN CONFORMANCE WITH THIS PLAN ARE TO BE REMOVED BY THE GRINDING METHOD.
3. WITH THE INSTALLATION OR GRINDING OF THE PAVEMENT MARKINGS, RAISED PAVEMENT MARKINGS (RPM) MUST BE INSTALLED, REPLACED OR REMOVED, WHERE APPLICABLE, TO COINCIDE WITH THE NEW PAVEMENT MARKINGS. THE RPM'S MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS.

REVISION DESCRIPTION	BY	C'K'D	DATE

SS-2
SS-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNING & STRIPING PLAN

BROADWAY (CR 551)/I-676 RAMP & MORGAN BLVD

CITY OF CAMDEN, CAMDEN COUNTY

Shropshire Associates LLC
227 White Horse Pike, Suite 203, Atco, NJ 08004
P: 609.714.1000 F: 609.714.9644 www.ssllc.org

RANDAL C. BARRANGER
New Jersey Professional Engineer License No. 48383

24 JUN 16
DATE

Directive No. _____
Broadway (CR 551) / I-676 Ramp & Morgan Boulevard
City of Camden, Camden County

120-Second Variable Cycle

Normal Operation

		Signal Indications																			
	Phase	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR Signals	RR Gates	Time (Sec)
A.	Broadway (CR 551) ROW	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 25
	Change (Outer)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
B.	I-676 Ramp/Dvwy ROW	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 15
	Change (Outer)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	R	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
C.	Morgan Blvd ROW	<R-	G	G	<R-	G	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7 - 14
	Change (Outer)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
D.	Morgan Blvd Lag Lefts	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5 - 7
	Change (Outer)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
Pre-emption	End of Railroad Pre-pulse	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	Track Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	Track Clearance - Breakaway	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	Change	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	Red Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	Hold	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	Return - Gate Ascending	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	Change	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	Return to Normal (Phase B)	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
Emergency Flash		<R-	R	Y	<R-	Y	Y	R	R	R	R	R	Dark	Dark	Dark	OFF	OFF	OFF	OFF	OFF	UP	-

Directive No. _____
Broadway (CR 551) / I-676 Ramp & Morgan Boulevard
City of Camden, Camden County

120-Second Variable Cycle

With Pedestrian Actuation

	Phase	Signal Indications																				
		1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR Signals	RR Gates	Time (Sec)
A.	Broadway (CR 551) ROW	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	W	W	OFF	OFF	OFF	OFF	OFF	UP	7
	Pedestrian Clearance	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	FDW	FDW	OFF	OFF	OFF	OFF	OFF	UP	25
	Change (Outer)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
B.	I-676 Ramp/Dvwy ROW	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7
	Change (Outer)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	R	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
C.	Morgan Blvd ROW	<R-	G	G	<R-	G	G	G	R	R	R	R	W	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	7
	Pedestrian Clearance	<R-	G	G	<R-	G	G	G	R	R	R	R	FDW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	20
	Change (Outer)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
D.	Morgan Blvd Lag Lefts	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Outer)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Inside Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	5
	Change (Inner)	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
Emergency Flash		<R-	R	Y	<R-	Y	Y	R	R	R	R	R	Dark	Dark	Dark	OFF	OFF	OFF	OFF	OFF	UP	-

Directive No. _____
Broadway (CR 551) / I-676 Ramp & Morgan Boulevard
City of Camden, Camden County

120-Second Variable Cycle

Railroad Pre-emption Operation

		Signal Indications																			
	Phase	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR Signals	RR Gates	Time (Sec)
ϕA to Pre-empt	Broadway (CR 551) ROW	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	D/W	D/W	OFF	OFF	OFF	OFF	OFF	UP	-
	RR Pre-Pulse Pedestrian	<R-	R	G	<R-	R	R	R	G	R	R	G	DW	F/DW	F/DW	OFF	OFF	OFF	OFF	OFF	UP	4
	RR Pre-Pulse Change (Outer)	<R-	R	G	<R-	R	R	R	Y	R	R	Y	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	RR Pre-Pulse Clearance	<R-	R	G	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Track Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	Track Clearance - Breakaway	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	Change	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	Red Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	Hold	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	Return - Gate Ascending	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	Change	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	Return to Normal (Phase B)	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
ϕB to Pre-empt	I-676 Ramp/Dvwy ROW	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	RR Pre-Pulse Extension	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	RR Pre-Pulse Change (Outer)	<R-	R	R	<R-	R	G/<G-	G	R	Y	Y	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	RR Pre-Pulse Clearance	<R-	R	R	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	Track Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	Track Clearance - Breakaway	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	Change	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	Red Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	Hold	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	Return - Gate Ascending	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	Change	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	Return to Normal (Phase B)	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-

Directive No. _____
Broadway (CR 551) / I-676 Ramp & Morgan Boulevard
City of Camden, Camden County

120-Second Variable Cycle

Railroad Pre-emption Operation

		Signal Indications																			
	Phase	1,2	3-5	6,7	8,9	10-12	13,14	15,16	17-20	21,22	23-25	26-28	29-32	33-36	37-40	RR1, RR2	RR3, RR4	RR5, RR6	RR7, RR8	RR Signals	RR Gates	Time (Sec)
ϕC to Pre-empt	Morgan Blvd ROW	<R-	G	G	<R-	G	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	RR Pre-Pulse Pedestrian	<R-	G	G	<R-	G	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	RR Pre-Pulse Change (Outer)	<R-	Y	G	<R-	Y	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	RR Pre-Pulse Clearance	<R-	R	G	<R-	R	G	G	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Track Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	Track Clearance - Breakaway	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	Change	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	Red Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	Hold	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	Return - Gate Ascending	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	Change	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	Return to Normal (Phase B)	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
ϕD to Pre-empt	Morgan Blvd Lag Lefts	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-
	RR Pre-Pulse Extension	<G-	R	R	<G-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	4
	RR Pre-Pulse Change (Outer)	<Y-	R	R	<Y-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	3
	RR Pre-Pulse Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	2
	Track Clearance	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	UP	3
	Track Clearance - Breakaway	<R-	R	G	<R-	R	G/<G-	G	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	6
	Change	<R-	R	Y	<R-	R	Y/<Y-	Y	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	3
	Red Clearance	<R-	R	R	<R-	R	R	R	R	R	R	R	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	DESCENDING	2
	Hold	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	HORIZONTAL	-
	Return - Gate Ascending	<R-	R	R	<R-	R	R	R	G	G	G	G	DW	DW	DW	NRT	NLT	NLT	NRT	ACTIVE	ASCENDING	10
	Change	<R-	R	R	<R-	R	R	R	Y	G	G	Y	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	3
	Clearance	<R-	R	R	<R-	R	R	R	R	G	G	R	DW	DW	DW	NRT	NLT	NLT	NRT	OFF	UP	2
	Return to Normal (Phase B)	<R-	R	R	<R-	R	G/<G-	G	R	G	G	R	DW	DW	DW	OFF	OFF	OFF	OFF	OFF	UP	-

Notes:

1. The memory circuits shall be OFF.
2. The vehicle interval shall be set at 4-seconds.
3. The manual control shall be disconnected.
4. With pedestrian pushbutton actuation, the cycle length will be exceeded.
5. A queue detector pre-emption shall be provided on the I-676 southbound ramp. The queue detection shall employ a 10-second delay before accepting actuation.
6. Upon actuation of the queue detector pre-emption, all minimum Green, Yellow change, Red clearance, and pedestrian clearance times shall be guaranteed followed by Green time to Phase B for the duration of the actuation plus 15-seconds.
7. The minimum queue detector pre-emption re-service time shall be set at 4-minutes.
8. Upon completion of the queue detector pre-emption, ROW shall be given to Morgan Boulevard and Normal Operation shall resume.
9. Railroad pre-emption supercedes the queue pre-emption for the I-676 southbound ramp.
10. Phase B shall hae Dynamic MAX / MAX 3 option installed with the following parameters:
    a. the number of successive MAX terminations (max-outs) shall be set at 2
    b. the increment adjustment time or MAX 3 Adjust shall be set to 10-seconds
    c. the Dynamic Maximum Green Limit Time or MAX 3 Limit shall be set to 45-seconds
    d. the number of successive GAP terminations (gap-outs) shall be set at 2
11. During transition into Railroad Pre-emption control the minimum Green time shall be set at 4-seconds, and the pedestrian change interval shall be set at 4-seconds.
12. All railroad equipment and hardware (flashing Red light signals, automatic gates, mast mounted crossbucks and accompanying signs) are owned, operated and maintained by Consolidated Rail Corporation (CONRAIL).

LOCATION: Broadway & Viola, Jefferson #016 **DATE:** 12-1-22

INTERSECTION TIMING

	1	2	3	4	5	6	7	8
MIN GRN		50		10				
PASSAGE								
WALK								
DON'T WALK								
S/A								
MAX INT								
TBR								
TTR								
MIN GAP								
MAX I		50		10				
MAX II								
MAX III								
YELLOW		3.0		3.0				
RED		2.0		2.0				

PHASES USED

1	
2	✓
3	
4	✓
5	
6	
7	
8	

RECALL

✓
✓

Dual Entry Phases

SEQUENCE

Ring 1	Ring 2
✓	

OVERLAP DATA

	A	B	C	D
Phases				
Type				
Timed				
Grn Ext				
Yel				
Red				

TIME OF DAY DATA

	Days	From	To
Max 2			
Max 3			
Max 1 all other times			
Flash			

PHASE ON OMITS PHASE DATA

Phase On	Omits Phase

DETECTOR DATA

Det #	Phase	Input	Sys #	Delay	Mode	Switch To Phase

Form /71

New Jersey Department of Transportation

TRAFFIC ENGINEERING – ELECTRICAL PROJECT

Number 596

Job No.	0418103
Memo to	Mr. R. Uth - #4
Attention	

Route No.	I-676 Morgan Boulevard and Relocated
Location	Master Street and Ramp SM Camden City, Camden County
Date	May 1, 1980

Kindly engage your State forces to employ signal timing and operations as shown below:

70 Second Background Cycle

		Signal Faces			
	Phase	1-6	7-10	11-13	Time
A.	Morgan Boulevard ROW	G	R	R	38-22
A.	Morgan Boulevard Change	Y	R	R	3*
A.	Morgan Boulevard Clear	R	R	R	2
B.	Ramp SM ROW	R	R	G	***10-22
B.	Ramp SM Change	R	R	Y	3
B.	Ramp SM Clearance	R	R	R	2
C.	Relocated Master Street ROW	R	G	R	7-11**
C.	Relocated Master Street Change	R	Y	R	3
C.	Relocated Master Street Clear	R	R	R	2

Reference:

Vehicle interval for Phases B and C: 2 seconds

Memory circuit for Phases B and C be disconnected.

Manual control be disconnected.

Controller shall be capable of skipping phases not actuated.

*Offset is 0 seconds measured from the beginning of yellow to Morgan Boulevard at this intersection.

**An actuation of the pedestrian push button on the northeast corner shall provide 11 seconds of green to Phase C without recall.

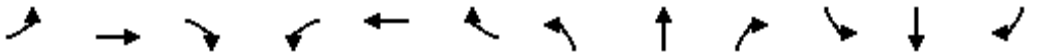
***An actuation of the pedestrian push button on the southeast corner shall provide 11 seconds of green to Phase B.

JMP:JS:vls

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX B

2022 Existing Synchro Analysis Worksheets

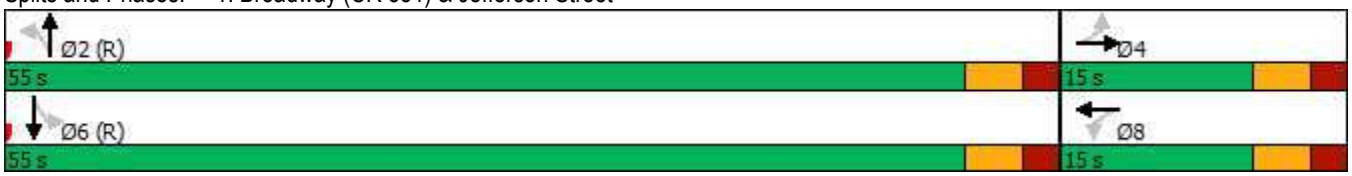


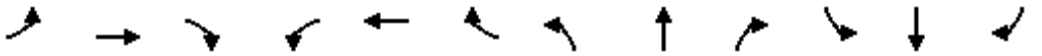
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	26	1	1	5	6	143	1	2	90	1
Future Volume (vph)	4	4	26	1	1	5	6	143	1	2	90	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.897			0.904			0.999			0.999	
Flt Protected		0.994			0.993			0.998			0.999	
Satd. Flow (prot)	0	1636	0	0	1984	0	0	1928	0	0	1893	0
Flt Permitted		0.966			0.960			0.993			0.997	
Satd. Flow (perm)	0	1590	0	0	1918	0	0	1918	0	0	1889	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			10			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	25%	25%	19%	0%	0%	0%	0%	15%	0%	0%	17%	0%
Adj. Flow (vph)	9	9	58	2	2	10	7	161	1	2	101	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	14	0	0	169	0	0	104	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			2			0	
Crosswalk Width(ft)		18			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.28			0.05			0.12			0.08	
Control Delay		14.2			17.7			3.4			3.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.2			17.7			3.4			3.2	
LOS		B			B			A			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		14.2			17.7			3.4			3.2	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

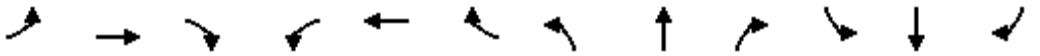




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	26	1	1	5	6	143	1	2	90	1
Future Volume (veh/h)	4	4	26	1	1	5	6	143	1	2	90	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1570	1633	1661	1950	2028	1950	1950	1791	1950	1950	1759	1950
Adj Flow Rate, veh/h	9	9	58	2	2	10	7	161	1	2	101	1
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	25	25	19	0	0	0	0	15	0	0	17	0
Cap, veh/h	68	37	154	71	60	180	74	1240	8	58	1234	12
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	74	261	1077	86	417	1260	29	1736	11	7	1728	17
Grp Volume(v), veh/h	76	0	0	14	0	0	169	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1411	0	0	1763	0	0	1775	0	0	1752	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.5	0.0	0.0	2.1	0.0	0.0	1.3	0.0	0.0
Prop In Lane	0.12		0.76	0.14		0.71	0.04		0.01	0.02		0.01
Lane Grp Cap(c), veh/h	259	0	0	311	0	0	1321	0	0	1304	0	0
V/C Ratio(X)	0.29	0.00	0.00	0.05	0.00	0.00	0.13	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	259	0	0	311	0	0	1321	0	0	1304	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	25.9	0.0	0.0	3.2	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	0.0	26.2	0.0	0.0	3.4	0.0	0.0	3.2	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		76			14			169			104	
Approach Delay, s/veh		30.0			26.2			3.4			3.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	7	4	7	13	50	5	98	8	37	82	1
Future Volume (vph)	2	7	4	7	13	50	5	98	8	37	82	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.903			0.990			0.999	
Flt Protected		0.994			0.995			0.998			0.985	
Satd. Flow (prot)	0	1952	0	0	1738	0	0	1897	0	0	1862	0
Flt Permitted		0.994			0.995			0.998			0.985	
Satd. Flow (perm)	0	1952	0	0	1738	0	0	1897	0	0	1862	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.81	0.81	0.81	0.76	0.76	0.76	0.90	0.90	0.90	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	25%	29%	15%	12%	40%	15%	0%	8%	21%	0%
Adj. Flow (vph)	2	9	5	9	17	66	6	109	9	46	101	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	92	0	0	124	0	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	7	4	7	13	50	5	98	8	37	82	1
Future Vol, veh/h	2	7	4	7	13	50	5	98	8	37	82	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	76	76	76	90	90	90	81	81	81
Heavy Vehicles, %	0	0	25	29	15	12	40	15	0	8	21	0
Mvmt Flow	2	9	5	9	17	66	6	109	9	46	101	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	361	324	102	327	320	114	102	0	0	118	0	0
Stage 1	194	194	-	126	126	-	-	-	-	-	-	-
Stage 2	167	130	-	201	194	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.39	6.65	6.32	4.5	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.761	4.135	3.408	2.56	-	-	2.272	-	-
Pot Cap-1 Maneuver	598	597	894	577	576	912	1283	-	-	1434	-	-
Stage 1	812	744	-	817	767	-	-	-	-	-	-	-
Stage 2	840	792	-	743	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	526	574	894	550	554	912	1283	-	-	1434	-	-
Mov Cap-2 Maneuver	526	574	-	550	554	-	-	-	-	-	-	-
Stage 1	808	719	-	813	763	-	-	-	-	-	-	-
Stage 2	758	788	-	705	692	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10.3	0.4	2.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1283	-	-	635	769	1434	-	-
HCM Lane V/C Ratio	0.004	-	-	0.025	0.12	0.032	-	-
HCM Control Delay (s)	7.8	0	-	10.8	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	92	5	41	104	7	9
Future Volume (vph)	92	5	41	104	7	9
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1613	0	1684	1726	1295	1246
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1613	0	1684	1726	1295	1246
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.81	0.81	0.75	0.75	0.80	0.80
Heavy Vehicles (%)	19%	40%	10%	13%	43%	33%
Adj. Flow (vph)	114	6	55	139	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	0	55	139	9	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	2			22	-2	
Crosswalk Width(ft)	76			40	46	
Two way Left Turn Lane						
Headway Factor	0.97	0.82	0.97	0.97	0.97	0.97
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.9%		ICU Level of Service A	
Analysis Period (min) 15			

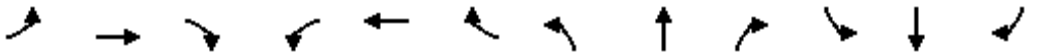
Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	92	5	41	104	7	9
Future Vol, veh/h	92	5	41	104	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	75	75	80	80
Heavy Vehicles, %	19	40	10	13	43	33
Mvmt Flow	114	6	55	139	9	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	120	0	366	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	-	-	4.2	-	6.83	6.53
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.29	-	3.887	3.597
Pot Cap-1 Maneuver	-	-	1420	-	560	858
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	706	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1420	-	538	858
Mov Cap-2 Maneuver	-	-	-	-	538	-
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	538	858	-	-	1420	-
HCM Lane V/C Ratio	0.016	0.013	-	-	0.038	-
HCM Control Delay (s)	11.8	9.3	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	1	71	77	74	3	77	56	66	22	1
Future Volume (vph)	2	6	1	71	77	74	3	77	56	66	22	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.927				0.850		0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1852	3164	0	1278	3170	0	1852	1773	1237	1531	1587	0
Flt Permitted	0.630			0.751			0.738			0.702		
Satd. Flow (perm)	1228	3164	0	1010	3170	0	1439	1773	1237	1131	1587	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		1			95						1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		454			173			434			525	
Travel Time (s)		12.4			4.7			11.8			14.3	
Peak Hour Factor	0.75	0.75	0.75	0.78	0.78	0.78	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	0%	17%	0%	45%	1%	16%	0%	10%	34%	21%	23%	0%
Adj. Flow (vph)	3	8	1	91	99	95	3	84	61	86	29	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	9	0	91	194	0	3	84	61	86	30	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		-2			2			-6			6	
Crosswalk Width(ft)		36			42			32			30	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10	-10	-10	-10	
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10	-10	-10	-10	
Detector 1 Size(ft)	60	60		60	60		60	60	60	60	60	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Number of Detectors							
Detector Template							
Leading Detector (ft)							
Trailing Detector (ft)							
Detector 1 Position(ft)							
Detector 1 Size(ft)							
Detector 1 Type							
Detector 1 Channel							
Detector 1 Extend (s)							
Detector 1 Queue (s)							
Detector 1 Delay (s)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	19.0					30.0	30.0	30.0	30.0	30.0	
Total Split (%)	9.2%	15.8%					25.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	6.0	14.0					25.0	25.0	25.0	25.0	25.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	18.7	12.6		60.6	68.2		14.5	14.5	14.5	14.5	14.5	
Actuated g/C Ratio	0.18	0.12		0.60	0.67		0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.01	0.02		0.13	0.09		0.01	0.33	0.35	0.53	0.13	
Control Delay	29.5	42.3		1.5	0.1		39.7	45.1	47.3	55.5	40.6	
Queue Delay	0.0	0.0		0.3	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.5	42.3		1.8	0.2		39.7	45.1	47.3	55.5	40.6	
LOS	C	D		A	A		D	D	D	E	D	
Approach Delay		39.1			0.7			45.9			51.7	
Approach LOS		D			A			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 30.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard



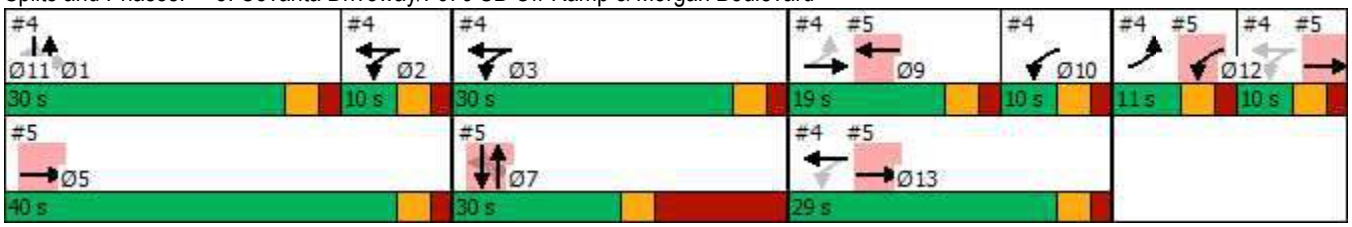
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	131	1	20	141	0	1	0	16	131	8	78
Future Volume (vph)	0	131	1	20	141	0	1	0	16	131	8	78
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.873			0.863	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	2895	0	1059	3012	0	0	901	0	1799	1432	0
Flt Permitted				0.950				0.970		0.735		
Satd. Flow (perm)	0	2895	0	1059	3012	0	0	876	0	1392	1432	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						245			91	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.75	0.75	0.75	0.69	0.69	0.69	0.50	0.50	0.50	0.86	0.86	0.86
Heavy Vehicles (%)	0%	28%	0%	75%	23%	0%	0%	0%	94%	3%	63%	13%
Adj. Flow (vph)	0	175	1	29	204	0	2	0	32	152	9	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	0	29	204	0	0	34	0	152	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			12	
Link Offset(ft)		0			-4			0			4	
Crosswalk Width(ft)		16			38			22			26	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1	1		1	1	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		50		50	50		50	50		50	50	
Trailing Detector (ft)		-10		-10	-10		-10	-10		-10	-10	
Detector 1 Position(ft)		-10		-10	-10		-10	-10		-10	-10	
Detector 1 Size(ft)		60		60	60		60	60		60	60	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	

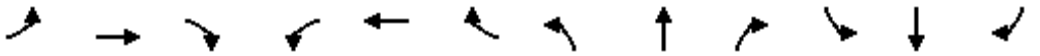
Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Number of Detectors							
Detector Template							
Leading Detector (ft)							
Trailing Detector (ft)							
Detector 1 Position(ft)							
Detector 1 Size(ft)							
Detector 1 Type							
Detector 1 Channel							
Detector 1 Extend (s)							
Detector 1 Queue (s)							
Detector 1 Delay (s)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				11.0	19.0		30.0	30.0		30.0	30.0	
Total Split (%)				9.2%	15.8%		25.0%	25.0%		25.0%	25.0%	
Maximum Green (s)				6.0	14.0		15.0	15.0		15.0	15.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		57.6		6.2	12.6			14.8		14.8	14.8	
Actuated g/C Ratio		0.57		0.06	0.12			0.15		0.15	0.15	
v/c Ratio		0.11		0.45	0.55			0.10		0.75	0.35	
Control Delay		1.1		74.8	50.6			0.6		68.7	15.6	
Queue Delay		0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay		1.2		74.8	50.6			0.6		68.7	15.6	
LOS		A		E	D			A		E	B	
Approach Delay		1.2			53.6			0.6			47.6	
Approach LOS		A			D			A			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 35.6		Intersection LOS: D	
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard



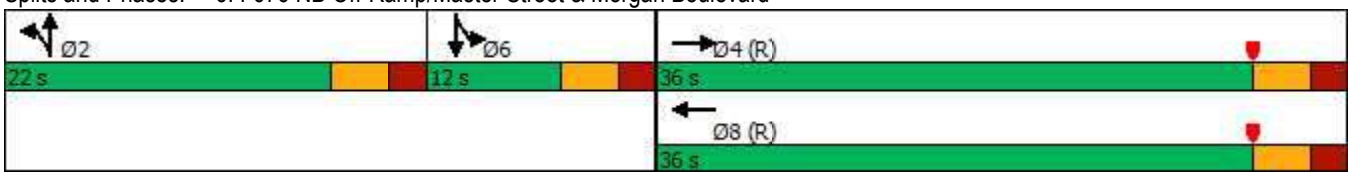


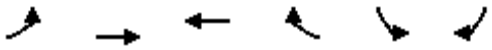
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	167	0	0	193	8	139	83	0	14	0	134
Future Volume (vph)	0	167	0	0	193	8	139	83	0	14	0	134
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.994						0.878	
Flt Protected							0.950	0.987			0.995	
Satd. Flow (prot)	0	3463	0	0	3374	0	1333	1607	0	0	1573	0
Flt Permitted							0.950	0.987			0.995	
Satd. Flow (perm)	0	3463	0	0	3374	0	1333	1607	0	0	1573	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8						163	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.79	0.79	0.79	0.82	0.82	0.82
Heavy Vehicles (%)	0%	7%	0%	0%	9%	13%	32%	7%	0%	21%	0%	7%
Adj. Flow (vph)	0	188	0	0	238	10	176	105	0	17	0	163
Shared Lane Traffic (%)							22%					
Lane Group Flow (vph)	0	188	0	0	248	0	137	144	0	0	180	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			24			-2	
Crosswalk Width(ft)		20			26			24			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0			0		1	1		1	1	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		0			0		50	50		50	50	
Trailing Detector (ft)		0			0		-10	-10		-10	-10	
Detector 1 Position(ft)		-10			-10		-10	-10		-10	-10	
Detector 1 Size(ft)		60			60		60	60		60	60	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		34.7			34.7		12.9	12.9			7.4	
Actuated g/C Ratio		0.50			0.50		0.18	0.18			0.11	
v/c Ratio		0.11			0.15		0.56	0.48			0.58	
Control Delay		10.5			10.3		34.3	30.6			15.1	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		10.5			10.3		34.3	30.6			15.1	
LOS		B			B		C	C			B	
Approach Delay		10.5			10.3			32.4			15.1	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 18.2		Intersection LOS: B	
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	9	0	81	0	0
Future Volume (vph)	0	9	0	81	0	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			
Flt Protected						
Satd. Flow (prot)	0	1912	3087	0	1912	0
Flt Permitted						
Satd. Flow (perm)	0	1912	3087	0	1912	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		66	454		187	
Travel Time (s)		1.8	12.4		5.1	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.92	0.92
Adj. Flow (vph)	0	12	0	104	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	104	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

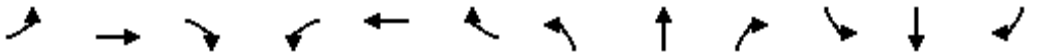
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	81	0	0
Future Vol, veh/h	0	9	0	81	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	104	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	64	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1487	-	-	-	938	1005
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1487	-	-	-	938	1005
Mov Cap-2 Maneuver	-	-	-	-	938	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1487	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

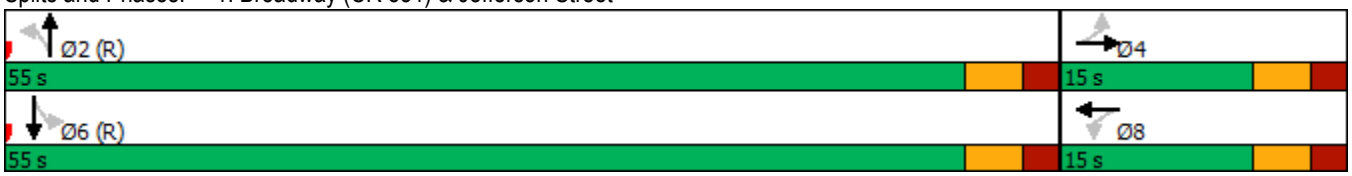


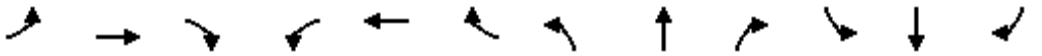
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	2	41	5	1	8	11	112	5	1	223	3
Future Volume (vph)	11	2	41	5	1	8	11	112	5	1	223	3
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.898			0.926			0.995			0.998	
Flt Protected		0.990			0.982			0.996				
Satd. Flow (prot)	0	1840	0	0	1873	0	0	2067	0	0	2083	0
Flt Permitted		0.936			0.890			0.973				
Satd. Flow (perm)	0	1740	0	0	1698	0	0	2019	0	0	2083	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			12			6			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	9%	20%	0%	0%	18%	5%	0%	0%	6%	0%
Adj. Flow (vph)	15	3	55	8	2	12	14	138	6	1	251	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	22	0	0	158	0	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			2			0	
Crosswalk Width(ft)		18			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.25			0.09			0.11			0.17	
Control Delay		13.9			19.0			3.2			3.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.9			19.0			3.2			3.6	
LOS		B			B			A			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		13.9			19.0			3.2			3.6	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

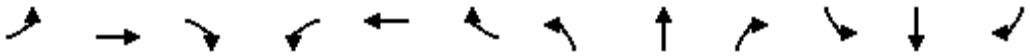




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	41	5	1	8	11	112	5	1	223	3
Future Volume (veh/h)	11	2	41	5	1	8	11	112	5	1	223	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	2028	1813	1646	2028	1950	1676	1949	1950	1950	1933	1950
Adj Flow Rate, veh/h	15	3	55	8	2	12	14	138	6	1	251	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	20	0	0	18	5	0	0	6	0
Cap, veh/h	88	35	186	128	52	132	129	1209	51	52	1361	16
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	181	244	1301	404	364	922	102	1692	71	1	1905	23
Grp Volume(v), veh/h	73	0	0	22	0	0	158	0	0	255	0	0
Grp Sat Flow(s),veh/h/ln	1727	0	0	1690	0	0	1865	0	0	1929	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.7	0.0	0.0	1.8	0.0	0.0	3.0	0.0	0.0
Prop In Lane	0.21		0.75	0.36		0.55	0.09		0.04	0.00		0.01
Lane Grp Cap(c), veh/h	309	0	0	312	0	0	1388	0	0	1429	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.07	0.00	0.00	0.11	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	309	0	0	312	0	0	1388	0	0	1429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	26.0	0.0	0.0	3.1	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	0.0	26.5	0.0	0.0	3.3	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		73			22			158			255	
Approach Delay, s/veh		28.6			26.5			3.3			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	11	15	11	5	49	3	82	18	61	206	2
Future Volume (vph)	2	11	15	11	5	49	3	82	18	61	206	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.927			0.897			0.977			0.999	
Flt Protected		0.997			0.992			0.998			0.989	
Satd. Flow (prot)	0	2043	0	0	1909	0	0	1928	0	0	2030	0
Flt Permitted		0.997			0.992			0.998			0.989	
Satd. Flow (perm)	0	2043	0	0	1909	0	0	1928	0	0	2030	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.47	0.47	0.47	0.77	0.77	0.77	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	9%	0%	2%	0%	10%	22%	3%	9%	0%
Adj. Flow (vph)	4	23	32	14	6	64	4	101	22	69	231	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	84	0	0	127	0	0	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			-4			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97	0.97	0.82	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	11	15	11	5	49	3	82	18	61	206	2
Future Vol, veh/h	2	11	15	11	5	49	3	82	18	61	206	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	77	77	77	81	81	81	89	89	89
Heavy Vehicles, %	0	0	0	9	0	2	0	10	22	3	9	0
Mvmt Flow	4	23	32	14	6	64	4	101	22	69	231	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	525	501	232	518	491	112	233	0	0	123	0	0
Stage 1	370	370	-	120	120	-	-	-	-	-	-	-
Stage 2	155	131	-	398	371	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	466	475	812	457	481	941	1346	-	-	1458	-	-
Stage 1	654	624	-	868	800	-	-	-	-	-	-	-
Stage 2	852	792	-	614	623	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	411	448	812	404	454	941	1346	-	-	1458	-	-
Mov Cap-2 Maneuver	411	448	-	404	454	-	-	-	-	-	-	-
Stage 1	652	590	-	865	798	-	-	-	-	-	-	-
Stage 2	786	790	-	536	589	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	10.7	0.2	1.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1346	-	-	585	720	1458	-	-
HCM Lane V/C Ratio	0.003	-	-	0.102	0.117	0.047	-	-
HCM Control Delay (s)	7.7	0	-	11.9	10.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0.1	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	233	5	1	76	7	47
Future Volume (vph)	233	5	1	76	7	47
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1829	0	926	1696	1625	1625
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1829	0	926	1696	1625	1625
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.79	0.79	0.88	0.88	0.41	0.41
Heavy Vehicles (%)	6%	20%	100%	15%	14%	2%
Adj. Flow (vph)	295	6	1	86	17	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	301	0	1	86	17	115
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	2			22	-2	
Crosswalk Width(ft)	76			40	46	
Two way Left Turn Lane						
Headway Factor	0.97	0.82	0.97	0.97	0.97	0.97
Turning Speed (mph)		60	15		60	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	233	5	1	76	7	47
Future Vol, veh/h	233	5	1	76	7	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	88	88	41	41
Heavy Vehicles, %	6	20	100	15	14	2
Mvmt Flow	295	6	1	86	17	115

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	301	0	386	298
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	-	-	5.1	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	3.1	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	861	-	594	741
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	861	-	593	741
Mov Cap-2 Maneuver	-	-	-	-	593	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	593	741	-	-	861	-
HCM Lane V/C Ratio	0.029	0.155	-	-	0.001	-
HCM Control Delay (s)	11.3	10.7	-	-	9.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.5	-	-	0	-

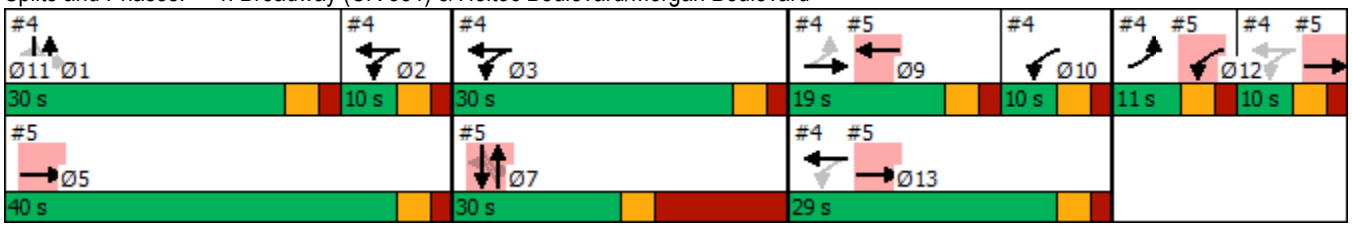
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	92	7	158	6	37	2	33	47	126	145	2
Future Volume (vph)	3	92	7	158	6	37	2	33	47	126	145	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.872				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1393	3664	0	1799	2842	0	1852	1696	1228	1781	1827	0
Flt Permitted	0.714			0.666			0.502			0.734		
Satd. Flow (perm)	1047	3664	0	1261	2842	0	979	1696	1228	1376	1827	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		5			53							
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		454			173			434			525	
Travel Time (s)		12.4			4.7			11.8			14.3	
Peak Hour Factor	0.73	0.73	0.73	0.70	0.70	0.70	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	33%	0%	0%	3%	0%	16%	0%	15%	35%	4%	6%	50%
Adj. Flow (vph)	4	126	10	226	9	53	2	35	51	142	163	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	136	0	226	62	0	2	35	51	142	165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		-2			2			-6			6	
Crosswalk Width(ft)		36			42			32			30	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	-10	-10		-10	-10		-10	-10	-10	-10	-10	
Detector 1 Position(ft)	-10	-10		-10	-10		-10	-10	-10	-10	-10	
Detector 1 Size(ft)	60	60		60	60		60	60	60	60	60	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Number of Detectors							
Detector Template							
Leading Detector (ft)							
Trailing Detector (ft)							
Detector 1 Position(ft)							
Detector 1 Size(ft)							
Detector 1 Type							
Detector 1 Channel							
Detector 1 Extend (s)							
Detector 1 Queue (s)							
Detector 1 Delay (s)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.5	10.0	22.5	10.0	10.0	10.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.0	19.0					30.0	30.0	30.0	30.0	30.0	
Total Split (%)	9.2%	15.8%					25.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	6.0	14.0					25.0	25.0	25.0	25.0	25.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	16.2	10.3		61.0	69.4		16.9	16.9	16.9	16.9	16.9	
Actuated g/C Ratio	0.16	0.10		0.60	0.68		0.17	0.17	0.17	0.17	0.17	
v/c Ratio	0.02	0.36		0.23	0.03		0.01	0.12	0.25	0.62	0.54	
Control Delay	30.3	46.1		4.2	0.2		37.5	38.4	41.4	53.0	46.9	
Queue Delay	0.0	0.0		0.5	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	46.1		4.7	0.2		37.5	38.4	41.4	53.0	46.9	
LOS	C	D		A	A		D	D	D	D	D	
Approach Delay		45.7			3.7			40.2			49.7	
Approach LOS		D			A			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 31.9		Intersection LOS: C	
Intersection Capacity Utilization 37.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard



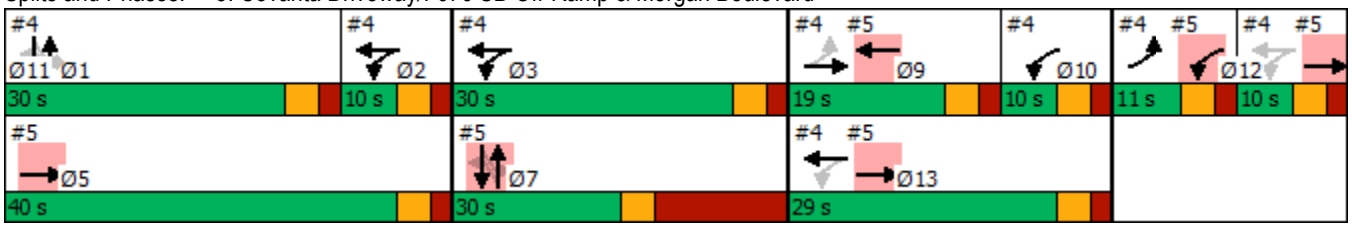
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	265	1	8	60	0	1	0	19	170	1	140
Future Volume (vph)	0	265	1	8	60	0	1	0	19	170	1	140
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.872			0.851	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	3422	0	985	3463	0	0	1089	0	1781	1596	0
Flt Permitted				0.950				0.964		0.734		
Satd. Flow (perm)	0	3422	0	985	3463	0	0	1053	0	1376	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								245			184	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.81	0.81	0.81	0.77	0.77	0.77	0.56	0.56	0.56	0.76	0.76	0.76
Heavy Vehicles (%)	0%	8%	100%	88%	7%	0%	100%	0%	53%	4%	0%	4%
Adj. Flow (vph)	0	327	1	10	78	0	2	0	34	224	1	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	10	78	0	0	36	0	224	185	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			12	
Link Offset(ft)		0			-4			0			4	
Crosswalk Width(ft)		16			38			22			26	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1		1	1		1	1	
Detector Template		Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		50		50	50		50	50		50	50	
Trailing Detector (ft)		-10		-10	-10		-10	-10		-10	-10	
Detector 1 Position(ft)		-10		-10	-10		-10	-10		-10	-10	
Detector 1 Size(ft)		60		60	60		60	60		60	60	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	

Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Enter Blocked Intersection							
Lane Alignment							
Median Width(ft)							
Link Offset(ft)							
Crosswalk Width(ft)							
Two way Left Turn Lane							
Headway Factor							
Turning Speed (mph)							
Number of Detectors							
Detector Template							
Leading Detector (ft)							
Trailing Detector (ft)							
Detector 1 Position(ft)							
Detector 1 Size(ft)							
Detector 1 Type							
Detector 1 Channel							
Detector 1 Extend (s)							
Detector 1 Queue (s)							
Detector 1 Delay (s)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.5	10.0	10.0	10.0	10.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				11.0	19.0		30.0	30.0		30.0	30.0	
Total Split (%)				9.2%	15.8%		25.0%	25.0%		25.0%	25.0%	
Maximum Green (s)				6.0	14.0		15.0	15.0		15.0	15.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		61.0		6.0	10.3			15.2		15.2	15.2	
Actuated g/C Ratio		0.60		0.06	0.10			0.15		0.15	0.15	
v/c Ratio		0.16		0.18	0.22			0.10		1.10	0.47	
Control Delay		0.6		59.1	46.5			0.6		133.9	11.3	
Queue Delay		0.2		0.0	0.0			0.0		0.0	0.0	
Total Delay		0.8		59.1	46.5			0.6		133.9	11.3	
LOS		A		E	D			A		F	B	
Approach Delay		0.8			47.9			0.6			78.4	
Approach LOS		A			D			A			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 42.5		Intersection LOS: D	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard

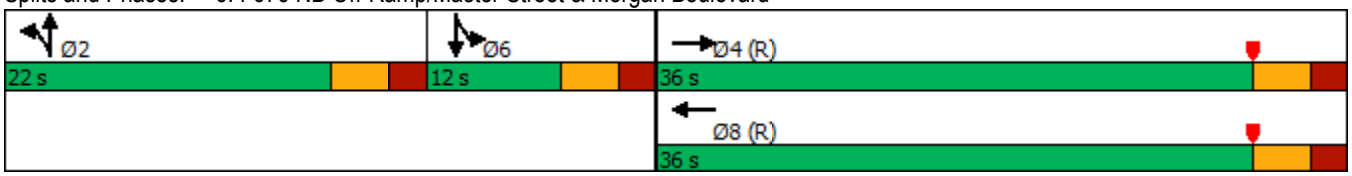


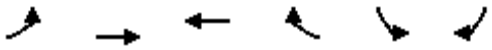
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	228	0	0	211	15	36	99	0	29	0	139
Future Volume (vph)	0	228	0	0	211	15	36	99	0	29	0	139
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.990						0.888	
Flt Protected							0.950	0.998			0.991	
Satd. Flow (prot)	0	3431	0	0	3443	0	1443	1784	0	0	1616	0
Flt Permitted							0.950	0.998			0.991	
Satd. Flow (perm)	0	3431	0	0	3443	0	1443	1784	0	0	1616	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13						153	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.84	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	0%	8%	0%	0%	7%	0%	22%	3%	0%	7%	0%	6%
Adj. Flow (vph)	0	238	0	0	224	16	43	118	0	32	0	153
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	238	0	0	240	0	39	122	0	0	185	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			24			-2	
Crosswalk Width(ft)		20			26			24			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0			0		1	1		1	1	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (ft)		0			0		50	50		50	50	
Trailing Detector (ft)		0			0		-10	-10		-10	-10	
Detector 1 Position(ft)		-10			-10		-10	-10		-10	-10	
Detector 1 Size(ft)		60			60		60	60		60	60	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		38.6			38.6		11.2	11.2			8.1	
Actuated g/C Ratio		0.55			0.55		0.16	0.16			0.12	
v/c Ratio		0.13			0.13		0.17	0.43			0.57	
Control Delay		9.6			9.1		26.5	31.0			15.6	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		9.6			9.1		26.5	31.0			15.6	
LOS		A			A		C	C			B	
Approach Delay		9.6			9.1			29.9			15.6	
Approach LOS		A			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 43.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	25	0	0	77	0
Future Volume (vph)	0	25	0	0	77	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1912	3632	0	1816	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1912	3632	0	1816	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		66	454		187	
Travel Time (s)		1.8	12.4		5.1	
Peak Hour Factor	0.73	0.73	0.70	0.70	0.92	0.92
Adj. Flow (vph)	0	34	0	0	84	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	34	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	0.97	0.97	0.97	0.97
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	0	0	77	0
Future Vol, veh/h	0	25	0	0	77	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	70	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	0	84	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	35	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1621	-	-	-	976	1083
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1621	-	-	-	976	1083
Mov Cap-2 Maneuver	-	-	-	-	976	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1621	-	-	-	976
HCM Lane V/C Ratio	-	-	-	-	0.086
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX C

2024 No-Build Synchro Analysis Worksheets

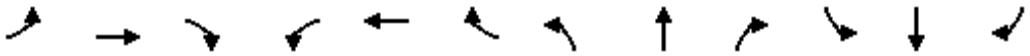
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	27	1	1	5	6	146	1	2	92	1
Future Volume (vph)	4	4	27	1	1	5	6	146	1	2	92	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.896			0.904			0.999			0.999	
Flt Protected		0.994			0.993			0.998			0.999	
Satd. Flow (prot)	0	1635	0	0	1984	0	0	1928	0	0	1893	0
Flt Permitted		0.967			0.960			0.993			0.998	
Satd. Flow (perm)	0	1591	0	0	1918	0	0	1918	0	0	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			10			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	25%	25%	19%	0%	0%	0%	0%	15%	0%	0%	17%	0%
Adj. Flow (vph)	9	9	60	2	2	10	7	164	1	2	103	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	14	0	0	172	0	0	106	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.28			0.05			0.13			0.08	
Control Delay		14.1			17.7			3.4			3.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.1			17.7			3.4			3.2	
LOS		B			B			A			A	
Approach Delay		14.1			17.7			3.4			3.2	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			2			18			11	
Queue Length 95th (ft)		8			7			33			22	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		278			282			1370			1351	
Starvation Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.05			0.13			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

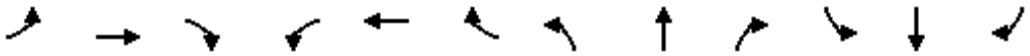




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	27	1	1	5	6	146	1	2	92	1
Future Volume (veh/h)	4	4	27	1	1	5	6	146	1	2	92	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1570	1633	1661	1950	2028	1950	1950	1791	1950	1950	1759	1950
Adj Flow Rate, veh/h	9	9	60	2	2	10	7	164	1	2	103	1
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	25	25	19	0	0	0	0	15	0	0	17	0
Cap, veh/h	68	36	155	71	60	180	73	1241	7	57	1235	12
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	72	254	1085	86	417	1259	28	1737	10	7	1729	17
Grp Volume(v), veh/h	78	0	0	14	0	0	172	0	0	106	0	0
Grp Sat Flow(s),veh/h/ln	1411	0	0	1763	0	0	1775	0	0	1752	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.5	0.0	0.0	2.1	0.0	0.0	1.3	0.0	0.0
Prop In Lane	0.12		0.77	0.14		0.71	0.04		0.01	0.02		0.01
Lane Grp Cap(c), veh/h	259	0	0	311	0	0	1322	0	0	1304	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.05	0.00	0.00	0.13	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	259	0	0	311	0	0	1322	0	0	1304	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	25.9	0.0	0.0	3.2	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	26.2	0.0	0.0	3.4	0.0	0.0	3.2	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		78			14			172			106	
Approach Delay, s/veh		30.2			26.2			3.4			3.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	7	4	7	13	51	5	100	8	38	84	1
Future Volume (vph)	2	7	4	7	13	51	5	100	8	38	84	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.903			0.990			0.999	
Flt Protected		0.994			0.995			0.998			0.985	
Satd. Flow (prot)	0	1952	0	0	1739	0	0	1897	0	0	1861	0
Flt Permitted		0.994			0.995			0.998			0.985	
Satd. Flow (perm)	0	1952	0	0	1739	0	0	1897	0	0	1861	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.81	0.81	0.81	0.76	0.76	0.76	0.90	0.90	0.90	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	25%	29%	15%	12%	40%	15%	0%	8%	21%	0%
Adj. Flow (vph)	2	9	5	9	17	67	6	111	9	47	104	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	93	0	0	126	0	0	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	7	4	7	13	51	5	100	8	38	84	1
Future Vol, veh/h	2	7	4	7	13	51	5	100	8	38	84	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	76	76	76	90	90	90	81	81	81
Heavy Vehicles, %	0	0	25	29	15	12	40	15	0	8	21	0
Mvmt Flow	2	9	5	9	17	67	6	111	9	47	104	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	369	331	105	334	327	116	105	0	0	120	0	0
Stage 1	199	199	-	128	128	-	-	-	-	-	-	-
Stage 2	170	132	-	206	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.39	6.65	6.32	4.5	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.761	4.135	3.408	2.56	-	-	2.272	-	-
Pot Cap-1 Maneuver	591	592	890	571	571	910	1280	-	-	1431	-	-
Stage 1	807	740	-	815	766	-	-	-	-	-	-	-
Stage 2	837	791	-	738	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	518	568	890	544	548	910	1280	-	-	1431	-	-
Mov Cap-2 Maneuver	518	568	-	544	548	-	-	-	-	-	-	-
Stage 1	803	714	-	811	762	-	-	-	-	-	-	-
Stage 2	754	787	-	700	688	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	10.4	0.3	2.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1280	-	-	629	766	1431	-	-
HCM Lane V/C Ratio	0.004	-	-	0.026	0.122	0.033	-	-
HCM Control Delay (s)	7.8	0	-	10.9	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	94	5	42	106	7	9
Future Volume (vph)	94	5	42	106	7	9
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1613	0	1684	1726	1295	1246
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1613	0	1684	1726	1295	1246
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.81	0.81	0.75	0.75	0.80	0.80
Heavy Vehicles (%)	19%	40%	10%	13%	43%	33%
Adj. Flow (vph)	116	6	56	141	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	56	141	9	11
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.9%		ICU Level of Service A	
Analysis Period (min) 15			

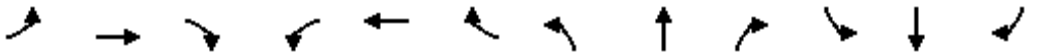
Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	5	42	106	7	9
Future Vol, veh/h	94	5	42	106	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	75	75	80	80
Heavy Vehicles, %	19	40	10	13	43	33
Mvmt Flow	116	6	56	141	9	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	122	0	372	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.2	-	6.83	6.53
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.29	-	3.887	3.597
Pot Cap-1 Maneuver	-	-	1417	-	555	855
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1417	-	533	855
Mov Cap-2 Maneuver	-	-	-	-	533	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	533	855	-	-	1417	-
HCM Lane V/C Ratio	0.016	0.013	-	-	0.04	-
HCM Control Delay (s)	11.9	9.3	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	1	72	79	75	3	79	57	67	22	1
Future Volume (vph)	2	6	1	72	79	75	3	79	57	67	22	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.927				0.850		0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1852	3164	0	1278	3171	0	1852	1773	1237	1531	1587	0
Flt Permitted	0.628			0.751			0.738			0.701		
Satd. Flow (perm)	1225	3164	0	1010	3171	0	1439	1773	1237	1130	1587	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		1			96						1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		444			173			434			525	
Travel Time (s)		12.1			4.7			11.8			14.3	
Peak Hour Factor	0.75	0.75	0.75	0.78	0.78	0.78	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	0%	17%	0%	45%	1%	16%	0%	10%	34%	21%	23%	0%
Adj. Flow (vph)	3	8	1	92	101	96	3	86	62	87	29	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	9	0	92	197	0	3	86	62	87	30	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					30.0	30.0	30.0	30.0	30.0	
Total Split (%)	9.2%	15.8%					25.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	6.0	14.0					25.0	25.0	25.0	25.0	25.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	18.8	12.7		61.0	68.5		14.6	14.6	14.6	14.6	14.6	
Actuated g/C Ratio	0.18	0.12		0.60	0.67		0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.01	0.02		0.13	0.09		0.01	0.34	0.35	0.54	0.13	
Control Delay	29.5	42.4		1.5	0.1		39.7	45.2	47.5	55.7	40.6	
Queue Delay	0.0	0.0		0.3	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.5	42.4		1.8	0.2		39.7	45.2	47.5	55.7	40.6	
LOS	C	D		A	A		D	D	D	E	D	
Approach Delay		39.2			0.7			46.0			51.8	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	30.0	10.0	10.0	29.0
Total Split (%)	8%	25%	33%	25%	8%	8%	24%
Maximum Green (s)	5.0	25.0	35.0	15.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	12.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Vehicle Extension (s)	4.0	3.0	3.0	4.0	3.0	3.0	3.0
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

HCM 6th Edition methodology does not support clustered intersections.

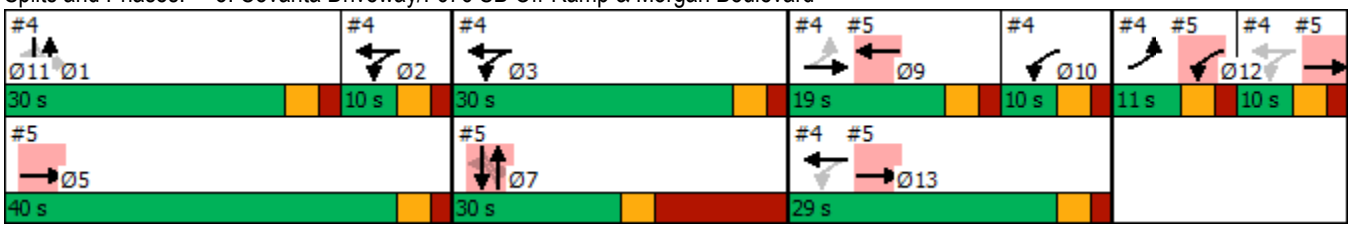
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	134	1	20	144	0	1	0	16	134	8	80
Future Volume (vph)	0	134	1	20	144	0	1	0	16	134	8	80
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.873			0.863	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	2895	0	1059	3012	0	0	901	0	1799	1433	0
Flt Permitted				0.950				0.970		0.735		
Satd. Flow (perm)	0	2895	0	1059	3012	0	0	876	0	1392	1433	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						245			93	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.75	0.75	0.75	0.69	0.69	0.69	0.50	0.50	0.50	0.86	0.86	0.86
Heavy Vehicles (%)	0%	28%	0%	75%	23%	0%	0%	0%	94%	3%	63%	13%
Adj. Flow (vph)	0	179	1	29	209	0	2	0	32	156	9	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	0	29	209	0	0	34	0	156	102	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		30.0	30.0		30.0	30.0	
Total Split (%)				9.2%	15.8%		25.0%	25.0%		25.0%	25.0%	
Maximum Green (s)				6.0	14.0		15.0	15.0		15.0	15.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		57.8		6.2	12.7			15.1		15.1	15.1	
Actuated g/C Ratio		0.57		0.06	0.12			0.15		0.15	0.15	
v/c Ratio		0.11		0.46	0.56			0.10		0.76	0.35	
Control Delay		1.2		75.3	50.9			0.6		69.5	15.4	
Queue Delay		0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay		1.3		75.3	50.9			0.6		69.5	15.4	
LOS		A		E	D			A		E	B	
Approach Delay		1.3			53.9			0.6			48.1	

Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	10.0	30.0	40.0	10.0	10.0	29.0
Total Split (%)	25%	8%	25%	33%	8%	8%	24%
Maximum Green (s)	25.0	5.0	25.0	35.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	4.0	4.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			D			A			D	
Queue Length 50th (ft)		2		20	73			0		108	6	
Queue Length 95th (ft)		3		#42	91			0		#227	52	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		1933		63	423			340		210	295	
Starvation Cap Reductn		904		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.17		0.46	0.49			0.10		0.74	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 35.9		Intersection LOS: D	
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard

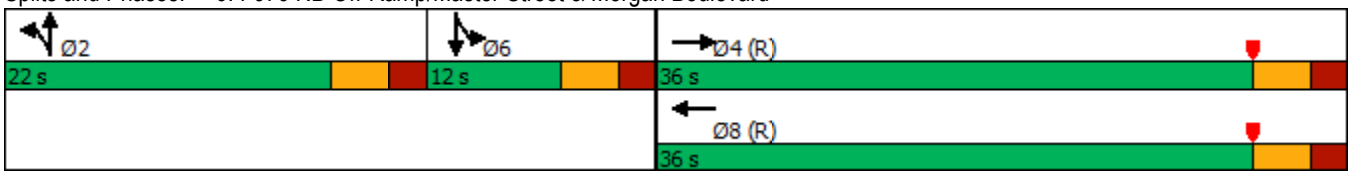


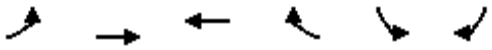
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	170	0	0	197	8	142	85	0	14	0	137
Future Volume (vph)	0	170	0	0	197	8	142	85	0	14	0	137
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.994						0.877	
Flt Protected							0.950	0.987			0.995	
Satd. Flow (prot)	0	3463	0	0	3374	0	1333	1611	0	0	1571	0
Flt Permitted							0.950	0.987			0.995	
Satd. Flow (perm)	0	3463	0	0	3374	0	1333	1611	0	0	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8						167	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.79	0.79	0.79	0.82	0.82	0.82
Heavy Vehicles (%)	0%	7%	0%	0%	9%	13%	32%	7%	0%	21%	0%	7%
Adj. Flow (vph)	0	191	0	0	243	10	180	108	0	17	0	167
Shared Lane Traffic (%)							21%					
Lane Group Flow (vph)	0	191	0	0	253	0	142	146	0	0	184	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		34.5			34.5		13.1	13.1			7.4	
Actuated g/C Ratio		0.49			0.49		0.19	0.19			0.11	
v/c Ratio		0.11			0.15		0.57	0.49			0.58	
Control Delay		10.6			10.4		34.7	30.4			15.3	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		10.6			10.4		34.7	30.4			15.3	
LOS		B			B		C	C			B	
Approach Delay		10.6			10.4			32.5			15.3	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		21			27		60	60			7	
Queue Length 95th (ft)		42			46		92	91			49	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												
Base Capacity (vph)		1707			1667		323	391			315	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.11			0.15		0.44	0.37			0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 48.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	9	0	83	0	0
Future Volume (vph)	0	9	0	83	0	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			
Flt Protected						
Satd. Flow (prot)	0	1912	3087	0	1912	0
Flt Permitted						
Satd. Flow (perm)	0	1912	3087	0	1912	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		76	444		152	
Travel Time (s)		2.1	12.1		4.1	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.75	0.75
Adj. Flow (vph)	0	12	0	106	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	106	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

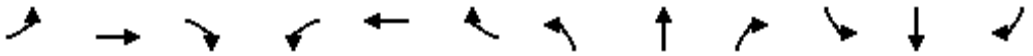
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	83	0	0
Future Vol, veh/h	0	9	0	83	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	78	78	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	106	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	65	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1484	-	-	-	937	1004
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1484	-	-	-	937	1004
Mov Cap-2 Maneuver	-	-	-	-	937	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1484	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



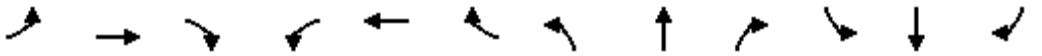
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	2	42	5	1	8	11	114	5	1	227	3
Future Volume (vph)	11	2	42	5	1	8	11	114	5	1	227	3
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.898			0.926			0.995			0.998	
Flt Protected		0.990			0.982			0.996				
Satd. Flow (prot)	0	1839	0	0	1873	0	0	2067	0	0	2083	0
Flt Permitted		0.937			0.889			0.973				
Satd. Flow (perm)	0	1741	0	0	1696	0	0	2020	0	0	2083	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			12			6			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	9%	20%	0%	0%	18%	5%	0%	0%	6%	0%
Adj. Flow (vph)	15	3	56	8	2	12	14	141	6	1	255	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	22	0	0	161	0	0	259	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.25			0.09			0.11			0.17	
Control Delay		13.8			19.0			3.2			3.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.8			19.0			3.2			3.6	
LOS		B			B			A			A	
Approach Delay		13.8			19.0			3.2			3.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			4			16			29	
Queue Length 95th (ft)		29			15			27			48	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		296			252			1444			1488	
Starvation Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.09			0.11			0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

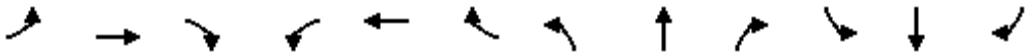




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	42	5	1	8	11	114	5	1	227	3
Future Volume (veh/h)	11	2	42	5	1	8	11	114	5	1	227	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	2028	1813	1646	2028	1950	1676	1949	1950	1950	1933	1950
Adj Flow Rate, veh/h	15	3	56	8	2	12	14	141	6	1	255	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	20	0	0	18	5	0	0	6	0
Cap, veh/h	87	34	187	128	52	132	126	1213	50	52	1361	16
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	179	241	1306	404	364	921	99	1698	70	1	1905	22
Grp Volume(v), veh/h	74	0	0	22	0	0	161	0	0	259	0	0
Grp Sat Flow(s),veh/h/ln	1726	0	0	1689	0	0	1866	0	0	1929	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.7	0.0	0.0	1.8	0.0	0.0	3.1	0.0	0.0
Prop In Lane	0.20		0.76	0.36		0.55	0.09		0.04	0.00		0.01
Lane Grp Cap(c), veh/h	308	0	0	311	0	0	1389	0	0	1429	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.07	0.00	0.00	0.12	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	308	0	0	311	0	0	1389	0	0	1429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	26.0	0.0	0.0	3.1	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	26.5	0.0	0.0	3.3	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		74			22			161			259	
Approach Delay, s/veh		28.7			26.5			3.3			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	11	15	11	5	50	3	84	18	62	210	2
Future Volume (vph)	2	11	15	11	5	50	3	84	18	62	210	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.927			0.897			0.977			0.999	
Flt Protected		0.997			0.992			0.998			0.989	
Satd. Flow (prot)	0	2043	0	0	1909	0	0	1929	0	0	2030	0
Flt Permitted		0.997			0.992			0.998			0.989	
Satd. Flow (perm)	0	2043	0	0	1909	0	0	1929	0	0	2030	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.47	0.47	0.47	0.77	0.77	0.77	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	9%	0%	2%	0%	10%	22%	3%	9%	0%
Adj. Flow (vph)	4	23	32	14	6	65	4	104	22	70	236	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	85	0	0	130	0	0	308	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	11	15	11	5	50	3	84	18	62	210	2
Future Vol, veh/h	2	11	15	11	5	50	3	84	18	62	210	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	77	77	77	81	81	81	89	89	89
Heavy Vehicles, %	0	0	0	9	0	2	0	10	22	3	9	0
Mvmt Flow	4	23	32	14	6	65	4	104	22	70	236	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	536	511	237	528	501	115	238	0	0	126	0	0
Stage 1	377	377	-	123	123	-	-	-	-	-	-	-
Stage 2	159	134	-	405	378	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	459	469	807	450	475	937	1341	-	-	1454	-	-
Stage 1	649	619	-	864	798	-	-	-	-	-	-	-
Stage 2	848	789	-	609	619	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	403	441	807	396	447	937	1341	-	-	1454	-	-
Mov Cap-2 Maneuver	403	441	-	396	447	-	-	-	-	-	-	-
Stage 1	647	584	-	861	796	-	-	-	-	-	-	-
Stage 2	780	787	-	530	584	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	10.7	0.2	1.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1341	-	-	577	715	1454	-	-
HCM Lane V/C Ratio	0.003	-	-	0.103	0.12	0.048	-	-
HCM Control Delay (s)	7.7	0	-	12	10.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0.2	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	238	5	1	78	7	48
Future Volume (vph)	238	5	1	78	7	48
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1829	0	926	1696	1625	1625
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1829	0	926	1696	1625	1625
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.79	0.79	0.88	0.88	0.41	0.41
Heavy Vehicles (%)	6%	20%	100%	15%	14%	2%
Adj. Flow (vph)	301	6	1	89	17	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	307	0	1	89	17	117
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

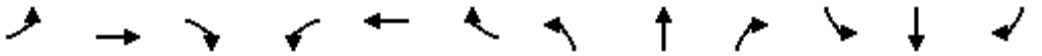
Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	5	1	78	7	48
Future Vol, veh/h	238	5	1	78	7	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	88	88	41	41
Heavy Vehicles, %	6	20	100	15	14	2
Mvmt Flow	301	6	1	89	17	117

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	307	0	395	304
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	5.1	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	3.1	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	855	-	587	736
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	855	-	586	736
Mov Cap-2 Maneuver	-	-	-	-	586	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	586	736	-	-	855	-
HCM Lane V/C Ratio	0.029	0.159	-	-	0.001	-
HCM Control Delay (s)	11.3	10.8	-	-	9.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	94	7	161	6	38	2	34	48	129	148	2
Future Volume (vph)	3	94	7	161	6	38	2	34	48	129	148	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.871				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1393	3664	0	1799	2838	0	1852	1696	1228	1781	1827	0
Flt Permitted	0.714			0.664			0.495			0.733		
Satd. Flow (perm)	1047	3664	0	1257	2838	0	965	1696	1228	1374	1827	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		5			54							
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		444			173			434			525	
Travel Time (s)		12.1			4.7			11.8			14.3	
Peak Hour Factor	0.73	0.73	0.73	0.70	0.70	0.70	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	33%	0%	0%	3%	0%	16%	0%	15%	35%	4%	6%	50%
Adj. Flow (vph)	4	129	10	230	9	54	2	37	52	145	166	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	139	0	230	63	0	2	37	52	145	168	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					30.0	30.0	30.0	30.0	30.0	
Total Split (%)	9.2%	15.8%					25.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	6.0	14.0					25.0	25.0	25.0	25.0	25.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	16.3	10.4		61.1	69.5		17.1	17.1	17.1	17.1	17.1	
Actuated g/C Ratio	0.16	0.10		0.60	0.68		0.17	0.17	0.17	0.17	0.17	
v/c Ratio	0.02	0.37		0.24	0.03		0.01	0.13	0.25	0.63	0.55	
Control Delay	30.3	46.3		4.3	0.2		37.5	38.5	41.5	53.4	47.0	
Queue Delay	0.0	0.0		0.5	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	46.3		4.8	0.2		37.5	38.5	41.5	53.4	47.0	
LOS	C	D		A	A		D	D	D	D	D	
Approach Delay		45.9			3.8			40.2			50.0	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	30.0	10.0	10.0	29.0
Total Split (%)	8%	25%	33%	25%	8%	8%	24%
Maximum Green (s)	5.0	25.0	35.0	15.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	12.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Vehicle Extension (s)	4.0	3.0	3.0	4.0	3.0	3.0	3.0
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			A			D			D	
Queue Length 50th (ft)	2	41		26	0		1	19	28	83	95	
Queue Length 95th (ft)	9	66		29	0		9	54	71	166	181	
Internal Link Dist (ft)		364			93			354			445	
Turn Bay Length (ft)	190			100			315			375		
Base Capacity (vph)	188	512		965	1950		238	420	304	340	452	
Starvation Cap Reductn	0	0		397	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.27		0.40	0.03		0.01	0.09	0.17	0.43	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	270	1	8	61	0	1	0	19	173	1	143
Future Volume (vph)	0	270	1	8	61	0	1	0	19	173	1	143
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.872			0.851	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	3422	0	985	3463	0	0	1089	0	1781	1596	0
Flt Permitted				0.950				0.964		0.734		
Satd. Flow (perm)	0	3422	0	985	3463	0	0	1053	0	1376	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								245			188	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.81	0.81	0.81	0.77	0.77	0.77	0.56	0.56	0.56	0.76	0.76	0.76
Heavy Vehicles (%)	0%	8%	100%	88%	7%	0%	100%	0%	53%	4%	0%	4%
Adj. Flow (vph)	0	333	1	10	79	0	2	0	34	228	1	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	10	79	0	0	36	0	228	189	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		30.0	30.0		30.0	30.0	
Total Split (%)				9.2%	15.8%		25.0%	25.0%		25.0%	25.0%	
Maximum Green (s)				6.0	14.0		15.0	15.0		15.0	15.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		61.3		6.0	10.4			15.2		15.2	15.2	
Actuated g/C Ratio		0.60		0.06	0.10			0.15		0.15	0.15	
v/c Ratio		0.16		0.18	0.23			0.10		1.12	0.48	
Control Delay		0.6		59.2	46.6			0.6		140.5	11.3	
Queue Delay		0.2		0.0	0.0			0.0		0.0	0.0	
Total Delay		0.8		59.2	46.6			0.6		140.5	11.3	
LOS		A		E	D			A		F	B	
Approach Delay		0.8			48.0			0.6			81.9	

Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	30.0	10.0	30.0	40.0	10.0	10.0	29.0
Total Split (%)	25%	8%	25%	33%	8%	8%	24%
Maximum Green (s)	25.0	5.0	25.0	35.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	4.0	4.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

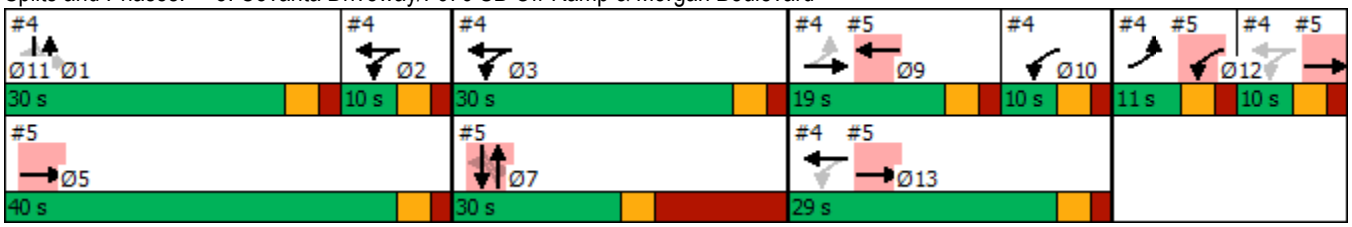
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			D			A			F	
Queue Length 50th (ft)		1		6	23			0		~156	1	
Queue Length 95th (ft)		1		23	46			0		#306	35	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		2330		58	480			365		204	397	
Starvation Cap Reductn		1290		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.32		0.17	0.16			0.10		1.12	0.48	

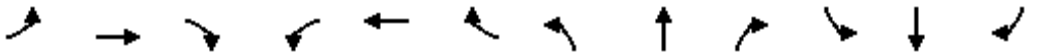
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 44.2		Intersection LOS: D	
Intersection Capacity Utilization 40.0%		ICU Level of Service A	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard



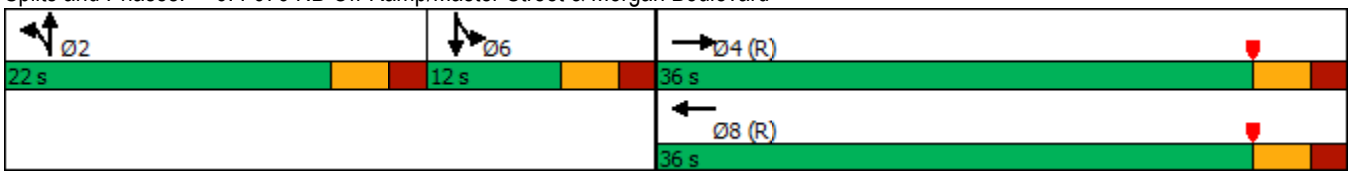


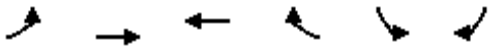
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	233	0	0	215	15	37	101	0	30	0	142
Future Volume (vph)	0	233	0	0	215	15	37	101	0	30	0	142
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.990						0.889	
Flt Protected							0.950	0.998			0.991	
Satd. Flow (prot)	0	3431	0	0	3443	0	1443	1784	0	0	1618	0
Flt Permitted							0.950	0.998			0.991	
Satd. Flow (perm)	0	3431	0	0	3443	0	1443	1784	0	0	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13						156	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.84	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	0%	8%	0%	0%	7%	0%	22%	3%	0%	7%	0%	6%
Adj. Flow (vph)	0	243	0	0	229	16	44	120	0	33	0	156
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	243	0	0	245	0	40	124	0	0	189	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		38.6			38.6		11.3	11.3			8.2	
Actuated g/C Ratio		0.55			0.55		0.16	0.16			0.12	
v/c Ratio		0.13			0.13		0.17	0.43			0.58	
Control Delay		9.6			9.1		26.4	31.0			15.7	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		9.6			9.1		26.4	31.0			15.7	
LOS		A			A		C	C			B	
Approach Delay		9.6			9.1			29.9			15.7	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		25			24		15	52			13	
Queue Length 95th (ft)		52			50		37	88			67	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												
Base Capacity (vph)		1890			1902		350	433			326	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.13			0.13		0.11	0.29			0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	25	0	0	79	0
Future Volume (vph)	0	25	0	0	79	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1912	3632	0	1816	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1912	3632	0	1816	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		76	444		152	
Travel Time (s)		2.1	12.1		4.1	
Peak Hour Factor	0.73	0.73	0.70	0.70	0.73	0.92
Adj. Flow (vph)	0	34	0	0	108	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	34	0	0	108	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	0	0	79	0
Future Vol, veh/h	0	25	0	0	79	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	70	70	73	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	0	108	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	35	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1621	-	-	-	976	1083
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1621	-	-	-	976	1083
Mov Cap-2 Maneuver	-	-	-	-	976	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-

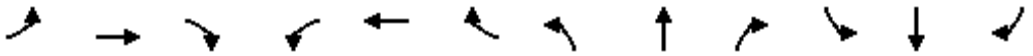
Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1621	-	-	-	976
HCM Lane V/C Ratio	-	-	-	-	0.111
HCM Control Delay (s)	0	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX D

2024 No-Build - Optimized Synchro Analysis Worksheets

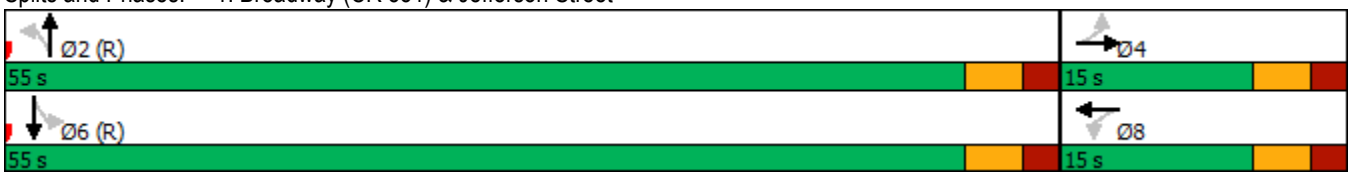


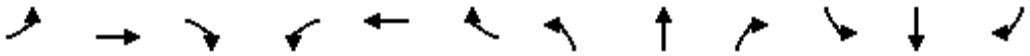
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	27	1	1	5	6	146	1	2	92	1
Future Volume (vph)	4	4	27	1	1	5	6	146	1	2	92	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.896			0.904			0.999			0.999	
Flt Protected		0.994			0.993			0.998			0.999	
Satd. Flow (prot)	0	1635	0	0	1984	0	0	1928	0	0	1893	0
Flt Permitted		0.967			0.960			0.993			0.998	
Satd. Flow (perm)	0	1591	0	0	1918	0	0	1918	0	0	1891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			10			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	25%	25%	19%	0%	0%	0%	0%	15%	0%	0%	17%	0%
Adj. Flow (vph)	9	9	60	2	2	10	7	164	1	2	103	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	14	0	0	172	0	0	106	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.28			0.05			0.13			0.08	
Control Delay		14.1			17.7			3.4			3.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.1			17.7			3.4			3.2	
LOS		B			B			A			A	
Approach Delay		14.1			17.7			3.4			3.2	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			2			18			11	
Queue Length 95th (ft)		8			7			33			22	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		278			282			1370			1351	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.05			0.13			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

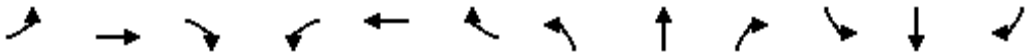




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	27	1	1	5	6	146	1	2	92	1
Future Volume (veh/h)	4	4	27	1	1	5	6	146	1	2	92	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1570	1633	1661	1950	2028	1950	1950	1791	1950	1950	1759	1950
Adj Flow Rate, veh/h	9	9	60	2	2	10	7	164	1	2	103	1
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	25	25	19	0	0	0	0	15	0	0	17	0
Cap, veh/h	68	36	155	71	60	180	73	1241	7	57	1235	12
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	72	254	1085	86	417	1259	28	1737	10	7	1729	17
Grp Volume(v), veh/h	78	0	0	14	0	0	172	0	0	106	0	0
Grp Sat Flow(s),veh/h/ln	1411	0	0	1763	0	0	1775	0	0	1752	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.5	0.0	0.0	2.1	0.0	0.0	1.3	0.0	0.0
Prop In Lane	0.12		0.77	0.14		0.71	0.04		0.01	0.02		0.01
Lane Grp Cap(c), veh/h	259	0	0	311	0	0	1322	0	0	1304	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.05	0.00	0.00	0.13	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	259	0	0	311	0	0	1322	0	0	1304	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	25.9	0.0	0.0	3.2	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	26.2	0.0	0.0	3.4	0.0	0.0	3.2	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		78			14			172			106	
Approach Delay, s/veh		30.2			26.2			3.4			3.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	7	4	7	13	51	5	100	8	38	84	1
Future Volume (vph)	2	7	4	7	13	51	5	100	8	38	84	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.903			0.990			0.999	
Flt Protected		0.994			0.995			0.998			0.985	
Satd. Flow (prot)	0	1952	0	0	1739	0	0	1897	0	0	1861	0
Flt Permitted		0.994			0.995			0.998			0.985	
Satd. Flow (perm)	0	1952	0	0	1739	0	0	1897	0	0	1861	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.81	0.81	0.81	0.76	0.76	0.76	0.90	0.90	0.90	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	25%	29%	15%	12%	40%	15%	0%	8%	21%	0%
Adj. Flow (vph)	2	9	5	9	17	67	6	111	9	47	104	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	93	0	0	126	0	0	152	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	7	4	7	13	51	5	100	8	38	84	1
Future Vol, veh/h	2	7	4	7	13	51	5	100	8	38	84	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	76	76	76	90	90	90	81	81	81
Heavy Vehicles, %	0	0	25	29	15	12	40	15	0	8	21	0
Mvmt Flow	2	9	5	9	17	67	6	111	9	47	104	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	369	331	105	334	327	116	105	0	0	120	0	0
Stage 1	199	199	-	128	128	-	-	-	-	-	-	-
Stage 2	170	132	-	206	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.39	6.65	6.32	4.5	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.761	4.135	3.408	2.56	-	-	2.272	-	-
Pot Cap-1 Maneuver	591	592	890	571	571	910	1280	-	-	1431	-	-
Stage 1	807	740	-	815	766	-	-	-	-	-	-	-
Stage 2	837	791	-	738	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	518	568	890	544	548	910	1280	-	-	1431	-	-
Mov Cap-2 Maneuver	518	568	-	544	548	-	-	-	-	-	-	-
Stage 1	803	714	-	811	762	-	-	-	-	-	-	-
Stage 2	754	787	-	700	688	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	10.4	0.3	2.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1280	-	-	629	766	1431	-	-
HCM Lane V/C Ratio	0.004	-	-	0.026	0.122	0.033	-	-
HCM Control Delay (s)	7.8	0	-	10.9	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	94	5	42	106	7	9
Future Volume (vph)	94	5	42	106	7	9
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1613	0	1684	1726	1295	1246
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1613	0	1684	1726	1295	1246
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.81	0.81	0.75	0.75	0.80	0.80
Heavy Vehicles (%)	19%	40%	10%	13%	43%	33%
Adj. Flow (vph)	116	6	56	141	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	56	141	9	11
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.9%		ICU Level of Service A	
Analysis Period (min) 15			

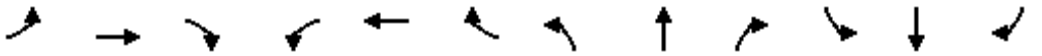
Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	5	42	106	7	9
Future Vol, veh/h	94	5	42	106	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	75	75	80	80
Heavy Vehicles, %	19	40	10	13	43	33
Mvmt Flow	116	6	56	141	9	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	122	0	372	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.2	-	6.83	6.53
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.29	-	3.887	3.597
Pot Cap-1 Maneuver	-	-	1417	-	555	855
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1417	-	533	855
Mov Cap-2 Maneuver	-	-	-	-	533	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	533	855	-	-	1417	-
HCM Lane V/C Ratio	0.016	0.013	-	-	0.04	-
HCM Control Delay (s)	11.9	9.3	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-



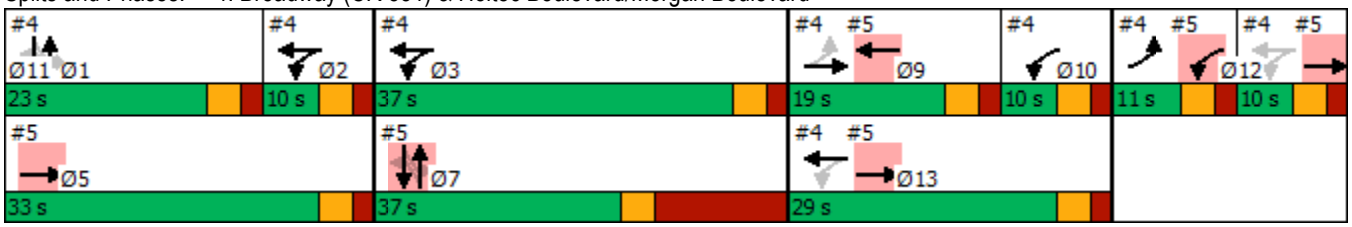
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	1	72	79	75	3	79	57	67	22	1
Future Volume (vph)	2	6	1	72	79	75	3	79	57	67	22	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.927				0.850		0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1852	3164	0	1278	3171	0	1852	1773	1237	1531	1587	0
Flt Permitted	0.628			0.751			0.738			0.701		
Satd. Flow (perm)	1225	3164	0	1010	3171	0	1439	1773	1237	1130	1587	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		1			96						1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		444			173			434			525	
Travel Time (s)		12.1			4.7			11.8			14.3	
Peak Hour Factor	0.75	0.75	0.75	0.78	0.78	0.78	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	0%	17%	0%	45%	1%	16%	0%	10%	34%	21%	23%	0%
Adj. Flow (vph)	3	8	1	92	101	96	3	86	62	87	29	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	9	0	92	197	0	3	86	62	87	30	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					23.0	23.0	23.0	23.0	23.0	
Total Split (%)	9.2%	15.8%					19.2%	19.2%	19.2%	19.2%	19.2%	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	18.9	12.7		63.5	71.3		13.9	13.9	13.9	13.9	13.9	
Actuated g/C Ratio	0.18	0.12		0.61	0.69		0.13	0.13	0.13	0.13	0.13	
v/c Ratio	0.01	0.02		0.13	0.09		0.02	0.36	0.38	0.58	0.14	
Control Delay	31.0	44.3		1.4	0.1		43.7	49.3	52.0	62.0	44.3	
Queue Delay	0.0	0.0		0.3	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	44.3		1.7	0.3		43.7	49.3	52.0	62.0	44.3	
LOS	C	D		A	A		D	D	D	E	D	
Approach Delay		41.0			0.7			50.3			57.5	
Approach LOS		D			A			D			E	
Queue Length 50th (ft)	2	2		4	0		2	58	42	61	19	

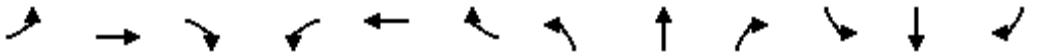
Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0
Total Split (s)	10.0	37.0	33.0	37.0	10.0	10.0	29.0
Total Split (%)	8%	31%	28%	31%	8%	8%	24%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	12.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	8	9		4	0		11	112	89	100	42	
Internal Link Dist (ft)		364			93			354			445	
Turn Bay Length (ft)	190			100			315			375		
Base Capacity (vph)	260	442		772	2211		258	318	221	202	285	
Starvation Cap Reductn	0	0		361	1382		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.01	0.02		0.22	0.24		0.01	0.27	0.28	0.43	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 26.4		Intersection LOS: C	
Intersection Capacity Utilization 30.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	134	1	20	144	0	1	0	16	134	8	80
Future Volume (vph)	0	134	1	20	144	0	1	0	16	134	8	80
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.873			0.863	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	2895	0	1059	3012	0	0	901	0	1799	1433	0
Flt Permitted				0.950				0.970		0.735		
Satd. Flow (perm)	0	2895	0	1059	3012	0	0	876	0	1392	1433	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						245			93	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.75	0.75	0.75	0.69	0.69	0.69	0.50	0.50	0.50	0.86	0.86	0.86
Heavy Vehicles (%)	0%	28%	0%	75%	23%	0%	0%	0%	94%	3%	63%	13%
Adj. Flow (vph)	0	179	1	29	209	0	2	0	32	156	9	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	0	29	209	0	0	34	0	156	102	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		37.0	37.0		37.0	37.0	
Total Split (%)				9.2%	15.8%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		57.5		6.2	12.7			17.3		17.3	17.3	
Actuated g/C Ratio		0.55		0.06	0.12			0.17		0.17	0.17	
v/c Ratio		0.11		0.46	0.57			0.10		0.67	0.32	
Control Delay		1.3		77.8	52.9			0.5		58.6	13.7	
Queue Delay		0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay		1.5		77.8	52.9			0.5		58.6	13.7	
LOS		A		E	D			A		E	B	
Approach Delay		1.5			55.9			0.5			40.8	
Approach LOS		A			E			A			D	
Queue Length 50th (ft)		2		21	77			0		109	6	

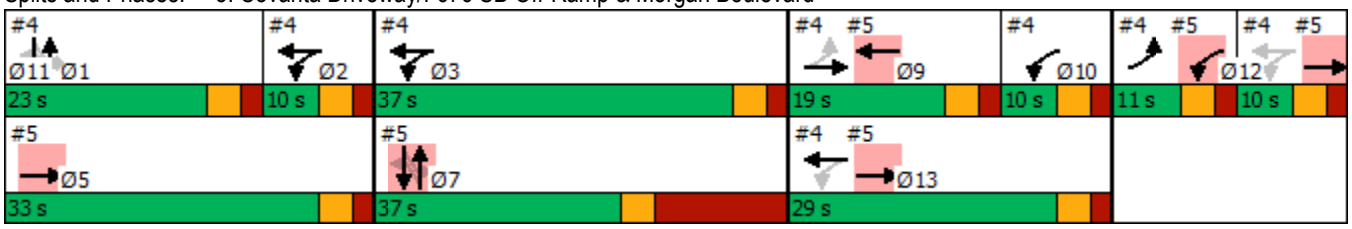
Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	23.0	10.0	37.0	33.0	10.0	10.0	29.0
Total Split (%)	19%	8%	31%	28%	8%	8%	24%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							

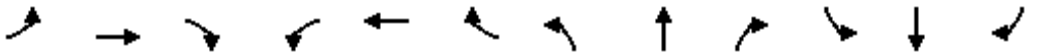
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		3		#44	92			0		177	49	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		1711		63	420			383		305	387	
Starvation Cap Reductn		837		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.21		0.46	0.50			0.09		0.51	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard



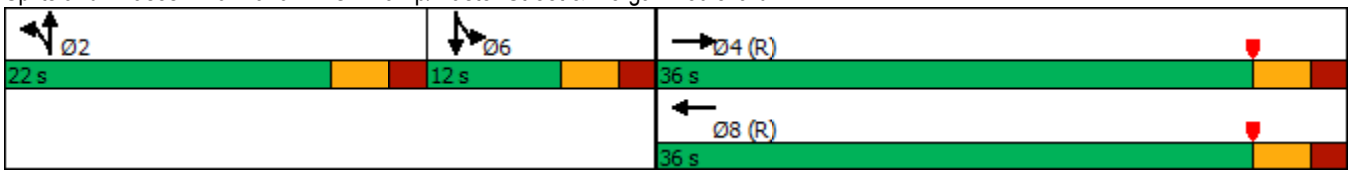


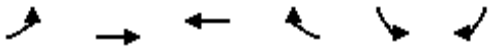
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	170	0	0	197	8	142	85	0	14	0	137
Future Volume (vph)	0	170	0	0	197	8	142	85	0	14	0	137
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.994						0.877	
Flt Protected							0.950	0.987			0.995	
Satd. Flow (prot)	0	3463	0	0	3374	0	1333	1611	0	0	1571	0
Flt Permitted							0.950	0.987			0.995	
Satd. Flow (perm)	0	3463	0	0	3374	0	1333	1611	0	0	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8						167	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.79	0.79	0.79	0.82	0.82	0.82
Heavy Vehicles (%)	0%	7%	0%	0%	9%	13%	32%	7%	0%	21%	0%	7%
Adj. Flow (vph)	0	191	0	0	243	10	180	108	0	17	0	167
Shared Lane Traffic (%)							21%					
Lane Group Flow (vph)	0	191	0	0	253	0	142	146	0	0	184	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		34.5			34.5		13.1	13.1			7.4	
Actuated g/C Ratio		0.49			0.49		0.19	0.19			0.11	
v/c Ratio		0.11			0.15		0.57	0.49			0.58	
Control Delay		10.6			10.4		34.7	30.4			15.3	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		10.6			10.4		34.7	30.4			15.3	
LOS		B			B		C	C			B	
Approach Delay		10.6			10.4			32.5			15.3	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		21			27		60	60			7	
Queue Length 95th (ft)		42			46		92	91			49	
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1707			1667		323	391			315	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.11			0.15		0.44	0.37			0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 48.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	9	0	83	0	0
Future Volume (vph)	0	9	0	83	0	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt			0.850			
Flt Protected						
Satd. Flow (prot)	0	1912	3087	0	1912	0
Flt Permitted						
Satd. Flow (perm)	0	1912	3087	0	1912	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		76	444		152	
Travel Time (s)		2.1	12.1		4.1	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.75	0.75
Adj. Flow (vph)	0	12	0	106	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	106	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

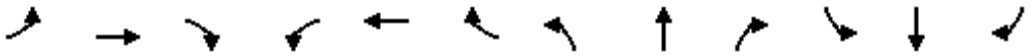
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	83	0	0
Future Vol, veh/h	0	9	0	83	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	78	78	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	106	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	65	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1484	-	-	-	937	1004
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1484	-	-	-	937	1004
Mov Cap-2 Maneuver	-	-	-	-	937	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1484	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-



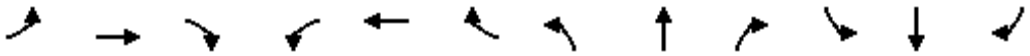
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	2	42	5	1	8	11	114	5	1	227	3
Future Volume (vph)	11	2	42	5	1	8	11	114	5	1	227	3
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.898			0.926			0.995			0.998	
Flt Protected		0.990			0.982			0.996				
Satd. Flow (prot)	0	1839	0	0	1873	0	0	2067	0	0	2083	0
Flt Permitted		0.937			0.889			0.973				
Satd. Flow (perm)	0	1741	0	0	1696	0	0	2020	0	0	2083	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			12			6			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	9%	20%	0%	0%	18%	5%	0%	0%	6%	0%
Adj. Flow (vph)	15	3	56	8	2	12	14	141	6	1	255	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	22	0	0	161	0	0	259	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.25			0.09			0.11			0.17	
Control Delay		13.8			19.0			3.2			3.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.8			19.0			3.2			3.6	
LOS		B			B			A			A	
Approach Delay		13.8			19.0			3.2			3.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			4			16			29	
Queue Length 95th (ft)		29			15			27			48	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		296			252			1444			1488	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.09			0.11			0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street

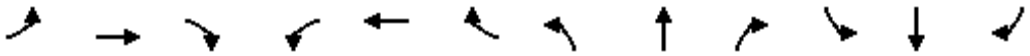




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	42	5	1	8	11	114	5	1	227	3
Future Volume (veh/h)	11	2	42	5	1	8	11	114	5	1	227	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	2028	1813	1646	2028	1950	1676	1949	1950	1950	1933	1950
Adj Flow Rate, veh/h	15	3	56	8	2	12	14	141	6	1	255	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	20	0	0	18	5	0	0	6	0
Cap, veh/h	87	34	187	128	52	132	126	1213	50	52	1361	16
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	179	241	1306	404	364	921	99	1698	70	1	1905	22
Grp Volume(v), veh/h	74	0	0	22	0	0	161	0	0	259	0	0
Grp Sat Flow(s),veh/h/ln	1726	0	0	1689	0	0	1866	0	0	1929	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.7	0.0	0.0	1.8	0.0	0.0	3.1	0.0	0.0
Prop In Lane	0.20		0.76	0.36		0.55	0.09		0.04	0.00		0.01
Lane Grp Cap(c), veh/h	308	0	0	311	0	0	1389	0	0	1429	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.07	0.00	0.00	0.12	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	308	0	0	311	0	0	1389	0	0	1429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	26.0	0.0	0.0	3.1	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	26.5	0.0	0.0	3.3	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		74			22			161			259	
Approach Delay, s/veh		28.7			26.5			3.3			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	11	15	11	5	50	3	84	18	62	210	2
Future Volume (vph)	2	11	15	11	5	50	3	84	18	62	210	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.927			0.897			0.977			0.999	
Flt Protected		0.997			0.992			0.998			0.989	
Satd. Flow (prot)	0	2043	0	0	1909	0	0	1929	0	0	2030	0
Flt Permitted		0.997			0.992			0.998			0.989	
Satd. Flow (perm)	0	2043	0	0	1909	0	0	1929	0	0	2030	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.47	0.47	0.47	0.77	0.77	0.77	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	9%	0%	2%	0%	10%	22%	3%	9%	0%
Adj. Flow (vph)	4	23	32	14	6	65	4	104	22	70	236	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	85	0	0	130	0	0	308	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	11	15	11	5	50	3	84	18	62	210	2
Future Vol, veh/h	2	11	15	11	5	50	3	84	18	62	210	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	77	77	77	81	81	81	89	89	89
Heavy Vehicles, %	0	0	0	9	0	2	0	10	22	3	9	0
Mvmt Flow	4	23	32	14	6	65	4	104	22	70	236	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	536	511	237	528	501	115	238	0	0	126	0	0
Stage 1	377	377	-	123	123	-	-	-	-	-	-	-
Stage 2	159	134	-	405	378	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	459	469	807	450	475	937	1341	-	-	1454	-	-
Stage 1	649	619	-	864	798	-	-	-	-	-	-	-
Stage 2	848	789	-	609	619	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	403	441	807	396	447	937	1341	-	-	1454	-	-
Mov Cap-2 Maneuver	403	441	-	396	447	-	-	-	-	-	-	-
Stage 1	647	584	-	861	796	-	-	-	-	-	-	-
Stage 2	780	787	-	530	584	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	10.7	0.2	1.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1341	-	-	577	715	1454	-	-
HCM Lane V/C Ratio	0.003	-	-	0.103	0.12	0.048	-	-
HCM Control Delay (s)	7.7	0	-	12	10.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0.2	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	238	5	1	78	7	48
Future Volume (vph)	238	5	1	78	7	48
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1829	0	926	1696	1625	1625
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1829	0	926	1696	1625	1625
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.79	0.79	0.88	0.88	0.41	0.41
Heavy Vehicles (%)	6%	20%	100%	15%	14%	2%
Adj. Flow (vph)	301	6	1	89	17	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	307	0	1	89	17	117
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

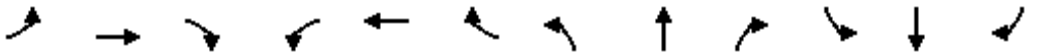
Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	5	1	78	7	48
Future Vol, veh/h	238	5	1	78	7	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	88	88	41	41
Heavy Vehicles, %	6	20	100	15	14	2
Mvmt Flow	301	6	1	89	17	117

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	307	0	395	304
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	5.1	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	3.1	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	855	-	587	736
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	855	-	586	736
Mov Cap-2 Maneuver	-	-	-	-	586	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	586	736	-	-	855	-
HCM Lane V/C Ratio	0.029	0.159	-	-	0.001	-
HCM Control Delay (s)	11.3	10.8	-	-	9.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	94	7	161	6	38	2	34	48	129	148	2
Future Volume (vph)	3	94	7	161	6	38	2	34	48	129	148	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.871				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1393	3664	0	1799	2838	0	1852	1696	1228	1781	1827	0
Flt Permitted	0.714			0.664			0.458			0.733		
Satd. Flow (perm)	1047	3664	0	1257	2838	0	893	1696	1228	1374	1827	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		5			54							
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		444			173			434			525	
Travel Time (s)		12.1			4.7			11.8			14.3	
Peak Hour Factor	0.73	0.73	0.73	0.70	0.70	0.70	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	33%	0%	0%	3%	0%	16%	0%	15%	35%	4%	6%	50%
Adj. Flow (vph)	4	129	10	230	9	54	2	37	52	145	166	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	139	0	230	63	0	2	37	52	145	168	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					23.0	23.0	23.0	23.0	23.0	
Total Split (%)	9.2%	15.8%					19.2%	19.2%	19.2%	19.2%	19.2%	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	16.5	10.5		67.1	75.4		15.9	15.9	15.9	15.9	15.9	
Actuated g/C Ratio	0.15	0.10		0.63	0.70		0.15	0.15	0.15	0.15	0.15	
v/c Ratio	0.02	0.38		0.23	0.03		0.02	0.15	0.29	0.71	0.62	
Control Delay	31.3	48.4		3.7	0.1		43.0	43.7	47.5	65.1	55.1	
Queue Delay	0.0	0.0		0.5	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	48.4		4.2	0.1		43.0	43.7	47.5	65.1	55.1	
LOS	C	D		A	A		D	D	D	E	E	
Approach Delay		47.9			3.3			45.8			59.7	
Approach LOS		D			A			D			E	
Queue Length 50th (ft)	2	45		28	0		1	21	31	92	105	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0
Total Split (s)	10.0	37.0	33.0	37.0	10.0	10.0	29.0
Total Split (%)	8%	31%	28%	31%	8%	8%	24%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	12.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	9	66		22	0		9	58	76	#197	196	
Internal Link Dist (ft)		364			93			354			445	
Turn Bay Length (ft)	190			100			315			375		
Base Capacity (vph)	181	487		1038	2010		151	287	208	232	309	
Starvation Cap Reductn	0	0		454	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.02	0.29		0.39	0.03		0.01	0.13	0.25	0.63	0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 107.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 36.5		Intersection LOS: D	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Broadway (CR 551) & Holtec Boulevard/Morgan Boulevard



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	270	1	8	61	0	1	0	19	173	1	143
Future Volume (vph)	0	270	1	8	61	0	1	0	19	173	1	143
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.872			0.851	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	3422	0	985	3463	0	0	1089	0	1781	1596	0
Flt Permitted				0.950				0.970		0.734		
Satd. Flow (perm)	0	3422	0	985	3463	0	0	1060	0	1376	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								245			188	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.81	0.81	0.81	0.77	0.77	0.77	0.56	0.56	0.56	0.76	0.76	0.76
Heavy Vehicles (%)	0%	8%	100%	88%	7%	0%	100%	0%	53%	4%	0%	4%
Adj. Flow (vph)	0	333	1	10	79	0	2	0	34	228	1	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	10	79	0	0	36	0	228	189	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		37.0	37.0		37.0	37.0	
Total Split (%)				9.2%	15.8%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		60.0		5.9	10.5			21.3		21.3	21.3	
Actuated g/C Ratio		0.56		0.06	0.10			0.20		0.20	0.20	
v/c Ratio		0.17		0.19	0.23			0.09		0.84	0.40	
Control Delay		0.7		61.1	48.5			0.5		69.2	8.9	
Queue Delay		0.4		0.0	0.0			0.0		0.0	0.0	
Total Delay		1.1		61.1	48.5			0.5		69.2	8.9	
LOS		A		E	D			A		E	A	
Approach Delay		1.1			49.9			0.4			41.9	
Approach LOS		A			D			A			D	
Queue Length 50th (ft)		1		7	26			0		147	1	

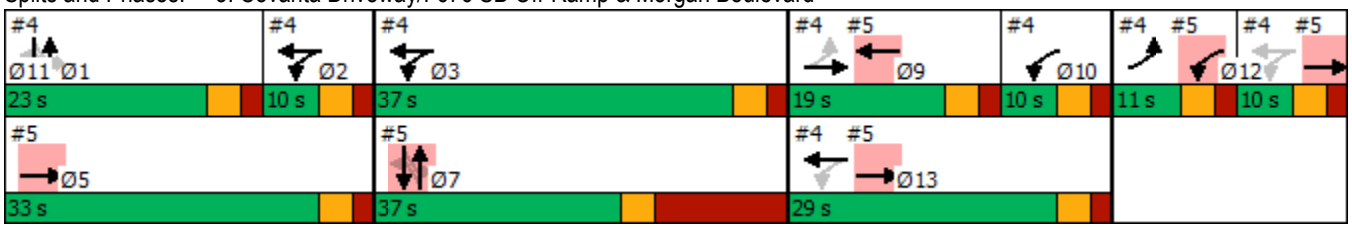
Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	23.0	10.0	37.0	33.0	10.0	10.0	29.0
Total Split (%)	19%	8%	31%	28%	8%	8%	24%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							
Queue Length 50th (ft)							

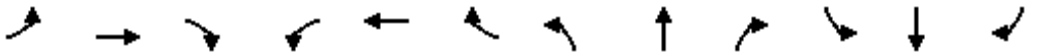
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		2		23	46			0		#241	33	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		1990		55	456			414		285	479	
Starvation Cap Reductn		1177		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.41		0.18	0.17			0.09		0.80	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 107.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 40.0%		ICU Level of Service A	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard



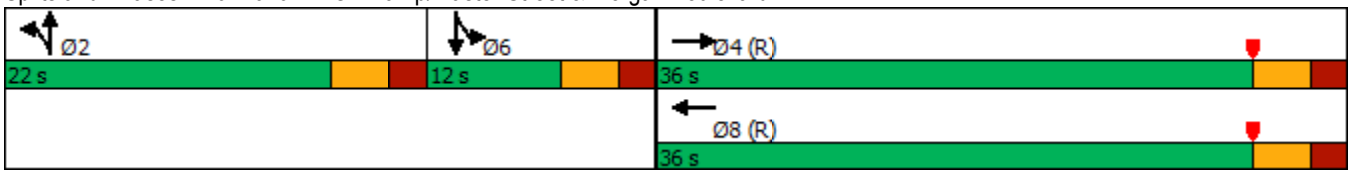


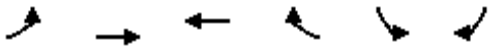
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	233	0	0	215	15	37	101	0	30	0	142
Future Volume (vph)	0	233	0	0	215	15	37	101	0	30	0	142
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.990						0.889	
Flt Protected							0.950	0.998			0.991	
Satd. Flow (prot)	0	3431	0	0	3443	0	1443	1784	0	0	1618	0
Flt Permitted							0.950	0.998			0.991	
Satd. Flow (perm)	0	3431	0	0	3443	0	1443	1784	0	0	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13						156	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.84	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	0%	8%	0%	0%	7%	0%	22%	3%	0%	7%	0%	6%
Adj. Flow (vph)	0	243	0	0	229	16	44	120	0	33	0	156
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	243	0	0	245	0	40	124	0	0	189	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		38.6			38.6		11.3	11.3			8.2	
Actuated g/C Ratio		0.55			0.55		0.16	0.16			0.12	
v/c Ratio		0.13			0.13		0.17	0.43			0.58	
Control Delay		9.6			9.1		26.4	31.0			15.7	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		9.6			9.1		26.4	31.0			15.7	
LOS		A			A		C	C			B	
Approach Delay		9.6			9.1			29.9			15.7	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		25			24		15	52			13	
Queue Length 95th (ft)		52			50		37	88			67	
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1890			1902		350	433			326	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.13			0.13		0.11	0.29			0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	25	0	0	79	0
Future Volume (vph)	0	25	0	0	79	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1912	3632	0	1816	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1912	3632	0	1816	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		76	444		152	
Travel Time (s)		2.1	12.1		4.1	
Peak Hour Factor	0.73	0.73	0.70	0.70	0.73	0.92
Adj. Flow (vph)	0	34	0	0	108	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	34	0	0	108	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	0	0	79	0
Future Vol, veh/h	0	25	0	0	79	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	70	70	73	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	0	0	108	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	35	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1621	-	-	-	976	1083
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1621	-	-	-	976	1083
Mov Cap-2 Maneuver	-	-	-	-	976	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	988	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1621	-	-	-	976
HCM Lane V/C Ratio	-	-	-	-	0.111
HCM Control Delay (s)	0	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX E
Trip Generation

Land Use: 710
General Office Building

Description

A general office building is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building houses multiple tenants that can include, as examples, professional services, insurance companies, investment brokers, a banking institution, a restaurant, or other service retailers. A general office building with a gross floor area of 10,000 square feet or less is classified as a small office building (Land Use 712). Corporate headquarters building (Land Use 714), single tenant office building (Land Use 715), medical-dental office building (Land Use 720), office park (Land Use 750), research and development center (Land Use 760), and business park (Land Use 770) are additional related uses.

Additional Data

If two or more general office buildings are in close physical proximity (within a close walk) and function as a unit (perhaps with a shared parking facility and common or complementary tenants), the total gross floor area or employment of the paired office buildings can be used for calculating the site trip generation. If the individual buildings are isolated or not functionally related to one another, trip generation should be calculated for each building separately.

For study sites with reported gross floor area and employees, an average employee density of 3.3 employees per 1,000 square feet GFA (or roughly 300 square feet per employee) has been consistent through the 1980s, 1990s, and 2000s. No sites counted in the 2010s reported both GFA and employees.

The average building occupancy varies considerably within the studies for which occupancy data were provided. The reported occupied gross floor area was 88 percent for general urban/suburban sites and 96 percent for the center city core and dense multi-use urban sites.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The average numbers of person trips per vehicle trip at the eight center city core sites at which both person trip and vehicle trip data were collected are as follows:

- 2.8 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 2.9 during Weekday, AM Peak Hour of Generator
- 2.9 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 3.0 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 18 dense multi-use urban sites at which both person trip and vehicle trip data were collected are as follows:

- 1.5 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.5 during Weekday, AM Peak Hour of Generator
- 1.5 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.5 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 23 general urban/suburban sites at which both person trip and vehicle trip data were collected are as follows:

- 1.3 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.3 during Weekday, AM Peak Hour of Generator
- 1.3 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.4 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in Alberta (CAN), California, Colorado, Connecticut, Georgia, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, Ontario (CAN)Pennsylvania, Texas, Utah, Virginia, and Washington.

Source Numbers

161, 175, 183, 184, 185, 207, 212, 217, 247, 253, 257, 260, 262, 273, 279, 297, 298, 300, 301, 302, 303, 304, 321, 322, 323, 324, 327, 404, 407, 408, 419, 423, 562, 734, 850, 859, 862, 867, 869, 883, 884, 890, 891, 904, 940, 944, 946, 964, 965, 972, 1009, 1030, 1058, 1061

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
710

LAND USE GROUP:
(700-799) Office

LAND USE :
710 - General Office Building

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

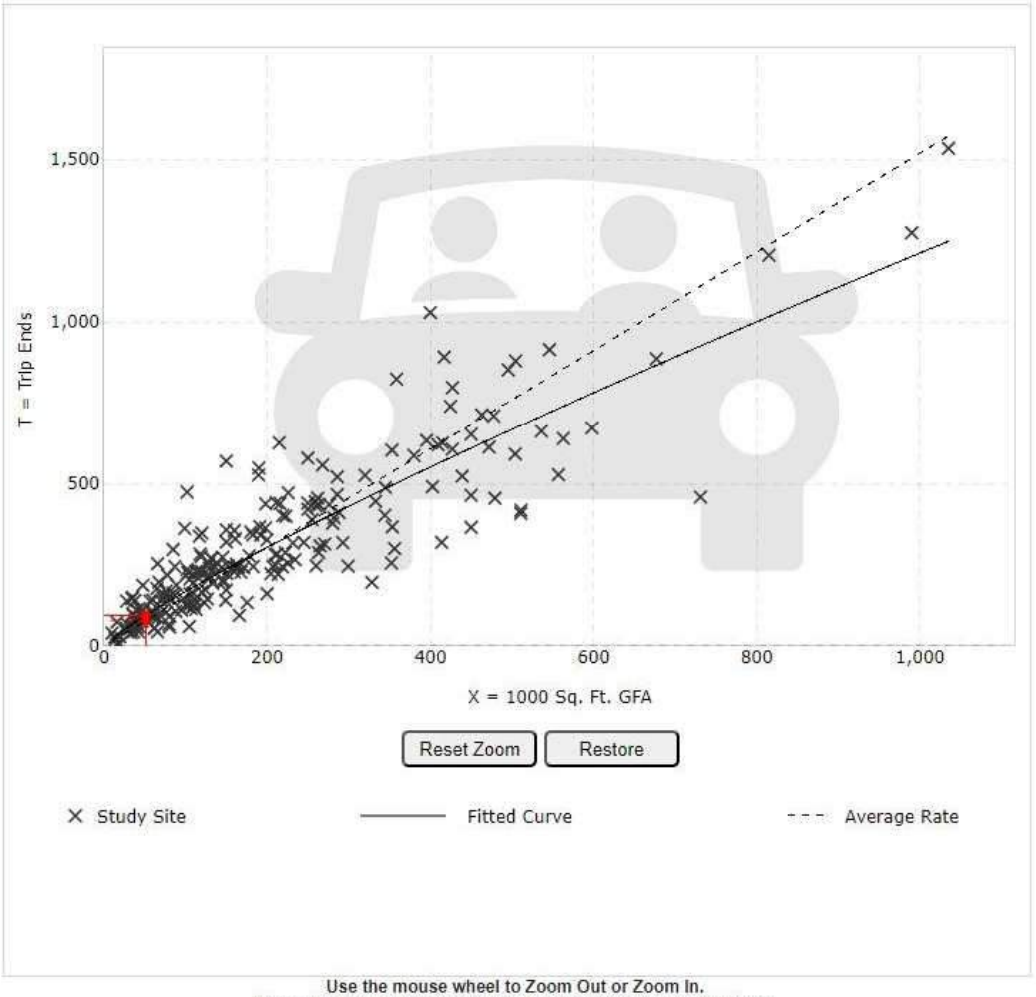
INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
51.59 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
General Office Building (710) Click for Description and Data Plots

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
221

Avg. 1000 Sq. Ft. GFA:
201

Average Rate:
1.52

Range of Rates:
0.32 - 4.93

Standard Deviation:
0.58

Fitted Curve Equation:
Ln(T) = 0.86 Ln(X) + 1.16

R^2:
0.78

Directional Distribution:
88% entering, 12% exiting

Calculated Trip Ends:
Average Rate: 78 (Total), 69 (Entry), 9 (Exit)
Fitted Curve: 95 (Total), 83 (Entry), 12 (Exit)

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
710

LAND USE GROUP:
(700-799) Office

LAND USE :
710 - General Office Building

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

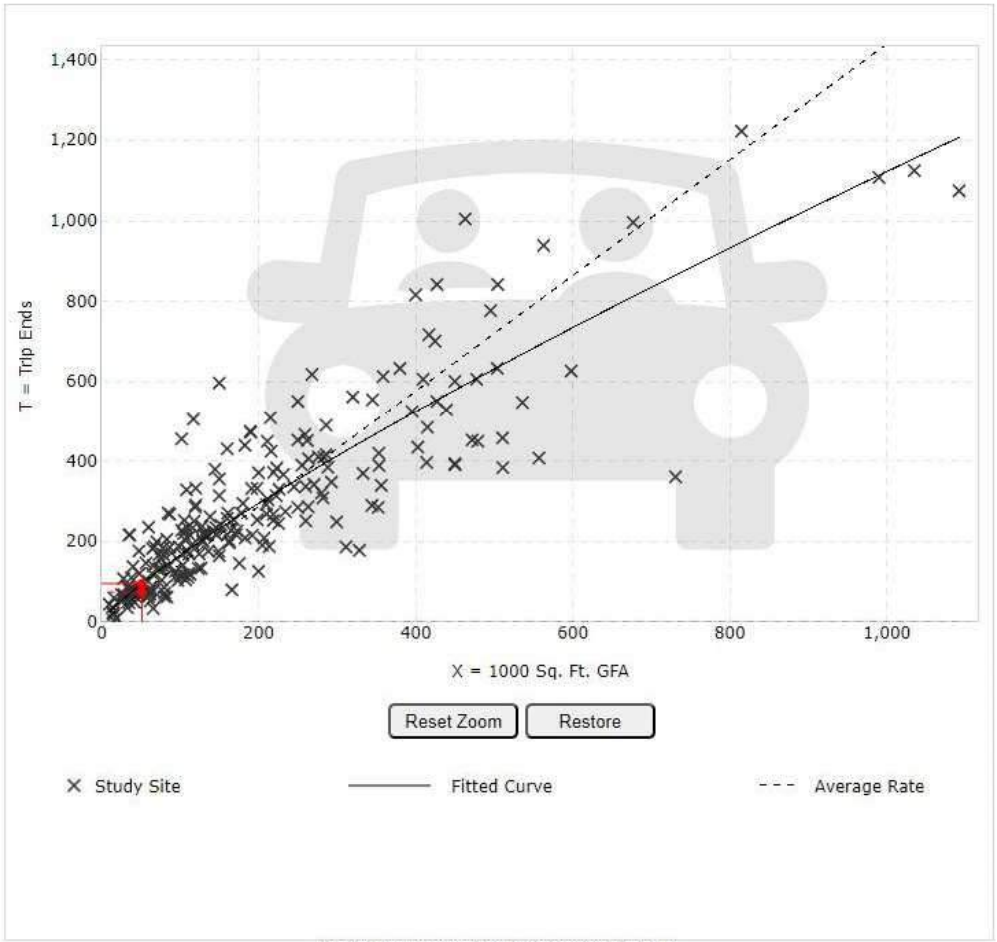
INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
51.59 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
General Office Building (710) Click for Description and Data Plots

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
232

Avg. 1000 Sq. Ft. GFA:
199

Average Rate:
1.44

Range of Rates:
0.26 - 6.20

Standard Deviation:
0.60

Fitted Curve Equation:
Ln(T) = 0.83 Ln(X) + 1.29

R^2:
0.77

Directional Distribution:
17% entering, 83% exiting

Calculated Trip Ends:
Average Rate: 74 (Total), 13 (Entry), 61 (Exit)
Fitted Curve: 96 (Total), 16 (Entry), 80 (Exit)

HOLTEC OFFICE BUILDING
1 HOLTEC BOULEVARD
BLOCK 514 – LOT 3.01

APPENDIX F

2024 Build Synchro Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	27	1	1	5	6	147	1	2	100	1
Future Volume (vph)	4	4	27	1	1	5	6	147	1	2	100	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.896			0.904			0.999			0.999	
Flt Protected		0.994			0.993			0.998			0.999	
Satd. Flow (prot)	0	1635	0	0	1984	0	0	1928	0	0	1892	0
Flt Permitted		0.967			0.960			0.993			0.998	
Satd. Flow (perm)	0	1591	0	0	1918	0	0	1918	0	0	1890	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			10			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	25%	25%	19%	0%	0%	0%	0%	15%	0%	0%	17%	0%
Adj. Flow (vph)	9	9	60	2	2	10	7	165	1	2	112	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	14	0	0	173	0	0	115	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.28			0.05			0.13			0.09	
Control Delay		14.1			17.7			3.4			3.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.1			17.7			3.4			3.2	
LOS		B			B			A			A	
Approach Delay		14.1			17.7			3.4			3.2	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			2			18			12	
Queue Length 95th (ft)		8			7			33			24	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		278			282			1370			1350	
Starvation Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.05			0.13			0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 6.0		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

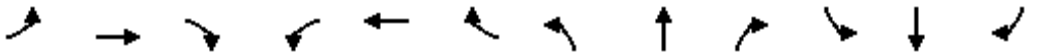
Splits and Phases: 1: Broadway (CR 551) & Jefferson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	27	1	1	5	6	147	1	2	100	1
Future Volume (veh/h)	4	4	27	1	1	5	6	147	1	2	100	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1570	1633	1661	1950	2028	1950	1950	1791	1950	1950	1759	1950
Adj Flow Rate, veh/h	9	9	60	2	2	10	7	165	1	2	112	1
Peak Hour Factor	0.45	0.45	0.45	0.50	0.50	0.50	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	25	25	19	0	0	0	0	15	0	0	17	0
Cap, veh/h	68	36	155	71	60	180	73	1241	7	57	1237	11
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	72	254	1085	86	417	1259	28	1737	10	6	1732	15
Grp Volume(v), veh/h	78	0	0	14	0	0	173	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	1411	0	0	1763	0	0	1775	0	0	1753	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.5	0.0	0.0	2.1	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.12		0.77	0.14		0.71	0.04		0.01	0.02		0.01
Lane Grp Cap(c), veh/h	259	0	0	311	0	0	1321	0	0	1304	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.05	0.00	0.00	0.13	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	259	0	0	311	0	0	1321	0	0	1304	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	25.9	0.0	0.0	3.2	0.0	0.0	3.1	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	26.2	0.0	0.0	3.4	0.0	0.0	3.2	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		78			14			173			115	
Approach Delay, s/veh		30.2			26.2			3.4			3.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.7									
HCM 6th LOS			A									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	7	4	7	13	51	5	101	8	38	92	1
Future Volume (vph)	2	7	4	7	13	51	5	101	8	38	92	1
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.903			0.990			0.999	
Flt Protected		0.994			0.995			0.998			0.986	
Satd. Flow (prot)	0	1952	0	0	1739	0	0	1897	0	0	1859	0
Flt Permitted		0.994			0.995			0.998			0.986	
Satd. Flow (perm)	0	1952	0	0	1739	0	0	1897	0	0	1859	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.81	0.81	0.81	0.76	0.76	0.76	0.90	0.90	0.90	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	25%	29%	15%	12%	40%	15%	0%	8%	21%	0%
Adj. Flow (vph)	2	9	5	9	17	67	6	112	9	47	114	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	93	0	0	127	0	0	162	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	7	4	7	13	51	5	101	8	38	92	1
Future Vol, veh/h	2	7	4	7	13	51	5	101	8	38	92	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	76	76	76	90	90	90	81	81	81
Heavy Vehicles, %	0	0	25	29	15	12	40	15	0	8	21	0
Mvmt Flow	2	9	5	9	17	67	6	112	9	47	114	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	380	342	115	345	338	117	115	0	0	121	0	0
Stage 1	209	209	-	129	129	-	-	-	-	-	-	-
Stage 2	171	133	-	216	209	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.39	6.65	6.32	4.5	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.39	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.761	4.135	3.408	2.56	-	-	2.272	-	-
Pot Cap-1 Maneuver	581	583	879	561	563	909	1268	-	-	1430	-	-
Stage 1	798	733	-	814	765	-	-	-	-	-	-	-
Stage 2	836	790	-	729	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	509	560	879	535	540	909	1268	-	-	1430	-	-
Mov Cap-2 Maneuver	509	560	-	535	540	-	-	-	-	-	-	-
Stage 1	794	707	-	810	761	-	-	-	-	-	-	-
Stage 2	753	786	-	691	680	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	10.4	0.3	2.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1268	-	-	620	761	1430	-	-
HCM Lane V/C Ratio	0.004	-	-	0.026	0.123	0.033	-	-
HCM Control Delay (s)	7.9	0	-	11	10.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	102	5	42	107	7	9
Future Volume (vph)	102	5	42	107	7	9
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1616	0	1684	1726	1295	1246
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1616	0	1684	1726	1295	1246
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.81	0.81	0.75	0.75	0.80	0.80
Heavy Vehicles (%)	19%	40%	10%	13%	43%	33%
Adj. Flow (vph)	126	6	56	143	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	56	143	9	11
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.9%		ICU Level of Service A	
Analysis Period (min) 15			

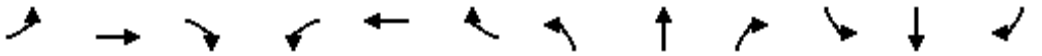
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	102	5	42	107	7	9
Future Vol, veh/h	102	5	42	107	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	75	75	80	80
Heavy Vehicles, %	19	40	10	13	43	33
Mvmt Flow	126	6	56	143	9	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	132	0	384	129
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	-	-	4.2	-	6.83	6.53
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.29	-	3.887	3.597
Pot Cap-1 Maneuver	-	-	1405	-	546	844
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	524	844
Mov Cap-2 Maneuver	-	-	-	-	524	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	673	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	524	844	-	-	1405	-
HCM Lane V/C Ratio	0.017	0.013	-	-	0.04	-
HCM Control Delay (s)	12	9.3	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	15	3	72	141	75	15	79	57	67	22	9
Future Volume (vph)	3	15	3	72	141	75	15	79	57	67	22	9
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.948				0.850		0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1852	3164	0	1278	3307	0	1852	1773	1237	1531	1603	0
Flt Permitted	0.581			0.741			0.730			0.701		
Satd. Flow (perm)	1133	3164	0	997	3307	0	1423	1773	1237	1130	1603	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		4			96						12	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		454			173			434			525	
Travel Time (s)		12.4			4.7			11.8			14.3	
Peak Hour Factor	0.75	0.75	0.75	0.78	0.78	0.78	0.92	0.92	0.92	0.77	0.77	0.77
Heavy Vehicles (%)	0%	17%	0%	45%	1%	16%	0%	10%	34%	21%	23%	0%
Adj. Flow (vph)	4	20	4	92	181	96	16	86	62	87	29	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	24	0	92	277	0	16	86	62	87	41	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					23.0	23.0	23.0	23.0	23.0	
Total Split (%)	9.2%	15.8%					19.2%	19.2%	19.2%	19.2%	19.2%	
Maximum Green (s)	6.0	14.0					18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	19.9	13.7		64.5	72.2		14.0	14.0	14.0	14.0	14.0	
Actuated g/C Ratio	0.19	0.13		0.61	0.69		0.13	0.13	0.13	0.13	0.13	
v/c Ratio	0.02	0.06		0.13	0.12		0.08	0.37	0.38	0.58	0.18	
Control Delay	31.3	40.9		1.2	0.1		44.9	49.5	52.2	62.4	35.9	
Queue Delay	0.0	0.0		0.3	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	40.9		1.5	0.3		44.9	49.5	52.2	62.4	35.9	
LOS	C	D		A	A		D	D	D	E	D	
Approach Delay		39.5			0.6			50.1			53.9	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	22.5	10.0	10.0	10.0
Total Split (s)	10.0	37.0	33.0	37.0	10.0	10.0	29.0
Total Split (%)	8%	31%	28%	31%	8%	8%	24%
Maximum Green (s)	5.0	32.0	28.0	22.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	12.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Vehicle Extension (s)	4.0	3.0	3.0	4.0	3.0	3.0	3.0
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

HCM 6th Edition methodology does not support clustered intersections.

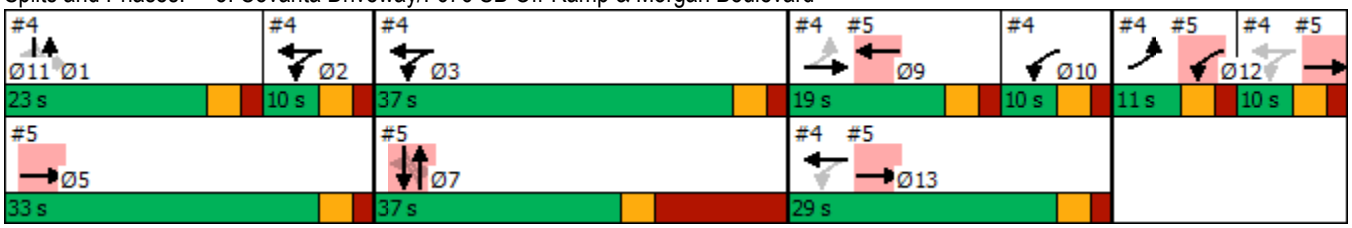
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	143	1	20	190	0	1	0	16	134	8	97
Future Volume (vph)	0	143	1	20	190	0	1	0	16	134	8	97
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.873			0.861	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	2895	0	1059	3012	0	0	901	0	1799	1439	0
Flt Permitted				0.950				0.968		0.735		
Satd. Flow (perm)	0	2895	0	1059	3012	0	0	874	0	1392	1439	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1						245			113	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.75	0.75	0.75	0.69	0.69	0.69	0.50	0.50	0.50	0.86	0.86	0.86
Heavy Vehicles (%)	0%	28%	0%	75%	23%	0%	0%	0%	94%	3%	63%	13%
Adj. Flow (vph)	0	191	1	29	275	0	2	0	32	156	9	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	192	0	29	275	0	0	34	0	156	122	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		37.0	37.0		37.0	37.0	
Total Split (%)				9.2%	15.8%		30.8%	30.8%		30.8%	30.8%	
Maximum Green (s)				6.0	14.0		22.0	22.0		22.0	22.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		58.4		6.2	13.7			17.4		17.4	17.4	
Actuated g/C Ratio		0.56		0.06	0.13			0.17		0.17	0.17	
v/c Ratio		0.12		0.47	0.70			0.10		0.68	0.37	
Control Delay		1.4		78.5	57.0			0.5		59.2	13.0	
Queue Delay		0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay		1.5		78.5	57.0			0.5		59.2	13.0	
LOS		A		E	E			A		E	B	
Approach Delay		1.5			59.1			0.5			38.9	

Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	23.0	10.0	37.0	33.0	10.0	10.0	29.0
Total Split (%)	19%	8%	31%	28%	8%	8%	24%
Maximum Green (s)	18.0	5.0	32.0	28.0	5.0	5.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	4.0	4.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			E			A			D	
Queue Length 50th (ft)		3		21	104			0		109	6	
Queue Length 95th (ft)		4		#44	118			0		177	53	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		1719		62	414			381		301	400	
Starvation Cap Reductn		821		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.21		0.47	0.66			0.09		0.52	0.30	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 36.0		Intersection LOS: D	
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard

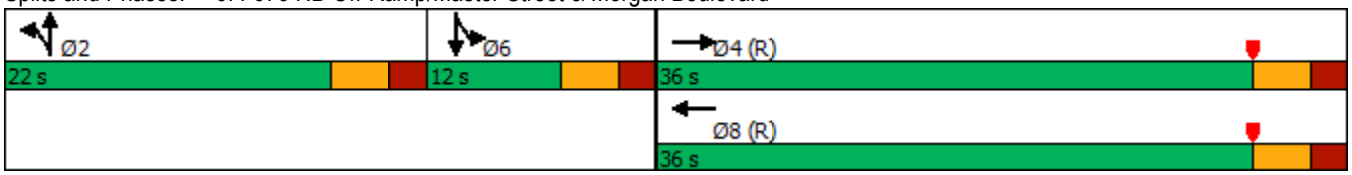


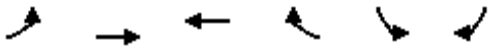
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	174	0	0	214	8	159	85	0	14	0	149
Future Volume (vph)	0	174	0	0	214	8	159	85	0	14	0	149
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.995						0.877	
Flt Protected							0.950	0.985			0.996	
Satd. Flow (prot)	0	3463	0	0	3378	0	1333	1591	0	0	1574	0
Flt Permitted							0.950	0.985			0.996	
Satd. Flow (perm)	0	3463	0	0	3378	0	1333	1591	0	0	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7						182	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.79	0.79	0.79	0.82	0.82	0.82
Heavy Vehicles (%)	0%	7%	0%	0%	9%	13%	32%	7%	0%	21%	0%	7%
Adj. Flow (vph)	0	196	0	0	264	10	201	108	0	17	0	182
Shared Lane Traffic (%)							24%					
Lane Group Flow (vph)	0	196	0	0	274	0	153	156	0	0	199	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		34.3			34.3		13.4	13.4			7.3	
Actuated g/C Ratio		0.49			0.49		0.19	0.19			0.10	
v/c Ratio		0.12			0.17		0.60	0.51			0.61	
Control Delay		10.7			10.7		35.5	30.9			15.6	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		10.7			10.7		35.5	30.9			15.6	
LOS		B			B		D	C			B	
Approach Delay		10.7			10.7			33.2			15.6	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		22			31		64	64			7	
Queue Length 95th (ft)		42			50		98	96			50	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												
Base Capacity (vph)		1697			1659		323	386			326	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.12			0.17		0.47	0.40			0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 48.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	9	0	132	7	0
Future Volume (vph)	0	9	0	132	7	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.850			
Flt Protected					0.950	
Satd. Flow (prot)	0	3632	3087	0	1816	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3632	3087	0	1816	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		66	454		232	
Travel Time (s)		1.8	12.4		6.3	
Peak Hour Factor	0.75	0.75	0.78	0.78	0.75	0.75
Adj. Flow (vph)	0	12	0	169	9	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	169	0	9	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	132	7	0
Future Vol, veh/h	0	9	0	132	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	78	78	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	169	9	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	169	0	-	0	91	85
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	6	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1406	-	-	-	899	957
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	1016	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	899	957
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	1016	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	899
HCM Lane V/C Ratio	-	-	-	-	0.01
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

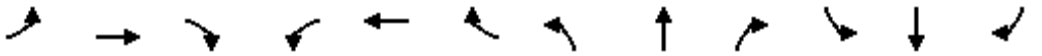
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	2	42	5	1	8	11	122	5	1	229	3
Future Volume (vph)	11	2	42	5	1	8	11	122	5	1	229	3
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.898			0.926			0.995			0.998	
Flt Protected		0.990			0.982			0.996				
Satd. Flow (prot)	0	1839	0	0	1873	0	0	2068	0	0	2083	0
Flt Permitted		0.937			0.889			0.974				
Satd. Flow (perm)	0	1741	0	0	1696	0	0	2023	0	0	2083	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			12			6			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		452			490			458			215	
Travel Time (s)		12.3			13.4			12.5			5.9	
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	9%	20%	0%	0%	18%	5%	0%	0%	6%	0%
Adj. Flow (vph)	15	3	56	8	2	12	14	151	6	1	257	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	22	0	0	171	0	0	261	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (s)	15.0	15.0		15.0	15.0		55.0	55.0		55.0	55.0	
Total Split (%)	21.4%	21.4%		21.4%	21.4%		78.6%	78.6%		78.6%	78.6%	
Maximum Green (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		10.0			10.0			50.0			50.0	
Actuated g/C Ratio		0.14			0.14			0.71			0.71	
v/c Ratio		0.25			0.09			0.12			0.18	
Control Delay		13.8			19.0			3.2			3.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.8			19.0			3.2			3.6	
LOS		B			B			A			A	
Approach Delay		13.8			19.0			3.2			3.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			4			18			29	
Queue Length 95th (ft)		29			15			29			48	
Internal Link Dist (ft)		372			410			378			135	
Turn Bay Length (ft)												
Base Capacity (vph)		296			252			1446			1488	
Starvation Cap Reductn		0			0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.25			0.09			0.12			0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 5.5		Intersection LOS: A	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broadway (CR 551) & Jefferson Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	42	5	1	8	11	122	5	1	229	3
Future Volume (veh/h)	11	2	42	5	1	8	11	122	5	1	229	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	2028	1813	1646	2028	1950	1676	1949	1950	1950	1933	1950
Adj Flow Rate, veh/h	15	3	56	8	2	12	14	151	6	1	257	3
Peak Hour Factor	0.75	0.75	0.75	0.65	0.65	0.65	0.81	0.81	0.81	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	20	0	0	18	5	0	0	6	0
Cap, veh/h	87	34	187	128	52	132	120	1226	47	52	1361	16
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	179	241	1306	404	364	921	91	1716	66	1	1906	22
Grp Volume(v), veh/h	74	0	0	22	0	0	171	0	0	261	0	0
Grp Sat Flow(s),veh/h/ln	1726	0	0	1689	0	0	1872	0	0	1929	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.7	0.0	0.0	1.9	0.0	0.0	3.1	0.0	0.0
Prop In Lane	0.20		0.76	0.36		0.55	0.08		0.04	0.00		0.01
Lane Grp Cap(c), veh/h	308	0	0	311	0	0	1393	0	0	1429	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.07	0.00	0.00	0.12	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	308	0	0	311	0	0	1393	0	0	1429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	26.0	0.0	0.0	3.1	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	26.5	0.0	0.0	3.3	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		74			22			171			261	
Approach Delay, s/veh		28.7			26.5			3.3			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		15.0		55.0		15.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		10.0		50.0		10.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	11	15	11	5	50	3	92	18	62	212	2
Future Volume (vph)	2	11	15	11	5	50	3	92	18	62	212	2
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.927			0.897			0.979			0.999	
Flt Protected		0.997			0.992			0.999			0.989	
Satd. Flow (prot)	0	2043	0	0	1909	0	0	1937	0	0	2030	0
Flt Permitted		0.997			0.992			0.999			0.989	
Satd. Flow (perm)	0	2043	0	0	1909	0	0	1937	0	0	2030	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		457			492			1065			458	
Travel Time (s)		12.5			13.4			29.0			12.5	
Peak Hour Factor	0.47	0.47	0.47	0.77	0.77	0.77	0.81	0.81	0.81	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	9%	0%	2%	0%	10%	22%	3%	9%	0%
Adj. Flow (vph)	4	23	32	14	6	65	4	114	22	70	238	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	85	0	0	140	0	0	310	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	11	15	11	5	50	3	92	18	62	212	2
Future Vol, veh/h	2	11	15	11	5	50	3	92	18	62	212	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	77	77	77	81	81	81	89	89	89
Heavy Vehicles, %	0	0	0	9	0	2	0	10	22	3	9	0
Mvmt Flow	4	23	32	14	6	65	4	114	22	70	238	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	548	523	239	540	513	125	240	0	0	136	0	0
Stage 1	379	379	-	133	133	-	-	-	-	-	-	-
Stage 2	169	144	-	407	380	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.227	-	-
Pot Cap-1 Maneuver	450	462	805	442	468	926	1339	-	-	1442	-	-
Stage 1	647	618	-	854	790	-	-	-	-	-	-	-
Stage 2	838	782	-	607	617	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	435	805	389	440	926	1339	-	-	1442	-	-
Mov Cap-2 Maneuver	395	435	-	389	440	-	-	-	-	-	-	-
Stage 1	645	583	-	851	788	-	-	-	-	-	-	-
Stage 2	770	780	-	528	582	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	10.8	0.2	1.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1339	-	-	572	705	1442	-	-
HCM Lane V/C Ratio	0.003	-	-	0.104	0.122	0.048	-	-
HCM Control Delay (s)	7.7	0	-	12	10.8	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0.2	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	240	5	1	86	7	48
Future Volume (vph)	240	5	1	86	7	48
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	12	16	12	12	12	12
Storage Length (ft)		0	175		0	0
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1829	0	926	1696	1625	1625
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1829	0	926	1696	1625	1625
Link Speed (mph)	25			25	25	
Link Distance (ft)	1065			501	353	
Travel Time (s)	29.0			13.7	9.6	
Peak Hour Factor	0.79	0.79	0.88	0.88	0.41	0.41
Heavy Vehicles (%)	6%	20%	100%	15%	14%	2%
Adj. Flow (vph)	304	6	1	98	17	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	310	0	1	98	17	117
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			

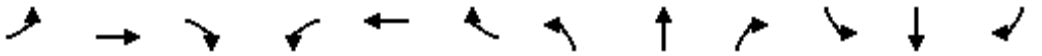
Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	5	1	86	7	48
Future Vol, veh/h	240	5	1	86	7	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	175	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	88	88	41	41
Heavy Vehicles, %	6	20	100	15	14	2
Mvmt Flow	304	6	1	98	17	117

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	407	307
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	-	-	5.1	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	3.1	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	853	-	578	733
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	853	-	577	733
Mov Cap-2 Maneuver	-	-	-	-	577	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	894	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	577	733	-	-	853	-
HCM Lane V/C Ratio	0.03	0.16	-	-	0.001	-
HCM Control Delay (s)	11.4	10.8	-	-	9.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	154	19	161	18	38	4	34	48	129	148	4
Future Volume (vph)	11	154	19	161	18	38	4	34	48	129	148	4
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	190		0	100		0	315		0	375		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.899				0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1393	3646	0	1799	3006	0	1852	1696	1228	1781	1815	0
Flt Permitted	0.702			0.539			0.439			0.733		
Satd. Flow (perm)	1029	3646	0	1020	3006	0	856	1696	1228	1374	1815	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		9			54						1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		454			173			434			525	
Travel Time (s)		12.4			4.7			11.8			14.3	
Peak Hour Factor	0.73	0.73	0.73	0.70	0.70	0.70	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	33%	0%	0%	3%	0%	16%	0%	15%	35%	4%	6%	50%
Adj. Flow (vph)	15	211	26	230	26	54	4	37	52	145	166	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	237	0	230	80	0	4	37	52	145	170	0
Turn Type	pm+pt	NA		custom	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	12	9		10 2 3	2 3 13			1			1	
Permitted Phases	9			11 13	2 11		1		1	1		
Detector Phase	12	9		10 2 3	2 3 13		1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	5.0	7.0					7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	10.0	12.0					12.0	12.0	12.0	12.0	12.0	
Total Split (s)	11.0	19.0					23.0	23.0	23.0	23.0	23.0	
Total Split (%)	9.2%	15.8%					19.2%	19.2%	19.2%	19.2%	19.2%	
Maximum Green (s)	6.0	14.0					18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.0	3.0					3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0					2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0					0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0					5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead					Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes					Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	4.0					4.0	4.0	4.0	4.0	4.0	
Recall Mode	None	None					None	None	None	None	None	
Act Effct Green (s)	18.6	12.6		69.3	76.6		16.0	16.0	16.0	16.0	16.0	
Actuated g/C Ratio	0.17	0.11		0.62	0.69		0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.08	0.56		0.24	0.04		0.03	0.15	0.30	0.74	0.65	
Control Delay	32.6	51.9		4.2	0.4		44.5	45.7	49.8	70.0	58.8	
Queue Delay	0.0	0.0		0.5	0.1		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.6	51.9		4.7	0.5		44.5	45.7	49.8	70.0	58.8	
LOS	C	D		A	A		D	D	D	E	E	
Approach Delay		50.8			3.6			47.9			64.0	

Lane Group	Ø2	Ø3	Ø5	Ø7	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	2	3	5	7	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	7.0	5.0	5.0	5.0
Minimum Split (s)	10.0	9.5	10.0	22.5	10.0	9.5	10.0
Total Split (s)	10.0	37.0	33.0	37.0	10.0	10.0	29.0
Total Split (%)	8%	31%	28%	31%	8%	8%	24%
Maximum Green (s)	5.0	32.5	28.0	22.0	5.0	5.5	24.0
Yellow Time (s)	3.0	3.5	3.0	3.0	3.0	3.5	3.0
All-Red Time (s)	2.0	1.0	2.0	12.0	2.0	1.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lag				Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	
Vehicle Extension (s)	4.0	3.0	3.0	4.0	3.0	3.0	3.0
Recall Mode	Max	None	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

HCM 6th Edition methodology does not support clustered intersections.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	330	1	8	70	0	1	0	19	173	1	146
Future Volume (vph)	0	330	1	8	70	0	1	0	19	173	1	146
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Storage Length (ft)	0		0	115		0	0		0	250		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.872			0.851	
Flt Protected				0.950				0.997		0.950		
Satd. Flow (prot)	0	3423	0	985	3463	0	0	1089	0	1781	1596	0
Flt Permitted				0.950				0.969		0.734		
Satd. Flow (perm)	0	3423	0	985	3463	0	0	1059	0	1376	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								241			192	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		173			781			270			419	
Travel Time (s)		4.7			21.3			7.4			11.4	
Peak Hour Factor	0.81	0.81	0.81	0.77	0.77	0.77	0.56	0.56	0.56	0.76	0.76	0.76
Heavy Vehicles (%)	0%	8%	100%	88%	7%	0%	100%	0%	53%	4%	0%	4%
Adj. Flow (vph)	0	407	1	10	91	0	2	0	34	228	1	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	408	0	10	91	0	0	36	0	228	193	0
Turn Type		NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		5 13 11		12	9			7			7	
Permitted Phases							7			7	7	
Detector Phase		5 13 11		12	9		7	7		7	7	
Switch Phase												
Minimum Initial (s)				5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)				10.0	12.0		22.5	22.5		22.5	22.5	
Total Split (s)				11.0	19.0		37.0	37.0		37.0	37.0	
Total Split (%)				9.2%	15.8%		30.8%	30.8%		30.8%	30.8%	
Maximum Green (s)				6.0	14.0		22.0	22.0		22.0	22.0	
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)				2.0	2.0		12.0	12.0		12.0	12.0	
Lost Time Adjust (s)				0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)				5.0	5.0			15.0		15.0	15.0	
Lead/Lag				Lead	Lead							
Lead-Lag Optimize?				Yes	Yes							
Vehicle Extension (s)				3.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode				None	None		None	None		None	None	
Act Effct Green (s)		61.2		5.9	12.6			21.3		21.3	21.3	
Actuated g/C Ratio		0.55		0.05	0.11			0.19		0.19	0.19	
v/c Ratio		0.22		0.19	0.23			0.09		0.87	0.42	
Control Delay		0.5		63.6	48.7			0.5		76.5	9.1	
Queue Delay		0.2		0.0	0.0			0.0		0.0	0.0	
Total Delay		0.7		63.6	48.7			0.5		76.5	9.1	
LOS		A		E	D			A		E	A	
Approach Delay		0.7			50.1			0.4			45.6	

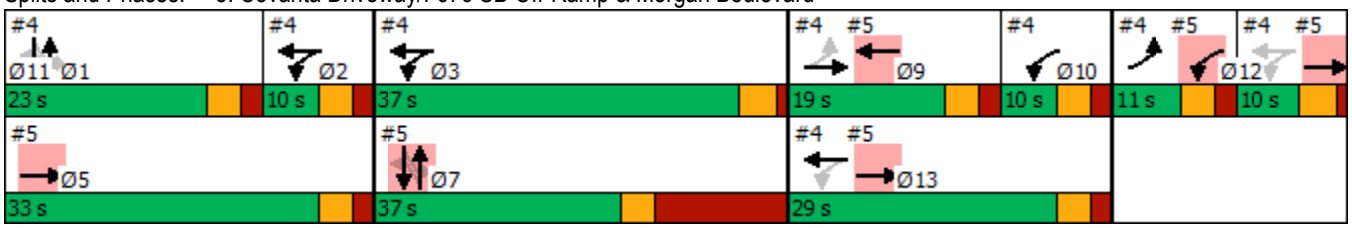
Lane Group	Ø1	Ø2	Ø3	Ø5	Ø10	Ø11	Ø13
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Heavy Vehicles (%)							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	5	10	11	13
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	10.0	9.5	10.0	10.0	9.5	10.0
Total Split (s)	23.0	10.0	37.0	33.0	10.0	10.0	29.0
Total Split (%)	19%	8%	31%	28%	8%	8%	24%
Maximum Green (s)	18.0	5.0	32.5	28.0	5.0	5.5	24.0
Yellow Time (s)	3.0	3.0	3.5	3.0	3.0	3.5	3.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag	Lead	Lag			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	4.0	4.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							

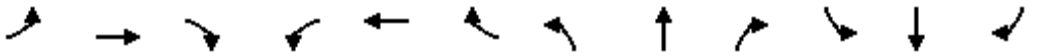
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			D			A			D	
Queue Length 50th (ft)		1		8	34			0		174	1	
Queue Length 95th (ft)		1		22	51			0		#243	33	
Internal Link Dist (ft)		93			701			190			339	
Turn Bay Length (ft)				115						250		
Base Capacity (vph)		1921		53	439			403		274	471	
Starvation Cap Reductn		791		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.36		0.19	0.21			0.09		0.83	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 25.5		Intersection LOS: C	
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Covanta Driveway/I-676 SB Off-Ramp & Morgan Boulevard



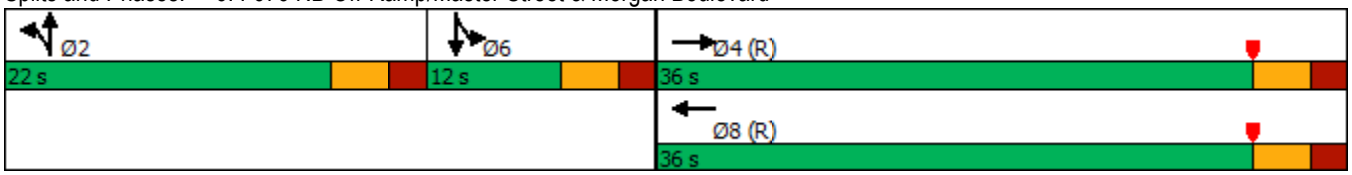


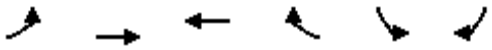
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	261	0	0	218	15	40	101	0	30	0	145
Future Volume (vph)	0	261	0	0	218	15	40	101	0	30	0	145
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.990						0.888	
Flt Protected							0.950	0.998			0.991	
Satd. Flow (prot)	0	3431	0	0	3443	0	1443	1782	0	0	1616	0
Flt Permitted							0.950	0.998			0.991	
Satd. Flow (perm)	0	3431	0	0	3443	0	1443	1782	0	0	1616	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					13						159	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		781			586			542			267	
Travel Time (s)		21.3			16.0			14.8			7.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.84	0.84	0.84	0.91	0.91	0.91
Heavy Vehicles (%)	0%	8%	0%	0%	7%	0%	22%	3%	0%	7%	0%	6%
Adj. Flow (vph)	0	272	0	0	232	16	48	120	0	33	0	159
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	272	0	0	248	0	43	125	0	0	192	0
Turn Type		NA			NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases												
Detector Phase		4			8		2	2		6	6	
Switch Phase												
Minimum Initial (s)		22.0			22.0		10.0	10.0		7.0	7.0	
Minimum Split (s)		27.0			27.0		15.0	15.0		12.0	12.0	
Total Split (s)		36.0			36.0		22.0	22.0		12.0	12.0	
Total Split (%)		51.4%			51.4%		31.4%	31.4%		17.1%	17.1%	
Maximum Green (s)		31.0			31.0		17.0	17.0		7.0	7.0	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		38.5			38.5		11.3	11.3			8.1	
Actuated g/C Ratio		0.55			0.55		0.16	0.16			0.12	
v/c Ratio		0.14			0.13		0.18	0.43			0.59	
Control Delay		9.7			9.2		26.6	31.0			15.8	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		9.7			9.2		26.6	31.0			15.8	
LOS		A			A		C	C			B	
Approach Delay		9.7			9.2			29.8			15.8	
Approach LOS		A			A			C			B	
Queue Length 50th (ft)		28			24		17	52			13	
Queue Length 95th (ft)		57			51		38	89			68	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		701			506			462			187	
Turn Bay Length (ft)												
Base Capacity (vph)		1888			1900		350	432			328	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.14			0.13		0.12	0.29			0.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 43.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: I-676 NB Off-Ramp/Master Street & Morgan Boulevard





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	25	10	10	127	0
Future Volume (vph)	0	25	10	10	127	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.925			
Flt Protected					0.950	
Satd. Flow (prot)	0	3632	3360	0	1816	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3632	3360	0	1816	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		66	454		232	
Travel Time (s)		1.8	12.4		6.3	
Peak Hour Factor	0.73	0.73	0.70	0.70	0.73	0.73
Adj. Flow (vph)	0	34	14	14	174	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	34	28	0	174	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	10	10	127	0
Future Vol, veh/h	0	25	10	10	127	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	70	70	73	73
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	34	14	14	174	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	28	0	-	0	38	14
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1584	-	-	-	969	1062
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	969	1062
Mov Cap-2 Maneuver	-	-	-	-	969	-
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	969
HCM Lane V/C Ratio	-	-	-	-	0.18
HCM Control Delay (s)	0	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.7

TECHNICAL REPORT

STORMWATER MAINTENANCE REPORT

HOLTEC OFFICE BUILDING
BLOCK 511, LOTS 1,77-87, 90-93
BLOCK 512, LOTS 55-74, 33-53, 109, 110, 113-117
BLOCK 514, LOTS 3-6, 9-32, 100-107, 118, 120, 145-149, 121, 150-155
BLOCK 515, LOT 1
CITY OF CAMDEN
CAMDEN COUNTY, NEW JERSEY



Prepared For:

Holtec Technology Center, LLC
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Camden, New Jersey 08104

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Proj. No. USATX22001

October 12, 2023
December 28, 2023
August 23, 2024

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STORMWATER MANAGEMENT MEASURES
MAINTENANCE PLAN

Development Name: Holtec Office Building

Address: 1 Holtec Boulevard

Township, County: City of Camden, Camden County, NJ

Block 511, Lots 1, 77-94
Block 512, Lots 33-75, 109, 110, 113-117
Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 121, 144-155
Block 515, Lot 1,2,3,4,4.15, 5-12

Party Responsible for Maintenance:

Owner: Holtec Technology Center, LLC
Address: 1 Holtec Boulevard
Camden, New Jersey 08104
Contact Person(s): Mr. Steve Trendler, Facilities Manager
Phone: (856)797-0900 Ext 3701

Maintenance Company: Municipal Maintenance Co,
Address: 1352 Taylors Lane
Cinnaminson, New Jersey 08077
Contact Person(s): Mr. Ryan Cotter
Phone: (856)786-9434

Prepared by: Pennoni Associates Date: 10/12/2023

Last Revised on 08 /23/ 2024

1.0 PROJECT OVERVIEW

This Operation and Maintenance Manual has been prepared in support of the stormwater management facilities for Holtec Office Building, City of Camden, Camden County, NJ.

The party responsible for maintenance shall be:

Owner:
Holtec Technology Center, LLC
1 Holtec Boulevard
Camden, New Jersey 08104
(856)797-0900 Ext 3701 / Mr. Steve Trendler, Facilities Manager

Maintenance Company:
Municipal Maintenance Co,
1352 Taylors Lane
Cinnaminson, New Jersey 08077
Contact Person(s): Mr. Ryan Cotter
Phone: (856)786-9434

The site is located on the following Block and Lot:

Block 511, Lots 1, 77-94
Block 512, Lots 33-75, 109, 110, 113-117
Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 121, 144-155
Block 515, Lot 1,2,3,4,4.15, 5-12

NJ State Plane Coordinates of each facility is indicated below:

Manufactured Treatment Device Vortechs Device 110A	-	N 394,308	E 318,297
Manufactured Treatment Device Vortechs Device 110B	-	N 394,308	E 318,310
Manufactured Treatment Device Filterra Unit A	-	N 394,098	E 318,298
Manufactured Treatment Device Filterra Unit B	-	N 394,025	E 318,307
Manufactured Treatment Device Filterra Unit C	-	N 394,003	E 318,307
Manufactured Treatment Device Filterra Unit	-	N 394,060	E 317,340
Manufactured Treatment Device Filterra Unit #1	-	N 394,044	E 317,568

Manufactured Treatment Device
Exist. Filterra Unit #2 - N 394,188 E 317,571

Each facility location relative to the site has been indicated on the Facility Location Map on page 3 and 4.

The inspection, maintenance and repair report shall be updated and kept on file at the City of Camden and Holtec's maintenance office.

The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and deed as needed.

The person responsible for maintenance shall retain and make available, upon request by any public entity with administrative, health, environmental or safety authority over the site, the maintenance plan and the documentation required.

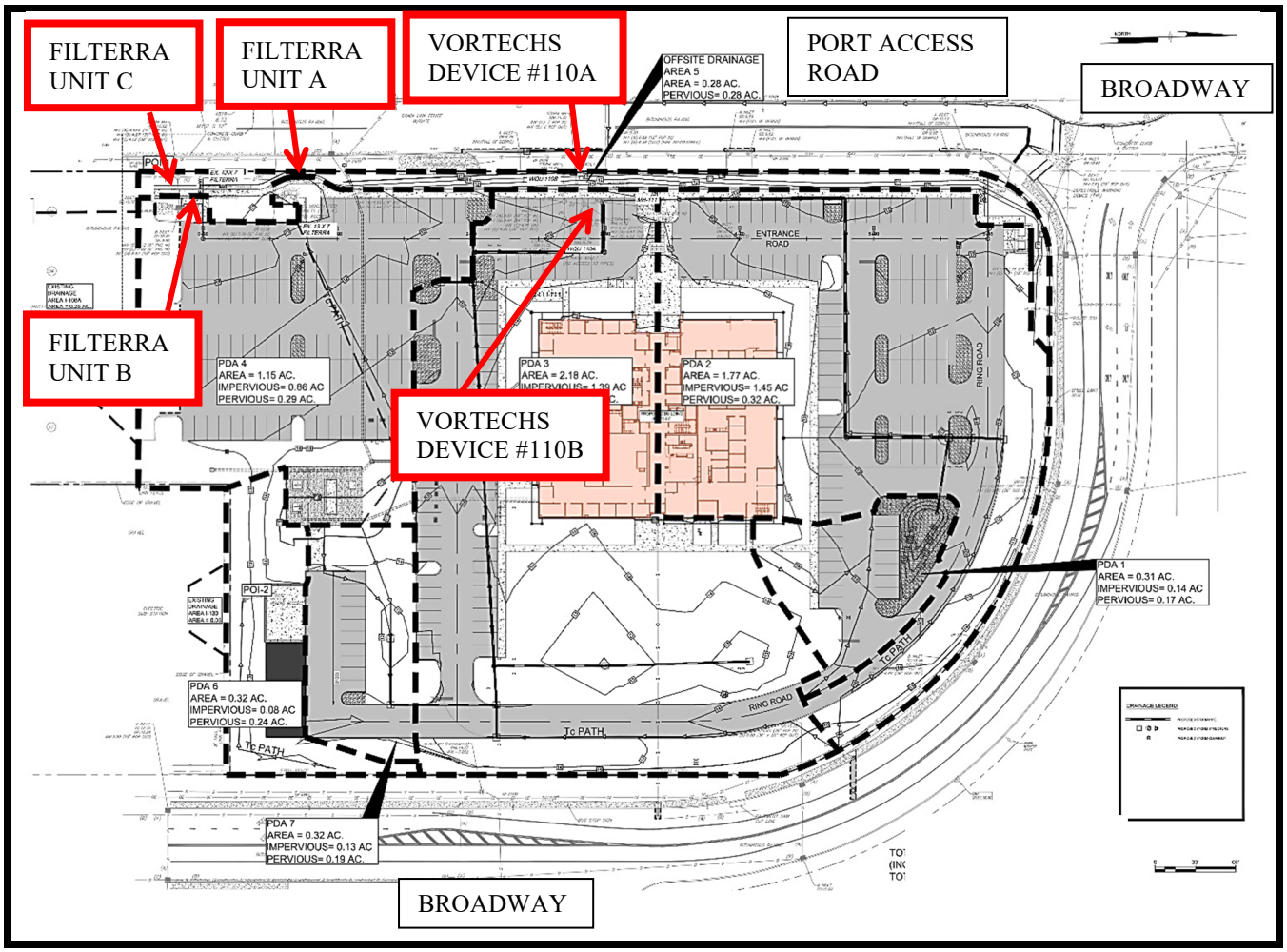
To the extent feasible by law, the City will at all reasonable times have a right of ingress and egress over the easement area and the right to enter the easement area via any road or parking lot located within any common area owned by the Grantor to inspect the system located in the easement area.

Except in the case of an emergency, the City will provide not less than seven (7) days prior notice to the performing any inspection or monitor of the System in accordance with approved plan. The applicant agrees that the failure to timely object after receiving notice from the City constitutes consent to inspection of the property within the timeframe specified in the notice.

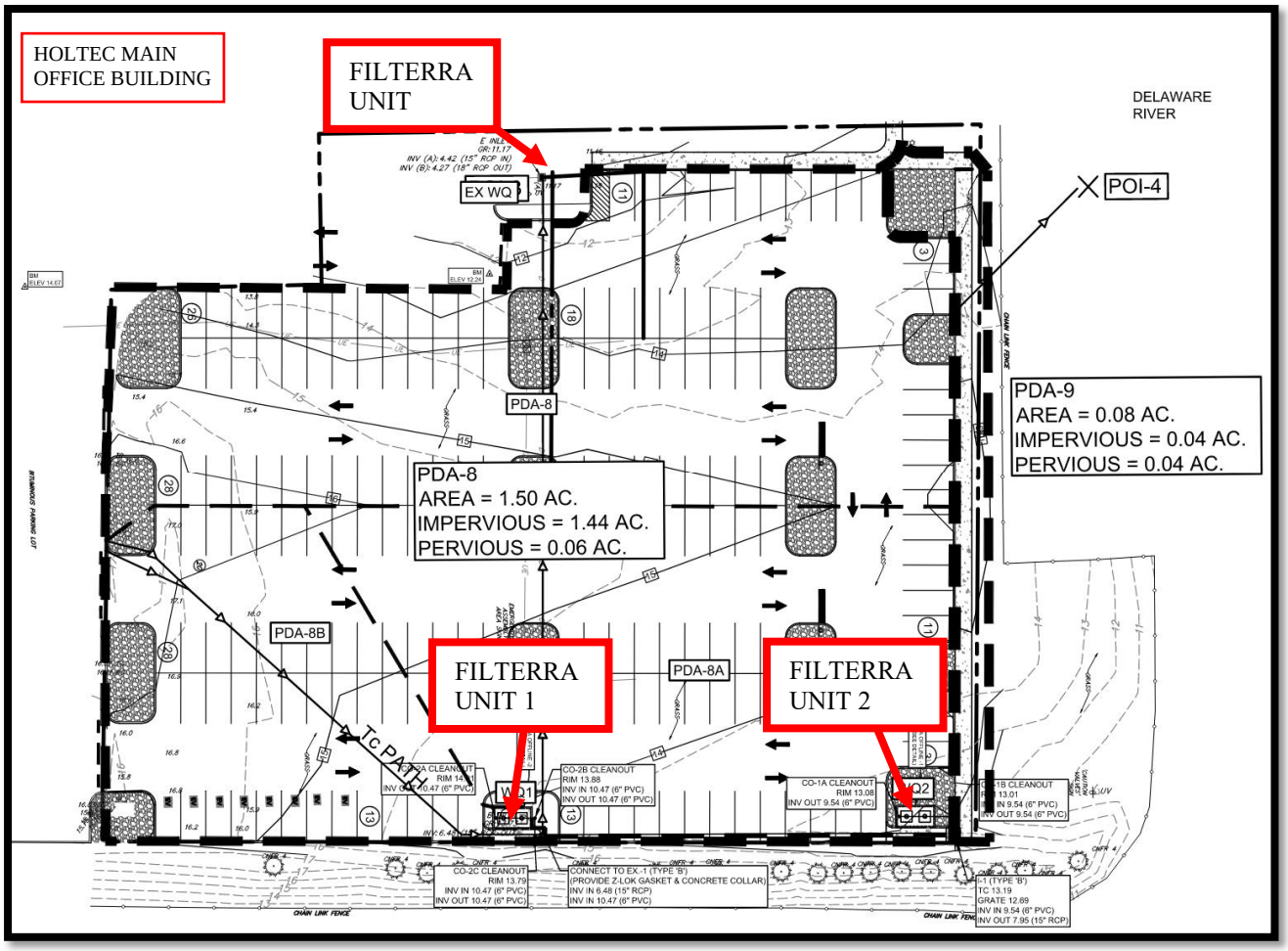
If, after reasonable notice by the City, the applicant fails to maintain the System in accordance with the approved Manual and the Maintenance Plan, the City may perform any maintenance needed to correct a condition that impacts the effectiveness of routine maintenance and operations of the system and collect any costs incurred as a result from each owner of the System and in the same manner as real property taxes are collected. In addition, the City may seek reimbursement under any other method legally available to collect debts owed.

The applicant agrees to indemnify and save the City harmless from any and all claims for direct damages to persons or property arising from inspections performed by the City.

Facility Location Map



Facility Location Map



2.0 STORMWATER SYSTEM OVERVIEW

Area 1 consists of runoff from the easterly parking area and open space area. The runoff flows to a proposed bioretention basin #1. The basin discharges to stormwater collection system within the site to the existing green-infrastructure (GI) MTD. The existing GI MTD discharges to an existing stormwater conveyance system which extends along the westerly side of the site (POI-1) and discharges to the Delaware River.

Area 2 consists of runoff from the northernly half of the building area, landscaped/lawn area, sidewalks, parking lot area and a section of the proposed Entrance Road. The runoff flows to a proposed stormwater collection system and through Vortechs Device #110A/#110B for quality treatment. The runoff then continues through the existing drainage system and discharges to Delaware River.

Area 3 consists of runoff from the southerly half of the building area, landscaped/lawn area, sidewalks, parking lot area and sections of the proposed Ring Road and Entrance Road. The runoff flows to a proposed stormwater collection system and through Vortechs Device #110A/#110B for quality treatment. The runoff then continues through the existing drainage system and discharges to Delaware River.

Area 4 consists of runoff from the pole barn structure and associated parking area, landscape/lawn area, stoned equipment area, sidewalks, and a portion of Entrance Road. The runoff flows to a proposed stormwater collection system and through Filterra Units #A, #B, and #C for quality treatment. The runoff then continues through the existing drainage system and discharges to Delaware River

Area 5 includes runoff from lawn and sidewalk area that bypasses the proposed stormwater collection system. Then continues offsite to the existing drainage system located in Port Access Road.

Area 6 consists of runoff from landscape/lawn area and collects into an existing inlet. The runoff continues through the existing drainage system and and discharges to Delaware River.

Area 7 consists of a proposed parking area for the pole barn and is located on the southernly side of the site. The stormwater runoff drains in a northernly direction and is collected by the proposed stormwater conveyance system, which extends through the site to Holtec Boulevard and discharges to the Delaware River.

Area 8 consists of a proposed parking area located in a northeasterly direction from Holtec's main office building. The stormwater runoff drains in a northeasterly direction towards two (2) proposed Filterra water quality inlets and in a westerly direction towards two (2) existing Filterra water quality inlets located onsite.

The proposed stormwater collection system will connect into the existing stormwater system that extends through Holtec's site and discharges directly to the Delaware River.

Area 9 consists of proposed sidewalk and grass area along the northeasterly corner of the main office building site. The stormwater runoff drains in a northwesterly direction to the Delaware River.

3.0 MAINTENANCE/INSPECTIONS

The following summarizes general maintenance items, which should be addressed on an annual basis:

1. Removal of debris and sediment;

2. General maintenance and repairs to the infiltration areas and vegetated swales;

An inspection, maintenance and repair report will be updated annually by the municipality.

4.0 GENERAL MAINTENANCE

All facilities expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four (4) times annually as well as after every storm exceeding one (1) inch of rainfall. Such components may include bottoms, riprap aprons and inflow points.

5.0 REGULAR MAINTENANCE ITEMS

Regular maintenance items, as itemized in the checklist enclosed as Appendix B. includes the following items:

1. Removal and Disposal of Trash and Debris: Immediately following any significant rainfall event, as well as after every storm exceeding 1 inch of rainfall and at least once every 3 months, all trash and debris should be removed from the impoundment area.

2. Sediment Removal and Disposal: Accumulated sediment should be removed before it threatens the operation or storage volume of the facility. Sediment volume should be monitored on a quarterly basis to assure the outlets are not blocked.

   Disposal of sediment should be in accordance with current Borough standards and regulations of the New Jersey Department of Environmental Protection.

Corrective Maintenance

Corrective maintenance should be provided as soon as practicable after a situation that requires attention is reported. Corrective maintenance includes repair of damage caused by vandalism, removal of debris and sediment that threatens the operational capacity of the facility, and corrections of any problems that jeopardize the safety or operation of the facility.

Maintenance Inspection

An inspection of the facility should be made a minimum of once every year in order to determine the effectiveness of the maintenance work and the condition of the facility. In addition, an inspection should be made whenever a severe storm warning is issued in order to determine the readiness of the facility.

Records

Included in this report as Appendix B, are checklists and logs for use by maintenance personnel and inspectors. These should be utilized every time maintenance or inspection is performed on the facility. The reports should be appropriately filed and used to determine effectiveness of the existing maintenance and inspection schedules, and also used a guide to revise the schedules as necessary to effectively maintain the operational integrity of the facility.

6.0 BEST MANAGEMENT PRACTICES (BMPS)

The NJDEP Stormwater Management Regulations (N.J.A.C. 7:8) have been adopted to address the adverse impacts of land development. The stormwater management measures taken to meet these requirements are collectively known as Best Management Practices (BMPs). BMPs can be non-structural, as in the minimization of impervious surfaces, or structural, as in the construction of stormwater management facilities discussed in this manual.

6.1 GREEN INFRASTRUCTURE MANUFACTURED TREATMENT DEVICE

Definition

A green infrastructure manufactured treatment device is a stormwater treatment system used to address stormwater runoff quality impacts of site development.

Purpose

Green infrastructure manufactured treatment devices will remove 80% total suspended solids.

Maintenance

1. Inspection

   Inspect the unit and the surrounding area with photographs. All structural components must be inspected at least once annually for cracking and deterioration or more frequently if specified in the manufacturers MTD Operations and Maintenance Manual.

2. Sediment/Debris Removal

   Sediment removal should take place when the MTD is thoroughly dry. Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

3. Vegetation

   Examine the plant's health and replace if necessary. Prune as necessary to encourage growth in the correct directions. Vegetative cover must be maintained at 85%.

   A minimum of one inspection during the growing season and one inspection during the non-growing season is required to ensure the health of the vegetation.

6.2 NON-GREEN MANUFACTURED TREATMENT DEVICE

Definition

A manufactured treatment device is a prefabricated stormwater treatment structure to remove pollutants from stormwater runoff.

Purpose

The manufactured treatment device is a hydrodynamic vortex separator designed to provide high removal efficiencies of settleable solids and their associated pollutants, oil, and floatables over a wide range of flow rates.

Maintenance

1. Sediment Removal and Disposal

   Inspect your manufactured treatment device every six months during the first year of operation to determine your site-specific rate of pollutant accumulation. Maintenance events may include inspection, oil & floatables removal, and sediment removal. Accumulated sediment should be removed at a minimum of once per year and/or following a spill in the drainage area. Sediment shall be removed when it accumulates to a depth of 36". Dried sediment must be manually removed by maintenance crews.

   Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

2. Floatables Removal and Disposal

   Floatables cleanout is typically done in conjunction with sediment removal. A commercially owned sump-vac is used to remove captured sediment and floatables.

   Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose and skimmer pole to be lowered to the base of the sump.

3. Other Maintenance criteria

   The manufactured treatment device should be inspected and maintained in accordance with the manufacturer's instructions and/or recommendations and any maintenance requirements associated with the device's certification by NJDEP Office of Innovation Technology.

6.3 STORMWATER INLETS AND PIPES

Definition

Inlet structures are box structures with grate openings to receive surface water which is then conveyed through the underground stormwater pipe system.

Purpose

The primary function of an inlet structure is to allow water to enter the storm drainage system. Inlets also serve as access points for cleaning and inspection.

Maintenance

1. Sediment Removal and Disposal

   Inspect your structures every six months during the first year of operation to determine your site-specific rate of pollutant accumulation. Maintenance events may include inspection, floatables removal and sediment removal.

   Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

2. Other Maintenance criteria

   Regular inspections of inlets and storm pipes should take place approximately three times per year, with additional inspections advised after major weather events. Inspection of the drainage flow paths should be performed to check for blockages. All drains must remain free of foreign objects.

   Pipes should be checked for settlement at the joints, which may cause leakage and undermining of the system. Inspections in locations that are not easily accessible may be performed by video inspection of the system.

6.1 BIORETENTION AREA

The following is taken from the Rain Garden Manual of New Jersey by the Rutgers Cooperative Extension Water Resources Program:

Definition

A bioretention area is a landscaped/grassed depression that captures, filters and infiltrates stormwater runoff. The rain garden/bioretention area removes nonpoint source pollutants from stormwater runoff while recharging groundwater.

Purpose

A bioretention area has two main goals. The first goal is to serve as a functional system to capture, filter and infiltrate stormwater runoff at the source and the second goal is to be an aesthetically pleasing garden/grass area.

Maintenance

1. Vegetation

   Grasses within the bioretention area must be carefully maintained so as not to compact the soil, and through handheld equipment. The vegetative cover should be maintained at 85%.

2. Sediment/Debris Removal

   Occasionally use a flat shovel to remove any excess sediment, leaves, or debris that may accumulate.
   Grass clippings shall be collected and properly disposed of. Precautions must be taken to prevent planting bed soil compaction and sediment contamination by runoff.

   Sediment removal should take place when the bioretention area is thoroughly dry. Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

3. Structural Components

   All structural components must be inspected for cracking, erosion and deterioration at least annually. The 4" perforated underdrains shall be inspected for clogging.

4. Other Maintenance criteria

   The maintenance plan must indicate the approximate time it would normally take to drain the maximum design storm runoff volume below the bottom of the basin. This normal drain or drawdown time should then be used to evaluate the infiltration area's actual performance.

   If significant increases or decreases in the normal drain time are observed, the basin's bottom surface, subsoil and both groundwater and tailwater levels must be evaluated and appropriate measures taken to comply with the maximum drain time requirements and maintain the proper functioning of the infiltration area.

   The bottom of a bioretention area should be inspected at least monthly as well as after each storm event exceeding one inch of rainfall. The permeability rate of the soil below the infiltration area may also be retested periodically.

7.0 SAFETY OF INSPECTION AND MAINTENANCE PERSONNEL

Maintenance personnel may require training in maintenance tasks. Inspectors are expected to be dressed in protective clothing and use the appropriate equipment and safety gear in accordance with OSHA regulations and procedures when performing their tasks. Equipment should always be operated safely and in accordance with manufacturers specifications. Call utility companies before initiating any maintenance activity involving any excavation.

8.0 MISCELLANEOUS ITEMS

a. Emergency Conditions

Recommended corrective responses to various emergency conditions that may be encountered at the stormwater management measure are to be determined on an as-needed basis after each subsequent inspection.

b. Specialized Stormwater Management Measures

Maintenance, repair, and replacement instructions for specialized, proprietary, and non-standard measure components, in addition to manufacturer's product installation guides and user manuals, have been included and referenced, if applicable, on the design plans for the project. Refer to specific product guides and user manuals for specific detail regarding the respective item.

c. Disposal and Recycling Sites

Approved disposal and recycling sites and procedures for sediment, trash, debris, and other material removed from the stormwater management measures during maintenance operations shall be utilized and have been referenced herein and on the design plans for the project.

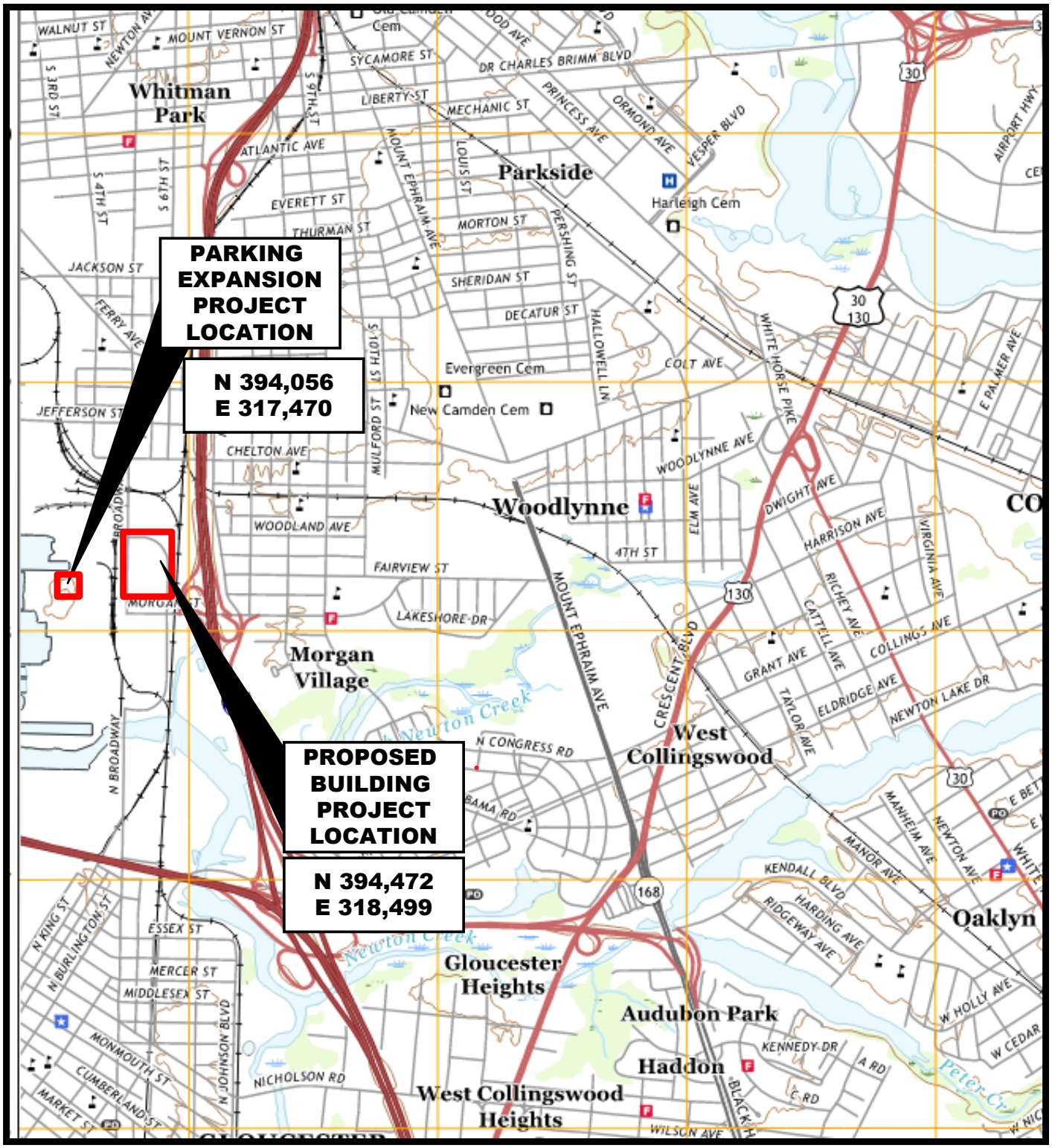
d. As-Built Construction Plans

As-built construction plans of the stormwater management measures and copies of pertinent construction documents, such as laboratory test results, permits, and completion certificates are required for verification for the associated measures to function properly and in accordance with the approved design.

As-built construction plans will be available through the responsible party denoted in the report.

e. Permits for Maintenance Activities

There are currently no permits required from the New Jersey Department of Environmental Protection for the maintenance activities associated with the proposed drainage system as outlined herein. However, compliance with all regulations and requirements pertaining to the disposal of sediment, trash, debris and other removed material is required.



USGS 7.5 Min. Camden Quadrangle, Camden County, New Jersey

Pennoni PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103	HOLTEC OFFICE BUILDING BLOCKS 511,512,514 & 515 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY	
Job No. USATX22001	Scale: 1"=2,000'	Figure 1 –USGS Map

APPENDIX A

- **TOOLS AND EQUIPMENT**
- **MAINTENANCE CATEGORIES**

TOOLS AND EQUIPMENT

The following is a list of required inspection equipment for routine operation and maintenance procedures and inspections:

1. A clipboard, a pencil and the inspection checklist. The checklist is included in Appendix B.
2. A standard 6-foot collapsible ruler.
3. A camera. Photographs or observed portions of the basin will provide a measure of performance when comparing past and present maintenance practices or conditions.
4. A probe. A stiff light stick or rod with a blunt tip of sufficient strength to penetrate soil.
5. A weed whacker. Can be used to clear non-visible areas and to perform routine maintenance of the green infrastructure MTD.
6. A flashlight. Can be used to observe the inside of outlet pipes and structural components.

Maintenance may include the use of equipment including the following:

1. Wheelbarrow.
2. Safety Equipment and Personal Protective Equipment
3. Crow bar or other tool to remove grate or lid
4. Pole with skimmer or net
5. Trash bag for removed floatables
6. Vacuum truck.
7. Ladder

Sources of the following materials should be identified for immediate use of warranted repairs by the inspection:

1. Clean sand or gravel for filling erosion rills and gullies.
2. Topsoil mixture, fertilizer and seed.
3. Large stone riprap for emergency repairs caused by erosion.
4. Synthetic geotextile fabric, netting and stakes to prevent seed and topsoil from blowing away.

MAINTENANCE CATEGORIES

1. **Immediate Maintenance:** demands immediate attention and usually requires construction equipment and professional guidance. Immediate maintain is characterized by the following:

    a. A blocked inlet pipe or outlet pipe.
    b. Following a spill in the drainage area.
    c. Foul odor.
    d. Clogged drains.

2. **Corrective Maintenance:** should be performed as soon as possible after an inspection. Corrective maintenance consists of the following:

    a. A simple probe can be used to determine the level of accumulated solids stored in the sump.
    b. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation.

2. **Continuing Maintenance Manufactured Treatment Device:** will occur on a regular basis and can be performed during the inspection or in accordance with the maintenance schedule outlined above. Continuing maintenance includes:

    a. Sediment removal is not required unless sediment depths exceed 75% of maximum clean-out depths as indicated in the manufacturer's operation manual.
    b. Inspection may be conducted during any season of the year.

3. **Continuing Maintenance Manufactured Treatment Device:** will occur on a regular basis and can be performed during the inspection or in accordance with the maintenance schedule outlined above. Continuing maintenance includes:

    a. Trimming, weeding and fertilizing
    b. Mulching of the green infrastructure MTD
    c. Inspection may be conducted during any season of the year.

MAINTENANCE INSPECTION

An inspection of the facilities should be made a minimum of once every three months in order to determine the effectiveness of the maintenance work and the condition. In addition an inspection should be made whenever a severe weather warning is issued in order to determine the readiness of the facilities.

Reports should be appropriately filed and used to determine the effectiveness of the existing maintenance and inspection schedules and also used as a guide to revising the schedules as necessary to maintain the operational integrity.

APPENDIX B

- BASIN INSPECTION AND MAINTENANCE COSTS
- INSPECTION CHECKLISTS
- MAINTENANCE CHECKLISTS
- MAINTENANCE LOGS
- MANUFACTURERS INFORMATION
- CORRECTIVE MAINTENANCE RECORD

ENGINEER'S ESTIMATE OF
BASIN INSPECTION AND MAINTENANCE COSTS
HOLTEC INTERNATIONAL
CITY OF CAMDEN
CAMDEN COUNTY, NEW JERSEY

Item #	Description	Rate	Unit	Total Units	Frequency Per Year	Item Total
1	Grass Trimming	$ 300.00	LS	1	15	$4,500.00
2	Landscape Maintenance (GI MTD)	$ 250.00	LS	5	2	$2,500.00
3	Landscape Maintenance Materials	$ 250.00	LS	5	1	$1,250.00
4	General Maintenance	$ 200.00	LS	8	2	$3,200.00
5	Visual Inspection	$ 175.00	LS	8	2	$2,800.00
6	Trash and Debris Removal	$ 200.00	LS	8	As Needed	$1,600.00
7	Preventive Maintenance	$ 200.00	LS	8	1	$1,600.00
8	Corrective Maintenance	$ 225.00	LS	8	1	$1,800.00
9	Vacuum Clean MTD	$ 750.00	LS	2	2	$3,000.00
10	Vacuum Clean Subsurface Pipes	$ 1,500.00	LS	1	1	$1,500.00

TOTAL ANNUAL	$23,750.00

Inspection Checklist Filterra Manufactured Treatment Device

Name of Facilitiy:	Holtec International
Location:	City of Camden, Camden County, Nj
Date of Inspection:	
Weather	

Manufactured Treatm

Facility Item	OK	Routine	Urgent	Comments
A. Inlet				
B. Rim and Cover				
C. Outlet/Overflow				
D. Vault				
D. Mulch Cover				
E. Vegetation				
G. Structural Deterioration				
H. Odors				
I. Other				

(1) The item checked is in good condition and the maintenance program is adequate.

(2) The item checked requires attention but does not present an immediate threat to the facility function or other facility

(3) The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.

(4) Provide explanation if "Routine" or "Urgent" is checked.

Filterra Manufactured Treatment Device Maintenance Checklist

Name of Facilty:	Holtec International
Location:	City of Camden, Camden County, NJ
Date of Inspection:	
Weather	

Preventive Maintenance

Facility Item	Required	Completed	Comments
A. Vault			
B. Inlet			
C. Oulet			
D. Mulch			
E. Access Areas			
F. Other			

Vegetation

Facility Item	Required	Completed	Comments
A. Pruning			
B. Removal			
C. Other			

Trash and Debris Removal

Facility Item	Required	Completed	Comments
A. Chamber			
B. Inlet			
C. Outlet			
D. Access Areas			
E. Mulch			
F. Other			

Filterra Manufactured Treatment Device Maintenance Checklist

Sediment Removal

Facility Item	Required	Completed	Comments
A. Vault			
B. Inlet			
C. Outlet			

Other Maintenance

A.			
B.			
C.			

Corrective Maintenance

Facility Item	Required	Completed	Comments
A. Removal of Debris and Sediment			
B. Structural Repairs			
C. Trim/Prune Vegetation			
D. Replace mulch cover			
E. Elimination of Trees/Brush			
F. Other			

Filterra Manufactured Treatment Device Maintenance Checklist

Aesthetic Maintenance

Facility Item	Required	Completed	Comments
A. Grass Trimming			
B. Weeding			
C. Other			

Remarks:

Filterra Manufactured Treatment Device Maintenance Log

Name of Facilty:	Holtec International
Location:	City of Camden, Camden County, NJ

Preventive Maintenance

Trash and Debris Removal

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Adjacent area free of debris								
B. Inlets and Outlets								
C. Vault								
D. Mulch								
E. Other								

Sediment Removal

A. Other								

Mosquito Habitat Removal

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Inlets								
B. Bottom								
C. Other								

Other Preventive Maintenance

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Noticeable Odors								
B. Evidence of flow bypassing								
facility								
C. Evidence of flow not draining								
facility								

Corrective Maintenance

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Removal of Debris and Sediment								
B. Structural Repairs								
C. Other								

Remarks:

Manufactured Treatment Device Maintenance Checklist

Name of Facilty:	Holtec International
Location:	City of Camden, Camden County, NJ
Date of Inspection:	
Weather	

Preventive Maintenance

Facility Item	Required	Completed	Comments
A. Chamber			
B. Inlet			
C. Oulet			
D. Perimeter			
E. Access Areas			
F. Other			

Trash and Debris Removal

Facility Item	Required	Completed	Comments
A. Chamber			
B. Inlet			
C. Outlet			
D. Access Areas			
E. Inlets			
F. Other			

Manufactured Treatment Device Maintenance Checklist

Sediment Removal

Facility Item	Required	Completed	Comments
A. Chamber			
B. Inlet			
C. Outlet			

Other Maintenance

A.			
B.			
C.			

Corrective Maintenance

Facility Item	Required	Completed	Comments
A. Removal of Debris and Sediment			
B. Structural Repairs			
G. Mosquito Control			
H. Erosion Repair			
I. Elimination of Trees/Brush			
J. Other			

Manufactured Treatment Device Maintenance Checklist

Aesthetic Maintenance

Facility Item	Required	Completed	Comments
A. Grass Trimming			
B. Weeding			
C. Other			

Remarks:

Manufactured Treatment Device Maintenance Log

Name of Faciltiy:	Holtec International
Location:	City of Camden, Camden County, NJ

Preventive Maintenance

Trash and Debris Removal

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Adjacent area free of debris								
B. Inlets and Outlets								
C. Chamber								
D. Pipes								
E. Other								

Sediment Removal

A. Other								

Mosquito Habitat Removal

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Inlets								
B. Bottom								
C. Other								

Other Preventive Maintenance

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Noticeable Odors								
B. Evidence of flow bypassing								
facility								
C. Evidence of flow not draining								
facility								

Corrective Maintenance

Facility Item	Date	Date	Date	Date	Date	Date	Date	Date
A. Removal of Debris and Sediment								
B. Structural Repairs								
C. Other								

Remarks:

Filterra Vault Owner's Manual

(Precast Vault Configurations)

filterra®

Bioretention Systems

CONTECH®

ENGINEERED SOLUTIONS

This Owner's Manual applies to all precast Filterra Configurations, including Filterra Bioscape Vault and Filterra HC.







filterra®
Bioretention Systems

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CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and a final site assessment of unit condition (mulch replacement, debris removal, and pruning of vegetation) scheduled between 6 and 12 months after activation, upon request.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices.
- Planting of the system's vegetation (provided by the purchaser).
- Placement of pretreatment mulch layer using mulch acceptable for use in Filterra systems.

Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch acceptable for use in Filterra systems. More information is available in the Filterra Activation Package.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

1. **The purchaser must have procured vegetation meeting the requirements outlined in the Filterra Activation Package.**

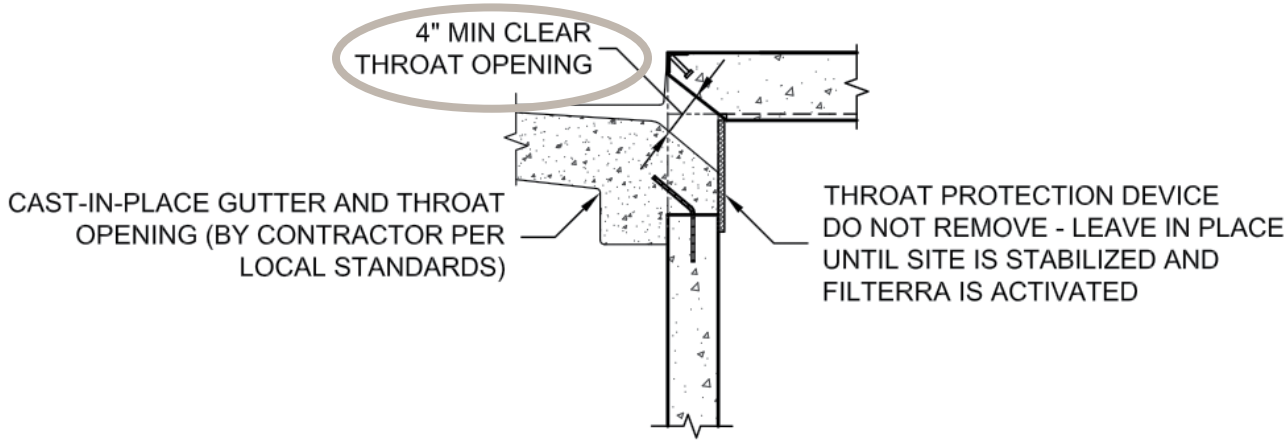
2. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



3. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.



4. Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



The Filterra Activation Package is available on the Contech website (www.ContechES.com/filterra) and ensures that the proper conditions are met for Contech to perform the Activation service. Vegetation meeting Contech's requirements must be provided at time of Activation. If the site does not meet the conditions required for Activation, or acceptable vegetation is not provided by the purchaser at time of Activation, a charge of $1,500 will be invoiced to the purchaser.

Filterra Plant Selection Overview

A Plant List is available on the Contech website highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

More information is available in the Filterra Activation Package.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Final Site Assessment services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Final Site Assessment

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. A final site assessment is included by the manufacturer, upon request, on all Filterra systems between 6 and 12 months after activation. This includes a final assessment of unit condition, debris removal, mulch replacement, and pruning of vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the final site assessment, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.



Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; in regions with less rainfall often only (1) one visit per annum is sufficient. Varying land uses can affect maintenance frequency. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the maintenance provider of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.



Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not included as part of the final site assessment. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Box Length	Box Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	16	4	2
6	4	24	6	3
8	4	32	8	4
6	6	36	9	5
8	6	48	12	6
10	6	60	15	8
12	6	72	18	9
13	7	91	23	12

Other sizes not listed - 1 bag per 8 ft^2 of media.

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.



1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).



2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____



- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____



4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.



5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no



6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.



7. Complete paperwork

- Deliver Maintenance Report.
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Plant Care for Filterra® Systems

After Activation, the Contractor is responsible for proper care of the vegetation until the site is handed over to the Owner. After that, it is the Site Owner's responsibility to care for the vegetation. Contech recommends the following care for the plants:

1. To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
2. Plant staking may be required.
3. With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
4. Contech recommends irrigation of the Filterra® Vegetation. The following guidance will help to ensure the vegetation is properly irrigated.

Irrigation Recommendations:

- Each Filterra® system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra® plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required.

*** Five gallons per square yard approximates 1 inch of water. Therefore for a 6' x 6 foot Filterra® approximately 20-60 gallons of applied water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate. Then calculate the time needed to irrigate the Filterra®, For example is the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6'x6' filter.*

Plant Replacement:

In some cases, plants will require replacement. Please follow the procedures below to ensure a properly functioning Filterra® system.

1. Remove the existing plant, and leave as much of the Filterra® media in place as possible.
2. Select a replacement per the Filterra® Activation Package.
3. Prior to removing the plant from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
4. Cut away any roots which are growing out of the container drain holes.
5. Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively, the pot can be cut away to minimize root ball disturbance.
6. Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
7. Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
8. All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
9. Reinstall or add mulch to a depth of 3" per Contech's mulch specifications for Filterra® systems.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Vault Activation Package

FILTERRA® VAULT ACTIVATION PACKAGE

CONTECH® ENGINEERED SOLUTIONS

The Filterra system will be (or has been) delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and a Final Site Assessment (assessment of unit condition, mulch replacement, debris removal, and pruning of vegetation) scheduled between 6 months and 1 year after Activation, upon request.

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation (provided by the purchaser)
- Placement of pretreatment mulch layer using mulch acceptable for use in Filterra systems.

Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch acceptable for use in Filterra systems. The purchaser should request Activation from Contech after the site is stabilized, but prior to turning over the site to the owner. Please allow 1-2 weeks to schedule Activation.

The purchaser must ensure that the site is acceptable for Filterra Activation. A checklist (included as page 3 of this document must be completed and submitted to the Contech Activation Coordinator. The minimum 4 requirements for Filterra Activation are as follows:

1. The purchaser must have sourced vegetation meeting the requirements outlined in "Plant Selection for Filterra Systems" starting on page 4 of this document.



* *UNPREPARED SITE FEE NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for Activation AND/OR acceptable plants are not provided by the contractor. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized activations will void the system warranty and waive manufacturer supplied activation and final inspection.*

2. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



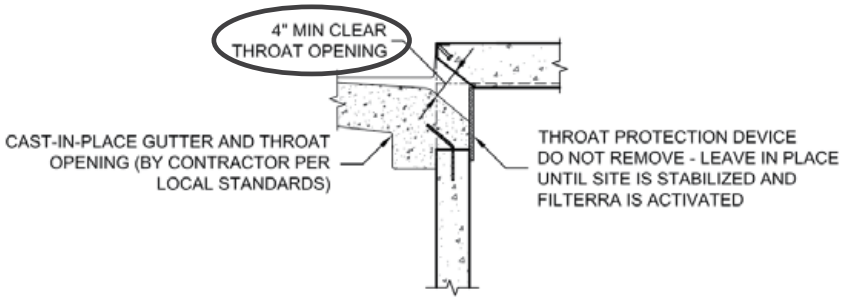


3. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.





4. Where curb inlets are included as part of the Filterra system, Filterra throat opening should be at least 4" clear in order to ensure adequate capacity for inflow and debris.



* *UNPREPARED SITE FEE NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for Activation AND/OR acceptable plants are not provided by the contractor. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized activations will void the system warranty and waive manufacturer supplied activation and final inspection.*

Filterra® Vault Activation Checklist

Project Name:_____Company:_____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name:_____Site Owner/End User Phone/Email: _____

Preferred Activation Date: _____ (provide 2 weeks minimum from date this form is submitted)

Site Designation	Top Opening Type	Final Pavement Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height (where applicable)	Vegetation Sourced by Contractor
	☐ Tree Grate ☐ Full Grate (No tree opening) ☐ Bioscape Vault (Open Planter)	☐ Verified	☐ Verified	☐ Verified	☐ Verified	☐ Species on FT Plant List ☐ Container Grown (15 gal. max) ☐ 4' Tall Min. (Tree grate units only) ____ Qty provided
	☐ Tree Grate ☐ Full Grate (No tree opening) ☐ Bioscape Vault (Open Planter)	☐ Verified	☐ Verified	☐ Verified	☐ Verified	☐ Species on FT Plant List ☐ Container Grown (15 gal. max) ☐ 4' Tall Min. (Tree grate units only) ____ Qty provided
	☐ Tree Grate ☐ Full Grate (No tree opening) ☐ Bioscape Vault (Open Planter)	☐ Verified	☐ Verified	☐ Verified	☐ Verified	☐ Species on FT Plant List ☐ Container Grown (15 gal. max) ☐ 4' Tall Min. (Tree grate units only) ____ Qty provided
	☐ Tree Grate ☐ Full Grate (No tree opening) ☐ Bioscape Vault (Open Planter)	☐ Verified	☐ Verified	☐ Verified	☐ Verified	☐ Species on FT Plant List ☐ Container Grown (15 gal. max) ☐ 4' Tall Min. (Tree grate units only) ____ Qty provided

Attach additional sheets as necessary.

NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for activation AND/OR acceptable plants are not provided by the contractor. ONLY Contech authorized representatives can perform activation of Filterra systems; unauthorized activations will void the system warranty and waive manufacturer supplied activation and final inspection.

Signature _____ Date _____

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Planting Selection for Filterra® Vault Systems



All Filterra systems require vegetation for proper long-term performance. As indicated in the Activation Package, the Contractor is responsible for sourcing the proper vegetation prior to Activation. Contech or a Contech representative will install the vegetation during the Activation process.

Contractors should identify the Top Opening style for each Filterra requiring Activation on the Activation Checklist. Contech offers three types, which are detailed on page 5 of this document:

- Vault with Tree Grate
- Vault with Full Grate
- Bioscape / Open Planter

Contractors must ensure the vegetation meets the following 4 requirements:

1. Select plant(s) as specified in the engineering plans and specifications AND that are listed on Contech's Configuration Specific Plant Lists**.
2. All plants MUST be container-grown in nursery containers no larger than 15 gallons. Crated and/or Ball/Burlap plants are NOT permitted.
3. For Vaults with Tree Grates, plant height must be 4' Minimum, from soil surface to top of plant.
4. Provide plant quantities per the following guidance:
   - Vault with Tree Grate – 1 per Tree Grate
   - Vault with Full Grate – 4-5 Small or Extra Small Grasses per Full Grate
   - Bioscape – Quantities should be selected based on plant palette options found starting on page 6 of this document.

If Contech or Contech's representative shows up for Activation and any of the 4 requirements above are not met, Activation cannot be performed and the Contractor will be billed a $1,500 Unprepared Site fee*.

Some additional vegetation recommendations for the best possible Activation and Installation are as follows:

- Select plant(s) with full root development but not to the point where root bound.
- For Filterra systems with a Tree Grate, select plants with taller trunks. Lower branches can be pruned away provided there are sufficient branches above the grate for tree or shrub development.
- For Filterra systems with a Tree Grate, plant(s) should have a single trunk at installation.
- Plant species shall not have a mature height greater than 30 feet.

** In some cases, Contech may consider alternate plant species as approved by the Product Manager. Please list the plant name in the space below and submit this sheet to your Contech Activation Coordinator. If the plant species is approved, either the Product Manager or the Activation Coordinator will sign the form and return to you for inclusion with your Activation Checklist.

Requested Plant Species: _____ Approved: _____

Date: _____

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Filterra® Top Opening Examples

Filterra® Vault with Tree Grate

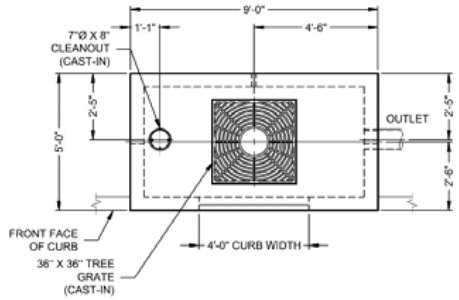


Figure 1a. Filterra with Tree Grate Drawing



Figure 1b. Filterra with Tree Grate Photo (not yet planted)

Filterra® Vault with Full Grate

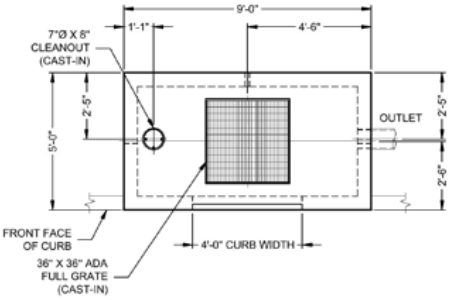


Figure 2a. Filterra with Full Grate Drawing



Figure 2b. Filterra with Full Grate Photo

Filterra® Bioscape Vault

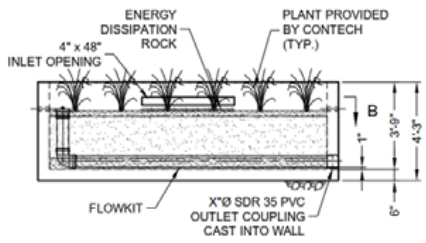


Figure 3a. Filterra Bioscape Vault Drawing



Figure 3b. Filterra Bioscape Vault Photo

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Filterra® Bioscape Vault Plant Palettes

KEY: (refer to plant lists for species sizing)



A. EXTRA SMALL GRASS
- Up to 2' mature spread
- 1-2 gallon typical (1 gal. minimum)

B. SMALL GRASS/SHRUB
- 2'-4' mature spread
- 1-7 gallon typical

C. MEDIUM SHRUB
- 4'-6' mature spread
- 1-7 gallon typical

D. LARGE SHRUB OR EXTRA LARGE SHRUB OR TREE
- 6' mature spread and greater, 30' max. mature height
- Up to 15 gallon maximum

NOTE: *For larger vaults and in-ground Filterra Bioscape systems, palettes can be scaled (i.e. Qty 6 of the 22x8 Palette can be used for a 1056 sf Filterra Bioscape).*

MIX & MATCH SUBSTITUTION OPTIONS:

1 Large Shrub or Extra Large Shrub or Tree
- 2 Medium Shrubs
- 4 Small Grass/SHrubs
- 12 Extra Small Grasses

1 Medium Shrub
- 2 Small Grass/Shrubs
- 6 Extra Small Grasses

1 Small Grass/Shrub
- 3 Extra Small Grasses

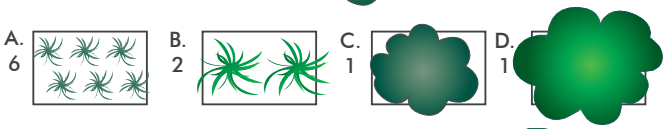
4x4 Media Bay



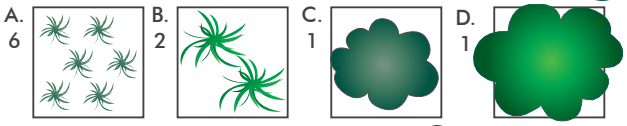
4x6/6x4 Media Bay



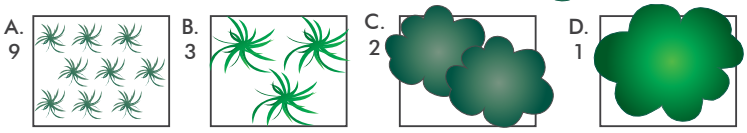
4x8/8x4 & 4.5x7.83/7.83x4.5 Media Bay



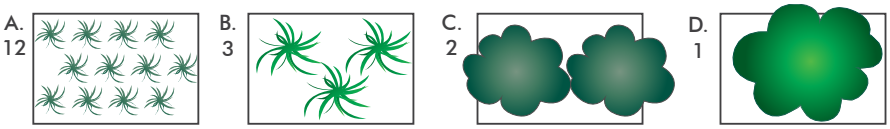
6x6 Media Bay



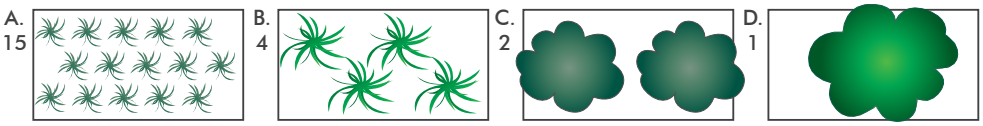
6x8/8x6 Media Bay



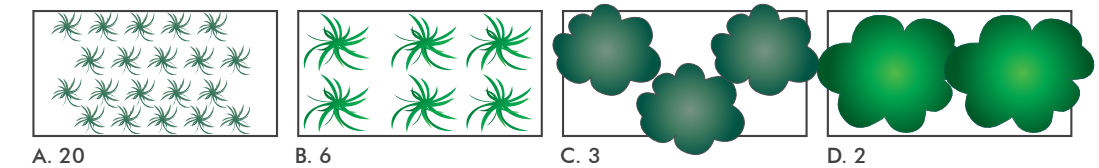
6x10/10x6 & 8x8 Media Bay



6x12/12x6 Media Bay

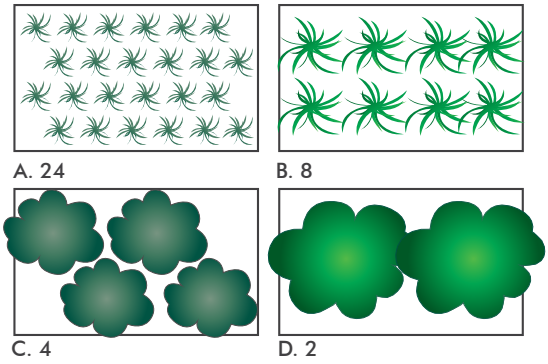


7x13/13x7/12x8 & 14x8 Media Bay



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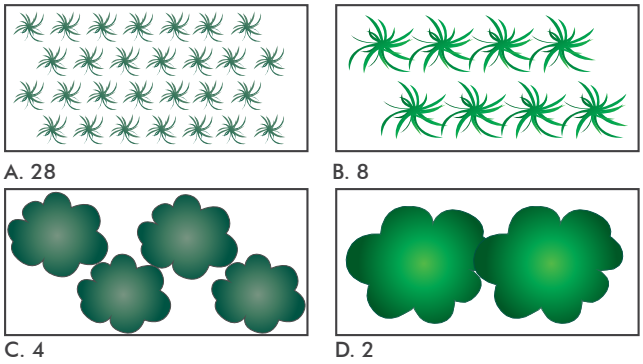
16x8 & 15x9 Media Bay



A. 24 B. 8

C. 4 D. 2

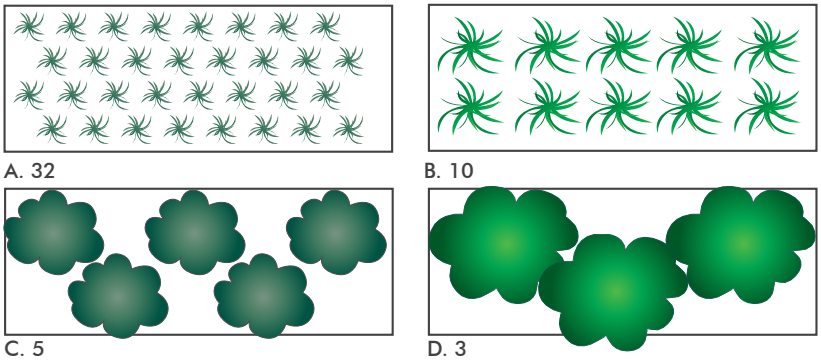
18x8 Media Bay



A. 28 B. 8

C. 4 D. 2

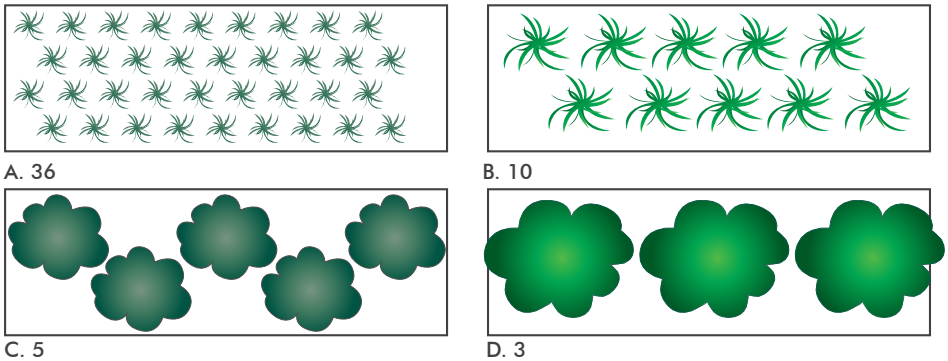
20x8 Media Bay



A. 32 B. 10

C. 5 D. 3

22x8 Media Bay



A. 36 B. 10

C. 5 D. 3

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Appendix 2 – Filterra® Tree Grate Opening Expansion Procedure

The standard grates used on all Filterra configurations that employ Tree Grates are fabricated with a 6″ opening that is designed with a breakaway section that can be removed, allowing the grate opening to be expanded to 12″ as the tree matures and the trunk widens.

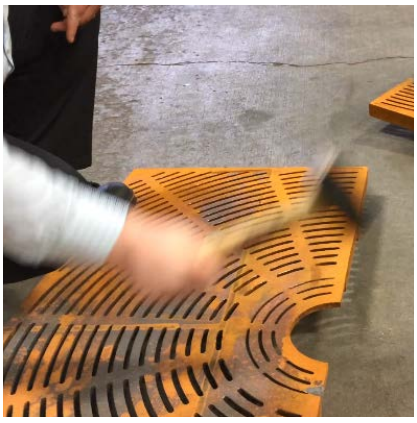
The following tools are required to expand the opening:

- Mini sledgehammer (3 lb. or greater)
- Safety Glasses / Goggles

The following guidelines should be followed to properly expand the tree opening from 6″ to 12″:



1. Remove the grate from the Filterra frame, place it flat on a hard surface, and support the grate by stepping on the edge or using other weighted items such as a few mulch bags if this is being done during a Filterra maintenance event. Put on safety glasses/goggles. Align the mini sledgehammer as shown in the figure to the left. The head of the sledgehammer should be aimed just inside the wide cast iron bar between the larger grate section and the breakaway section.



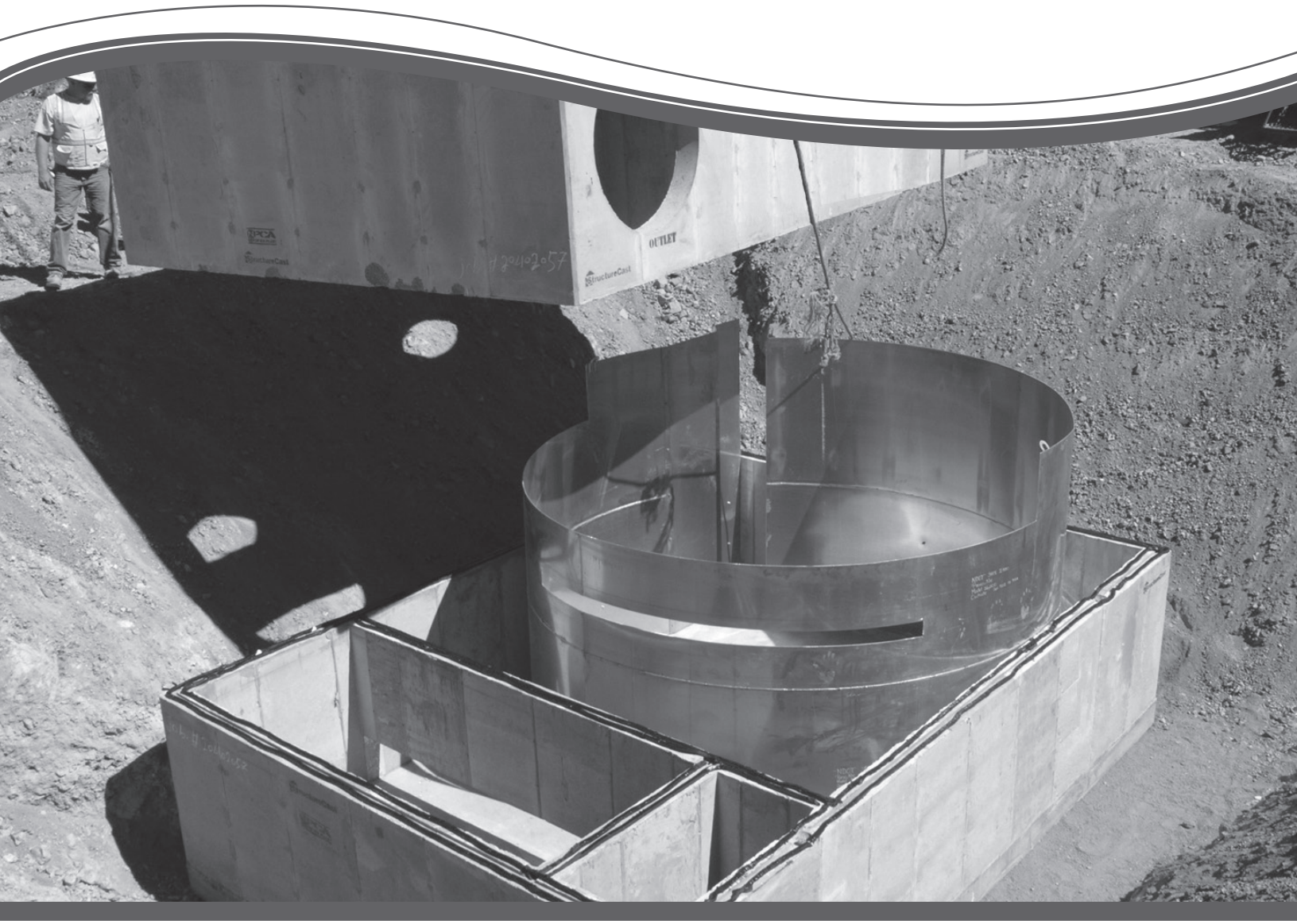
2. Repeatedly hit the grate at this spot with the mini sledgehammer.



3. After several hits, the breakaway section should snap cleanly off of the larger grate section. Reinstall the grate into the Filterra grate frame. Recycle or dispose of the breakaway section per local guidelines.

CONTECH®
ENGINEERED SOLUTIONS

Vortechs® Guide
Operation, Design, Performance and Maintenance



Vortechs®

Vortechs®

The Vortechs system is a high-performance hydrodynamic separator that effectively removes finer sediment (e.g. 50-microns (μm), oil, and floating and sinking debris. The swirl concentration operation and flow controls work together to minimize turbulence and provide stable storage of captured pollutants. Precast models can treat peak design flows up to 30-cfs (850-L/s); cast-in-place models handle even greater flows. A typical system is sized to provide a specific removal efficiency of a predefined particle size distribution (PSD).

Operation Overview

Stormwater enters the swirl chamber inducing a gentle swirling flow pattern and enhancing gravitational separation. Sinking pollutants stay in the swirl chamber while floatables are stopped at the baffle wall. Vortechs systems are usually sized to efficiently treat the frequently occurring runoff events and are primarily controlled by the low flow control orifice. This orifice effectively reduces inflow velocity and turbulence by inducing a slight backwater that is appropriate to the site.

During larger storms, the water level rises above the low flow control orifice and begins to flow through the high flow control. Any layer of floating pollutants is elevated above the invert of the Floatables Baffle Wall, preventing release. Swirling action increases in relation to the storm intensity, while sediment pile remains stable. When the storm drain is flowing at peak capacity, the water surface in the system approaches the top of the high flow control. The Vortechs system will be sized large enough so that previously captured pollutants are retained in the system, even during these infrequent events.

As a storm subsides, treated runoff decants out of the Vortechs system at a controlled rate, restoring the water level to a dry-weather level equal to the invert of the inlet pipe. The low water level facilitates easier inspection and cleaning, and significantly reduces maintenance costs by reducing pump-out volume.

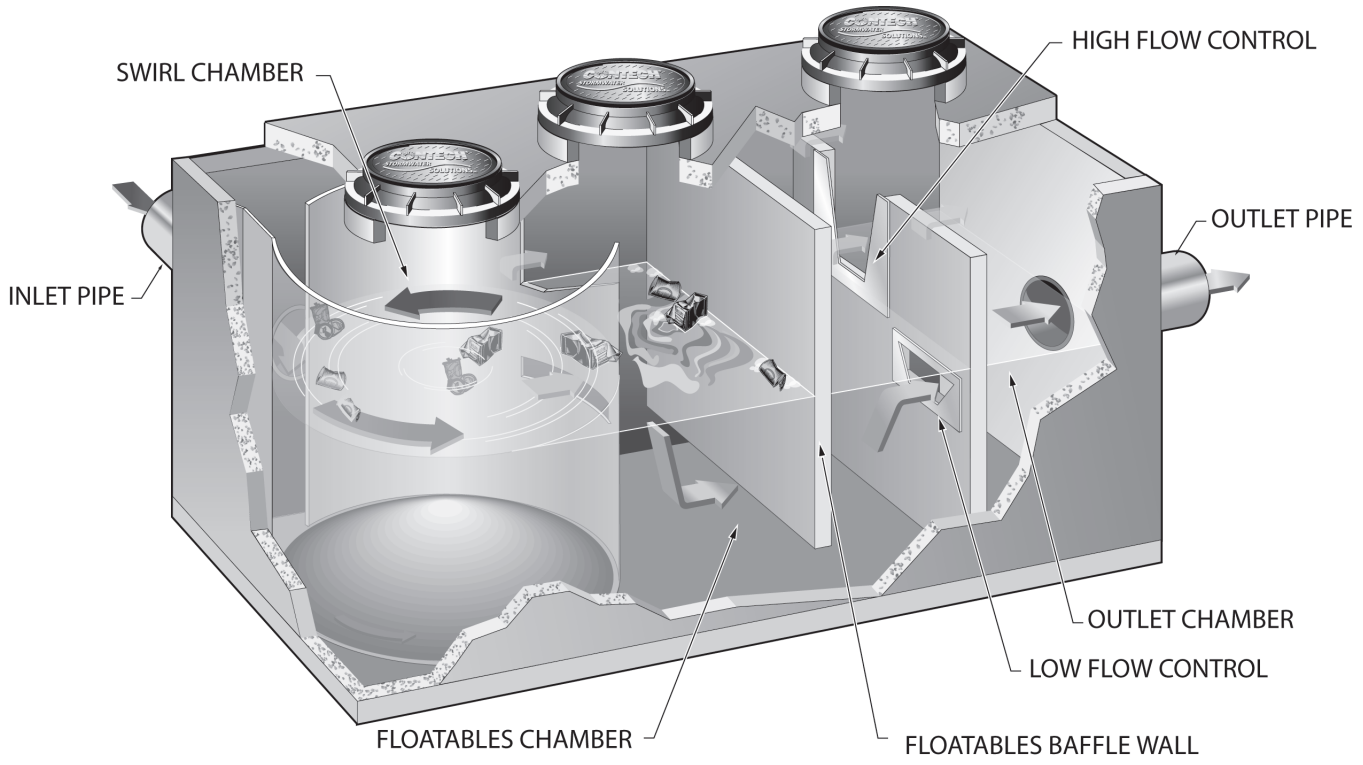
Design Basics

Each Vortechs system is custom designed based on site size, site runoff coefficient, regional precipitation intensity distribution, and anticipated pollutant characteristics. There are two primary methods of sizing a Vortechs system. The first is to determine which model size provides the desired removal efficiency at a given flow for a defined particle size or PSD. The second and more in depth method is the summation of Rational Rainfall Method™ which uses a summation process described below in detail and is used when a specific removal efficiency of the net annual sediment load is required.

Typically Vortechs systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for either 50-μm particles, or a particle gradation found in typical urban runoff (see performance section of this manual for more information).

The Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.



Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes or hourly and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed Vortechs system are determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Once a system size is established, the internal elements of the system are designed based on information provided by the site engineer. Flow control sizes and shapes, sump depth, oil spill storage capacity, sediment storage volume and inlet and outlet orientation are determined for each system. In addition, bypass weir calculations are made for off-line systems.

Flow Control Calculations

Low Flow Control

The low flow control, or orifice, is typically sized to submerge the inlet pipe when the Vortechs system is operating at 20% of its treatment capacity. The orifice is typically a Cippoletti shaped aperture defined by its flat crest and sides which incline outwardly at a slope of 1 horizontal to 4 vertical.

$$Q_{orifice} = C_d \bullet A \bullet \sqrt{2gh}$$

Where:

$Q_{orifice}$ = flow through orifice, cfs (L/s)

C_d = orifice coefficient of discharge = 0.56 (based on lab tests)

A = orifice flow area, ft^2 (m^2) (calculated by orifice geometry)

h = design head, ft (m) (equal to the inlet pipe diameter)

g = acceleration due to gravity (32.2-ft/s^2 (9.81-m/s^2)

The minimum orifice crest length is 3-in (76-mm) and the minimum orifice height is 4-in (102-mm). If flow must be restricted beyond what can be provided by this size aperture, a Fluidic-Amp™ HydroBrake flow control will be used. The HydroBrake allows the minimum flow constriction to remain at 3-in (76-mm) or greater while further reducing flow due to its unique throttling action.

High Flow Control

The high flow control, or weir, is sized to pass the peak system capacity minus the peak orifice flow when the water surface elevation is at the top of the weir. This flow control is also a Cippoletti type weir.

The weir flow control is sized by solving for the crest length and head in the following equation:

$$Q_{weir} = C_d \bullet L \bullet (h)^{3/2}$$

Where:

Q_{weir} = flow through weir, cfs (L/s)

C_d = Cippoletti weir coefficient = 3.37 (based on lab testing)

h = available head, ft (m) (height of weir)

L = design weir crest length, ft (m)

Bypass Calculations

In most all cases, pollutant removal goals can be met without treating peak flow rates and it is most feasible to use a smaller Vortechs system configured with an external bypass. In such cases, a bypass design is recommended by Contech Engineered Solutions for each off-line system. To calculate the bypass capacity, first subtract the system's treatment capacity from the peak conveyance capacity of the collection system (minimum of 10-year recurrence interval). The result is the flow rate that must be bypassed to avoid surcharging the Vortechs system. Then use the following arrangement of the Francis formula to calculate the depth of flow over the bypass weir.

$$H = (Q_{bypass} / (C_d \bullet L))^{2/3}$$

Where:

H = depth of flow over bypass weir crest, ft (m)

Q_{bypass} = required bypass flow, cfs (L/s)

C_d = discharge coefficient = 3.3 for rectangular weir

L = length of bypass weir crest, ft

The bypass weir crest elevation is then calculated to be the elevation at the top of the Cippoletti weir minus the depth of flow.

Hydraulic Capacity

In the event that the peak design flow from the site is exceeded, it is important that the Vortechs system is not a constriction to runoff leaving the site. Therefore, each system is designed with enough hydraulic capacity to pass the 100-year flow rate. It is important to note that at operating rates above 100-gpm/ft^2 (68-Lps/m^2) of the swirl chamber area (peak treatment capacity), captured pollutants may be lost.

When the system is operating at peak hydraulic capacity, water will be flowing through the gap over the top of the flow control wall as well as the orifice and the weir.

Performance

Full Scale Laboratory Test Results

Laboratory testing was conducted on a full scale Vortechs model 2000. The 150-μm curve demonstrates the results of tests using particles that passed through a 60-mesh sieve and were retained on a 100-mesh sieve. The 50-μm curve is based on tests of particles passing through a 200-mesh sieve and retained on a 400-mesh sieve (38-μm). A gradation with an average particle size (d50) of 80-μm, containing particles ranging from 38–500-μm in diameter was used to represent typical stormwater solids. (Table 1)

Particle Size Distribution (μm)	Percentage of Sample Make-Up
<63	42%
63 - 75	4%
75 - 100	9%
100 - 150	7%
150 - 250	11%
>250	27%

Table 1: Particle gradation of typical urban runoff used for efficiency curve

As shown, the Vortechs system maintains positive total suspended solids (TSS), defined by the tested gradations, removal efficiencies over the full range of operating rates. This allows the system to effectively treat all runoff from large, infrequent design storms, as well as runoff from more frequent low-intensity storms.

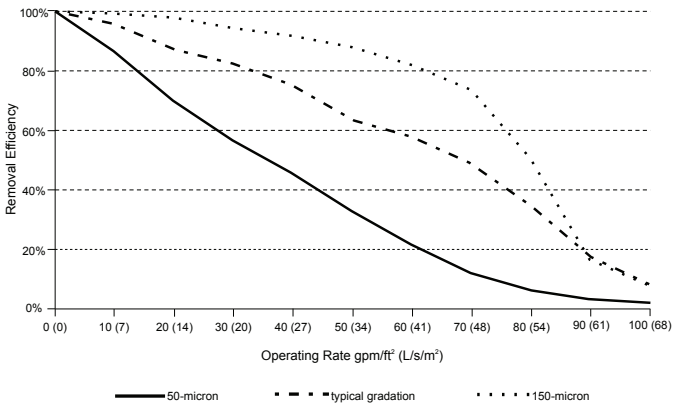


Figure 1: Vortechs model 2000 Removal Efficiencies

Typical Vortechs systems are designed to treat peak flows from 1.6-cfs (45-L/s) up to 30-cfs (850-L/s) online without the need for bypass. However, external bypasses can be configured to convey peak flows around the system if treatment capacity is exceeded. The system can also be configured to direct low flows from the last chamber of the system to polishing treatment when more stringent water quality standards are imposed. In all configurations, high removal efficiencies are achieved during the lower intensity storms, which constitute the majority of annual rainfall volume.

Full report available at www.conteches.com/vortechs.

Laboratory Testing

Full reports available at www.conteches.com/vortechs

Technical Bulletin 1: Removal Efficiencies for Selected Particle Gradations

Technical Bulletin 2: Particle Distribution of Sediments and the Effect on Heavy Metal Removal

Technical Bulletin 3: Sizing for Net Annual Sediment Removal

Technical Bulletin 3a: Determining Bypass Weir Elevation for Off-Line Systems

Technical Bulletin 4: Modeling Long Term Load Reduction: The Rational Rainfall Method

Technical Bulletin 5: Oil Removal Efficiency

Field Monitoring

Following are brief summaries of the field tests completed to date.

Full reports available at www.conteches.com/vortechs

DeLorme Mapping Company

Yarmouth, ME

Contech Engineered Solutions

Prior to this premier field test of the Vortechs system, Contech developed an extensive body of laboratory data to document total suspended solids (TSS) removal efficiency. Contech performed this field study in order to compare the performance predicted using laboratory data to the performance of a correctly sized system in the field.

The study site was the headquarters of DeLorme Mapping in Yarmouth, Maine. The building, driveway, parking lot and ancillary facilities were constructed in 1996. A Vortechs model 11000 was installed to treat runoff from the 300-space, 4-acre (1.62-ha) parking lot.

Testing Period	May 1999 to Dec 1999
# of Storms Sampled	20
Mean Influent Concentration	328-mg/L
Mean Effluent Concentration	60-mg/L
Removal Efficiency	82%

The main purpose of the DeLorme study was to verify that the sizing methodology developed from our full-scale laboratory testing was valid and an accurate means of predicting field performance. The results of the study confirmed our sizing methodology.

Village Marine Drainage

Lake George, NY

New York State Department of Environmental Conservation, Division of Water

The New York State DEC used funds obtained in a Section 319 grant to initiate a study of the effectiveness of the Vortechs system to remove sediment and other pollutants transported

by stormwater to Lake George, Lake George Village, New York. "Since the 1970s, when there was a rapid increase in the rate and concentration of development along the southwestern shores of Lake George, we have been concerned about the impact of stormwater discharges into the lake," said Tracy West, co-author of the study.

Testing Period	Feb 2000 to Dec 2000
# of Storms Sampled	13
Mean Influent Concentration	801-mg/L
Mean Effluent Concentration	105-mg/L
Removal Efficiency	88%

The study concluded that the Village and Town of Lake George should consider installing additional Vortechs systems in areas where sedimentation and erosion have been identified as non-point source pollution problems.

Harding Township Rest Area
Harding Township, NJ
RTP Environmental Associates

This third party evaluation was performed under a U.S. Environmental Protection Agency grant, administered by the New Jersey Department of Environmental Protection. A. Roger Greenway, principal of RTP Environmental Associates, Inc., conducted the study in conjunction with Thonet Associates, which assisted with data analysis and helped develop best management practices (BMP) recommendations.

The Vortechs model 4000 was sized to handle a 100-year storm from the 3 acre (1.21 ha) paved parking area at the Harding Rest Stop, located off the northbound lane of I-287 in Harding Township, New Jersey.

Testing Period	May 1999 to Nov 2000
# of Storms Sampled	5
Mean Influent Concentration (TSS)	493-mg/L
Mean Effluent Concentration (TSS)	35-mg/L
Removal Efficiency (TSS)	93%
Mean Influent Concentration (TPH)	16-mg/L
Mean Effluent Concentration (TPH)	5-mg/L
Removal Efficienty (TPH)	67%

The study concluded that truck rest stops and similar parking areas would benefit from installing stormwater treatment systems to mitigate the water quality impacts associated with stormwater runoff from these sites.

Timothy Edwards Middle School
South Windsor, CT
UCONN Department of Civil & Environmental Engineering

This study of the Vortechs system was published as a thesis by Susan Mary Board, as part of the requirements for a Master of Science degree from the University of Connecticut. Her objective was to determine how well the Vortechs system retained pollutants from parking lot runoff, including total suspended solids (TSS), nutrients, metals, and petroleum hydrocarbons.

A Vortechs model 5000 was installed in 1998 to treat runoff from the 82-space parking lot of Timothy Edwards Middle School. The entire watershed was approximately 2 acres (0.81 ha), and was 80% impervious.

Testing Period	Jul 2000 to Apr 2001
# of Storms Sampled	weekly composite samples taken
Mean Influent Concentration	324-mg/L
Mean Effluent Concentration	73-mg/L
Removal Efficiency	77%

Additionally, the Vortechs system was particularly effective in removing zinc (85%), lead (46%), copper (56%), phosphorus (67%) and nitrate (54%).

The study concluded that the Vortechs system significantly reduced effluent concentrations of many pollutants in stormwater runoff.



Maintenance

The Vortechs system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, e.g., unstable soils or heavy winter sanding will cause the swirl chamber to fill more quickly but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant deposition and transport may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. Inspections should be performed twice per year (i.e. spring and fall) however more frequent inspections may be necessary in equipment washdown areas and in climates where winter sanding operations may lead to rapid accumulations. It is useful and often required as part of a permit to keep a record of each inspection. A simple inspection and maintenance log form for doing so is provided on the following page, and is also available on conteches.com.

The Vortechs system should be cleaned when inspection reveals that the sediment depth has accumulated to within 12 to 18 inches (300 to 450 mm) of the dry-weather water surface elevation. This determination can be made by taking two measurements with a stadia rod or similar measuring device; one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. Note: To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

Cleaning

Cleaning of the Vortechs system should be done during dry weather conditions when no flow is entering the system. Clean-out of the Vortechs system with a vacuum truck is generally the most effective and convenient method of excavating pollutants from the system. If such a truck is not available, a "clamshell" grab may be used, but it is difficult to remove all accumulated pollutants using a "clamshell".

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use adsorbent pads to solidify the oil since these pads are usually much easier to remove from the unit individually and less expensive to dispose of than the oil/water emulsion that may be created by vacuuming the oily layer. Floating trash can be netted out if you wish to separate it from the other pollutants.

Cleaning of a Vortechs system is typically done by inserting a vacuum hose into the swirl chamber and evacuating this chamber of water and pollutants. As water is evacuated, the water level outside of the swirl chamber will drop to a level roughly equal to the crest of the lower aperture of the swirl chamber.

Floating pollutants will decant into the swirl chamber as the water level is drawn down. This allows most floating material to be withdrawn from the same access point above the swirl chamber. Floating material that does not decant into the swirl chamber during draw down should be skimmed from the baffle chamber. Sediment may accumulate outside the swirl chamber. If this is the case, it may be necessary to pump out other chambers. It is advisable to check for sediment accumulation in all chambers during inspection and maintenance.

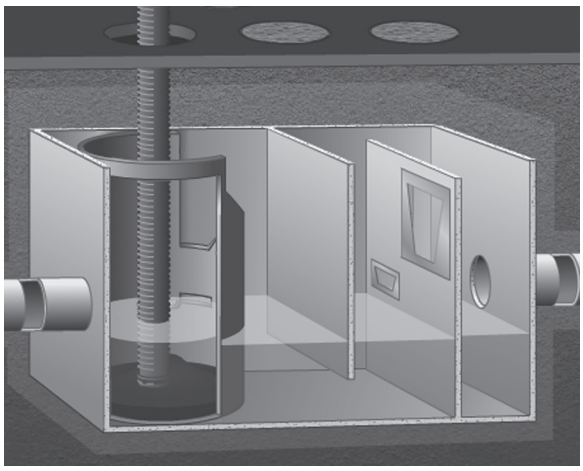
These maintenance recommendations apply to all Vortechs systems with the following exceptions:

1. It is strongly recommended that when cleaning systems larger than the Model 16000 the baffle chamber be drawn down to depth of three feet prior to beginning clean-out of the swirl chamber. Drawing down this chamber prior to the swirl chamber reduces adverse structural forces pushing upstream on the swirl chamber once that chamber is empty.
2. Entry into a Vortechs system is generally not required as cleaning can be done from the ground surface. However, if manned entry into a system is required the entire system should be evacuated of water prior to entry regardless of the system size.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure proper safety precautions. If anyone physically enters the unit, Confined Space Entry procedures need to be followed.

Disposal of all material removed from the Vortechs system should be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

Contech has created a network of Certified Maintenance Providers (CCMP's) to provide maintenance on Vortechs systems. To find a CCMP in your area please visit www.conteches.com/maintenance.



Vortechs Inspection & Maintenance Log

Vortech Model: _____ **Location:** _____

Date	Water depth to sediment	Floatable layer thickness	Describe maintenance performed	Maintenance personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than eighteen inches the system should be cleaned out. Note: To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.



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vx_manual 04/17 PDF Revision

TECHNICAL REPORT

AMENDED STORMWATER MANAGEMENT REPORT

HOLTEC OFFICE BUILDING
BLOCK 514, LOT 3.01
CITY OF CAMDEN
CAMDEN COUNTY, NEW JERSEY



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1.0 INTRODUCTION

Pennoni Associates, Inc., has been retained by USA Architects to provide preliminary/final design for a proposed two-story office building, parking area expansion at the Main Office building, stormwater conveyance facilities, landscaping and lighting in the City of Camden, Camden County, New Jersey.

2.0 PROJECT DESCRIPTION

The proposed two-story office building project is bounded by Broadway to the south and west and Holtec Boulevard to the north, and the proposed parking expansion is bounded by the Main Office building to the southwest and the Delaware River to the north in Camden, New Jersey. The property can be found on the United States Geological Survey (USGS) 7.5- minute topographic quadrangle for Camden, New Jersey. A copy of the USGS map is provided as Figure 1. The property consists of Blocks 511, 512, 514 and 515 (Figure 2). The "site" is defined as the tax map property boundaries. The site is the location of a vacant lots and right of way areas that have been abandoned.

PRE-DEVELOPED CONDITIONS (PROPOSED OFFICE BUILDING)

The site is part of the Holtec Technology Center (HTC) project located along Broadway and Holtec Boulevard. The water quality structures and downstream stormwater conveyance piping to the Delaware River was constructed in 2016. The piping is sized for build out of the project site. The existing water quality structures are designed to treat 4.32 acres of regulated impervious surface from the project site (reference Appendix C, Stormwater Management Report, Holtec Technology Center, prepared by T&M Associates, last revised May 1, 2015). Two of the three existing MTD's are classified as green-infrastructure BMP's. The project site discharges to a tidal flood hazard area along the Delaware River.

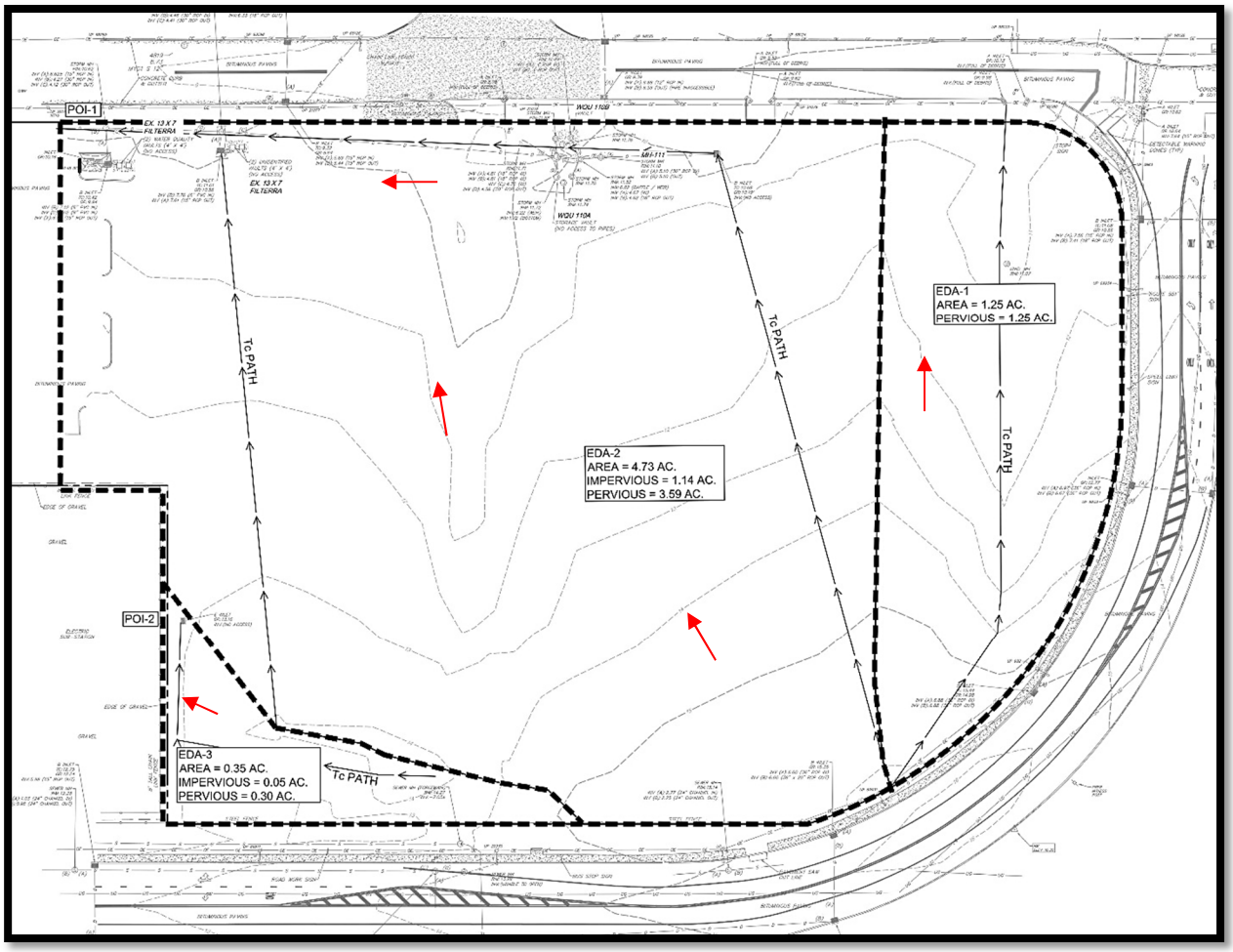
For existing condition runoff calculations, the site is analyzed as three (3) drainage sub-areas Existing Drainage Area 1 (EDA-1) thru Existing Drainage Area 3 (EDA-3), which drain to two (2) "points of interest" (POI) POI-1 and POI-2 (See Dwg. CS-9001, Appendix D).

Existing drainage area 1 (EDA-1) and existing drainage area 2 (EDA-2) consists of the existing dirt storage/parking area, paved parking area and grassed open space area. The stormwater runoff drains in a westerly direction to existing onsite stormwater conveyance system and to an existing stormwater conveyance system located within Broadway (POI-1). The existing stormwater system extends through the Holtec site and discharges directly to the Delaware River.

Existing drainage area 3 (EDA-2) consists of existing dirt and grass storage area along the southeasterly corner of the site. The stormwater runoff drains offsite in a southerly direction towards an inlet located onsite (POI-2

A schematic diagram indicating the flow patterns is provided below. The Pre-Developed Drainage Area Plan (CS9001) can be found in Appendix D.

PRE-DEVELOPED DRAINAGE AREA MAP (PROPOSED OFFICE BUILDING)



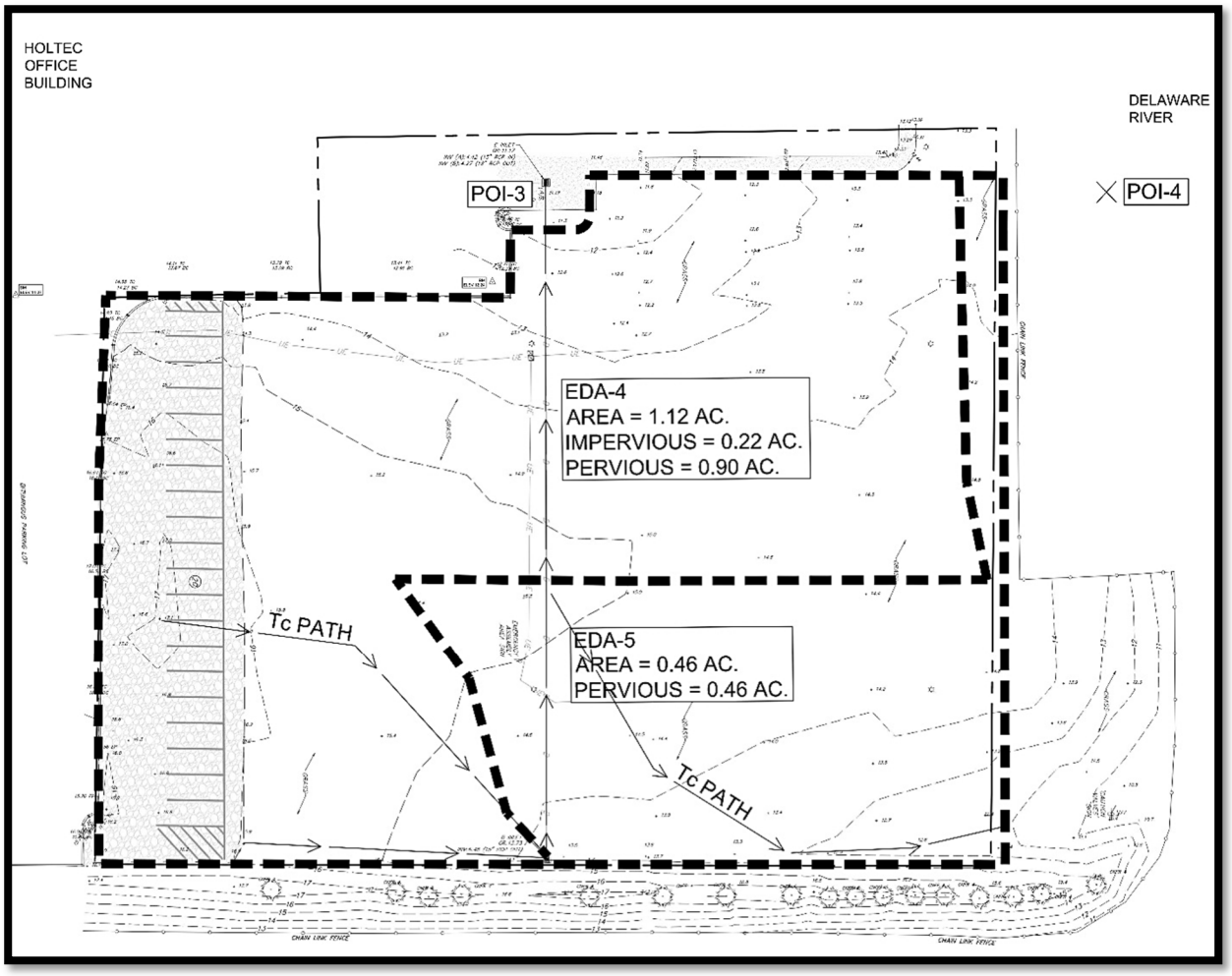
PRE-DEVELOPED CONDITIONS (PARKING EXPANSION)

Existing drainage area 4 (EDA-4) consists of existing grass area located in a northeasterly direction from Holtec's main office building. The stormwater runoff drains in a westerly direction towards an existing water quality inlet located onsite (POI-3). The existing stormwater system extends through Holtec's site and discharges directly to the Delaware River.

Existing drainage area 5 (EDA-5) consists of existing dirt and grass areas along the northeasterly corner of the main office building site. The stormwater runoff drains in a northwesterly direction to the Delaware River POI-4).

A schematic diagram indicating the flow patterns is provided below. The Pre-Developed Drainage Area Plan (CS9001A) can be found in Appendix D.

PRE-DEVELOPED DRAINAGE AREA MAP (PARKING EXPANSION)



POST DEVELOPED CONDITIONS (PROPOSED OFFICE BUILDING)

The project construction consists of a proposed office building, paved parking areas, stormwater collection, stormwater management, landscaping and lighting. The project is proposing 4.34 acres +/- (total) of impervious surface. Regulated impervious surface requiring TSS removal is approximately 3.36 acres.

The proposed watershed areas for the Office Building analysis are divided into seven (7) sub areas, proposed drainage area 1 thru proposed drainage area 7 (PDA-1 thru PDA-7) and offsite 5 impervious and pervious areas (Offsite 5) (See Dwg. CS9002). For this report the post-developed calculations were analyzed to two (2) "points of interest" (POI) POI-1 and POI-2 (Appendix A).

Proposed drainage area 1 (PDA-1) consists of runoff from the easterly parking area and open space area. The runoff flows to a proposed bioretention basin #1. The basin discharges to stormwater collection system within the site to the existing green-infrastructure (GI) MTD. The existing GI MTD discharges to an existing stormwater conveyance system which extends along the westerly side of the site (POI-1) and discharges to the Delaware River.

Proposed drainage area 2 (PDA-2) consists of proposed building and parking areas located on the southernly and westerly sides of the site. The stormwater runoff is collected by a proposed stormwater system within the site to the existing green-infrastructure (GI) MTD. The existing GI MTD discharges to an existing stormwater conveyance system which extends along the westerly side of the site (POI-1) and discharges to the Delaware River.

Proposed drainage area 3 (PDA-3) consists of proposed building and parking areas located on the northernly and westerly sides of the site. The stormwater runoff is collected by a proposed stormwater system within the site to the existing green-infrastructure (GI) MTD. The existing GI MTD discharges to an existing stormwater conveyance system which extends along the westerly side of the site and discharges to the Delaware River.

Proposed drainage area 4 (PDA-4) consists of existing dirt parking/storage area located on the southernly side of the site. A parking area is proposed, and the stormwater runoff drains in a westerly direction and is collected by an existing green-infrastructure (GI) MTD. The existing GI MTD discharges to an existing stormwater conveyance system which extends along the westerly side of the site and discharges to the Delaware River.

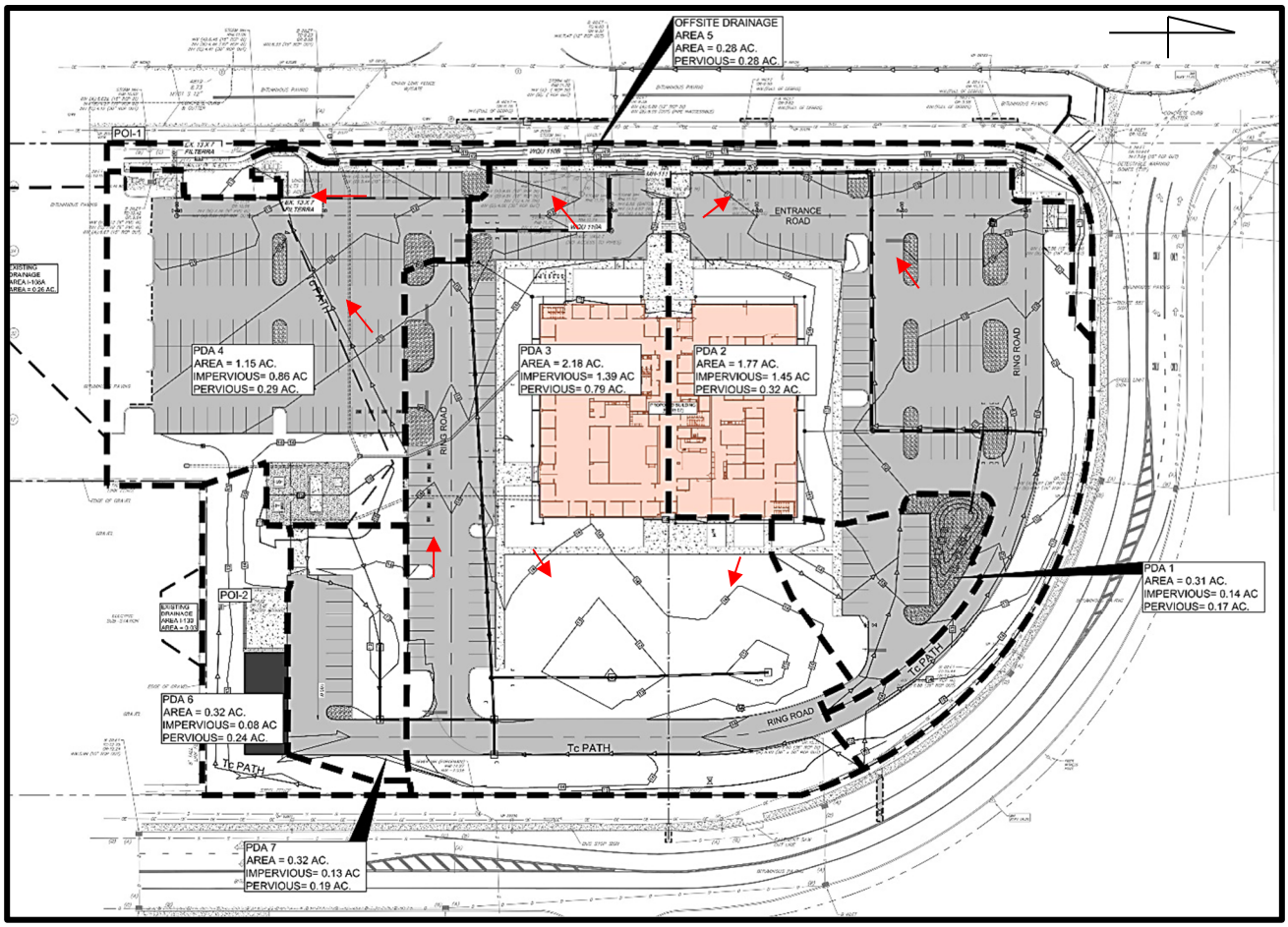
Proposed drainage area 5 (PDA-5) consists of grass area located on the westerly side of the site. The stormwater runoff drains in a westerly direction and is collected by an existing stormwater conveyance system, which extends to Holtec Boulevard and discharges to the Delaware River.

Proposed drainage area 6 (PDA-6) consists of a proposed pole barn located on the southernly side of the site. The stormwater runoff drains in a southernly direction and is collected by an existing stormwater conveyance system, which extends to Holtec Boulevard and discharges to the Delaware River.

Proposed drainage area 7 (PDA-7) consists of a proposed parking area for the pole barn and is located on the southernly side of the site. The stormwater runoff drains in a northernly direction and is collected by the proposed stormwater conveyance system, which extends through the site to Holtec Boulevard and discharges to the Delaware River.

A schematic diagram indicating the flow patterns is provided below. The Post-Developed Drainage Area Plan (CS9002) can be found in Appendix D.

POST-DEVELOPED DRAINAGE AREA MAP (PROPOSED OFFICE BUILDING)



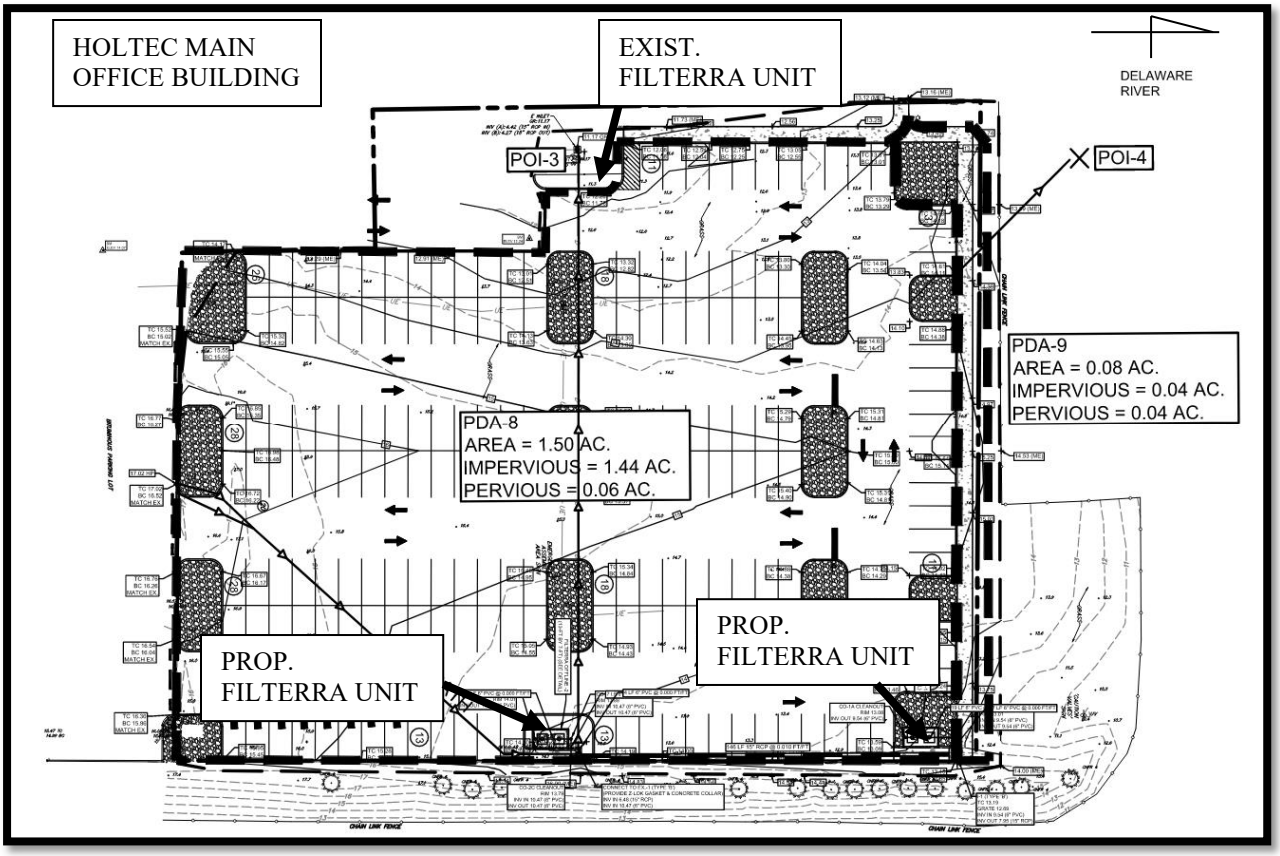
POST-DEVELOPED CONDITIONS (PARKING EXPANSION)

Proposed drainage area 8 (PDA-8) consists of a proposed parking area located in a northeasterly direction from Holtec's main office building. The stormwater runoff drains in a northeasterly direction towards two (2) proposed Filterra water quality inlets and in a westerly direction towards two (2) existing Filterra water quality inlets located onsite (POI-3). The proposed stormwater collection system will connect into the existing stormwater system constructed under the previous HTC project that extends through Holtec's site and discharges directly to the Delaware River.

Proposed drainage area 9 (PDA-9) consists of proposed sidewalk and grass area along the northeasterly corner of the main office building site. The stormwater runoff drains in a northwesterly direction to the Delaware River (POI-4).

A schematic diagram indicating the flow patterns is provided below. The Post-Developed Drainage Area Plan (CS9002A) can be found in Appendix D.

POST-DEVELOPED DRAINAGE AREA MAP (PARKING EXPANSION)



3.0 SOIL DATA

The site soils consist of Urban land (Ur), 0 to 5 percent slopes as depicted on the United States Department of Agriculture, (USDA) Web Soil Survey of Camden County, New Jersey (Figure 3). Urban land has not been assigned a hydrologic soil group; therefore Type "D" soils have been utilized.

4.0 WATERSHED DATA

Based on a review of FEMA Flood Insurance Rate Maps, and NJ GeoWeb, we have made the following determinations near the project limits:

According to the National Flood Insurance Program's Effective Flood Insurance Rate Map FEMA Panel #34007C0036F, revised 8/17/2016, the proposed site is located within the FEMA flood hazard area X (Figure 4).

5.0 DESIGN CRITERIA

In accordance with the New Jersey Department of Environmental Protection (NJDEP) Stormwater Management Rules at N.J.A.C. 7:8, a Major Development is defined as a development which disturbs one or more acres of land and/or increases impervious coverage by one-quarter of an acre or more.

GREEN INFRASTRUCTURE:

To satisfy the groundwater recharge, runoff quality and runoff quantity the project design must utilize green infrastructure BMP's (GI BMP) as identified in Table 5-1 at N.J.A.C. 7:8-5.2 (f) or an alternative stormwater management measure approved in accordance with N.J.A.C. 7:8-5.2(g). The following green infrastructure BMP's from Table 5-1 at N.J.A.C. 7:8-5.2 (b) have been incorporated into the project design:

1. Green Infrastructure Stormwater MTD's – Two (2) green infrastructure BMP's in the form of Filterra bioretention systems are provided as part of the project design. As required by N.J.A.C. 7:8-5.3 (b), the small-scale green infrastructure BMP is subject to a maximum contributory drainage area of 2.5 acres.

Office Building -
The existing green infrastructure MTD's (3 - Filterra units) will have contributory drainage areas of 0.75 acres and 0.37 acres. The existing GI MTD's were designed for a maximum contributory drainage area of 1.0 acre and 0.50 acres, respectively.

Parking Expansion -
The impervious area is treated by two (2) existing green infrastructure MTD's (Filterra Units) is 0.75 acres (0.65 acres proposed + 0.10 acres existing). Two (2) proposed GI MTD's (Filterra Units) will treat 0.30 acres and 0.47 acres of impervious area (reference Appendix C). The proposed green infrastructure BMP complies with N.J.A.C. 7:8-5.3 (b).

GROUNDWATER RECHARGE:

Pursuant to the N.J.A.C. 7:8-5.4 (b) groundwater recharge requirements apply if there is either a 0.25 acre increase in impervious area or one acre of disturbance. The project disturbs more than one acre and increases motor vehicle surfaces by more than 0.25 acres. Therefore, one of the following requirements shall be met to satisfy the standards for groundwater recharge: (1) 100 percent of the site's average annual pre-developed groundwater recharge volume shall be maintained after development; (2) 100 percent of the difference between the site's pre- and post-developed 2-year runoff volumes shall be infiltrated.

According to the New Jersey State Development and Redevelopment Plan, the site is within a designated Urban Center. Groundwater recharge is not required within an "Urban Redevelopment Area" pursuant to N.J.A.C. 7:8-5.4(b)2 (Appendix C, Reference Data). Therefore, groundwater recharge was not evaluated for this project.

RUNOFF QUANTITY:

Post-construction runoff hydrographs for the 2, 10 and 100-year has not been analyzed as part of the stormwater management design. Pursuant to N.J.A.C. 7:8-5.6(b) 4. In tidal flood hazard areas, stormwater runoff quantity analysis, in accordance with (b)1, 2, and 3 above, is required unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of the stormwater runoff, or any combination of the three will not result in additional flood damage below the point of discharge of the major development. No analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure.

In accordance with N.J.A.C. 7:8-5.6(b)4, no analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure. The project site discharges directly to the tidal flood hazard area of the Delaware River. Therefore, any runoff from the site will not increase flood damages downstream. The site is part of the Holtec Technology Center project. The water quality structures and downstream stormwater conveyance systems to the Delaware River were constructed in 2016 and were sized for build out of the project site. The proposed office building site increases grass areas thereby reducing runoff from 25-year storm event (reference Appendix B).

RUNOFF QUALITY:

Pursuant to N.J.A.C. 7:8-5.2 (f), the green infrastructure BMP's can be utilized to satisfy the requirements of N.J.A.C. 7:8-5.5 for stormwater runoff quality. Stormwater Management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from the developed site. The increase in motor vehicle surface, must be treated for 80% TSS reductions.

The water quality standards will apply as the net increase of motor vehicle surface is 3.36 acres which exceeds the maximum net increase of 0.25 acres.

The site currently contains both green infrastructure MTD's and non-green infrastructure MTD's.

Office Building-

The existing green infrastructure MTD's (2 - Filterra units) provide 80% TSS removal for proposed impervious area of 0.87 acres. The units were designed to treat 1.5 acres of impervious area.

Existing non-green infrastructure MTD's (2 - Vortechs units) provide 50% TSS removal for proposed impervious area of 3.19 acres. The units were designed to treat 3.64 acres of impervious.

The non-green manufactured treatment devices installed in 2016 provide 50% TSS removal for redeveloped sites. The site has been redeveloped and previously contained multi-family homes, paved roadways and buildings. The proposed site will utilize the existing green and non-green MTD's. Maintenance to the existing MTD's will be included as part of the proposed development.

Parking Expansion-

Under the HTC design, the existing green infrastructure MTD (2 - Filterra unit) provides 80% TSS removal for of 0.85 acres of impervious area. Under proposed conditions, the existing GI MTD will treat 0.65 acres of impervious area.

The proposed green infrastructure MTD's (2 - Filterra units) provide 80% TSS removal for proposed impervious areas of 0.28 acres and 0.45 acres. The units were originally designed to treat 0.43 acres and 0.45 acres, respectively of impervious area.

6.0 TECHNIQUES OF ANALYSIS

The water quality (WQ) design storm is 1.25 inches of rainfall in 2-hours. In accordance with N.J.A.C. 7:8-5.5, Table 5-4, a one-minute water quality design storm rainfall distribution was utilized for the calculations. Bentley's Pondpack Connect Edition was used to perform the calculations.

The developed area is made up of Urban Land, Type D soils. Therefore, CNs of 80 for lawn in good condition, 84 for lawn/landscaped areas in fair condition, 98 for impervious areas have been utilized in the calculations. The impervious areas were calculated as separate subareas to generate hydrographs without weighted CNs as outlined in the BMP manual chapter 5.

Pre- and post-developed times of concentration (TC) are determined using the hydraulically longest flow path. Curve numbers (CN) for the drainage areas for the pre- and post-developed condition are based on the hydrologic soil group and land use.

Using the drainage areas, the TCs and CNs as input data, *Pond Pack Connect Edition,* a hydrologic/hydraulic software program by Bentley, was utilized to generate the runoff volume and rate.

7.0 STORM SEWER DESIGN

Storm sewer design consists of Type "B" inlets, manholes, and RCP and HDPE storm pipes. All proposed conveyance systems have been sized to accommodate the 25-year storm event (Appendix B). Rainfall intensities are based on NOAA data for City of Camden, NJ (Appendix C). The infrastructure is depicted on sheet CS9003, Inlet Drainage Area Plan (Appendix D).

8.0 SOIL EROSION AND SEDIMENT CONTROL

The project will comply with the minimum design and performance standards for erosion control established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules. Anticipated BMP's to be included in the Soil Erosion and Sediment Control Plan will include, structural and non-structural soil erosion BMP's to be implemented during construction, including: minimizing the area of disturbance, placement of silt fencing around the limit of disturbance, temporary soil stockpiles surrounded with silt fencing, temporary vegetative cover standards, inlet filter covers over all existing stormwater inlets, and an anti-tracking stabilized construction entrance (see Dwg. CS8001). The project will be submitted to the Camden County Conservation District for certification of a Soil Erosion and Sediment Control Plan prior to commencement of construction.

9.0 CONCLUSION

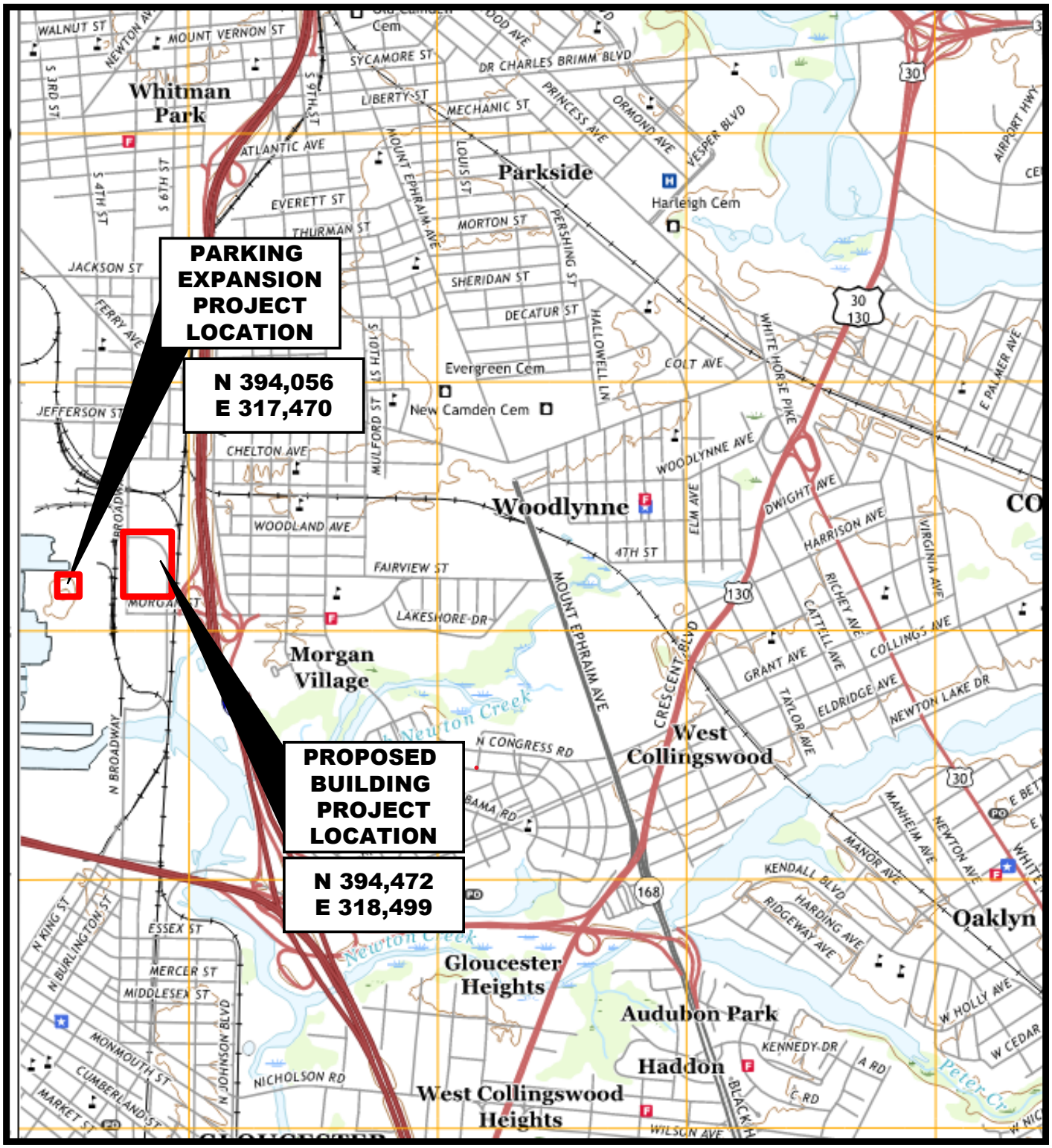
The site is part of the overall Holtec Technology Center site located along Broadway and Holtec Boulevard. The proposed stormwater conveyance system connects to an existing stormwater system located within Broadway. The existing stormwater system discharges directly to the Delaware River. A summary of the stormwater management design is as follows:

- N.J.A.C. 7:8-5.6(b)4, no analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure. The project site discharges directly to the tidal flood hazard area of the Delaware River. Therefore, any runoff from the site will not increase flood damages downstream.

- The project is located within an Urban Redevelopment Area, and therefore, pursuant to N.J.A.C. 7:8-5.4(b)2 the groundwater recharge requirement does not apply.

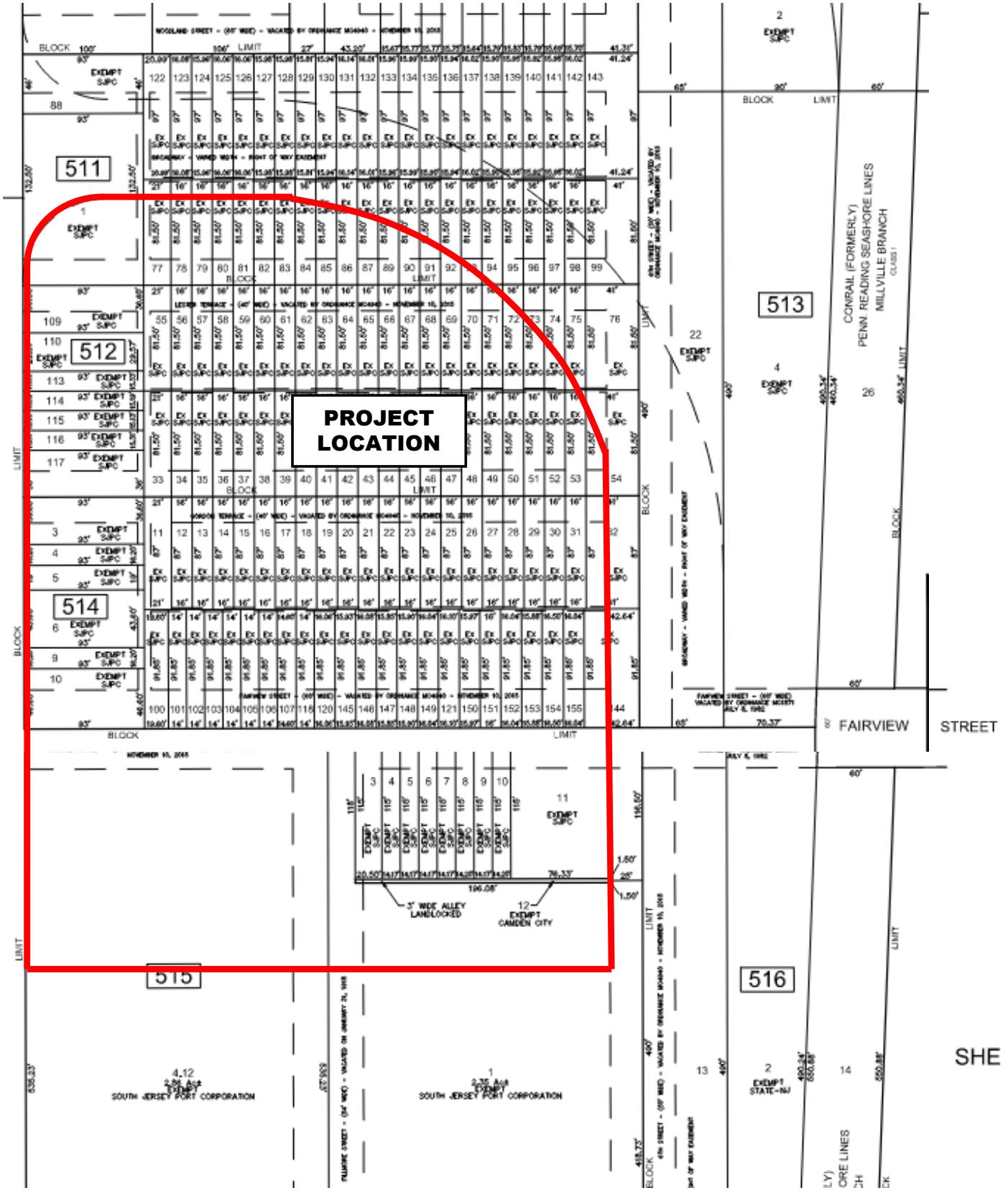
- The required TSS removal rate under the 2015 site plan approval was 50%. The existing non-green MTD's were designed to provide 50% TSS removal and have sufficient capacity to treat the proposed project. The green infrastructure MTD's were designed to provide 80% TSS removal and have sufficient capacity to treat the proposed project.

Exhibits



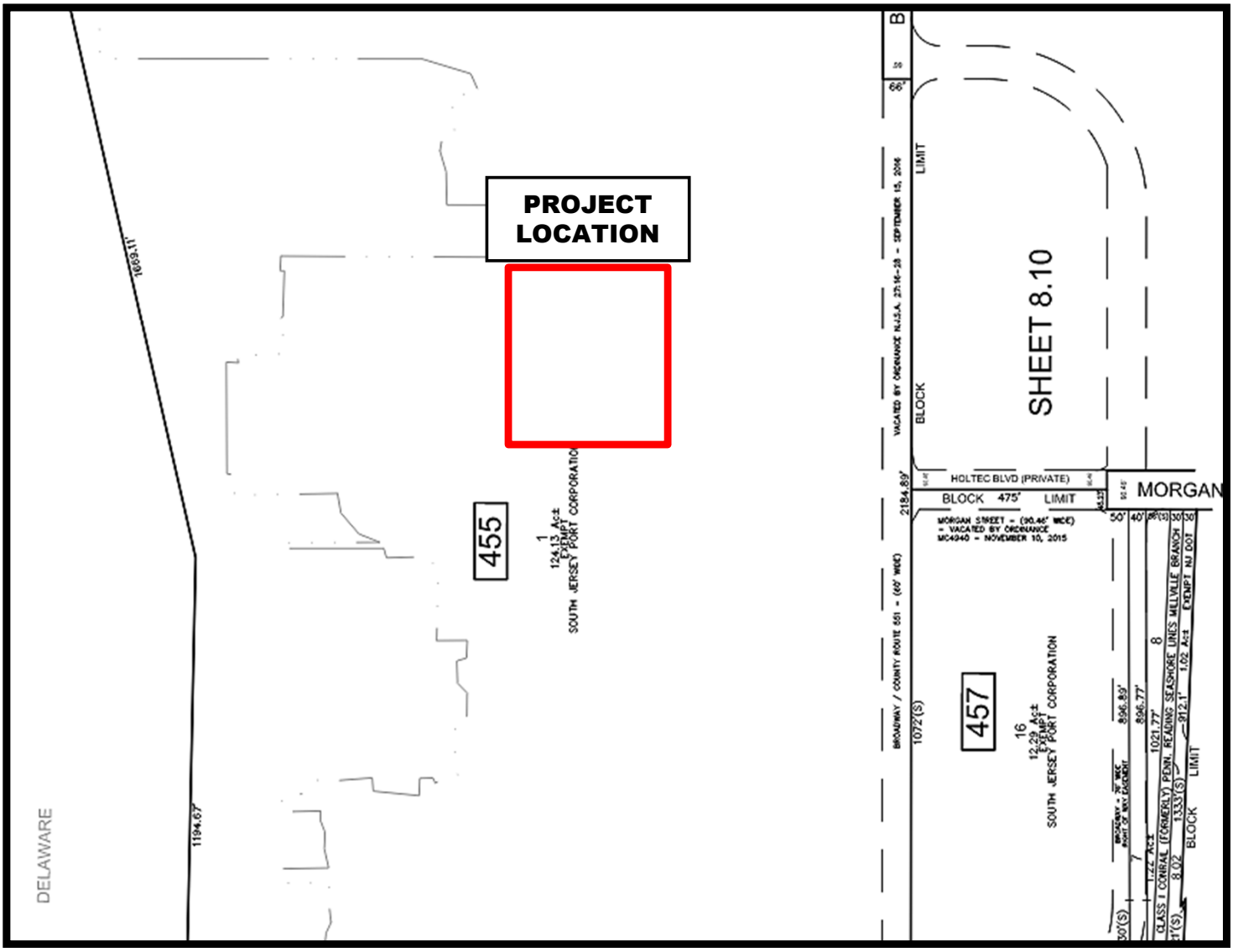
USGS 7.5 Min. Camden Quadrangle, Camden County, New Jersey

Pennoni PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103	HOLTEC OFFICE BUILDING BLOCKS 511,512,514 & 515 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY	
Job No. USATX22001	Scale: 1"=2,000'	Figure 1 –USGS Map



City of Camden Tax Map Plate 8.09 and Plate 8.10

Pennoni	PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103	HOLTEC OFFICE BUILDING BLOCKS 511,512,514 & 515 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY
Job No. USATX22001	Scale: NTS	Figure 2 –Tax Map



City of Camden Tax Map Plate 8.12

Pennoni PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103		HOLTEC PARKING EXPANSION BLOCK 455, LOT 1 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY
Job No. USATX22001	Scale: NTS	Figure 2A –Tax Map



Map Unit Symbol	Map Unit Name
UR	Urban land

NRCS WebSoil Survey, Camden County, NJ

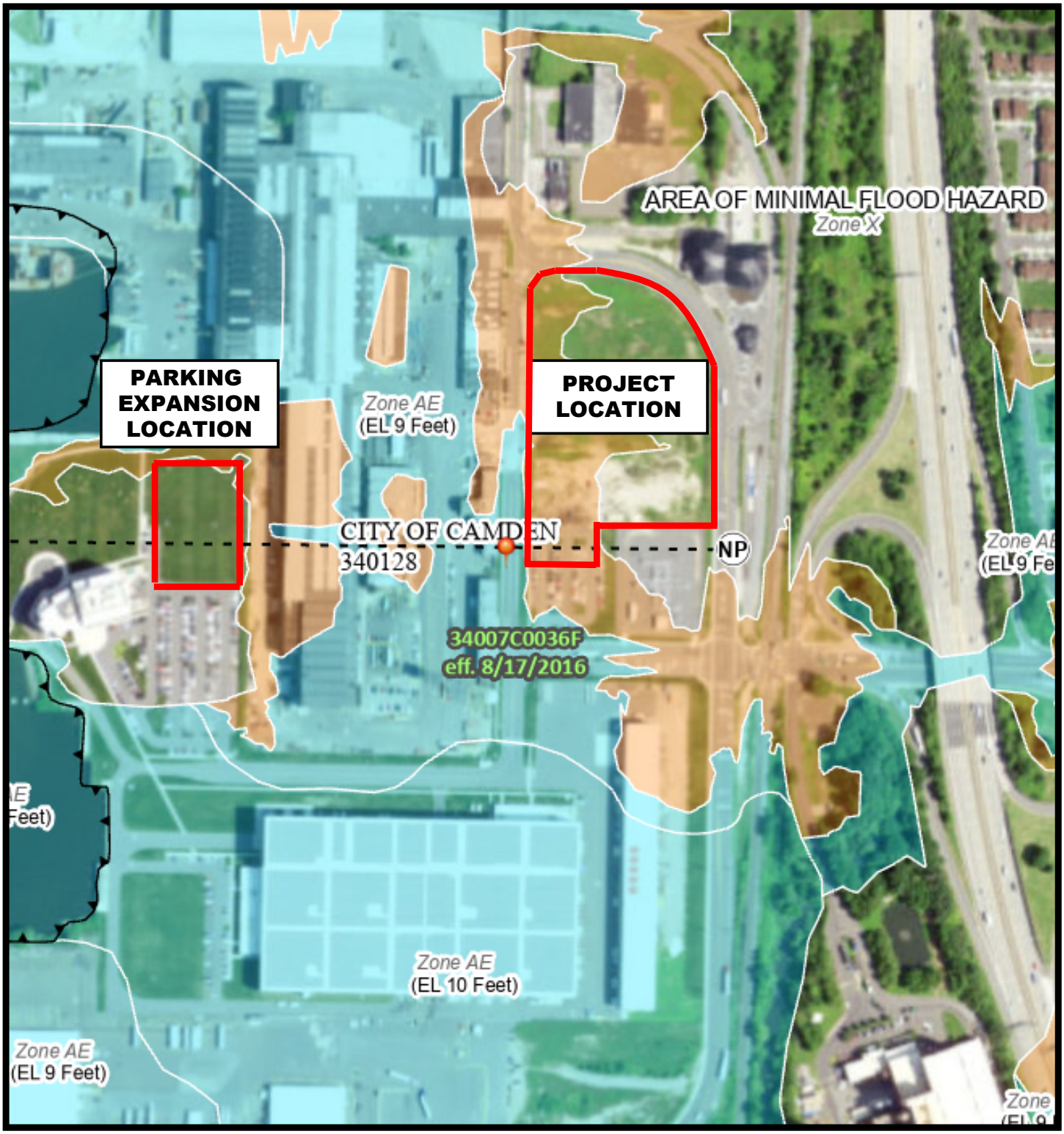
Pennoni PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103		HOLTEC OFFICE BUILDING BLOCKS 511,512,514 & 515 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY
Job No. USATX22001	Scale: NTS	Figure 3 –Soils Map



Map Unit Symbol	Map Unit Name
UR	Urban land

NRCS WebSoil Survey, Camden County, NJ

Pennoni	PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103	HOLTEC PARKING EXPANSION BLOCK 455, LOT 1 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY
Job No. USATX22001	Scale: NTS	Figure 3A –Soils Map

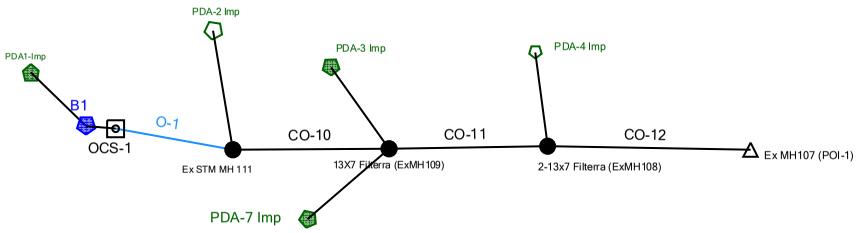


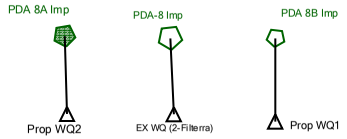
FEMA Map 34007C0036F, Effective 8/17/2016

Pennoni	PENNONI ASSOCIATES INC. 2 AQUARIUM DRIVE, SUITE 320 CAMDEN, NEW JERSEY 08103	HOLTEC OFFICE BUILDING BLOCKS 511,512,514 & 515 CITY OF CAMDEN, CAMDEN COUNTY NEW JERSEY
Job No. USATX22001	Scale: NTS	Figure 4 –FEMA Map

Appendix A

Scenario: base





PROPOSED OFFICE BUILDING

PROPOSED PARKING
EXPANSION (MAIN OFFICE)

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WQ

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
PDA 8A Imp	base	1	1,766.00	1.100	1.20
PDA 8B Imp	base	1	1,014.00	1.100	0.69
PDA-2 Imp	base	1	5,446.00	1.100	3.23
PDA-3 Imp	base	1	5,222.00	1.100	3.54
PDA-4 Imp	base	1	3,231.00	1.100	2.19
PDA-7 Imp	base	1	488.00	1.100	0.33
PDA-8 Imp	base	1	2,630.00	1.100	1.78
PDA1-Imp	base	1	526.00	1.100	0.36

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
13X7 Filterra (ExMH109)	base	1	11,682.00	1.100	7.43
2-13x7 Filterra (ExMH108)	base	1	14,913.00	1.100	9.62
EX WQ (2-Filterra)	base	1	2,630.00	1.100	1.78
Ex MH107 (POI-1)	base	1	14,913.00	1.100	9.62
Ex STM MH 111	base	1	5,972.00	1.100	3.56
Prop WQ1	base	1	1,014.00	1.100	0.69
Prop WQ2	base	1	1,766.00	1.100	1.20

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft³)
B1 (IN)	base	1	526.00	1.100	0.36	(N/A)	(N/A)
B1 (OUT)	base	1	526.00	1.100	0.34	8.71	6.00

Subsection: Time of Concentration Calculations
Label: PDA 8A Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.019 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.39 ft/s
Segment Time of Concentration	0.020 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	129.00 ft
Is Paved?	True
Slope	0.010 ft/ft
Average Velocity	2.03 ft/s
Segment Time of Concentration	0.018 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA 8A Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA 8B Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.020 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.42 ft/s
Segment Time of Concentration	0.020 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	92.00 ft
Is Paved?	True
Slope	0.013 ft/ft
Average Velocity	2.32 ft/s
Segment Time of Concentration	0.011 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA 8B Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA1-Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.015 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.26 ft/s
Segment Time of Concentration	0.022 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	65.00 ft
Is Paved?	True
Slope	0.016 ft/ft
Average Velocity	2.57 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA1-Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA-2 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	36.00 ft
Manning's n	0.150
Slope	0.036 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	0.18 ft/s
Segment Time of Concentration	0.055 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	237.00 ft
Is Paved?	True
Slope	0.014 ft/ft
Average Velocity	2.41 ft/s
Segment Time of Concentration	0.027 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	411.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	4.70 ft
Average Velocity	3.70 ft/s
Segment Time of Concentration	0.031 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.113 hours

Subsection: Time of Concentration Calculations
Label: PDA-2 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: PDA-3 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.008 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	0.96 ft/s
Segment Time of Concentration	0.029 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	119.00 ft
Is Paved?	True
Slope	0.008 ft/ft
Average Velocity	1.76 ft/s
Segment Time of Concentration	0.019 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.2 ft²
Hydraulic Length	53.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	3.90 ft
Average Velocity	3.20 ft/s
Segment Time of Concentration	0.005 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	287.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	4.70 ft
Average Velocity	3.70 ft/s
Segment Time of Concentration	0.022 hours

Segment #5: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	119.00 ft
Manning's n	0.015

Subsection: Time of Concentration Calculations
Label: PDA-3 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Segment #5: TR-55 Channel Flow	
Slope	0.005 ft/ft
Wetted Perimeter	6.30 ft
Average Velocity	4.38 ft/s
Segment Time of Concentration	0.008 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA-3 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: PDA-4 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.07 ft/s
Segment Time of Concentration	0.026 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	265.00 ft
Is Paved?	True
Slope	0.010 ft/ft
Average Velocity	2.03 ft/s
Segment Time of Concentration	0.036 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA-7 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	68.00 ft
Manning's n	0.011
Slope	0.027 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.48 ft/s
Segment Time of Concentration	0.013 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	47.00 ft
Is Paved?	False
Slope	0.018 ft/ft
Average Velocity	2.16 ft/s
Segment Time of Concentration	0.006 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.2 ft²
Hydraulic Length	158.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	3.90 ft
Average Velocity	3.20 ft/s
Segment Time of Concentration	0.014 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	287.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	4.70 ft
Average Velocity	3.70 ft/s
Segment Time of Concentration	0.022 hours

Segment #5: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	119.00 ft
Manning's n	0.015

Subsection: Time of Concentration Calculations
Label: PDA-7 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Segment #5: TR-55 Channel Flow	
Slope	0.005 ft/ft
Wetted Perimeter	6.30 ft
Average Velocity	4.38 ft/s
Segment Time of Concentration	0.008 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc =	R = Qa / Wp V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n (Lf / V) / 3600
Where:	R= Hydraulic radius Aq= Flow area, square feet Wp= Wetted perimeter, feet V= Velocity, ft/sec Sf= Slope, ft/ft n= Manning's n Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface: V = 16.1345 * (Sf**0.5) Paved Surface: V = 20.3282 * (Sf**0.5) (Lf / V) / 3600
Where:	V= Velocity, ft/sec Sf= Slope, ft/ft Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours n= Manning's n Lf= Flow length, feet P= 2yr, 24hr Rain depth, inches Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: PDA-8 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.020 ft/ft
2 Year 24 Hour Depth	3.40 in
Average Velocity	1.42 ft/s
Segment Time of Concentration	0.020 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	92.00 ft
Is Paved?	True
Slope	0.013 ft/ft
Average Velocity	2.29 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.2 ft²
Hydraulic Length	235.00 ft
Manning's n	0.015
Slope	0.009 ft/ft
Wetted Perimeter	3.90 ft
Average Velocity	4.29 ft/s
Segment Time of Concentration	0.015 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA-8 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Unit Hydrograph Summary
Label: PDA 8A Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.470 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	1.20 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	1.20 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.470 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	1,765.08 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,766.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA 8A Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	3.73 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA 8B Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.270 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	0.69 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	0.69 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.270 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	1,013.98 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,014.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA 8B Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	2.14 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA1-Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.140 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	0.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	0.36 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.140 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	525.77 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	526.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA1-Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	1.11 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA-2 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.113 hours
Area (User Defined)	1.450 acres

Computational Time Increment	0.015 hours
Time to Peak (Computed)	1.120 hours
Flow (Peak, Computed)	3.27 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	3.23 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.450 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	5,445.47 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5,446.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.113 hours
Computational Time Increment	0.015 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA-2 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	8.44 ft^3/s
Unit peak time, Tp	0.076 hours
Unit receding limb, Tr	0.666 hours
Total unit time, Tb	0.741 hours

Subsection: Unit Hydrograph Summary
Label: PDA-3 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.390 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	3.54 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	3.54 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.390 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	5,220.14 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5,222.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA-3 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	11.03 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA-4 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.860 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	2.19 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	2.19 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.860 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	3,229.73 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3,231.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA-4 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	6.82 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA-7 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.130 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	0.33 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	0.33 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.130 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	488.21 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	488.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA-7 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	1.03 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

Subsection: Unit Hydrograph Summary
Label: PDA-8 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

Storm Event	Gauged Event (1.3 in)
Return Event	1 years
Duration	120.000 hours
Depth	1.25 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.700 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	1.100 hours
Flow (Peak, Computed)	1.78 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	1.100 hours
Flow (Peak Interpolated Output)	1.78 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	0.700 acres
Maximum Retention (Pervious)	0.20 in
Maximum Retention (Pervious, 20 percent)	0.04 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.03 in
Runoff Volume (Pervious)	2,628.85 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,630.00 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	284.057
K Factor	0.440

Subsection: Unit Hydrograph Summary
Label: PDA-8 Imp
Scenario: base

Return Event: 1 years
Storm Event: Gauged Event (1.3 in)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	3.544
Unit peak, qp	5.55 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.489 hours
Total unit time, Tb	0.544 hours

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REFERENCE ONLY

DELAWARE RIVER

NEWTOWN CREEK

I-676

N.J.S.P.C.S.

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
301	30,769	0.84	0.99	6,262	0.12	0.65	0.96	0.95	3.200	2.92
301A	18,571	0.43	0.99	2,713	0.06	0.65	0.49	0.95	3.200	1.49
301B	19,602	0.45	0.99	2,529	0.05	0.65	0.50	0.96	3.200	1.54
302A.x2	30,241	0.69	0.99	6,795	0.16	0.65	0.85	0.93	3.200	2.52
302A	20,178	0.46	0.99	1,602	0.04	0.65	0.50	0.96	3.200	1.54
302B	18,766	0.45	0.99	2,332	0.05	0.65	0.50	0.96	3.200	1.54
303	14,315	0.33	0.99	1,353	0.03	0.65	0.36	0.96	3.200	1.11
304	13,360	0.31	0.99	1,780	0.04	0.65	0.35	0.95	3.200	1.09
							4.61	0.95		15.72
							3.66			

9. 13x7 Filtera Units- Office Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
107A	10,323	0.24	0.99	652	0.01	0.65	0.25	0.98	3.200	0.78
107B	20,470	0.47	0.99	1,310	0.03	0.65	0.50	0.97	3.200	1.55
108A.x2	41,770	0.96	0.99	1,760	0.04	0.65	1.00	0.98	3.200	3.14
108A	20,048	0.46	0.99	1,732	0.04	0.65	0.50	0.96	3.200	1.54
							2.25	0.97		7.01
							2.13			

8. 13x7 Filtera Units - NE Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
111A	7,653	0.18	0.99	11,957	0.27	0.65	0.45	0.79	3.200	1.14
111B	14,113	0.32	0.99	0	0.00	0.65	0.32	0.99	3.200	1.01
112	43,331	0.99	0.99	10,779	0.25	0.65	1.24	0.92	3.200	3.65
113	33,600	0.78	0.99	8,395	0.19	0.65	0.97	0.92	3.200	2.86
114	9,683	0.22	0.99	5,229	0.12	0.65	0.34	0.97	3.200	0.95
115	16,769	0.38	0.99	4,560	0.10	0.65	0.48	0.92	3.200	1.35
116	7,497	0.17	0.99	3,635	0.08	0.65	0.25	0.88	3.200	0.70
117	4,384	0.10	0.99	3,635	0.08	0.65	0.18	0.64	3.200	0.49
118	22,402	0.52	0.99	4,171	0.10	0.65	0.62	0.94	3.200	1.66
							4.83	0.90		13.86
							3.64			

WQU-110 A & B Vortechs 11000, x2

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
201	30,769	0.84	0.99	6,262	0.12	0.65	0.96	0.95	3.200	2.92
201A	18,571	0.43	0.99	2,713	0.06	0.65	0.49	0.95	3.200	1.49
201B	19,602	0.45	0.99	2,529	0.05	0.65	0.50	0.96	3.200	1.54
202.x2	30,241	0.69	0.99	6,795	0.16	0.65	0.85	0.93	3.200	2.52
202A	20,178	0.46	0.99	1,602	0.04	0.65	0.50	0.96	3.200	1.54
202B	18,766	0.45	0.99	2,332	0.05	0.65	0.50	0.96	3.200	1.54
203	14,315	0.33	0.99	1,353	0.03	0.65	0.36	0.96	3.200	1.11
204	13,360	0.31	0.99	1,780	0.04	0.65	0.35	0.95	3.200	1.09
							4.61	0.95		15.72
							3.66			

9. 13x7 Filtera Units- Office Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
207A	10,323	0.24	0.99	652	0.01	0.65	0.25	0.98	3.200	0.78
207B	20,470	0.47	0.99	1,310	0.03	0.65	0.50	0.97	3.200	1.55
208A.x2	41,770	0.96	0.99	1,760	0.04	0.65	1.00	0.98	3.200	3.14
208A	20,048	0.46	0.99	1,732	0.04	0.65	0.50	0.96	3.200	1.54
							2.25	0.97		7.01
							2.13			

8. 13x7 Filtera Units - NE Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
211A	7,653	0.18	0.99	11,957	0.27	0.65	0.45	0.79	3.200	1.14
211B	14,113	0.32	0.99	0	0.00	0.65	0.32	0.99	3.200	1.01
212	43,331	0.99	0.99	10,779	0.25	0.65	1.24	0.92	3.200	3.65
213	33,600	0.78	0.99	8,395	0.19	0.65	0.97	0.92	3.200	2.86
214	9,683	0.22	0.99	5,229	0.12	0.65	0.34	0.97	3.200	0.95
215	16,769	0.38	0.99	4,560	0.10	0.65	0.48	0.92	3.200	1.35
216	7,497	0.17	0.99	3,635	0.08	0.65	0.25	0.88	3.200	0.70
217	4,384	0.10	0.99	3,635	0.08	0.65	0.18	0.64	3.200	0.49
218	22,402	0.52	0.99	4,171	0.10	0.65	0.62	0.94	3.200	1.66
							4.83	0.90		13.86
							3.64			

WQU-110 A & B Vortechs 11000, x2

HOLTEC TECHNOLOGY CENTER, LLC

HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
BLOCKS 511, 512, 514 AND 515

CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

INLET DRAINAGE AREA EXHIBIT

DESIGNED BY	KRH	PROJECT NO.	HLTC000010
CHECKED BY	KRH	DATE	2/17/2015
DRAWN BY	EBL	SCALE	1"=100'
DRAWING			

SHEET 1 OF 1

T&M ASSOCIATES
A306 NORTH CHURCH STREET
MOORESTOWN, NJ 08057
TEL 856-722-4700
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NO.	DATE	BY	REVISIONS

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David J. Fleming, P.E.
Vice President

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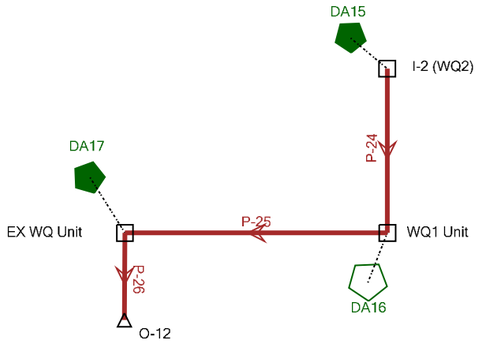
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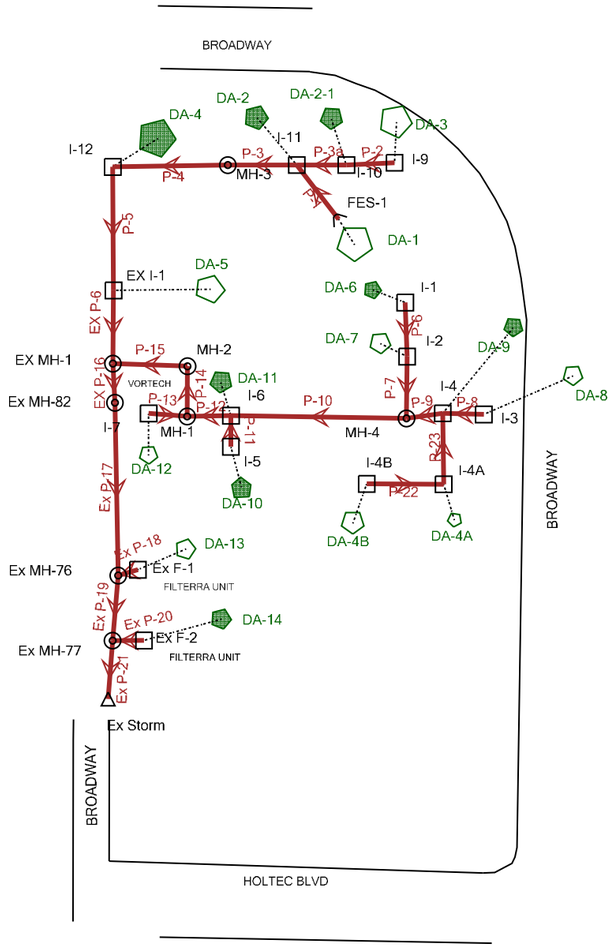
YOUR GOALS. OUR MISSION.

Appendix B

Scenario: 25 year



PROPOSED PARKING
EXPANSION (MAIN OFFICE)



PROPOSED OFFICE BUILDING

Conduit FlexTable: Combined Pipe/Node Report

Label	Start Node	Stop Node	Upstream Inlet Area (acres)	System Flow Time (min)	System Intensity (in/h)	Length (Unified) (ft)	Slope (Calc) (ft/ft)	Dia. (in)	Conduit Description	Material	Manning's n	Flow (cfs)	Capacity (Full Flow) (cfs)	V (ft/s)	Invert (Start) (ft)	Invert (Stop) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
EX P-6	EX I-1	EX MH-1	0.130	6.67	7.0	74.0	0.0020	30.0	Circle - 30.0 in	Concrete	0.013	11.50	18.47	3.97	5.25	5.10	2.44	6.17	10.19	13.77	6.95	6.88
EX P-16	EX MH-1	Ex MH-82	(N/A)	11.23	5.6	9.7	0.0103	30.0	Circle - 30.0 in	Concrete	0.013	20.68	41.70	8.48	5.10	5.00	6.17	6.25	13.77	13.75	6.88	6.92
Ex P-17	Ex MH-82	Ex MH-76	(N/A)	11.25	5.6	213.0	0.0028	30.0	Circle - 30.0 in	Concrete	0.013	20.67	21.59	5.01	5.00	4.41	6.25	4.15	13.75	11.06	6.92	6.18
Ex P-18	Ex F-1	Ex MH-76	0.370	5.00	7.6	10.0	0.1150	15.0	Circle - 15.0 in	Concrete	0.013	2.42	21.91	11.75	7.61	6.46	1.70	3.35	10.56	11.06	8.23	6.79
Ex P-19	Ex MH-76	Ex MH-77	(N/A)	11.95	5.4	74.0	0.0039	30.0	Circle - 30.0 in	Concrete	0.013	21.93	25.68	5.88	4.41	4.12	4.15	4.00	11.06	10.62	6.18	5.87
Ex P-20	Ex F-2	Ex MH-77	0.750	5.00	7.6	21.0	0.0024	15.0	Circle - 15.0 in	Concrete	0.013	4.91	3.15	4.00	6.67	6.62	2.02	2.75	9.94	10.62	7.78	7.52
Ex P-21	Ex MH-77	Ex Storm	(N/A)	12.16	5.4	190.0	0.0054	30.0	Circle - 30.0 in	Concrete	0.013	25.25	30.05	6.86	4.12	3.10	4.00	4.40	10.62	10.00	5.87	4.81
P-1	FES-1	I-11	0.300	5.00	7.6	55.0	0.0105	15.0	Circle - 15.0 in	Concrete	0.015	1.62	5.75	4.02	8.39	7.81	1.86	1.66	11.50	10.72	8.89	8.43
P-2	I-9	I-10	0.400	5.00	7.6	24.0	0.0050	15.0	Circle - 15.0 in	Concrete	0.015	2.16	3.96	3.29	8.02	7.90	1.49	1.58	10.76	10.73	8.67	8.49
P-3	I-11	MH-3	0.710	5.23	7.6	77.0	0.0040	24.0	Circle - 24.0 in	Concrete	0.015	9.85	12.44	4.39	7.06	6.75	1.66	3.07	10.72	11.82	8.43	8.17
P-3a	I-10	I-11	0.250	5.12	7.6	17.0	0.0053	18.0	Circle - 18.0 in	Concrete	0.015	3.67	6.62	3.85	7.65	7.56	1.58	1.66	10.73	10.72	8.48	8.43
P-4	MH-3	I-12	(N/A)	5.52	7.4	178.0	0.0035	24.0	Circle - 24.0 in	Concrete	0.015	9.71	11.57	4.13	6.75	6.13	3.07	3.38	11.82	11.51	8.17	7.63
P-5	I-12	EX I-1	0.260	6.24	7.2	109.0	0.0035	24.0	Circle - 24.0 in	Concrete	0.015	11.06	11.58	4.19	6.13	5.75	3.38	2.44	11.51	10.19	7.63	6.95
P-6	I-1	I-2	0.280	5.00	7.6	108.0	0.0050	15.0	Circle - 15.0 in	Concrete	0.015	1.72	3.96	3.12	9.41	8.87	1.75	1.75	12.41	11.87	10.62	10.52
P-7	I-2	MH-4	0.340	5.58	7.4	83.0	0.0049	15.0	Circle - 15.0 in	Concrete	0.013	3.71	4.54	3.03	8.87	8.46	1.75	3.69	11.87	13.40	10.52	10.24
P-8	I-3	I-4	0.440	5.00	7.6	24.0	0.0050	15.0	Circle - 15.0 in	Concrete	0.015	2.88	3.96	2.35	8.73	8.61	2.83	2.95	12.81	12.81	10.53	10.47
P-9	I-4	MH-4	0.320	9.50	6.0	29.0	0.0021	15.0	Circle - 15.0 in	Concrete	0.015	4.91	2.55	4.00	8.61	8.55	2.95	3.60	12.81	13.40	10.47	10.24
P-10	MH-4	I-6	(N/A)	9.63	5.9	287.0	0.0047	18.0	Circle - 18.0 in	Concrete	0.015	7.84	6.22	4.44	8.21	6.87	3.69	4.19	13.40	12.56	10.24	7.96
P-11	I-5	I-6	0.090	5.00	7.6	24.0	0.0050	15.0	Circle - 15.0 in	Concrete	0.015	0.66	3.96	2.39	7.24	7.12	3.94	4.19	12.43	12.56	7.75	7.74
P-12	I-6	MH-1	0.460	10.70	5.7	22.0	0.0050	24.0	Circle - 24.0 in	Concrete	0.015	10.35	13.86	4.84	6.37	6.26	4.19	4.42	12.56	12.68	7.74	7.67
P-13	I-7	MH-1	0.270	5.00	7.6	22.0	-0.0877	15.0	Circle - 15.0 in	Concrete	0.015	1.87	16.58	1.52	7.12	9.05	3.69	2.38	12.06	12.68	9.80	9.59
P-14	MH-1	MH-2	(N/A)	10.78	5.7	97.0	0.0049	24.0	Circle - 24.0 in	Concrete	0.015	11.71	13.79	4.93	6.26	5.78	4.42	5.86	12.68	13.64	7.67	7.01
P-15	MH-2	EX MH-1	(N/A)	11.11	5.6	36.0	0.0050	30.0	Circle - 30.0 in	Concrete	0.015	11.59	25.13	5.02	5.28	5.10	5.86	6.17	13.64	13.77	6.90	6.88
P-22	I-4B	I-4A	0.140	5.00	7.6	50.0	0.0050	15.0	Circle - 15.0 in	Concrete	0.015	0.32	3.96	0.26	9.25	9.00	1.97	3.30	12.47	13.55	10.50	10.50
P-23	I-4A	I-4	0.150	8.16	6.5	79.0	0.0049	15.0	Circle - 15.0 in	Concrete	0.015	1.20	3.93	0.98	9.00	8.61	3.30	2.95	13.55	12.81	10.50	10.47
P-24	I-2 (WQ2)	WQ1 Unit	0.530	5.00	7.6	146.0	0.0101	15.0	Circle - 15.0 in	Concrete	0.015	3.67	5.62	4.88	7.95	6.48	3.49	6.15	12.69	13.88	8.72	7.61
P-25	WQ1 Unit	EX WQ Unit	0.300	5.50	7.5	234.0	0.0088	15.0	Circle - 15.0 in	Concrete	0.015	5.61	5.25	4.80	6.48	4.42	6.15	5.50	13.88	11.17	7.61	5.52
P-26	EX WQ Unit	O-12	0.770	6.31	7.2	179.0	0.0113	18.0	Circle - 18.0 in	Concrete	0.013	10.66	11.16	7.19	4.27	2.25	5.40	7.25	11.17	11.00	5.52	3.42

NOTE: EXISTING PIPE CONDUITS DESIGNED IN 2015 WITH A MANNING'S N=0.013

USATX22001

25-YEAR STORM RUNOFF CALCULATIONS
HOLTEC OFFICE BUILDING
CITY OF CAMDEN, CAMDEN CO., NJ

August 20, 2024

Inlet Area	Impervious Area (SF)	Impervious Area (AC)	Pervious Area (SF)	Pervious Area (AC)	c	Total Area (SF)	Total Area (AC)	Q (cfs)
Approved Design*	231739	5.32	45302	1.04	0.945	277041	6.36	39.67
Proposed Site	176418	4.05	99317	2.28	0.891	275735	6.33	37.22

* Holtec Technology Center project 2016
Impervious Area Runoff Coefficient = .99
Pervious Area Runoff Coefficient = .65
Antecedent=1.1

Q = ciA

i= 6.6 in/hr 10 min 25yr storm

c= (Impervious Area x .99 + Pervious Area x .65 x 1.1)/Total Area

A= Total Area

Land Use	Description	Hydrologic Soils Group			
		A	B	C	D
Cultivated Land	without conservation treatment	0.49	0.67	0.81	0.88
	with conservation treatment	0.27	0.43	0.67	0.67
Pasture or Range Land	poor condition	0.38	0.63	0.78	0.84
Meadow	good condition	---	0.25	0.51	0.65
	good condition	---	---	0.41	0.61
Wood or Forest Land	thin stand, poor cover, no mulch	---	0.34	0.59	0.70
	good cover	---	---	0.45	0.59
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries					
Good Condition	grass cover on 75% or more	---	0.25	0.51	0.65
Fair Condition	grass cover on 50% to 75%	---	0.45	0.63	0.74
Commercial and Business Area	85% impervious	0.84	0.90	0.93	0.96
Industrial Districts	72% impervious	0.67	0.81	0.88	0.92
Residential	average % impervious				
Average Lot Size (acres)					
1/8	65	0.59	0.76	0.86	0.90
1/4	38	0.29	0.55	0.70	0.80
1/3	30	---	0.49	0.67	0.78
1/2	25	---	0.45	0.65	0.76
1	20	---	0.41	0.63	0.74
Paved Areas	parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and Roads	paved with curbs & storm sewers	0.99	0.99	0.99	0.99
	gravel	0.57	0.76	0.84	0.88
	dirt	0.49	0.69	0.80	0.84

USATX22001

25-YEAR STORM RUNOFF CALCULATIONS
HOLTEC PARKING EXPANSION
CITY OF CAMDEN, CAMDEN CO., NJ

August 20, 2024

Inlet Area	Impervious Area (SF)	Impervious Area (AC)	Pervious Area (SF)	Pervious Area (AC)	c	Total Area (SF)	Total Area (AC)	Q (cfs)
Approved Design*	74872	1.72	10304	0.236	0.294	85176	6.36	12.34
Proposed Site	63237	1.45	6736	0.15	0.958	69973	1.61	10.18

* Holtec Technology Center project 2016
Impervious Area Runoff Coefficient = .99
Pervious Area Runoff Coefficient = .65
Antecedent=1.1

Q = ciA

i= 6.6 in/hr 10 min 25yr storm

c= (Impervious Area x .99 + Pervious Area x .65 x 1.1)/Total Area

A= Total Area

Land Use	Description	Hydrologic Soils Group A	B	C	D
Cultivated Land	without conservation treatment	0.49	0.67	0.81	0.88
	with conservation treatment	0.27	0.43	0.67	0.67
Pasture or Range Land	poor condition	0.38	0.63	0.78	0.84
Meadow	good condition	---	0.25	0.51	0.65
	good condition	---	---	0.41	0.61
Wood or Forest Land	thin stand, poor cover, no mulch	---	0.34	0.59	0.70
	good cover	---	---	0.45	0.59
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries					
Good Condition	grass cover on 75% or more	---	0.25	0.51	0.65
Fair Condition	grass cover on 50% to 75%	---	0.45	0.63	0.74
Commercial and Business Area	85% impervious	0.84	0.90	0.93	0.96
Industrial Districts	72% impervious	0.67	0.81	0.88	0.92
Residential	average % impervious				
Average Lot Size (acres)					
1/8	65	0.59	0.76	0.86	0.90
1/4	38	0.29	0.55	0.70	0.80
1/3	30	---	0.49	0.67	0.78
1/2	25	---	0.45	0.65	0.76
1	20	---	0.41	0.63	0.74
Paved Areas	parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and Roads	paved with curbs & storm	0.99	0.99	0.99	0.99
	sewers	0.57	0.76	0.84	0.88
	gravel	0.49	0.69	0.80	0.84
	dirt				

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DELAWARE RIVER

NEWTOWN CREEK

I-676

PROPOSED PARKING EXPANSION

PROPOSED OFFICE BUILDING

STM MH

MH-102

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
301	36,769	0.84	0.99	5,262	0.12	0.65	0.96	0.95	5.80	5.29
301A	18,571	0.43	0.99	2,713	0.06	0.65	0.49	0.95	5.80	2.70
301B	19,532	0.45	0.99	2,329	0.05	0.65	0.50	0.96	5.80	2.78
302A	4,652	0.11	0.99	0	0.00	0.65	0.11	0.99	5.80	0.63
R302B	22,906	0.53	0.99	0	0.00	0.65	0.53	0.99	5.80	3.04
302C	14,748	0.34	0.99	0	0.00	0.65	0.34	0.99	5.80	1.95
303	30,241	0.69	0.99	6,795	0.16	0.65	0.85	0.93	5.80	4.56
303A	20,178	0.46	0.99	1,602	0.04	0.65	0.50	0.96	5.80	2.78
303B	19,766	0.45	0.99	2,332	0.05	0.65	0.50	0.96	5.80	2.78
304	14,315	0.33	0.99	1,353	0.03	0.65	0.36	0.96	5.80	2.00
305	13,380	0.31	0.99	1,760	0.04	0.65	0.35	0.95	5.80	1.93
							5.49			30.49

TOTAL IMPERVIOUS AREA = 0.84 ACRES + 0.43 ACRES + 0.45 ACRES = 1.72 ACRES
TOTAL PERVIOUS AREA = 0.23 ACRES

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
108A	41,770	0.96	0.99	1,790	0.04	0.65	1.00	0.98	5.80	5.68
109A	20,048	0.46	0.99	1,732	0.04	0.65	0.50	0.96	5.80	2.78
112	43,331	0.99	0.99	10,779	0.25	0.65	1.24	0.92	5.80	6.62
113	33,800	0.78	0.99	8,396	0.19	0.65	0.97	0.92	5.80	5.18
114	9,683	0.22	0.99	5,229	0.12	0.65	0.34	0.87	5.80	1.72
115	15,753	0.36	0.99	4,560	0.10	0.65	0.46	0.92	5.80	2.45
116	7,497	0.17	0.99	3,635	0.08	0.65	0.25	0.88	5.80	1.28
117	4,384	0.10	0.99	3,635	0.08	0.65	0.18	0.84	5.80	0.88
118	22,462	0.52	0.99	4,171	0.10	0.65	0.62	0.94	5.80	3.38
129	33,963	0.78	0.99	1,732	0.04	0.65	0.82	0.97	5.80	4.61
130	26,915	0.62	0.99	1,700	0.04	0.65	0.66	0.97	5.80	3.71

TOTAL IMPERVIOUS AREA = 5.18 ACRES + 0.14 ACRES (129) = 5.32 ACRES
TOTAL PERVIOUS AREA = 1.04 ACRES

INLET DRAINAGE AREA EXHIBIT

CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

BLOCKS 511, 512, 514 AND 515
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
HOLTEC TECHNOLOGY CENTER
HOLTEC TECHNOLOGY CENTER, LLC

REFERENCE ONLY

NO.	DATE	REVISIONS	BY

T&M ASSOCIATES
Corporate Headquarters
11 Tindall Road
Middletown, NJ 07748
www.tandmassociates.com
Offices Located In:
Delaware, Indiana, Kentucky, Massachusetts, Michigan, New Jersey, Ohio and Pennsylvania

NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
CERTIFICATE OF AUTHORIZATION
24GA27987500

DESIGNED BY	KRH	PROJECT NO.	HLTC00010
CHECKED BY	KRH	DATE	2/17/2015
DRAWN BY	KRH	SCALE	1"=100'
DRAWING			

T&M ASSOCIATES
1256 NORTH CHURCH STREET
MOORESTOWN, NJ 08057
TEL 856-722-6700
FAX 856-722-0678

SHEET 1 OF 1

0 50 100 200
1" = 100' Feet

Appendix C

PREPARED FOR:

Holtec Technology Center, LLC
One Holtec Drive
Marlton, NJ 08053

PREPARED BY:

T&M Associates
1256 N. Church Street
Moorestown, NJ 08057
856.722.6700

STORMWATER MANAGEMENT REPORT

HOLTEC TECHNOLOGY CENTER
BLOCK 457-LOT 16, p/o BLOCK 455-LOT 1,
BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

T&M PROJECT NO. HLTC-00010
February 17, 2015
Revised May 1, 2015

Erik R. Littlehales, P.E.
NJ License No. 24GE04312700

David J. Fleming, P.E.,
NJ License No. 24GE3321600

Holtec Technology Center Drainage Report
Manufactured Treatment Device Flow Summary

HLTC-00010

Revised 5/1/2015

WQU-101 Vortechs 7000

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
101A	9,770	0.22	0.99	6,110	0.14	0.65	0.36	0.86	3.200	0.99
101B	5,579	0.13	0.99	3,089	0.07	0.65	0.20	0.87	3.200	0.56
101C	14,321	0.33	0.99	10,386	0.24	0.65	0.57	0.85	3.200	1.55
101D	10,565	0.24	0.99	1,080	0.02	0.65	0.26	0.98	3.200	0.80
		0.92					1.39	0.89		3.90

WQU-103 Vortechs 16000

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
103A	5,662	0.13	0.99	2,036	0.05	0.65	0.18	0.9	3.200	0.52
103B	3,468	0.08	0.99	8,342	0.19	0.65	0.27	0.75	3.200	0.65
103C	3,935	0.09	0.99	9,230	0.21	0.65	0.30	0.75	3.200	0.72
103D	5,935	0.14	0.99	2,170	0.05	0.65	0.19	0.9	3.200	0.55
103E	0	0.00	0.99	8,895	0.20	0.65	0.20	0.65	3.200	0.42
103F	1,668	0.04	0.99	3,360	0.08	0.65	0.12	0.76	3.200	0.29
103G	2,532	0.06	0.99	1,097	0.03	0.65	0.09	0.88	3.200	0.25
103H	0	0.00	0.99	3,668	0.08	0.65	0.08	0.65	3.200	0.17
103I	2,743	0.06	0.99	0	0.00	0.65	0.06	0.99	3.200	0.19
103J	6,026	0.14	0.99	0	0.00	0.65	0.14	0.99	3.200	0.44
103K	35,793	0.82	0.99	17,704	0.41	0.65	1.23	0.88	3.200	3.46
		1.56					2.80	0.83		7.66

5, 13x7 Filterra Units - NE Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
107A	10,323	0.24	0.99	652	0.01	0.65	0.25	0.98	3.200	0.78
107B	20,470	0.47	0.99	1,310	0.03	0.65	0.50	0.97	3.200	1.55
108A, x2	41,770	0.96	0.99	1,700	0.04	0.65	1.00	0.98	3.200	3.14
109A	20,048	0.46	0.99	1,732	0.04	0.65	0.50	0.96	3.200	1.54
		2.13					2.25	0.97		7.01

EXISTING GI MTD

WQU-110 A & B Vortechs 11000, x2

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
111A	7,693	0.18	0.99	11,957	0.27	0.65	0.45	0.79	3.200	1.14
111B	14,113	0.32	0.99	0	0.00	0.65	0.32	0.99	3.200	1.01
112	43,331	0.99	0.99	10,779	0.25	0.65	1.24	0.92	3.200	3.65
113	33,800	0.78	0.99	8,395	0.19	0.65	0.97	0.92	3.200	2.86
114	9,683	0.22	0.99	5,229	0.12	0.65	0.34	0.87	3.200	0.95
115	15,753	0.36	0.99	4,560	0.10	0.65	0.46	0.92	3.200	1.35
116	7,497	0.17	0.99	3,635	0.08	0.65	0.25	0.88	3.200	0.70
117	4,384	0.10	0.99	3,635	0.08	0.65	0.18	0.84	3.200	0.49
118	22,462	0.52	0.99	4,171	0.10	0.65	0.62	0.94	3.200	1.86
		3.64					4.83	0.90		13.86

EXISTING MTD

WQU-121 Vortechs 16000, x2

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
122	7,800	0.18	0.99	992	0.02	0.65	0.20	0.96	3.200	0.61
122A	18,690	0.43	0.99	0	0.00	0.65	0.43	0.99	3.200	1.36
122B	18,559	0.43	0.99	0	0.00	0.65	0.43	0.99	3.200	1.36
122D	8,981	0.21	0.99	0	0.00	0.65	0.21	0.99	3.200	0.67
122E	4,533	0.10	0.99	3,531	0.08	0.65	0.18	0.84	3.200	0.48
123	3,000	0.07	0.99	0	0.00	0.65	0.07	0.99	3.200	0.22
124	12,466	0.29	0.99	4,426	0.10	0.65	0.39	0.9	3.200	1.12
124A	3,268	0.08	0.99	0	0.00	0.65	0.08	0.99	3.200	0.25
124B	3,234	0.07	0.99	2,717	0.06	0.65	0.13	0.83	3.200	0.35
125	19,033	0.30	0.99	9,319	0.21	0.65	0.51	0.85	3.200	1.39
125A	11,147	0.26	0.99	5,593	0.13	0.65	0.39	0.88	3.200	1.10
126	11,400	0.26	0.99	0	0.00	0.65	0.26	0.99	3.200	0.82
127	12,499	0.29	0.99	7,414	0.17	0.65	0.46	0.86	3.200	1.27
128	14,995	0.34	0.99	1,710	0.04	0.65	0.38	0.95	3.200	1.16
129	33,953	0.78	0.99	1,732	0.04	0.65	0.82	0.97	3.200	2.55
130	26,915	0.62	0.99	1,700	0.04	0.65	0.66	0.97	3.200	2.05
		4.71					5.00	0.93		16.76

WQU-201 Vortechs 9000

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
201B	17,931	0.41	0.99	0	0.00	0.65	0.41	0.99	3.200	1.30
201C	17,208	0.40	0.99	0	0.00	0.65	0.40	0.99	3.200	1.27
201D	33,010	0.76	0.99	0	0.00	0.65	0.76	0.99	3.200	2.41
		1.57					1.57	0.99		4.97

WQU-209 Vortechs 16000

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
209A	44,945	1.03	0.99	0	0.00	0.65	1.03	0.99	3.200	3.26
209B	31,800	0.73	0.99	0	0.00	0.65	0.73	0.99	3.200	2.31
209C	7,500	0.17	0.99	0	0.00	0.65	0.17	0.99	3.200	0.54
209D	6,850	0.16	0.99	0	0.00	0.65	0.16	0.99	3.200	0.51
209E	14,832	0.34	0.99	0	0.00	0.65	0.34	0.99	3.200	1.08
		2.43					2.43	0.99		7.70

9, 13x7 Filterra Units- Office Parking Area

Inlet #	Impervious (SF)	Impervious (Ac)	Impervious "C"	Pervious (SF)	Pervious (Ac)	Pervious "C"	Total Area (Ac)	Composite "C"	I (in/hr)	Q=CIA
301	36,769	0.84	0.99	5,262	0.12	0.65	0.96	0.95	3.200	2.92
301A	18,571	0.43	0.99	2,713	0.06	0.65	0.49	0.95	3.200	1.49
301B	19,632	0.45	0.99	2,329	0.05	0.65	0.50	0.96	3.200	1.54
303, x2	30,241	0.69	0.99	6,795	0.16	0.65	0.85	0.93	3.200	2.53
303A	20,178	0.46	0.99	1,602	0.04	0.65	0.50	0.96	3.200	1.54
303B	19,766	0.45	0.99	2,332	0.05	0.65	0.50	0.96	3.200	1.54
304	14,315	0.33	0.99	1,353	0.03	0.65	0.36	0.96	3.200	1.11
305	13,380	0.31	0.99	1,780	0.04	0.65	0.35	0.95	3.200	1.06
		3.96					4.51	0.95		13.73

CONTECH ENGINEERED SOLUTIONS

Sizing Summary

Holtec Technology Center, LLC
Camden, NJ

Information provided by Engineer (T&M Associates):

- Total contributing area = 4.91 acres
- WQ Flowrate = 13.86 cfs
- Contributing Inlets = 111A through 118
- Presiding agency = NJDEP

Sizing Summary:

The CONTECH Engineered Solutions Vortechs® stormwater treatment system is a hydrodynamic separator designed to enhance gravitational separation of floating and settleable materials from stormwater flows. Stormwater flows enter the unit tangentially to the grit chamber, which promotes a gentle swirling motion. As stormwater circles within the grit chamber, pollutants migrate toward the center of the unit where velocities are the lowest. The majority of settleable solids are left behind as stormwater exits the swirl chamber. Stormwater flows then are directed below a floatables baffle wall, where buoyant debris and hydrocarbons are removed. The Vortechs system is NJCAT verified and as a result has received an interim certification from the NJDEP for 50% TSS removal.

For this project the Vortechs system was designed to treat the 2004 NJDEP water quality design storm – a two-hour, variable distribution storm, with a rainfall depth of 1.25" inches. The engineer of record modeled the water quality design storm runoff, and the peak water quality flow rate was determined to be 13.86 cfs.

Water Quality Design Storm Peak Runoff Rate (cfs)	Two Vortechs Model VX 11000 In Parallel Water Quality Treatment Flow Rate (cfs)
13.86	14.00

Maintenance:

Like any stormwater best management practice, the Vortechs system requires regular inspection and maintenance to ensure optimal performance. Maintenance frequency will be driven by site conditions. Quarterly visual inspections are recommended, at which time the accumulation of pollutants can be determined. On average, the Vortechs system requires annual removal of accumulated pollutants.

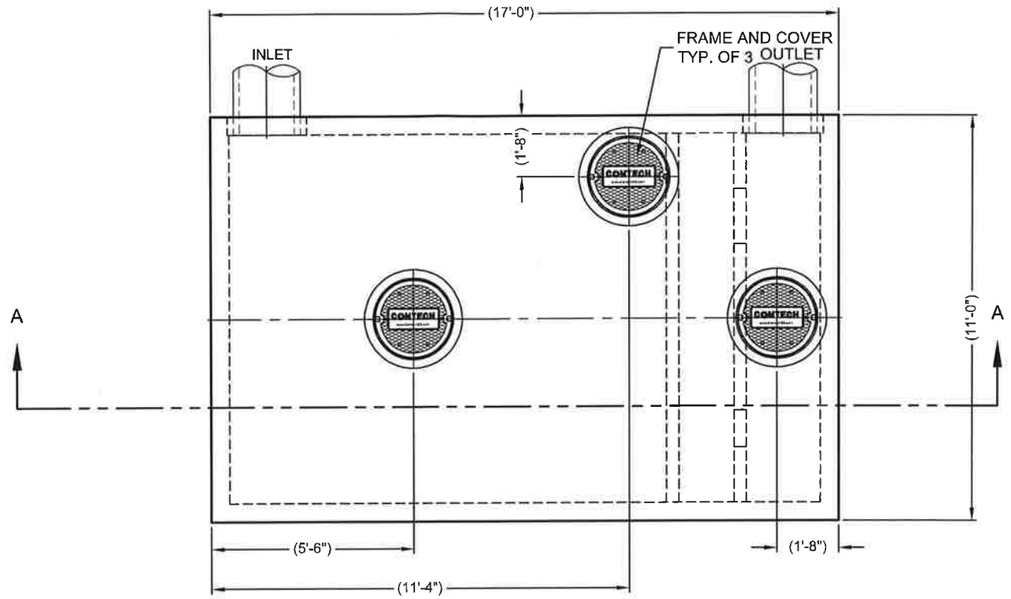
Thank you for the opportunity to present this information to you and your client.

Sincerely,

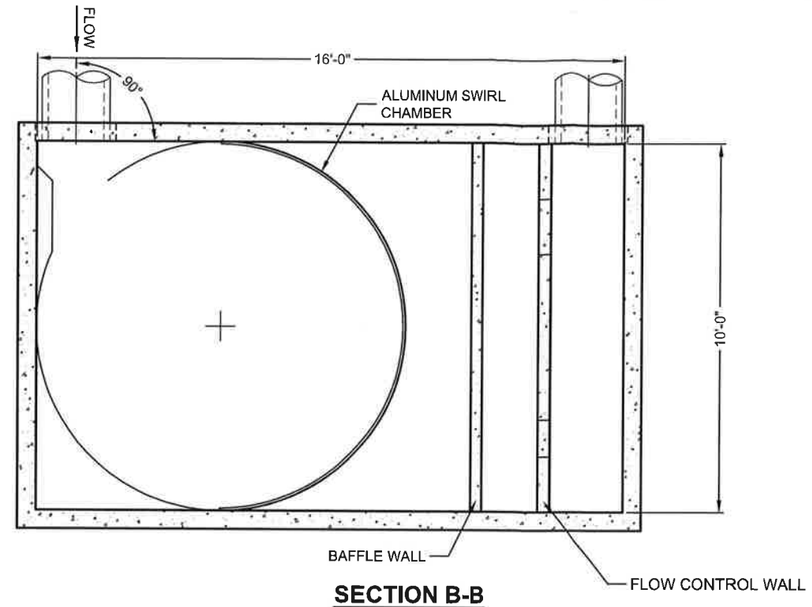
Andrew Brown, E.I.T.
Stormwater Design Engineer

©2015 CONTECH Engineered Solutions

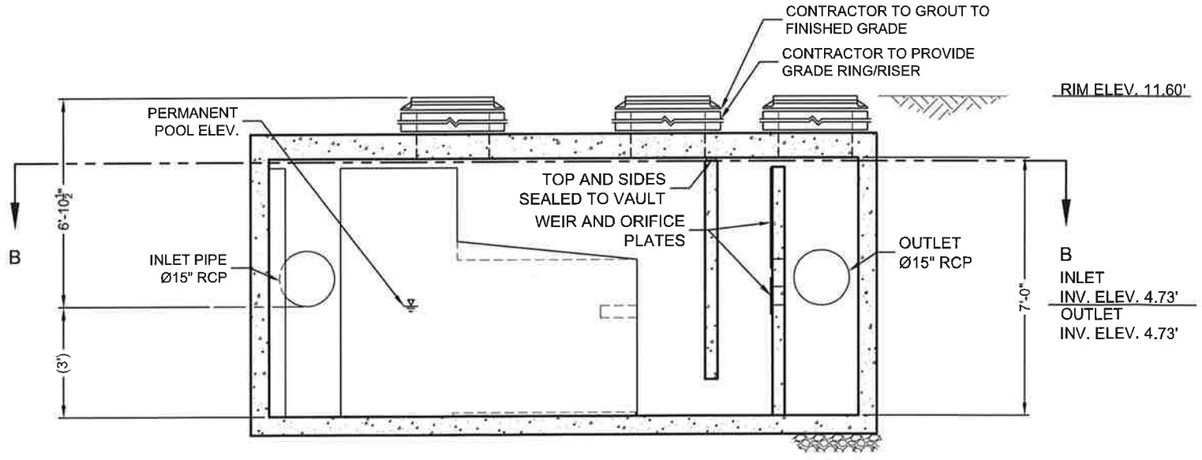
605 Global Way, Suite 113, Linthicum, MD 21090
Toll-free: 866.740.3318 Fax: 866.376.8511



PLAN VIEW



SECTION B-B



SECTION A-A

- BYPASS STRUCTURE INFORMATION -

BYPASS STRUCTURE = 6.0' DIA.
BYPASS WEIR CREST LENGTH = 6.0'
BYPASS WEIR CREST ELEVATION = 7.02'

- NOT SUPPLIED BY CONTECH ENGINEERED SOLUTIONS LLC -

MATERIALS LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	ALUMINUM SWIRL CHAMBER	CONTECH
1	ALUMINUM WEIR PLATE	CONTECH
1	ALUMINUM ORIFICE PLATE	CONTECH
1	SWIRL CHAMBER SEALANT	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
3	Ø24" x 4" FRAME AND COVER	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	6.93 cfs
PEAK FLOW RATE	OFFLINE
RETURN PERIOD OF PEAK FLOW	N/A

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. VORTECHS WATER QUALITY VAULT SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM
6. ACTUAL GROUNDWATER ELEVATION.
7. WATER SURFACE ELEVATION IN THE VORTECHS SYSTEM IS EXPECTED TO BE AT OR BELOW TOP OF FLOW CONTROL WALL DURING THE DESIGN STORM.
8. GROUND WATER ELEVATION ASSUMED AT INLET PIPE INVERT.

INSTALLATION NOTES

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS VAULT (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT JOINTS AND ASSEMBLE VAULT.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO PROVIDE ANY EXTERNAL BYPASS VAULTS REQUIRED FOR OFFLINE LAYOUT (UNLESS OTHERWISE SPECIFIED.
6. CONTRACTOR TO PROVIDE AND INSTALL MANHOLE RISERS, GRADE RINGS OR BLOCK REQUIRED BETWEEN THE TOP OF THE VORTECHS SYSTEM AND THE BASE OF THE MANHOLE FRAMES. TOP SLAB OPENING DIAMETER MAY BE DIFFERENT FROM THOSE SHOWN.

STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK = 56,000 LBS.

Vortechs®

THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

CONTECH **PROPOSAL** DRAWING

CIL
LS/LS

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MARK	DATE	REVISION DESCRIPTION	BY
1	2/29/15	UPDATED SITE DESIGNATION AND ELEV.	TAB

Vortechs 11000 - 517619-240
Holtec Technology Center, LLC
Camden, NJ
SITE DESIGNATION: WQU-110A

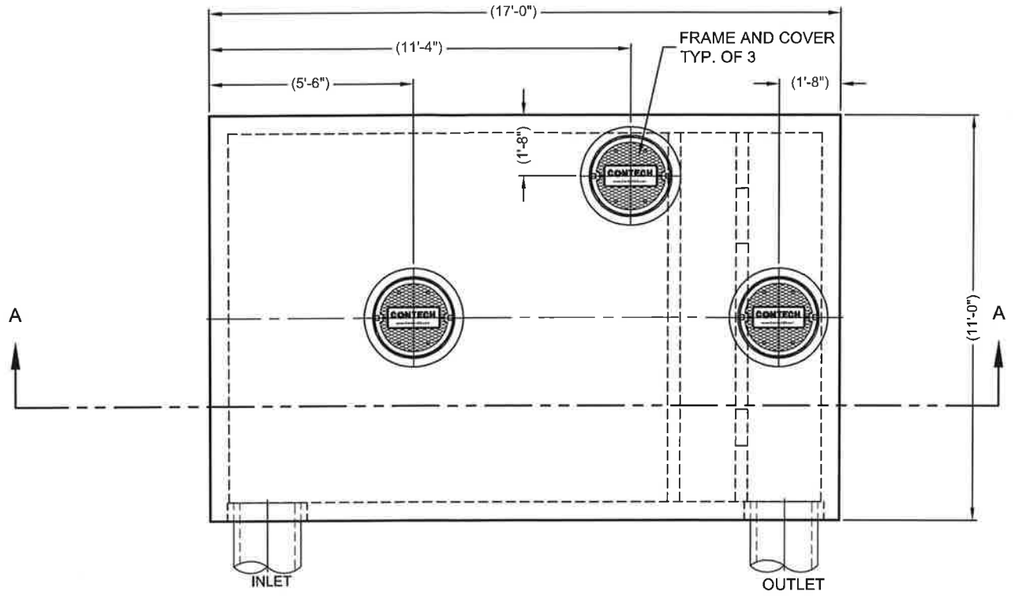
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9026 Corporate Circle Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

Vortechs®

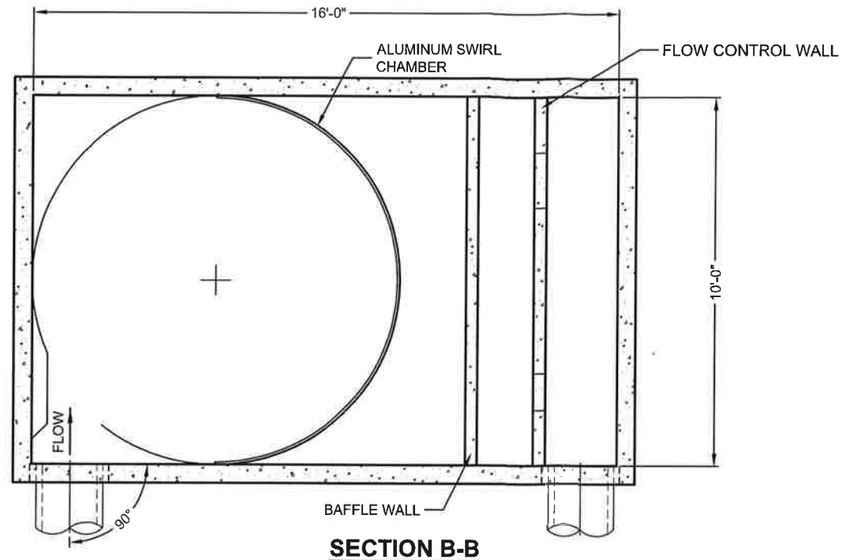
THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING U.S. PATENTS: 5,759,415; RELATED FOREIGN PATENTS.

DATE: 4/16/15
DESIGNED: #### | DRAWN: TAB
CHECKED: | APPROVED:
PROJECT NUMBER: 517619
SHEET: 1 OF #

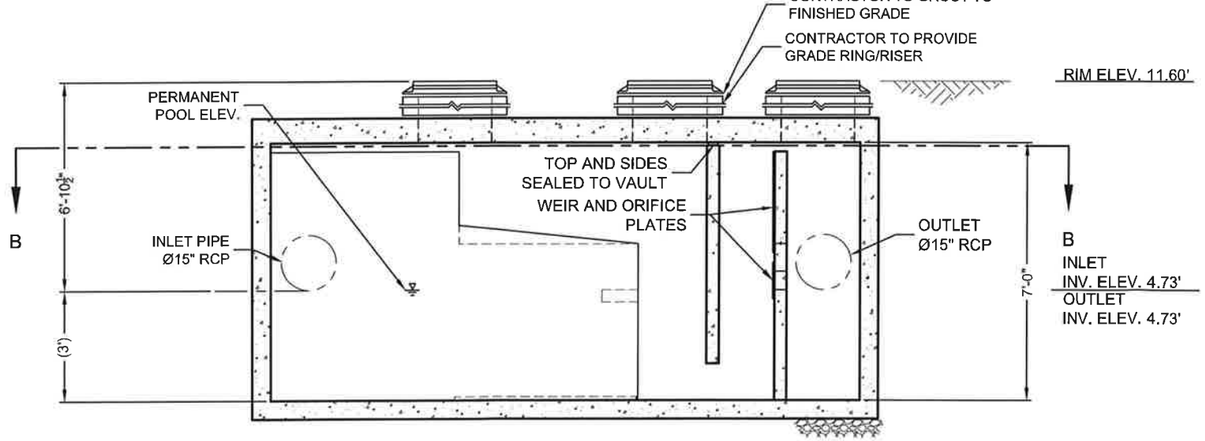
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PLAN VIEW



SECTION B-B



SECTION A-A

- BYPASS STRUCTURE INFORMATION -

BYPASS STRUCTURE = 6.0' DIA.
BYPASS WEIR CREST LENGTH = 6.0'
BYPASS WEIR CREST ELEVATION = 7.02'

- NOT SUPPLIED BY CONTECH ENGINEERED SOLUTIONS LLC -

MATERIALS LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
1	ALUMINUM SWIRL CHAMBER	CONTECH
1	ALUMINUM WEIR PLATE	CONTECH
1	ALUMINUM ORIFICE PLATE	CONTECH
1	SWIRL CHAMBER SEALANT	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
3	Ø24" x 4" FRAME AND COVER	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	6.93 cfs
PEAK FLOW RATE	OFFLINE
RETURN PERIOD OF PEAK FLOW	N/A

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
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STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK = 56,000 LBS.

Vortechs®

THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

CONTECH
PROPOSAL
DRAWING

GIL
RS/RS

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MARK	DATE	REVISION DESCRIPTION	TAB	BY
1	4/29/15	UPDATE SITE DESIGNATION AND ELEV.		

Vortechs 11000 - 517619-250
Holtec Technology Center, LLC
Camden, NJ
SITE DESIGNATION: WQU-110B

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

Vortechs®

THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

DATE: 4/16/15
DESIGNED: #### | DRAWN: TAB
CHECKED: | APPROVED:
PROJECT NUMBER: 517619
SHEET: 1 OF #

\\AD.CONTECH-CPI.COM\GROUP\TWERLIN\PROJECT\ACTIVE\517600\517619\517619-250-VORTECHS\DRAWINGS\PROPOSAL\PRE-517619-250-WQU121B-PRO-A.DWG 4/29/2015 9:18 AM

VORTECHS SYSTEM® FLOW CALCULATIONS
HOLTEC TECHNOLOGY CENTER
CAMDEN, NJ
MODEL NAME VORTECHS 11000
SITE DESIGNATION WQU-110A

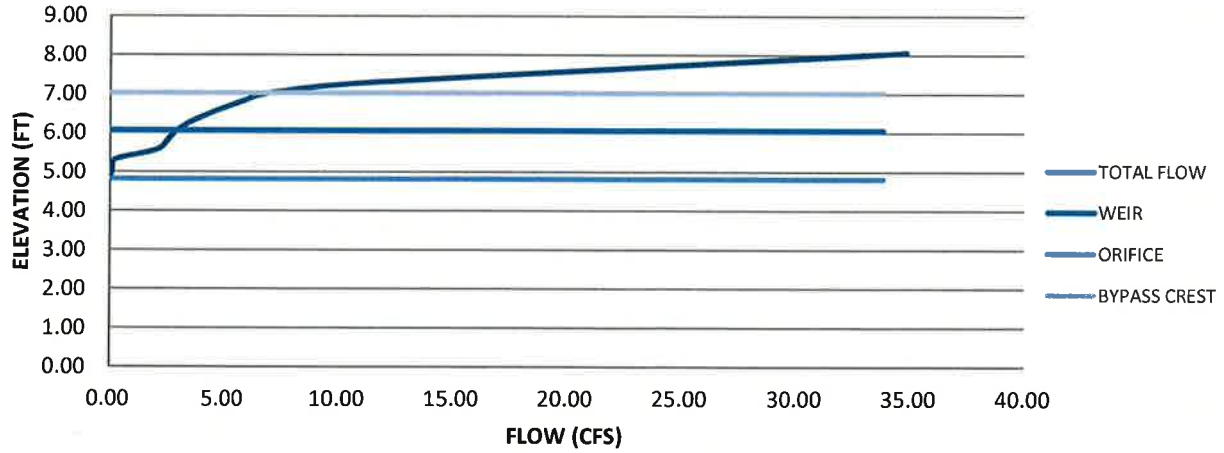
CONTECH ENGINEERED SOLUTIONS

Vortechs Orifice	Vortechs Weir	Bypass Weir
Cd = 0.56	Cd = 3.37	Cd = 3.3
A (ft^2) = 0.65	Weir Crest Length (ft) = 0.92	Crest Length (ft) = 6
Crest Elevation (ft) = 4.81	Crest Elevation (ft) = 6.06	Crest Elev. (ft) = 7.02

Head (ft)	Elevation (ft)	Orifice Flow (cfs)	Weir Flow (cfs)	Bypass Flow (cfs)	Total Flow (cfs)
0.00	4.81	0.00	0.00	0.00	0.00
0.25	5.06	0.08	0.00	0.00	0.08
0.50	5.31	0.23	0.00	0.00	0.23
0.75	5.56	2.05	0.00	0.00	2.05
1.00	5.81	2.51	0.00	0.00	2.51
1.25	6.06	2.90	0.00	0.00	2.90
1.50	6.31	3.24	0.39	0.00	3.63
1.75	6.56	3.55	1.10	0.00	4.65
2.00	6.81	3.84	2.01	0.00	5.85
2.21	7.02	4.06	2.90	0.00	6.96
2.46	7.27	4.31	4.11	2.48	10.89
3.25	8.06	5.02	8.76	21.06	34.85
2.20	7.01	4.05	2.88	0.00	6.93
2.71	8.07	4.78	8.80	21.27	34.85

Calculated by: TAB | 4/16/15

VORTECHS STAGE DISCHARGE CURVE



VORTECHS SYSTEM® FLOW CALCULATIONS
HOLTEC TECHNOLOGY CENTER
CAMDEN, NJ
MODEL NAME VORTECHS 11000
SITE DESIGNATION WQU-110B

CONTECH ENGINEERED SOLUTIONS

Vortechs Orifice
Cd = 0.56
A (ft^2) = 0.65
Crest Elevation (ft) = 4.81

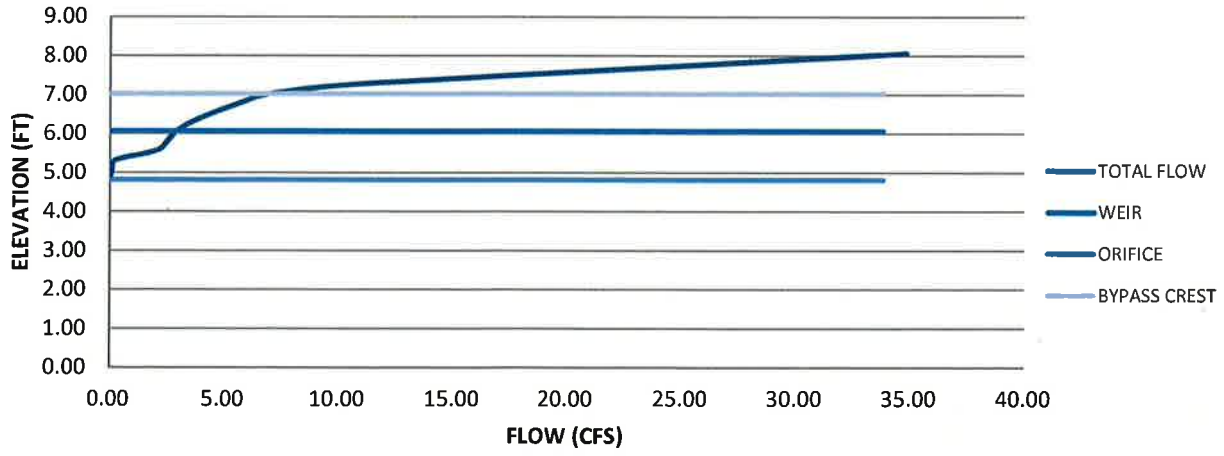
Vortechs Weir
Cd = 3.37
Weir Crest Length (ft) = 0.92
Crest Elevation (ft) = 6.06

Bypass Weir
Cd = 3.3
Crest Length (ft) = 6
Crest Elev. (ft) = 7.02

Head (ft)	Elevation (ft)	Orifice Flow (cfs)	Weir Flow (cfs)	Bypass Flow (cfs)	Total Flow (cfs)
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0.25	5.06	0.08	0.00	0.00	0.08
0.50	5.31	0.23	0.00	0.00	0.23
0.75	5.56	2.05	0.00	0.00	2.05
1.00	5.81	2.51	0.00	0.00	2.51
1.25	6.06	2.90	0.00	0.00	2.90
1.50	6.31	3.24	0.39	0.00	3.63
1.75	6.56	3.55	1.10	0.00	4.65
2.00	6.81	3.84	2.01	0.00	5.85
2.21	7.02	4.06	2.90	0.00	6.96
2.46	7.27	4.31	4.11	2.48	10.89
3.25	8.06	5.02	8.76	21.06	34.85
2.20	7.01	4.05	2.88	0.00	6.93
2.71	8.07	4.78	8.80	21.27	34.85

Calculated by: TAB | 4/16/15

VORTECHS STAGE DISCHARGE CURVE



EXISTING WQ UNITS 110

Sizing Summary

Holtec Technology Center, LLC

Camden, NJ

Information provided by Engineer (T&M Associates):

- Total contributing area = 4.91 acres
- WQ Flowrate = 13.86 cfs
- Contributing Inlets = 111A through 118
- Presiding agency = NJDEP

Sizing Summary:

The CONTECH Engineered Solutions Vortechs® stormwater treatment system is a hydrodynamic separator designed to enhance gravitational separation of floating and settleable materials from stormwater flows. Stormwater flows enter the unit tangentially to the grit chamber, which promotes a gentle swirling motion. As stormwater circles within the grit chamber, pollutants migrate toward the center of the unit where velocities are the lowest. The majority of settleable solids are left behind as stormwater exits the swirl chamber. Stormwater flows then are directed below a floatables baffle wall, where buoyant debris and hydrocarbons are removed. The Vortechs system is NJCAT verified and as a result has received an interim certification from the NJDEP for 50% TSS removal.

For this project the Vortechs system was designed to treat the 2004 NJDEP water quality design storm – a two-hour, variable distribution storm, with a rainfall depth of 1.25" inches. The engineer of record modeled the water quality design storm runoff, and the peak water quality flow rate was determined to be 13.86 cfs.

Water Quality Design Storm Peak Runoff Rate (cfs)	Two Vortechs Model VX 11000 In Parallel Water Quality Treatment Flow Rate (cfs)
13.86	14.00

Maintenance:

Like any stormwater best management practice, the Vortechs system requires regular inspection and maintenance to ensure optimal performance. Maintenance frequency will be driven by site conditions. Quarterly visual inspections are recommended, at which time the accumulation of pollutants can be determined. On average, the Vortechs system requires annual removal of accumulated pollutants.

Thank you for the opportunity to present this information to you and your client.

Sincerely,



Andrew Brown, E.I.T.
Stormwater Design Engineer

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605 Global Way, Suite 113, Linthicum, MD 21090
Toll-free: 866.740.3318 Fax: 866.376.8511

filterra
Bioretention Systems

Table 1: Filterra® Quick Sizing Table (New Jersey)

Available Filterra® Box Sizes (feet)	Recommended Commercial Contributing Drainage Area (acres) where C = 0.85	Outlet Pipe
4x4	up to 0.10	4" SDR-35 PVC
4x6 or 6x4	0.10 to 0.15	4" SDR-35 PVC
4x8 or 8x4	0.16 to 0.21	4" SDR-35 PVC
6x6	0.22 to 0.23	4" SDR-35 PVC
6x8 or 8x6	0.24 to 0.31	4" SDR-35 PVC
6x10 or 10x6	0.32 to 0.39	6" SDR-35 PVC
6x12 or 12x6	0.40 to 0.46	6" SDR-35 PVC
7x13 or 13x7	0.47 to 0.59	6" SDR-35 PVC

Notes:

1. All boxes are a standard 3.5 feet depth (INV to TC)
2. A standard SDR-35 PVC pipe coupling is cast into the wall for easy connection to discharge drain.
3. Dimensions shown are internal. Please add 1' to each external dimensions (using 6" walls).
4. For Commerical Developments a minimum (runoff coefficient) C factor of 0.85 is required. For Residential Developments, use of C factors less than 0.5 require individual site review by Filterra.
5. Please ask for sizing tables for other target treatment goals.
6. This sizing table is valid for NJ following NJDEP Water Quality Design Storm Event of 1.25" in 2 hours using the Modified Rational Method to match peak flow with FT capacity as allowed by NJDEP.
7. Filterra infiltration rate 140"/hour.
8. Standard Filterra design (0.5' headspace, 2.5' filter depth)
9. NCRS TR-55 to capture routed volume in FT headspace as allowed by NJDEP.9

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Nonpoint Pollution Control
Division of Water Quality
Mail Code 401-02B
Post Office Box 420
Trenton, New Jersey 08625-0420
609-633-7021 Fax: 609-777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

May 19, 2015

Derek M. Berg
CONTECH Engineered Solutions, LLC
71 US Route 1, Suite F
Scarborough, ME 04074

Re: MTD Lab Certification for the
Filterra Bioretention System
By CONTECH Engineered Solutions, LLC

TSS Removal Rate: 80%

Dear Mr. Berg:

This certification letter is being written to update the Filterra Bioretention System lab certification to reflect an ownership change from Filterra Bioretention System, A Division of Americast, Inc. to Contech Engineered Solutions, LLC.

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Filterra® Bioretention Systems has requested a Laboratory Certification for the Filterra Bioretention System.

This project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix for this device is published online at http://www.njcat.org/verification-process/technology-verification-database.html.

The NJDEP certifies the use of the Filterra Bioretention System by Contech Engineered Solutions, LLC at a TSS removal rate of 80%, when designed, operated and maintained in accordance with the information provided in the Verification Appendix.

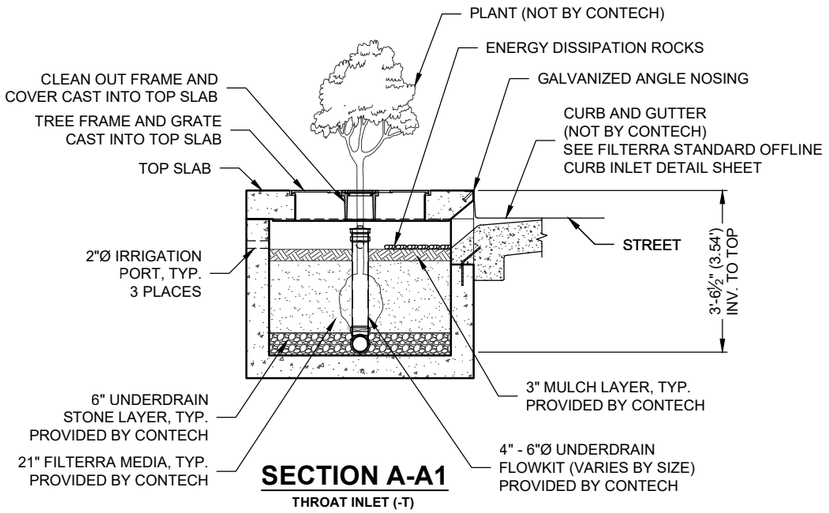
Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Manual.

If you have any questions regarding the above information, please contact Titus Magnanao, of my office at (609) 633-7021.

Sincerely,

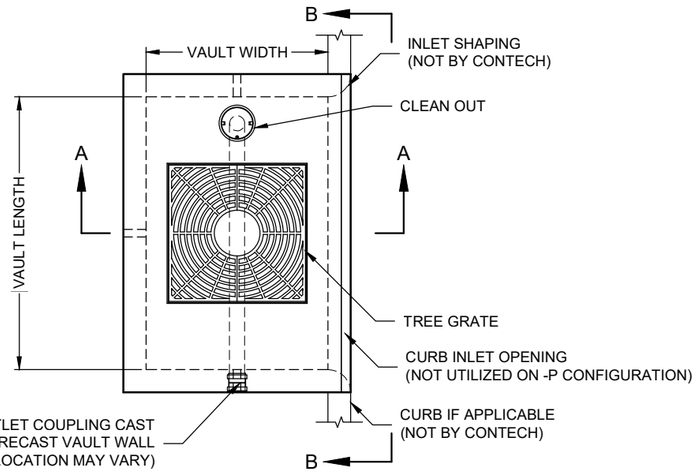
James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

C: Chron File
Richard Magee, NJCAT
Madhu Guru, DLUR
Elizabeth Dragon, BNPC
Lisa Schaefer, BNPC
Titus Magnanao, BNPC
Ravi Patraju, NJDEP

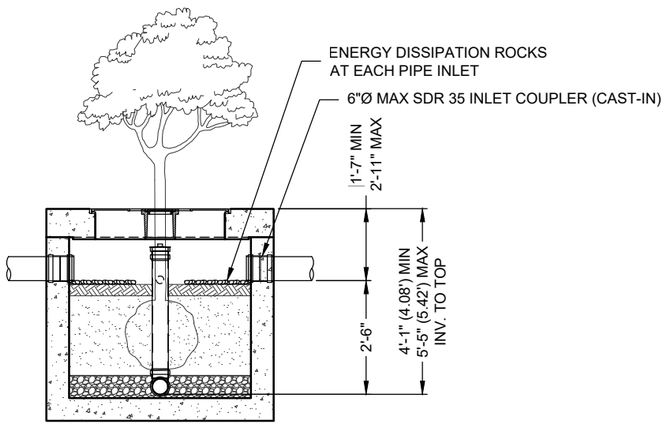


SECTION A-A1

THROAT INLET (-T)

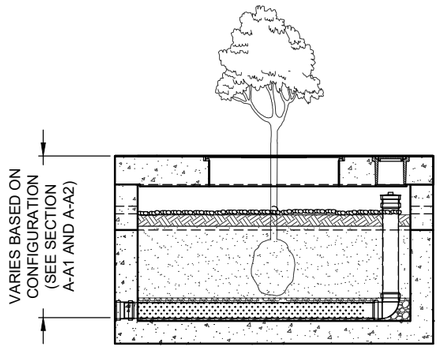


PLAN VIEW

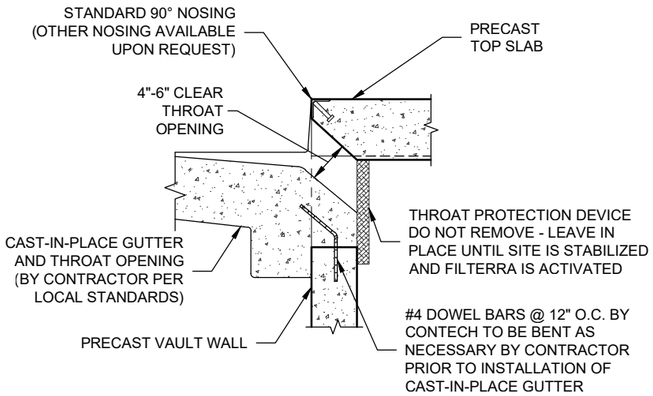


SECTION A-A2

PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION

(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
4 x 4	16	FT0404	FT0404	ALL	4" SDR 35	1
6 x 4	24	FT0604	FT0406	ALL	4" SDR 35	1
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35	1
7.83 x 4.5	35	FT078045	FT045078	DE,MD,NJ,PA,VA.WV ONLY	4" SDR 35	1
6 x 6	36	FT0606	FT0606	ALL (EXCEPT CA, TX)	4" SDR 35	1
8 x 6	48	FT0806	FT0608	ALL	4" SDR 35	1
10 x 6	60	FT1006	FT0610	ALL (EXCEPT CA, TX)	6" SDR 35	2
8 x 8	64	FT0808	FT0808	CA, TX ONLY	6" SDR 35	2
12 x 6	72	FT1206	FT0612	ALL (EXCEPT TX)	6" SDR 35	2
10 x 8	80	FT1008	FT0810	CA, TX ONLY	6" SDR 35	2
13 x 7	91	FT1307	FT0713	ALL (EXCEPT CA, TX)	6" SDR 35	2
12 x 8	96	FT1208	FT0812	CA, TX ONLY	6" SDR 35	2
14 x 8	112	FT1408†	N/A	ALL	6" SDR 35	3
16 x 8	128	FT1608†	N/A	ALL (EXCEPT OR,WA)	6" SDR 35	3
15 x 9	135	FT1509†	N/A	OR,WA ONLY	6" SDR 35	3
18 x 8	144	FT1808†	N/A	CALL CONTECH	6" SDR 35	3
20 x 8	160	FT2008†	N/A	CALL CONTECH	6" SDR 35	4
22 x 8	176	FT2208†	N/A	CALL CONTECH	6" SDR 35	4

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

filterra®

FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

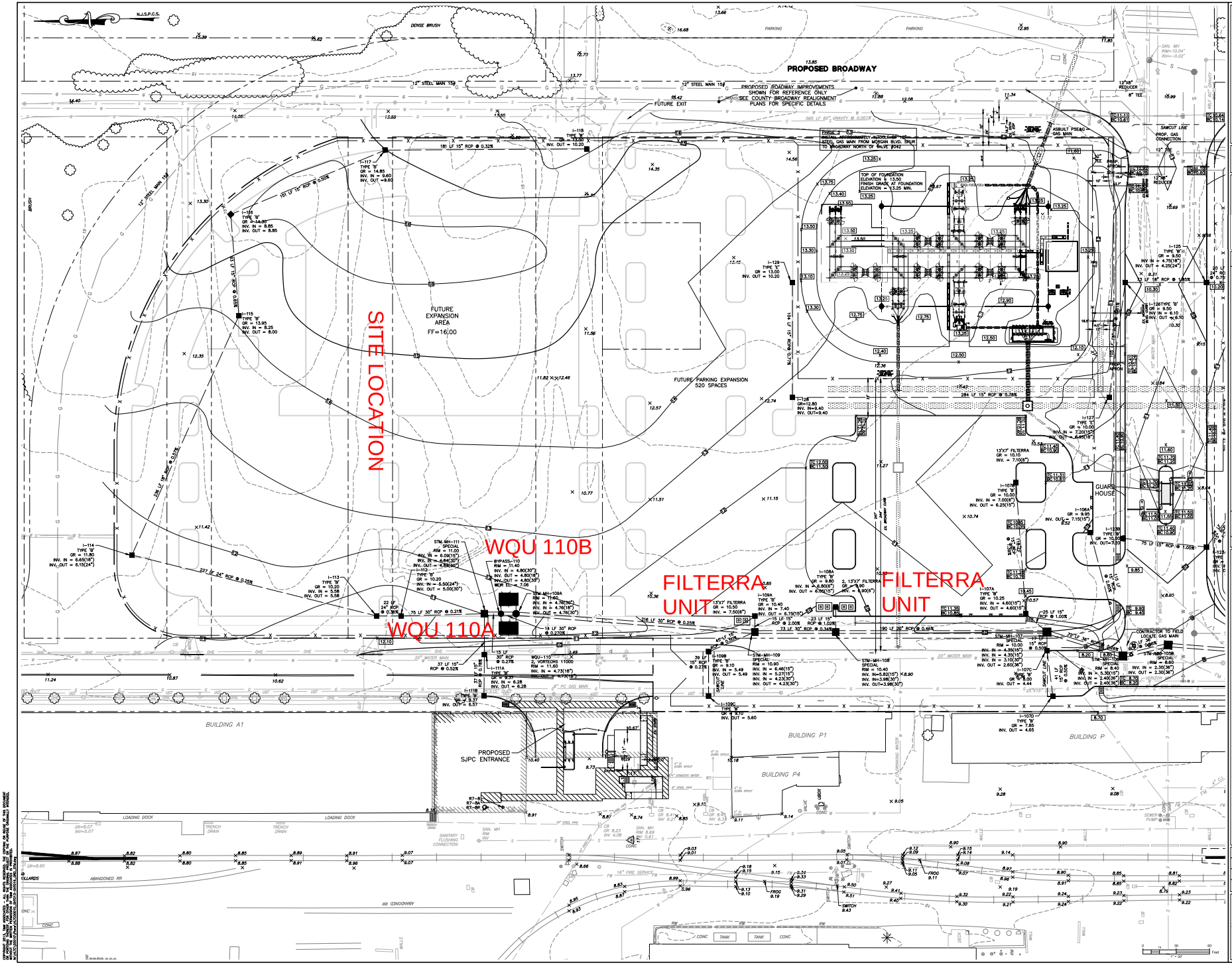
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9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

FILTERRA OFFLINE (FT) CONFIGURATION DETAIL

PROPOSED WQ UNITS

I:\COMMON\CAD\TREATMENT\54 FILTERRA\40 STANDARD DRAWINGS\IN PROCESS\STD DETAILS\FT - FILTERRA OFFLINE CONFIG DTL.DWG 3/14/2023 3:11 PM


PROPOSED BROADWAY
PROPOSED ROADWAY IMPROVEMENTS SHOWN FOR REFERENCE ONLY SEE COUNTY BROADWAY REALIGNMENT PLANS FOR SPECIFIC DETAILS
FUTURE EXIT
SITE LOCATION
FUTURE EXPANSION AREA FF=16.00
FUTURE PARKING EXPANSION 520 SPACES
WQU 110B
WQU 110A
FILTERRA UNIT
FILTERRA UNIT
GUARD HOUSE
PROPOSED SJPC ENTRANCE
BUILDING A1
BUILDING P1
BUILDING P4
BUILDING P
LOADING DOCK
LOADING DOCK
ABANDONED RR
BILLARDS
DENSE BRUSH
PARKING
PARKING
12" STEEL MAIN 159
181 LF 15" RCP @ 0.32%
157 LF 15" RCP @ 0.50%
238 LF 18" RCP @ 0.50%
227 LF 24" RCP @ 0.25%
216 LF 30" RCP @ 0.25%
90 LF 30" RCP @ 0.46%
73 LF 30" RCP @ 0.34%
75 LF 18" RCP @ 1.00%
75 LF 15" RCP @ 1.00%
37 LF 15" RCP @ 0.52%
39 LF 15" RCP @ 0.27%
22 LF 24" RCP @ 0.36%
75 LF 30" RCP @ 0.21%
16 LF 30" RCP @ 0.27%
25 LF 15" RCP @ 1.00%
I-114 TYPE 'B' GR = 11.80 INV. IN = 6.65(18") INV. OUT = 6.15(24")
I-115 TYPE 'B' GR = 13.95 INV. IN = 8.25 INV. OUT = 8.00
I-116 TYPE 'B' GR = 14.30 INV. IN = 8.85 INV. OUT = 8.85
I-117 TYPE 'B' GR = 14.85 INV. IN = 9.60 INV. OUT = 9.60
I-118 TYPE 'B' GR = 13.00 INV. OUT = 10.20
I-129 TYPE 'B' GR = 13.00 INV. OUT = 10.20
I-111 TYPE 'B' GR = 9.37 INV. IN = 6.28 INV. OUT = 6.28
I-111A TYPE 'B' GR = 9.37 INV. IN = 6.28 INV. OUT = 6.28
I-111B TYPE 'B' GR = 9.37 INV. OUT = 6.57
I-113 TYPE 'B' GR = 10.20 INV. IN = 5.58 INV. OUT = 5.58
I-112 TYPE 'B' GR = 10.20 INV. IN = 5.50(24") INV. OUT = 5.00(30")
STM-MH-111 SPECIAL RIM = 11.00 INV. IN = 6.09(15") INV. IN = 5.84(30") INV. OUT = 4.84(30")
BYPASS-110 RIM = 11.40 INV. IN = 4.80(30") INV. OUT = 4.80(18") INV. OUT = 4.80(30") MOR EL = 7.06
STM-MH-109A RIM = THRU INV. IN = 4.78(36") INV. IN = 4.76(18") INV. OUT = 4.76(30")
WQU-110 2, VORTECHS 11000 RIM = 11.60 INV. IN = 4.73(18") INV. OUT = 4.73(18")
I-108 TYPE 'B' GR = 9.80 INV. IN = 6.50(6") INV. OUT = 6.30(15")
I-108A TYPE 'B' GR = 9.80 INV. IN = 6.50(6") INV. OUT = 6.30(15")
2, 13'X7' FILTERRA GR = 9.90 INV. = 4.90(6")
I-109 TYPE 'B' GR = 10.40 INV. IN = 7.40 INV. OUT = 6.75(15") INV. OUT = 6.75(15")
13'X7' FILTERRA GR = 10.50 INV. = 7.50(6")
I-109B TYPE 'B' GR = 9.10 INV. IN = 5.49 INV. OUT = 5.49
I-109C GR = 9.10 INV. OUT = 5.60
STM-MH-109 SPECIAL RIM = 10.90 INV. IN = 6.46(15") INV. IN = 5.27(15") INV. IN = 4.23(30") INV. OUT = 4.23(30")
STM-MH-105 SPECIAL RIM = 10.40 INV. IN=5.52(15") INV. IN=3.98(30") INV. OUT=3.98(30")
STM-MH-107 SPECIAL RIM = 10.00 INV. IN = 4.35(15") INV. IN = 4.35(15") INV. IN = 3.10(30") INV. OUT = 2.60(36")
I-107A TYPE 'B' GR = 10.25 INV. IN = 4.60(15") INV. OUT = 4.60(15")
I-107B GR = 9.85 INV. IN = 5.30(15") INV. IN = 2.40(36") INV. OUT = 2.40(36")
I-107C GR = 9.85 INV. OUT = 4.44
I-107D TYPE 'B' GR = 7.85 INV. OUT = 4.65
STM-MH-105B SPECIAL RIM = 8.60 INV. IN = 2.30(36") INV. OUT = 2.30(36")
I-106 TYPE 'B' GR = 9.50 INV. IN = 4.75(18") INV. OUT = 4.25(24")
I-126 TYPE 'B' GR = 9.50 INV IN = 6.10 INV OUT = 6.10
I-125 TYPE 'B' GR = 9.50 INV. IN = 4.75(18") INV. OUT = 4.25(24")
I-127 TYPE 'B' GR = 10.00 INV. IN = 7.20(15") INV. OUT = 6.60(18")
I-106A GR = 9.95 INV. OUT = 7.15(15")
I-106B GR = 10.00 INV. OUT = 7.30
I-128 GR=12.80 INV. IN=9.40 INV. OUT=9.40
I-130 TYPE 'B' GR = 9.50 INV. IN = 4.75(18") INV. OUT = 4.25(24")
I-131 TYPE 'B' GR = 9.50 INV. IN = 4.75(18") INV. OUT = 4.25(24")
I-132 TYPE 'B' GR = 9.50 INV. IN = 4.75(18") INV. OUT = 4.25(24")

NOAA Atlas 14, Volume 2, Version 3
Location name: Camden, New Jersey, USA*
Latitude: 39.9146°, Longitude: -75.1189°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.18** (3.83-4.55)	**4.98** (4.56-5.42)	**5.87** (5.36-6.40)	**6.50** (5.94-7.09)	**7.27** (6.61-7.93)	**7.81** (7.06-8.54)	**8.34** (7.51-9.16)	**8.82** (7.88-9.72)	**9.40** (8.30-10.4)	**9.83** (8.60-11.0)
10-min	**3.34** (3.06-3.64)	**3.98** (3.65-4.34)	**4.70** (4.30-5.12)	**5.20** (4.75-5.67)	**5.80** (5.27-6.32)	**6.22** (5.62-6.80)	**6.63** (5.96-7.27)	**6.99** (6.25-7.70)	**7.43** (6.56-8.24)	**7.74** (6.78-8.63)
15-min	**2.78** (2.55-3.03)	**3.34** (3.06-3.64)	**3.96** (3.62-4.32)	**4.38** (4.00-4.78)	**4.90** (4.45-5.34)	**5.25** (4.74-5.74)	**5.59** (5.03-6.12)	**5.88** (5.25-6.48)	**6.24** (5.51-6.91)	**6.48** (5.67-7.22)
30-min	**1.90** (1.75-2.08)	**2.30** (2.11-2.51)	**2.81** (2.57-3.07)	**3.17** (2.90-3.47)	**3.63** (3.30-3.96)	**3.95** (3.57-4.32)	**4.28** (3.85-4.69)	**4.58** (4.09-5.04)	**4.96** (4.38-5.50)	**5.25** (4.59-5.85)
60-min	**1.19** (1.09-1.30)	**1.45** (1.33-1.58)	**1.80** (1.65-1.97)	**2.07** (1.89-2.26)	**2.42** (2.19-2.64)	**2.68** (2.42-2.93)	**2.95** (2.65-3.23)	**3.21** (2.87-3.54)	**3.56** (3.14-3.94)	**3.83** (3.35-4.27)
2-hr	**0.716** (0.652-0.784)	**0.870** (0.794-0.953)	**1.09** (0.994-1.20)	**1.26** (1.14-1.38)	**1.48** (1.34-1.63)	**1.66** (1.49-1.82)	**1.84** (1.64-2.02)	**2.02** (1.78-2.23)	**2.26** (1.98-2.52)	**2.45** (2.12-2.74)
3-hr	**0.521** (0.476-0.572)	**0.633** (0.578-0.695)	**0.796** (0.724-0.873)	**0.921** (0.836-1.01)	**1.09** (0.984-1.20)	**1.23** (1.10-1.35)	**1.37** (1.22-1.51)	**1.51** (1.33-1.67)	**1.71** (1.48-1.90)	**1.86** (1.60-2.08)
6-hr	**0.326** (0.298-0.358)	**0.394** (0.360-0.434)	**0.493** (0.449-0.543)	**0.573** (0.520-0.630)	**0.687** (0.618-0.756)	**0.780** (0.696-0.859)	**0.879** (0.777-0.971)	**0.983** (0.858-1.09)	**1.13** (0.969-1.26)	**1.25** (1.06-1.41)
12-hr	**0.196** (0.180-0.217)	**0.237** (0.217-0.262)	**0.299** (0.272-0.330)	**0.350** (0.318-0.386)	**0.427** (0.383-0.470)	**0.491** (0.436-0.542)	**0.562** (0.492-0.622)	**0.639** (0.551-0.711)	**0.753** (0.634-0.843)	**0.849** (0.701-0.957)
24-hr	**0.113** (0.104-0.122)	**0.136** (0.126-0.148)	**0.173** (0.160-0.188)	**0.204** (0.188-0.221)	**0.250** (0.229-0.270)	**0.289** (0.263-0.312)	**0.332** (0.300-0.357)	**0.379** (0.340-0.408)	**0.450** (0.398-0.483)	**0.509** (0.445-0.547)
2-day	**0.065** (0.059-0.070)	**0.078** (0.072-0.085)	**0.100** (0.092-0.108)	**0.117** (0.108-0.127)	**0.143** (0.130-0.155)	**0.165** (0.150-0.179)	**0.189** (0.170-0.204)	**0.214** (0.192-0.232)	**0.252** (0.223-0.273)	**0.284** (0.248-0.307)
3-day	**0.046** (0.042-0.050)	**0.055** (0.051-0.060)	**0.070** (0.064-0.076)	**0.082** (0.075-0.089)	**0.100** (0.091-0.108)	**0.115** (0.104-0.124)	**0.131** (0.118-0.141)	**0.148** (0.133-0.160)	**0.174** (0.154-0.188)	**0.195** (0.171-0.211)
4-day	**0.036** (0.033-0.039)	**0.043** (0.040-0.047)	**0.055** (0.051-0.060)	**0.064** (0.059-0.070)	**0.078** (0.071-0.084)	**0.089** (0.081-0.097)	**0.102** (0.092-0.110)	**0.115** (0.103-0.124)	**0.134** (0.120-0.145)	**0.150** (0.133-0.163)
7-day	**0.024** (0.022-0.026)	**0.029** (0.027-0.031)	**0.036** (0.033-0.039)	**0.042** (0.039-0.045)	**0.050** (0.046-0.054)	**0.057** (0.053-0.062)	**0.065** (0.059-0.070)	**0.073** (0.066-0.079)	**0.085** (0.076-0.092)	**0.095** (0.084-0.103)
10-day	**0.019** (0.018-0.020)	**0.023** (0.021-0.024)	**0.028** (0.026-0.030)	**0.032** (0.030-0.034)	**0.038** (0.035-0.041)	**0.043** (0.040-0.046)	**0.048** (0.044-0.051)	**0.053** (0.049-0.057)	**0.061** (0.055-0.066)	**0.068** (0.061-0.073)
20-day	**0.013** (0.012-0.014)	**0.015** (0.014-0.016)	**0.018** (0.017-0.019)	**0.021** (0.019-0.022)	**0.024** (0.022-0.025)	**0.027** (0.025-0.028)	**0.029** (0.027-0.031)	**0.032** (0.030-0.034)	**0.035** (0.033-0.038)	**0.038** (0.035-0.041)
30-day	**0.011** (0.010-0.011)	**0.013** (0.012-0.013)	**0.015** (0.014-0.016)	**0.016** (0.016-0.017)	**0.019** (0.018-0.020)	**0.020** (0.019-0.022)	**0.022** (0.021-0.023)	**0.024** (0.022-0.025)	**0.026** (0.024-0.028)	**0.028** (0.026-0.030)
45-day	**0.009** (0.009-0.009)	**0.011** (0.010-0.011)	**0.012** (0.012-0.013)	**0.014** (0.013-0.014)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.019** (0.017-0.020)	**0.020** (0.019-0.021)	**0.021** (0.020-0.022)
60-day	**0.008** (0.008-0.009)	**0.009** (0.009-0.010)	**0.011** (0.010-0.011)	**0.012** (0.011-0.013)	**0.013** (0.013-0.014)	**0.014** (0.013-0.015)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

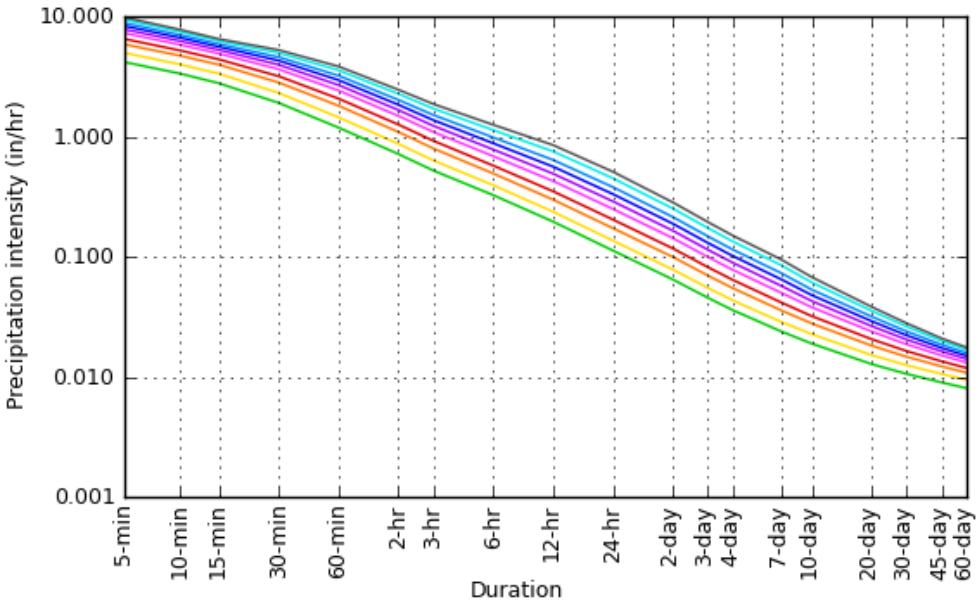
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

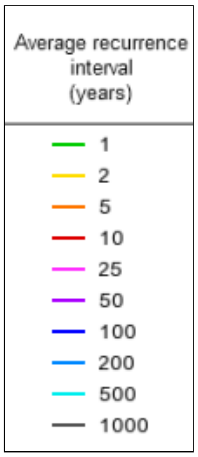
Please refer to NOAA Atlas 14 document for more information.

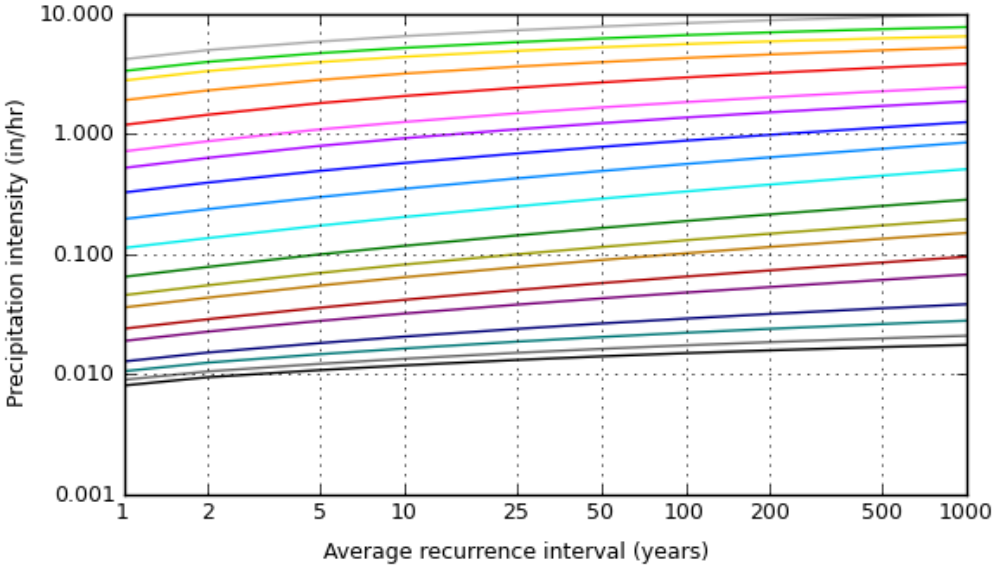
Back to Top

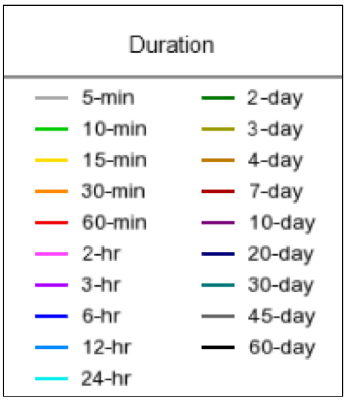
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 39.9146°, Longitude: -75.1189°









NOAA Atlas 14, Volume 2, Version 3

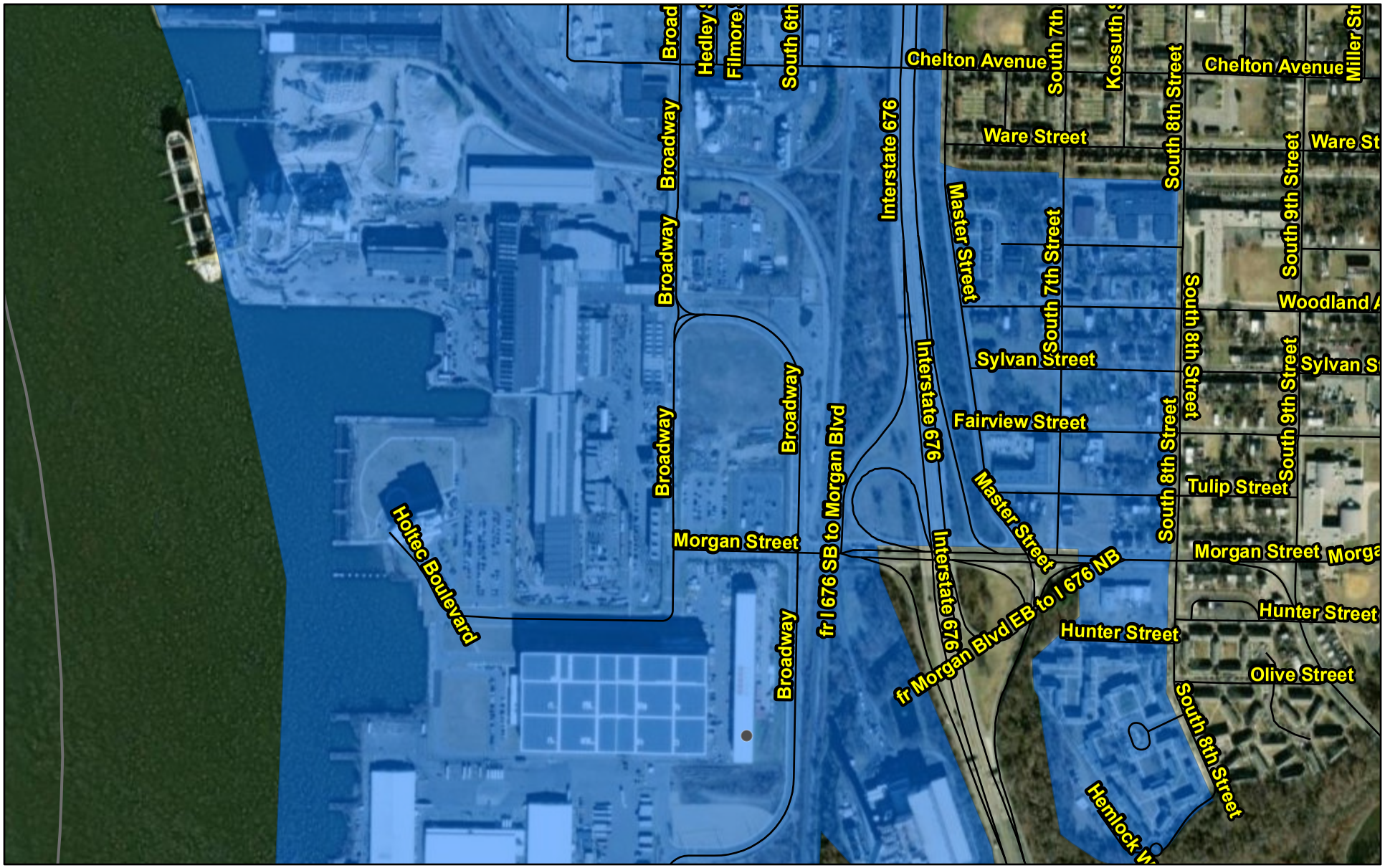
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Maps & aerials

Small scale terrain

URBAN AREA



8/21/2024, 2:51:36 PM

County Boundaries

Urban Enterprise Zones

Road Centerlines of NJ

1:9,028

0 0.05 0.1 0.2 mi

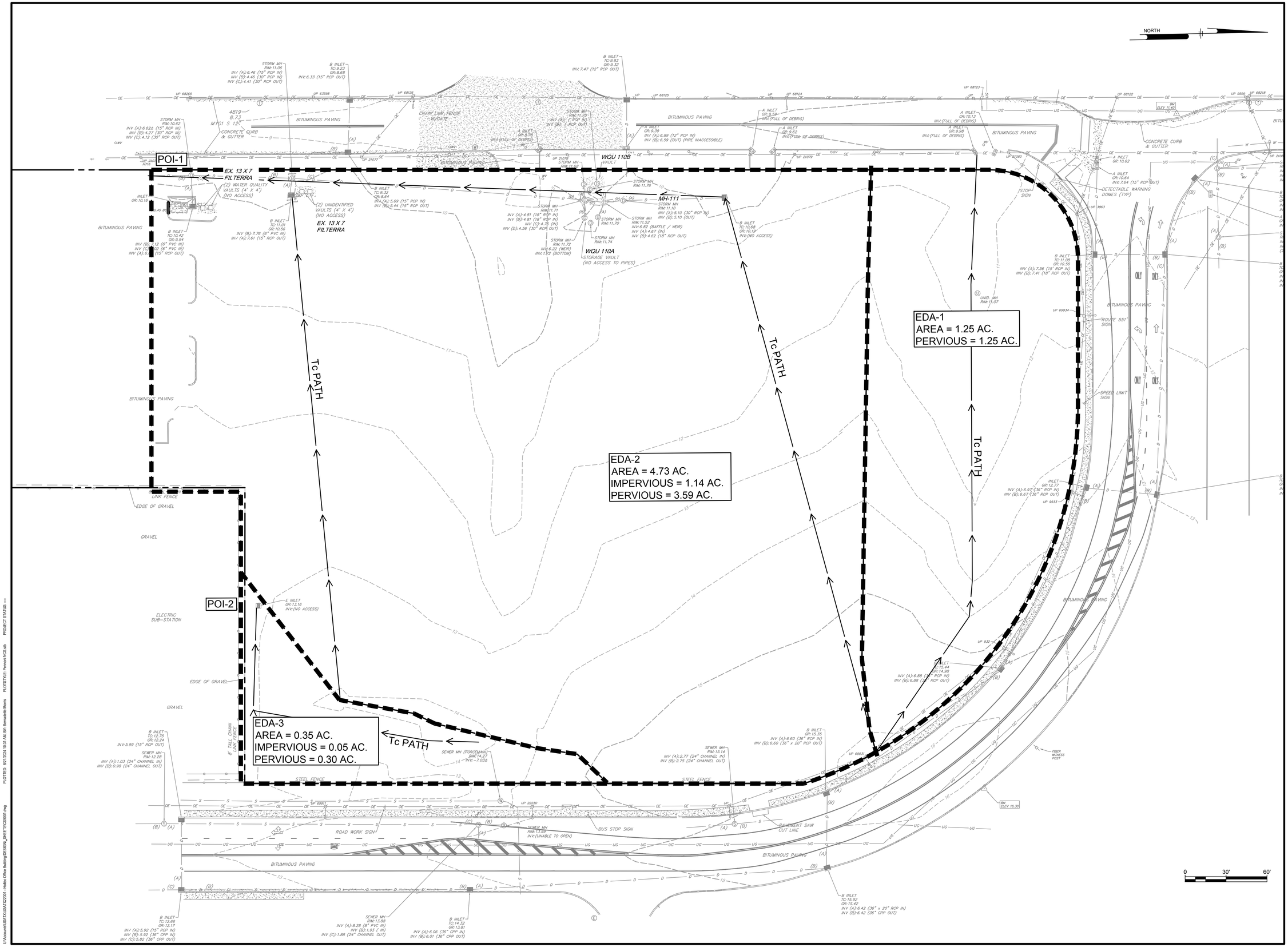
0 0.07 0.15 0.3 km

Maxar

New Jersey Department of Environmental Protection

NJDEP | NJ Department of Community Affairs, Local Planning Services

Appendix D



PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/21/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

PRE-DEVELOPED DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

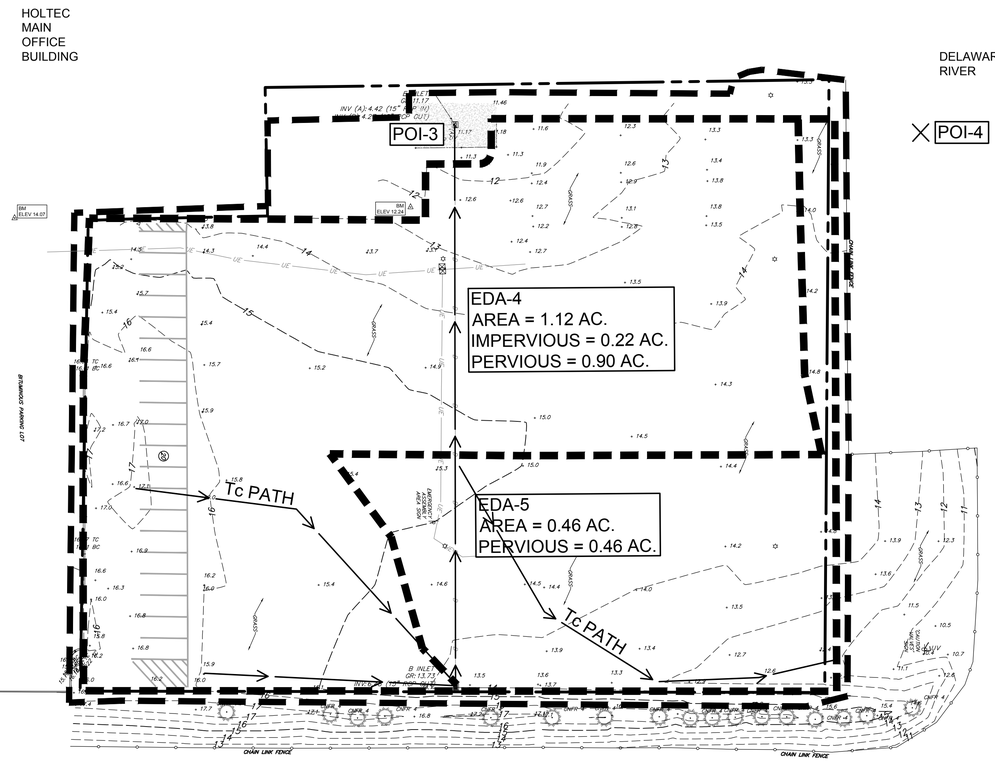
PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9001

SHEET 1 OF 6

U:\Accounts\USATX\USATX22001 - Holtec Office Building\[DESIGN]_SHEETS\CS9001.dwg PLOTSTYLE: Pennoni MCS.stb PLOTTED: 8/21/2024 10:31 AM BY: Bernadette Morris PROJECT STATUS: —

NORTH



0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

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2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

PRE-DEVELOPED DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9001A

SHEET 2 OF 6

U:\Accounts\USATX\USATX22001 - Holtec Office Building\[DESIGN]_SHEETS\CS9001.dwg PLOTTED: 8/22/2024 9:01 AM, BY: Bernadette Morris PLOTSTYLE: Pennoni MCS.stb PROJECT STATUS: —

OFFSITE DRAINAGE
AREA 5
AREA = 0.28 AC.
PERVIOUS= 0.28 AC.

POI-1

POI-2

EXISTING
DRAINAGE
AREA I-108A
AREA = 0.26 AC.

EXISTING
DRAINAGE
AREA I-130
AREA = 0.03

PDA 1
AREA = 0.31 AC.
IMPERVIOUS= 0.14 AC
PERVIOUS= 0.17 AC.

PDA 2
AREA = 1.77 AC.
IMPERVIOUS= 1.45 AC
PERVIOUS= 0.32 AC.

PDA 3
AREA = 2.18 AC.
IMPERVIOUS= 1.39 AC
PERVIOUS= 0.79 AC.

PDA 4
AREA = 1.15 AC.
IMPERVIOUS= 0.86 AC
PERVIOUS= 0.29 AC.

PDA 6
AREA = 0.32 AC.
IMPERVIOUS= 0.08 AC
PERVIOUS= 0.24 AC.

PDA 7
AREA = 0.32 AC.
IMPERVIOUS= 0.13 AC
PERVIOUS= 0.19 AC.

TOTAL IMPERVIOUS AREA = 4.31 ACRES
(INCLUDES EXISTING I-108A, I-129 AND I-130)
TOTAL PERVIOUS AREA = 2.28 ACRES

DRAINAGE LEGEND:
- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- PROPOSED STORM CLEANOUT

0 30' 60'

PROPOSED BUILDING
(FF=15.07)

ENTRANCE ROAD

RING ROAD

Tc PATH

WQU 110B

WQU 110A

MH-111

EX. 13 X 7 FILTERRA

EX. 13 X 7 FILTERRA

NORTH

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/21/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

POST-DEVELOPED DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9002

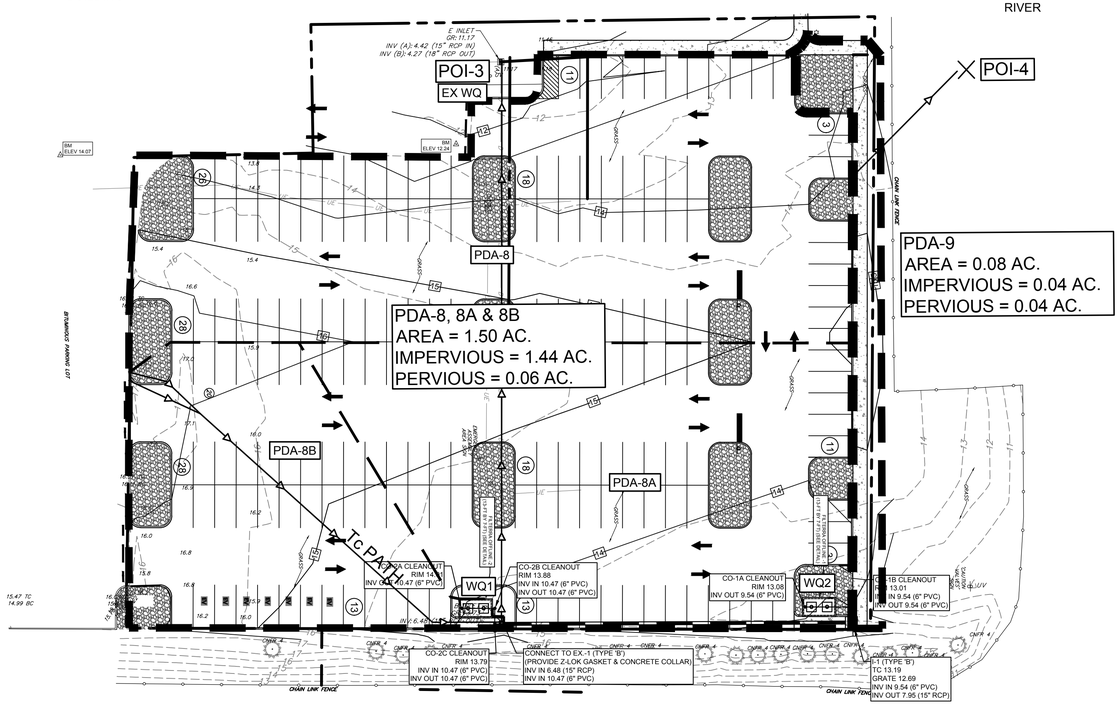
SHEET 3 OF 6

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HOLTEC
MAIN
OFFICE
BUILDING

DELAWARE
RIVER

NORTH



DRAINAGE LEGEND:

- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- PROPOSED STORM CLEANOUT

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

POST-DEVELOPED DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9002A

SHEET 4 OF 6

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS9002.dwg PLOTTED: 8/22/2024 8:59 AM BY: Bernadette Morris PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

NORTH

POI-1

POI-2

DA1

DA2

DA2-1

DA3

DA4

DA5

DA6

DA7

DA8

DA9

DA10

DA11

DA12

DA13

DA14

DA-4A

DA-4B

EX. 13 X 7 FILTERRA

EX. 13 X 7 FILTERRA

WQU 110B

WQU 110A

MH-111

STM. MH-2 RIM 13.64

STM. MH-4 (48" DIA.) RIM 13.40

STM MH-3 (60" DIA.)

PROPOSED BUILDING (FF=15.07)

PROPOSED BUILDING (FF=14.40)

EXISTING PARKING LOT [103 SPACES]

Tc PATH

Tc PATH

Tc PATH

BITUMINOUS PAVING

CONCRETE CURB & GUTTER

DETECTABLE WARNING DOMES (TYP)

ROUTE 551

SPEED LIMIT SIGN

ONLY

ELECTRIC SUB-STATION

LINK FENCE

EDGE OF GRAVEL

GRAVEL

8' TALL CHAIN LINK FENCE

STEEL FENCE

ROAD WORK SIGN

BUS STOP SIGN

PAVEMENT SAW CUT LINE

FIBER WITNESS POST

A INLET GR:10.13 INV:(FULL OF DEBRIS)

A INLET GR:9.98 INV:(FULL OF DEBRIS)

A INLET GR:10.62

A INLET GR:10.64 INV:7.64 (15" RCP OUT)

A INLET GR:9.50 INV:(FULL OF DEBRIS)

A INLET GR:9.62 INV:(TUBE OF DEBRIS)

A INLET GR:9.39 INV (A):6.89 (12" RCP IN) INV (B):6.59 (OUT) (PIPE INACCESSIBLE)

A INLET GR:8.78 INV:(FULL OF DEBRIS)

B INLET TC:9.83 GR:9.32 INV:7.47 (12" RCP OUT)

B INLET TC:9.23 GR:8.68 INV:6.33 (15" RCP OUT)

B INLET TC:10.42 GR:9.94 INV (B):6.22 (6" PVC IN) INV (C):6.02 (6" PVC IN) INV (A):6.42 (15" RCP OUT)

B INLET TC:12.75 GR:12.24 INV:5.99 (15" RCP OUT)

B INLET TC:12.66 GR:12.17 INV (A):5.92 (15" RCP IN) INV (B):5.92 (36" CPP IN) INV (C):5.82 (36" CPP OUT)

B INLET TC:14.32 GR:13.81 INV (A):6.06 (36" CPP IN) INV (B):6.01 (36" CPP OUT)

B INLET TC:15.92 GR:15.42 INV (A):6.42 (36" x 20" RCP IN) INV (B):6.42 (36" CPP OUT)

B INLET TC:14.7 GR:14.2 INV (A):6.60 (36" RCP IN) INV (B):6.60 (36" x 20" RCP OUT)

I-1 (TYPE 'B') GRATE 12.41

I-2 (TYPE 'B') GRATE 11.87

I-3 (TYPE 'B') GRATE 12.95

I-4 (TYPE 'B') GRATE 13.10

I-5 (TYPE 'B') GRATE 12.60

I-6 (TYPE 'B') GRATE 12.61

I-7 (TYPE 'B') GRATE 12.27 LP

I-8 (TYPE 'B') GRATE 12.30

I-9 (TYPE 'B') GRATE 10.93

I-10 (TYPE 'B') GRATE 10.90

FES-1 15 IN FES INV 8.39 (15")

14.34 HP

13.19 LP

DRAINAGE LEGEND:

PROPOSED STORM PIPE

PROPOSED STORM STRUCTURE

PROPOSED STORM CLEANOUT

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

INLET DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

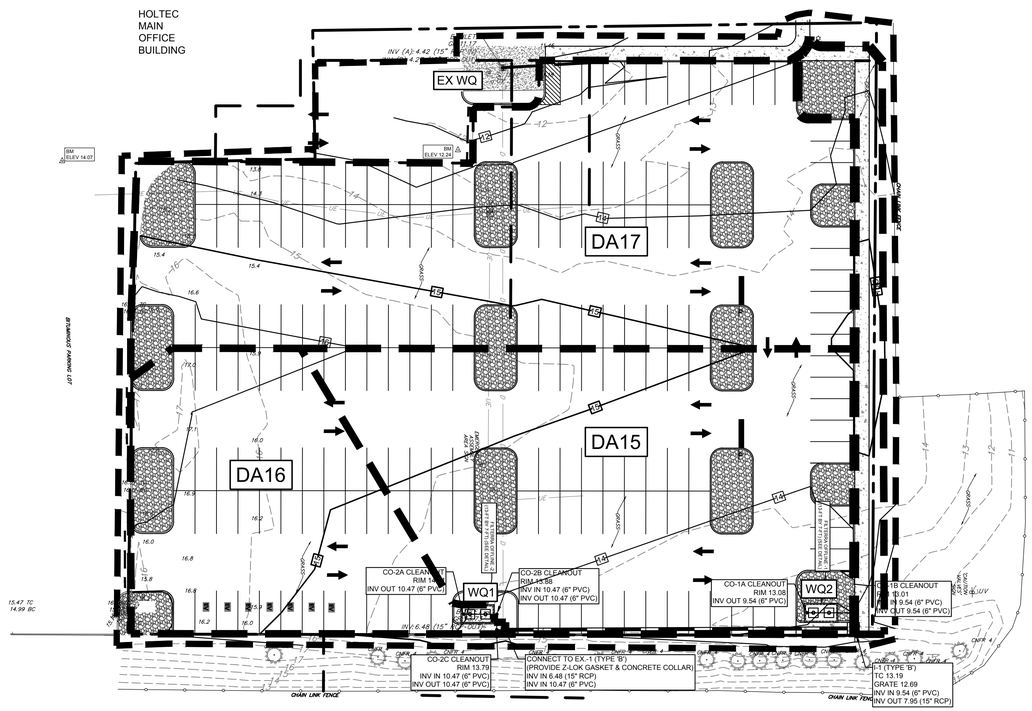
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9003

SHEET 5 OF 6

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS9003.dwg PLOTTED: 8/22/2024 2:16 PM, BY: Bernadette Morris PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —



NORTH

DRAINAGE LEGEND:

- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- PROPOSED STORM CLEANOUT

0 30' 60'

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

INLET DRAINAGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BM / BF
APPROVED BY	JJR

CS9003A

SHEET 6 OF 6

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. CA NO. GA28033300

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS9003.dwg PLOTTED: 8/22/2024 9:11 AM BY: Bernadette Morris PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

AMENDED SITE PLAN

CAMDEN COUNTY, NEW JERSEY

EXISTING: BLOCK 511, LOTS 1, 77 - 94
BLOCK 512, LOTS 33 - 75, 109 & 110, AND 113 - 117
BLOCK 514, LOTS 3 - 6, 9 - 32, 100 - 107, 118, 120, 121, 144 - 155
BLOCK 515, LOTS 1, 3, 4, 4.15, AND 5 - 12
LEASE AREA: BLOCK 455, LOT 1
BLOCK 515, LOT 1

PREPARED FOR:

APPLICANT

HOLTEC TECHNOLOGY CENTER, LLC

1 HOLTEC BOULEVARD

CAMDEN, NEW JERSEY 08104

UTILITY PROVIDERS

AMERICAN WATER
PO BOX 52747
PHOENIX, AZ 85072

PUBLIC SERVICE GAS CO.
535 W. NICHOLSON ROAD
AUDOBON, NJ 08540

COMCAST CABLEVISION
1250 HADDONFIELD-BERLIN ROAD
CHERRY HILL, NJ 08034-0404

PUBLIC SERVICE ELECTRIC CO.
300 NEW ALBANY ROAD
MOORESTOWN, NJ 08057

NEW JERSEY AMERICAN WATER
PO BOX 578
ALTON, IL 62002
(SERVICING EAST CAMDEN & CRAMER HILL)

CITY OF CAMDEN DEPT. OF PUBLIC
ELECTRICAL BUREAU
1056 WRIGHT AVENUE, 2ND FLOOR
CAMDEN, NJ 08103

NJ TRANSIT
350 NEWTON AVENUE
CAMDEN, NJ 08101

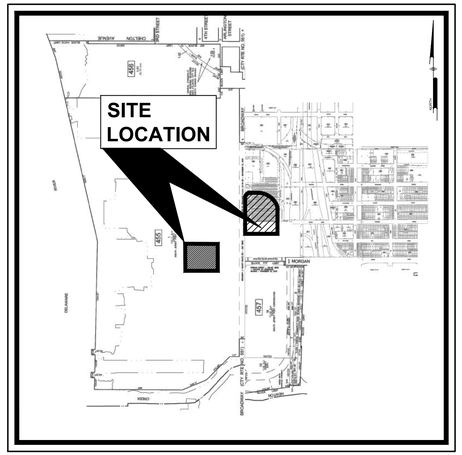
CAMDEN COUNTY M.U.A
1645 FERRY AVENUE
CAMDEN, NJ 08104

VERIZON
540 BROAD STREET
NEWARK, NJ 07101

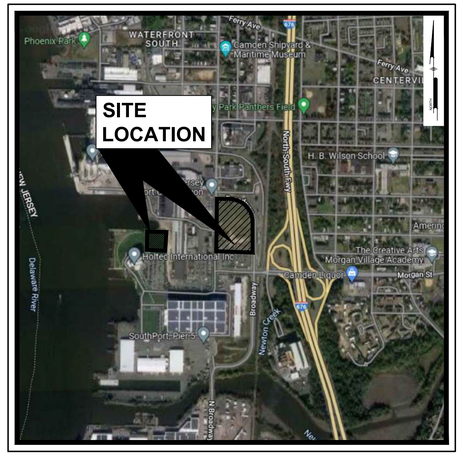
WILLIAMS TRANSCO
99 FARBER ROAD
PRINCETOWN, NJ 08540

DRAWING INDEX

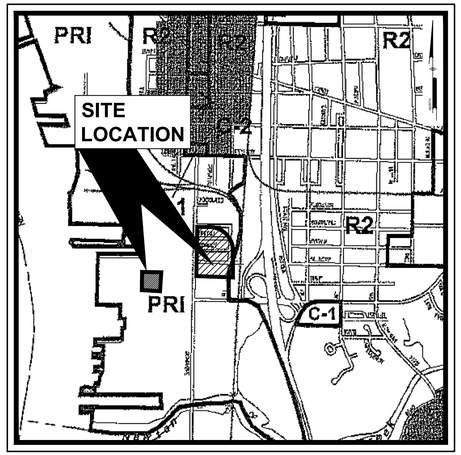
Sheet Number	Sheet Description	Sheet Title	Drawing Date
1	CS0001	COVER SHEET	AUGUST 23, 2024
2	CS0002	GENERAL NOTES I	AUGUST 23, 2024
3	CS0003	GENERAL NOTES II	AUGUST 23, 2024
4	CS0400	GENERAL DEVELOPMENT PLAN	AUGUST 23, 2024
5	CS0500	TEMPORARY SOIL SURCHARGE AREA PLAN	AUGUST 23, 2024
6	CS0501	OFFICE BUILDING DEMOLITION PLAN	AUGUST 23, 2024
7	CS0502	MAIN OFFICE DEMOLITION PLAN	AUGUST 23, 2024
8	CS1001	OFFICE BUILDING SITE PLAN	AUGUST 23, 2024
9	CS1002	MAIN OFFICE SITE PLAN	AUGUST 23, 2024
10	CS1501	OFFICE BUILDING GRADING PLAN	AUGUST 23, 2024
11	CS1502	MAIN OFFICE GRADING PLAN	AUGUST 23, 2024
12	CS1503	OFFICE BUILDING ADA RAMP, PARKING AND DRIVEWAY DETAILS	AUGUST 23, 2024
13	CS1701	OFFICE BUILDING DRAINAGE PLAN	AUGUST 23, 2024
14	CS1704	MAIN OFFICE DRAINAGE PLAN	AUGUST 23, 2024
15	CS1702	OFFICE BUILDING UTILITY PLAN	AUGUST 23, 2024
16	CS1703	MAIN OFFICE UTILITY PLAN	AUGUST 23, 2024
17	CS2001	OFFICE BUILDING LANDSCAPE PLAN	AUGUST 23, 2024
18	CS2002	MAIN OFFICE LANDSCAPE PLAN	AUGUST 23,2024
19	CS2201	OFFICE BUILDING LIGHTING PLAN	AUGUST 23, 2024
20	CS2202	OFFICE BUILDING LIGHTING PLAN - CONDUIT LAYOUT	AUGUST 23, 2024
21	CS2203	MAIN OFFICE LIGHTING PLAN	AUGUST 23, 2024
22	CS3501	ROAD PROFILE I - ENTRANCE ROAD	AUGUST 23, 2024
23	CS3502	ROAD PROFILE II - RING ROAD	AUGUST 23, 2024
24	CS3503	ROAD PROFILE III- RING ROAD	AUGUST 23, 2024
25	CS4001	STORM SEWER PROFILES-I	AUGUST 23, 2024
26	CS4002	STORM SEWER PROFILES-II	AUGUST 23, 2024
27	CS4501	SANITARY SEWER & WATERMAIN PROFILES	AUGUST 23, 2024
28	CS6001	CONSTRUCTION DETAILS I	AUGUST 23, 2024
29	CS6002	CONSTRUCTION DETAILS II	AUGUST 23, 2024
30	CS6003	CONSTRUCTION DETAILS III	AUGUST 23, 2024
31	CS6004	CONSTRUCTION DETAILS IV	AUGUST 23, 2024
32	CS6005	CONSTRUCTION DETAILS V	AUGUST 23, 2024
33	CS6021	DRAINAGE AND WATER MAIN DETAILS I	AUGUST 23, 2024
34	CS6022	DRAINAGE AND WATER MAIN DETAILS II	AUGUST 23, 2024
35	CS6041	WATER DETAILS I	AUGUST 23, 2024
36	CS6051	SANITARY SEWER DETAILS	AUGUST 23, 2024
37	CS6061	LANDSCAPE AND IRRIGATION NOTES	AUGUST 23, 2024
38	CS6062	LANDSCAPE DETAILS	AUGUST 23, 2024
39	CS8001	OFFICE BUILDING SOIL EROSION AND SEDIMENT CONTROL PLAN	AUGUST 23, 2024
40	CS8002	SOIL EROSION AND SEDIMENT CONTROL PLAN	AUGUST 23, 2024
41	CS8501	SOIL EROSION & SEDIMENT CONTROL NOTES	AUGUST 23, 2024
42	CS8502	SOIL EROSION & SEDIMENT CONTROL DETAILS	AUGUST 23, 2024
43	CS9801	OFFICE BUILDING VEHICULAR CIRCULATION PLAN	AUGUST 23, 2024
Survey Plan			
1 OF 1	V0501	BOUNDARY & TOPOGRAPHIC SURVEY	OCTOBER 17, 2022
1 OF 1	V0402	TOPOGRAHPIC SURVEY	AUGUST 9, 2024



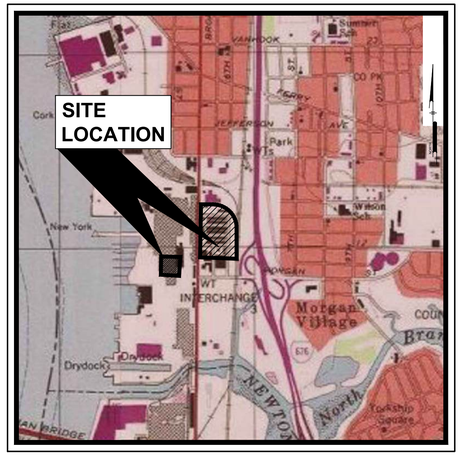
TAX MAP
Scale: 1" = 1000'
[Sheets 8.09 & 8.10]



LOCATION MAP
Scale: 1" = 1000'



ZONING MAP
Scale: 1" = 1000'
[PRI-PORT RELATED INDUSTRIAL]



USGS MAP
Scale: 1" = 1000'

PREPARED BY:

PENNONI ASSOCIATES INC.

2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.668.8600

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

NEW JERSEY
ONE CALL
CALL BEFORE YOU DIG
1-800-272-1000

CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH THE REQUIREMENTS OF THE NEW JERSEY ONE-CALL DAMAGE PREVENTION SYSTEM AS STATED IN THE "UNDERGROUND FACILITY PROTECTION ACT". TICKET NUMBER(S):

THIS MAP IS HEREBY APPROVED BY THE PLANNING BOARD OF THE CITY OF CAMDEN.

BOARD CHAIRMAN DATE | BOARD SECRETARY DATE | BOARD ENGINEER DATE | ZONING OFFICER/ADMINISTRATIVE OFFICER DATE

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.668.8600
NJ CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

COVER SHEET

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	REVISIONS	BY

DATE

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS0001

SHEET 1 OF 43

U:\Accounts\USA\TX\USATX22001 - Holtec Office Building\DESIGN_SHEETS-CS0001.dwg PLOTTED: 8/22/2024 4:54 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

SURVEY NOTES:

1. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ANY EASEMENT, RESTRICTION AND/OR COVENANTS THAT A CURRENT REPORT OF TITLE, OR COMPLETE SEARCH OF THE PUBLIC RECORD, MAY DISCLOSE.

2. THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE FOLLOWING SOURCES OF INFORMATION
   - DEEDS OF RECORD
   -AN ACTUAL FIELD SURVEY PERFORMED BY PENNONI ASSOCIATES

3. BLOCK AND LOT NUMBERS REFER TO THE OFFICIAL TAX MAPS OF THE CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY, PLATES 8.09, 8.10 & 8.12.

4. PLANIMETRIC & TOPOGRAPHIC FEATURES SHOWN ARE TAKEN FROM AN ACTUAL FIELD SURVEY PERFORMED BY PENNONI ASSOCIATES IN 10/17/22.

5. THIS SURVEY IS NOT INTENDED TO GUARANTEE OWNERSHIP.

6. SURVEY BASED ON N.J.S.P.C.S. NAD '83 (2011) (USFT).
   VERTICAL DATUM: NAVD 1988 (GEOID 18B)

7. IT IS BEYOND THE SCOPE OF THIS SURVEY TO DETERMINE THE EXISTENCE OR NON-EXISTENCE OF ANY REGULATED ENVIRONMENTAL CONDITION ON OR NEAR THE SUBJECT PARCEL(S). UNDERGROUND EXPLORATIONS WERE NOT CONDUCTED OR UTILIZED DURING THE PREPARATION OF THIS SURVEY. CONCERNED PARTIES SHOULD PURSUE ANY ENVIRONMENTAL MATTERS SEPARATE AND APART FROM THIS SURVEY.

8. IT SHOULD NOT BE ASSUMED THAT ANY COPY OF THIS DRAWING WITHOUT A RAISED IMPRESSION OF THE SURVEYOR'S SEAL IS A TRUE COPY OF THE ORIGINAL AS ISSUED BY THE SURVEYOR.

9. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS ILLUSTRATED ARE BASED UPON UTILITY MARKOUT AND ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD. THE STATE OF NEW JERSEY REQUIRES NOTIFICATION PRIOR TO ANY EXCAVATION BY UTILIZING THE NEW JERSEY ONE-CALL SYSTEM (1-800-272-1000).

10. THE WORD CERTIFIES (CERTIFY) IN THE CONTEXT OF THE CERTIFICATION ON THIS PLAN SHALL BE DEFINED AS A RENDERING OF A PROFESSIONAL OPINION BASED ON THE FACTS AND INFORMATION AVAILABLE TO THE SIGNATORY AT THE TIME OF MAKING THIS SURVEY.

11. A SIGNED WAIVER AND DIRECTION NOT TO SET CORNER MARKERS IN ACCORDANCE WITH THE STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS REGULATION (N.J.A.C. 13:40-5.2) HAS BEEN RECEIVED FROM THE ULTIMATE USER.

12. ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

13. A CONVERSION FACTOR OF 1.1 FEET IS ADDED TO 1988 NAVD TO OBTAIN 1929 NGVD, FOR EXAMPLE:

ELEVATION (1988 NAVD)		CONVERSION FACTOR		ELEVATION (1929NGVD)
11.50'	+	1.1'	=	12.60'

PLAN REFERENCES:

1. REALIGNMENT OF SOUTH BROADWAY CR551) NEWTON CREEK (MP 31.89) TO WOODLAND AVENUE (MP 32.36), PLAN TITLED "UTILITY COORDINATION PLAN SHEETS UC1 AND UC-2, PREPARED BY T&M ASSOCIATES, DATED MARCH 2, 2015.

2. PLAN SET TITLED "HOLTEC TECHNOLOGY CENTER BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1, BLOCKS 511, 512, 514 AND 515, SHEET 1-54 PREPARED BY T&M ASSOCIATES, DATED FEBRUARY 17, 2015.

WETLAND NOTE:

1. THE NJDEP GEOWEB DEPICTS MAPPED WETLANDS GREATER THAN 300 FT FROM THE PROJECT SITE.

FLOOD ZONE INFORMATION.:

F-1. BY GRAPHIC PLOTTING ONLY SUBJECT PARCEL AREA IS LOCATED IN ZONE AE (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP NO. 34007C0036F WHICH BEARS AN EFFECTIVE DATE OF AUGUST 17, 2016. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

HIGH-VOLTAGE PROXIMITY ACT

THE CONTRACTOR IS NOTIFIED THAT ALL PROVISIONS OF THE HIGH-VOLTAGE PROXIMITY ACT, P.L. 1948, c. 249 AS AMENDED THROUGH MAY 20, 1987 SHALL BE STRICTLY ADHERED TO. THE CONTRACTOR SHALL ALSO ADHERE TO ALL PROVISIONS OF PART 1926.550, SUBPART N OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF DECEMBER, 1970. PARTICULAR ATTENTION IS DIRECTED TO THE PROVISIONS OF THE ABOVE ACT REQUIRED WARNING SIGNS, NOTIFICATION TO POWER COMPANY AND RESPONSIBILITY FOR SAFEGUARDS AND ALSO PROHIBITED ACTIVITY.

A COPY OF THE HIGH-VOLTAGE PROXIMITY ACT IS AVAILABLE IN THE OFFICE OF THE COUNTY ENGINEER OR MAY BE OBTAINED FROM THE NEW JERSEY DEPARTMENT OF LABOR, DIVISION OF WORKPLACE STANDARDS, OFFICE OF SAFETY COMPLIANCE, TRENTON, NJ 08625

SAFETY:

1. THE CONTRACTOR, OR HIS REPRESENTATIVE, IS TO DESIGNATE AN INDIVIDUAL RESPONSIBLE FOR CONSTRUCTION SITE SAFETY DURING THE COURSE OF SITE IMPROVEMENTS PURSUANT TO N.J.A.C. 5:23-2.21 (E) OF THE NEW JERSEY UNIFORM CONSTRUCTION CODE AND CFR 1926.32 (F) (OSHA COMPETENT PERSON).

SITE IMPROVEMENT NOTES:

1. PRIOR TO STRIPING OF ADA PARKING SPACES, THE LOCATIONS SHALL BE REVIEWED WITH THE ENGINEER.
2. SIDEWALK CONSTRUCTION SHOWN ON THESE PLANS SHALL MEET ALL REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF JULY 2010, TITLE II, TITLE III AND ANY STATE, COUNTY, LOCAL OR OTHER APPLICABLE LAWS.
3. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO NJDOT STANDARDS, LATEST ED.
4. ALL TRAFFIC CONTROL DEVICES, SUCH AS SIGNS AND STRIPING, ARE TO BE INSTALLED AND DESIGNED IN ACCORDANCE WITH THE MOST RECENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES(MUTCD) AND NJDOT STANDARDS.
5. ALL PAINTED TRAFFIC MARKINGS SUBJECTED TO VEHICLE MOVEMENTS MUST BE HOT EXTRUDED THERMOPLASTIC PAINT WITH GLASS BEADS IN COMPLIANCE WITH THE LATEST NJDOT SPECIFICATIONS.
6. ALL PAVEMENT SUBGRADE IS SUBJECT TO THE REVIEW AND APPROVAL OF A GEOTECHNICAL ENGINEER.
7. ANY EXISTING CURB, SIDEWALK, TREES, LIGHTING FIXTURES, ETC., OUTSIDE OF THE PROJECT LIMIT OR NOTED TO BE MAINTAINED AND PROTECTED THAT IS DAMAGED DURING CONSTRUCTION, SHALL BE REPLACED IN-KIND BY THE CONTRACTOR, TO THE SATISFACTION OF THE OWNER. REPLACEMENT WORK SHALL BE BY THE CONTRACTOR AT NO COST TO THE OWNER.
8. ALL SIDEWALK AND CURB WITHIN THE COUNTY RIGHT-OF-WAY ALONG THE PROPERTY FRONTAGE THAT IS DETERIORATED OR PRESENTS A TRIPPING HAZARD SHALL BE REPLACED UNDER THE DIRECTION OF THE COUNTY ENGINEER OR HIS/HER REPRESENTATIVE.

GRADING NOTES:

1. A GEOTECHNICAL ENGINEER, PROVIDED BY THE CONTRACTOR, IS REQUIRED TO INSPECT, TEST AND CERTIFY TO THE COMPACTION OF ALL LOAD BEARING FILLS.
2. A MINIMUM 2.0% (IN ONE DIRECTION) AND A MAXIMUM SLOPE OF 3:1 SHALL BE PROVIDED IN ALL LAWN AREAS, UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS. A MINIMUM SLOPE OF 1.0% IS REQUIRED IN ALL PAVED SURFACES, INCLUDING DRIVEWAYS.
3. THE CONTRACTOR SHALL INSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES DURING CONSTRUCTION WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS.
4. THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE CONTRACTOR IS TO PROVIDE AN EARTHWORK ANALYSIS TO DETERMINED THE TOTAL (EXPORT/IMPORT) OF SOIL REQUIRED.

GENERAL NOTES:

G-1. THE LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES SHOWN ON THE CONTRACT DRAWINGS ARE APPROXIMATE AND ARE BASED UPON BEST AVAILABLE INFORMATION PROVIDED TO ENGINEER. THE FOLLOWING SHALL BE PERFORMED:

A) VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES WITHIN THE WORK AREA PRIOR TO CONSTRUCTION.

B) EXERCISE EXTREME CAUTION WHEN WORKING ADJACENT TO EXISTING POWER, COMMUNICATIONS, WATER OR GAS LINES TO PREVENT DAMAGE TO THESE LINES.

C) IMMEDIATELY REPAIR ANY DAMAGE TO EXISTING UTILITIES IN A MANNER APPROVED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

G-2. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN SITE EXAMINATION AND DETERMINING THE ACTUAL NATURE AND EXTENT OF EXISTING CONDITIONS PRIOR TO UNDERTAKING WORK.

G-3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND TO TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES FOR EXACT LOCATION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR.

G-4. BEFORE EXCAVATING THE PROJECT AREA THE CONTRACTOR IS TO VERIFY THE LOCATION OF ANY UNDERGROUND UTILITY (GAS MAINS, WATER MAINS, SEWER LINES, TELEPHONE LINES, ETC.). SHOULD ANY UNDERGROUND UTILITY INTERFERE WITH PROJECT CONSTRUCTION THE ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH WORK. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND THE OWNER THREE (3) DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION FOR ACCURATE FIELD LOCATIONS. FOR UTILITY MARKOUT CALL 1-800-272-1000. CERTAIN UTILITIES WITHIN THE PROJECT AREA ARE PRIVATE AND A UTILITY MARKOUT (ONE-CALL) MAY NOT DETECT AND MARK THE LOCATION OF THESE UTILITIES. CONTRACTOR SHALL OBTAIN AN INDEPENDENT MARKOUT COMPANY.

G-5. VERIFY ALL INDICATED CONDITIONS AND DIMENSIONS IN THE FIELD BEFORE PERFORMING ANY WORK. NOTIFY THE ENGINEER OF ANY CONDITIONS OR DIMENSIONS THAT WOULD PREVENT OR HAMPER THE PERFORMANCE OF THE WORK IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

G-6. THE CONTRACTOR AND OR ENGINEER SHALL RESOLVE APPARENT CONTRADICTIONS IN CONTRACT DOCUMENTS WITH THE OWNER BEFORE AFFECTED WORK PROCEEDS.

G-7. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER, OWNER'S REPRESENTATIVE AND/OR THE DESIGN ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.

G-8. EXISTING SANITARY SEWERS THAT ARE TO REMAIN IN SERVICE SHALL REMAIN IN ACTIVE OPERATION AT ALL TIMES. EXISTING WATER MAINS SHALL REMAIN IN ACTIVE OPERATION EXCEPT AS NECESSARY FOR CONNECTIONS. PROVIDE A MINIMUM OF TWO WEEKS NOTICE TO THE ENGINEER AND OWNER PRIOR TO SERVICE DISRUPTIONS.

G-9. UTILIZE A MOBILE SWEEPER AND WATER TRUCK DAILY FOR DUST CONTROL ALONG HAUL ROUTES AND IN AREAS MADE AVAILABLE FOR CONSTRUCTION.

G-10. PREVENT WATER PONDING RESULTING FROM CONSTRUCTION OPERATIONS. PROMPTLY REMOVE ANY PONDED WATER TO THE SATISFACTION OF THE ENGINEER.

G-11. ALL TOPSOIL SHALL BE STRIPPED, STOCKPILED AND REUSED ON SITE AND MAY NOT BE TRANSPORTED OFF-SITE WITHOUT WRITTEN REQUEST AND RESPONSE FROM THE OWNER AUTHORIZING SAME..

G-12. CONTRACTOR SHALL WORK TO MINIMIZE EXCESS SOIL GENERATED. IF IT IS NECESSARY TO REMOVE SOIL FROM THE SITE, IT SHOULD BE DISPOSED OF AT A PERMITTED DISPOSAL FACILITY. PROVIDE THE NAME OF THE DISPOSAL FACILITY AND SOIL SAMPLE RESULTS 7 DAYS PRIOR TO HAULING SOIL. COPIES OF ALL BILLS-OF-LADING SHALL BE PROVIDED TO THE ENGINEER WITHIN 24 HOURS OF SOIL LEAVING THE SITE. CONTRACTOR SHALL ASSUME OWNERSHIP/RESPONSIBILITY OF EARTH OR CONCRETE SPOILS AND/OR DEBRIS GENERATED DURING CONSTRUCTION.

G-13. ALL AREAS OUTSIDE THE LIMITS OF CONSTRUCTION WHICH ARE DAMAGED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER AND OWNER.

G-14. VERIFY ALL INDICATED CONDITIONS AND DIMENSIONS IN THE FIELD BEFORE PERFORMING ANY WORK. NOTIFY THE ENGINEER OF ANY CONDITIONS OR DIMENSIONS THAT WOULD PREVENT OR HAMPER THE PERFORMANCE OF THE WORK IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

G-15. UPON COMPLETION OF THE WORK, REMOVE ALL DEBRIS, EQUIPMENT AND UNUSED MATERIALS FROM OWNER PROPERTY AND RESTORE THE AREAS TO THEIR ORIGINAL CONDITION, AS APPROVED BY THE ENGINEER.

G-16. A GEOTECHNICAL ENGINEER, RETAINED BY THE CONTRACTOR, IS REQUIRED TO INSPECT, TEST, AND CERTIFY TO THE COMPACTION OF ALL FILLS.

G-17. THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

G-18. SOILS TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER, RETAINED BY THE CONTRACTOR. THE GEOTECHNICAL ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, AND THE CONSTRUCTION MANAGER, AND SHALL PROMPTLY NOTIFY THE CONSTRUCTION MANAGER AND THE CONTRACTOR SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.

G-19. THE BOTTOM OF ALL EXCAVATIONS AND COMPACTED EARTHWORK SHALL BE INSPECTED AND APPROVED BY A REGISTERED GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE STRUCTURES AND/OR BACKFILLING. APPROVAL BY THE GEOTECHNICAL ENGINEER, IN WRITING, SHALL INDICATE THAT THE SOIL IS ADEQUATE TO SAFELY SUPPORT A FOUNDATION PRESSURE OF 2,000 PSF. EXCAVATION BELOW THE ANTICIPATED BOTTOMS OF CONCRETE STRUCTURES ALONG WITH PLACEMENT OF COMPACTED BACKFILL MAY BE REQUIRED.

G-20. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AND FENCING AROUND THE PERIMETER OF THE WORK AREA AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.

G-21. ALL TRAFFIC CONTROL DEVICES TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION. SIGN POSTS SHALL BE GALVANIZED STEEL AND ALL SIGN MATERIALS SHALL BE MADE OF REFLECTIVE SHEETING ON ALUMINUM BLANKS IN ACCORDANCE WITH NJDOT STANDARD SPECIFICATIONS.

G-22. ALL DIMENSIONING IS TO CURB OR BUILDING FACE, UNLESS OTHERWISE NOTED.

G-23. UNLESS OTHERWISE INDICATED, ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2007, OR LATEST EDITION, AS AMENDED AND SUPPLEMENTED TO DATE.

G-24. ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI, UNLESS OTHERWISE NOTED.

G-25. THE LOCATION OF SIDEWALK AND CURBS TO BE REPLACED ALONG THE PROPERTY'S FRONTAGE OF BROADWAY SHALL BE DETERMINED BY THE CITY ENGINEER.

G-26. THE APPLICANT WILL COMPLY WITH THE CITY'S "ORDINANCE ESTABLISHING STANDARDS FOR THE SUBMISSION OF MAPS AND OTHER DOCUMENTS IN A DIGITAL FORMAT." THE APPLICANT SHOULD BE AWARE THAT FINAL SIGNATURES OF APPROVAL AND BUILDING PERMITS WILL NOT BE ISSUED UNTIL THE REQUIRED INFORMATION IS RECEIVED.

G-27. DURING CONSTRUCTION, NOISE LEVELS SHALL ADHERE TO THE FOLLOWING LIMITS AS MEASURED AT ANY RESIDENTIAL PROPERTY:

- 50 DECIBELS (10PM TO 7AM)
- 65 DECIBELS (7AM TO 10PM)

DEMOLITION NOTES:

D-1. DEMOLITION WILL BEGIN UPON RECEIPT OF ALL NECESSARY APPROVALS AND PERMITS FROM ALL APPLICABLE GOVERNMENTAL AGENCIES AND AFTER ALL UTILITIES HAVE BEEN DEACTIVATED / DISCONNECTED. CONTRACTOR SHALL CONTACT UNDERGROUND UTILITIES AS PER NEW JERSEY ONE CALL LAW NOT LESS THAN FIVE (5) DAYS NOR MORE THAN TEN (10) WORKING DAYS BEFORE COMMENCING WITH DEMOLITION.

D-2. ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT NFPA 241 AND OSHA STANDARDS, LATEST EDITION.

D-3. CONTRACTOR SHALL NOTIFY APPROPRIATE UTILITY PURVEYOR , OWNER AND THE ENGINEER 72 HRS. PRIOR TO INITIATING UTILITY REMOVAL AND/OR ABANDONMENT.

D-4. PRIOR TO START OF DEMOLITION, THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH EACH UTILITY AND THE OWNER TO THE WORK RELATIVE TO THEIR FACILITIES WITHIN THE LIMITS OF DEMOLITION AREA. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITIES WHETHER SHOWN OR NOT ARE INACTIVE OR DE-ENERGIZED PRIOR TO DEMOLITION.

D-5. REMOVE ALL SANITARY SEWER, STORM SEWER, TELEPHONE AND CABLE SERVICES AND CONDUITS WITHIN THE LIMIT OF DEMOLITION UNLESS OTHERWISE NOTED. ALL WATER SERVICE CONNECTIONS SHALL BE CUT AND CAPPED. STORM INLETS AND ASSOCIATED PIPING SHALL REMAIN IN-PLACE.

D-6. ALL SANITARY SEWER CONVEYANCE FACILITIES, WHICH ARE TO BE ABANDONED, SHALL BE EMPTIED OF WASTES AND EITHER REMOVED OR ABANDONED IN-PLACE IN A MANNER WHICH IS ACCEPTABLE TO THE OWNER AND ENGINEER.

D-7. COORDINATE WITH PSE&G FOR GAS LINE REMOVAL.

D-8. BACKFILL ALL VOIDS CREATED BY REMOVALS, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: FOUNDATIONS, MANHOLES, INLETS, SITE PIPING, VALVES, CONDUITS, CLEANOUTS, AND TREE ROOT REMOVALS. BACKFILL WITH STRUCTURAL FILL IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.

D-9. CRUSHING OF MATERIALS WILL BE PERMITTED ONSITE WITHIN THE DESIGNATED WORK AREA ONLY, AND THE PROCESS SHALL BE FIRST REVIEWED AND APPROVED BY THE ENGINEER.

D-10. RECYCLED MATERIALS MAY BE USED AS BACKFILL IF THE MATERIAL MEETS ALL THE REQUIREMENTS ESTABLISHED IN THE PROJECT SPECIFICATIONS AND ON THE CONTRACT DRAWINGS.

D-11. WHERE A PIPE BEING REMOVED IS CONNECTED TO AN EXISTING STRUCTURE, EITHER REMOVE THE PIPE AND FILL THE WALL OPENING WITH CONCRETE, OR CUT THE PIPE WITHOUT PERCUSSION NOT MORE THAN 6" FROM THE OUTSIDE FACE OF THE STRUCTURE AND FILL THE REMAINING LENGTH OF PIPE WITH CONCRETE.

D-12. THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING PAVING, CURBING, CONCRETE, BRICK AND SITE AMENITIES NOT CALLED OUT TO BE REMOVED. ANY EXISTING CURB, SIDEWALK, PAVEMENT, LANDSCAPING, LIGHTING OR OTHER SITE AMENITIES THAT ARE TO BE MAINTAINED AND PROTECTED AND ARE DAMAGED DURING DEMOLITION OR OTHER CONSTRUCTION RELATED ACTIVITIES, SHALL BE REPLACED PROMPTLY BY THE CONTRACTOR AT NO COST TO THE OWNER.

D-13. PROTECTION OF FIRE HYDRANTS SHALL BE COORDINATED WITH THE CITY.

D-14. WATER WILL BE AVAILABLE ONSITE VIA EXISTING HYDRANTS. CONTRACTOR TO COORDINATE WITH THE CITY.

D-15. ELECTRICAL UTILITIES SHALL BE DISCONNECTED PRIOR TO BEGINNING ANY DEMOLITION WORK. DEMOLITION SHALL INCLUDE THE REMOVAL OF BURIED AND EXPOSED CONDUIT IN THE AREA DESIGNATED FOR DEMOLITION, SEALING ENDS OF ALL BURIED CONDUIT ABANDONED IN PLACE AND REMOVING ALL POWER AND CONTROL WIRING BETWEEN THE DEMOLISHED FACILITY AND THE TERMINAL JUNCTION BOX, CIRCUIT BREAKER, OR METER CONTROL CENTER SUPPLYING POWER TO THE FACILITY.

D-16. ALL MATERIAL BROUGHT ON SITE SHALL BE CLEAN FILL, SAMPLED, AND ANALYZED WITH STANDARD NJDEP QUALITY ASSURANCE STANDARDS AND PRACTICES AT A MINIMUM, AS SPECIFIED IN N.J.A.C. 7:26E, TO FULLY CHARACTERIZE THE CONTAMINANTS IN THE LATEST SOIL CLEANUP CRITERIA SCC). THE CONTRACTOR SHALL SUBMIT TO THE OWNER WRITTEN DOCUMENTATION FROM A LABORATORY CERTIFIED IN NEW JERSEY ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM (ELCP) AND IN ACCORDANCE WITH N.J.A.C. 7:18 PRIOR TO PLACEMENT OF THE MATERIAL ON SITE. THE MATERIAL MUST NOT CONTAIN CONTAMINANTS ABOVE THE MOST RESTRICTIVE DIRECT CONTACT OR IMPACT TO GROUNDWATER (IGW) SCC.

D-17. ALL DEMOLITION MATERIAL AND DEBRIS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. NO ON-SITE BURIAL IS PERMITTED. A SOIL REMOVAL PERMIT IS THE RESPONSIBILITY OF THE CONTRACTOR.

D-18. ALL ACTIVE CONSTRUCTION SITES AND LOCATIONS SHALL BE PROVIDED WITH NON-COMBUSTIBLE REFUSE CONTAINER(S) IN SUCH NUMBERS AS SHALL BE NECESSARY TO CONTAIN ALL COMBUSTIBLE REFUSE GENERATED BY THE CONSTRUCTION ACTIVITIES.

D-19. ALL COMBUSTIBLE REFUSE, RUBBISH AND DEBRIS SHALL BE COLLECTED AND DEPOSITED IN THE CONTAINER(S) ON A DAILY BASIS. REFUSE CONTAINER(S) SHALL BE LOCATED A MINIMUM OF TWENTY (20) FEET AWAY FROM ANY BUILDING, STRUCTURE, LOT LINE OR COMBUSTIBLE MATERIAL STORAGE LOCATION.

D-20. WHILE CONSTRUCTION ACTIVITIES ARE IN PROGRESS, AT LEAST FOUR(4) PORTABLE FIRE EXTINGUISHERS HAVING A RATING OF AT LEAST 10-A, 60-BC SHALL BE PROVIDED, AND SHALL BE MAINTAINED IN A LOCATION APPROVED BY THE FIRE OFFICIAL. PERSONNEL NORMALLY ON THE CONSTRUCTION SITE SHALL BE INSTRUCTED IN THE USE OF THE FIRE EXTINGUISHERS PROVIDED.

D-21. THE CONTRACTOR SHALL CONDUCT DEMOLITION OPERATIONS AND REMOVAL OF DEBRIS TO ENSURE MINIMAL INTERFERENCE WITH ROADS, WALKS AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. THE AREAS OF DEMOLITION SHALL BE PROTECTED TO ENSURE THE SAFE PASSAGE OF PEDESTRIANS AS SHOWN ON THE CONTRACT DRAWINGS.

D-22. NO DISTURBANCES NOR PLACEMENT OF MATERIALS SHALL BE PERMITTED BEYOND THE PROJECT LIMIT LINES WITHOUT WRITTEN CONSENT OF THE PROPERTY OWNER(S) INVOLVED. DAMAGE CAUSED TO ADJACENT FACILITIES BY DEMOLITIONS OPERATIONS AND/OR STORAGE OF MATERIALS OR EQUIPMENT SHALL BE PROMPTLY REPAIRED/REPLACED AT NO COST TO THE OWNER.

D-23. DEMOLITION EQUIPMENT AND VEHICLES SHALL STAGE WITHIN PAVED DRIVEWAYS, PARKING LOTS AND WITHIN THE AREA OF EXISTING BUILDING FOOTPRINT TO MINIMIZE SOIL DISTURBANCES DURING DEMOLITION PROCESS.

D-24. TO THE MAXIMUM EXTENT FEASIBLE, REMOVAL AND/OR ABANDONMENT OF ANY EXISTING SEWER SERVICE/MAIN AND WATER SERVICE/MAIN SHALL BE PERFORMED AT/NEAR THE CONNECTING MAINS TO MINIMIZE ACTIVE SECTIONS IN THE PUBLIC RIGHT-OF-WAY. ALL DISCONNECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF CAMDEN REQUIREMENTS.

D-25. WATER MAINS AND SEWER/COMBINED SEWER MAINS NOTED TO BE ABANDONED IN-PLACE SHALL BE CUT AND CAPPED AND FILLED WITH NJDOT CONTROLLED LOW STRENGTH MATERIAL ("FLOWABLE FILL").

D-26. THE CITY OWNS AND OPERATES THE WATER AND SEWER SYSTEM, AND PSE&G OWNS AND OPERATES THE ELECTRIC AND GAS. CONTRACTOR SHALL COORDINATE WITH EACH UTILITY. PURVEYOR REGARDING PROPOSED WORK IMPACTING THEIR UTILITIES.

UTILITY NOTES:

1. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS AT NO COST TO THE OWNER INCLUDING, BUT NOT LIMITED TO, A ROAD OPENING PERMIT FROM THE CITY, COUNTY & STATE.
2. COVER OVER ALL WATER MAINS & FIRE SERVICES SHALL BE 4'-0" MINIMUM.
3. THE CONTRACTOR SHALL NOTIFY THE LOCAL ELECTRIC COMPANY IN ADVANCE OF CONSTRUCTION FOR TEMPORARY SUPPORT OF UTILITY POLES.
4. THE CONTRACTOR SHALL COMPLY WITH ALL STANDARDS SET FORTH BY THE LOCAL M.U.A. & CITY.
5. THE LOCATION AND/OR DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE & MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. ALL TRENCHES WILL BE BACKFILLED BY COMPACTION IN EIGHT (8) INCH LAYERS COMPACTED TO 95% DENSITY IN STRICT ACCORDANCE WITH THE TRENCH DETAILS & SPECIFICATIONS.
7. NO MATERIAL SHALL BE PLACED OR DISTURBED BEYOND THE PROPERTY LINE OF RIGHT-OF-WAY WITHOUT WRITTEN PERMISSION OF THE PROPERTY OWNERS DIRECTLY INVOLVED.
8. INSPECTION OF, OR FAILURE TO INSPECT ANY MATERIALS OR WORKMANSHIP BY THE ENGINEER FOR THE M.U.A. SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE PLAN, SPECIFICATIONS AND APPLICABLE LAWS.
9. WHENEVER THE TRENCH BOTTOM DOES NOT AFFORD SUFFICIENT BEARING STRENGTH TO SUSTAIN THE WEIGHT OF THE PIPE & SUPERIMPOSED LOADS, THE TRENCH BOTTOM SHALL BE OVER-EXCAVATED & STABILIZED WITH SIX (6) INCHES MINIMUM THICK LAYERS OF CRUSHED STONE, AS DIRECTED BY THE ENGINEER.
10. ALL GENERAL CONSTRUCTION MATERIALS, TESTING & METHODS OF INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE M.U.A. & THE ENGINEER.
11. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM VARIOUS SOURCES & ARE SHOWN FOR DESIGN & ESTIMATED PURPOSED ONLY. ACTUAL LOCATIONS OF UTILITIES SHALL BE FIELD VERIFIED. ANY DISCREPANCIES OR APPARENT CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER FOR REMEDIATION.
12. CONCRETE ENCASEMENT SHALL BE PROVIDED FOR ALL PIPE/UTILITY CROSSING WHERE LESS THAN EIGHTEEN INCHES OF CLEARANCE WILL RESULT, SUBJECT TO THE REQUIREMENTS OF THE UTILITY COMPANY.
13. EXISTING UTILITIES INCLUDING VALVE BOXES, CLEAN OUTS, CURB STOPS, MANHOLES, ETC., SHALL BE ADJUSTED TO MATCH PROPOSED FINISHED GRADE. STORM DRAINAGE STRUCTURES SHALL NOT BE ADJUSTED UNLESS SPECIFICALLY CALLED FOR.
14. THE CONTRACTORS ARE ADVISED THAT ANY REQUIRED UNDERGROUND UTILITY RELOCATION'S INCLUDING GAS MAINS AND SERVICES, WATER MAINS AND SERVICES, SEWER MAINS AND SERVICES, ELECTRIC AND TELEPHONE LINES SHALL BE COMPLETED AT NO COST TO THE OWNER UNLESS SPECIFICALLY NOTED OTHERWISE.
15. LOCATION OF ALL ELECTRICAL EQUIPMENT, CIRCUITS, AND INSTALLED ELECTRICAL APPLIANCES IN A MANNER WHICH WILL ASSURE THAT THEY ARE NOT SUBJECT TO INUNDATION AND FLOODING.
16. INLET PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK DRY-PACKED GROUT OR APPROVED EQUAL.
17. INSTALLATION OF ALL WATER AND SEWER MAINS AND WATER AND SEWER SERVICES MUST COMPLY WITH CITY ORDINANCE.
18. THE CITY ENGINEER, AND AMERICA

ENVIRONMENTAL NOTES:

E-1. ALL MATERIAL BROUGHT ON SITE SHALL BE CERTIFIED CLEAN FILL, SAMPLED, AND ANALYZED IN ACCORDANCE WITH STANDARD NJDEP QUALITY ASSURANCE STANDARDS AND PRACTICES AT A MINIMUM, AS SPECIFIED IN N.J.A.C. 7:26E, TO FULLY CHARACTERIZE THE CONTAMINANTS IN THE LATEST SOIL CLEANUP CRITERIA (SCC). THE CONTRACTOR SHALL SUBMIT TO THE OWNER WRITTEN DOCUMENTATION FROM A LABORATORY CERTIFIED IN NEW JERSEY ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM (ELCP) AND IN ACCORDANCE WITH N.J.A.C. 7:18 PRIOR TO PLACEMENT OF THE MATERIAL ON SITE. THE MATERIAL MUST NOT CONTAIN CONTAMINANTS ABOVE THE MOST RESTRICTIVE DIRECT CONTACT OR IMPACT TO GROUNDWATER (IGW) SCC.

E-2 DEWATERING ACTIVITIES SHALL BE CONDUCTED PURSUANT TO CCMUA AND/OR NJDEP PERMITTING OBTAINED BY THE CONTRACTOR. ALL PERMIT FEES ARE TO BE PAID BY CONTRACTOR, INCLUDED IN BID, AND AT NO ADDITIONAL COST TO THE OWNER.

E-3 ABANDONMENT OF EXISTING MONITORING WELLS SHALL BE COORDINATED WITH THE ENGINEER (IF REQUIRED).

E-4 AS PART OF THE CONSTRUCTION OF RUTGERS FIELD, AN ENGINEERED CAP WILL BE INSTALLED. THIS SITE WAS PREVIOUSLY CAPPED. SINCE A PORTION OF THE HARD SURFACE ON THE SITE (CONCRETE WALKWAYS AND PAVEMENT) WILL BE REMOVED, THE REMOVED SECTIONS NEED TO BE CAPPED. CONTRACTOR HAS 2 OPTIONS FOR ACCOMPLISHING THIS CAP. ALL VEGETATED COVERED AREAS WILL HAVE A MINIMUM THICKNESS OF 2 FEET OR GREATER, OR A MINIMUM THICKNESS OF ONE FOOT OVERLAYING A GEOTEXTILE FABRIC BARRIER. THIS INCLUDES IF OVER EXCAVATION IS REQUIRED TO ACCOMPLISH REQUIRED CAP. ALL WORK IS TO BE INCLUDED IN THE COST OF CONTRACTORS BID. NO CHANGE ORDERS WILL BE APPROVED NOR ACCEPTED BY OWNER.

E-5 "CLEAN FILL" DEFINITION: "MATERIAL TO BE USED IN A REMEDIAL ACTION THAT MEETS ALL SOIL REMEDIATION STANDARDS, SITE-SPECIFIC ALTERNATIVE STANDARDS, OR SITE-SPECIFIC INTERIM STANDARDS, DOES NOT CONTAIN EXTRANEOUS DEBRIS OR SOLID WASTE, AND DOES NOT CONTAIN FREE LIQUIDS. THIS ALSO INCLUDES ANY MATERIAL THAT MEETS ALL CRITERIA OR ACTION LEVELS FOR CONTAMINANTS WITHOUT STANDARDS." (N.J.A.C. 7:26E-1.8).

E-6 THE PRESENCE OF UNCLASSIFIED FILL MATERIALS SHALL BE DOCUMENTED AND ALL LOCAL/STATE/FEDERAL REGULATIONS WILL BE FOLLOWED.

E-7 CONSTRUCTION STAGING ACTIVITIES (INCLUDING THE STORAGE OF EQUIPMENT/VEHICLES/MATERIALS) ARE PROHIBITED IN ENVIRONMENTALLY SENSITIVE AREAS. IF THE CONTRACTOR WISHES TO USE THESE AREAS OR ACCESS THESE AREAS FOR ANY REASON, ALL APPROPRIATE PERMITS/APPROVALS MUST BE OBTAINED PRIOR TO SUCH USE.

E-8 BEST MANAGEMENT PRACTICES (SUCH AS THE INSTALLATION OF SILT FENCE, INLET PROTECTION AND PERIODIC CLEAN OUT OF DEBRIS) WILL BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT AND DEBRIS ENTERING STORMWATER INLETS AND ENVIRONMENTALLY SENSITIVE AREAS. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.

E-9 CONTRACTOR TO REFER TO NJ SOIL EROSION STANDARDS/REQUIREMENTS FOR IMPLEMENTING STANDARD MEASURES FOR MINIMIZATION OF CONSTRUCTION-RELATED NOISE AND AIR QUALITY (DUST) IMPACTS.

E-10 ANY EXCESS SOILS RELATED TO PROJECT CONSTRUCTION NEEDS TO BE STOCKPILED, SAMPLED, AND DISPOSED OF IN ACCORDANCE WITH NJDEP RULES AND REGULATIONS.

E-11 VEGETATED COVERED AREAS WILL HAVE A MINIMUM THICKNESS OF ONE FOOT OVERLYING A GEOTEXTILE FABRIC BARRIER.

E-12 FOR EACH TYPE AND SOURCE OF IMPORTED CLEAN FILL DERIVED OR ORIGINATED FROM A VIRGIN SOURCE OR QUARRY, LABORATORY ANALYTICAL DATA FROM ONE SAMPLE COLLECTED WITHIN THE LAST YEAR AND DOCUMENTATION OF CLEAN FILL IS TO BE PROVIDED (AT THE DISCRETION OF THE LSRP, A SAMPLE MAY NOT BE REQUIRED TO ESTABLISH THE NATURE OF THE CLEAN FILL). THE SAMPLE MUST BE ANALYZED FOR FULL TCL/TAL SUITE, HEXAVALENT CHROMIUM, AND EPH BY AN NJDEP-CERTIFIED LABORATORY WITH METHOD DETECTION LEVELS THAT ALLOW A COMPARISON TO AN APPLICABLE REMEDIATION STANDARD, IN ACCORDANCE WITH THE NJDEP FILL MATERIAL GUIDANCE (http://www.state.nj.us/dep/srp/guidance/#fill_srp). IN ADDITION, IF ANY SAMPLE RESULT EXCEEDS THE NJDEP DEFAULT IGWSL, SYNTHETIC PRECIPITATION LEACHING PROCEDURE (SPLP) DATA MUST BE PROVIDED FOR THOSE COMPOUNDS TO SUPPORT THAT CLEAN FILL WILL NOT IMPACT GROUND WATER. IN ADDITION, THE VIRGIN SOURCE OR QUARRY SUPPLIER MUST PROVIDE A WRITTEN CERTIFICATION IDENTIFYING THE SOURCE LOCATION OF THE MATERIAL AND THAT THE FILL MEETS THE CLEAN FILL DEFINITION AT N.J.A.C. 7:26E-1.8.

E-13 FOR IMPORTED CLEAN FILL ORIGINATING FROM SOURCES OTHER THAN A VIRGIN SOURCE OR QUARRY, ADDITIONAL SAMPLING WILL BE REQUIRED. FOR EACH TYPE OF CLEAN FILL PER SOURCE, SOIL SAMPLES MUST BE COLLECTED AT A FREQUENCY OF ONE SAMPLE PER 20 CY FOR THE FIRST 100 CY OF SOIL, ONE SAMPLE FOR EACH ADDITIONAL 100 CY UP TO 1,000 CY, AND ONE SAMPLE FOR EVERY ADDITIONAL 1,000 CY. AN ALTERNATIVE SAMPLING FREQUENCY MAY BE USED BASED ON THE DISCRETION OF THE LSRP WHO WILL RELY ON MULTIPLE LINES OF EVIDENCE WHEN EVALUATING CLEAN FILL QUALITY. THE SAME ANALYTICAL PARAMETERS AND WITHIN CERTIFICATION REQUIRED FOR VIRGIN SOURCES OR QUARRIES APPLIES TO THESE OTHER SOURCES OF CLEAN FILL.

E-14 ALTERNATE FILL WILL NOT BE USED AS PART OF THE ENGINEERED CAP FOR THIS PROJECT.

E-15 CONSTRUCTION IS SCHEDULED TO START NO SOONER THAN 60 DAYS AFTER SUBMISSION OF THIS RAWP TO THE NJDEP IN ACCORDANCE WITH THE TRSR AT N.J.A.C. 7:26E-5.5(A). CONSTRUCTION IS ANTICIPATED BEING COMPLETED WITHIN 8 MONTHS FROM ISSUANCE OF NOTICE TO PROCEED.

E-16 PUBLIC NOTIFICATION WILL BE MADE AT LEAST 14 DAYS PRIOR TO START OF WORK IN ACCORDANCE WITH N.J.A.C. 7:26C-1.7. A SIGN WILL BE PLACED AT THE SITE AND ASSOCIATED DOCUMENTATION WILL BE SENT TO THE CAMDEN COUNTY CLERK AND THE CAMDEN COUNTY HEALTH OFFICER.

E-17 PENNONI (LSRP) WILL BE OWNER'S REPRESENTATIVE TO MONITOR ALL "ENVIRONMENTAL ACTIVITIES" DURING CONSTRUCTION.

CITY OF CAMDEN STORMWATER REQUIREMENTS:

1. TO THE EXTENT PERMITTED BY LAW, THE CITY WILL AT ALL REASONABLE TIMES HAVE A RIGHT OF INGRESS AND EGRESS OVER THE EASEMENT AREA AND THE RIGHT TO ENTER THE EASEMENT AREA VA ANY ROAD OR PARKING LOT LOCATED WITHIN ANY COMMON AREA OWNED BY THE GRANTOR TO INSPECT THE SYSTEM LOCATED IN THE EASEMENT AREA;

2. EXCEPT IN THE CASE OF AN EMERGENCY, THE CITY WILL PROVIDE NOT LESS THAN SEVEN (7) DAYS PRIOR NOTICE TO THE PERFORMING ANY INSPECTION OR MONITOR OF THE SYSTEM IN ACCORDANCE WITH APPROVED PLAN. THE APPLICANT AGREES THAT THE FAILURE TO TIMELY OBJECT AFTER RECEIVING NOTICE FROM THE CITY CONSTITUTES CONSENT TO INSPECTION OF THE PROPERTY WITHIN THE TIMEFRAME SPECIFIED IN THE NOTICE.

3. IF, AFTER REASONABLE NOTICE BY THE CITY, THE APPLICANT FAILS TO MAINTAIN THE SYSTEM IN ACCORDANCE WITH THE APPROVED MANUAL AND THE MAINTENANCE PLAN, THE CITY MAY PERFORM ANY MAINTENANCE NEEDED TO CORRECT A CONDITION THAT IMPACTS THE EFFECTIVENESS OF ROUTINE MAINTENANCE AND OPERATIONS OF THE SYSTEM AND COLLECT ANY COSTS INCURRED AS A RESULT FROM EACH OWNER OF THE SYSTEM AND IN THE SAME MANNER AS REAL PROPERTY TAXES ARE COLLECTED. IN ADDITION, THE CITY MAY SEEK REIMBURSEMENT UNDER ANY OTHER METHOD LEGALLY AVAILABLE TO COLLECT DEBTS OWED,

4. THE APPLICANT AGREES TO INDEMNIFY AND SAVE THE CITY HARMLESS FROM ANY AND ALL CLAIMS FOR DIRECT DAMAGES TO PERSONS OR PROPERTY ARISING FROM INSPECTIONS PERFORMED BY THE CITY.

DIVISION OF CAPITAL IMPROVEMENTS & PROJECT MANAGEMENT (CIP) CONSTRUCTION GENERAL NOTES (IF REQUIRED:

1. ALL CONSTRUCTION, MATERIALS, RESTORATIONS AND METHODS OF INSTALLATION IN CITY ROADS SHALL BE SUBJECT TO THE REQUIREMENTS AND APPROVAL OF THE MUNICIPALITY.
2. SANITARY SEWER CONSTRUCTION, MATERIALS AND TESTING SHALL BE SUBJECT TO THE APPROVAL OF AN INSPECTION BY THE CITY ENGINEER AND SUBJECT TO GT*
3. ALL SANITARY SEWERS SHALL BE CONSTRUCTED WITH CLASS "C" MODIFIED BEDDING UNLESS OTHERWISE NOTED.
4. WHEREVER THE TRENCH BOTTOM DOES NOT AFFORD SUFFICIENT BEARING STRENGTH TO SUSTAIN THE WEIGHT OF THE PIPE AND SUPERIMPOSED LOADS, IT SHALL BE OVER EXCAVATED ND STABILIZED WITH A LAYER OF CRUSHED STONE.
5. THE CONTRACTOR SHALL CONSTRUCT TEST PITS AS REQUIRED TO VERIFY THE LOCATION AND THE DEPTH OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND PROPOSED FACILITIES
6. CONTRACTOR EFFORTS SHALL BE MADE TO RETAIN EXISTING TREES, VEGETATION AND NATURAL CHARACTERISTICS OF THE TRACT.
7. THE CONTRACTOR SHALL PAY ALL STREET/SIDEWALK OPENING FEES AND GIVE NOTICES NECESSARY FOR AND INCIDENTAL TO THE DUE AND LAWFUL EXECUTION OF THE WORK.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES BEFORE EXCAVATION.
9. NO MATERIALS SHALL BE PLACED NO ANY DISTURBANCE PERMITTED BEYOND THE PROJECT PROPERTY LINE WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER DIRECTLY INVOLVED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING, PAVING, TOPSOILING, SODDING, FERTILIZING AND SEEDING ALL AREAS DISTURBED BY HIS ACTIVITIES.
11. ROAD PAYMENT, REPLACEMENT, AND ALL RESTORATION IN COUNTY ROADS SHALL MEET THE REQUIREMENTS OF THE COUNTY ENGINEER.
12. INSPECTION OF, OR FAILURE TO INSPECT ANY MATERIALS OR WORKMANSHIP BY STATE, COUNTY OR TOWNSHIP OFFICIALS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO PERFORM THE WORK IN ACCORDANCE WITH APPLICABLE PLANS, SPECIFICATIONS AND LAWS.
13. PRIOR TO CONSTRUCTION, ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE APPROVED BY THE SOIL CONSERVATION DISTRICT IN COMPLIANCE WITH CHAPTER 251 OR THE PUBLIC LAWS OF 1975. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED OR THE AREA IS STABILIZED IN ACCORDANCE WITH THE SOIL CONSERVATION DISTRICTS RECOMMENDATIONS.
14. ALL SEWER INSTALLATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE PROCEDURES MANUAL OF THE CITY OF CAMDEN.
15. THRUST BLOCKS ARE TO BE INSTALLED AT ALL FORCE MAIN BENDS.
16. SANITARY SEWER LATERALS SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES. AN EXCEPTION TO THIS RULE MAY BE MADE FOR COMMERCIAL OR INDUSTRIAL USERS AT THE DECISION OF THE CITY. DOMESTIC LATERAL CONNECTIONS SHALL BE MADE A MINIMUM TWO FEET AWAY FROM MANHOLE AND NOT INTO JOINT OF MAIN.
17. THE APPLICANT/OWNER IS AWARE AND AGREES THAT THE REVIEW BY THE CITY AND CITY ENGINEER IS BASED UPON THE BEST INFORMATION AVAILABLE AND IN NO WAY DOES IT GUARANTEE THE EXISTENCE OF, OR NON EXISTENCE OF SANITARY SEWER AND FORCE MAINS, AND/OR APPURTENANCES. IT IS THE RESPONSIBILITY OF THE APPLICANT/OWNER TO VERIFY THE LOCATION OF SUCH MAINS/APPURTENANCES.
18. THE CONNECTION TO THE EXISTING CITY MANHOLE MUST BE MADE WITH A CORING MACHINE AND WITNESSED BY THE CITY ENGINEER.
19. AN A-LOCK SEAL SHOULD BE USED AT THE PIPE PENETRATION. ONLY IN THE CASE THAT AN A-LOCK IS NOT POSSIBLE, THE ANNULAR SPACE SHOULD BE FILLED WITH NON-SHRINK GROUT.
20. WHEN POSSIBLE THE NEW BENCH CHANNEL SHOULD BE MADE WITH THE CORING MACHINE; OTHERWISE, THE BENCH CHANNEL SHOULD BE CAREFULLY SAWCUT OR HILTI CUT TO ACCOMMODATE THE NEW SEWER CONNECTION.
21. CHANNEL RECONSTRUCTION CEMENT SHALL BE SPEED-CRETE AS MANUFACTURED BY TAMMS, INC, FORMED PORTLAND CEMENT CONCRETE OF 4,000 PSI COMPRESSION STRENGTH. ANY SUBSTITUTES MUST BE APPROVED BY THE CITY.
22. MANHOLE INTERIOR WALLS AND BENCHES SHALL BE PATCHED WITH CEMENTITIOUS PATCHING/PLUGGING COMPOUNDS AS MANUFACTURED BY TAMMS INC, OR APPROVED EQUAL.
23. A PIPE JOINT SHOULD BE PROVIDED WITHIN FOUR FEET OF THE MANHOLE CONNECTION TO ALLOW FOR DIFFERENTIAL SETTLEMENT.
24. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES TO THE MANHOLE, THE SEWER OR THE ADJACENT PROPERTY DUE TO CONNECTION CONSTRUCTION.
25. THE CITY ENGINEER MUST BE GIVEN 48 HOURS ADVANCE NOTICE OF SANITARY SEWER MAIN WORK AND A CITY ENGINEER REPRESENTATIVE MUST BE PRESENT TO WITNESS THE CONNECTION.

26. A WATER CAPACITY FEE SHALL BE ASSESSED (BASED ON DIAMETER OF WATER SERVICE) FOR ANY CONNECTION TO A CITY OWNED WATER MAIN. APPLICANT IS RESPONSIBLE FOR CONFIRMING UTILITY OWNER(S) PRIOR TO COMMENCEMENT OF WORK ON SAID UTILITY.

ELECTRICAL SPECIFICATIONS:

1. DEFINITION: UNLESS OTHERWISE NOTED, ALL WORK SPECIFIED HEREIN OR NOTED ON ELECTRICAL DRAWINGS, SHALL BE BY THE ELECTRICAL CONTRACTOR. ALL REFERENCES TO "CONTRACTOR" OR "THIS CONTRACTOR" ON ELECTRICAL DRAWINGS ARE ADDRESSED TO THE ELECTRICAL CONTRACTOR. THE TERM "PROVIDE" WHENEVER ENCOUNTERED ON DRAWINGS OR IN THESE SPECIFICATIONS, SHALL MEAN "FURNISH AND INSTALL."
2. EXAMINATION OF DRAWINGS: CONTRACTOR SHALL COORDINATE HIS WORK WITH THE DRAWINGS OF ALL OTHER TRADES FOR EXACT DIMENSIONS, CLEARANCES AND ROUGHING-IN LOCATIONS. CONTRACTOR SHALL COOPERATE WITH ALL OTHER TRADES IN ORDER TO MAKE MINOR FIELD ADJUSTMENTS TO ACCOMMODATE THE WORK OF OTHERS.
3. EXAMINATION OF PREMISES: BEFORE SUBMITTING HIS BID, CONTRACTOR SHALL VISIT THE SITE AND EXAMINE ALL CONDITIONS ON WHICH HIS WORK IS IN ANY WAY DEPENDENT FOR THE BEST WORKMANSHIP AND OPERATION ACCORDING TO THE INTENT OF SPECIFICATIONS AND DRAWINGS. HE SHALL REPORT TO THE ENGINEER ANY CONDITION WHICH MIGHT PREVENT HIM FROM INSTALLING HIS EQUIPMENT IN THE MANNER INTENDED.
4. CODES AND STANDARDS: ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS AND FIRE INSURANCE CARRIER'S REQUIREMENTS.
5. FEES AND PERMITS: THE ELECTRICAL CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS, CERTIFICATES, INSPECTION FEES, AND INSTALLATION FEES AS REQUIRED.
6. PROTECTION OF PERSONS AND PROPERTY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH HIS WORK.
7. SCOPE OF WORK: CONSISTS OF PROVIDING COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN. CONTRACTOR SHALL PROVIDE ALL SUPERVISION, LABOR, MATERIALS, EQUIPMENT, MACHINERY, AND ANY AND ALL OTHER ITEMS NECESSARY TO COMPLETE THE SYSTEMS. SCOPE, IN GENERAL, SHALL CONSIST OF, BUT NOT BE LIMITED TO THE FOLLOWING:
   A. PROVIDE POLE MOUNTED LIGHTING FIXTURES.
   B. PROVIDE NEW JUNCTION BOXES.
8. SHOP DRAWINGS: THIS CONTRACTOR SHALL FURNISH THE ENGINEER TWO SETS OF COMPLETE SHOP DRAWINGS, CATALOG CUTS, WIRING DIAGRAMS AND ASSOCIATED DATA, FOR ALL MAJOR ELEMENTS OF THE ELECTRICAL WORK FOR REVIEW, CHECKING AND APPROVAL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. POLE MOUNTED LIGHT FIXTURES
   B. MANHOLE STRUCTURES AS REQUIRED BY PSE&G SPECIFICATIONS
   C. PVC CONDUIT
   D. JUNCTION BOXES
9. MATERIALS: ALL MATERIALS FURNISHED BY THIS CONTRACTOR, SHALL BE NEW AND BEAR THE LABEL OR LISTING OF A NATIONALLY RECOGNIZED INDEPENDENT TESTING LABORATORY.
10. EXISTING SERVICES: EXISTING SERVICES SHALL BE MAINTAINED AND NO INTERRUPTIONS SHALL BE CAUSED, DAY OR NIGHT WITHOUT THE OWNER'S CONSENT . CONTRACTOR SHALL NOTE THAT OPERATIONS MUST CONTINUE DURING THE LIFE OF THIS CONTRACT AND ALL NECESSARY TEMPORARY CONNECTIONS REQUIRED TO ALLOW SUCH OPERATION SHALL BE INCLUDED. ANY REQUIRED INTERRUPTION IN POWER SHALL BE SCHEDULED WITH THE OWNER IN WRITING A MINIMUM OF 7 DAYS IN ADVANCE. NO INTERRUPTION IN POWER SHALL BE CAUSED WITHOUT THE OWNER'S WRITTEN CONSENT.
11. GROUNDING: SHALL BE IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 250. PROVIDE GROUND WIRES AS REQUIRED AND RESIZE CONDUIT IF NECESSARY.
12. AS-BUILT DRAWINGS: CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE DRAWINGS. UPON COMPLETION OF THE PROJECT, TWO (2) COMPLETE SETS OF MARKED-UP PRINTS SHALL BE DELIVERED TO THE THE OWNER.
13. GUARANTEE: CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY THE OWNER. CONTRACTOR SHALL MAKE GOOD AT NO EXPENSE TO THE OWNER, ANY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP, AND SHALL RESTORE ANY DISTURBED ADJACENT WORK TO ITS ORIGINAL CONDITION IN THE PERFORMANCE OF THE GUARANTEE.
14. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF THE VARIOUS SYSTEMS AND APPROXIMATE LOCATIONS OF THE EQUIPMENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THAT THERE IS ADEQUATE SPACE AT THE LOCATIONS INDICATED FOR ALL EQUIPMENT PRIOR TO INSTALLATION OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS IN THE FIELD, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

LIGHTING NOTES:

1. POLES AND LUMINAIRES SHALL HAVE FACTORY APPLIED FINISH; COMPONENTS SHALL BE SHIPPED WITH PROTECTIVE WRAPPING.
2. PROVIDE ONE-QUART OF PAINT TO CLIENT FOR TOUCH-UP.
3. PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THe NATIONAL ELECTRICAL CODE, ALL REGULATIONS AND CODES OF ALL JURISDICTIONAL AUTHORITIES.
4. ALL EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES INC. AND SHALL BEAR THE U.L. LABEL. PROVIDE ONLY NEW UNDAMAGED EQUIPMENT.
5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS EMPLOYED ON THE PROJECT.
6. THE ELECTRICAL PLANS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF THE VARIOUS SYSTEMS AND APPROXIMATE LOCATIONS OF THE EQUIPMENT. THE CONTRACTOR SHALL DETERMINE THAT THERE IS ADEQUATE SPACE AT THE LOCATIONS INDICATED FOR ALL EQUIPMENT PRIOR TO INSTALLATION OF SAME. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
7. CONTRACTOR SHALL INSTALL POLES AND ATTACH LUMINAIRES PER MANUFACTURER'S INSTRUCTIONS.
8. CONTRACTOR SHALL TEST ELECTRIC SERVICE AND VERIFY THAT ALL CONNECTIONS WERE PERFORMED PROPERLY.
9. WIRING OF EXTERIOR BRANCH CIRCUITS SHALL BE TYPE XHHW. WIRING OF INTERIOR BRANCH CIRCUITS SHALL BE TYPE THHW/THHN. WIRES SHALL BE COPPER AND SHALL BE MIN. #12AWG, 600V, 75°C. ALL RACEWAYS ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATION TO BE DETERMINED ON THE JOB.
10. ALL CONDUIT WHERE EXPOSED OUTSIDE SHALL BE RIGID GALVANIZED STEEL. ALL CONDUIT BELOW GRADE SHALL BE DIRECT BURIAL PVC CONDUIT WITH RGS ELBOWS AND STUB UPS. ENCASE CONDUIT IN CONCRETE AROUND UNDER ROADWAY.
11. ALL SPLICES AND CABLE TAPS SHALL BE RAYCHEM 3M DBR/Y-6 OR APPROVED EQUAL.
12. CONTRACTOR SHALL PROVIDE ALL PERMITS AND ARRANGE FOR ALL REQUIRED INSPECTIONS.
13. CONTRACTOR SHALL VERIFY ALL VOLTAGES.
14. ALL FIXTURES SHALL BE ORDERED WITH THE APPROPRIATE BALLASTS AND/OR DRIVERS THAT HAVE U.L. LABEL.
15. IF ADDITIONAL JUNCTION BOXES ARE REQUIRED FOR PULL AND PER CODE, COORDINATE LOCATIONS WITH OWNER AND ENGINEER.

TAX MAP: SHEET 8, BLOCK 511, 512 & 514 - LOT
ZONING DISTRICT (ORDINANCE): PRI-PORT RELATED INDUSTRIAL
PROJECT LOCATION: 2360 S. BROADWAY, CAMDEN, CAMDEN COUNTY, NJ

EXISTING USE: VACANT LAND
PROPOSED USE: 2 STORY OFFICE BUILDING (51,586 GFA) AND POLE BARN (2,065 SF)

[CITY ORDINANCE] [PRI - PORT RELATED INDUSTRIAL]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-107-F	PERMITTED USES	OFFICES, OFFICE BUILDING AND OFFICE COMPLEX	OFFICE BUILDING	C
870-107-D	PERMITTED USES	WHOLESALING OF GOODS AND SERVICES, INCLUDING WAREHOUSING OR STORAGE OF GOODS	POLE BARN	C

AREA AND BULK REGULATIONS FOR ZONE PRI - PORT RELATED INDUSTRIAL [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	EXISTING	PROPOSED [BLOCK 514, LOT 3.01]	CONFORMANCE
870-111	MIN. LOT AREA	40,000 SF	1,304 SF [BLOCK 512, LOT 34]	326,349 SF	C
870-111	MIN. LOT WIDTH	200 FT	81.50 FT [BLOCK 512, LOT 54]	899.4 FT	C
870-111	MAX. BUILDING COVERAGE	90%	NA	8.7% [28,250SF]	C
870-111	MAX. LOT IMPERVIOUS COVERAGE	100%	35.6% [44,332 SF] [LOT 4.12, BLOCK 515]	52.0% [169,809 SF]	C
870-111	MIN. FRONT YARD SETBACK	25 FT	NA	169.1 FT [31.61 FT POLE BARN]	C
870-111	MIN. SIDE YARD	20 FT	NA	229.7 FT	C
870-111	MIN. REAR YARD	30 FT	NA	110.5 FT	C
870-111	MAX. BUILDING HT.	5-STORIES OR 75 FT	NA	2 STORIES [31.25 FT]	C

PARKING MINIMUM REQUIREMENTS [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-230 [F]	MIN. PARKING SPACES [OFFICE] 1 SPACE EVERY 300 SF OF GROSS FLOOR AREA	172 SPACES [51,586 GFA]	182 SPACES	C
870-231 [C]	MIN. LOADING SPACE [>10,000 SF FLOOR AREA]	1 SPACE	NA	NC
ADA	MIN. HANDICAPPED PARKING SPACES [76 TO 100 SPACES]	4 SPACES	9 SPACES	C

PARKING AND LOADING REQUIREMENTS [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-230 [Z]	MIN. BICYCLE SPACES [10% OF FIRST 100 SPACES, PLUS 2% OF ANY THEREAFTER]	13 SPACES	14 SPACES	C
870-230 [AA]	MIN. SIDEWALK WIDTH ADJACENT TO PARKING LOTS	6 FT	6 FT	C

PARKING AND LOADING DESIGN STANDARDS [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-231 [B.1.A]	MIN. STANDARD CAR SPACE DIMENSIONS [90°]	9 FT X 18 FT	9 FT X 18 FT	C
870-231 [B.1.A]	MIN. STANDARD AISLE WIDTH [90°, 2-WAY]	24 FT	24 FT	C
870-231 [C.2]	MIN. OFF STREET LOADING BERTH	12 FT WIDE, 50 FT LONG AND 14 FT HIGH	NA	NA
870-231 [C.2]	MIN. OFF STREET PARKING AND LOADING AREA SETBACK FROM RIGHT-OF-WAY	5 FT	19.5 FT	C

VEHICULAR CIRCULATION [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-235 [A.6]	MIN. DRIVEWAY SETBACK FROM AN INTERSECTION	50 FT	376.5 FT	C
870-235 [A.7]	MIN. DRIVEWAY SETBACK FROM ANY SIDE YARD	10 FT	10.5 FT	C
870-235 [A.8]	MIN. DRIVEWAY DISTANCE TO CROSSWALK	25 FT	342.9 FT	C

SIDEWALK AND PATHWAYS [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-241 [C]	MIN. SIDEWALK WIDTH	5 FT	5 FT	C

LIGHTING [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-243 [A.15.a.]	MIN. LEVEL OF LIGHTING ALONG WALKWAY NOT PART OF A PARKING LOT	0.5 FC	0.8 FC	C
870-243 [A.15.a.]	MAX. LEVEL OF LIGHTING ALONG WALKWAY NOT PART OF A PARKING LOT	1.0 FC	6.2 FC	NC
870-243 [A.15.b]	MIN. FIXTURE HT. FOR WALKWAY	25 FT	30 FT	NC
870-243 [C.3]	MAX. FIXTURE HT. ABOVE GRADE	25 FT	30 FT	NC
870-243 [D.2]	MIN. LEVEL OF LIGHTING PARKING LOT	0.25 FC	1.2 FC	C
870-243 [D.2]	AVG. LEVEL OF LIGHTING PARKING LOT	0.5 FC TO 2.0 FC	2.2	NC
870-243 [D.2]	MAX. LEVEL OF LIGHTING PARKING LOT	5.0 FC 5.0 FC [DIRECTLY UNDER FIXTURE]	2.9	C
870-243 [D.3]	MIN. LEVEL OF LIGHTING AT ANY INGRESS OR EGRESS PORTION OF PARKING LOT	1.0 FC	2.1	C

LANDSCAPING AND BUFFERING [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-244 (A.3.F)	MIN. BUFFER WIDTH (SIDE YARD & REAR YARD ADJACENT TO RESIDENTIAL ZONE)	5 FT	NA	NA
870-244 (C.6)	FOUNDATION PLANTINGS REQUIRED ALONG ALL BUILDING ELEVATIONS	REQUIRED	PROVIDED	C
577-244 (F.3)	MINIMUM NUMBER OF TREES	39	22	NC
870-244 (D.2.A)	MAX. STREET TREE SPACING O.C.	40 FT	40 FT	C

SOLID WASTE AND RECYCLING [CITY ORDINANCE]

CODE REF	STANDARD	REQUIRED/PERMITTED	PROPOSED	CONFORMANCE
870-255 (A.7)	RECYCLING AND REFUSE COLLECTION AREA	INDOOR OR OUTDOOR	OUTDOOR	C

SIGNAGE [CITY ORDINANCE] [PRI - PORT RELATED INDUSTRIAL]

CODE REF	STANDARD	REQUIRED/PERMITTED	EXISTING	PROPOSED	CONFORMANCE
870-253 [C-2]	FLASHING, BLINKING, TWINKLING, ROTATING ANIMATION, MOVING SIGNS	NOT PERMITTED	NA	TBD	TBD
870-253 [P-11-a]	WALL SIGNS	MAX. ONE WALL SIGN FOR EACH PRINCIPAL BUILDING EXCEPT WHERE BUILDING ABUTS TWO OR MORE STREETS, ONE ADDITIONAL SIGN SHALL BE PERMITTED	NA	TBD	TBD
870-253 [P-11-b]	WALL SIGN AREA	GROSS WALL SIGN SURFACE AREA SHALL N

NORTH

DELAWARE RIVER

DELAWARE RIVER

HOLTEC INTERNATIONAL OFFICE BUILDING (MAIN OFFICE)

PROPOSED MAIN OFFICE PARKING EXPANSION

PROPOSED QUIET RAIL CROSSING

BOLLARD SIGN

PARKING LOT

PARKING LOT

PARKING LOT

OFFICE BUILDING

HOLTEC MANUFACTURING BUILDING

HOLTEC INTERNATIONAL INC. WAREHOUSE

GRAVEL AREA WITHIN FOOTPRINT OF R&S BUILDING THAT WILL BE DEMOLISHED UNDER SEPARATE CONTRACT

LEASE AREA LINE

SOUTH JERSEY PORT CORPORATION

PARKING LOT

PROPOSED PROJECT SITE

PORT ACCESS ROAD (FORMALLY BROADWAY)

BROADWAY (COUNTY ROUTE 551)

30' REAR YARD SETBACK

10' FRONT YARD SETBACK

20' SIDE YARD SETBACK

PARKING LOT

PROPOSED BUILDING

PROPOSED POLE BARN

ELECTRICAL SUBSTATION

10' FRONT YARD SETBACK

WOODLAND AVENUE

HOLTEC BOULEVARD

BROADWAY (COUNTY ROUTE 551)

BROADWAY (COUNTY ROUTE 551)

CONRAIL RAILROAD

PRIVATE DRIVEWAY

SR 676 OFF-RAMP

HOLTEC BOULEVARD

899.4'

110.5'

10.5'

229.7'

30.5'

66.6'

66.7'

23.8'

24.2'

19.5'

7.33'

27.5'

MAIN OFFICE PARKING EXPANSION SUMMARY	
EXISTING SPACES	293
PROPOSED SPACES	190
TOTAL SPACES	483
ADA PARKING SUMMARY	
MINIMUM REQUIRED FOR (401 TO 500 SPACE)	9
EXISTING SPACES	12
PROPOSED SPACES	0
TOTAL SPACES	12
EV PARKING SUMMARY	
MINIMUM REQUIRED FOR (>150)	8
EXISTING SPACES	0
PROPOSED SPACES	0
TOTAL SPACES	8

OFFICE BUILDING PARKING SUMMARY	
EXISTING SPACES	103
PROPOSED SPACES	274
TOTAL SPACES	377
ADA PARKING SUMMARY	
MINIMUM REQUIRED FOR (301 TO 400 SPACE)	8
EXISTING SPACES	0
PROPOSED SPACES	9
TOTAL SPACES	9
EV PARKING SUMMARY	
MINIMUM REQUIRED FOR (>150)	10
EXISTING SPACES	0
PROPOSED SPACES	10
TOTAL SPACES	10

0 100' 200'

UA\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS0400.dwg PLOTTED: 8/22/2024 4:55 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

GENERAL DEVELOPMENT PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

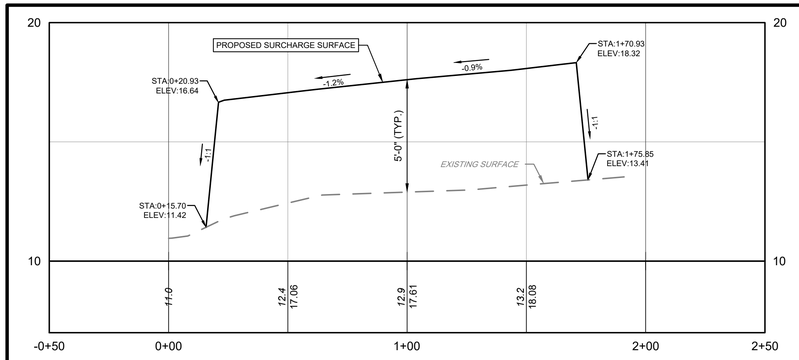
BY	REVISIONS	NO.	DATE

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=100'
DRAWN BY	BF
APPROVED BY	JJR

CS0400

SHEET 4 OF 43



SURCHARGE SECTION A-A
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

NORTH

PORT ACCESS ROAD
(FORMALLY BROADWAY)

BROADWAY (COUNTY
ROAD 551)

STABILIZED CONSTRUCTION ENTRANCE

PROPOSED BUILDING

TEMPORARY TOPSOIL STOCKPILE

BROADWAY
(COUNTY ROUTE 551)
(76' WIDE)(54' CARTWAY)

NOTES:

1. PRIOR TO INSTALLING SURCHARGE MATERIAL, AREA SHALL BE STRIPPED OF TOPSOIL AND SUBSOIL PROOF-ROLLED.
2. SURCHARGE DURATION SHALL BE A MINIMUM OF 2.5 MONTHS.
3. SURCHARGE MATERIAL SHALL BE DENSE GRADED AGGREGATE CONFORMING TO NJDOT SPECIFICATIONS.
4. SURCHARGE MATERIAL WITHIN THE PROPOSED BUILDING FOOTPRINT SHALL BE INSTALLED IN 8" - 10" LIFTS AT 98% COMPACTION.
5. SURCHARGE MATERIAL OUTSIDE OF THE PROPOSED BUILDING FOOTPRINT SHALL BE INSTALLED IN 8" - 10" LIFTS AT 90% COMPACTION.
6. SOIL MONITORING WITHIN SURCHARGE AREA IS NOT REQUIRED.

LEGEND:
- LIMIT OF DISTURBANCE
- SURCHARGE AREA
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T: 856.616.8333
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

TEMPORARY SOIL SURCHARGE AREA PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

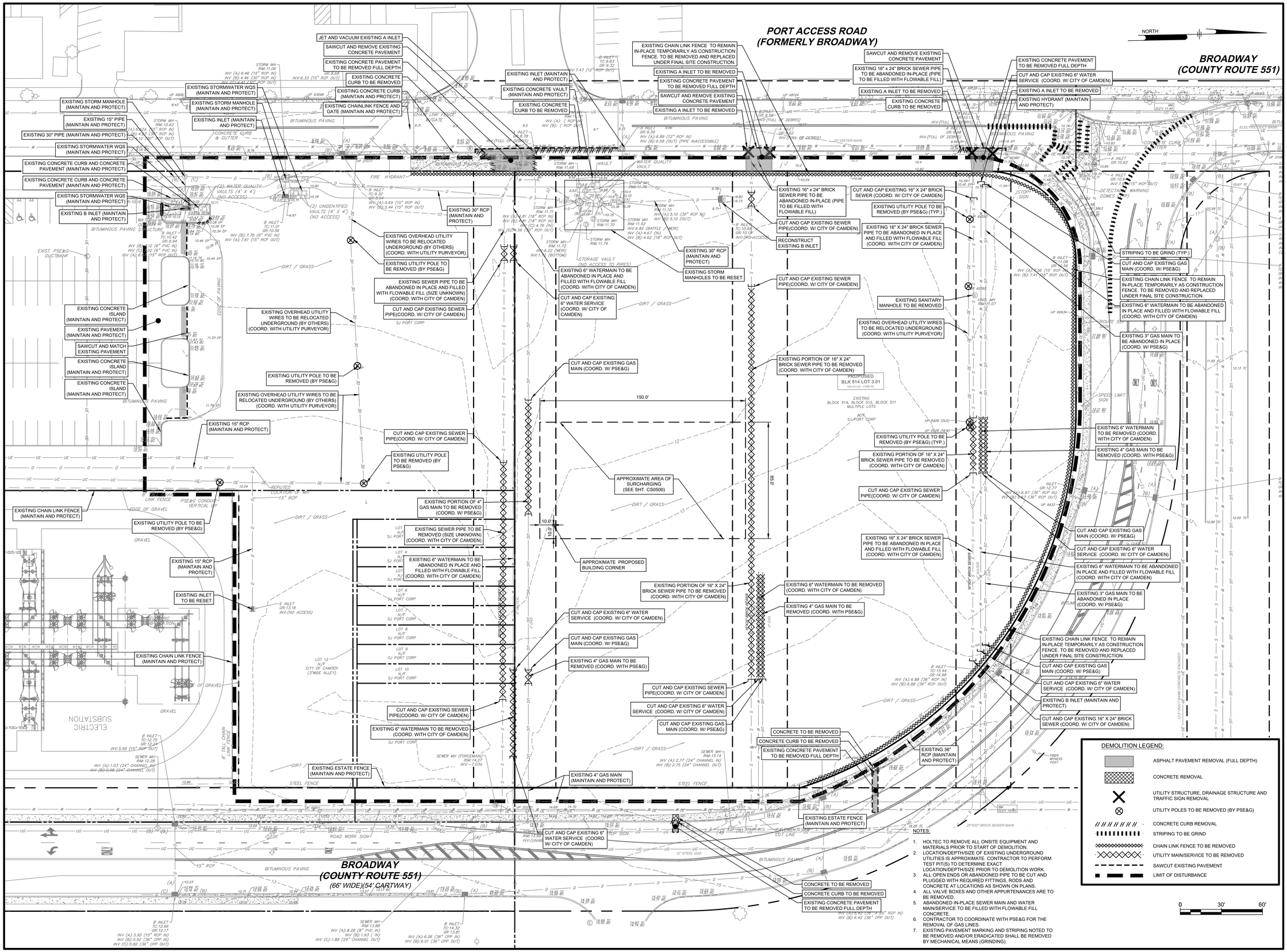
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS0500

SHEET 5 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS0500.dwg PLOTTED: 8/22/2024 4:56 PM BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —


PORT ACCESS ROAD
(FORMERLY BROADWAY)
BROADWAY
(COUNTY ROUTE 551)
NORTH
BROADWAY
(COUNTY ROUTE 551)
(66' WIDE)(54' CARTWAY)
JET AND VACUUM EXISTING A INLET
SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
EXISTING CONCRETE CURB TO BE REMOVED
EXISTING CONCRETE CURB (MAINTAIN AND PROTECT)
EXISTING CHAINLINK FENCE AND GATE (MAINTAIN AND PROTECT)
EXISTING STORMWATER WQS (MAINTAIN AND PROTECT)
EXISTING STORM MANHOLE (MAINTAIN AND PROTECT)
EXISTING INLET (MAINTAIN AND PROTECT)
EXISTING STORM MANHOLE (MAINTAIN AND PROTECT)
EXISTING 15" PIPE (MAINTAIN AND PROTECT)
EXISTING 30" PIPE (MAINTAIN AND PROTECT)
EXISTING STORMWATER WQS (MAINTAIN AND PROTECT)
EXISTING CONCRETE CURB AND CONCRETE PAVEMENT (MAINTAIN AND PROTECT)
EXISTING CONCRETE CURB AND CONCRETE PAVEMENT (MAINTAIN AND PROTECT)
EXISTING STORMWATER WQS (MAINTAIN AND PROTECT)
EXISTING B INLET (MAINTAIN AND PROTECT)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
EXISTING INLET (MAINTAIN AND PROTECT)
EXISTING CONCRETE VAULT (MAINTAIN AND PROTECT)
EXISTING CONCRETE CURB TO BE REMOVED
EXISTING A INLET TO BE REMOVED
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT
EXISTING A INLET TO BE REMOVED
SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT
EXISTING 16" x 24" BRICK SEWER PIPE TO BE ABANDONED IN-PLACE (PIPE TO BE FILLED WITH FLOWABLE FILL)
EXISTING A INLET TO BE REMOVED
EXISTING CONCRETE CURB TO BE REMOVED
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING A INLET TO BE REMOVED
EXISTING HYDRANT (MAINTAIN AND PROTECT)
EXISTING 30" RCP (MAINTAIN AND PROTECT)
EXISTING OVERHEAD UTILITY WIRES TO BE RELOCATED UNDERGROUND (BY OTHERS) (COORD. WITH UTILITY PURVEYOR).
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING SEWER PIPE TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (SIZE UNKNOWN) (COORD. WITH CITY OF CAMDEN)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
CUT AND CAP EXISTING 8" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 30" RCP (MAINTAIN AND PROTECT)
EXISTING STORM MANHOLES TO BE RESET
EXISTING 16" x 24" BRICK SEWER PIPE TO BE ABANDONED IN-PLACE (PIPE TO BE FILLED WITH FLOWABLE FILL)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
RECONSTRUCT EXISTING B INLET
CUT AND CAP EXISTING 16" X 24" BRICK SEWER (COORD. W/ CITY OF CAMDEN)
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G) (TYP.)
EXISTING 16" X 24" BRICK SEWER PIPE TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING SANITARY MANHOLE TO BE REMOVED
EXISTING OVERHEAD UTILITY WIRES TO BE RELOCATED UNDERGROUND (COORD. WITH UTILITY PURVEYOR)
EXISTING PORTION OF 16" X 24" BRICK SEWER PIPE TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
PROPOSED BLK 514 LOT 3.01
168,474 SF / 3.868 AC
EXISTING BLOCK 514, BLOCK 512, BLOCK 511 MULTIPLE LOTS W/K SJ PORT CORP
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G) (TYP.)
EXISTING PORTION OF 16" X 24" BRICK SEWER PIPE TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING 16" X 24" BRICK SEWER PIPE TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
EXISTING 36" RCP (MAINTAIN AND PROTECT)
EXISTING ESTATE FENCE (MAINTAIN AND PROTECT)
CONCRETE TO BE REMOVED
CONCRETE CURB TO BE REMOVED
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
CONCRETE TO BE REMOVED
CONCRETE CURB TO BE REMOVED
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
EXISTING CONCRETE PAVEMENT TO BE REMOVED FULL DEPTH
CUT AND CAP EXISTING CONCRETE CURB & GUTTER
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
EXISTING 6" WATERMAIN TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
STRIPING TO BE GRIND (TYP.)
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING B INLET (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 16" X 24" BRICK SEWER (COORD. W/ CITY OF CAMDEN)
EXISTING 15" RCP (MAINTAIN AND PROTECT)
EXISTING INLET TO BE RESET
EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)
EXISTING ESTATE FENCE (MAINTAIN AND PROTECT)
EXISTING 4" GAS MAIN (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 15" RCP
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING OVERHEAD UTILITY WIRES TO BE RELOCATED UNDERGROUND (BY OTHERS) (COORD. WITH UTILITY PURVEYOR)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING PORTION OF 4" GAS MAIN TO BE REMOVED (COORD. W/ PSE&G)
EXISTING SEWER PIPE TO BE REMOVED (SIZE UNKNOWN) (COORD. WITH CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
APPROXIMATE AREA OF SURCHARGING (SEE SHT. CS0500)
APPROXIMATE PROPOSED BUILDING CORNER
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
EXISTING 4" GAS MAIN (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING ESTATE FENCE (MAINTAIN AND PROTECT)
EXISTING 6" WATERMAIN TO BE BE REMOVED (COORD. WITH CITY OF CAMDEN)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING B INLET (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 16" X 24" BRICK SEWER (COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
EXISTING 6" WATERMAIN TO BE REMOVED (COORD. WITH CITY OF CAMDEN)
EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)
EXISTING CONCRETE ISLAND (MAINTAIN AND PROTECT)
EXISTING PAVEMENT (MAINTAIN AND PROTECT)
SAWCUT AND MATCH EXISTING PAVEMENT
EXISTING CONCRETE ISLAND (MAINTAIN AND PROTECT)
EXISTING CONCRETE ISLAND (MAINTAIN AND PROTECT)
EXISTING OVERHEAD UTILITY WIRES TO BE RELOCATED UNDERGROUND (BY OTHERS) (COORD. WITH UTILITY PURVEYOR)
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING OVERHEAD UTILITY WIRES TO BE RELOCATED UNDERGROUND (BY OTHERS) (COORD. WITH UTILITY PURVEYOR)
EXISTING 15" RCP (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING SEWER PIPE(COORD. W/ CITY OF CAMDEN)
EXISTING UTILITY POLE TO BE REMOVED (BY PSE&G)
EXISTING 15" RCP (MAINTAIN AND PROTECT)
EXISTING INLET TO BE RESET
EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)
EXISTING ESTATE FENCE (MAINTAIN AND PROTECT)
EXISTING 4" GAS MAIN (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE BE REMOVED (COORD. WITH CITY OF CAMDEN)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING B INLET (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 16" X 24" BRICK SEWER (COORD. W/ CITY OF CAMDEN)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING 6" WATERMAIN TO BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL (COORD. WITH CITY OF CAMDEN)
EXISTING 3" GAS MAIN TO BE ABANDONED IN PLACE (COORD. W/ PSE&G)
EXISTING 4" GAS MAIN TO BE REMOVED (COORD. WITH PSE&G)
EXISTING CHAIN LINK FENCE TO REMAIN IN-PLACE TEMPORARILY AS CONSTRUCTION FENCE. TO BE REMOVED AND REPLACED UNDER FINAL SITE CONSTRUCTION.
CUT AND CAP EXISTING GAS MAIN (COORD. W/ PSE&G)
CUT AND CAP EXISTING 6" WATER SERVICE (COORD. W/ CITY OF CAMDEN)
EXISTING B INLET (MAINTAIN AND PROTECT)
CUT AND CAP EXISTING 16" X 24" BRICK SEWER

EXISTING CHAIN LINK FENCE (MAINTAIN AND PROTECT)

EXISTING LIGHT POLE (MAINTAIN AND PROTECT)

EXISTING CONCRETE SIDEWALK TO BE REMOVED

EXISTING TOPSOIL TO BE STRIPED

EXISTING STORMWATER WQS (FILTERRA) (MAINTAIN AND PROTECT)

EXISTING UNDERGROUND ELECTRIC CONDUIT (MAINTAIN AND PROTECT)

LIGHTING POLE (MAINTAIN AND PROTECT)

EXISTING ELECTRICAL HANDHOLE (MAINTAIN AND PROTECT)

EXISTING 15" RCP (MAINTAIN AND PROTECT)

EXISTING TYPE 'B' INLET (MAINTAIN AND PROTECT)

EXISTING CONCRETE SIDEWALK AND PAVEMENT (MAINTAIN AND PROTECT)

EXISTING TYPE 'E' INLET (MAINTAIN AND PROTECT)

EXISTING 18" RCP (MAINTAIN AND PROTECT)

E. INLET GR: 11.17
INV (A): 4.42 (15" RCP IN)
INV (B): 4.27 (18" RCP OUT)

B. INLET GR: 13.73
INV: 6.48 (15" RCP OUT)

EMERGENCY ASSEMBLY AREA SIGN

EXISTING LIGHT POLE (MAINTAIN AND PROTECT)

EMERGENCY ASSEMBLY AREA SIGN TO BE RELOCATED (CONTRACTOR TO COORDINATE WITH OWNER)

EXISTING UNDERGROUND ELECTRIC CONDUIT (MAINTAIN AND PROTECT)

EXISTING PAVEMENT (MAINTAIN AND PROTECT)

EXISTING CONCRETE CURB TO BE REMOVED

SAWCUT AND REMOVE EXISTING PAVEMENT (TYP.)

EXISTING TOPSOIL TO BE STRIPED

EXISTING GRAVEL TO BE REMOVED

EXISTING CONCRETE CURB (MAINTAIN AND PROTECT)

EXISTING CONCRETE CURB TO BE REMOVED

EXISTING CONCRETE CURB (MAINTAIN AND PROTECT)

SAWCUT AND REMOVE EXISTING PAVEMENT (TYP.)

EXISTING PAVEMENT (MAINTAIN AND PROTECT)

EXISTING CONCRETE CURB (MAINTAIN AND PROTECT)

EXISTING CONCRETE CURB (MAINTAIN AND PROTECT)

HOLTEC INTERNATIONAL OFFICE BUILDING (MAIN OFFICE)

CHAIN LINK FENCE

GRASS

NORTH

DEMOLITION LEGEND:

- PAVEMENT REMOVAL (FULL DEPTH)
- CONCRETE REMOVAL
- CONCRETE CURB REMOVAL
- SAWCUT EXISTING PAVEMENT
- LIMIT OF DISTURBANCE

0 20' 40'

NOTES:

1. HOLTEC TO REMOVE ALL ONSITE EQUIPMENT AND MATERIALS PRIOR TO START OF DEMOLITION.
2. LOCATION/DEPTH/SIZE OF EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. CONTRACTOR TO PERFORM TEST PIT(S) TO DETERMINE EXACT LOCATION/DEPTH/SIZE PRIOR TO DEMOLITION WORK.
3. ALL OPEN ENDS OR ABANDONED PIPE TO BE CUT AND PLUGGED WITH REQUIRED FITTINGS, RODS AND CONCRETE AT LOCATIONS AS SHOWN ON PLANS.
4. ALL VALVE BOXES AND OTHER APPURTENANCES ARE TO BE REMOVED.
5. ABANDONED IN-PLACE SEWER MAIN AND WATER MAIN/SERVICE TO BE FILLED WITH FLOWABLE FILL CONCRETE.
6. CONTRACTOR TO COORDINATE WITH PSE&G FOR THE REMOVAL OF GAS LINES.
7. EXISTING PAVEMENT MARKING AND STRIPING NOTED TO BE REMOVED AND/OR ERADICATED SHALL BE REMOVED BY MECHANICAL MEANS (GRINDING).

U:\Accounts\USA\TX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS0502.dwg PLOTTED: 8/22/2024 4:57 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.ctb PROJECT STATUS: —

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE DEMOLITION PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

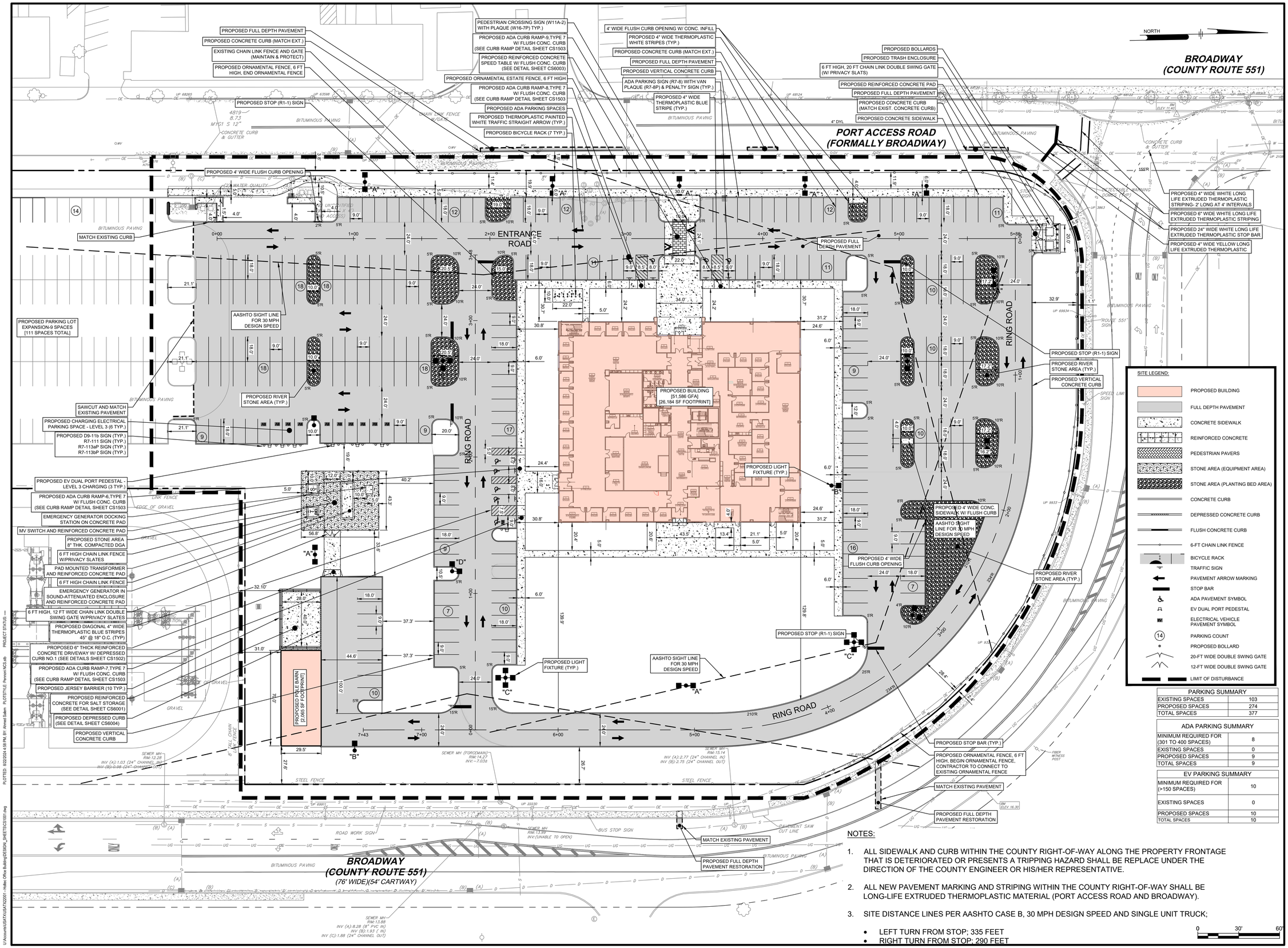
NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

CS0502

SHEET 7 OF 43



PARKING SUMMARY	
EXISTING SPACES	103
PROPOSED SPACES	274
TOTAL SPACES	377

ADA PARKING SUMMARY	
MINIMUM REQUIRED FOR (301 TO 400 SPACES)	8
EXISTING SPACES	0
PROPOSED SPACES	9
TOTAL SPACES	9

EV PARKING SUMMARY	
MINIMUM REQUIRED FOR (>150 SPACES)	10
EXISTING SPACES	0
PROPOSED SPACES	10
TOTAL SPACES	10

NOTES:

1. ALL SIDEWALK AND CURB WITHIN THE COUNTY RIGHT-OF-WAY ALONG THE PROPERTY FRONTAGE THAT IS DETERIORATED OR PRESENTS A TRIPPING HAZARD SHALL BE REPLACE UNDER THE DIRECTION OF THE COUNTY ENGINEER OR HIS/HER REPRESENTATIVE.
2. ALL NEW PAVEMENT MARKING AND STRIPING WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE LONG-LIFE EXTRUDED THERMOPLASTIC MATERIAL (PORT ACCESS ROAD AND BROADWAY).
3. SITE DISTANCE LINES PER AASHTO CASE B, 30 MPH DESIGN SPEED AND SINGLE UNIT TRUCK;
   - LEFT TURN FROM STOP; 335 FEET
   - RIGHT TURN FROM STOP; 290 FEET

Pennoni
PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING
SITE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

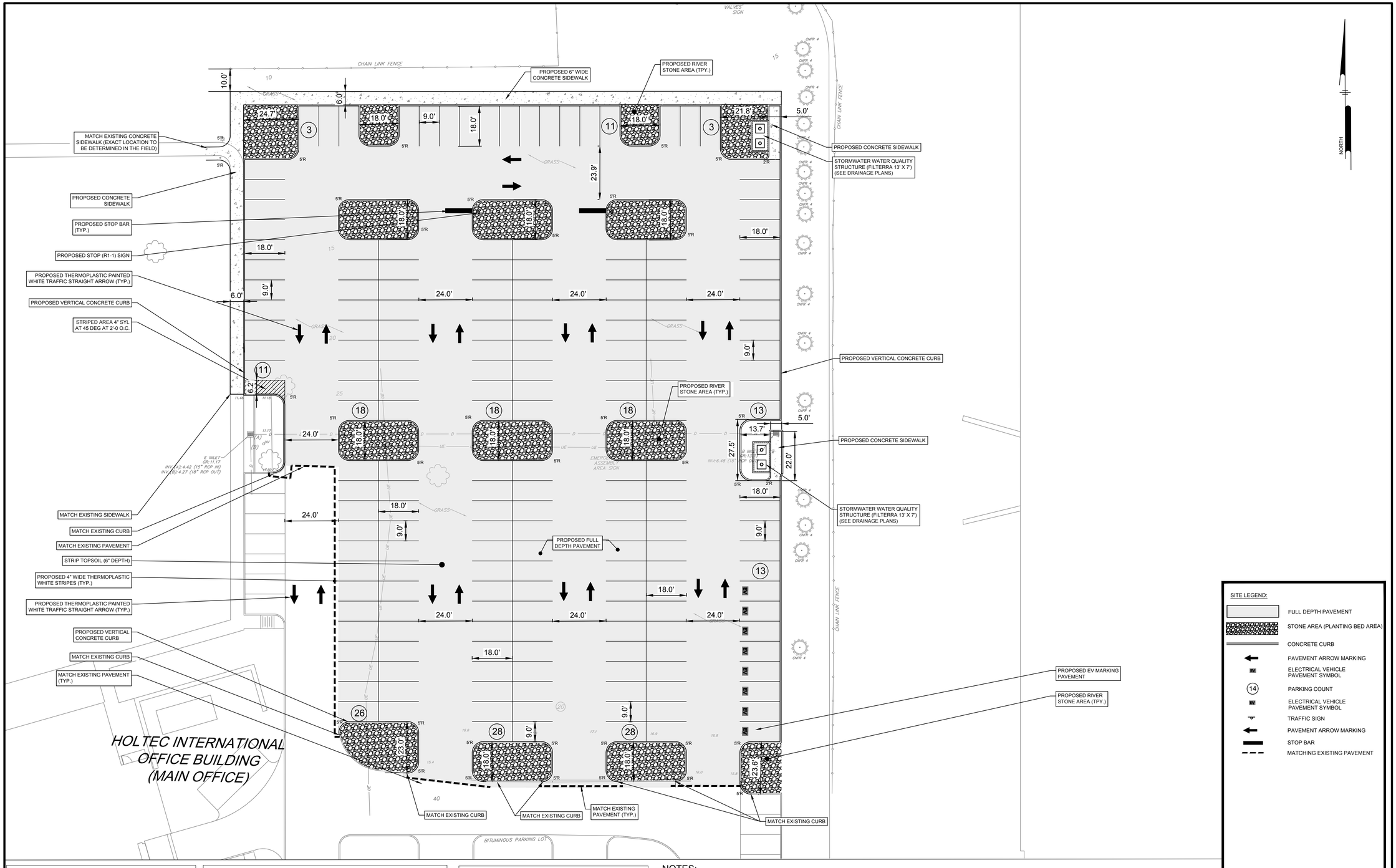
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS1001

SHEET 8 OF 43

PROJECT STATUS: —
PLOTTED: 8/22/2024 4:58 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb
U:\Accounts\USATX\USATX22001 - Holtec Office Building\2SIGNAL_SHEETS\CS1001.dwg



PARKING SUMMARY	
EXISTING SPACES	293
PROPOSED SPACES	190
TOTAL SPACES	483

ADA PARKING SUMMARY	
MINIMUM REQUIRED FOR (401 TO 500 SPACES)	9
EXISTING SPACES	12
PROPOSED SPACES	0
TOTAL SPACES	12

EV PARKING SUMMARY	
MINIMUM REQUIRED FOR (>150)	8
EXISTING SPACES	0
PROPOSED SPACES	8
TOTAL SPACES	8

NOTES:

1. ALL SIDEWALK AND CURB WITHIN THE COUNTY RIGHT-OF-WAY ALONG THE PROPERTY FRONTAGE THAT IS DETERIORATED OR PRESENTS A TRIPPING HAZARD SHALL BE REPLACE UNDER THE DIRECTION OF THE COUNTY ENGINEER OR HIS/HER REPRESENTATIVE.
2. ALL NEW PAVEMENT MARKING AND STRIPING WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE LONG-LIFE EXTRUDED THERMOPLASTIC MATERIAL (PORT ACCESS ROAD AND BROADWAY).
3. SITE DISTANCE LINES PER AASHTO CASE B, 30 MPH DESIGN SPEED AND SINGLE UNIT TRUCK;
   - LEFT TURN FROM STOP; 335 FEET
   - RIGHT TURN FROM STOP; 290 FEET

SITE LEGEND:

- FULL DEPTH PAVEMENT
- STONE AREA (PLANTING BED AREA)
- CONCRETE CURB
- PAVEMENT ARROW MARKING
- ELECTRICAL VEHICLE PAVEMENT SYMBOL
- PARKING COUNT
- ELECTRICAL VEHICLE PAVEMENT SYMBOL
- TRAFFIC SIGN
- PAVEMENT ARROW MARKING
- STOP BAR
- MATCHING EXISTING PAVEMENT

0 20' 40'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE
SITE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	REVISIONS	BY	DATE

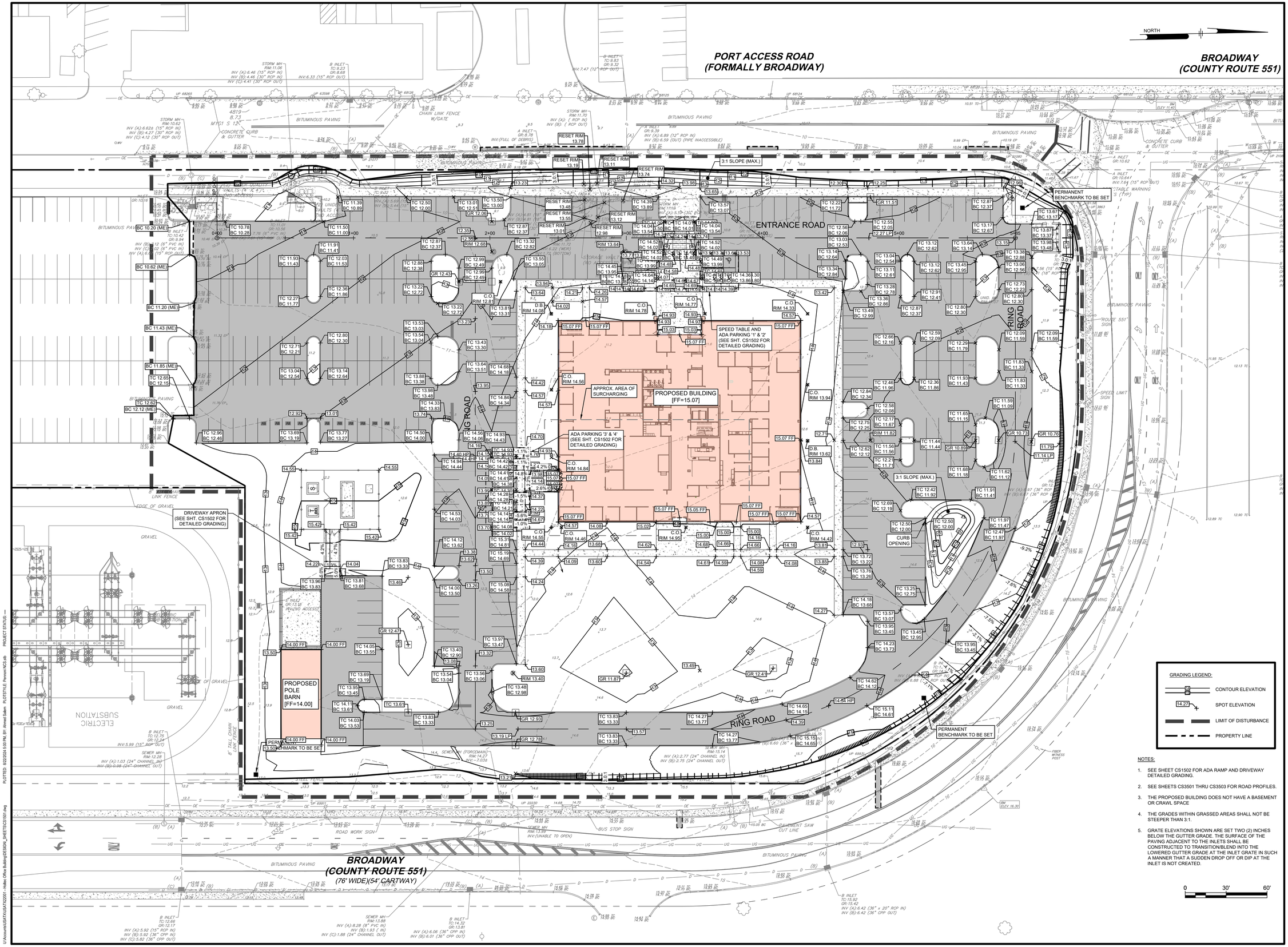
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20
DRAWN BY	BF
APPROVED BY	JJR

CS1002

SHEET 9 OF 43

PLOTTED: 8/22/2024 5:32 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni PCS.ctb PROJECT STATUS: —
U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS1002.dwg



NOTES:

1. SEE SHEET CS1502 FOR ADA RAMP AND DRIVEWAY DETAILED GRADING.
2. SEE SHEETS CS3501 THRU CS3503 FOR ROAD PROFILES.
3. THE PROPOSED BUILDING DOES NOT HAVE A BASEMENT OR CRAWL SPACE
4. THE GRADES WITHIN GRASSED AREAS SHALL NOT BE STEEPER THAN 3:1.
5. GRATE ELEVATIONS SHOWN ARE SET TWO (2) INCHES BELOW THE GUTTER GRADE. THE SURFACE OF THE PAVING ADJACENT TO THE INLETS SHALL BE CONSTRUCTED TO TRANSITION/BLEND INTO THE LOWERED GUTTER GRADE AT THE INLET GRATE IN SUCH A MANNER THAT A SUDDEN DROP OFF OR DIP AT THE INLET IS NOT CREATED.

PROJECT STATUS —

PLOTTED: 8/22/2024 5:50 PM, BY: Ahmed Salem P:\DTSTYLE: Pennoni NCS.stb

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Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
856.669.5100
NJ COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING
GRADING PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

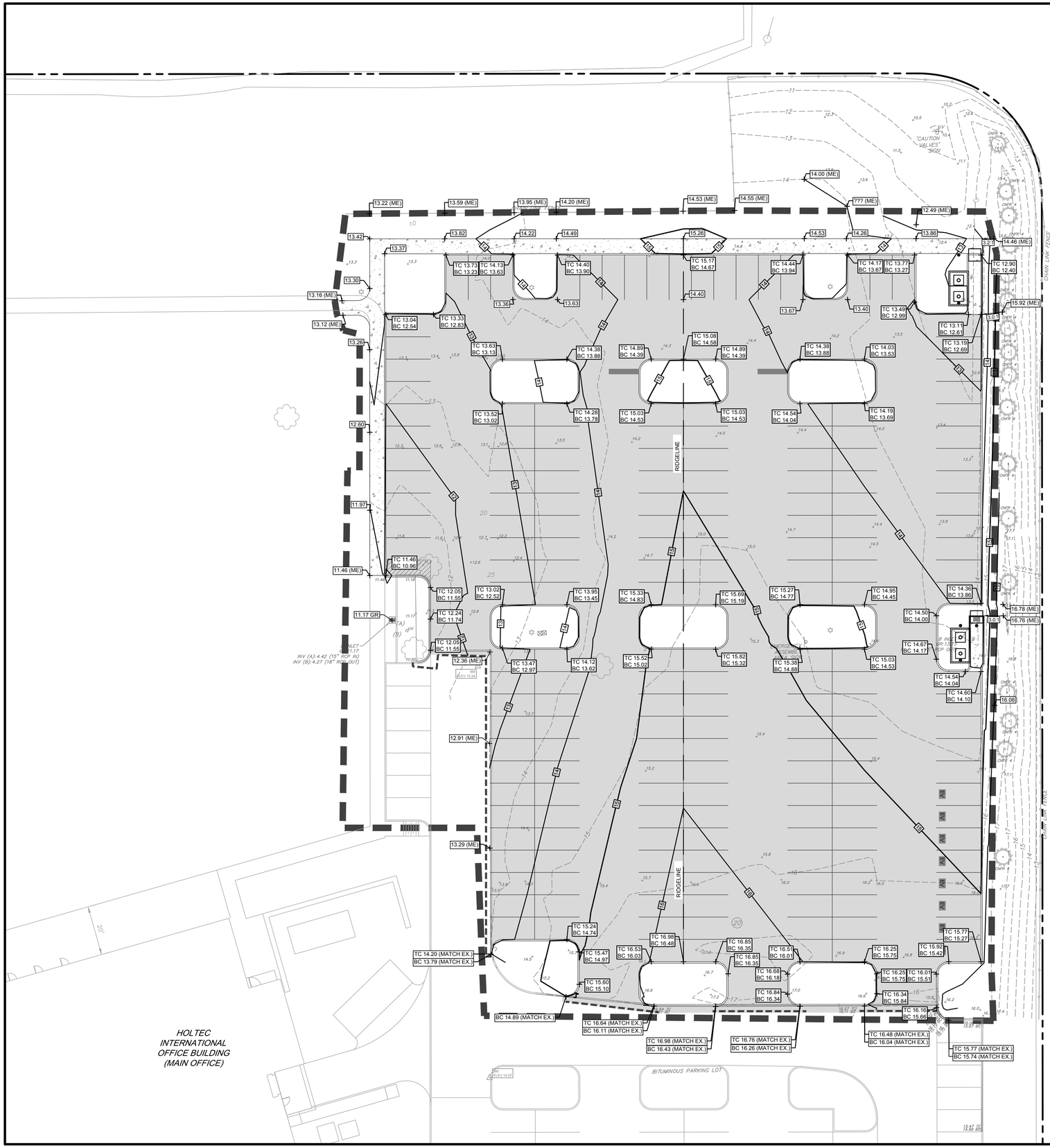
NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS1501

SHEET 10 OF 43



GRADING LEGEND:

- CONTOUR ELEVATION
- SPOT ELEVATION
- LIMIT OF DISTURBANCE
- PROPERTY LINE

NOTES:

1. SEE SHEET CS1503 FOR ADA RAMP AND DRIVEWAY DETAILED GRADING.
2. SEE SHEETS CS3501 THRU CS3503 FOR ROAD PROFILES.
3. THE PROPOSED BUILDING DOES NOT HAVE A BASEMENT OR CRAWL SPACE
4. THE GRADES WITHIN GRASSED AREAS SHALL NOT BE STEEPER THAN 3:1.
5. GRATE ELEVATIONS SHOWN ARE SET TWO (2) INCHES BELOW THE GUTTER GRADE. THE SURFACE OF THE PAVING ADJACENT TO THE INLETS SHALL BE CONSTRUCTED TO TRANSITION/BLEND INTO THE LOWERED GUTTER GRADE AT THE INLET GRATE IN SUCH A MANNER THAT A SUDDEN DROP OFF OR DIP AT THE INLET IS NOT CREATED.

0 20' 40'

U:\Accounts\USATX\2200\1 - Holtec Office Building\DESIGN_SHEETS\CS1502.dwg PLOTTED: 8/22/2024 6:15 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
P 856.669.8000
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE
GRADING PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

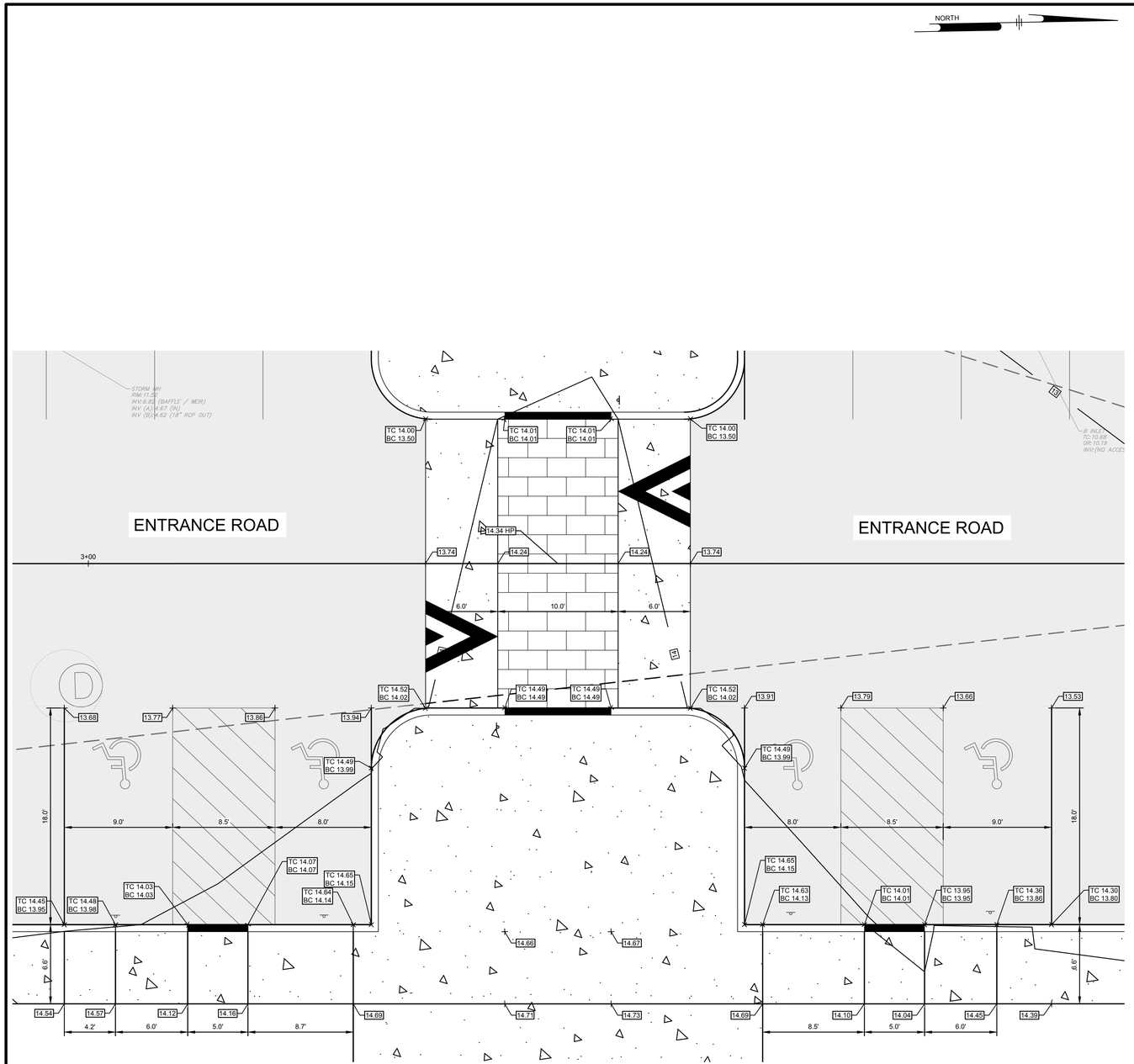
BY	REVISIONS	NO.	DATE

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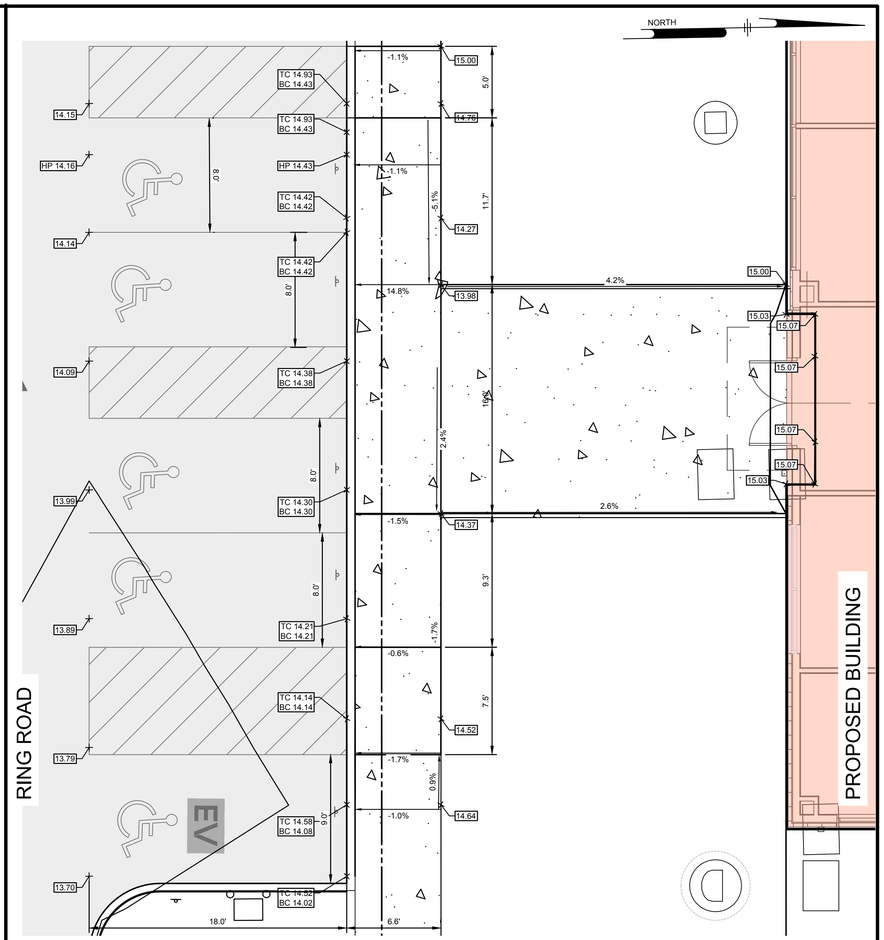
PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1" = 20'
DRAWN BY	BF
APPROVED BY	JJR

CS1502

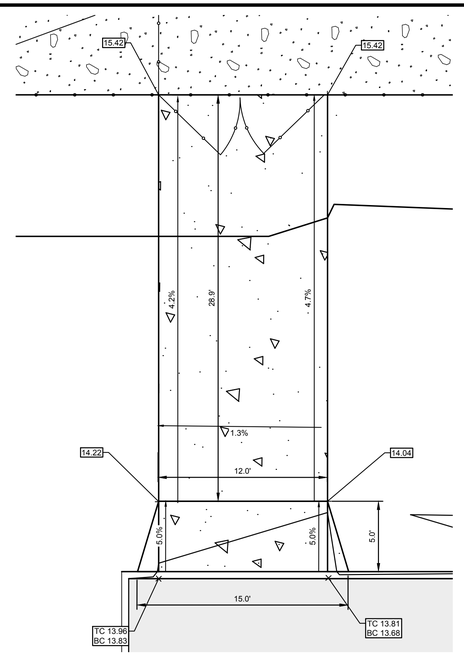
SHEET 11 OF 43



SPEED TABLE AND ADA PARKING #1 & #2 GRADING DETAIL
SCALE: 1" = 5'



ADA PARKING #3 & #4 GRADING DETAIL
SCALE: 1" = 5'



EQUIPMENT ENCLOSURE

DRIVEWAY APRON GRADING DETAIL
SCALE: 1" = 5'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.662.8800
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OFFICE BUILDING ADA RAMP, PARKING AND DRIVEWAY DETAILS
HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

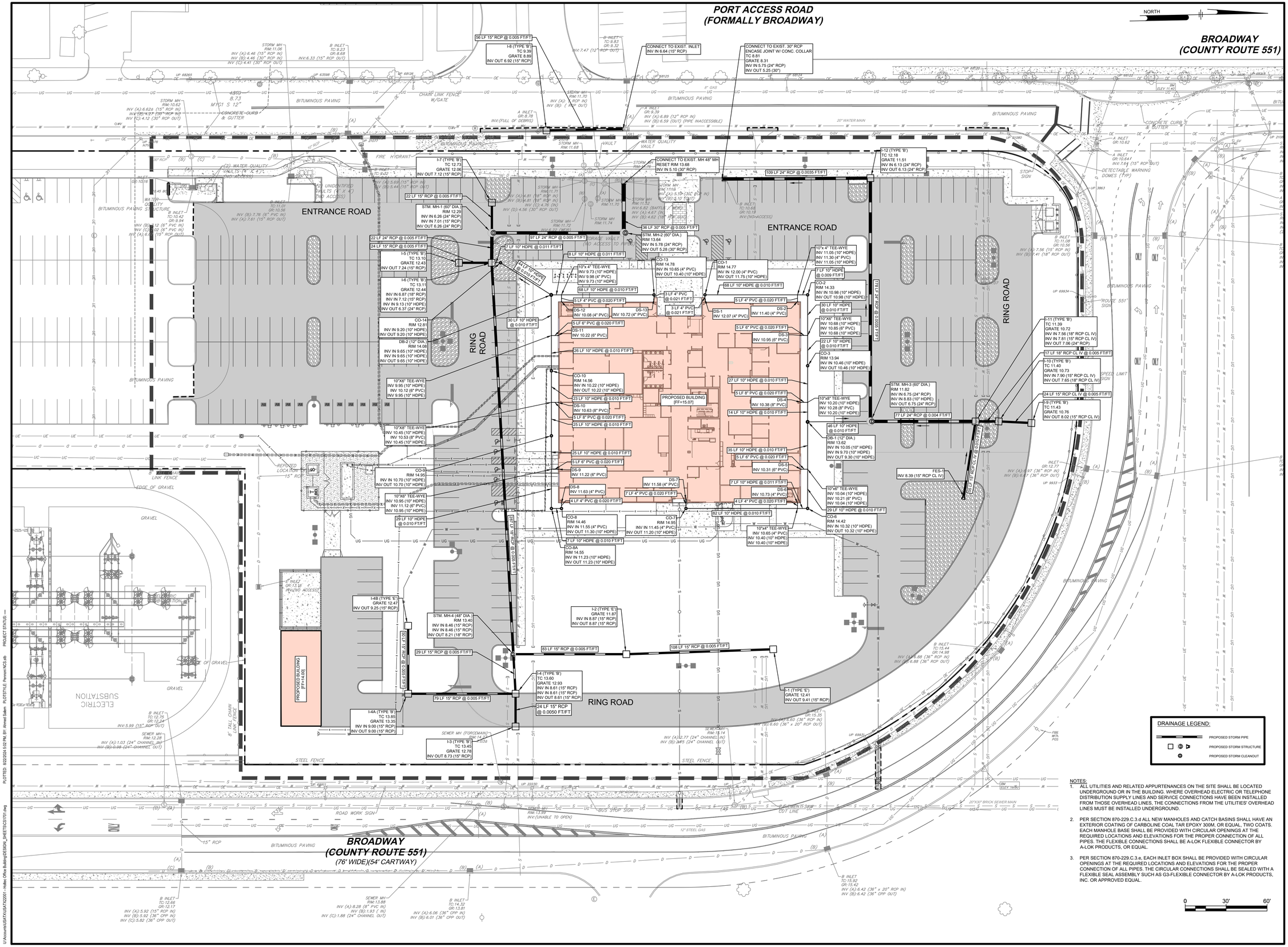
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS1503

SHEET 12 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\[DESIGN]_SHEETS\CS1503.dwg PLOTTED: 8/22/2024 4:12 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —



PLOTTED: 8/22/2024 1:52 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni-NCS.ctb PROJECT STATUS: —

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Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
856.662.8660
NJ. COA NO. GA28033300

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JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300
08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING DRAINAGE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

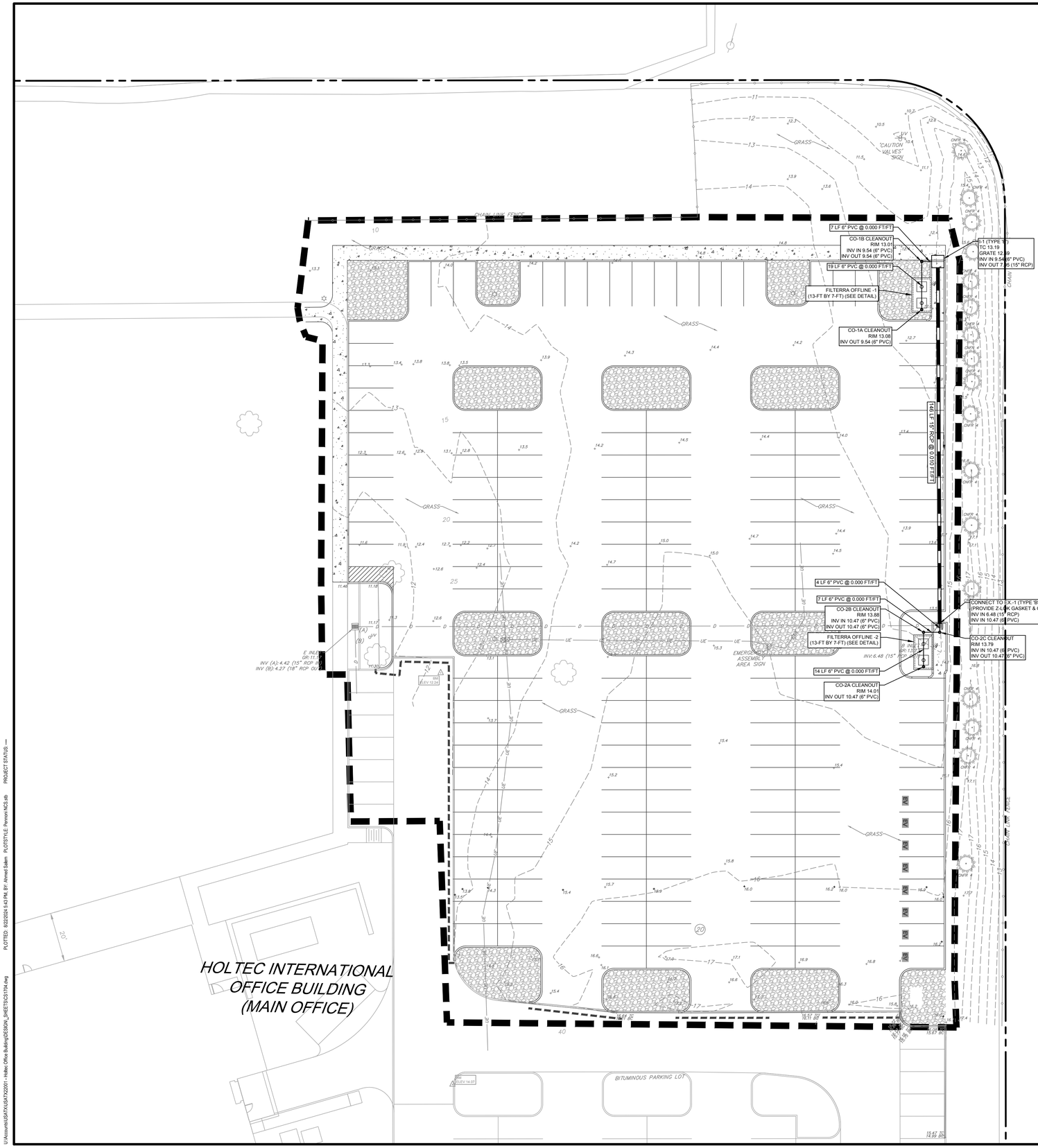
NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS1701

SHEET 13 OF 43



DRAINAGE LEGEND:

- PROPOSED STORM PIPE
- PROPOSED STORM STRUCTURE
- PROPOSED STORM CLEANOUT
- PROPERTY LINE
- LIMIT OF DISTURBANCE

NOTES:

1. ALL UTILITIES AND RELATED APPURTENANCES ON THE SITE SHALL BE LOCATED UNDERGROUND OR IN THE BUILDING. WHERE OVERHEAD ELECTRIC OR TELEPHONE DISTRIBUTION SUPPLY LINES AND SERVICE CONNECTIONS HAVE BEEN INSTALLED FROM THOSE OVERHEAD LINES, THE CONNECTIONS FROM THE UTILITIES' OVERHEAD LINES MUST BE INSTALLED UNDERGROUND.
2. PER SECTION 870-229.C.3.d ALL NEW MANHOLES AND CATCH BASINS SHALL HAVE AN EXTERIOR COATING OF CARBOLINE COAL TAR EPOXY 300M, OR EQUAL, TWO COATS. EACH MANHOLE BASE SHALL BE PROVIDED WITH CIRCULAR OPENINGS AT THE REQUIRED LOCATIONS AND ELEVATIONS FOR THE PROPER CONNECTION OF ALL PIPES. THE FLEXIBLE CONNECTIONS SHALL BE A-LOK FLEXIBLE CONNECTOR BY A-LOK PRODUCTS, OR EQUAL.
3. PER SECTION 870-229.C.3.e, EACH INLET BOX SHALL BE PROVIDED WITH CIRCULAR OPENINGS AT THE REQUIRED LOCATIONS AND ELEVATIONS FOR THE PROPER CONNECTION OF ALL PIPES. THE CIRCULAR CONNECTIONS SHALL BE SEALED WITH A FLEXIBLE SEAL ASSEMBLY SUCH AS G3-FLEXIBLE CONNECTOR BY A-LOK PRODUCTS, INC. OR APPROVED EQUAL.
4. A CCTV INSPECTION OF THE SEWER (COMBINED, SANITARY AND STORM) SYSTEM MUST BE PERFORMED AND REVIEWED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION. THE APPLICANT WILL BE RESPONSIBLE FOR ANY IMPROVEMENTS TO THE EXISTING INFRASTRUCTURE REQUIRED FOR THE CONNECTION OF THE PROPOSED PROJECT.
5. CONTRACTOR TO INSTALL UNDERGROUND CONDUIT DUCTBANK AND JUNCTION BOXES FOR OVERHEAD FIBER RELOCATION. FIBER LINE RELOCATION, PULLING WIRE, AND CONNECTION TO EXISTING LINES, TO BE BY OTHERS.

0 20' 40'

U:\Accounts\USATX\USATX22001 - Holtec Office Building\[DESIGN]_SHEETS\CS1704.dwg PLOTTED: 8/22/2024 5:43 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE DRAINAGE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

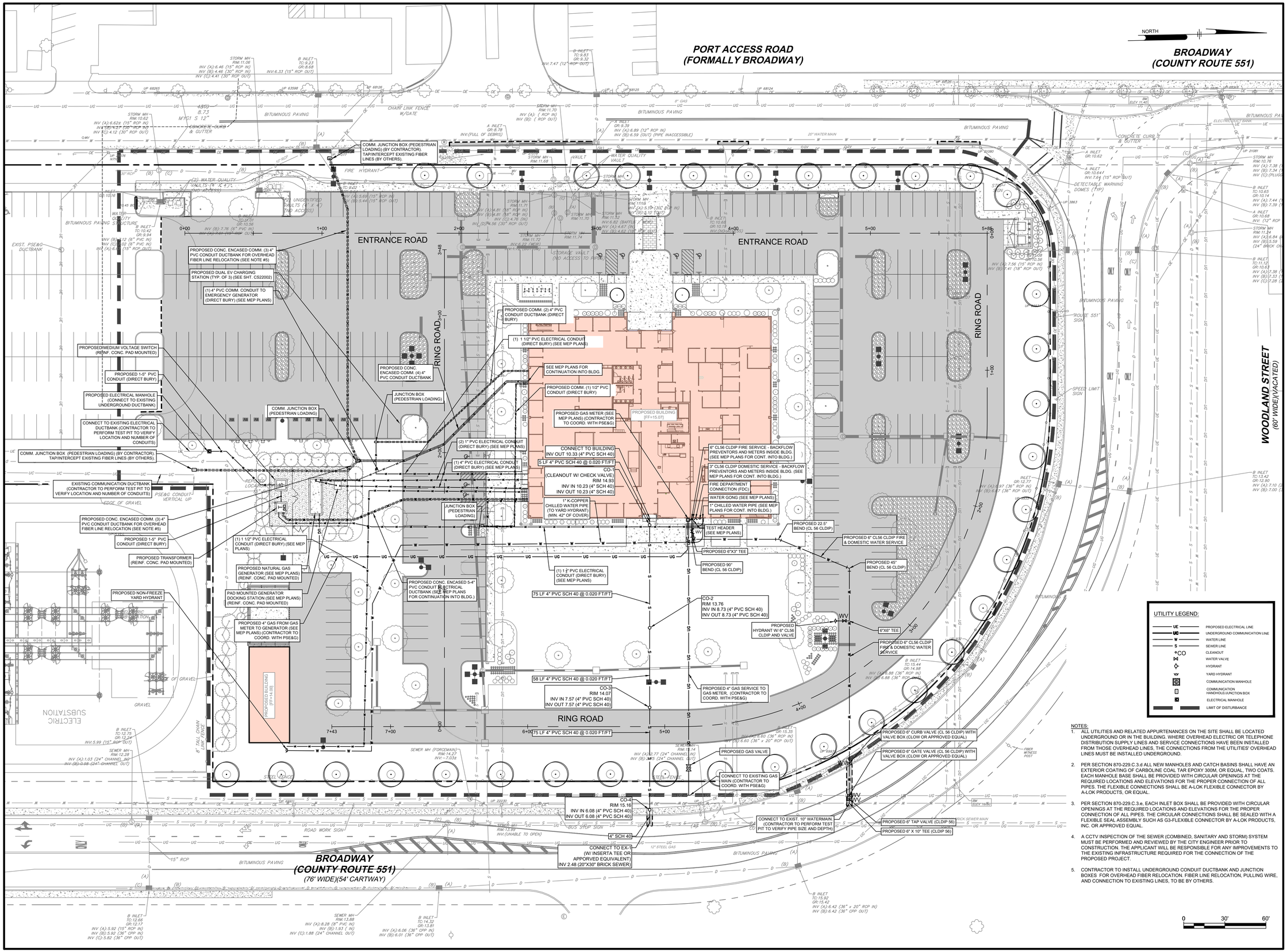
BY	REVISIONS	NO.	DATE

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

CS1704

SHEET 14 OF 43



UTILITY LEGEND:

- UE — PROPOSED ELECTRICAL LINE
- UC — UNDERGROUND COMMUNICATION LINE
- W — WATER LINE
- S — SEWER LINE
- CO — CLEANOUT
- WV — WATER VALVE
- HYDRANT
- YARD HYDRANT
- COMMUNICATION MANHOLE
- COMMUNICATION HANDHOLE/JUNCTION BOX
- ELECTRICAL MANHOLE
- LIMIT OF DISTURBANCE

NOTES:

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Pennoni
PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING UTILITY PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

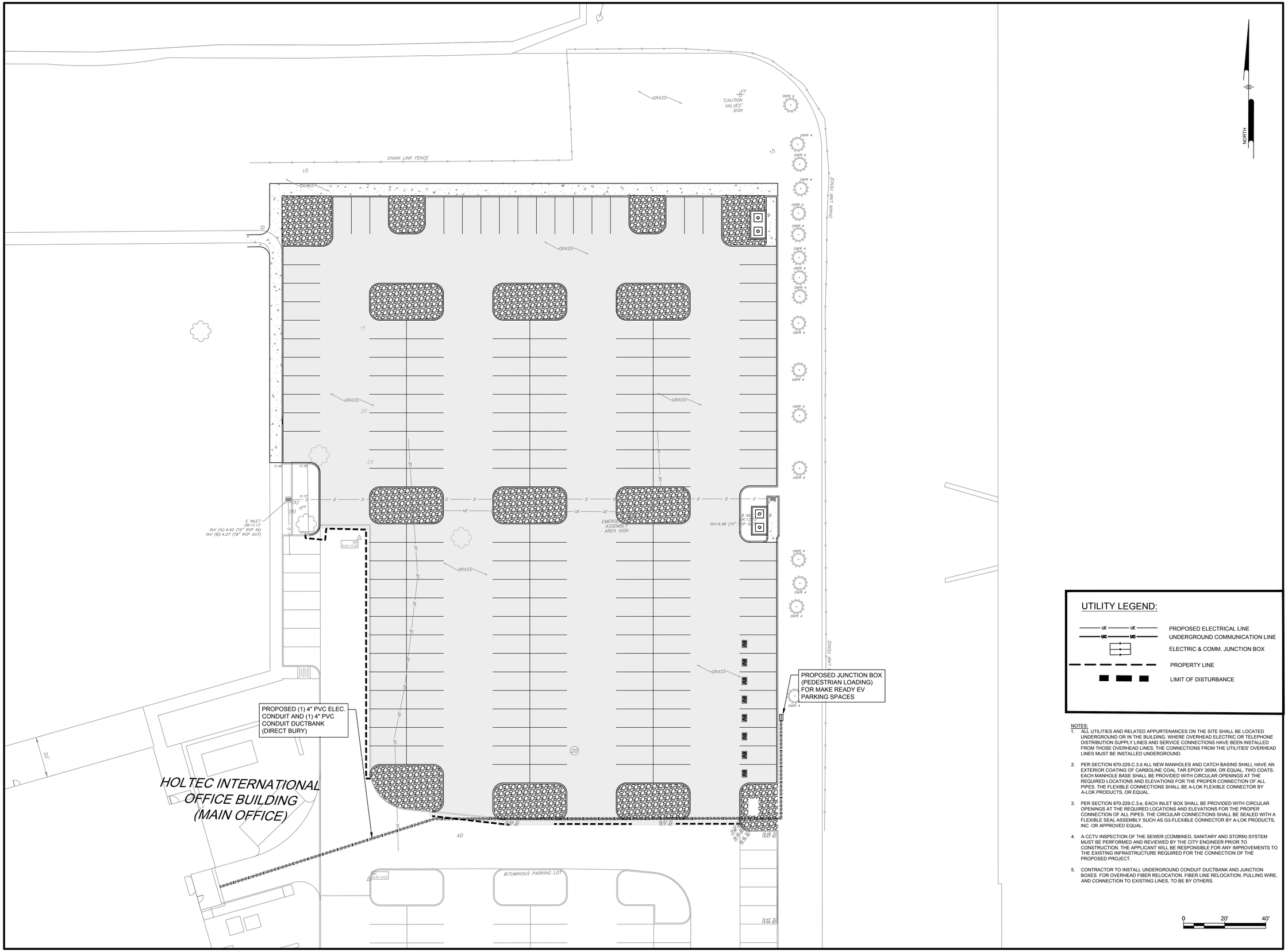
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS1702

SHEET 15 OF 43

PROJECT STATUS: —
PLOTTED: 8/22/2024 5:04 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb
U:\Accounts\USATX\USATX22001 – Holtec Office Building\[DESIGN]_SHEETS\CS1702.dwg



UTILITY LEGEND:

- PROPOSED ELECTRICAL LINE
- UNDERGROUND COMMUNICATION LINE
- ELECTRIC & COMM. JUNCTION BOX
- PROPERTY LINE
- LIMIT OF DISTURBANCE

NOTES:

1. ALL UTILITIES AND RELATED APPURTENANCES ON THE SITE SHALL BE LOCATED UNDERGROUND OR IN THE BUILDING. WHERE OVERHEAD ELECTRIC OR TELEPHONE DISTRIBUTION SUPPLY LINES AND SERVICE CONNECTIONS HAVE BEEN INSTALLED FROM THOSE OVERHEAD LINES, THE CONNECTIONS FROM THE UTILITIES' OVERHEAD LINES MUST BE INSTALLED UNDERGROUND.
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0 20' 40'

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE UTILITY PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5600
NJ. COA NO. GA28033300

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

CS1703

SHEET 16 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS1703.dwg PLOTTED: 8/22/2024 5:51 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —

(FORMALLY BROADWAY)

(COUNTY ROUTE 551)

NORTH

PROPOSED BUILDING

PROPOSED POLE BARN

CONSTRUCT SOD LAWN AREA 6" THICK TOPSOIL (TYP)

CONSTRUCT PLANT BED 12" THICK TOPSOIL (TYP)

CONSTRUCT PLANT BUFFER BED 24" THICK TOPSOIL (TYP)

3" THICK MULCH BED (TYP)

AASHTO SIGHT LINE FOR 30 MPH DESIGN SPEED

PLANTED ISLAND W/ 4" THK. RIVER STONE (SIZE: 1"-3") & 24" THK. TOPSOIL

ISLAND W/ 4" THK RIVER STONE (SIZE: 1" - 3")

LIMIT OF 24" THK. TOPSOIL

CONSTRUCT SOD LAWN AREA 6" THICK TOPSOIL FOR AREAS DISTURBED AT FENCE & BETWEEN FENCE AND STREET (TYP)

CONSTRUCT PLANT BUFFER BED 24" THICK TOPSOIL

CONSTRUCT PLANT PATTERN

CONSTRUCT PLANT ISLAND W/TREE(S) BED 24" THICK TOPSOIL (TYP)

WOODLAND STREET
(60' WIDE)(VACATED)

BROADWAY
(COUNTY ROUTE 551)
(76' WIDE)(54' CARTWAY)

ROUTE 551

BITUMINOUS PAVING

CONCRETE CURB & GUTTER

CHAIN LINK FENCE

EDGE OF GRAVEL

GRAVEL

ELECTRIC SUBSTATION

8' CHAIN LINK FENCE

ROAD WORK SIGN

BUS STOP SIGN

PAVEMENT SAW CUT LINE

FIBER WITNESS POST

SEWER MH
RIM 12.28
INV (A):1.03 (24" CHANNEL INV)
INV (B):0.88 (24" CHANNEL OUT)

SEWER MH
RIM 14.23
INV: 4.08

SEWER MH
RIM 13.88
INV (A):8.28 (8" PVC IN)
INV (B):1.93 (IN)
INV (C):1.88 (24" CHANNEL OUT)

SEWER MH
RIM 13.59
INV:(UNABLE TO OPEN)

SEWER MH
RIM 14.23
INV(A)(C):7.83 (24" CHANNEL IN)
INV(B):7.375 (24" CHANNEL OUT)

SEWER MH
RIM 14.23
INV(A)(C):7.83 (24" CHANNEL IN)
INV(B):7.375 (24" CHANNEL OUT)

LANDSCAPE LEGEND

- SHADE TREE
- CLUMP FLOWERING TREE
- EVERGREEN SHRUB
- FLOWERING SHRUB
- ORNAMENTAL GRASS
- LIRIOPE MUSCARI 'VARIEGATA'
- ASTER SPECTABILIS
- HEMEROCALIS 'STELLA D'ORO'
- LAWN AREA (SOD)/ AREAS TO BE IRRIGATED
- LIMIT OF DISTURBANCE

NOTES:

1. ON-SITE IRRIGATION TO BE DESIGNED BY CONTRACTOR. IRRIGATION SYSTEM MUST COVER PLANT BEDS, INDIVIDUAL TREES, AND DISTURBED LAWN AREAS. SLEEVES ARE TO BE INCLUDED IN DESIGN WHERE IRRIGATION SYSTEM CROSSES CONCRETE SIDEWALK, CURB, PAVEMENT/PARKING LOT AND ANY OTHER TYPE OF HARD SURFACE. CONTRACTOR TO REFER TO IRRIGATION NOTES ON LANDSCAPE & IRRIGATION NOTES (SHEET CS6061).
2. ALL ELECTRICAL AND MECHANICAL EQUIPMENT SHOULD BE SCREENED FROM VIEW PER SECTION 870-224.B.19.
3. PRIOR TO STARTING ANY WORK, LANDSCAPE CONTRACTOR MUST WORK WITH OWNER, GENERAL CONTRACTOR, ENGINEER, AND CITY'S REPRESENTATIVE/INSPECTOR ON FINAL LOCATION OF PLANTS. IT IS STRONGLY RECOMMENDED THE LOCATION OF ALL NEW AND EXISTING (OPERATIONAL) UTILITY MAINS/SERVICES/STRUCTURES BE LOCATED AND MARKED OUT AS WELL AS LANDSCAPE CONTRACTOR FLAG LOCATION OF NEW PLANTS PRIOR TO ANY INSTALLATION OF PLANT MATERIAL. LANDSCAPE CONTRACTOR SHALL NOT PROCEED PLANTING UNTIL THE FLAGGED PLANT LOCATIONS ARE APPROVED BY OWNER, GENERAL CONTRACTOR, ENGINEER, AND CITY'S REPRESENTATIVE/INSPECTOR.

0 30' 60'

15

NOTIS

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS2001.dwg PLOTTED: 8/22/2024 5:06 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
856.669.5100
FAX 856.669.5101
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING
LANDSCAPE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS2001

SHEET 17 OF 43

CONSTRUCT SOD LAWN AREA 6" THICK TOPSOIL (TYP)

2 UP

ISLAND W/ 4" THK. RIVER STONE (SIZE: 1" - 3")

PLANTED ISLAND W/ 4" THK. RIVER STONE (SIZE: 1"-3") & 24" THK. TOPSOIL

2 ZS

2 UP

2 ZS

CONSTRUCT SOD LAWN AREA 6" THICK TOPSOIL (TYP)

4 CO

CONSTRUCT SOD LAWN AREA 6" THICK TOPSOIL (TYP)

2 CO

2 ZS

2 CO

ANY DAMAGE TO EXISTING LAWN BY CONTRACTOR INSTALLING TREES, CONTRACTOR IS TO RESTORE LAWN IN KIND

PLANTED ISLAND W/ 4" THK. RIVER STONE (SIZE: 1"-3") & 24" THK. TOPSOIL

ISLAND W/ 4" THK. RIVER STONE (SIZE: 1" - 3")

2 UP

2 ZS

2 UP

HOLTEC INTERNATIONAL OFFICE BUILDING (MAIN OFFICE)

BITUMINOUS PARKING LOT

CHAIN LINK FENCE

GRASS

NORTH

LANDSCAPE LEGEND

SHADE TREE

LAWN AREA (SOD)/ AREAS TO BE IRRIGATED

NOTES:

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0 20' 40'

U:\Accounts\USATX\22001 - Holtec Office Building\DESIGN_SHEETS\CS2002.dwg PLOTTED: 8/22/2024 6:34 PM, BY Blake Fitzgerald PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE LANDSCAPE PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

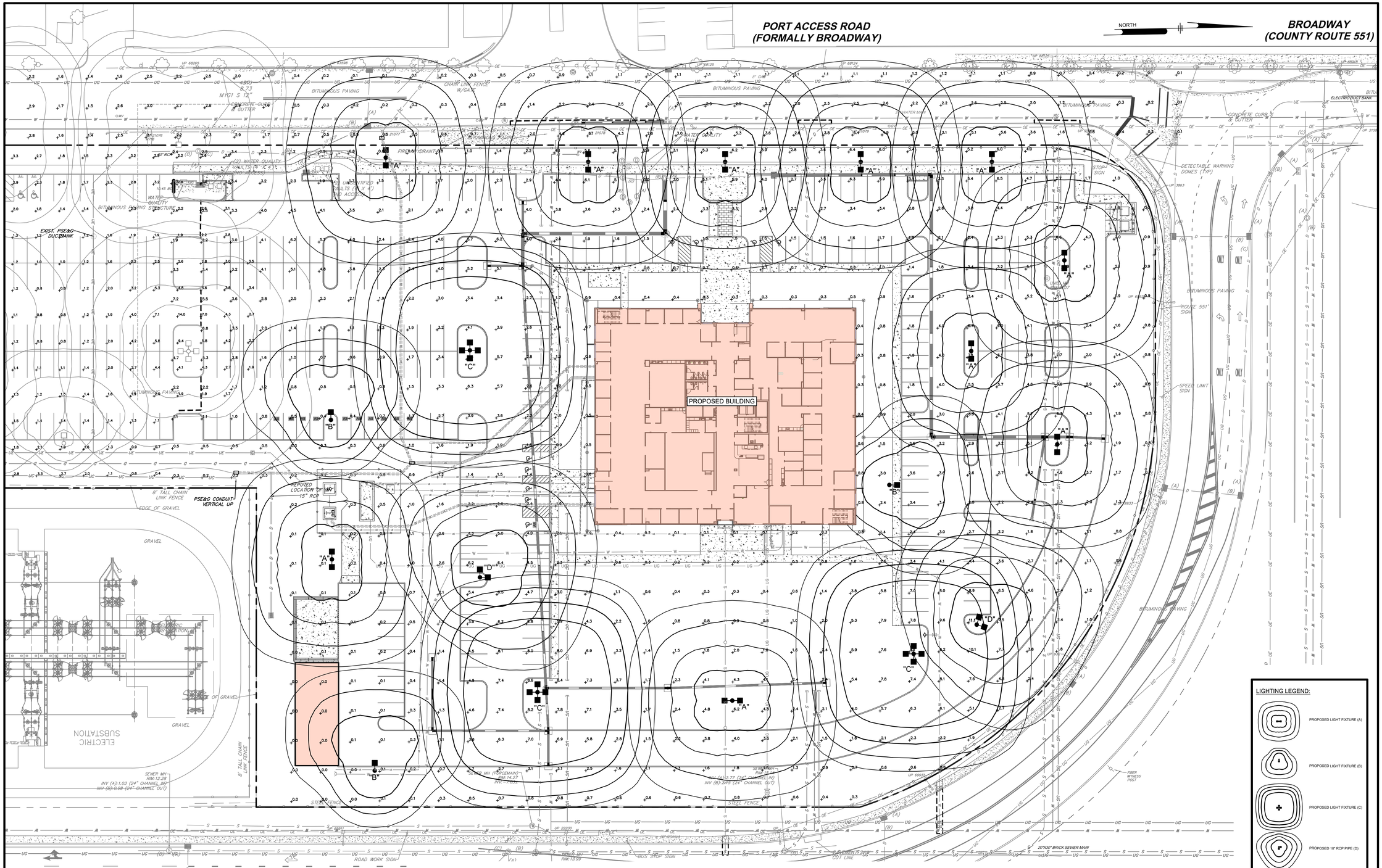
NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

CS2002

SHEET 18 OF 43



Schedule

Symbol	Label	QTY	Manufacturer	Catalog	Description	Lamp Output	LLF	Input Power	Control Options
	A	10	Holophane	MGLEDM P3 50K XXXXX FG- Holophane 30' SSS Pole	Mongoose Medium, P3 Performance Package, 5000K, Forward Throw (Type 4) with Refractor	21915	0.9	309.5	PCLL = DTL Extreme Long Life Twistlock Photocontrol for Solid State (20 year rated life)
	B	3	Holophane	MGLEDM P3 50K XXXXX FG- Holophane 30' SSS Pole	Mongoose Medium, P3 Performance Package, 5000K, Forward Throw (Type 4) with Refractor	21915	0.9	154.75	PCLL = DTL Extreme Long Life Twistlock Photocontrol for Solid State (20 year rated life)
	C	3	Holophane	MGLEDM P3 50K XXXXX AG- Holophane 30' SSS Pole	Mongoose Medium, P3 Performance Package, 5000K, Area (Type 5) with Refractor	23666	0.9	619	PCLL = DTL Extreme Long Life Twistlock Photocontrol for Solid State (20 year rated life)
	D	2	Holophane	MGLEDM P3 50K XXXXX FG- Holophane 30' SSS Pole	Mongoose Medium, P3 Performance Package, 5000K, Forward Throw (Type 4) with Refractor	21915	0.9	309.5	PCLL = DTL Extreme Long Life Twistlock Photocontrol for Solid State (20 year rated life)

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
New Eastern Lot and Drive Area	+	3.9 fc	11.1 fc	1.1 fc	10.1:1	3.5:1
New South Drive Area	+	5.1 fc	12.4 fc	1.1 fc	11.3:1	4.6:1
New Western Lot and Drive Area	+	4.0 fc	8.4 fc	1.1 fc	7.6:1	3.6:1
Northern Drive Lane	+	3.9 fc	6.1 fc	1.9 fc	3.2:1	2.1:1
Site Calcs	+	2.4 fc	11.1 fc	0.0 fc	N/A	N/A
Two Northern Parking Lots & Ped Paver Area	+	2.2 fc	3.7 fc	0.9 fc	4.1:1	2.4:1
Existing Lot	+	2.4 fc	14.6 fc	0.2 fc	73.0:1	12.0:1

LIGHTING LEGEND:

- PROPOSED LIGHT FIXTURE (A)
- PROPOSED LIGHT FIXTURE (B)
- PROPOSED LIGHT FIXTURE (C)
- PROPOSED 18" RCP PIPE (D)
- PROPERTY LINE

NOTES:

1. PER SECTION 870-243.H, ALL OUTDOOR LIGHTING NOT ESSENTIAL FOR SAFETY AND SECURITY PURPOSES SHALL BE ACTIVATED BY AUTOMATIC CONTROL DEVICES AND TURNED OFF DURING NON-OPERATING HOURS.

0 30' 60'

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. CA NO. GA28033300

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JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING
LIGHTING PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

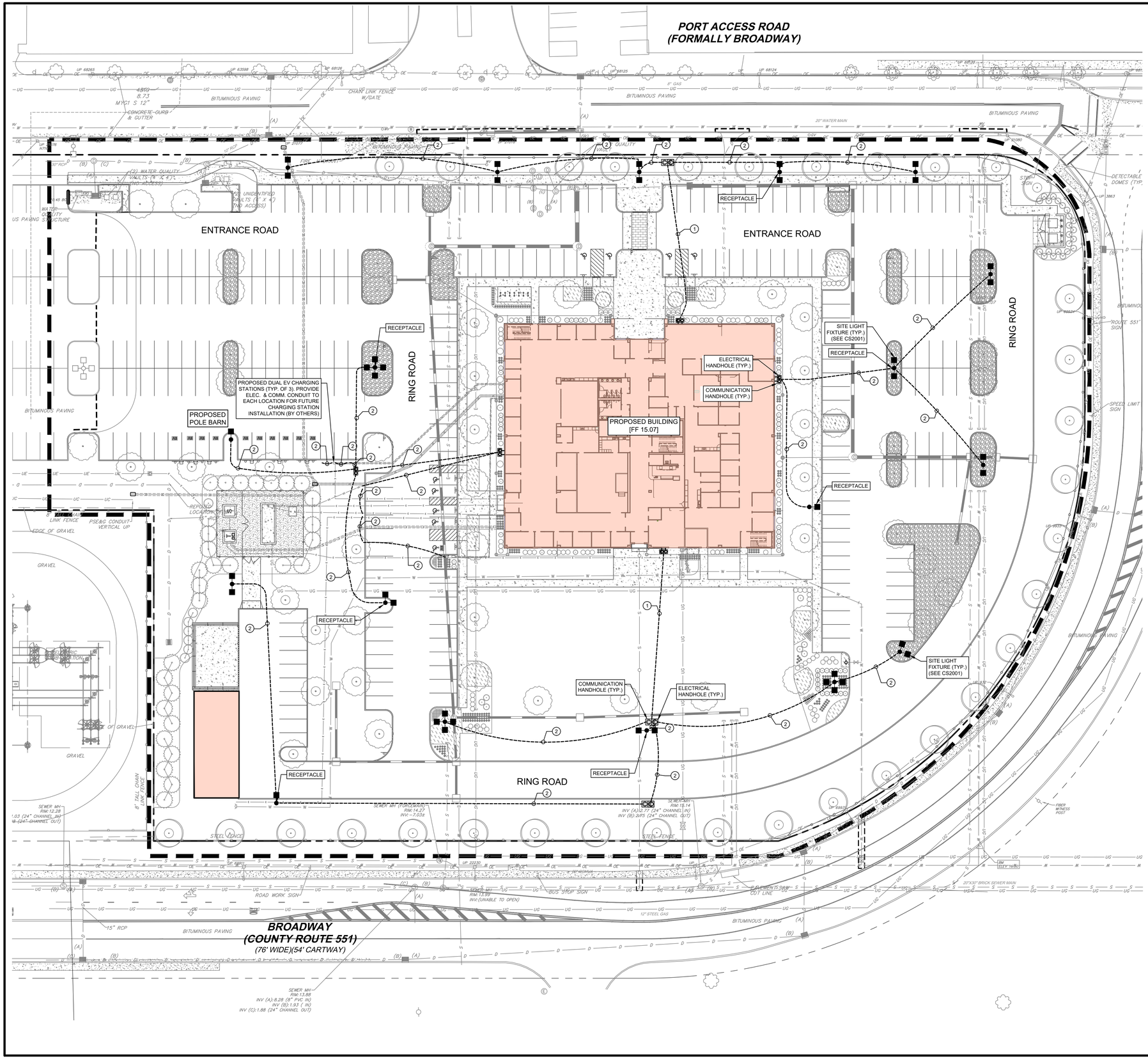
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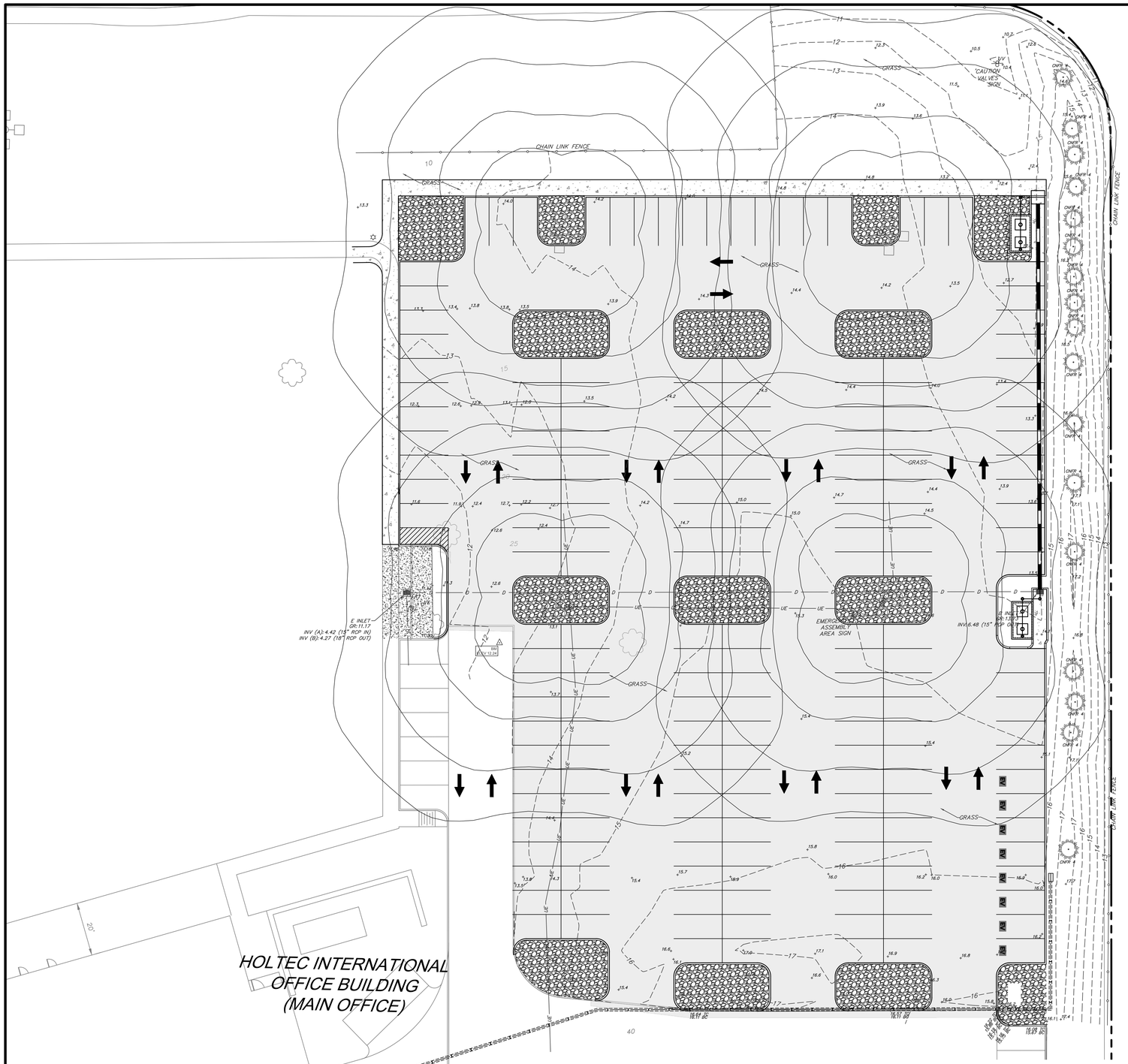
PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS2201

SHEET 19 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS2201.dwg PLOTTED: 8/22/2024 5:08 PM BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —


PORT ACCESS ROAD
(FORMALLY BROADWAY)
ENTRANCE ROAD
ENTRANCE ROAD
RING ROAD
RING ROAD
RING ROAD
PROPOSED BUILDING
[FF 15.07]
PROPOSED POLE BARN
PROPOSED DUAL EV CHARGING STATIONS (TYP. OF 3). PROVIDE ELEC. & COMM. CONDUIT TO EACH LOCATION FOR FUTURE CHARGING STATION INSTALLATION (BY OTHERS)
RECEPTACLE
ELECTRICAL HANDHOLE (TYP.)
COMMUNICATION HANDHOLE (TYP.)
SITE LIGHT FIXTURE (TYP.) (SEE CS2001)
BROADWAY
(COUNTY ROUTE 551)
(76' WIDE)(54' CARTWAY)
BITUMINOUS PAVING
CONCRETE CURB & GUTTER
CHAIN LINK FENCE W/GATE
STEEL FENCE
GRAVEL
EDGE OF GRAVEL
DETECTABLE DOMES (TYP.)
ROUTE 551 SIGN
SPEED LIMIT SIGN
STOP SIGN
BUS STOP SIGN
ROAD WORK SIGN
FIBER WITNESS POST
20"X30" BRICK SEWER MAIN
12" STEEL GAS
8" WATER MAIN
20" WATER MAIN
15" RCP
8" TALL CHAIN LINK FENCE
(2) WATER QUALITY VAULTS (7' X 4') (TWO ACCESS)
(2) UNIDENTIFIED VAULTS (7' X 4') (TWO ACCESS)
WATER QUALITY US PAVING STRUCTURE
SEWER MH (FOREMAN) RIM: 14.27 INV: -7.03±
SEWER MH RIM: 12.28 INV (A):1.03 (24" CHANNEL IN) INV (B):1.03 (24" CHANNEL OUT)
SEWER MH RIM: 13.88 INV (A):8.28 (8" PVC IN) INV (B):1.93 (8" PVC IN) INV (C):1.88 (24" CHANNEL OUT)
SEWER MH RIM: 13.09 INV:(UNABLE TO OPEN)
SEWER MH RIM: 15.14 INV (A):2.77 (24" CHANNEL IN) INV (B):2.65 (24" CHANNEL OUT)
SEWER MH RIM: 13.88



LIGHTING LEGEND:

EXISTING LIGHT FIXTURE (C)

PROPERTY LINE

NOTES:

1. PER SECTION 870-243.H, ALL OUTDOOR LIGHTING NOT ESSENTIAL FOR SAFETY AND SECURITY PURPOSES SHALL BE ACTIVATED BY AUTOMATIC CONTROL DEVICES AND TURNED OFF DURING NON-OPERATING HOURS.

0 20' 40'

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE
LIGHTING PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.662.8600
NJ. CA NO. GA28033300

NO.	DATE	REVISIONS	BY

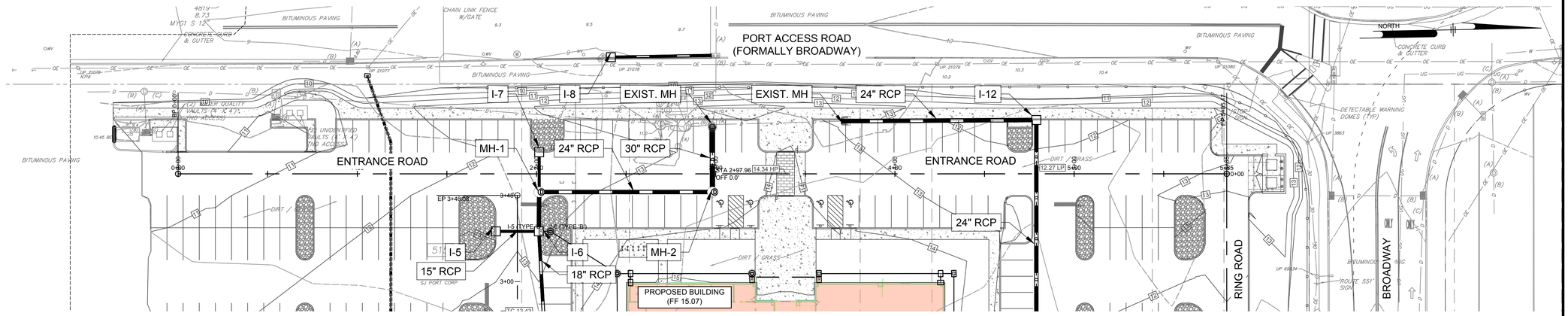
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

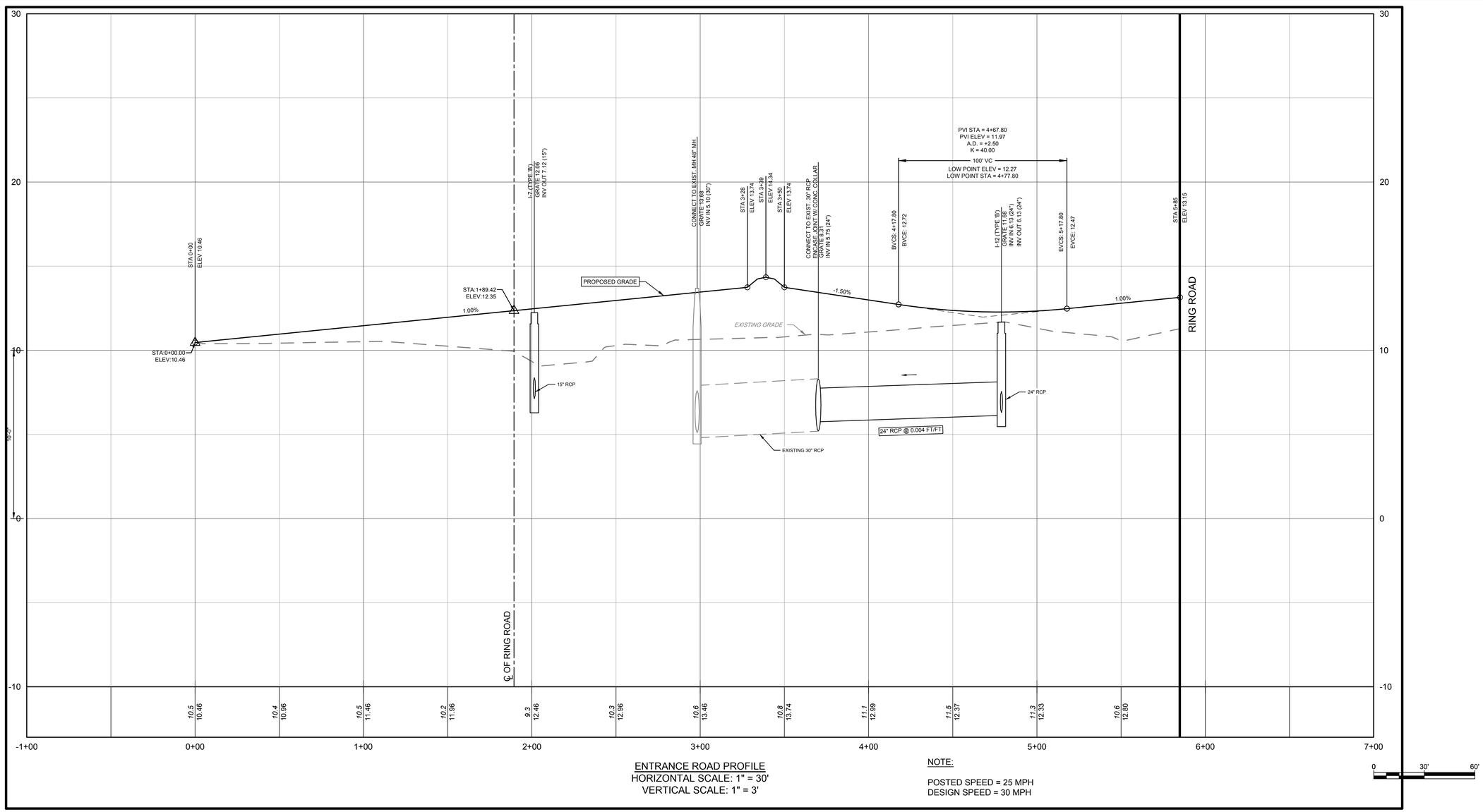
CS2203

SHEET 21 OF 43

PLOTTED: 8/22/2024 4:24 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —
U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS2203.dwg



ENTRANCE ROAD - PLAN VIEW
SCALE: 1=30'



ENTRANCE ROAD PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

NOTE:

POSTED SPEED = 25 MPH
DESIGN SPEED = 30 MPH

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5800
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

ROAD PROFILE I - ENTRANCE ROAD

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

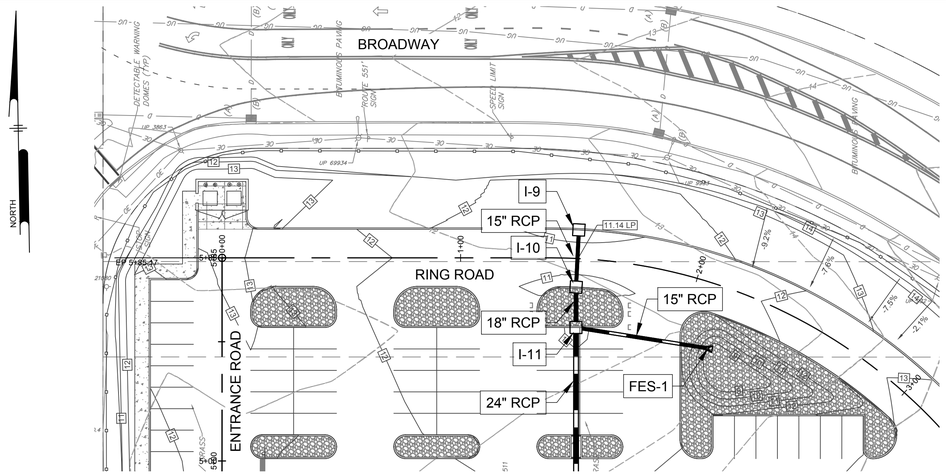
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

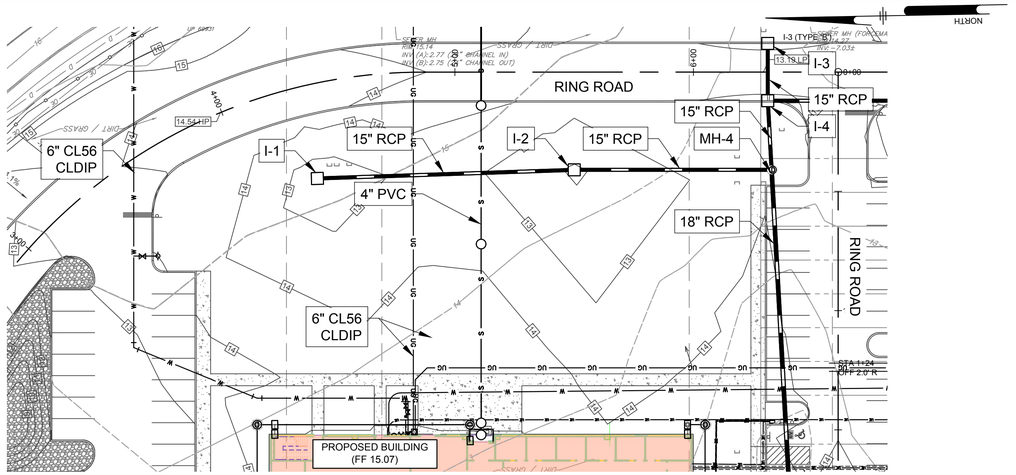
CS3501

SHEET 22 OF 43

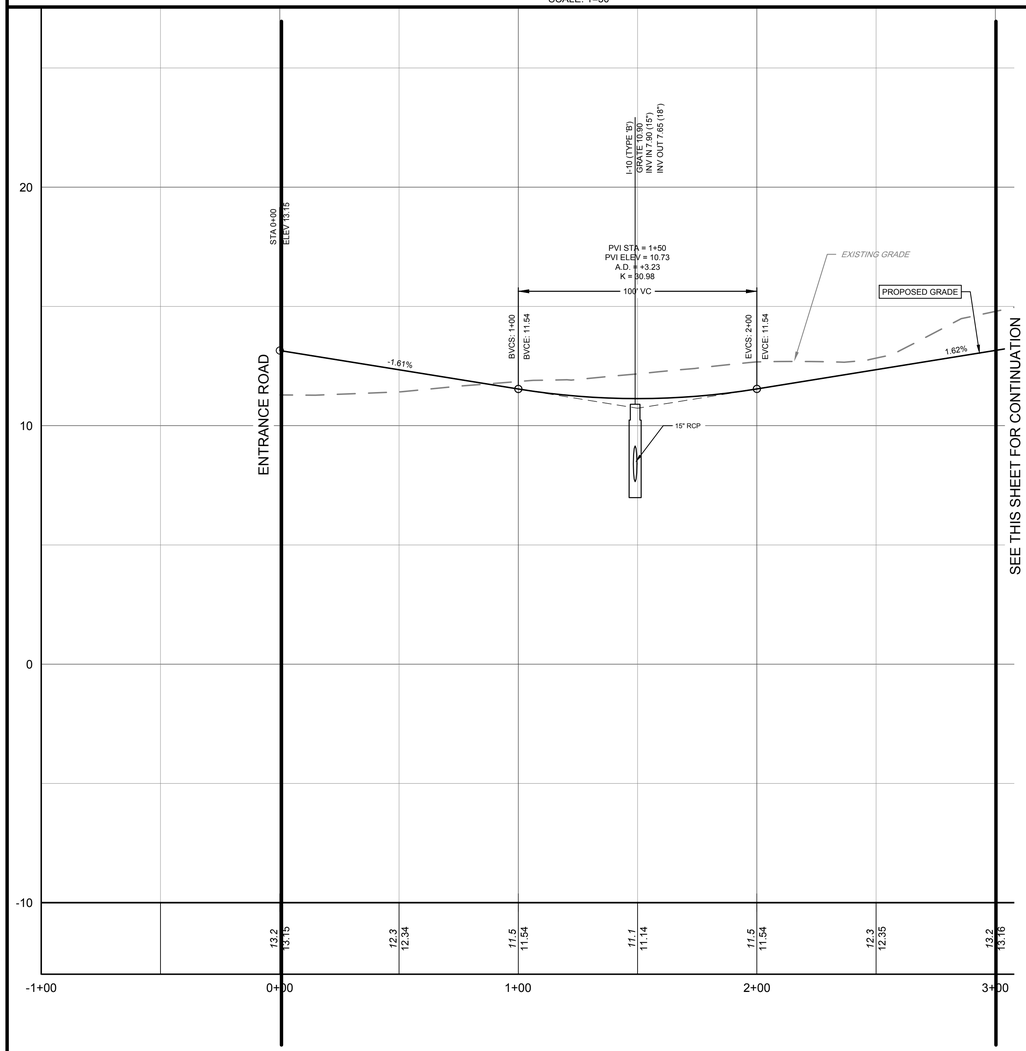
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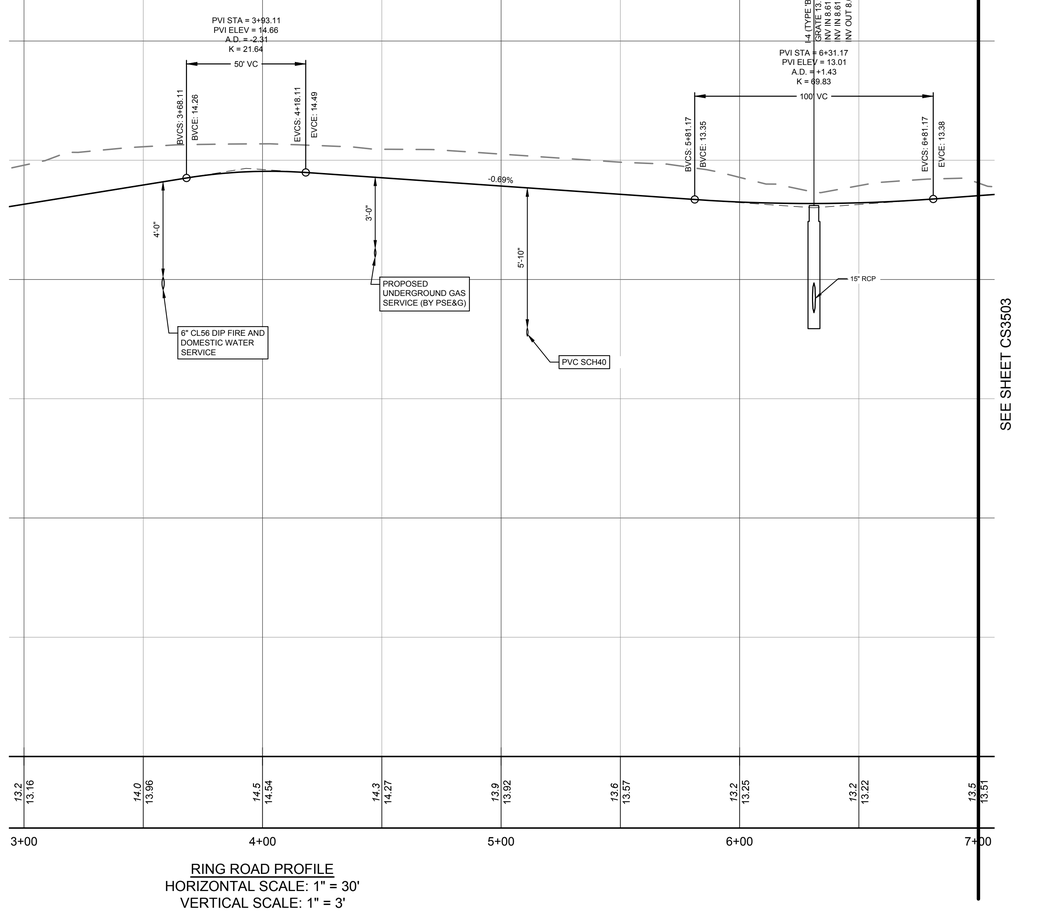


RING ROAD - PLAN VIEW [STA 0+00 TO 3+00]
SCALE: 1=30'



RING ROAD - PLAN VIEW [STA 0+00 TO 3+00]
SCALE: 1=30'





RING ROAD PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

NOTE:

POSTED SPEED = 25 MPH
DESIGN SPEED = 30 MPH

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

ROAD PROFILE II - RING ROAD

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

DATE	NO.	REVISIONS	BY

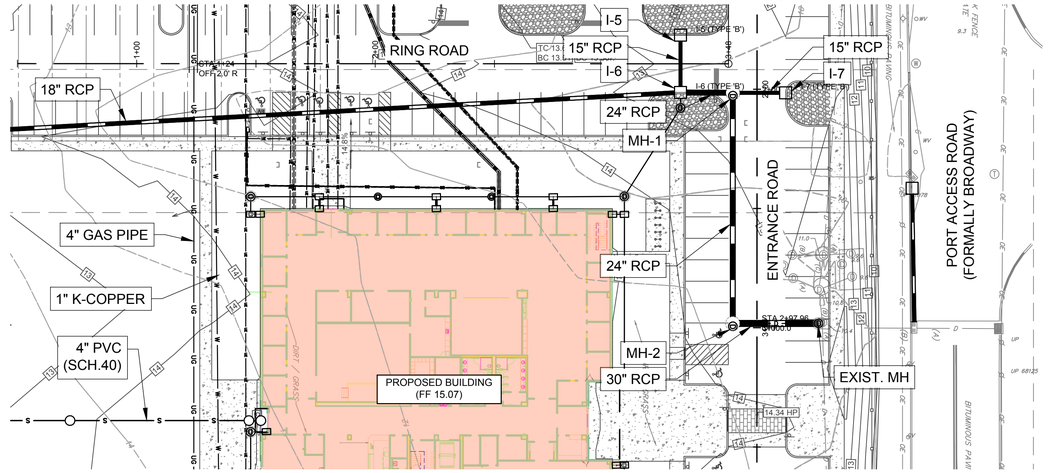
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS3502

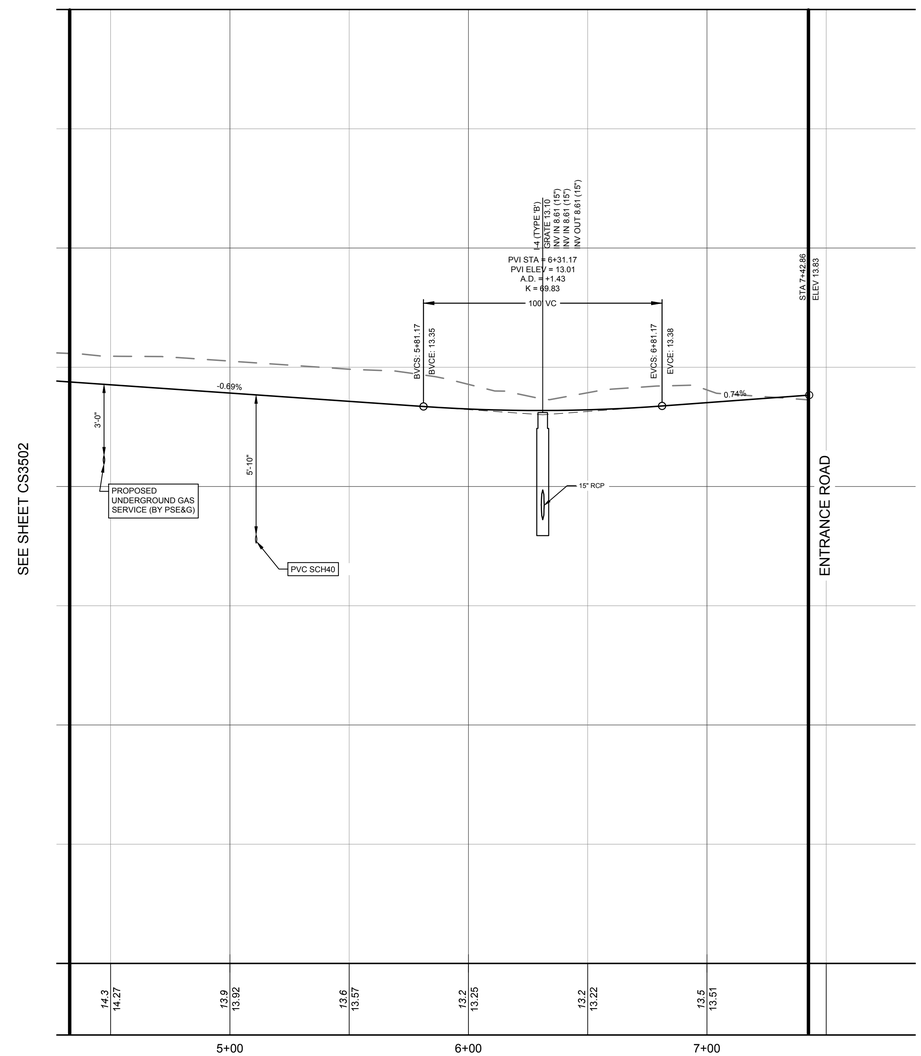
SHEET 23 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\[DESIGN_SHEETS\CS3501-CS3503.dwg PLOTTED: 8/22/2024 6:02 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni MCS.stb PROJECT STATUS: —



RING ROAD - PLAN VIEW [STA 7+00 TO 10+09]

SCALE: 1=30'



NOTE:

POSTED SPEED = 25 MPH
DESIGN SPEED = 30 MPH

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5800
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

ROAD PROFILE III- RING ROAD

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

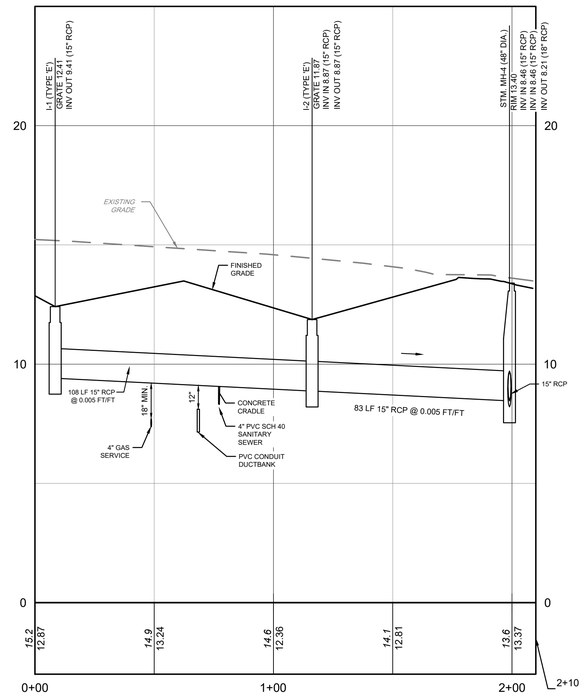
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

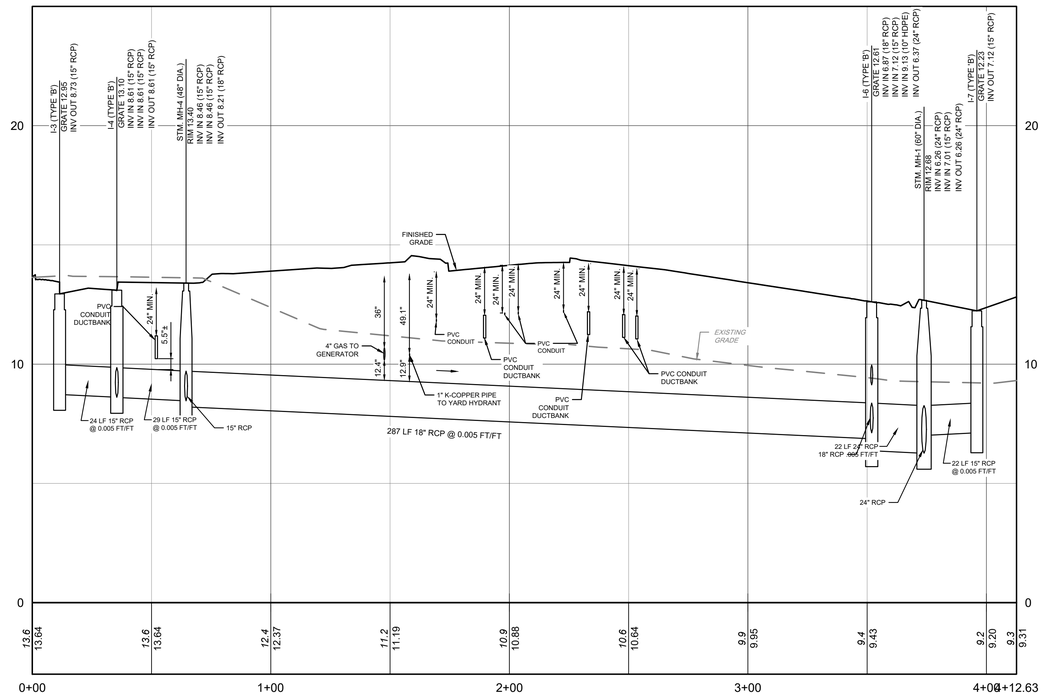
CS3503

SHEET 24 OF 43

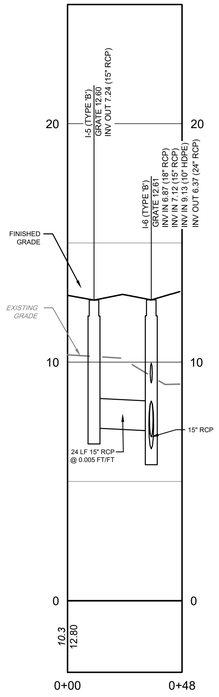
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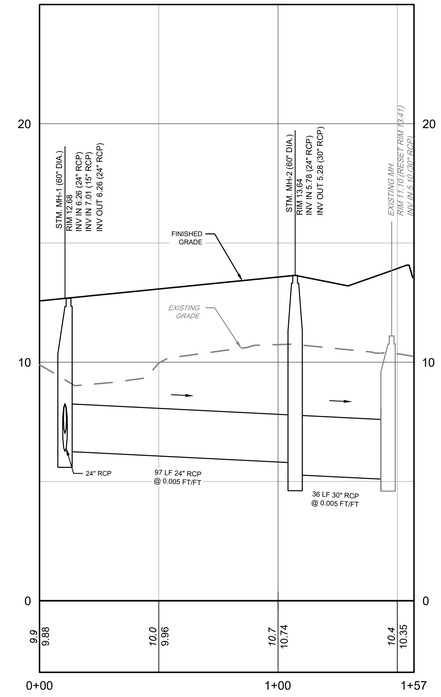
STORM PROFILE (I-1 TO STM MH-4)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



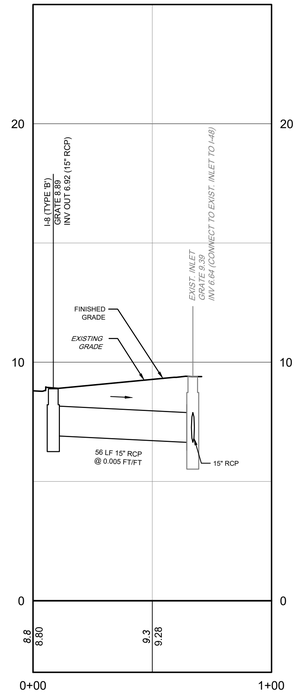
STORM PROFILE (I-3 TO I-7)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (I-5 TO I-6)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (STM MH-1 TO EXIST. MH)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (I-8 TO CONNECT. TO EXIST. INLET)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

0 30' 60'

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

10/12/23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

STORM SEWER PROFILES-I

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

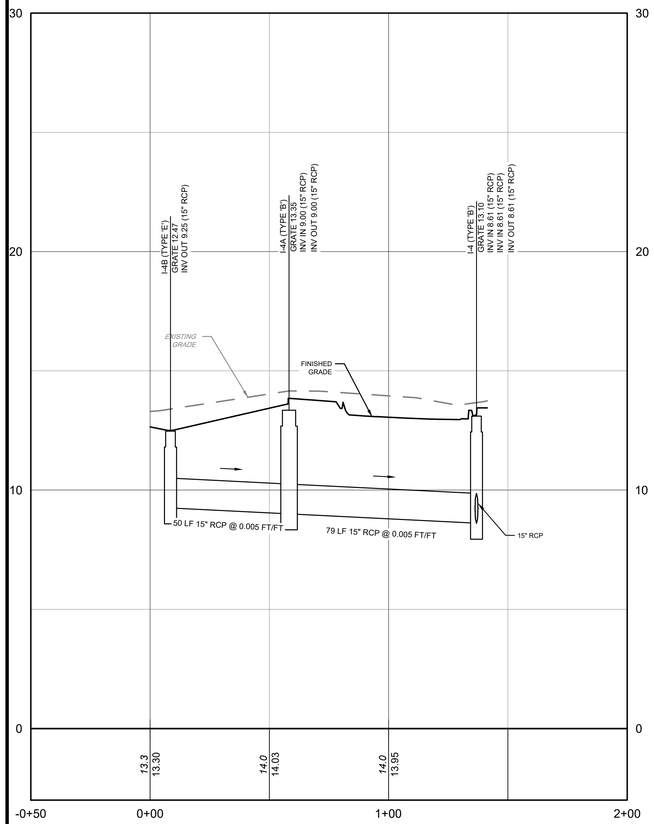
NO.	DATE	REVISIONS	BY
4.	02/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/28/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

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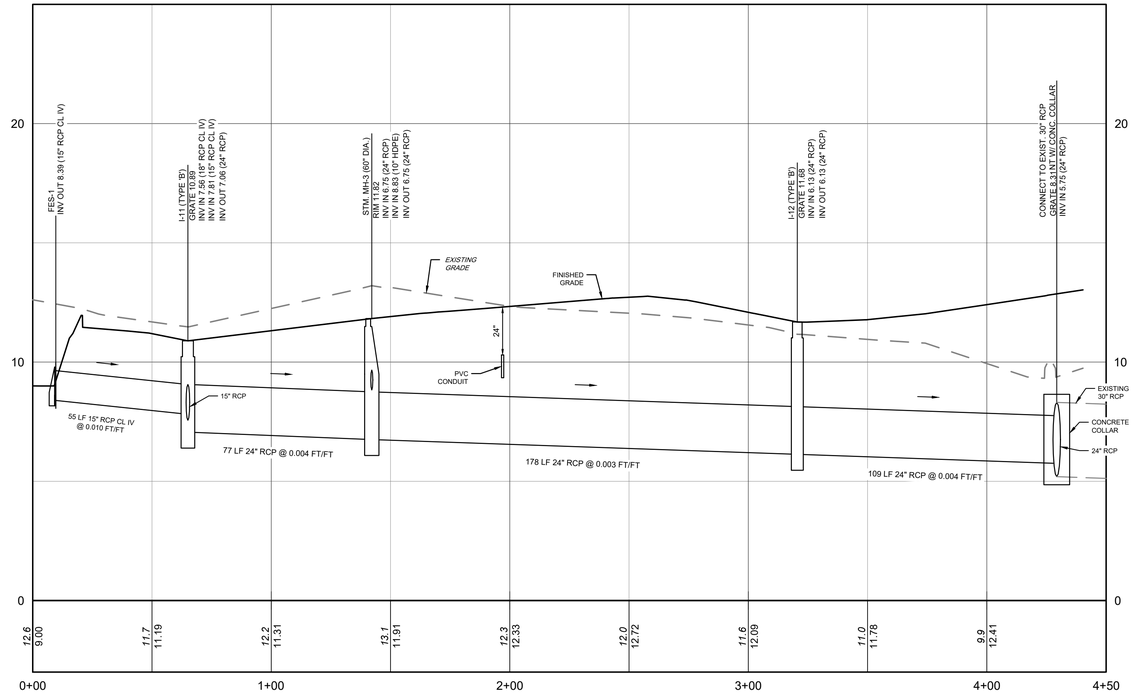
PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS4001

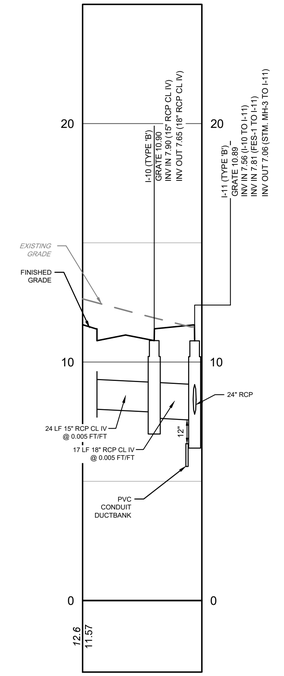
SHEET 25 OF 43



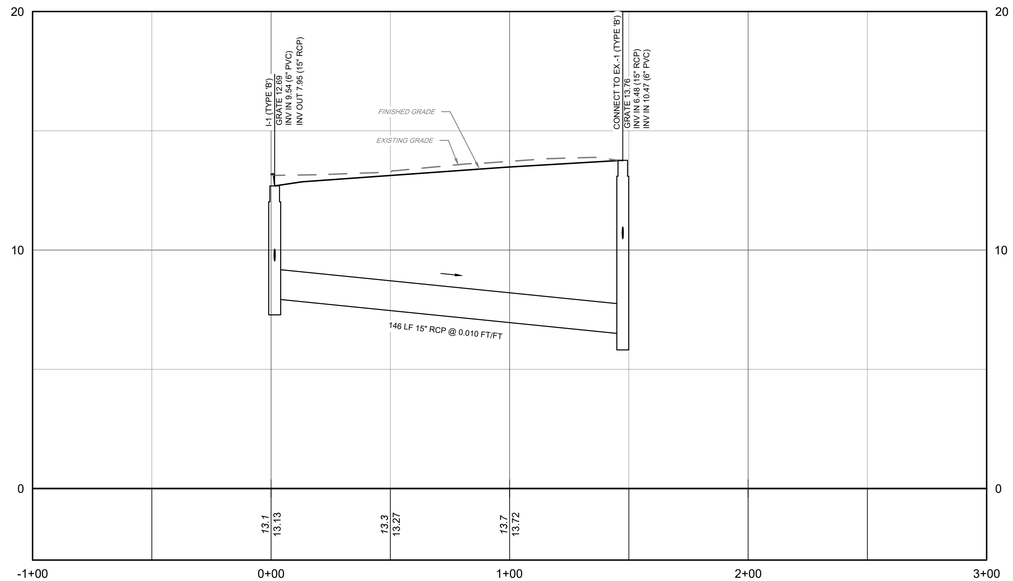
STORM PROFILE (I-4B TO I-4)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (FES-1 TO EXISTING 30IN RCP)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (I-9 TO I-11)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



STORM PROFILE (I-1 TO CONNECT TO EX.-1)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

MAIN OFFICE STORM PROFILE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

STORM SEWER PROFILES-II

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

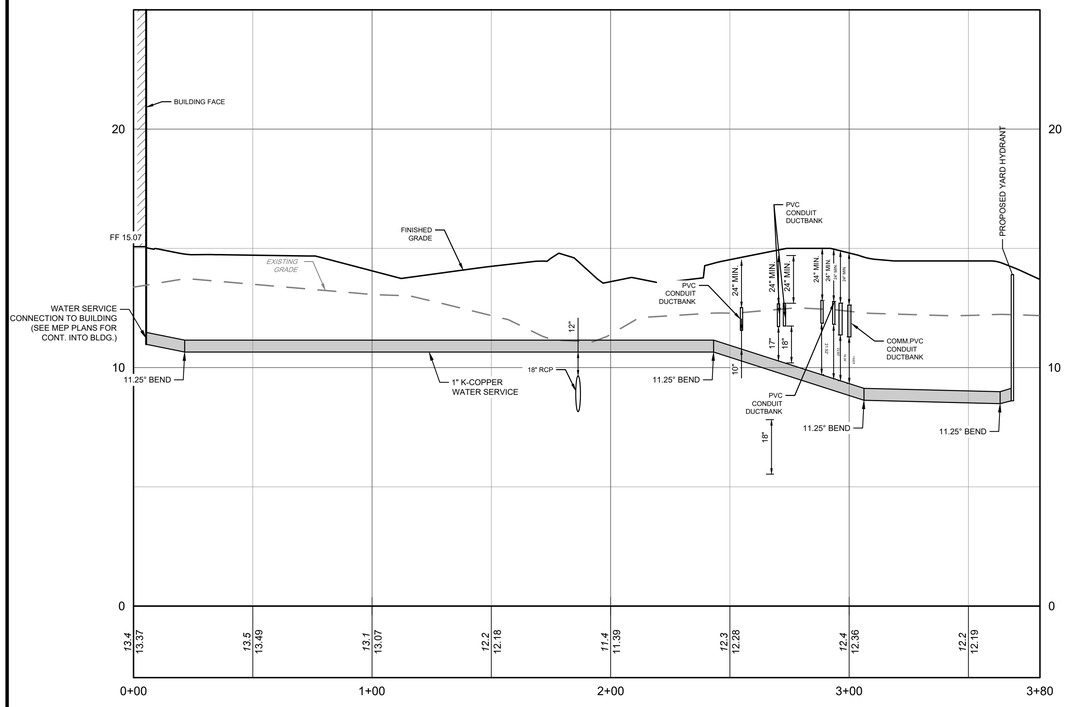
NO.	DATE	REVISIONS	BY

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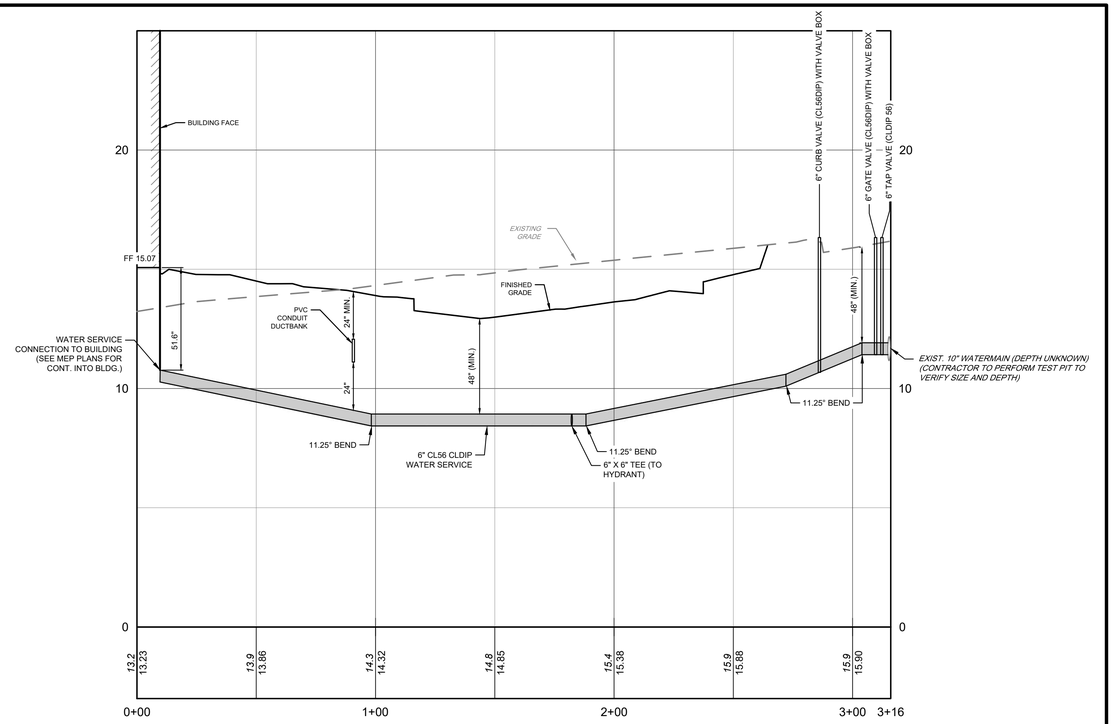
PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS4002

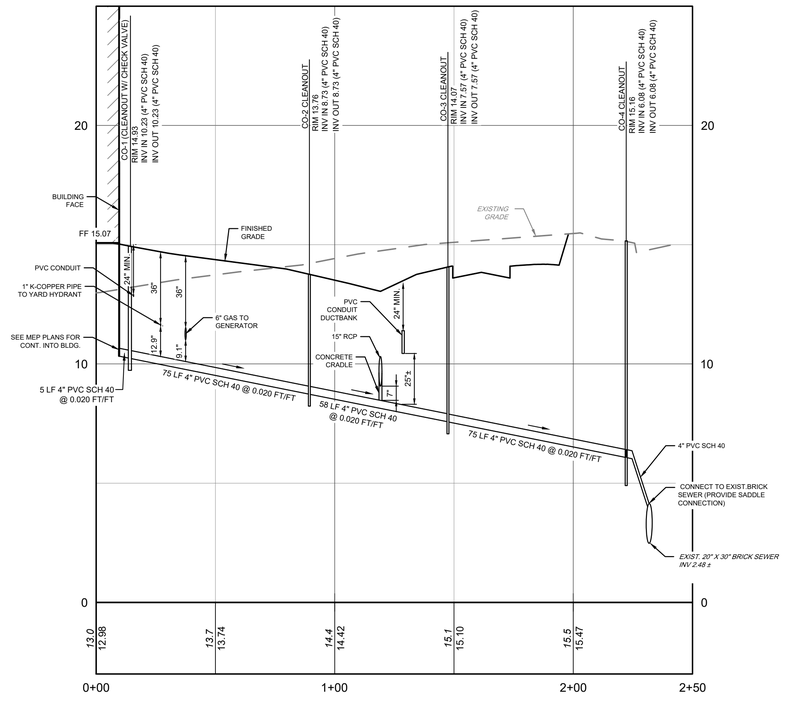
SHEET 26 OF 43



ALIGNMENT WATER SERVICE FROM BUILDING TO YARD HYDRANT 6+00
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



6IN WATER SERVICE (DOMESTIC AND FIRE)
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



SANTARY SEWER PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

0 30' 60'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8600
NJ. COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

SANITARY SEWER & WATERMAIN PROFILES

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

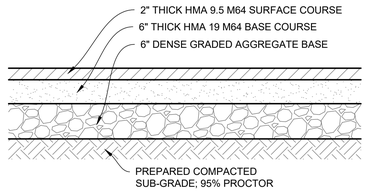
NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

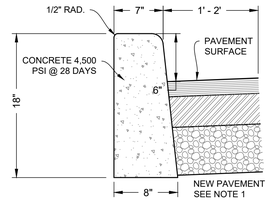
PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS4501

SHEET 27 OF 43

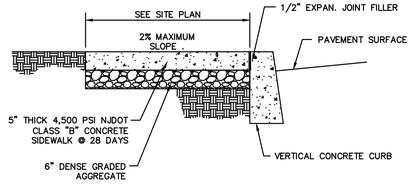


1 FULL DEPTH PAVEMENT DETAIL (PARKING AND PAVEMENT RESTORATION)
NOT TO SCALE

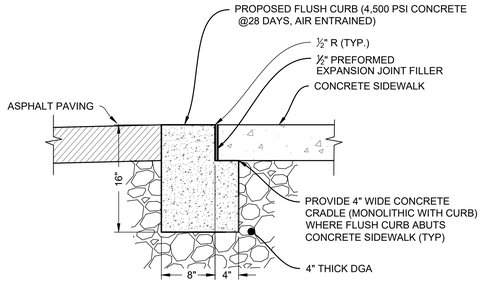


NOTES:
1. WHEN NEW CURB IS CONSTRUCTED ALONG AN EXISTING PAVED AREA, THE EXISTING PAVEMENT SHALL BE CUT IN A STRAIGHT LINE PARALLEL TO FACE OF NEW CURB WITH A SHARP TOOL AND THE NEW PAVEMENT SHALL BE TACKED AND BUTTED TO EXISTING PAVEMENT.
2. EXPANSION JOINTS ½" WIDE SHALL BE INSTALLED IN THE CURB 20' APART AND FILLED WITH CELLULAR COMPRESSION MATERIAL AS SPECIFIED AND RECESSED ½" FROM FACE AND TOP OF CURB. EXPANSION JOINTS TO BE INCLUDED IN PRICE BID FOR CURB. EXPANSION JOINTS TO BE INCLUDED IN PRICE BID FOR CURB. CONSTRUCTION JOINT SHALL BE CUT MID-POINT BETWEEN EXP. JOINTS.
3. WHERE NO ELEVATIONS ARE GIVEN ON THE PLAN, MATCH THE PROJECTED TOP OF EXISTING CURB. THE PROJECTED TOP OF CURB SHALL BE DETERMINED BY A STRING LINE.

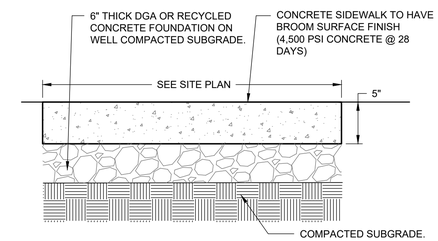
2 ONSITE VERTICAL CONCRETE CURB DETAIL
NOT TO SCALE



3 SIDE WALK & VERTICAL CONCRETE CURB
NOT TO SCALE

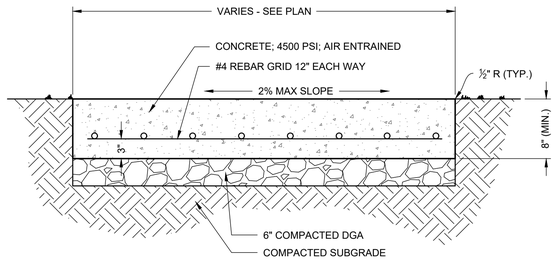


4 FLUSH CONCRETE CURB DETAIL (AT ADA CURB RAMPS)
NOT TO SCALE



CONCRETE NOTE:
1. PRE MOLDED BITUMINOUS EXPANSION JOINT MATERIAL (OR EQUAL) SHALL BE INSTALLED EVERY TWENTY (20) FEET AND CONTRACTION JOINTS INSTALLED EVERY FOUR (4) FEET.
2. BROOM FINISH ALL CONCRETE SIDEWALK AND REINFORCED CONCRETE SURFACES PERPENDICULAR TO THE DIRECTION OF TRAFFIC TO CREATE A SKID RESISTANT SURFACE.
3. ALL CONSTRUCTION TO COMPLY WITH BARRIER FREE CODE REQUIREMENTS, SHOULD CONDITIONS NOT PERMIT COMPLIANCE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

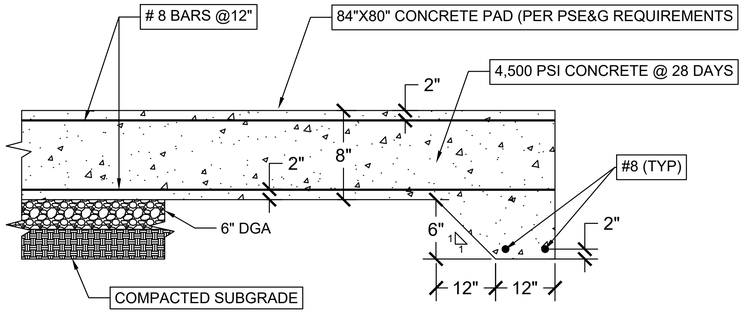
5 CONCRETE SIDEWALK DETAIL
NOT TO SCALE



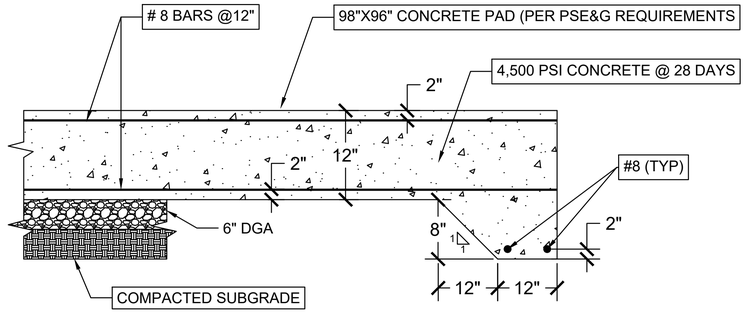
SECTION VIEW

NOTES:
1. EXPANSION JOINTS SHALL BE AT 15 FT C.C. MAXIMUM. EXPANSION JOINT LOCATIONS SHALL APPROVED BY ENGINEER/OWNER.
2. EXPANSION JOINT SHALL BE 1/2" MASTIC MATERIAL OR APPROVED EQUAL.
3. ALL EXPANSION JOINTS SHALL RECEIVE A BACKER ROD AND COLORED NON-SHRINK SEALER TO MATCH CONCRETE; SIKA OR EQUAL.
4. SUBGRADE SAHLL BE COMPACTED AND PROOF-ROLLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

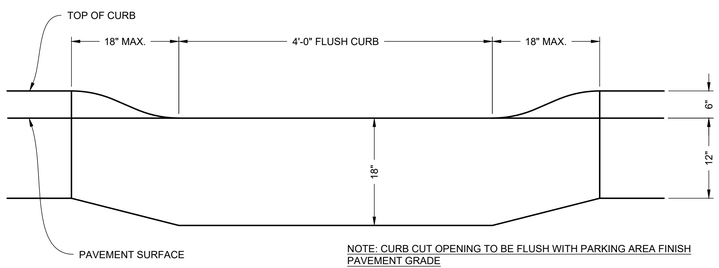
6 REINF. CONC. PAD (TRASH ENCLOSURE)
NOT TO SCALE



7 CONCRETE PAD FOR SWITCH
NOT TO SCALE

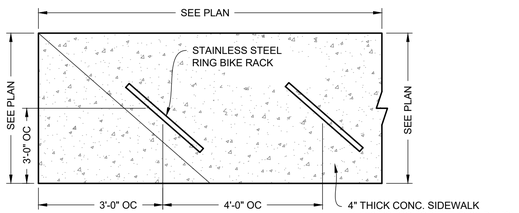


8 CONCRETE PAD FOR GENERATOR TRANSFORMER AND EMERGENCY GENERATOR
NOT TO SCALE



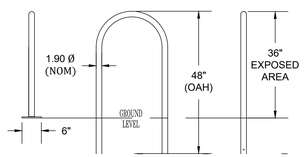
NOTE: CURB CUT OPENING TO BE FLUSH WITH PARKING AREA FINISH PAVEMENT GRADE

9 CURB CUT OPENING DETAIL
NOT TO SCALE



PLAN.

10 BIKE RACK AND PAD DETAIL
NOT TO SCALE



NOTES:
1. BIKE RACK TO BE MANUFACTURED BY CYCLESAFE INVERTED U-STYLE RACK, MODEL "U/2", OR APPROVED EQUIVALENT.
2. BIKE RACK FINISH SHALL BE POWER COAT, COLOR TRAFFIC BLACK.
3. PROVIDE IN-GROUND INSTALLATION PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

11 BIKE RACK DETAIL
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

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T 856.669.8000
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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
11/7/23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

CONSTRUCTION DETAILS I

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY
4.	02/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/28/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

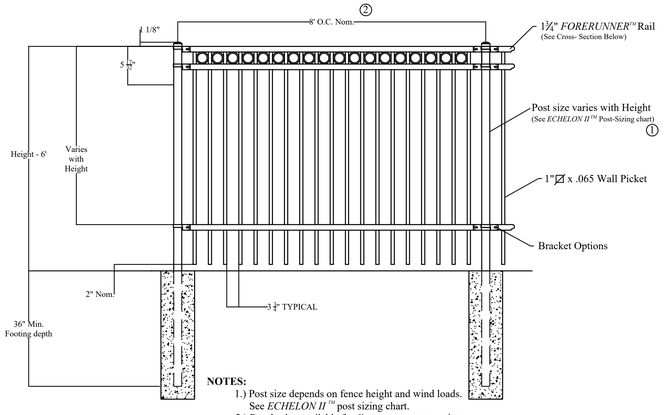
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PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

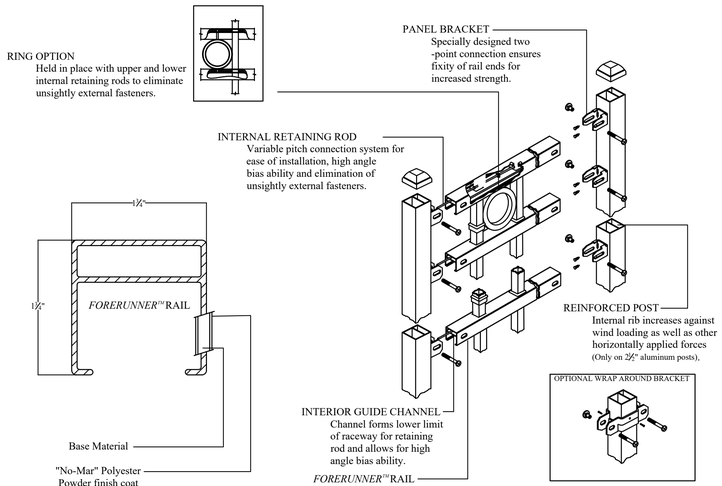
CS6001

SHEET 28 OF 43

U:\Accounts\USA\TX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6001.dwg PLOTTED: 6/22/2024 5:12 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS:



NOTES:
1.) Post size depends on fence height and wind loads. See *ECHELON II* ™ post sizing chart.
2.) Panels also available for 6' on center post spacing

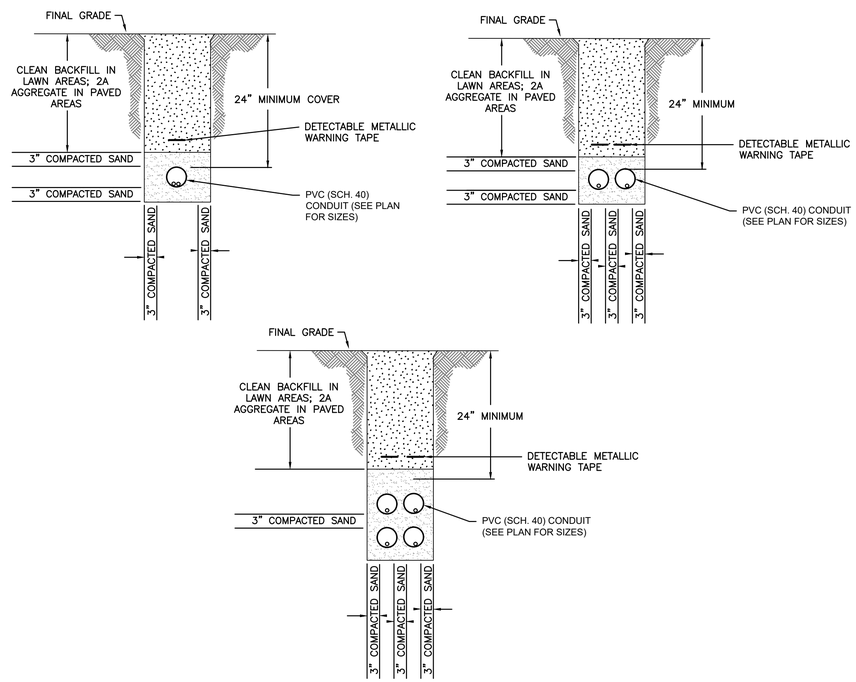


Values shown are nominal and not to be used for installation purposes. See product specification for installation requirements.

NOTES:

1. FENCE HEIGHT: 6-FT.
2. CONCRETE FOOTINGS SHALL BE 4,500 PSI MIN. @ 28-DAYS.
3. FENCE MODEL ECHELON II MAJESTIC 3 RAIL WITH RINGS", MANUFACTURED BY AMERISTAR WITH "PERMACOAT" POWDER COATING SYSTEM COLOR BLACK, OR APPROVAL EQUIVALENT.
4. INSTALL PER MANUFACTURER'S REQUIREMENTS.

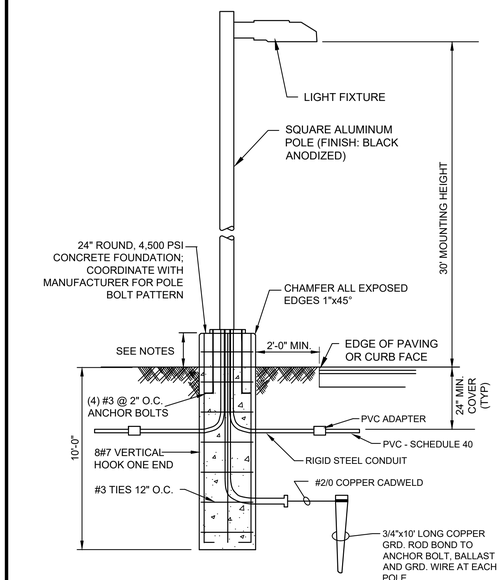
1 ORNAMENTAL FENCE DETAIL
NOT TO SCALE



NOTES:

1. BACKFILL SHALL BE FREE OF LARGE STONES, FROZEN MATERIAL, CINDERS, ASHES OR AS OTHERWISE REQUIRED. COMPACT IN MAXIMUM 6" LIFTS.
2. TRENCHING ACROSS BITUMINOUS PATHWAYS OR CONCRETE SIDEWALK SHLL INCLUDE SAWCUTTING OF EXISTING MATERIAL THE WIDTH OF THE TRENCH (BITUMINOUS) OR TO NEAREST EXPANSION JOINT (CONCRETE). CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION WITH MATERIAL IN KIND. CONTRACTOR SHALL SEAL ALL BITUMINOUS JOINTS WITH AC-20 AND PROVIDE APPROPRIATE EXPANSION MATERIAL AT CONCRETE JOINTS.
3. ALL SIGNAL / COMMUNICATION WORK SHALL BE COMPLETED BY OTHERS.

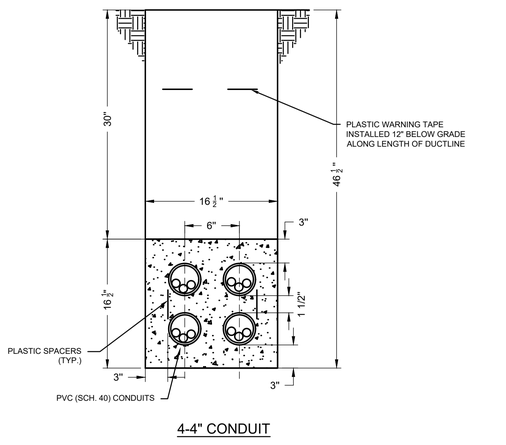
2 TYPICAL CONDUIT TRENCH DETAILS [DIRECT BURY]
NOT TO SCALE



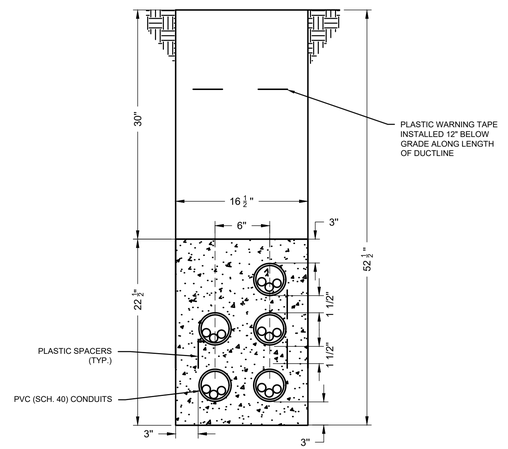
NOTES:

1. LIGHT POLE, LIGHT FIXTURE, AND OTHER TYPE OF REQUIRED BRACKETS; COLOR BLACK .
2. CONTRACTOR IS REQUIRED TO COORDINATE WITH MANUFACTURER ON BOLT PATTERN, TYPE OF BOLTS IN FOUNDATION, AND POLE.
3. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. SET TOP OF FOOTING 1" ABOVE FINISHED GRADE IN SIDEWALK AREAS, 6" ABOVE FINISHED GRADE IN LAWN AREAS, AND 3' ABOVE FINISHED GRADE IN PAVED PARKING AREAS.

3 LIGHT POLE FOUNDATION DETAIL
NOT TO SCALE



4-4" CONDUIT



5-4" CONDUIT

NOTES:

1. CONCRETE ENCASEMENT SHALL BE 1500 PSI CONCRETE.
2. BACKFILL SHALL BE FREE OF LARGE STONES, FROZEN MATERIALS, CINDERS, ASHES OR AS OTHERWISE REQUIRED.
3. PLASTIC SPACERS SHALL BE USED TO ENSURE PROPER SPACING OF CONDUIT.
4. CONDUIT LABELED P.V.C. SCHEDULE 40 IS POLYVINYL CHLORIDE CONDUIT HEAVYWALL NEMA TC-6 WITHOUT CONCRETE ENCASEMENT.
5. CONDUIT LINE LABELED P.V.C. IS POLYVINYL CHLORIDE CONDUIT TYPE DB NEMA TC-6.
6. CONTRACTOR SHALL INSTALL PULLSTRINGS IN ALL CONDUIT. PULLSTRING MUST HAVE A 210-LB TENSILE STRENGTH AND POLYPROPYLENE CONSTRUCTION.

4 CONCRETE ENCASED DUCTBANK
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

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Camden, NJ 08103
P 856.662.8800
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
11/7/23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

CONSTRUCTION DETAILS II

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY
4.	02/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/28/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

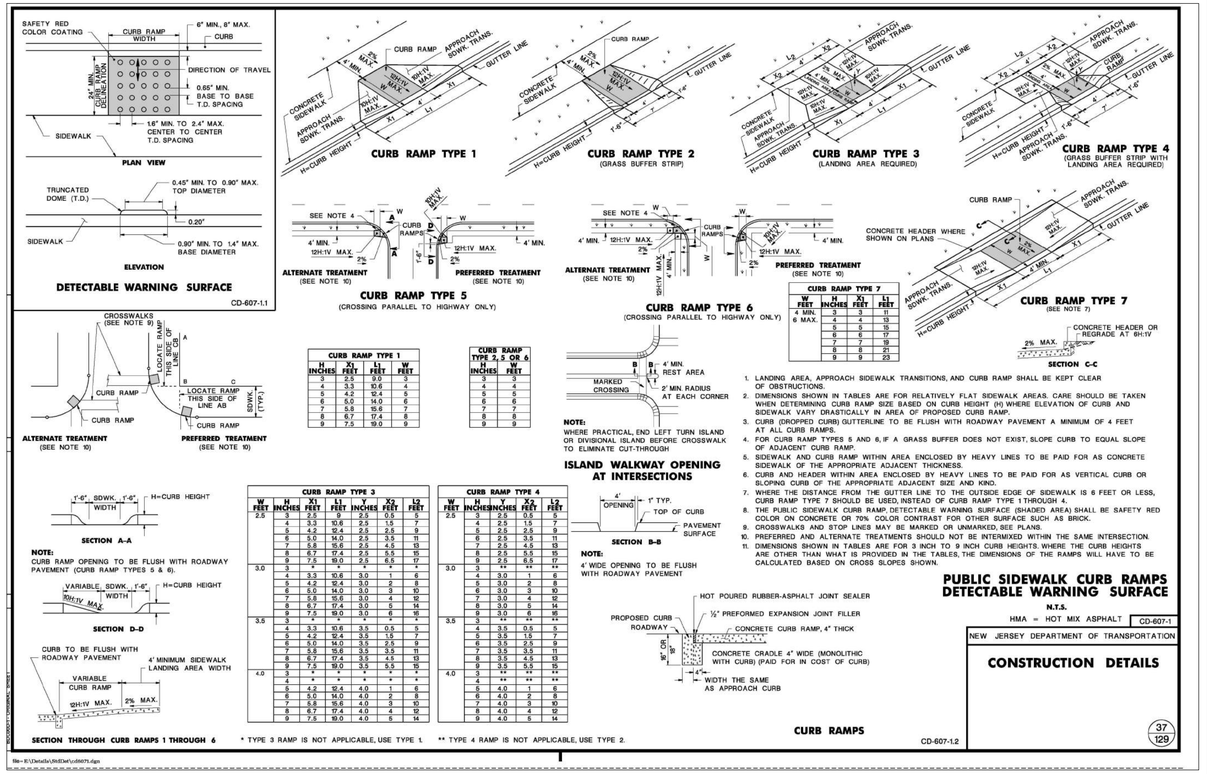
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PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6002

SHEET 29 OF 43

U:\Accounts\USA\TX\USATX22001 - Holtec Office Building\[DESIGN]_SHEETS\CS6001.dwg PLOTTED: 02/27/2024 1:12 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —



CURB RAMP TYPE 1					
H INCHES	X1 FEET	L1 FEET	W FEET		
3	2.5	9.6	3		
4	3.3	10.6	4		
5	4.2	12.4	5		
6	5.0	14.0	6		
7	5.8	15.6	7		
8	6.7	17.4	8		
9	7.5	19.0	9		

CURB RAMP TYPE 2, 5, OR 6	
H INCHES	W FEET
3	3
4	4
5	5
6	6
7	7
8	8
9	9

CURB RAMP TYPE 7				
W FEET	H INCHES	X1 FEET	L1 FEET	
4 MIN.	3	11		
6 MAX.	4	13		
	5	15		
	6	17		
	7	19		
	8	21		
	9	23		

CURB RAMP TYPE 3						
W FEET	H INCHES	X1 FEET	L1 FEET	Y INCHES	X2 FEET	L2 FEET
2.5	3	2.5	9	2.5	0.5	5
	4	3.3	10.6	2.5	1.5	7
	5	4.2	12.4	2.5	2.5	9
	6	5.0	14.0	2.5	3.5	11
	7	5.8	15.6	2.5	4.5	13
	8	6.7	17.4	2.5	5.5	15
	9	7.5	19.0	2.5	6.5	17
3.0	3	*	*	*	*	*
	4	3.3	10.6	3.0	1	6
	5	4.2	12.4	3.0	2	8
	6	5.0	14.0	3.0	3	10
	7	5.8	15.6	3.0	4	12
	8	6.7	17.4	3.0	5	14
	9	7.5	19.0	3.0	6	16
3.5	3	*	*	*	*	*
	4	3.3	10.6	3.5	0.5	5
	5	4.2	12.4	3.5	1.5	7
	6	5.0	14.0	3.5	2.5	9
	7	5.8	15.6	3.5	3.5	11
	8	6.7	17.4	3.5	4.5	13
	9	7.5	19.0	3.5	5.5	15
4.0	3	*	*	*	*	*
	4	*	*	*	*	*
	5	4.2	12.4	4.0	1	6
	6	5.0	14.0	4.0	2	8
	7	5.8	15.6	4.0	3	10
	8	6.7	17.4	4.0	4	12
	9	7.5	19.0	4.0	5	14

CURB RAMP TYPE 4						
W FEET	H INCHES	Y INCHES	X2 FEET	L2 FEET		
2.5	3	2.5	0.5	5		
	4	2.5	1.5	7		
	5	2.5	2.5	9		
	6	2.5	3.5	11		
	7	2.5	4.5	13		
	8	2.5	5.5	15		
	9	2.5	6.5	17		
3.0	3	**	**	**		
	4	3.0	1	6		
	5	3.0	2	8		
	6	3.0	3	10		
	7	3.0	4	12		
	8	3.0	5	14		
	9	3.0	6	16		
3.5	3	**	**	**		
	4	3.5	0.5	5		
	5	3.5	1.5	7		
	6	3.5	2.5	9		
	7	3.5	3.5	11		
	8	3.5	4.5	13		
	9	3.5	5.5	15		
4.0	3	**	**	**		
	4	**	**	**		
	5	4.0	1	6		
	6	4.0	2	8		
	7	4.0	3	10		
	8	4.0	4	12		
	9	4.0	5	14		

1. LANDING AREA, APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP SHALL BE KEPT CLEAR OF OBSTRUCTIONS.
2. DIMENSIONS SHOWN IN TABLES ARE FOR RELATIVELY FLAT SIDEWALK AREAS. CARE SHOULD BE TAKEN WHEN DETERMINING CURB RAMP SIZE BASED ON CURB HEIGHT (H) WHERE ELEVATION OF CURB AND SIDEWALK VARY DRASTICALLY IN AREA OF PROPOSED CURB RAMP.
3. CURB (DROPPED CURB) GUTTERLINE TO BE FLUSH WITH ROADWAY PAVEMENT A MINIMUM OF 4 FEET AT ALL CURB RAMPS.
4. FOR CURB RAMP TYPES 5 AND 6, IF A GRASS BUFFER DOES NOT EXIST, SLOPE CURB TO EQUAL SLOPE OF ADJACENT CURB RAMP.
5. SIDEWALK AND CURB RAMP WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS CONCRETE SIDEWALK OF THE APPROPRIATE ADJACENT THICKNESS.
6. CURB AND HEADER WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS VERTICAL CURB OR SLOPING CURB OF THE APPROPRIATE ADJACENT SIZE AND KIND.
7. WHERE THE DISTANCE FROM THE GUTTER LINE TO THE OUTSIDE EDGE OF SIDEWALK IS 6 FEET OR LESS, CURB RAMP TYPE 7 SHOULD BE USED, INSTEAD OF CURB RAMP TYPE 1 THROUGH 4.
8. THE PUBLIC SIDEWALK CURB RAMP, DETECTABLE WARNING SURFACE (SHADED AREA) SHALL BE SAFETY RED COLOR ON CONCRETE OR 70% COLOR CONTRAST FOR OTHER SURFACE SUCH AS BRICK.
9. CROSSWALKS AND STOP LINES MAY BE MARKED OR UNMARKED, SEE PLANS.
10. PREFERRED AND ALTERNATE TREATMENTS SHOULD NOT BE INTERMIXED WITHIN THE SAME INTERSECTION.
11. DIMENSIONS SHOWN IN TABLES ARE FOR 3 INCH TO 9 INCH CURB HEIGHTS. WHERE THE CURB HEIGHTS ARE OTHER THAN WHAT IS PROVIDED IN THE TABLES, THE DIMENSIONS OF THE RAMPS WILL HAVE TO BE CALCULATED BASED ON CROSS SLOPES SHOWN.

NOTE: WHERE PRACTICAL, END LEFT TURN ISLAND OR DIVISIONAL ISLAND BEFORE CROSSWALK TO ELIMINATE CUT-THROUGH

NOTE: 4' WIDE OPENING TO BE FLUSH WITH ROADWAY PAVEMENT

NOTE: * TYPE 3 RAMP IS NOT APPLICABLE, USE TYPE 1. ** TYPE 4 RAMP IS NOT APPLICABLE, USE TYPE 2.

PUBLIC SIDEWALK CURB RAMPS DETECTABLE WARNING SURFACE

N.T.S.

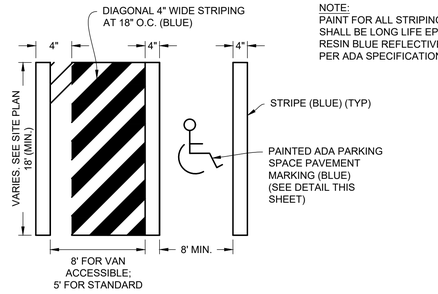
HMA = HOT MIX ASPHALT | CD-607-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

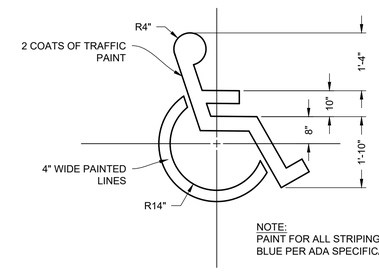
CONSTRUCTION DETAILS

37 / 129

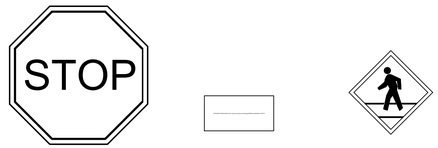
1 CURB RAMP DETAILS
NOT TO SCALE



2 PAINTED PARKING STALL
NOT TO SCALE



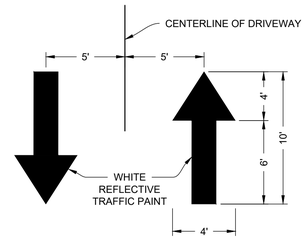
3 ADA PARKING SPACE PAVEMENT MARKING DETAIL
NOT TO SCALE



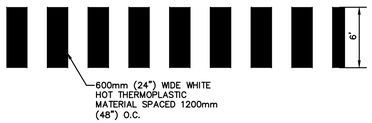
NOTES:

1. ALL SIGN MATERIALS SHALL BE MADE OF ALUMINUM BLANKS MOUNTED ON GALVANIZED STEEL POSTS, ALL CONFORMING TO NJDOT STANDARD SPECIFICATIONS.
2. ALL SIGNS SHALL MEET THE MOST CURRENT MUTCD REQUIREMENTS FOR RETRO-REFLECTIVITY.

4 SIGN DETAILS
NOT TO SCALE



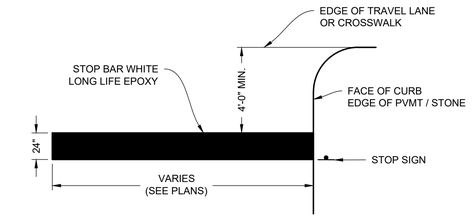
5 TRAFFIC FLOW DIRECTIONAL ARROW DETAIL
NOT TO SCALE



STRIPING NOTES:

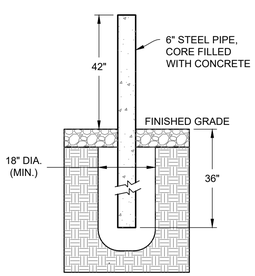
1. ALL PROPOSED TRAFFIC STRIPING ON THE COUNTY ROAD SHALL BE HOT THERMOPOLASTIC MATERIAL (3mm THICK), CONFORMING TO THE CURRENT NJDOT SPECIFICATIONS. CONTRACTOR SHALL HAVE STRIPING SUBCONTRACTOR SUBMIT PROPOSED SPECIFICATIONS, CONFORMING TO NJDOT SPECIFICATIONS, FOR THE THERMOPLASTIC MATERIALS TO THE ENGINEER FOR APPROVAL.
2. ALL EXISTING TRAFFIC STRIPING AND PAVING MARKINGS NOT CONFORMING WITH THIS PLAN SHALL BE REMOVED BY GRINDING, IN ACCORDANCE WITH CURRENT NJDOT REQUIREMENTS/STANDARDS AND AS APPROVED BY THE CITY ENGINEER.
3. CROSSWALK DETAIL WILL ALSO BE USED ON CITY OF CAMDEN ROADS.

6 CROSSWALK DETAIL
NOT TO SCALE



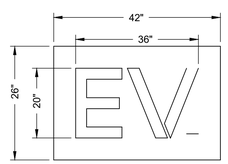
NOTE STOP BARS LOCATED ON COUNTY ROADS AND WITHIN COUNTY R-O-W &/OR EASEMENTS:
1) ALL STOP BARS TO BE HOT-EXTRUDED THERMOPLASTIC TYPE OF PAINT.
2) PAINT COLOR FOR ALL STOP BARS SHALL BE WHITE PER MUTCD REQUIREMENTS.
3) ALL DIMENSIONS SHALL CONFORM TO MUTCD AND BURLINGTON COUNTY SPECIFICATIONS.
4) CONTRACTOR TO REFER TO SIGNING AND STRIPING PLAN FOR FURTHER INFORMATION.

7 TYPICAL STOP BAR PAVEMENT MARKING DETAIL
NOT TO SCALE



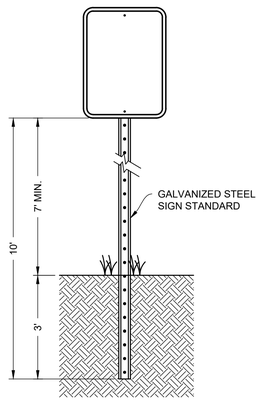
NOTE:
ALL CONCRETE SHALL HAVE A 4,000 PSI COMPRESSIVE STRENGTH @ 28 DAYS

8 BOLLARD DETAIL
NOT TO SCALE

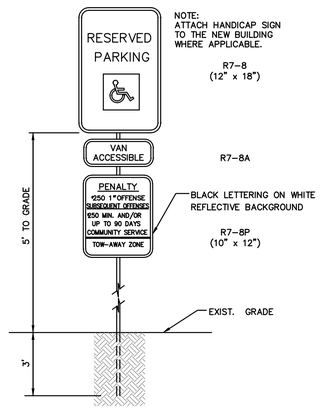


NOTE:
PAINT FOR EV PARKING SHALL BE LONG LIFE EPOXY RESIN WITH WHITE LETTERING AND GREEN BACKGROUNG PER ADA SPECIFICATIONS.

9 EV MARKING DETAIL (TYP.)
NOT TO SCALE



10 SIGN POST DETAIL
NOT TO SCALE



11 HANDICAP PARKING w/PENALTY, VAN ACCESSIBLE DETAIL
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

Pennoni
PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
856.669.5100
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

11 / 7 / 23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

CONSTRUCTION DETAILS III

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY
4.	02/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/26/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

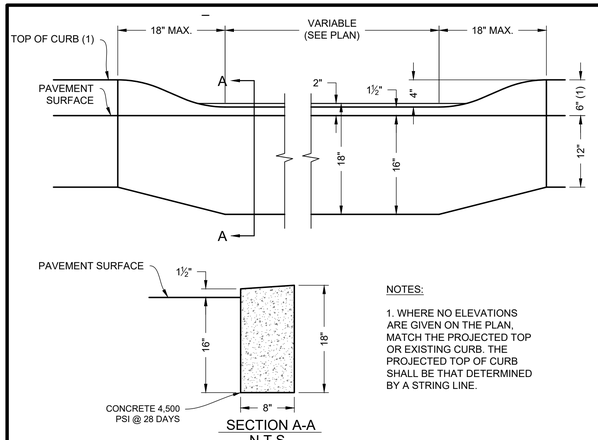
ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6003

SHEET 30 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6003.dwg PLOTTED: 8/22/2024 5:12 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

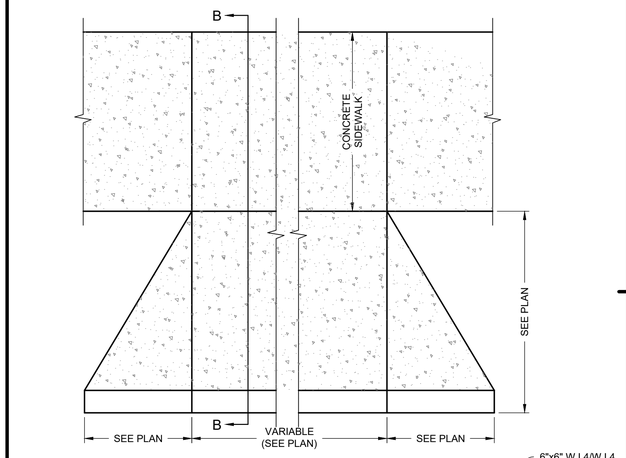


SECTION A-A
N.T.S.

NOTES:

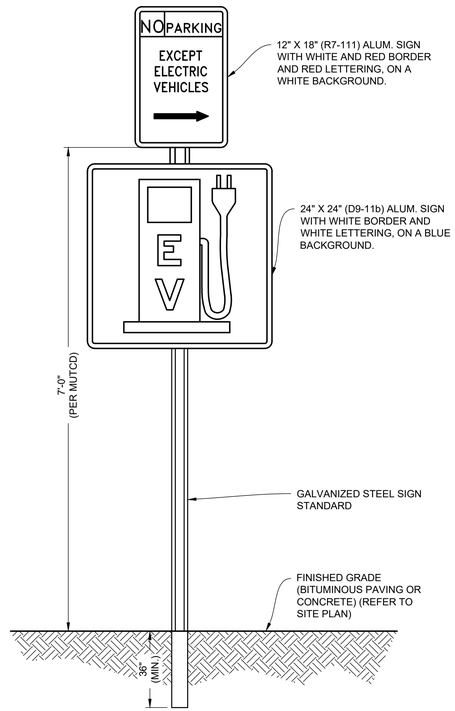
1. WHERE NO ELEVATIONS ARE GIVEN ON THE PLAN, MATCH THE PROJECTED TOP OR EXISTING CURB. THE PROJECTED TOP OF CURB SHALL BE THAT DETERMINED BY A STRING LINE.

1 CITY OF CAMDEN DEPRESSED CURB DETAIL
NOT TO SCALE



SECTION B-B
N.T.S.

4 CITY OF CAMDEN DRIVEWAY APRON DETAIL
NOT TO SCALE

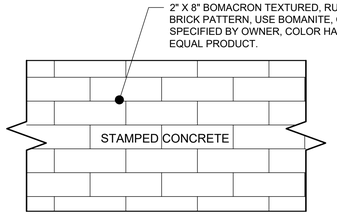


NOTES:

1. ALL SIGN MATERIALS SHALL BE MADE OF ALUMINUM BLANKS MOUNTED TO GALVANIZED STEEL POSTS, ALL CONFORMING TO NJDOT STANDARD SPECIFICATIONS.
2. ALL SIGNS SHALL MEET THE MOST CURRENT MUTCD REQUIREMENTS FOR RETRO-REFLECTIVITY.
3. ONE COAT OF PRIMER PAINT. TWO COATS OF FINISH PAINT. COLOR: TRAFFIC YELLOW.

- 30" WHEN INSTALLED IN BITUMINOUS PAVING
- FLUSH WITH GRADE WHEN INSTALLED IN CONCRETE WALK

2 EV PARKING SIGN DETAIL
NOT TO SCALE



PLAN VIEW - A

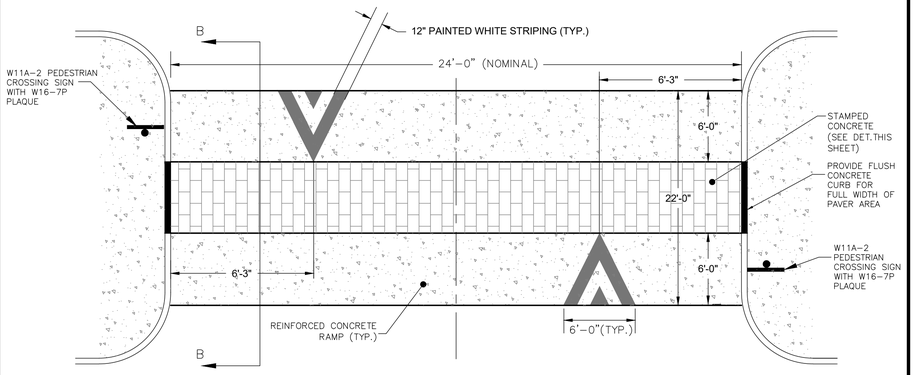
SPECIFICATIONS

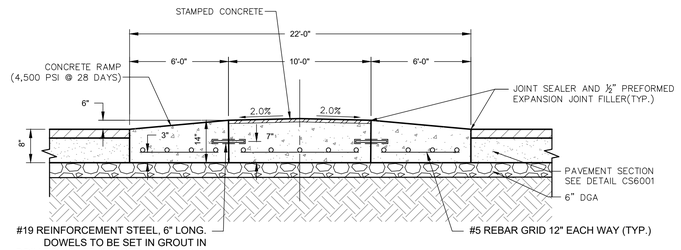
1. EXPANSION JOINTS SHALL BE INSTALLED AT 15 FT. C.C. MAX. AND CONTROL JOINTS AT 5 FT. C.C. MAX. BOTH EXPANSION JOINT AND CONTROL JOINT LOCATIONS SHALL APPROVED BY ENGINEER / OWNER.
2. EXPANSION JOINT SHALL BE 1/2" MASTIC MATERIAL OR APPROVED EQUAL.
3. ALL EXPANSION JOINTS SHALL RECEIVE A BACKER ROD AND NON-SHRINK JOINT SEALER, SIKAFLEX PRO OR EQUAL. COLOR SHALL MATCH CONCRETE.
4. CONCRETE 4,500 PSI @ 28 DAYS

5 STAMPED CONCRETE SIDEWALK DETAIL
NOT TO SCALE

PAVEMENT MARKING NOTES:

1. MARKINGS SHALL BE HOT EXTRUDED THERMOPLASTIC CONFORMING TO AASHTO M249 WITH A MINIMUM THICKNESS OF 90 MILS. USE BEADS CONFORMING TO AASHTO M247, TYPE 1, WITH A MOISTURE RESISTANT COATING. SUBMIT CERTIFICATIONS OF COMPLIANCE THAT GLASS BEADS DO NOT CONTAIN MORE THAN 200 PPM OF LEAD, 200 PPM OF ANTIMONY, OR 100 PPM OF ARSENIC.





SECTION B-B
N.T.S.

3 SPEED TABLE DETAIL
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.488.7700
NJ. COA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
11/7/23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

CONSTRUCTION DETAILS IV

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY
4.	10/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/28/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

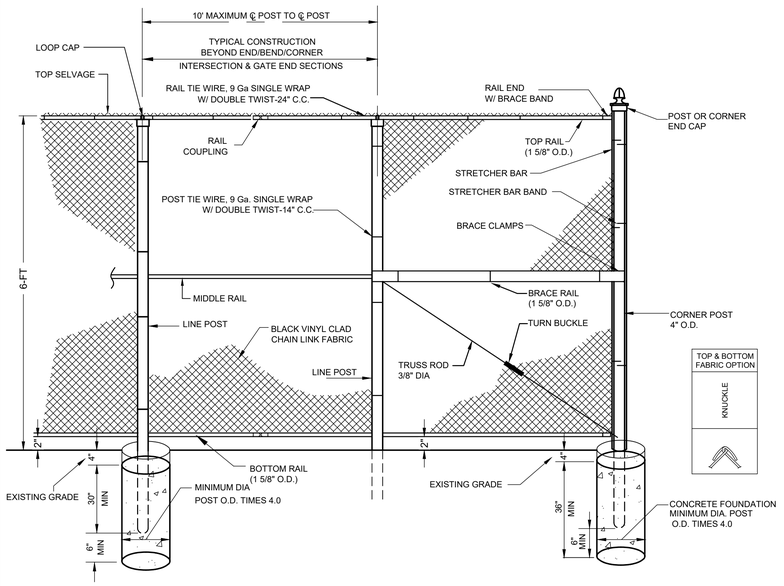
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PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6004

SHEET 31 OF 43

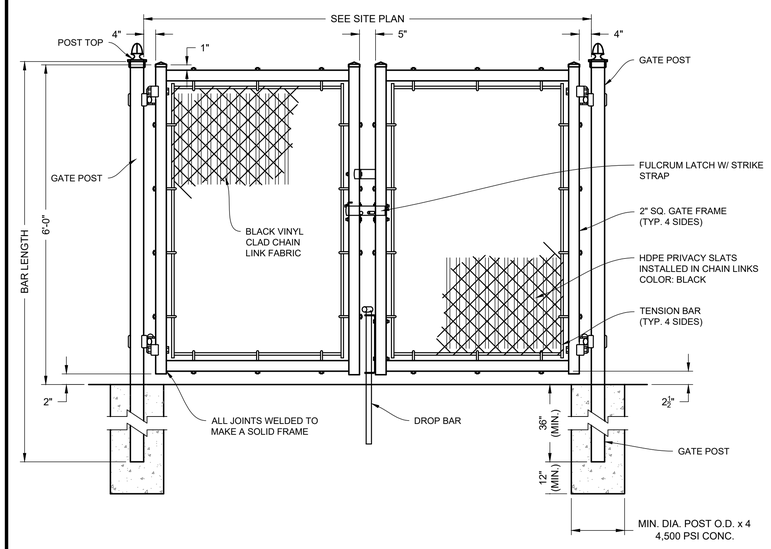
PLOTTED: 6/22/2024 5:12 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni.NCS.stb PROJECT STATUS: —
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NOTES:

1. FENCE HEIGHT: 6-FT.
2. SWING GATE FENCE SHALL COMPLY WITH ASTM F-900.
3. MESH FABRIC SHALL BE 9 GAUGE, BLACK, VINYL-COATED.
4. ALL HARDWARE AND FRAMING SHALL BE BLACK POLYESTER POWDER COATED.
5. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND ASTM F567-14a.
6. ALL CONCRETE FOR FOUNDATIONS SHALL BE 4,500 PSI MIN. AT 28 DAYS.
7. CHAIN LINK FABRIC VINYL COATING, POSTS, AND RAILS TO BE BLACK POLYESTER POWDER COATED.
8. PROVIDE HDPE PRIVACY SLATS; COLOR BLACK .

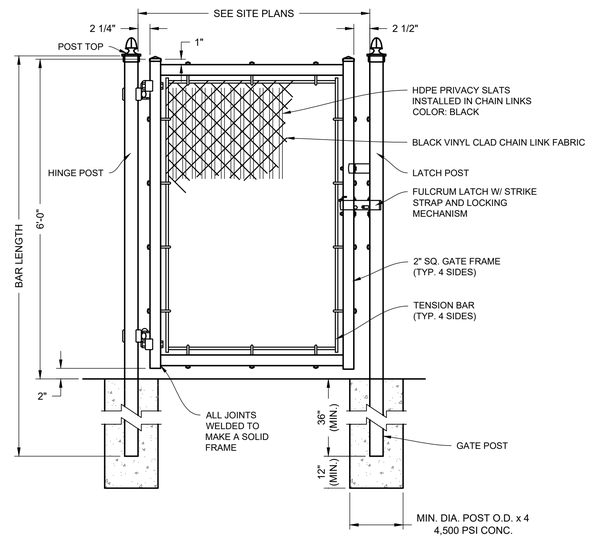
1 CHAIN LINK FENCE DETAIL (AT EQUIPMENT ENCLOSURE)
NOT TO SCALE



NOTES:

1. GATE HEIGHT: 6-FT.
2. SWING GATE FENCE SHALL COMPLY WITH ASTM F-900.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND ASTM F567-14a.
4. ALL CONCRETE FOR FOUNDATIONS SHALL BE 4,500 PSI MIN. AT 28 DAYS.
5. MESH FABRIC SHALL BE 9 GAUGE, BLACK, VINYL-COATED.
6. ALL HARDWARE AND FRAMING SHALL BE BLACK POLYESTER POWDER COATED.
7. PROVIDE HDPE PRIVACY SLATS FOR DOUBLE SWING GATE AT TRASH ENCLOSURE; COLOR BLACK.

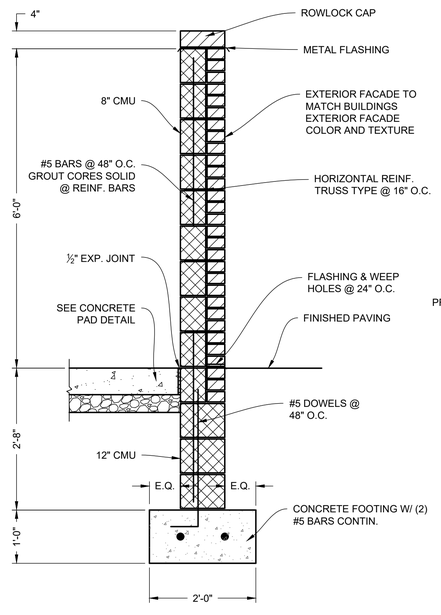
2 CHAIN LINK DOUBLE SWING GATE DETAIL (AT TRASH ENCLOSURE)
NOT TO SCALE



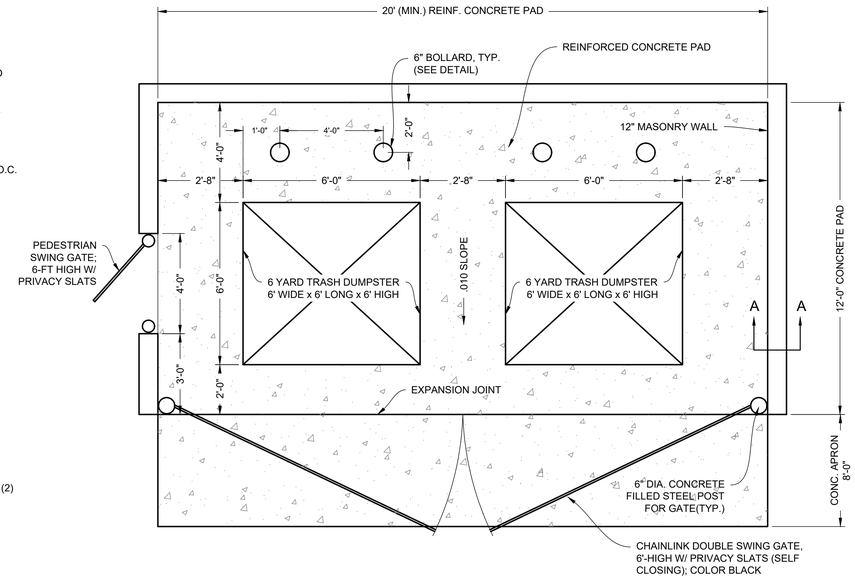
NOTES:

1. GATE HEIGHT: 6-FT.
2. SWING GATE FENCE SHALL COMPLY WITH ASTM F-900.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND ASTM F567-14a.
4. ALL CONCRETE FOR FOUNDATIONS SHALL BE 4,500 PSI MIN. AT 28 DAYS.
5. MESH FABRIC SHALL BE 9 GAUGE, BLACK, VINYL-COATED.
6. ALL HARDWARE AND FRAMING SHALL BE BLACK POLYESTER POWDER COATED.
7. PROVIDE HDPE PRIVACY SLATS FOR DOUBLE SWING GATE AT TRASH ENCLOSURE; COLOR BLACK.

3 CHAIN LINK PEDESTRIAN SWING GATE DETAIL (AT TRASH ENCLOSURE)
NOT TO SCALE



SECTION A-A
(N.T.S.)



PLAN VIEW
(N.T.S.)

4 TRASH ENCLOSURE DETAIL
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
11/7/23

HOLTEC OFFICE BUILDING
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

CONSTRUCTION DETAILS V

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY
4.	02/27/2024	ADDENDUM 1	BF
3.	02/14/2024	100% CONSTRUCTION DOCUMENTS	BF
2.	12/28/2023	PER CITY PB ENGINEERING REVIEW LETTER	BF
1.	12/21/2023	85% CONSTRUCTION DOCUMENTS	BF

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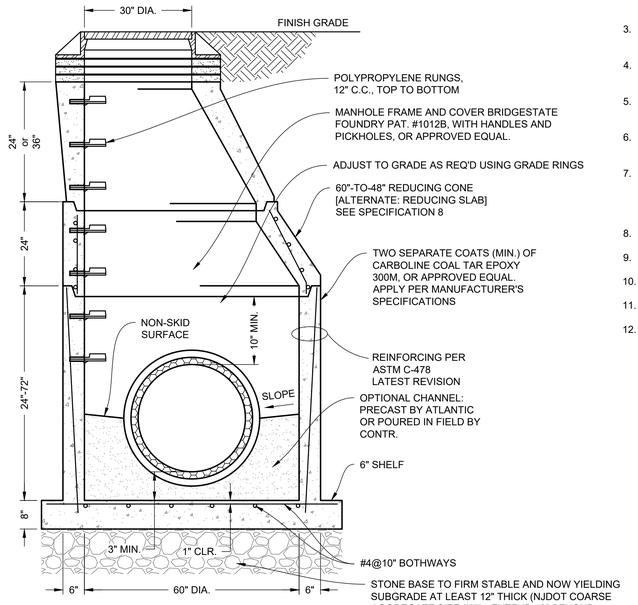
PROJECT	USATX22001
DATE	OCTOBER 12, 2023
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6005

SHEET 32 OF 43

PROJECT STATUS: —
PLOTTED: 8/22/2024 5:13 PM, BY: Ahmed Salem P:\OTSTYLE Pennoni NCS.stb
U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6001.dwg

NOTE:
FOR MANHOLES WITH A HEIGHT OF LESS THAN 10 FT,
THE TOP CONE MAY BE REPLACED WITH A TOP SLAB.

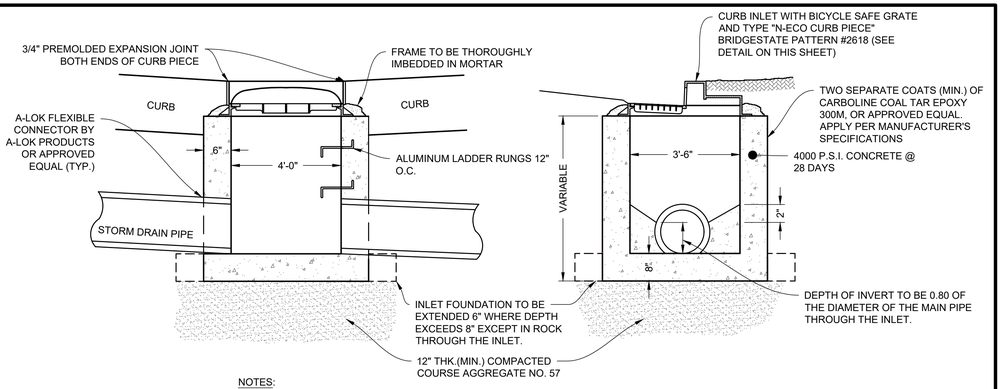


SECTION VIEW
NOT TO SCALE

1 60" DIA. STORM MANHOLE
NOT TO SCALE

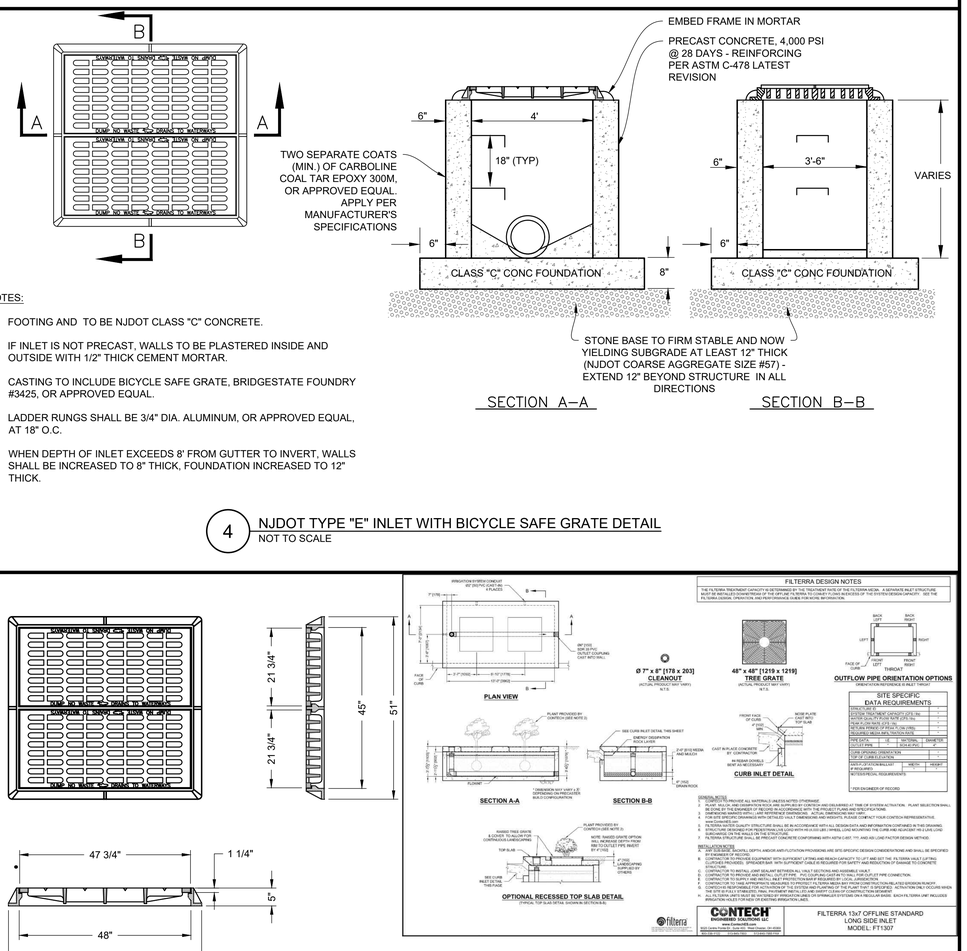
NOTES:
1. PRECAST MANHOLE IN ACCORDANCE WITH A.S.T.M DESIGNATION C-478, MINIMUM COMPRESSIVE STRENGTH 4000 P.S.I. (TYP) MANHOLE TO BE MANUFACTURED BY ATLANTIC CONCRETE, OR APPROVED EQUAL.
2. ALL MANHOLES SHALL BE CONSTRUCTED WATERTIGHT WITHOUT THE USE OF A RUBBER GASKET. WATER TIGHTNESS MAY BE ACHIEVED BY DISH SHAPED INSERTS, WATERTIGHT CASTING, OR APPROVED EQUAL. DISH SHAPED WATERTIGHT INSERT SHALL BE SUPPLIED, TWO PER MANHOLE.
3. SMOOTH CONCRETE CHANNEL WITH DEPTH EQUAL TO 0.80 TIMES THE DIA. OF THE MAIN SEWER FOR SIZES 8" TO 15" AND 0.50 TIMES THE DIA. FOR SIZES 16" AND ABOVE. (USE CLASS C CONCRETE).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING ADEQUATE BALLAST TO OFFSET FLOATATION FORCES ACTING ON MANHOLES INSTALLED IN WET AREAS.
5. POLYPROPYLENE RUNGS, SEE DETAIL ON THIS SHEET. APPLICANT SHALL CONTACT CCMUA FOR SPECIFIC MANHOLE REQUIREMENTS. ALL OSHA REQUIREMENTS MUST BE MET.
6. ANY MANHOLE REQUIRING LINING SHALL HAVE MANHOLE RUNGS REMOVED AND HAVE A COMPOSITE LADDER INSTALLED.
7. PROVIDE WRAPIDSEAL MANHOLE ENCAPSULATION SYSTEM, OR APPROVED EQUAL, AROUND FRAME AND GRADE RINGS FOR ALL MANHOLES AND AROUND ALL RISER JOINTS. INSTALLATION SHALL BE PROVIDED IN ACCORDANCE WITH ALL OF MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
8. MANHOLE FRAME SHALL BE LAID IN 1-INCH OF MORTAR AND HAVE 1-INCH MORTAR AROUND THE RIM.
9. THERE SHALL BE NO CHANGE IN FLOW DIRECTION GREATER THAN 90 DEGREES.
10. NO PIPE PENETRATIONS ARE TO BE WITHIN 12" OF A MANHOLE JOINT.
11. ALL COATINGS MUST BE FACTORY INSTALLED / APPLIED.
12. CONCRETE STORM PIPE IS TO HAVE EITHER RUBBER GASKET OR BUTYL TAPE JOINTS AND BE WRAPPED WITH MORTAR AND FABRIC ON THE OUTSIDE.

ATLANTIC CONCRETE PRODUCTS, INC.
8900 OLD ROUTE 13
P.O. BOX 129, TULLYTOWN, PA
19007-7129
PHONE: (215) 945-5600
FAX: (215) 946-3102
WEB: WWW.ATLANTICCONCRETE.COM



NOTES:
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS. BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. ALL INLETS TO BE PROVIDED WITH A 6" CURB PIECE.

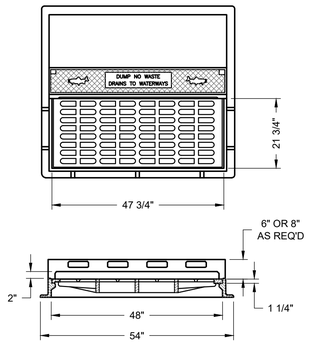
2 TYPE "B" INLET DETAIL
NOT TO SCALE

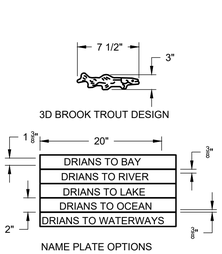


NOTES:
1. FOOTING AND TO BE NJDOT CLASS "C" CONCRETE.
2. IF INLET IS NOT PRECAST, WALLS TO BE PLASTERED INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT MORTAR.
3. CASTING TO INCLUDE BICYCLE SAFE GRATE, BRIDGESTATE FOUNDRY #3425, OR APPROVED EQUAL.
4. LADDER RUNGS SHALL BE 3/4" DIA. ALUMINUM, OR APPROVED EQUAL, AT 18" O.C.
5. WHEN DEPTH OF INLET EXCEEDS 8' FROM GUTTER TO INVERT, WALLS SHALL BE INCREASED TO 8" THICK, FOUNDATION INCREASED TO 12" THICK.

SECTION A–A SECTION B–B

4 NJDOT TYPE "E" INLET WITH BICYCLE SAFE GRATE DETAIL
NOT TO SCALE





NOTES:
1. MATERIAL: GRAY CAST IRON ASTM A48-83, CLASS JOB.
2. AASHTO HS20-44 HIGHWAY LOADING.
3. SUPPLIED WITHOUT SURFACE COATING.
4. GRATE TO BE BRIDGESTATE FOUNDRY CORPORATION #2618 ORAPPROVED EQUAL.

3 TYPE 'B' BICYCLE SAFE GRATE & TYPE 'N-ECO' CURB PIECE
NOT TO SCALE

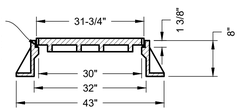
PATTERN No. 3425 AS MANUFACTURED BY
CAMPBELL BRIDGESTATE FOUNDRY COMPANY
(ECO GRATE)

7 NJDOT TYPE "E" BICYCLE SAFE INLET GRATE DETAIL
NOT TO SCALE

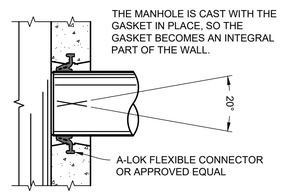
RAISED 2" HIGH LETTERS CAST IN LID
BRIDGESTATE FOUNDRY PAT. # 1012B FRAME AND SELF SEALING LID OR APPROVED EQUAL
STORM
NON-PENETRATING PICKHOLES, 2 REQ'D.
ROUND FLANGE

NOTES:
1. TERMINAL MANHOLES TO BE PROVIDED WITH VENTED COVERS CONSISTING OF 3/4" HOLES (4), EVENLY SPACED.
2. ALL PARTS OF CASTING SHALL BE THOROUGHLY COATED AT THE FACTORY WITH ONE COAT OF BLACK ASPHALTUM PAINT OR OTHER IMPERVIOUS PREPARATION APPROVED BY ENGINEER.
3. MANHOLE FRAMES AND COVERS ARE TO PROVIDE A MINIMUM OF THIRTY-INCH CLEAR OPENING AT THE COVER IN ORDER TO ALLOW EASY ACCESS UNDER CONFINED SPACE ENTRY REQUIREMENTS.

MACHINE "DOVETAIL" GROOVE IN LID SEAT FOR 1/4" DIA. CONTINUOUS POLYISOPRENE "SELF-SEAL" GASKET.



5 HEAVY DUTY MANHOLE FRAME AND COVER DETAIL
NOT TO SCALE
(BRIDGESTATE PATTERN No. 1012B)



6 A-LOK (STM) SECTION
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T: 856.669.8000
NJ CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

DRAINAGE AND WATER MAIN DETAILS I

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

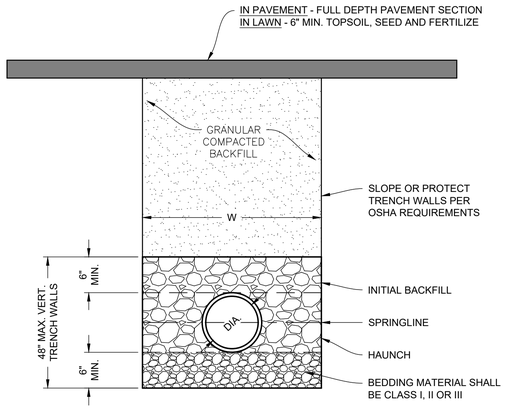
NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6021

SHEET 33 OF 43

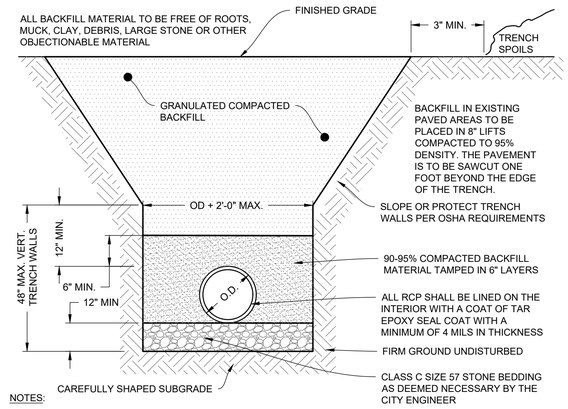


RECOMMENDED MIN. TRENCH WIDTHS	
PIPE DIAMETER (DIA.)	MIN. TRENCH WIDTH (W)
4"	21'
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56'
36'	64"
42"	72"
48"	80"
54"	88"
60"	96"

NOTES:

1. TRENCHING OPERATIONS SHALL CONFORM TO ALL OSHA REQUIREMENTS IF THE PIPE DIAMETER EXCEEDS 48", THE MINIMUM 12" COVER SHALL STILL APPLY. THIS TRENCH IS SUITABLE FOR USE UNDER WET OR UNSTABLE SOIL CONDITIONS.
2. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF ASTM D2321 AND PER MANUFACTURER'S SPECIFICATIONS.
3. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
4. WHERE THE TRENCH BOTTOM IS DETERMINED TO BE UNSUITABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER.
5. INITIAL BACKFILL SHALL BE SUITABLE MATERIAL CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE.
6. MINIMUM COVER, IN NON-TRAFFIC APPLICATIONS (GRASS AND LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE UNLESS OTHERWISE NOTED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"–60" DIAMETER PIPE, MEASURED FROM TOP OF THE PIPE TO TOP OF PAVEMENT.
7. HDPE PIPE TO BE SOLID PIPE.

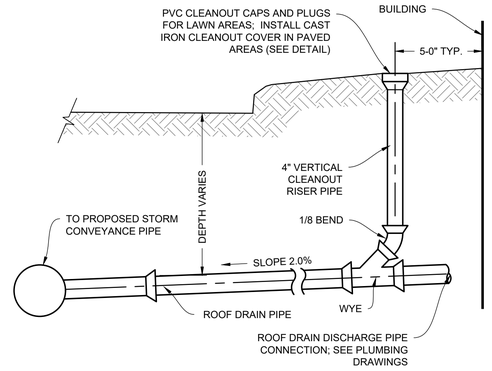
1 TYPICAL HDPE PIPE TRENCHING DETAIL
NOT TO SCALE



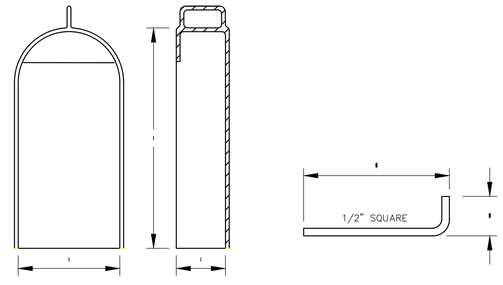
NOTES:

1. TRENCHING OPERATIONS SHALL CONFORM TO ALL OSHA REQUIREMENTS.
2. IF THE PIPE DIAMETER EXCEEDS 48", THE MINIMUM 12" COVER SHALL STILL APPLY.
3. THIS TRENCH IS SUITABLE FOR USE UNDER WET OR UNSTABLE SOIL CONDITIONS.
4. ALL CONCRETE PIPE SHALL BE CLASS III, UNLESS OTHERWISE NOTED.

2 CONCRETE PIPE TRENCH
NOT TO SCALE



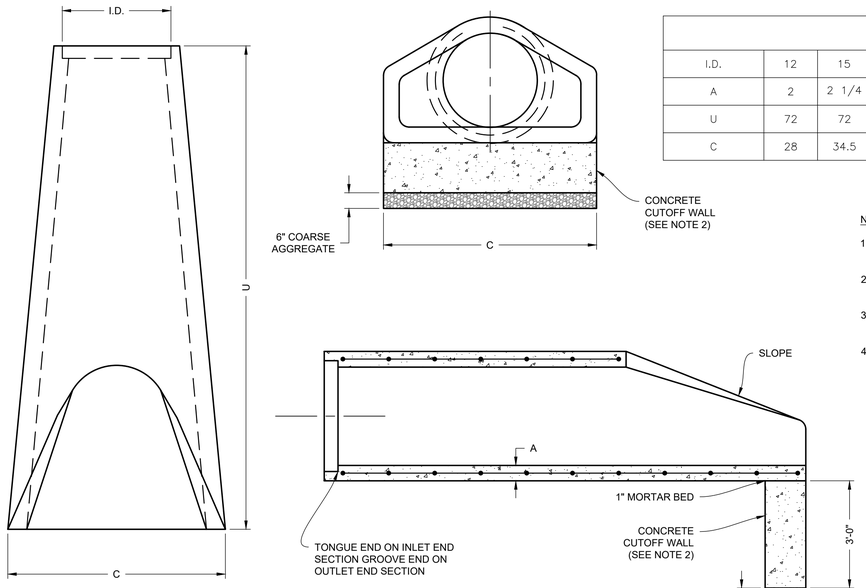
3 STORM SEWER (ROOF DRAIN) CLEANOUT DETAIL
NOT TO SCALE



PATTERN NUMBER	DIMENSIONS IN INCHES			PIPE SIZE
	A	B	C	
2560	9 1/2	16	4 3/4	6
2561	11 1/2	20 1/2	5 1/2	8
2562	13 1/4	23 1/2	6 1/2	10
2563	15 3/4	26	7 1/2	12
2564	18	27	9	15
2565	20	27	10	18
2566	25 1/4	30	11 1/4	21

NOTE: COST FOR TRAP TO BE INCLUDED IN THE BID ITEM COST FOR THE MANHOLE AND/OR INLET.

4 STANDARD CATCH BASIN TRAP DETAIL
NOT TO SCALE



DIMENSIONS (INCHES)												
I.D.	12	15	18	21	24	27	30	36	42	48	54	60
A	2	2 1/4	2 1/2	2 3/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
U	72	72	72	72	72	72	72	96	96	96	96	96
C	28	34.5	41	47.5	54	60.5	67	80	87	94	101	108

NOTES:

1. MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.
2. A 1 INCH THICK MORTAR BED AND A 6 INCH DEEP LAYER OF COARSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.
3. NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE CUTOFF WALL. THE COST OF THE CONCRETE CUTOFF WALL SHALL BE INCLUDED IN THE COST OF THE END SECTION.
4. THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL BE EQUAL TO THE MAXIMUM WIDTH OF THE END SECTION AS INDICATED ON THE DETAIL BY DIMENSION "C". HOWEVER, IF THE ACTUAL MAXIMUM WIDTH EXCEEDS THE CHART VALUE OF "C", THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL EQUAL THE ACTUAL MAXIMUM WIDTH OF THE END SECTION.

5 CONCRETE PIPE END SECTION DETAIL
NOT TO SCALE

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2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

DRAINAGE AND WATER MAIN DETAILS II

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

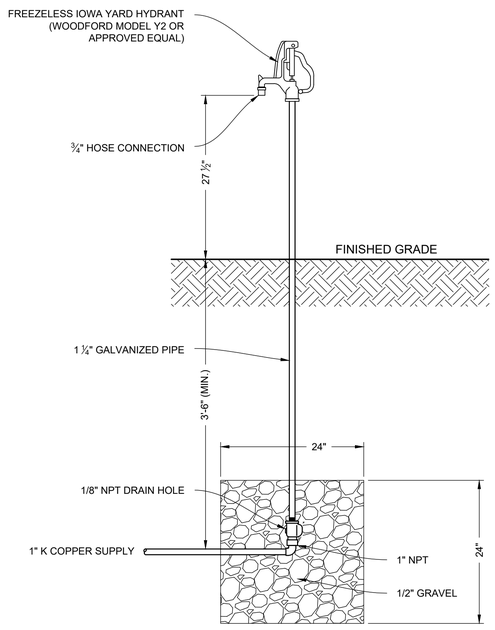
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	N.T.S.
DRAWN BY	BF
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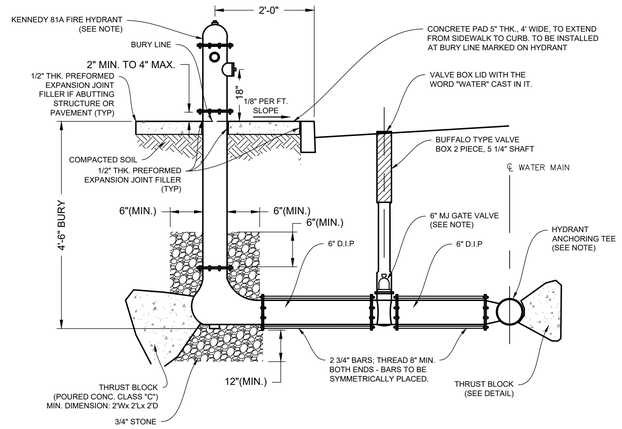
CS6022

SHEET 34 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6022-CS6023.dwg PLOTTED: 8/22/2024 1:13 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —



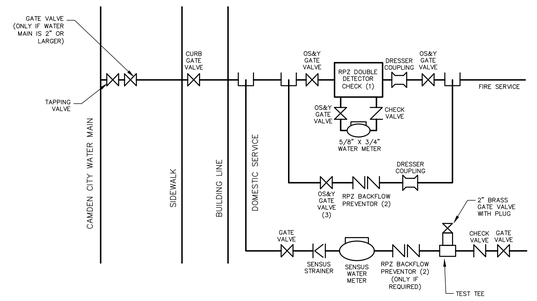
1 YARD HYDRANT DETAIL
NOT TO SCALE



FIRE HYDRANT NOTES:

1. THE INLET HUB, GATE VALVE AND HYDRANT TEE SHALL BE RODDED TOGETHER WITH CONTINUOUS THREADED RODS (ALL THREAD - M.J.), SOCKET CLAMPS, WASHERS AND CORPORATION EYE BOLTS TO PREVENT HYDRANT FROM BLOWING OFF.
2. CONTRACTOR SHALL INSURE THAT THE FIRE HYDRANT THREADS CONFORM TO LOCAL FIRE COMPANY'S STANDARDS.
3. ALL FIRE HYDRANTS SHALL OPEN BY TURNING LEFT (COUNTERCLOCKWISE). THE OPERATING NUT AND OUTLET NOZZLE CAP NUTS SHALL BE PENTAGON, MEASURING 1 ½" FROM POINT TO FLAT AT BASE. HYDRANTS SHALL BE PRIME COATED AND PAINTED IN ACCORDANCE WITH ANSI/SWWA STANDARD SPECIFICATIONS, FINISH PAINTED CONFORMING TO THE STANDARDS OF THE CITY OF CAMDEN.

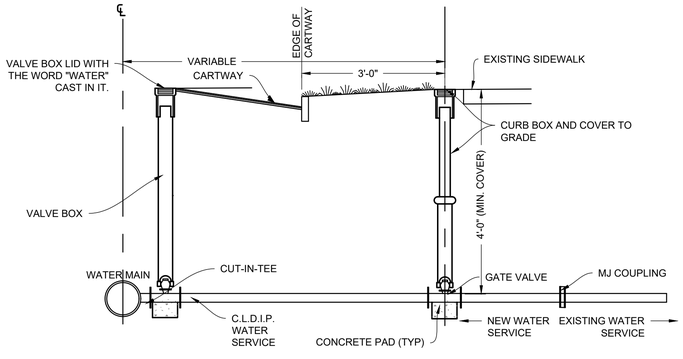
2 FIRE HYDRANT ASSEMBLY
NOT TO SCALE



NOTES:

1. A BACKFLOW PREVENTER MUST BE PROVIDED FOR ALL PROPOSED FIRE SERVICE LINES. FOR A REGULAR FIRE SUPPRESSION SYSTEM (COMBINED SERVICE LINE LARGER THAN 2"), A COMBINED REDUCED PRESSUYRE DETECTOR ASSEMBLY (AMES 5000 SS, AMES 5000 RPDA OR WATT 9098 RPDA*) SHALL BE INSTALLED ON THE MAIN FIRE SERVICE LINE AND A REDUCED PRESSURE BACKFLOW PREVENTER ON THE BYPASS (AMES 4000 SS OR WATT 909*). ON THE LIMITED FIRE SUPPRESSION SYSTEM (COMBINED SERVICE LINE 1.5" OR 2"), A FIRE LINE DETECTOR CHECK WITH A SINGLE CHECK VALVE (AMES 1000 DCV*) SHALL BE INSTALLED ON THE MAIN FIRE LINE AND A REDUCED PRESSURE BACKFLOW PREVENTER (AMES 4000 SS OR WATT 909*) SGALL BE INSTALLED DOWNSTREA OF THE BYPASS. ALL REGULAR FIRE SUPPRESSION SYSTEMS MUST HAVE OS&Y VALVES, HOWEVER, LIMITED FIRE SUPPRESSION SYSTEMS MAY USE BALL VALVES (VICTAULIC SERIES 728 FIRELOCK*) INSTED OF OS&Y VALVES. THE FIRE UNIT SHALL BE FURNISHED WITHA ⅝ INCH X ¾ INCH METERED BYPASS. THE APPLICANT SHALL APPLY FOR AND REGISTER ALL RPZ WITH NJDEP.
2. ALL METER SIZE 2 INCHES THROUGH 6 INCHES SHALL BE SINGLE COMPOUND METERS AND ALL METERS 8 INCHES AND LARGER SHALL BE DUPLEX COMPOUND MANIFOLD METERS.
3. ALL METERS SHALL BE ADEQUATELY RESTRAINED WITH METAL BRACKETS FASTENED TO THE FLOOR OR WALL OR OTHER APPROVED MEANS SUCH AS UNIFLANGES WHERE INTERNAL PIPE PRESSURE AND FLOW WARRANT SUCH RESTRAINTS. METERS, DETECTOR CHECKS, AND VALVES MAY BE SEATED ON CONCRETE BLOCK AND TAPERED SHIMS TO PROVIDE ADEQUATE SUPPORT. METERS SHALL BE INSTALLED APPROXIMATELY 36" ABOVE FLOOR GRADE.
4. REFER TO CITY OF CAMDEN DETAILS.

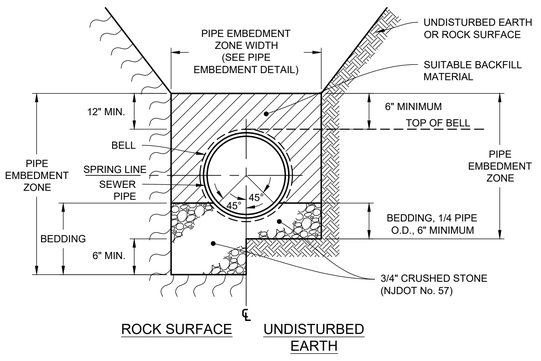
3 CAMDEN CITY REQUIREMENTS FOR FIRE AND DOMESTIC WATER LINE AND METER INSTALLATIONS
NOT TO SCALE



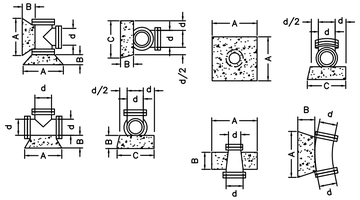
NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPING, FITTINGS, ADAPTERS, ETC. TO MAKE CONNECTION TO NEW WATER SERVICE LINES. ALL TAPPING SLEEVES 2" AND LARGER SHALL BE SOLID DUCTILE IRON SUCH AS MUELLER H-615 TAPPING SLEEVE OR APPROVED EQUAL. THE TAPPING SLEEVE SHALL PASS PRESSURE TESTING BASED ON AWWA STANDARDS BEFORE TAP IS MADE.
2. CONTRACTOR SHALL PROVIDE CUT-IN-TEE AND GATE VALVES FOR WATER SERVICE CONNECTION.
3. ALL PIPE AND FITTINGS ABOVE GRADE SHALL BE FLANGE ENDS.
4. EXISTING WATER SERVICES TO BE ABANDONED IN PLACE SHALL BE CUT, PLUGGED AS CLOSE TO THE WATER MAIN AS POSSIBLE AND FREE OF LEAKS.
5. VALVES TO BE DOUBLE DISK GATE VALVES PER AWWA STANDARDS.

4 WATER SERVICE CONNECTION DETAIL 2" OR LARGER
NOT TO SCALE



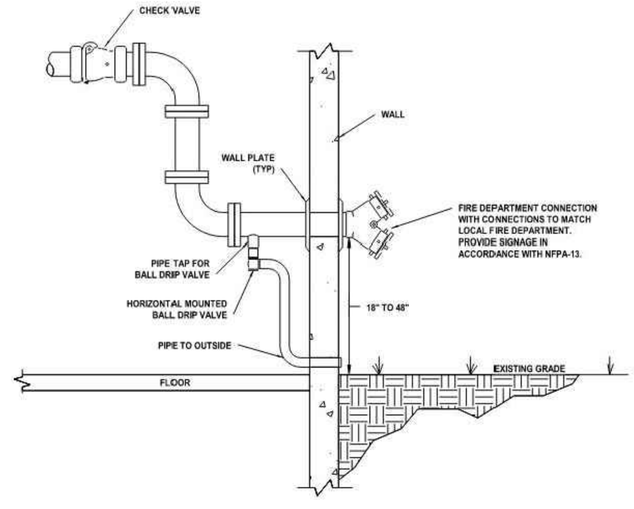
5 DIP PIPE BEDDING DETAIL
NOT TO SCALE



NOTE:
ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS

MINIMUM SIZE OF CONCRETE THRUST BLOCKS				
d	6"	8"	10"	12"
TEES & CROSSES				
A	2'-0"	2'-6"	3'-0"	3'-6"
B	8"	8"	10"	10"
C	1'-3"	1'-6"	2'-0"	2'-6"
90° BENDS				
A	2'-6"	3'-0"	3'-6"	3'-9"
B	8"	8"	10"	10"
C	1'-3"	1'-6"	2'-0"	2'-9"
45° BENDS				
A	1'-6"	1'-6"	2'-3"	2'-3"
B	8"	8"	10"	10"
C	1'-3"	1'-9"	2'-0"	2'-6"
22.5° & 11.25° BENDS				
A	1'-6"	1'-6"	1'-6"	1'-6"
B	8"	8"	10"	10"
C	1'-3"	1'-9"	2'-0"	2'-6"
REDUCERS				
dxd	6"X4"	8"X4"	10"X6"	10"X8"
A	1'-6"	2'-0"	2'-4"	2'-6"
B	1'-0"	1'-0"	1'-3"	1'-6"

6 THRUST BLOCK DETAILS
NOT TO SCALE



7 FIRE DEPARTMENT CONNECTION
NOT TO SCALE

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T 856.669.8000
NJ. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

WATER DETAILS I

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

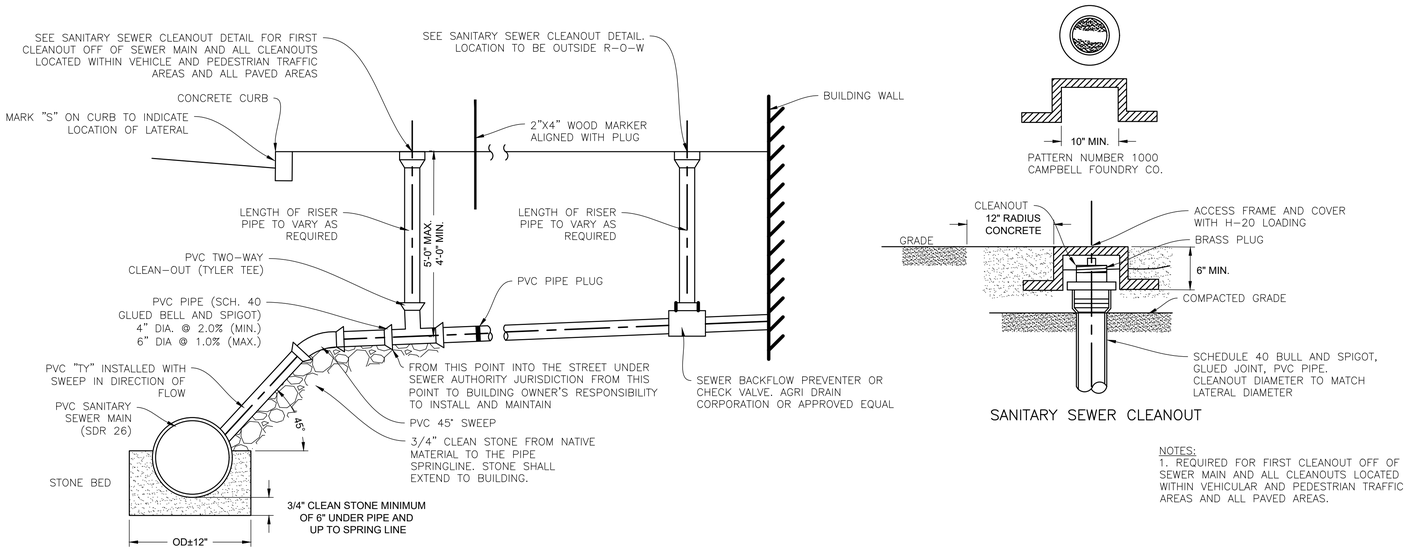
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

CS6041

SHEET 35 OF 43



NOTES:
1. TRENCH BOTTOM TO BE VIRGIN SOIL. 0.75" STONE OR MECHANICALLY TAMPED AND TESTED BACKFILL

TYPICAL LATERAL WITH BACKFLOW PREVENTER

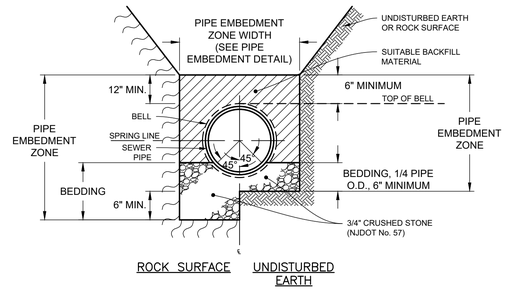
SANITARY SEWER CLEANOUT

NOTES:
1. REQUIRED FOR FIRST CLEANOUT OFF OF SEWER MAIN AND ALL CLEANOUTS LOCATED WITHIN VEHICULAR AND PEDESTRIAN TRAFFIC AREAS AND ALL PAVED AREAS.

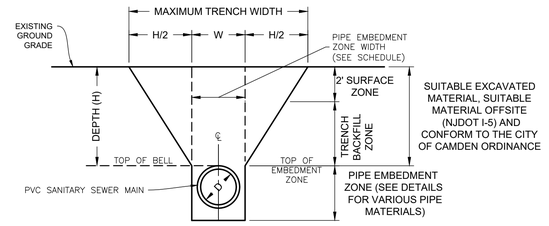
NOTES:
1. INSERT A TEE USED FOR CONNECTION TO EXISTING MAIN MUST BE APPROVED BY CITY PRIOR TO INSTALLATION.
2. CONNECTION TO CITY SEWER MAIN MUST BE MADE WITH A HOLE SAW. CONNECTION WITH A HAMMER AND CHISEL OR ANY OTHER MAINS WILL NOT BE PERMITTED.
3. CLEANOUT SHALL BE LOCATED BETWEEN CURB AND SIDEWALK, OR A MAXIMUM OF 2' FROM CURB. ELEVATION OF TOP OF CLEANOUT SHALL BE LEVEL WITH THE HIGHER OF CURB OR GRADE. NO CELANOUTS LOCATED IN PAVED AREAS.
4. 3' MIN. COVER FROM FINISHED GRADE TO TOP OF SERVICE DUCTILE IRON PIPE. IN AREAS NOT SUBJECT TO VEHICULAR TRAFFIC IS REQUIRED IN AREAS WITH 3' COVER.
5. ALL CLEANOUTS ALONG LATERAL TO HAVE BRASS PLUGS OF SAME SIZE AS LATERALS.
6. ALL LATERALS MUST BE STRAIGHT RUNS.
7. LATERAL SIZE MUST BE 4" MINIMUM.

TYPICAL LATERAL DETAIL WITH BACKFLOW PREVENTER AND SANITARY SEWER CLEANOUT DETAIL

1 NOT TO SCALE



2 SANITARY SEWER PIPE BEDDING DETAIL
NOT TO SCALE



PIPE EMBEDMENT ZONE WIDTH SCHEDULE

INSIDE DIA. OF PIPE (D)	4", 6", 8", 10", 12"	15"	18"	21"	24"	27"
EMBEDMENT ZONE WIDTH (W)	3'-0"	3'-6"	3'-6"	4'-0"	4'-0"	4'-6"

TRENCH EXCAVATION AND BACKFILL NOTES:

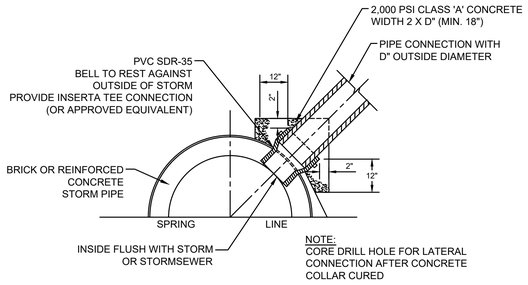
1. THE MAXIMUM DRY DENSITIES SHALL BE DETERMINED IN ACCORDANCE WITH ASTM DESIGNATION D1557. THE MINIMUM PERCENTAGE OF COMPACTION TO BE ACHIEVED BY THE CONTRACTOR IN THE VARIOUS ZONES IS AS FOLLOWS:

	PIPE MATERIAL	LOCATION	INITIAL COMPACTION
SURFACE ZONE:	ALL	ALL	95%
TRENCH BACKFILL ZONE:			90%
PIPE EMBEDMENT ZONE:			95%

THE MINIMUM COMPACTION IN EMBANKMENT SHALL BE 90%

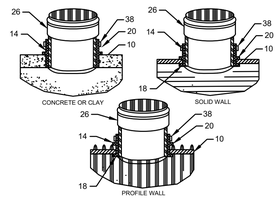
2. THE PIPE EMBEDMENT ZONE WIDTH AND THE MAXIMUM TRENCH WIDTH SHALL NOT EXCEED THE PERMISSABLE WIDTHS SHOWN. IF PERMISSABLE WIDTH IS EXCEEDED, THE PIPE SHALL BE INSTALLED IN A HIGHER CLASS BEDDING THAN SHOWN ON THE DRAWINGS OR THE SPECIFIED PIPE SHALL BE REPLACED WITH PIPE OF GREATER CRUSHING STRENGTH OR BOTH, TO ACHIEVE SUITABLE CONDITIONS.
3. SUITABLE MATERIAL FROM EXCAVATIONS SHALL BE FREE OBJECTIONABLE QUANTITIES OF ORGANIC MATTER, CLAYS, TREES, STUMPS, FROZEN MATERIAL, RUBBLE, REFUSE, CINDERS, ROCK AND OTHER MATERIALS CONSIDERED DELETERIOUS BY THE AUTHORITY AND SHALL NOT HAVE FINES IN EXCESS OF 10 PERCENT PASSING THE NO. 200 SIEVE NOR STONE OR GRAVEL LARGER THAN 2 INCHES.
4. FOR PIPE MATERIALS OTHER THAN PVC, PIPE EMBEDMENT ZONE MAY BE INCREASED BY 6 INCHES.

5 SANITARY PIPE EMBEDMENT
NOT TO SCALE



SADDLE CONNECTION TO BRICK OR R.C. PIPE STORM DETAIL (IF REQUIRED)

3 NOT TO SCALE



NOTE: AIR TIGHT SEAL IS ACCOMPLISHED WHEN PVC HUB (NO. 26) IS DRIVEN INTO RUBBER SLEEVE (NO. 14) CAUSING THE RUBBER SLEEVE TO COMPRESS BETWEEN PIPE WALL (NO. 10) AND PVC HUB (NO. 26).

FIG. 10 MAINLINE PIPE ALL WHERE BRANCH LINE IS CONNECTED.
FIG. 14 COMPLETE RUBBER SLEEVE CONSISTING OF C-443 SPECIFICATIONS.
FIG. 18 RUBBER SEGMENT WHICH IS MOLDED INTO THE RUBBER SLEEVE. THIS PREVENTS SNAP OUT ON THE INSIDE OF THE DRILLED HOLE (PLASTIC PIPE ONLY) AND HELPS HOLD THE FITTING IN PLACE, NOT CREATING THE SEAL.
FIG. 20 RUBBER SEGMENT WHICH IS MOLDED INTO THE RUBBER SLEEVE. THIS PREVENTS THE RUBBER SLEEVE FROM GOING THROUGH THE DRILLED HOLE WHEN PVC HUB IS BEING DRIVEN INTO THE RUBBER SLEEVE.
FIG. 26 SDR-35 PVC HUB (ASTM D-3034 SEWER PIPE) WHICH IS DRIVEN INTO THE CENTER OF THE RUBBER SLEEVE AFTER THE RUBBER SLEEVE IS IN THE HOLE.
FIG. 38 STAINLESS STEEL BAND, PUT ON ABOVE FIG. 20 IS AN ADDED PRECAUTION.

4 INSERTA TEE CONNECTION DETAILS (OR APPROVED EQUIVALENT)
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

PENNONI ASSOCIATES INC.
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Camden, NJ 08103
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APPROVED BY	JJR

CS6051

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U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6051.dwg PLOTTED: 8/22/2024 5:13 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

LANDSCAPE NOTES:

1. ALL PROPOSED PLANT MATERIAL NOT SURVIVING FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF FINAL INSPECTION SHALL BE REPLACE WITH THE EQUIVALENT SIZE AND SPECIE AND AT NO ADDITIONAL COST TO THE OWNER, MAINTENANCE SHALL BE PERFORMED TO INSURE THE PROPOSED PLANTS HAVE A HEALTHY/VIGOROUS GROWTH PERIOD. IF THE PROPOSED PLANT HAS A BROKEN AND/OR DAMAGE LEADER WILL CONSTITUTE EITHER A FULL REPLACEMENT OF THE TREE OR GIVEN AN EXTENDED ONE (1) YEAR GUARANTEE PENDING ON THE CITY'S REPRESENTATIVES DECISION. ANY PROPOSED PLANT THAT IS 25% DEAD OR MORE SHALL BE REPLACED IF THE TWO (2) YEAR MAINTENANCE PERIOD AND GIVEN AN EXTENDED TIME PERIOD OF ANOTHER TWO (2) YEAR MAINTENANCE PERIOD.WHERE IT IS NECESSARY TO REPLACE PLANT MATERIAL, THE LANDSCAPE ARCHITECT/ENGINEER OR OWNER SHALL INFORM THE CONTRACTOR THEREOF BEFORE SUCH REPLACEMENTS MADE. THE CONTRACTOR SHALL PERIODICALLY VISIT THE SITE AT HIS DISCRETION DURING THE TWO YEAR GUARANTEE PERIOD AND ADVISE THE OWNER, IN WRITING, OF ANY CONDITIONS WHICH APPEAR TO IMPACT. THE CONTRACTOR SHALL MAINTAIN ALL PLANTING BY WATERING, FERTILIZING. DISEASE CONTROL. PRUNING, WEEDING, ETC. SO AS TO KEEP THE COMPLETED WORK AND/OR INCOMPLETE WORK IN A CLEAN AND NEAT CONDITION AT ALL TIMES.

2. THE CONTRACTOR SHALL NOTIFY OWNER AND LANDSCAPE ARCHITECT /ENGINEER UPON COMPLETION OF GUARANTEE PERIOD AND REQUEST A FINAL REVIEW PRIOR TO ACCEPTANCE OF WORK SHOULD ANY PORTION OF THE WORK BE UNACCEPTABLE, CONTRACTOR SHALL MAKE ALL WORK ACCEPTABLE AND REQUEST RE-REVIEW BY OWNER AND LANDSCAPE ARCHITECT/ENGINEER. CONTRACTOR WILL BE NOTIFIED BY LETTER OF ACCEPTANCE WITHIN FIVE (5) DAYS AFTER INSPECTION OR FIVE (5) DAYS AFTER RE-REVIEW SHOULD THE LATTER BE NECESSARY.

3. THE GATOR BAGS ARE TO BE INSTALLED ON EACH NEW TREE AND GUARANTEE FOR ONE YEAR. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK THE GATOR BAG FOR WATER AND /OR IF PERCOLATION IS OCCURRING AROUND THE TREE. PERCOLATION IS NOT OCCURRING, THEN THE CONTRACTOR IS TO CLEAN THE GATOR BAGS OR REPLACE IT WITH A NEW ONE. IF ANY TREE INSTALLED LOOKS STRESSED OUT AND/OR IS A REPLACEMENT TREE, THE GATOR BAG MUST RECEIVE ANOTHER YEAR FROM THE TIME OF INSTALLATION WITH THE ORIGINAL GUARANTEE STILL IN PLACE ANY GATOR BAGS FOUND DEFICIENT AND/OR LOST/STOLEN MUST BE REPLACED/PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND/OR CITY. CONTRACTOR IS TO REMOVE THE GATOR BAGS EVERY SIXTY (60) DAYS AND PLACE BACK ON EVERY SEVEN (7) DAYS. THE CONTRACTOR CAN REMOVE THE GATOR BAGS DURING THE WINTER MONTHS UNLESS THE TEMPERATURE GOES ABOVE 55 DEGREES FAHRENHEIT FOR A PERIOD OF THREE STRAIGHT DAYS OR MORE.

4. ALL DISTURBED AREAS TO BE GRASS ARE TO RECEIVE SCREENED CLEAN TOPSOIL, FINE GRADED, SEEDED, AND MULCHED PRIOR TO INSTALLATION, THE CONTRACTOR. MUST SUBMIT SHOP DRAWINGS FOR BOTH EROSION CONTROL MULCH BLANKET AND SEED MIX TO THE LANDSCAPE ARCHITECT/ENGINEER FOR APPROVAL. REFER TO PROJECT SPECIFICATIONS FOR FURTHER INFORMATION REGARDING EACH ITEM.

5. ALL PLANT LOCATIONS SHALL BE STAKED IN THE FIELD AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT/OR ENGINEER PRIOR TO PLANTING.

6. TOPSOIL WITH A QUALITY ORGANIC SOIL AMENDMENT SHALL BE USED FOR ALL PLANTING AND SEEDING OPERATIONS.

7. INSTALL 24" MINIMUM TOPSOIL MIXTURE IN THREE BEDS; 12" MINIMUM TOPSOIL MIXTURE IN PERENNIAL, GROUNDCOVER, SHRUB AND EVERGREEN BEDS. 6" OF TOPSOIL MIXTURE ARE TO REMAIN ON ALL DISTURBED AREAS TO RECEIVE SEED.

8. NOTIFY ALL UTILITY COMPANIES AND LOCATE ALL UTILITIES PRIOR TO EXCAVATING PLANT PITS. PLANT LOCATIONS MAY BE ADJUSTED IN THE FIELD TO AVOID INTERFERENCE WITH UNDERGROUND UTILITIES.

9. SHOULD ANY DISCREPANCY ARISE BETWEEN THE PLANTING PLAN AND THE PLANTING SCHEDULE, THE CONTRACTOR IS RESPONSIBLE FOR THE QUANTITIES SHOWN ON THE LANDSCAPE PLAN.

10. ALL PLANT MATERIAL SHALL BE OF NURSERY STOCK QUALITY AS DEFINED BY THE AMERICAN ASSOCIATION OF NURSERYMAN STANDARDS AND SHALL BE FIRST QUALITY NURSERY GROWN STOCK FREE OF DISEASE AND OBJECTIONABLE DISFIGUREMENTS AND PLANTED IN CONFORMANCE WITH SOUND NURSERY PRACTICE AND APPLICABLE CITY STANDARDS.

11. ALL NON-BIODEGRADABLE ROOT WRAPPING TO BE REMOVED COMPLETELY BEFORE PLANTING.

12. ALL TREES SHALL BE BALLED AND BULLAPED, NURSERY GROWN STOCK.

13. ALL PLANT MATERIAL AND LAWNS SHALL BE PLANTED WITHIN THE RECOMMENDED SEASONAL TIME PERIODS AS PRESCRIBED BY ACCEPTED HORTICULTURAL PRACTICE. REFER TO CONSTRUCTION SPECIFICATIONS FOR RECOMMENDED PLANTING TIMES. FALL DIGGING AND TRANSPLANT HAZARD TREE SPECIES (OAKS,ETC.) SHALL ONLY BE DUG AND PLANTED IN SPRING.

14. ALL PLANT MATERIAL SHALL BE APPROVED UPON ARRIVAL TO THE SITE BY LANDSCAPE ARCHITECT OR ENGINEER, UNLESS OTHERWISE NOTIFIED.

15. PROPOSED PLANT MATERIAL MAY BE SUBSTITUTED BY SIMILAR PLANTS PRIOR TO INSTALLATION, SUBJECT TO APPROVAL BY THE ENGINEER.

16. A TEMPORARY FENCE, SUCH AS SNOW FENCE, SHALL BE ERECTED AT THE PERIMETER OF THE DRIPLINE OF ALL EXISTING VEGETATION INDICATED TO REMAIN. PRIOR TO EXCAVATION, CONSTRUCTION OR SITE WORK. THIS FENCE SHALL BE REMOVED ONLY AT THE TIME OF COMPLETION OF ALL CONSTRUCTION AND FINAL GRADING. COST TO BE INCLUDED IN ASSOCIATED BID ITEMS.

17. EXISTING TREES TO BE RELOCATED SHALL BE HANDLED ACCORDING TO ACCEPTABLE HORTICULTURE PRACTICE.

18. ALL DISTURBED AREAS NOT SHOWN AS PLANTED OR LAWN SHALL BE TOPSOILED AND SEEDED OR RETURNED TO THEIR ORIGINAL STATE BEFORE DISTURBANCE AS DIRECTED BY THE ENGINEER.

19. ALL AREAS NOT RELATED TO THE PROPOSED DEVELOPMENT SHALL REMAIN IN THEIR NATURAL STATE. DISTURBANCE OF EXISTING VEGETATION SHALL BE LIMITED TO WORK AREA AND AS DEFINED ON DWGS.

20. ADDITIONAL LANDSCAPING APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE APPLICANT TO REPLACE ANY VEGETATION IN ADVERTENTLY REMOVED OUTSIDE THE LIMIT OF DISTURBANCE LINE AS SHOWN ON THE APPROVED GRADING PLAN DURING CONSTRUCTION.

21. PROPOSED TREES SHALL NOT BE PLANTED WITHIN EASEMENTS, DRIVEWAYS AND SITE TRIANGLES. THEREFORE, THE TREE LOCATIONS SHALL BE APPROXIMATE AND SHALL BE ADJUSTED IN THE FIELD AS REQUIRED.

22. ALL SHADE TREES IN PEDESTRIAN WALKS AREAS SHALL HAVE AN INITIAL LIMBS PRUNED STARTING AT A MINIMUM OF 7 FT. ABOVE FINISHED GRADE.

23. MULCH THICKNESS MUST BE SHREDDED HARDWOOD BARK AND TO FOLLOW VARIOUS PLANTING DETAILS ON SHEET CS6061. NO DYE MULCH IS ACCEPTABLE. SEE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

24. PLANTS ARRANGED IN CONTINUOUS GROUPINGS SHALL BE SET IN MULCHED BEDS. THIS INCLUDES ANY PLANTS SPACED 7 FT O.C. OR CLOSER. ANY STREET TREES MUST FOLLOW TREE PIT DETAIL FOR STREET TREE PIT REQUIREMENTS.

25. ALL PLANTING DEBRIS SHALL BE REMOVED FROM THE PROPERTY.

26. ANY LIVE TREE WHICH IS SUBSTANTIALLY DAMAGED AS A RESULT OF GRADING OR GENERAL CONSTRUCTION MUST BE REMOVED AND REPLACED WITH ANOTHER TREE OR TREES AS APPROVED BY THE ENGINEER.

27. TREE REMOVAL FROM ANY SLOPE OR ENVIRONMENTALLY SENSITIVE AREA IS PROHIBITED IF IT WILL CONTRIBUTE, IN THE OPINION OF THE ENGINEER, TO EXTRA RUNOFF OF SURFACE WATER ONTO ADJOINING PROPERTY AND EROSION AND SILTING, UNLESS OTHER MEANS APPROVED BY THE ENGINEER ARE PROVIDED TO PREVENT RUNOFF AND EROSION.

28. NO HEALTHY TREE THAT IS SPECIAL BY VIRTUE OF HISTORY, UNUSUAL SIZE, OR AGE OR OF RARE SPECIES, SHALL BE REMOVED EXCEPT AS MAY BE REQUIRED FOR PROTECTION OF PUBLIC HEALTH, SAFETY AND WELFARE.

29. SELECTED EXISTING HEALTHY TREES SIX (6) INCHES IN CALIPER OR LESS MEASURED FOUR (4) FEET ABOVE THE GROUND SHALL BE RELOCATED ON-SITE UNDER THE DIRECTION AND APPROVAL OF THE ENGINEER.

30. NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED AT THE TIME OF PLANTING. REGULAR WATERING SHALL BE PROVIDED TO ENSURE THE ESTABLISHMENT AND REGULAR GROWTH OF PLANTS. CONTRACTOR TO REFER TO CONSTRUCTION SPECIFICATIONS.

31. SEED ALL DISTURBED AREAS WITH REQUIRED SEED MIX (CONTRACTOR TO REFER TO CONSTRUCTION SPECIFICATIONS).

32. TREES SHOULD BE PLANTED A MIN. OF FIVE (5) FEET FROM SIDEWALKS UNLESS IN TREE PITS.

33. GUY WIRES AND STAKES WILL ONLY BE UTILIZED IF CONDITIONS MERIT AND WILL BE REMOVED BY THE CONTRACTOR AT THE END OF THE GUARANTEE PERIOD.

34. CONTRACTOR MUST REVIEW CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION ON PLANTING PLANTS.

LANDSCAPE MAINTENANCE NOTES:

THE OWNERS OF THE COMPANY AND THEIR AGENTS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION AND MAINTENANCE OF ALL PLANTING AND PHYSICAL FEATURES SHOWN ON THE PLANS. ANY AND ALL PLANT MATERIAL THAT DIES OR FAILS TO THRIVE SHALL BE IMMEDIATELY REPLACED WITH LIKE SPECIES. THE OWNERS SHALL BE RESPONSIBLE FOR ANNUAL MAINTENANCE OF SITE VEGETATION TO INCLUDE BUT NOT BE LIMITED TO:

1. FERTILIZER: MOW LAWN - FERTILIZE TWICE PER YEAR.
   MEADOW - DO NOT FERTILIZE THE AREAS
   RAIN GARDEN - DO NOT FERTILIZE THE AREAS

2. PRUNING: PRUNING SHALL BE LIMITED OR REMOVAL OF DEAD WOOD OR BRANCHES FOR TREES OR FOR SIGHT DIFFERENCES/SAFETY REASONS. PRUNING OF SHRUBS AND TREES SHALL BE LIMITED TO THE PRUNING NECESSARY TO MAINTAIN THE NATURAL SHAPE OF THE PLANT EXCEPT FOR SHEARED HEDGES.

3. PEST CONTROL: PRE-EMERGENT WEED CONTROL FOR MOWN LAWNS AND SHRUB BEDS MAY BE APPLIED IN FEBRUARY. CHEMICAL TREATMENT FOR INSECT INFESTATION AND DISEASE MAY BE APPLIED AND SHALL BE SPECIFIC TO THE PROBLEM.

4. MULCHING: MULCHING SHALL BE MAINTAINED AT A DEPTH OF 3"IN PLANT BEDS AND AROUND BASE OF TREES.

5. MOWING: MOWN LAWN SEED MIX SHALL BE MOWN AT REGULAR INTERVALS THROUGHOUT THE GROWING SEASON. GRASS HEIGHT SHOULD NOT EXCEED 3 INCHES. MOWER BLADES SHALL BE SET AT 2–1/2 INCHES UNLESS OTHERWISE DIRECTED.
   MEADOW SEED MIX AREAS FIRST YEAR MAINTENANCE CONSISTS OF OBSERVATION OF THE DESIRED SPECIES GROWTH AND WEED COMPETITION WHEN MAKING MAINTENANCE DECISIONS. WHEN UNDESIRABLE VEGETATION REACHES 12"–18" TALL, MOW TO NO LESS THAN 6" HIGH (WITH A MOWER OR WEED EATER) TO PREVENT THE WEEDS FROM DEVELOPING SEED. GENERALLY, NATIVE PLANTS WILL GROW MORE EXTENSIVE ROOT SYSTEMS THAN TOPS IN THE FIRST YEAR; THEREFORE, MOWING TO 6"–8" HIGH WILL NOT CAUSE HARM. THIS PRACTICE ALLOWS SUNLIGHT TO REACH DESIRED SPECIES. DO NOT MOW WITH A LAWN MOWER, AS MOWING TOO CLOSE ENCOURAGES WEEDY GRASS SPECIES. PROVIDE IRRIGATION DURING PERIODS OF DRY WEATHER IS NEEDED FOR PROPER GERMINATION. MAINTAIN 1" OF WATER PER WEEK THROUGHOUT THE GROWING SEASON. SECOND YEAR MAINTENANCE OF THESE AREAS CONSISTS OF REMOVING UNDESIRED VEGETATION AND MOWING ONCE, CLOSE TO THE GROUND, IN EARLY SPRING. THIS ALLOWS YOUNG NATIVE PLANTS TO EMERGE AND RAPID WARMING OF THE SOIL. YEAR THREE AND BEYOND FOR THE AREAS, CONSISTS OF REMOVING UNDESIRABLE VEGETATION AND PREVENTING A BUILD–UP OF DEAD VEGETATION KNOWN AS "THATCH". THATCH WILL KEEP THE MEADOW AREAS FROM BEING HEALTHY AND DIVERSE. DEPENDING ON THE RATE OF THATCH BUILD–UP, MOW TO THE GROUND AND RAKE OFF THE RESIDUAL VEGETATION BEFORE SPRING GREEN–UP (APRIL), EVERY THREE TO FIVE YEARS.

6. PLANT PROTECTION: AVOID EXCESS INTRUSION INTO THE ROOT ZONE AREA OF ESTABLISHED PLANTINGS.

7. WATERING: UNLESS STATED OTHERWISE IN THESE DOCUMENTS, PROVIDE APPROXIMATELY 1–INCH OF RAINFALL/WATER PER WEEK THROUGHOUT THE GROWING SEASON FOR THE FIRST YEAR.

PERENNIAL AND GROUNDCOVER MAINTENANCE

1. WEED CONTROL CAN BE A PROBLEM UNTIL THE GROUNDCOVERS/ PERENNIALS HAVE SPREAD AND FILLED IN THE AREA. CONTROL OF PERSISTENT, PERENNIAL WEEDS, SUCH AS BERMUDAGRASS AND NUTGRASS SHOULD BE ACHIEVED BEFORE PLANTING. USE A NONSELECTIVE HERBICIDE, SUCH AS ROUNDUP. A MULCH APPLIED AFTER PLANTING AND REPLENISHED AS NEEDED TO MAINTAIN A DEPTH OF 3 INCHES WILL REDUCE THE NEED TO WEED BY HAND. PRE–EMERGENCE HERBICIDES CAN BE USED ON MANY TYPES OF GROUNDCOVER TO AID WEED CONTROL; READ THE LABEL CAREFULLY BEFORE APPLYING. AS THE GROUNDCOVER FILLS IN WEEDS WILL BECOME LESS OF A PROBLEM BECAUSE OF THE SHADED SOIL. SOME HAND WEEDING WILL MOST LIKELY BE NEEDED.

2. FOR BIORETANTION/RAINGARDEN PEST CONTROL:
   ONLY USE NJDEP APPROVED WEED CONTROL CHEMICALS, CHEMICAL TREATMENT FOR INSECTS INFESTATION AND DISEASE CAN BE USED IN THE BIORETANTION/RAINGARDENS PRIOR TO INSTALLING ANY CHEMICALS, CONTRACTOR MUST GET APPROVAL FROM CITY. GENERALLY, CONTRACTOR IS REQUIRED TO PULL WEEDS/INVASIVE WEED SPECIES (INCLUDING ROOTS) BY HAND FOR THREE (3) GROWING SEASONS / YEARS. AFTER YEAR THREE (3) PULLING WEEDS IS TO CONTINUE AS REQUIRED UNDER MAINTENACE CONTRACT WITH OWNER.

3. FERTILIZER – MOST GROUND COVERS WILL BENEFIT FROM AN APPLICATION OF FERTILIZER IN LATE WINTER TO EARLY SPRING. USE 2 TO 4 POUNDS OF A COMPLETE FERTILIZER PER 1,000 SQUARE FEET. WATER OR BRUSH FERTILIZER OFF THE FOLIAGE AFTER BROADCASTING.

SEEDING NOTES:

1. SEED ALL AREAS DISTURBED BY CONSTRUCTION NOT OTHERWISE CONTAINING PLANTING BEDS, SIDEWALKS, BUILDINGS, ETC.

2. BEFORE SEEDING, CONTRACTOR SHALL PROVIDE SOIL TESTS AND INCORPORATE NECESSARY SOIL AMENDMENTS PER SOIL TEST RECOMMENDATIONS.

3. PERFORM ALL FINISH GRADING, WITHIN AREAS OF DISTURBANCE, NECESSARY TO BRING SITE TO REQUIRED FINISHED ELEVATIONS. FINISH GRADING SHALL CONSIST OF PREPARING SUBGRADE AND SPREADING TOPSOIL READY FOR SEEDING OPERATIONS.

4. TOPSOIL SHALL BE UNIFORMLY SPREAD IN DISTURBED AREAS WITH BLADE GRADER, OR BY ANY OTHER APPROVED METHOD, TO A MINIMUM DEPTH OF 6 INCHES TO PERMIT 1 INCH OF SETTLEMENT. CORRECT ANY SURFACE IRREGULARITIES TO PREVENT FORMATION OF LOW SPOTS AND POCKETS THAT WOULD RETAIN WATER. PRIOR TO FINE GRADING, REMOVE ALL EXISTING ANNUAL TYPE VEGETATION.

5. SOW SEED AT THE RECOMMENDED SEEDING RATE AS SHOWN IN THE SEEDING MIX SCHEDULE.

6. SEED SHALL BE APPLIED APRIL 15TH THRU MAY 31ST OR AUGUST 17TH THRU OCTOBER 15TH.

7. AFTER SEEDING APPLICATION, WOOD CELLULOSE FIBER SHALL BE APPLIED HYDRAULICALLY AT A NET RATE DRY WEIGHT OF 1,500 LBS PER ACRE OR AT RATES RECOMMENDED BY THE MANUFACTURER. MULCH ALL SEEDED AREAS WITH CLEAN STRAW.

8. ON ALL SLOPES 3:1 OR GREATER, USE AN ORGANIC SOIL STABILIZER SUCH AS 'CON-TACK' OR EQUAL AT THE RATE OF 25 LBS PER 1,000 GALLONS OR AT RATES RECOMMENDED BY THE MANUFACTURER.

9. KEEP NEWLY SEEDED GRASS AREAS MOISTENED DURING SEED GERMINATION AND UNTIL THE GRASS COVERS AT LEAST 75% OF THE SEEDED AREAS TO A HEIGHT OF 2 TO 3 INCHES.

10. ALL AREAS AND SPOTS, WHICH DO NOT SHOW A PROMPT CATCH OF GRASS, SHALL THEN BE RE-SEEDED, AND THE OPERATION REPEATED UNTIL COMPLETE COVERAGE IS OBTAINED.

IRRIGATION NOTES

1. ALL ON-SITE IRRIGATION TO BE DESIGNED BY CONTRACTOR. CONTRACTOR TO SUBMIT SHOP DRAWING WITH LAYOUT TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

2. CONTRACTOR IS RESPONSIBLE FOR COMPLETE WATER COVERAGE IN ALL WATERING AREAS OF PARK (INCLUDES ALL PLANT BEDS, TREES, AND DISTURBED LAWN AREAS). CONTRACTOR IS TO COORDINATE WORK WITH THE OWNER AND ENGINEER TO DETERMINE THE EXACT PIPE ROUTING AND PLACEMENT OF ALL COMPONENTS ON SITE. THIS INCLUDES ALL PLACEMENT OF VALVES. CONTRACTOR IS TO COORDINATE IRRIGATION WORK WITH ANY EXISTING AND PROPOSED UTILITIES. COST TO BE INCLUDED IN THE LUMP SUM BID COST FOR AN IRRIGATION SYSTEM.

3. ALL MAIN PIPING SHALL BE SDR 21 CLASS 200 PVC PIPE.

4. ALL ZONE PIPING SHALL BE SDR 21 CLASS 200 PVC PIPE.

5. ALL PIPE AND WIRE UNDER HARD SURFACES MUST BE INSTALLED IN A PVC SCH 40 PIPE SLEEVES. ALL PIPE SLEEVES ARE TO BE 2 TIMES THE OD OF THE PIPE TO BE SLEEVED. ALL WIRE SLEEVES MUST BE A MINIMUM OF 4-INCH OD PIPE . ALL SLEEVES TO EXTEND 18" PAST CURBS, STEPS, PAVEMENT, SIDEWALK, AND/OR HARD SURFACES SLEEVED. ALL SLEEVES ARE TO HAVE 6" LEVEL CLEAN SAND BEDDING.

6. ALL T7P SPRINKLERS USE #12 NOZZLE OR APPROVED EQUAL AT A MINIMUM.

7. ALL ZONES WITH FULL CIRCLE SPRINKLERS RUN TWICE AS LONG AS PART CIRCLE ZONES.

8. IRRIGATION CONTROL SYSTEM IS TO BE INSTALLED IN THE MECHANICAL ROOM OF BUILDING. COST TO BE INCLUDED IN THE LUMP SUM BID COST FOR THE IRRIGATION SYSTEM.

9. DESIGN REQUIREMENTS:

   - THE CONTRACTOR MUST BE CIC CERTIFIED TO INSTALL IRRIGATION IN THE STATE OF NEW JERSEY
   - THE CONTRACTOR MUST SUPPLY A RECORD DRAWING WITH CID STAMP CERTIFIED IN LATEST A-CAD VERSION
   - THE CONTRACTOR MUST SUPPLY A IRRIGATION SCHEDULE BY A CID COMMERCIAL IRRIGATION TO BE REVIEWED BY OWNER'S AGENT
   - THE CONTRACTOR TO USE GATE VALVES PER SIZE OF IRRIGATION PIPES IN THE IRRIGATION SYSTEM DESIGN.
   - THE CONTRACTOR TO USE 1" QUICK COUPLER VALVES IN THE IRRIGATION SYSTEM DESIGN.
   - ALL PLANTING BEDS ARE TO RECEIVE DRIP IRRIGATION.
   - WEATHERTRAK TWO WIRE CONTROLLER OF APPROVED EQUAL IS TO BE INSTALLED IN A CONTROL BOX WITH A CAPABILITY TO HOLD A LOCK. LOCK TO BE PROVIDED BY CONTRACTOR. CONTROLLER IS TO BE LOCATED INSIDE THE CHAIN LINK ENCLOSURE.
   - CONTRACTOR TO PROVIDE A BACKFLOW PREVENTOR AND A HOTBOX.
   - ALL UNDERGROUND, WATER BOXES ARE TO BE INSTALLED IN A TAMPER PROOF BOX.
   - WEATHERTRAK SURGE DEVICE WITH GROUND ROAD AND CADWELD CLAMPS OR APPROVED EQUAL. SURGE DEVICES NOT TO EXCEED 500 FEET ON ANY LEG OF DECODER WIRE.
   - 14/2 DECODER WIRE WITH 4 FOOT LOOP AT EACH VALVE
   - CONTRACTOR SHALL RUN A MINIMUM OF 2 WIRE LEGS AND USE PAIGE LEG SPLICES AT ALL SPLICE TEE LOCATIONS.
   - CONTRACTOR SHALL SUBMIT SHOP DRAWING OF IRRIGATION ALONG WITH 2 WIRE LEG RUNS TO ENGINEER FOR REVIEW AND APPROVALS.

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.662.8600
N.J. CA NO. GA28033300

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768
08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

LANDSCAPE AND IRRIGATION NOTES

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	N.T.S.
DRAWN BY	BF
APPROVED BY	JJR

CS6061

SHEET 37 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6061-CS6062.dwg PLOTTED: 8/22/2024 5:13 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

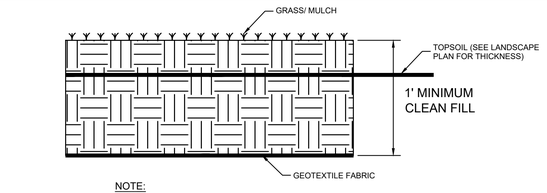
OFFICE BUILDING LANDSCAPING SCHEDULE

QTY	ITEM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
TREE							
12	ACQ	ACER CAMPESTRE 'QUEEN ELIZABETH'	QUEEN ELIZABETH HEDGE MAPLE	2.5" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
9	ARO	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
8	CB	CARPINUS BETULUS 'FASTIGIATA'	COLUMNAR HORNBEAM	3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
10	CC	CERCIS CANADENSIS	EASTERN REDBUD	2.5" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
16	PA	PLATINUS X ACERFOLIA 'COLUMBIA'	COLUMBIA PLANETREE	3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
2	PK	PRUNUS 'KWANZAN'	KWANZAN CHERRY	2.5" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
13	SR	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK LILAC	2.5" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
5	SRI	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK LILAC	3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL HEAD
EVERGREEN							
21	CL	X CUPRESSOCYPARIS LEYLANDII	Leyland Cypress	6'	10' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
3	IN	ILEX 'NELLIE R STEVENS'	NELLIE R STEVENS HOLLY	6'	10' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
12	JCH	JUNIPERUS CHINENSIS 'HETZII COLUMNARIS'	COLUMNAR HETZI JUNIPER	4-5'	3' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
19	JVI	JUNIPERUS VIRGINANA	EASTERN RED CEDAR	4-5'	3' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
	JVI	JUNIPERUS VIRGINANA	EASTERN RED CEDAR	6'	6' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
13	TON	THUJA OCCIDENTALIS 'NIGRA'	NIGRA ARBORVITAE	6'	10' O.C.	B&B	SINGLE TRUNKM FULL HEAD, BRANCHES START @ GROUND
SHRUB							
37	FG	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	24-30" HT	3' O.C.	#5 CONT.	FULL FORM HEAD
37	IG	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24-30" HT	3' O.C.	#5 CONT.	FULL FORM HEAD
9	PO	PHYSOCARPUS OPULIFOLIUS 'SUMMER WINE'	SUMMER WINE NINEBARK	30-36" HT	AS SHOWN	#7 CONT.	FULL FORM HEAD
27	PL	PRUNUS LAUROCERASSUS 'OTTO LUYKENS'	OTTO LUYKENS CHERRYLAUREL	24-30" HT	3' O.C.	#5 CONT.	FULL FORM HEAD
40	SJ	SPIREA JAPONICA ' ANTHONY WATERER'	ANTHONY WATERER JAPANESE SPIREA	24-30" HT	3' O.C.	#5 CONT.	FULL FORM HEAD
PERENNIAL AND ORNAMENTAL GRASS							
121	HSD	HEMEROCALIS 'STELLA D'ORO'	STELLA D'ORO DAYLILY	-	12" O.C.	#1 CONT	FULL FORM HEAD IN CONTAINER
1,000	LM	LIRIOPE MUSCARI 'VARIEGATA'	VARIEGATED LILY TURF	-	15" O.C.	4" POT	FULL FORM HEAD IN CONTAINER
126	PVH	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	-	18" O.C.	#1 CONT	FULL FORM HEAD IN CONTAINER
214	PAL	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY'	LITTLE BUNNY FOUNTAIN GRASS	-	18" O.C.	#1 CONT	FULL FORM HEAD IN CONTAINER

MAIN OFFICE LANDSCAPING SCHEDULE

QTY	ITEM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
TREE							
8	CO	CELTIS OCCIDENTALIS	COMMON HACKBERRY	2.5-3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL SYMMETRICAL HEAD
8	UP	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2.5-3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL SYMMETRICAL HEAD
8	ZS	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2.5-3" CAL	AS SHOWN	B&B	STRAIGHT TRUNK, FULL SYMMETRICAL HEAD

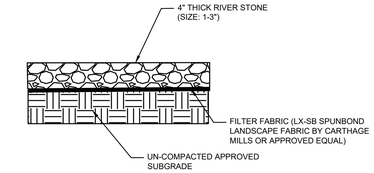
1 LANDSCAPING SCHEDULE
NOT TO SCALE



NOTE:

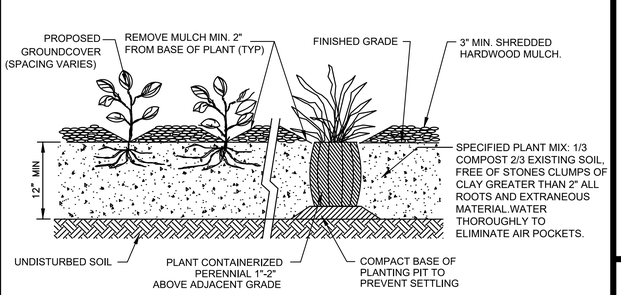
CONTRACTOR MAY BE REQUIRED TO INSTALL MORE THAN 1' MINIMUM CLEAN FILL TO ACCOMPLISH REQUIRED POST GRADING AND TO BE IN ACCORDANCE WITH PLANS AND CONSTRUCTION SPECIFICATIONS

2 VEGETATED AREA REQUIREMENTS
NOT TO SCALE

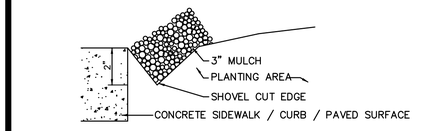


4 RIVER ROCK DETAIL OVER TOP SUBGRADE
NOT TO SCALE

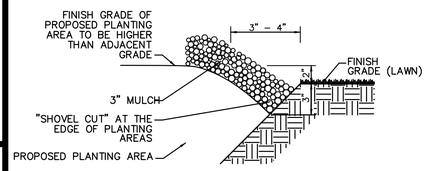
COLOR: MULTICOLOR



6 TREE PLAPERENNIAL/GROUNDCOVER/ORN. GRASS PLANTING
NOT TO SCALE



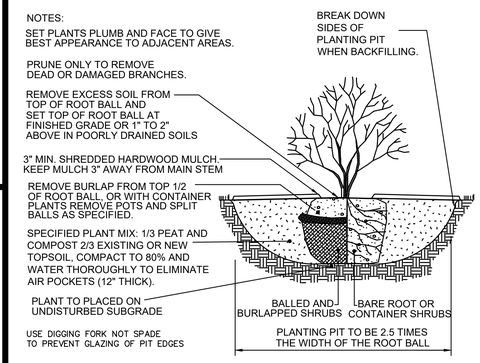
TYPICAL EDGING DETAIL AT PAVING



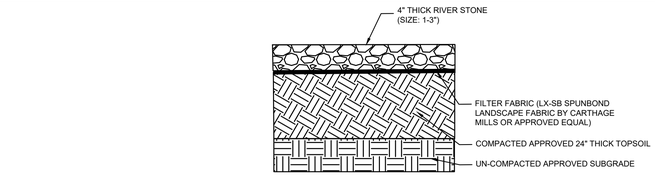
NOTE: PROPOSED TURF AREA TO MATCH GRADE OF SURROUNDING TURF AREA

TYPICAL EDGING DETAIL AT LAWN

3 MULCH EDGING
NOT TO SCALE

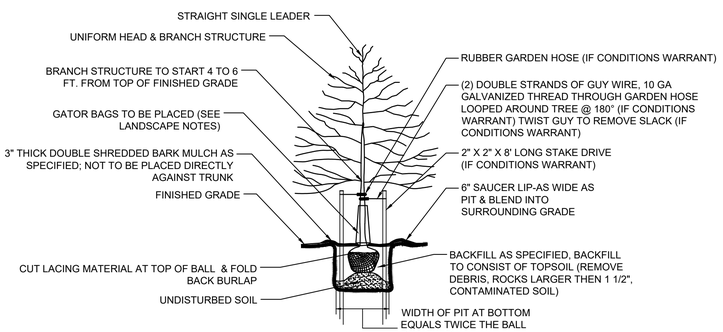


7 SHRUB PLANTING
NOT TO SCALE

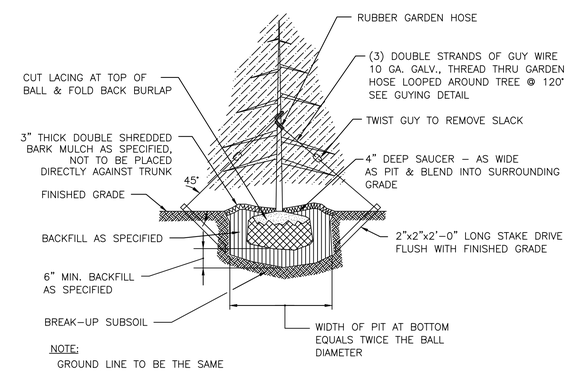


5 RIVER ROCK DETAIL OVER TOP TOPSOIL
NOT TO SCALE

COLOR: MULTICOLOR

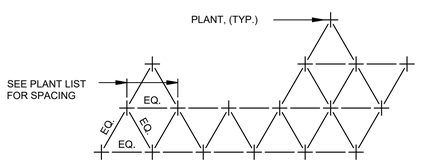


8 TREE PLANTNG DETAIL
NOT TO SCALE



NOTE:
GROUND LINE TO BE THE SAME AS EXISTED AT NURSERY

9 TYPICAL PLANTING-EVERGREEN TREE
NOT TO SCALE



10 PLANT SPACING DIAGRAM
NOT TO SCALE

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5100
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

LANDSCAPE DETAILS

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	N.T.S
DRAWN BY	BF
APPROVED BY	JJR

CS6062

SHEET 38 OF 43

U:\Accounts\USATX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS6062-CS6062.dwg PLOTTED: 8/22/2024 5:13 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

NORTH

PORT ACCESS ROAD (FORMALLY BROADWAY)

BROADWAY (COUNTY ROUTE 551)

INLET PROTECTION (TYP.)

LIMIT OF DISTURBANCE

SILT FENCE (TYP.)

TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

I-8 (TYPE 'B') GRATE 8.89

I-7 (TYPE 'B') GRATE 12.23

I-6 (TYPE 'B') GRATE 12.61

I-5 (TYPE 'B') GRATE 12.60

I-12 (TYPE 'B') GRATE 11.68

I-10 (TYPE 'B') GRATE 10.90

I-9 (TYPE 'B') GRATE 10.93

I-4 (TYPE 'B') GRATE 13.10

I-3 (TYPE 'B') GRATE 12.95

I-2 (TYPE 'E') GRATE 11.87

I-1 (TYPE 'E') GRATE 12.41

STM. MH-1 (60" DIA.) RIM 12.29

STM. MH-2 (60" DIA.) RIM 13.64

STM. MH-3 (60" DIA.) RIM 11.82

STM. MH-4 (48" DIA.) RIM 13.40

PROPOSED BUILDING FF=15.07

PROPOSED POLE BARN FF=13.42

CONSTRUCTION STAGING AND LAYDOWN AREA

STAGING TEMPORARY SOIL STOCKPILE

EROSION CONTROL BLANKET (TYP.)

C-1

C-2

C-3

FES-1 15 IN FES INV 8.39 (15")

EXIST. PSE&G DUCTBANK

PSE&G CONDUIT VERTICAL UP

REROUTED LOCATION OF 15" RCP

ELECTRIC SUBSTATION

BITUMINOUS PAVING

CONCRETE CURB & GUTTER

DETECTABLE WARNING DOMES (TYP)

ROUTE 551 SIGN

SPEED LIMIT SIGN

ROAD WORK SIGN

BUS STOP SIGN

20"X30" BRICK SEWER MAIN

12" STEEL GAS

8" GAS

ELECTRIC/DUCT BANK

FIBER WITNESS POST

SOIL EROSION AND SEDIMENT CONTROL LEGEND:

- LIMIT OF DISTURBANCE
- SILT FENCE
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
- STAGING AREA
- TEMPORARY TOPSOIL STOCKPILE
- EROSION CONTROL BLANKET
- INLET PROTECTION
- C-1 RECOMMENDED SOIL COMPACTION TEST LOCATION (1 PER 0.50 ACRES)

0 30' 60'

PLOTTED: 8/22/2024 5:15 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni-MCS.stb PROJECT STATUS: —

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Pennoni

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.5400
NJ. CA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

OFFICE BUILDING SOIL EROSION AND SEDIMENT CONTROL PLAN

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

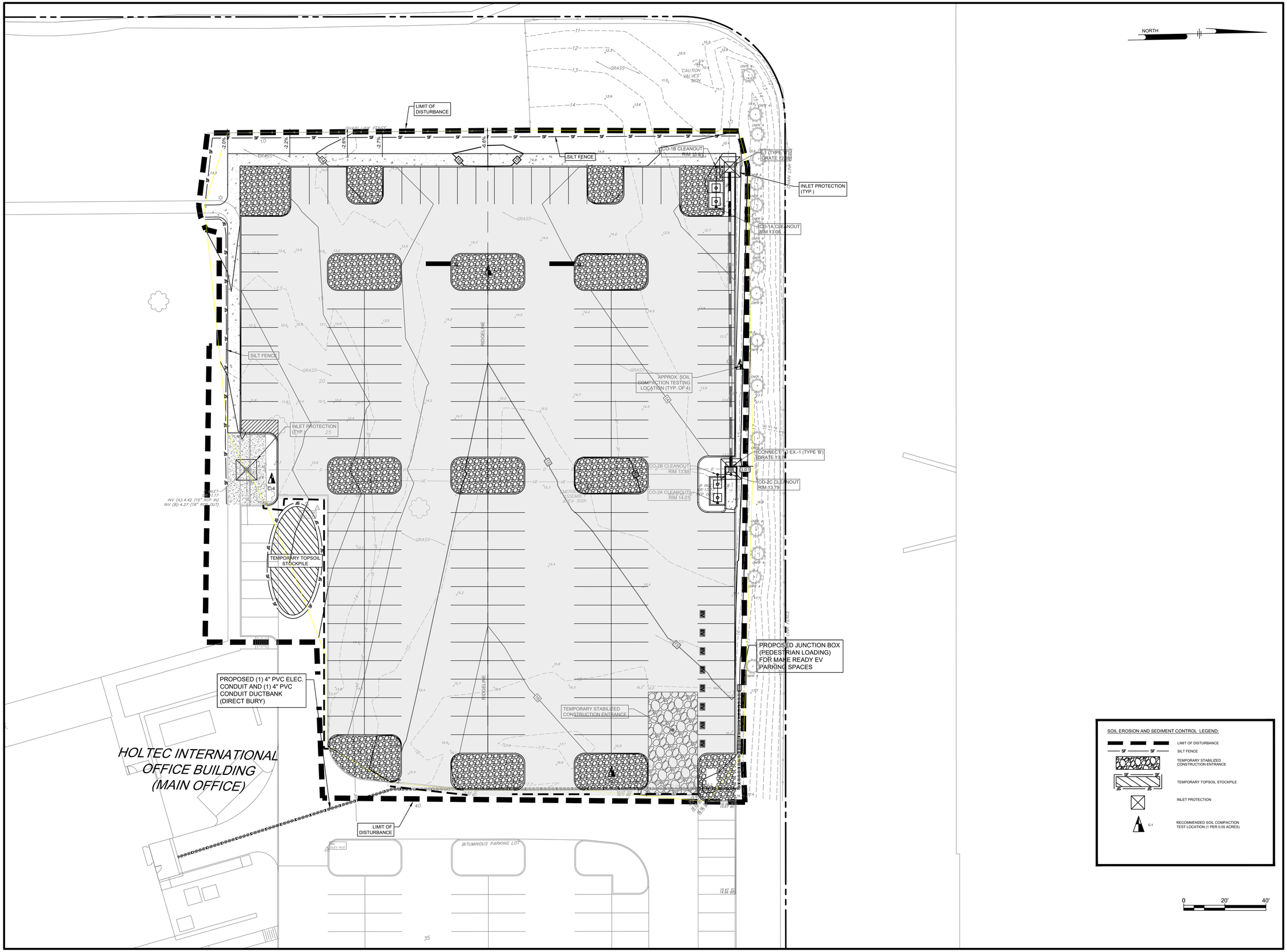
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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=30'
DRAWN BY	BF
APPROVED BY	JJR

CS8001

SHEET 39 OF 43



SOIL EROSION AND SEDIMENT CONTROL LEGEND:

- LIMIT OF DISTURBANCE
- SILT FENCE
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY TOPSOIL STOCKPILE
- INLET PROTECTION
- C-1 RECOMMENDED SOIL COMPACTION TEST LOCATION (1 PER 0.50 ACRES)

PROJECT STATUS: —
PLOTTED: 8/22/2024 5:15 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni NCS.stb
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PENNONI ASSOCIATES INC.
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Camden, NJ 08103
T 856.669.8600
NJ. COA NO. GA28033300

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NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION

2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

MAIN OFFICE PARKING EXPANSION

SOIL EROSION AND SEDIMENT CONTROL PLAN

HOLTEC INTERNATIONAL, INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

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PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=20'
DRAWN BY	BF
APPROVED BY	JJR

CS8002

SHEET 40 OF 43

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
2. SOIL EROSION AND SEDIMENT CONTROL PRACTICES ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
3. APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
4. THE CONTRACTOR SHALL PERFORM ALL WORK, FURNISH ALL MATERIALS AND INSTALL ALL MEASURES REQUIRED TO REASONABLY CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS AND PREVENT EXCESSIVE FLOW OF SEDIMENT FROM THE CONSTRUCTION SITE.
5. ANY DISTURBED AREA THAT IS TO BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION IN ACCORDANCE WITH THE NEW JERSEY STANDARDS AND THEIR RATES SHOULD BE INCLUDED IN THE NARRATIVE. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREAS WILL BE MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
6. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO PROVIDE CONFIRMATION OF LIME, FERTILIZER AND SEED APPLICATION AND RATES OF APPLICATION AT THE REQUEST OF THE CAMDEN SOIL CONSERVATION DISTRICT.
7. ALL CRITICAL AREAS SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH AT A RATE OF 2 TONS PER ACRE ACCORDING TO THE NEW JERSEY STANDARDS IMMEDIATELY FOLLOWING ROUGH GRADING.
8. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
9. ALL SEDIMENTATION STRUCTURES WILL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
10. A CRUSHED STONE, TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS EXISTS. THE STABILIZED PAD WILL BE INSTALLED ACCORDING TO THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS.
11. ALL DRIVEWAYS MUST BE STABILIZED WITH 2-½" CRUSHED STONE OR SUBBASE PRIOR TO INDIVIDUAL LOT CONSTRUCTION.
12. PAVED AREAS MUST BE KEPT CLEAN AT ALL TIMES.
13. ALL CATCH BASIN INLETS WILL BE PROTECTED ACCORDING TO THE CERTIFIED PLAN.
14. ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED, AS REQUIRED BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
15. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA. THE SEDIMENT FILTER SHOULD BE COMPOSED OF A SUITABLE SEDIMENT FILTER FABRIC. (SEE DETAIL). THE BASIN MUST BE DEWATERED TO NORMAL POOL WITHIN 10 DAYS OF THE DESIGN STORM.
16. NJSA 4:24-39, ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE ALL PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK FOR THE PROJECT MUST BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE A PREREQUISITE TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
17. MULCHING IS REQUIRED ON ALL SEEDED AREAS TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED TO PROMOTE EARLIER VEGETATION COVER.
18. OFFSITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE EROSION CONTROL INSPECTOR.
19. A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
20. THE CAMDEN SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 72 HOURS PRIOR TO ANY LAND DISTURBANCE.
21. ANY CONVEYANCE OF THIS PROJECT PRIOR TO ITS COMPLETION WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ANY SUBSEQUENT OWNERS.
22. IMMEDIATELY AFTER THE COMPLETION OF STRIPPING AND STOCKPILING OF TOPSOIL, THE STOCKPILE MUST BE STABILIZED ACCORDING TO THE STANDARD FOR TEMPORARY VEGETATIVE COVER. STABILIZE TOPSOIL STOCKPILE WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING. ALL SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY AND THE BASE MUST BE PROTECTED WITH A SEDIMENT BARRIER.
23. ANY CHANGES TO THE SITE PLAN WILL REQUIRE THE SUBMISSION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE CAMDEN SOIL CONSERVATION DISTRICT. THE REVISED PLAN MUST BE IN ACCORDANCE WITH THE CURRENT NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
24. METHODS FOR THE MANAGEMENT OF HIGH ACID PRODUCING SOILS SHALL BE IN ACCORDANCE WITH THE STANDARDS. HIGH ACID PRODUCING SOILS ARE THOSE FOUND TO CONTAIN IRON SULFIDES OR HAVE A PH OF 4 OR LESS.
25. TEMPORARY AND PERMANENT SEEDING MEASURES MUST BE APPLIED ACCORDING TO THE NEW JERSEY STANDARDS, AND MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
26. MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT.
27. DUST IS TO BE CONTROLLED BY AN APPROVED METHOD ACCORDING TO THE NEW JERSEY STANDARDS AND MAY INCLUDE WATERING WITH A SOLUTION OF CALCIUM CHLORIDE AND WATER.
28. ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS ON THE PROPOSED SITE.
29. USE STAGED CONSTRUCTION METHODS TO MINIMIZE EXPOSED SURFACES, WHERE APPLICABLE.
30. ALL VEGETATIVE MATERIAL SHALL BE SELECTED IN ACCORDANCE WITH AMERICAN STANDARDS FOR NURSERY STOCK OF THE AMERICAN ASSOCIATION OF THE NURSERYMAN AND IN ACCORDANCE WITH THE NEW JERSEY STANDARDS.
31. NATURAL VEGETATION AND SPECIES SHALL BE RETAINED WHERE SPECIFIED ON THE LANDSCAPING PLAN.
32. THE SOIL EROSION INSPECTOR MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.
33. CONTRACTOR SHALL REMOVE ALL WASHED, TRACKED OR SPILLED SEDIMENTS ON PAVED ROADWAY SURFACES IMMEDIATELY.

STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION:

DEFINITION
ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON SOILS EXPOSED FOR PERIODS OF TWO TO 6 MONTHS WHICH ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION OR NOT SCHEDULED FOR PERMANENT SEEDING WITHIN 60 DAYS.

PURPOSE
TO TEMPORARILY STABILIZE THE SOIL AND REDUCE DAMAGE FROM WIND AND WATER EROSION UNTIL PERMANENT STABILIZATION IS ACCOMPLISHED.

WATER QUALITY ENHANCEMENT
PROVIDES TEMPORARY PROTECTION AGAINST THE IMPACTS OF WIND AND RAIN, SLOWS THE OVERLAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

WHERE APPLICABLE
ON EXPOSED SOILS THAT HAVE THE POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

METHODS AND MATERIALS

1. SITE PREPARATION
A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, P. 19-1.

B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.

C. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

2. SEEDBED PREPARATION
A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 PONDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE AT THE RATE OF 2 TONS/ACRE UNLESS SOIL TEST INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 S.F.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.

B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEEDBED IS PREPARED.

C. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AS ABOVE.

D. SOILS HIGH ON SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-1 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.

3. SEEDING
A. SELECT SEED FROM RECOMMENDATIONS IN TABLE.

SEED TYPES	SEEDING RATES 1* (POUNDS)		OPTIMUM SEEDING DATE 2* BASED ON PLANT HARDINESS ZONE 3*			OPTIMUM SEED DEPTH 4* (INCHES)
	PER ACRE	PER 1,000 SQ. FT.	ZONE 5	ZONE 6	ZONE 7	
COOL SEASON GRASSES						
PERENNIAL RYEGRASS	170	4.0	3/15 - 6/1 & 8/1 - 9/15	3/1 - 5/15 & 8/15 - 10/1	2/15 - 5/1 & 8/15 - 10/15	0.5
SPRING OATS	86	2.0	3/15 - 6/1 & 8/1 - 9/15	3/1 - 5/15 & 8/15 - 10/1	2/15 - 5/1 & 8/15 - 10/15	1.0
WINTER BARLEY	96	2.2	8/1 - 9/15	8/15 - 10/1	8/15 - 10/15	1.0
WINTER CEREAL RYE	112	2.8	8/1 - 11/1	8/1 - 11/15	8/1 - 12/15	1.0
WARM SEASON GRASSES						
PEARL MILLET	20	0.5	6/1 - 8/1	5/15 - 8/15	5/1 - 9/1	1.0
MILLET (GERMAN OR HUNGARIAN	30	0.7	6/1 - 8/1	5/15 - 8/15	5/1 - 9/1	1.0
WEEPING LOVEGRASS	5	0.2	6/1 - 8/1	5/15 - 8/15	5/1 - 9/1	0.25

1* SEEDING RATE FOR WARM SEASON GRASS, SHALL BE ADJUSTED TO REFLECT THE AMOUNT OF PURE LINE SEED (PLS) AS DETERMINED BY A GERMINATION TEST RESULT. NO ADJUSTMENT IS REQUIRED FOR COOL SEASON GRASSES.
2* MAY BE PLANTED THROUGHOUT SUMMER IF SOIL MOISTURE IS ADEQUATE OR CAN BE IRRIGATED.
3* PLANT HARDINESS ZONE (SEE BELOW)
4* TWICE THE DEPTH FOR SANDY SOILS

ZONE 5B (-10 TO -15)
PORTIONS OF SUSSEX AND WARREN COUNTIES

ZONE 6A (-5 TO -10)
PORTIONS OF SUSSEX, WARREN, PASSAIC, MORRIS, SOMERSET AND HUNTERDON COUNTIES.

ZONE 6B (0 TO -5)
PORTIONS OR BERGEN, CAMDEN, ESSEX AND GLOUCESTER, HUNTERDON, MERCER, MIDDLESEX, HUDSON,MONMOUTH, OCEAN, BURLINGTON, MORRIS, PASSAIC, SOMERSET, UNION, ATLANTIC, CUMBERLAND, AND CAPE MAY COUNTIES.

ZONE 7A (5 TO 0)
PORTIONS OF CAMDEN, GLOUCESTER, SALEM, CUMBERLAND, CAPE MAY, ATLANTIC, BURLINGTON, OCEAN, AND MONMOUTH COUNTIES. ZONE 7B (10 TO 5) PORTIONS OF CAPEMAY, ATLANTIC, OCEAN AND MONMOUTH COUNTIES.

B. CONVENTIONAL SEEDING - APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.

C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.

D. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

4. MULCHING
MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. (THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION
SPREAD UNIFORMLY BY HAND MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS.

1. PEG AND TWINE - DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
3. CRIMPER (MULCH ANCHORING TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC-HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.
4. LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY OR STRAW MULCHES.
   a. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
   b. USE ONE OF THE FOLLOWING:
      (1) EMULSIFIED ASPHALT - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, AND CRS-2). APPLY 0.04 GAL./SQ. YD. OR 194 GAL./ACRE ON FLAT SLOPES LESS THAN 8 FEET HIGH. ON SLOPES 8 FEET OR MORE HIGH, USE 0.075 GAL./SQ. YD. OR 363 GAL./ACRE. THESE MATERIALS MAY BE DIFFICULT TO APPLY UNIFORMLY AND WILL DISCOLOR SURFACES.
      (2) ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OR IMPEDE GROWTH OF TURFGRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE.
      (3) SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

B. WOOD-FIBER OR PAPER-FIBER MULCH. SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH THE SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

C. PELLETIZED MULCH. COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS, SEEDED AREAS WHERE WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE.

APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZE MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION:

DEFINITION
ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOILS WHERE PERENNIAL VEGETATION IS NEEDED FOR LONG TERM PROTECTION.

PURPOSE
TO PERMANENTLY STABILIZE THE SOIL, ASSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.

WATER QUALITY ENHANCEMENT
SLOWS THE OVERLAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

WHERE APPLICABLE
ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

METHODS AND MATERIALS

1. SITE PREPARATION
A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, P. 19-1.

B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.

C. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

2. SEED BED PREPARATION
A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 PONDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE IN ACCORDANCE WITH THE TABLE BELOW AND THE RESULTS OF SOIL TESTING. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 S.F.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.

B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEEDBED IS PREPARED.

C. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

D. HIGH ACID PRODUCING SOIL.
SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH 5 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS.

3. SEEDING
A. SEED MIX SHALL BE AS FOLLOWS

TYPE 'A-3' SEED MIXTURE - TO BE PLANTED FROM 2/1 - 4/30 AND FROM 8/15 - 10/30.

KIND OF SEED	MINIMUM PURITY-%	MINIMUM GERMINATION-%	% OF TOTAL WEIGHT MIXTURE	PLANTING RATE POUNDS/ACRE
TALL FESCUE (REBEL OR FALCON)	95	80	70	120
KENTUCKY BLUEGRASS (KENBLUE, SOUTH DAKOTA OR PARK)	85	75	10	20
CHEWINGS FESCUE (HIGHLIGHT OR JAMESTOWN)	95	85	10	40
PERENNIAL RYEGRASS (LINN)	98	85	10	20

B. CONVENTIONAL SEEDING - APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.

C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.

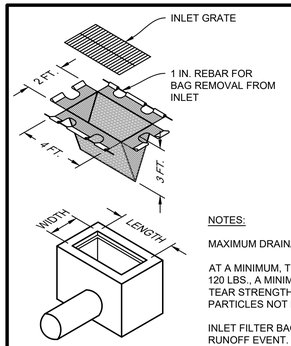
D. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

4. MULCHING
FOLLOW SAME STANDARDS AS LISTED UNDER TEMPORARY VEGETATIVE COVER FOR STABILIZATION.

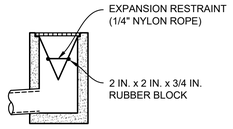
5. IRRIGATION (WHERE FEASIBLE)
IF SOIL MOISTURE IS DEFICIENT, AND MULCH IS NOT USED, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER (A MINIMUM OF ½ INCH TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

6.TOPDRESSING
SINCE SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE IS PRESCRIBED IN SECTION II.A. SEEDBED PREPARATION IN THIS STANDARD, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GRASS NITROGEN DEFICIENCY EXISTS TO THE EXTENT THAT TURF FAILURE MAY DEVELOP. IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 400 POUNDS PER 1,000 SQ. FT.

7. ESTABLISHING PERMANENT VEGETATIVE STABILIZATION
THE QUALITY OF PERMANENT VEGETATION RESTS WITH THE CONTRACTOR. THE TIMING OF SEEDING, PREPARING THE SEEDBED, APPLYING NUTRIENTS, MULCH AND OTHER MANAGEMENT ARE ESSENTIAL. THE SEED APPLICATION RATE IS REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN APPLICATION RATES MAY BE USED WHEN PERMANENT



ISOMETRIC VIEW



INSTALLATION DETAIL

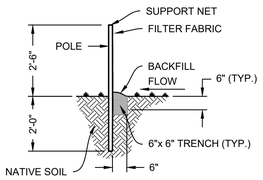
NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

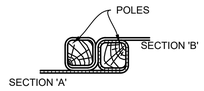
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION.

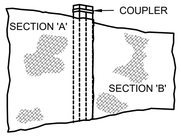
1 INLET FILTER BAG PROTECTION DETAIL
NOT TO SCALE



INSTALLATION



JOINING SECTION - PLAN VIEW



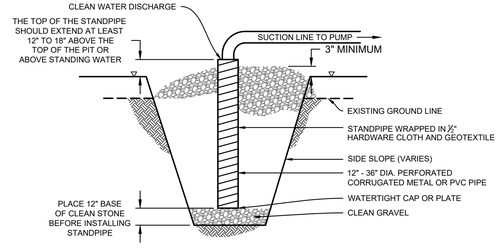
JOINING SECTION - ELEVATION

THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND A HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS, ETC.) PLACED BETWEEN THE FASTENER AND THE GEOTEXTILE FABRIC.

SILT FENCE TO BE USED ON SITE SHALL BE "ENVIROFENCE" PRECONSTRUCTED SILT FENCE OR EQUAL.

SPECIFICATIONS ARE:
LENGTH: 100 FT.
FABRIC WIDTH: 3 FT.
POLE LENGTH: 4.5 FT.
POLE SPACING: 7.7 FT.
INSTALLED HEIGHT: 2.5 FT.
SEDIMENT FABRIC: MIRAFI 100.

2 SILT FENCE DETAIL
NOT TO SCALE

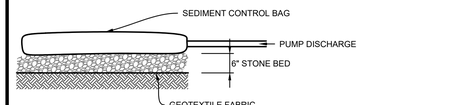


CROSS SECTION

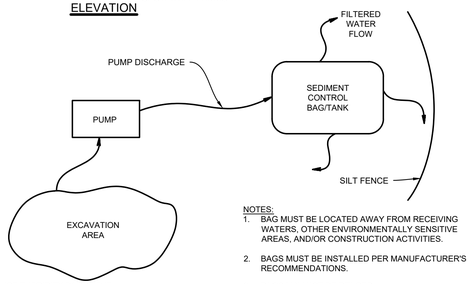
CONSTRUCTION SPECIFICATIONS:

1. PIT DIMENSIONS ARE VARIABLE WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12" TO 24" DIAMETER CORRUGATED OR PVC PIPE. THEN WRAPPING WITH ½" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE PERFORATIONS HALL BE ½" x 6" SLITS OR 1" DIAMETER HOLES.
3. A BASE OF FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR ASTM C33 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
4. THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREST ELEVATION (BASIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.

3 SUMP PIT DETAIL
NOT TO SCALE



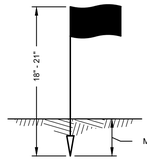
ELEVATION



PLAN VIEW

NOTES:
1. BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS, OTHER ENVIRONMENTALLY SENSITIVE AREAS, AND/OR CONSTRUCTION ACTIVITIES.
2. BAGS MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. BAGS MAY NOT BE REUSED.
4. BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

4 SEDIMENT CONTROL BAG
NOT TO SCALE

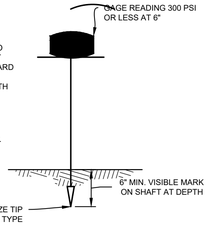


PROBING WIRE TEST
15.5 GA. STEEL WIRE (SURVEY FLAG)
N.T.S.

RECORD DEPTH OF PENETRATION WHEN WIRE DEFORMS; MINIMUM DEPTH OF 6" TO PASS TEST. EITHER PREMEDITATE OR PERFORM THE NEXT TEST.

NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURED USED TO ADVANCE THE PROBE. MEASURE DEPTH WHEN GAGE READING REACHES 300 PSI OR DEPTH OF 6 INCHES.

* WIRE MAY BE RE-INSERTED IF/WHEN AN OBSTRUCTION (ROCK, ROOT, DEBRIS) IS ENCOUNTERED.



NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURED USED TO ADVANCE THE PROBE. MEASURE DEPTH WHEN GAGE READING REACHES 300 PSI OR DEPTH OF 6 INCHES.

* PENETROMETER MAY BE RE-INSERTED IF/WHEN AN OBSTRUCTION (ROCK, ROOT, DEBRIS) IS ENCOUNTERED.

SOIL DE-COMPACTION AND TESTING REQUIREMENTS

SOIL COMPACTION TESTING REQUIREMENTS

1. SUBGRADE SOILS PRIOR TO THE APPLICATION OF TOPSOIL (SEE PERMANENT SEEDING AND STABILIZATION NOTES FOR TOPSOIL REQUIREMENTS) SHALL BE FREE OF EXCESSIVE COMPACTION TO A DEPTH OF 6.0 INCHES TO ENHANCE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
2. AREAS OF THE SITE WHICH ARE SUBJECT TO COMPACTION TESTING AND/OR MITIGATION ARE GRAPHICALLY DENOTED ON THE CERTIFIED SOIL EROSION CONTROL PLAN.
3. COMPACTION TESTING LOCATIONS ARE DENOTED ON THE PLAN. A COPY OF THE PLAN OR PORTION OF THE PLAN SHALL BE USED TO MARK LOCATIONS OF TESTS, AND ATTACHED TO THE COMPACTION REMEDIATION FORM, AVAILABLE FROM THE LOCAL SOIL CONSERVATION DISTRICT. THIS FORM MUST BE FILLED OUT AND SUBMITTED PRIOR TO RECEIVING A CERTIFICATE OF COMPLIANCE FROM THE DISTRICT.
4. IN THE EVENT THAT TESTING INDICATES COMPACTION IN EXCESS OF THE MAXIMUM THRESHOLDS INDICATED FOR THE SIMPLIFIED TESTING METHODS (SEE DETAILS BELOW), THE CONTRACTOR SHALL HAVE THE OPTION TO PERFORM EITHER (1) COMPACTION MITIGATION OVER THE ENTIRE MITIGATION AREA DENOTED ON THE PLAN (EXCLUDING EXEMPT AREAS), OR (2) PERFORM ADDITIONAL, MORE DETAILED TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION WHEREUPON ONLY THE EXCESSIVELY COMPACTED AREAS WOULD REQUIRE COMPACTION MITIGATION. ADDITIONAL DETAILED TESTING SHALL BE PERFORMED BY A TRAINED, LICENSED PROFESSIONAL.

COMPACTION TESTING METHODS

A. PROBING WIRE TEST (SEE DETAIL)
B. HAND-HELD PENETROMETER TEST (SEE DETAIL)
C. TUBE BULK DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED)
D. NUCLEAR DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED)

NOTE: ADDITIONAL TESTING METHODS WHICH CONFORM TO ASTM STANDARDS AND SPECIFICATIONS, AND WHICH PRODUCE A DRY WEIGHT, SOIL BULK DENSITY MEASUREMENT MAY BE ALLOWED SUBJECT TO DISTRICT APPROVAL.

FURTHER INFORMATION REGARDING SOIL TESTING METHOD OPTIONS ARE LOCATED IN THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, CHAPTER 19, OR THE WWW.NJ.GOV/AGRICULTURE/DIVISIONS/ANR/NRC/NJEROSION.HTML.

SOIL COMPACTION TESTING IS NOT REQUIRED IF/WHEN SUBSOIL COMPACTION REMEDIATION (SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) OR SIMILAR) IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTION.

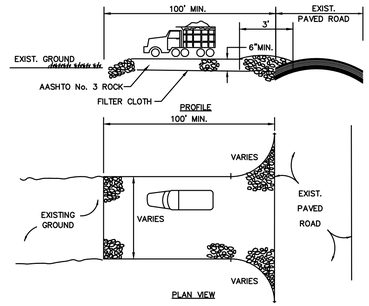
PROCEDURES FOR SOIL COMPACTION MITIGATION
PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.

RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.). IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER MAYBE SUBSTITUTED SUBJECT TO DISTRICT APPROVAL.

SOIL COMPACTION MITIGATION VERIFICATION FORM

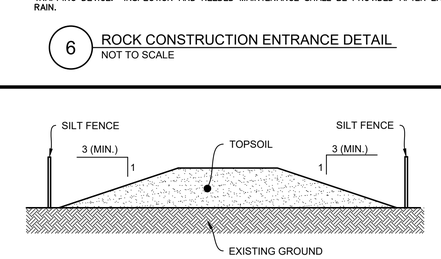
1. THE CONTRACTOR MUST COMPLETE AND SUBMIT A SOIL RESTORATION SELF-CERTIFICATION FORM TO THE CAMDEN COUNTY SOIL CONSERVATION DISTRICT (CCSCD) FOR REVIEW AND APPROVAL. CONTRACTOR SHALL PROVIDE A COPY OF CCSCD APPROVAL TO ENGINEER FOR RECORDS.

5 HANDHELD SOIL PENETROMETER TEST
NOT TO SCALE



NOTES:
1. STONE SIZE: USE AASHTO #3 ROCK. (2" TO 6")
2. LENGTH: AS REQUIRED BUT NOT LESS THAN FIFTY (50) FEET.
3. THICKNESS: NOT LESS THAN SIX (6) INCHES.
4. WIDTH: TWENTYFIVE (25) FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINT WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH: WILL BE PLACED OVER ENTIRE AREA PRIOR TO PLACING OF STONES.
6. SURFACE WATER: ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONES AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN APPROVED SEDIMENT TRAPPING DEVICE. INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

6 ROCK CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

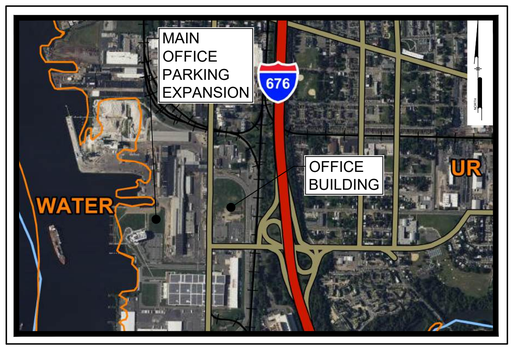


NOTES:
1. TOPSOIL STOCKPILE SHALL BE SURROUNDED BY SILT FENCE.
2. STOCKPILE SHALL RECEIVE TEMPORARY VEGETATIVE STABILIZATION IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY IMMEDIATELY AFTER COMPLETION OF STOCKPILE.

7 TOPSOIL STOCKPILE DETAIL
NOT TO SCALE

ACID-PRODUCING SOIL NOTES

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID-PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF THE SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID-PRODUCING SOIL.
5. HIGH ACID-PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE EXCEPT AS FOLLOWS:
   a. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A PH OR 5 OR MORE.
   b. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHERS, TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID-PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID-PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
7. NON-VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING), MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID-PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST, THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.



SOILS MAP
SCALE: 1"=1000'

SOILS LEGEND

SOIL MAP UNIT SYMBOL	SOIL MAP UNIT NAME
UR	Urban Land, 96.7 percent slope
WATER	Water, 3.3 percent slopes

NOTE: ALL SITE WORK CONSTRUCTION AND DETAILS MUST CONFORM TO THE STANDARDS OF THE CITY OF CAMDEN

THIS PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

NJ CERTIFICATE OF AUTHORIZATION NO. GA28033300

JOSEPH RADAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE043768

08/23/24

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T 856.669.8000
NJ. CA NO. GA28033300

AMENDED HOLTEC OFFICE BUILDING & MAIN OFFICE PARKING EXPANSION
2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

SOIL EROSION & SEDIMENT CONTROL DETAILS

HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

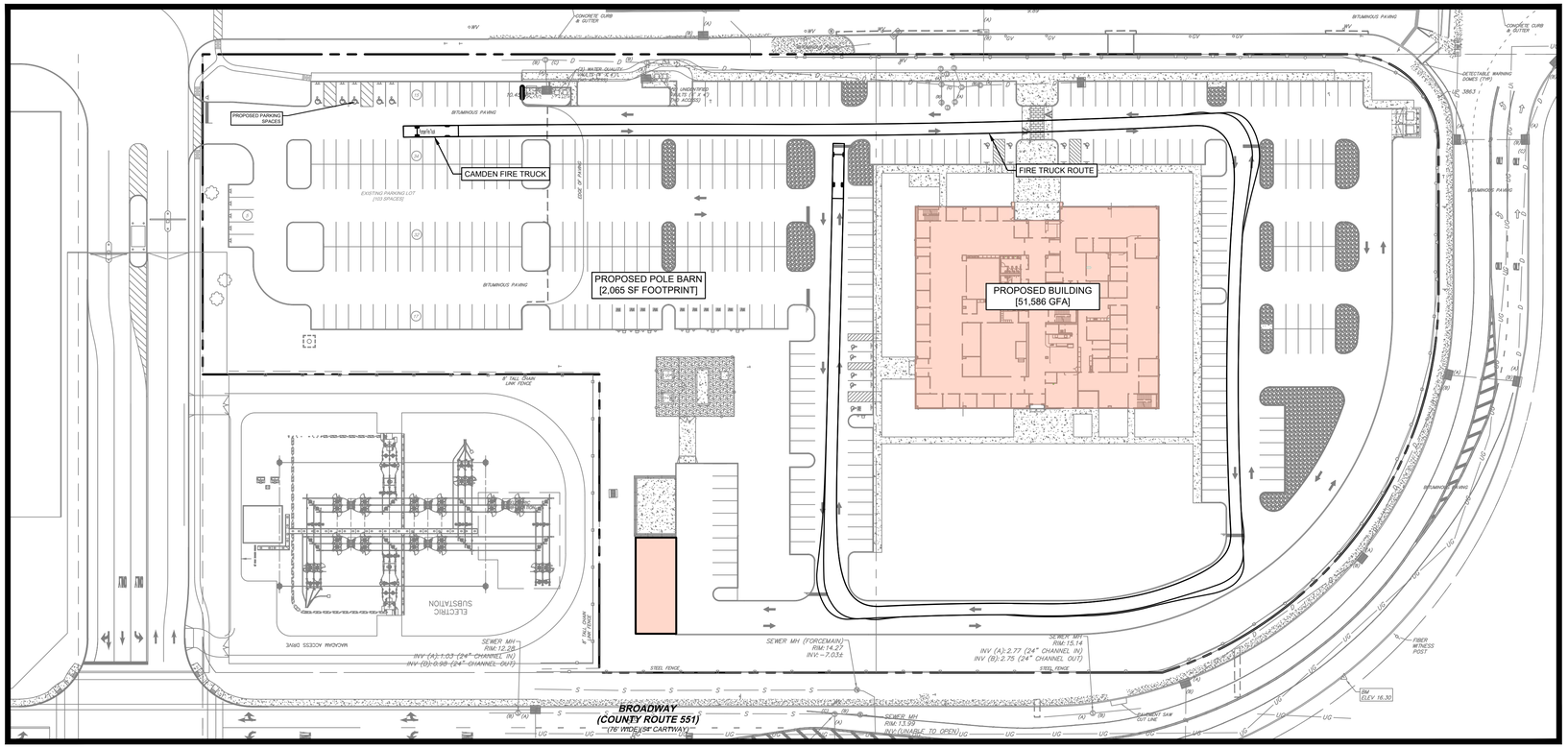
ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	AS NOTED
DRAWN BY	BF
APPROVED BY	JJR

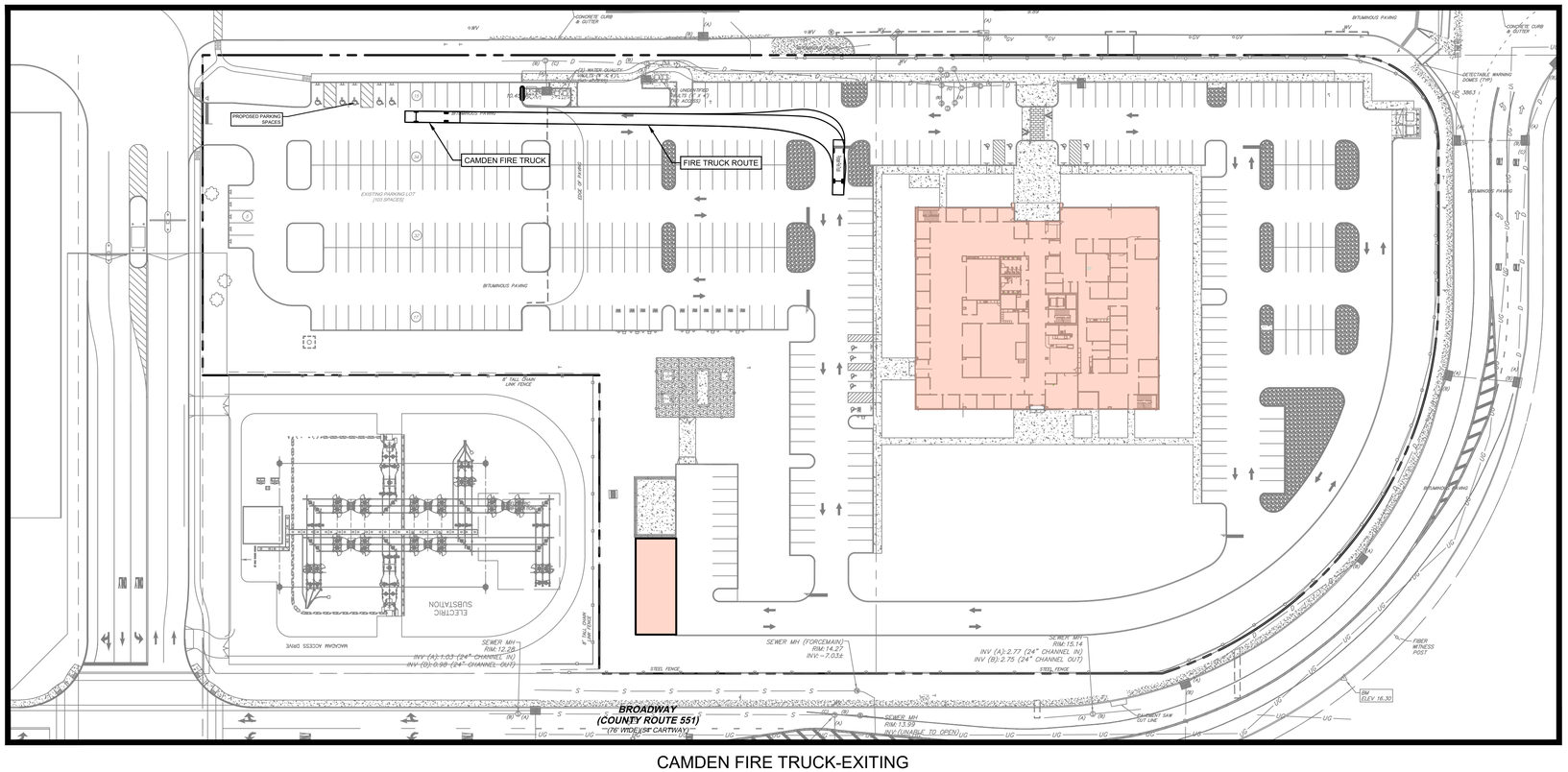
CS8502

SHEET 42 OF 43

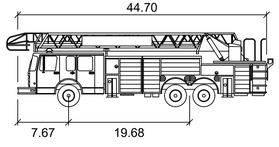
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CAMDEN FIRE TRUCK-ENTERING



CAMDEN FIRE TRUCK-EXITING



CAMDEN FIRE TRUCK

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

0 50' 100'

PENNONI ASSOCIATES INC.
2 Aquarium Drive, Suite 320
Camden, NJ 08103
T. 856.669.5100
NJ. COA NO. GA28033300

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2360 SOUTH BROADWAY, BLOCKS 511, 512, 514 & 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OFFICE BUILDING VEHICULAR CIRCULATION PLAN
HOLTEC INTERNATIONAL INC
1 HOLTEC BOULEVARD
CAMDEN, NEW JERSEY 08104

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	AUGUST 23, 2024
DRAWING SCALE	1"=50'
DRAWN BY	BF
APPROVED BY	JJR

CS9801

SHEET 43 OF 43

U:\Accounts\USA\TX\USATX22001 - Holtec Office Building\DESIGN_SHEETS\CS9801.dwg PLOTTED: 8/22/2024 5:16 PM, BY: Ahmed Salem PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —

PARKER McCAY

Parker McCay P.A.
9000 Midlantic Drive, Suite 300
P.O. Box 5054
Mount Laurel, New Jersey 08054-5054

P: 856.596.8900
F: 856.596.9631
www.parkermccay.com

Kevin D. Sheehan
P: 856-985-4020
F: 856-596-9631
ksheehan@parkermccay.com

August 23, 2024

File No. 15454-15

VIA HAND DELIVERY
Dr. Edward C. Williams
Planning Director/Zoning Officer
Dept. of Development and Planning
520 Market Street, City Hall, Room 224
Camden, NJ 08101

Re: Holtec Technology Center, LLC
Preliminary & Final Major Site Plan Application
Block 511, Lots 1, 77-87, 90-93
Block 512, Lots 55-74, 33-53, 109, 110, 113-117
Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 145-149, 121, 150-155
Block 515, Lots 1 & 3 through 12
Block 455, Lot 1
2360 South Broadway

Dear Dr. Williams:

This office represents Holtec Technology Center, LLC ("Applicant") with the development of the above-referenced property located in the PRI Zoning District. The Property is commonly known as 2360 South Broadway ("Property").

The Applicant received Final Site Plan approval to construct a new 51,568 square foot office building, a pole barn and related improvements on that part of the above-referenced Property, west of the relocated Broadway identified as Blocks 211, 512 & 514. The Applicant seeks approval to relocate the pole barn from the location that had been approved and to construct additional parking for the approved office building.

Additionally, the Applicant received approval for its headquarters office and manufacturing facility in 2015. At that time, the Applicant identified "phantom" parking stalls for future construction in the northeast corner of Block 455, next to the headquarters building, just north of the headquarters parking that has been constructed. The Applicant is now seeking to construct those parking stalls.

No new variances have been identified with this application, however, the Applicant will request any and all variances, deviations or waivers that the Board may deem necessary upon its review of the application.

In that regard, I enclose the following:

1. Original plus twelve (O+12) copies of the Zoning Permit application;
2. Original plus twelve (O+12) copies of the Site Plan Application;
3. Thirteen (13) sets of the Amended Site Plan prepared by Pennoni;
4. Thirteen (13) copies of the Boundary Survey prepared by Pennoni;
5. Thirteen (13) copies of the Topographic Survey prepared by Pennoni;
6. Thirteen (13) copies of the Technical Report and Amended Stormwater Management Report prepared by Pennoni;
7. Thirteen (13) copies of the Technical Report and Stormwater Maintenance Report prepared by Pennoni;
8. Thirteen (13) copies of the Amended Traffic Impact Study prepared by Pennoni;
9. Thirteen (13) copies of the Site Plan Application Checklist;
10. Thirteen (13) copies of the Completed Assessment Certifications for each of the lots;
11. Original plus twelve (O+12) copies of the Escrow Agreement and executed W-9 form;
12. Thirteen (13) copies of the Disclosure of Owners of the Applicant pursuant to N.J.S.A. 40:55D-48.1;
13. Thirteen (13) copies of the relevant portions of the Ground Lease and First Amendment that permits the Applicant (Tenant) to construct improvements on the Property and specifically states that the Landlord shall have no rights of consent, dissent or power of veto for any such revision. (See Section 6.2(a). The leased Premises includes the subject Property (See Exhibit B to First Amendment to Ground Lease);
14. One (1) copies of the Proof of Ownership of each lot (showing South Jersey Port Corporation as the Property owner); and

PARKER McCAY

15. Applicant's checks in the amount of:

a. $87.30 representing the zoning permit fee;
b. $500.00 representing the pre-application fee;
c. $334.18 representing the amended final major site plan application fee;
d. $1,204.41 representing the amended final major site plan escrow fee.

Two (2) copies of all submission materials are being hand delivered directly to Dena M. Johnson at Remington & Vernick. Please review this application and confirm that it can be scheduled for consideration at the September 12, 2024 Planning Board meeting.

Thank you for your cooperation. If you have any questions, please contact me.

Very truly yours,

KEVIN D. SHEEHAN

KDS/rr
Enc.
cc: Dena M. Johnson, Remington & Vernick (w/ 2 copies of all materials filed)
ALL VIA EMAIL ONLY – WITH APPLICATION FORMS
Christopher Bieberbach, Holtec
Joseph Raday, P.E. Pennoni

4891-9704-7514, v. 1

DIVISION OF PLANNING

Sign Permit

Edward C. Williams
Planning Director/Zoning Officer
Department of Development and Planning
Division of Planning
520 Market street
City Hall, Room 224
P.O. Box 95120
Camden, NJ 08101-5120
Phone: 856-757-7214
Fax: 856-968-4705

Prior to erecting and/or altering any sign, a sign permit application must be completed. If the sign proposed is larger than permitted the zoning officer will deny the application and the applicant may choose to appeal before the Camden City Planning Board.

Requirements

- A proposed use and/or an accurate drawing of a proposed sign including dimensions and illustration signed by sign supplier.

CITY OF CAMDEN
DIVISION OF PLANNING
CITY HALL – ROOM 224
PO BOX 95120
CAMDEN, NEW JERSEY 08101-5120
(856) 757-7214

INSTRUCTIONS FOR ZONING/SIGN PERMIT APPLICATION

ALL APPLICANTS WHO NEED A ZONING/SIGN PERMIT MUST SUBMIT THE FOLLOWING:

1. Completed Zoning AND/OR Sign Application

2. Proof of ownership (deed, tax bill, or lease)

3. A detail floor plan of proposed use, conversion of single family dwelling shall have measurement of all habitable space. Accurate drawing of a proposed sign including dimensions and illustration signed by sign supplier. **Any addition or accessory uses or fences must have a Plot Plan and/or Survey. Additions/Fences must be presented on a Plot Plan/Survey with rear and side set back. You can obtain a Plot Plan from the Engineering Dept. located at 101 Newton Ave., 3rd Floor.**
*(copy of all/any plans must accompany application.

4. Completed attached Tax Certification (**City of Camden Tax Office Room 117 1st floor plus Water/Sewer PNC Bank located Broadway & Market St.)**

5. Application fee:
(non-refundable)

Single Family Dwelling	$ 69.56
Two-Family Dwelling	$ 139.13
Three-Family Dwelling Or More	$ 215.51
Rooming House	$ 259.16
Boarding House	$ 259.16
Commercial Use	$ 87.30
Industrial Warehousing & Manufacturing Use	$ 139.87
Institutional Use	$ 69.56
Advertising Billboards	$ 395.56
Sign Application	$ 79.11
Rezoning Application	$ 345.09

Money Order or Check payable to the City of Camden

PLEASE RETURN COMPLETED APPLICATIONS TO THE ABOVE ADDRESS. **INCOMPLETE APPLICATIONS SHALL NOT BE PROCESS.** ANY APPLICATION WHICH REMAINS INCOMPLETE FOR MORE THAN 10 BUSINESS DAYS WILL BE DISCARDED. FALSIFICATION IN ANY FORM SHALL SUBJECT APPLICANT TO A FINE OR MUNICIPAL COURT.

No construction, erection, alteration, repair, remodeling, conversion, renovation or demolition of any building or structure shall begin prior to Zoning approval. Other municipal agency approvals maybe required.

DO NOT REMOVE OR DISCARD ANY PART OF THIS APPLICATION

I. GENERAL

Today's Date: August 23, 2024

Applicant: Holtec Technology Center, LLC **Telephone:** (856) 957-0924

Applicant's Address: 1 Holtec Blvd, Camden, NJ 08104

Applicant Interest : (please check one) (X) **owner** ( ) **tenant** ( ) **agent/owner**

SUBMITTING FOR: (X) **Zoning Permit** ( ) **Sign Permit**

---

1. Name and Address of property OWNER if different from that of applicant:

   SAME

2. **Address and Block and Lot number** for which zoning/sign permit is desired:

   2360 South Broadway SEE BELOW *** **Block:**_____ **Lot:**_____

3. **Zone District:** **R1 R2 R3 C1 C2 C3 C4 LII LI2 GI1 GI2**
   (please circle) **US PR1 OL1 TOD MW1 MW2 MS CV2 CC**

4. Historic District: NO

5. What is the property/land PRESENTLY being used *entirely as:*

   Holtec headquarters, manufacturing facility and approved second office building.

6. Is the structure presently vacant? No If so how long? _____

7. How many stories/floors does the building have? _____ Is there a basement/cellar? NO

*** Property

Block 511, Lots 1, 77-87, 90-93 / Block 512, Lots 55-74, 33-53, 109, 110, 113-117
Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 145-149, 121, 150-155 / Block 515, Lot 1 and 3 through 12

DO NOT REMOVE OR DISCARD ANY PART OF THIS APPLICATION

II. ZONING

1. What is being proposed?

   New Construction_____ Addition_____ Fence_____ (ht____) Installation_____

   New Business_____ Conversion_____ Other (explain: _____)

2. Describe in detail the use & activities PROPOSED (attached separate sheet if necessary):

   Amend site plans to add parking and relocate approved pole barn.

3. Are there other activities existing within the same property? YES (please describe)

   Holtec headquarters, manufacturing and approved office

4. Dimensions of Principal Building and/or structure 178'-5" x 148'-2"

5. Dimensions of All Accessory Building and/or structure 70'-4" x 30'-4"

6. Are any of the activities conducted in the principal building existing as a nonconforming use?

   No X Yes_____ (please explain) _____

7. To the applicant's knowledge, has there been any prior applications made to the Zoning Board of Adjustment or the Planning Board?

   No X Yes_____ (please explain) _____

THIS APPLICANT CERTIFIES THAT THE ABOVE INFORMATION HAS BEEN COMPLETED TO THE BEST OF HIS/HER KNOWLEDGE.

8/23/2024
(Date)

(Signature of Applicant)
Kevin D. Sheehan, Attorney for Applicant

Holtec Technology Center, LLC
(Name of Corporation or Association)

DO NOT REMOVE OR DISCARD ANY PART OF THIS APPLICATION

III. SIGN NO SIGNS

1. Type Sign: Awning / Billboard / Freestanding / Hanging / Mounted / Off Site / Window
   (please circle)
   Other (describe): _____ Alteration of an existing sign _____
   (attach photo & describe) _____

2. Are there any existing signs? _____ (if yes, please attach photos)

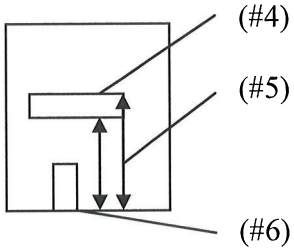
3. How many signs are proposed? _____

4. Will signs(s) be illuminated? Yes_____ No_____

5. Dimension: _____X_____=_____sq ft.

6. Distance between ground and the lowest part of sign _____ft.

7. Distance between ground and highest part of the sign _____ft.



8. Material of Sign:_____

9. Color(s) on sign(s):_____

10. Illustration/Wording:_____

_____

==========

THIS APPLICANT CERTIFIES THAT THE ABOVE INFORMATION HAS BEEN COMPLETED TO THE BEST OF HIS/HER KNOWLEDGE AND FURTHER UNDERSTANDS THAT <u>IF THE SIGN EXCEEDS THE MAXIMUM REQUIREMENT</u> A VARIANCE THROUGH THE PLANNING BOARD OF THE CITY OF CAMDEN MUST BE REQUESTED.

8/23/2024
(Date)

_____
(Signature of Applicant)
Kevin D. Sheehan, Attorney for Applicant

Holtec Technology Center, LLC
(Name of Corporation or Association)

DO NOT REMOVE OR DISCARD ANY PART OF THIS APPLICATION

CITY OF CAMDEN

DEPARTMENT OF ADMINISTRATION

DIVISION OF PLANNING

SITE PLAN APPLICATION AND SUBMISSION ITEMS PACKAGE

Any questions please contact:
Angela Miller, Planning Board Secretary
757-7214

SITE PLAN APPLICATION AND SUBMISSION ITEMS PACKAGE

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CITY OF CAMDEN
SCHEDULE OF
PLANNING AND ZONING BOARD FEES
(revised)

I. ZONING PERMIT

A. Zoning Permit Application .....see attached application

II. PLANNING BOARD FEES

A. PRE-APPLICATION MEETING FEE $500.00

B. SUBDIVISION

1. Minor Subdivision (2 Lots or Less refer to section 577-18)
   Application Fee: $177.32
   Engineer Review (Escrow Account)..$528.24

2. Major Subdivision (Preliminary Plot)
   Application Fee:.....$528.24
   Engineer Review (Escrow Acct.)..$851.88 + 170.50 per lot created*

3. Major Subdivision (Final)
   Application Fee:.....$339.76
   Engineer Review (Escrow Acct...)$851.88 + 170.50 per lot created*

C. SITE PLAN

1. Preliminary Application (Review).....$482.36 for .50 acre or less
   $803.40 for .50 acre or more

2. Engineering Review (Escrow Account)....$1,204.41 for .50 acre or less
   (Preliminary) $2,408.82 for .50 acre or more

3. Final Application.....$334.18

4. Engineer Review (Escrow Account)..... $ 803.40 for .50 acre or less
   (Final*) $1,204.41 for .50 acre or more

(Amended Final Application Fee & Final Engineering Escrow Fee)

D. SIGN PERMIT
1. Sign Permit Application.....(see Zoning Permit Application)

E. PROPERTY LISTING FEES.....$18.60 OR $1.24 PER NAME WHICHEVER IS GREATER

(PURSUANT TO THE CODE OF THE CITY OF CAMDEN ARTICLE I, SECTION 233-4)

SITE PLAN APPLICATION

(Please Answer *ALL* Questions)

APPLICANT Holtec Technology Center, LLC

ADDRESS 1 Holtec Boulevard, Camden, NJ 08104

TELEPHONE# 856-957-0924 FAX#

OWNER OF PROPERTY South Jersey Port Corporation
(if other than applicant)

ADDRESS 2nd & Beckett Streets, Camden, NJ 08103

TELEPHONE 856-541-8500

IF APPLICANT IS INCORPORATE OR A PARTNERSHIP, LEGAL REPRESENTATION IS REQUIRED. PLEASE PROVIDE THE FOLLOWING:

Attorney's Name Kevin D. Sheehan, Esquire, Parker McCay

Address 2 Cooper Street, Suite 1901, Camden, NJ 08102

Telephone# 856-985-4020 Fax#

PLEASE PROVIDE THE FOLLOWING INFORMATION BELOW:

Engineer and/or Architect 's Name Pennoni

Address 2 Aquarium Loop Drive, Suite 300, Camden, NJ 08103

Telephone# 856-668-8600 Fax#

ADDRESS OF DEVELOPMENT 2360 South Broadway

BLOCK NO.(S) See below **LOT NO.(S)** **ZONE**

Block 511, Lots 1, 77-87, 90-93 / Block 512, Lots 55-74, 33-53, 109, 110, 113-117
Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 145-149, 121, 150-155 / Block 515, Lot 1 and 3-12
Block 455, Lot 1

PRESENT USE(S)

Holtec headquarters, manufacturing and approved office building.

DESCRIBE PROPOSED USES(S):
(attach separate sheet if needed) Amend site plans to add parking and relocate approved pole barn.

SQUARE FOOTAGE OF PROPOSED USE No new buildings.

LOT AREA (Measured in Square Footage) 326,349 sf.

BUILDING AREA OF GROUND FLOOR N/A, no new buildings

BUILDING AREA (Total Sq. Ft. - all floors) N/A, no new buildings

NO. OF PROPOSED PARKING SPACES Open

NO. OF EXISTING PARKING SPACES Open

AREA IN ACRES OF ANY ADDITION ADJOINING LAND OWNED BY APPLICANT Open

DOES THIS APPLICATION CONSTITUTE:
(Please check appropriate box)

- [ ] New Application
- [ ] Preliminary
- [ ] Preliminary and Final
- [X] Revision or Resubmission of a prior application

*IS THIS APPLICATION FOR A VARIANCE TO CONSTRUCT A MULTI-DWELLING OF 25 OR MORE FAMILY DWELLING UNITS? (Please check) YES_____ NO X

*IS THIS APPLICATION INTENDED FOR COMMERCIAL PURPOSES(S)?
(Please check) YES X NO_____

IF THE ANSWER TO (A) OR (B) IS "YES", AND/OR IF APPLICANT IS A CORPORATION OR PARTNERSHIP, PLEASE PROVIDE THE FOLLOWING:

1. Name and address of all stockholders or individual partners owning at least 10% of its stock, of any class, or at least 10% of the interest in the partnership, as the case may be. (Additional sheet may be attached if needed).

NAME ADDRESS

SEE SEPERATE ATTACHED SHEET

DOES THIS APPLICATION INCLUDE:

1. AN ADDITION OF 1,000 SQ. FT. OR MORE TO AN EXISTING STRUCTURE?
   (Please circle) YES NO
2. AN ADDITION OF 1,000 SQ. FT. OR MORE OF PAVING AREA FOR OFF-STREET PARKING?
   (Please circle) YES NO

THIS APPLICANT CERTIFIES THAT THE ABOVE INFORMATION HAS BEEN COMPLETED TO THE BEST OF HIS/HER KNOWLEDGE.

8/23/2024
DATE

Kevin D. Sheehan, Attorney for Applicant
APPLICANT'S NAME (*PLEASE PRINT*)

APPLICANT'S SIGNATURE

SITE PLAN APPLICATION
CHECKLIST

CHECK IF COMPLETED		*FOR OFFICE USE ONLY*
X	1. Zoning Application	____
X	2. Site Plan Applications & Site Plans (12 copies of both)	____
X	3. Proof of ownership (i.e. Deed, Tax Bill and/or Lease)	____
X	4. Signed escrow fee agreement	____

PRIOR TO SUBMISSION OF ANY SITE PLAN APPLICATIONS EVERY APPLICANT MUST CALL FOR A PRE-APPLICATION CONFERENCE.

IT IS STRONGLY ADVISED THAT THE APPROPRIATE PROFESSIONALS BE PRESENT AT SAID MEETING.

PRE-APPLICATION CONFERENCE FEE: $500.00

(ACCORDING TO SECTION 577-270 OF THE CITY'S ZONING CODE)

***NOTE:**

A. Incomplete applications will not be processed.

B. Submission hours are 8:30 a.m. to 4:30 p.m., Monday through Friday. All applications must be stamped "RECEIVED" by the Division of Planing. No outside drop-offs will be processed.

C. All plans must be folded with *Title Block* facing upward.

D. Whenever public notice is required, the Division of Planning shall prepare procedures for said notification and advise applicant of its readiness.

The following checklist pertains to PLOT PLANS:

CHECK IF COMPLETED		*FOR OFFICE USE ONLY*
X	1. Name and address of owner and applicant	
X	2. Name, signature, licenses #, seal and address of engineer, land surveyor, architect, professional planner, and/or landscape architect (as applicable).	
X	3. Title block denoting type of application, tax map sheet, county municipality, block and lot, and street address.	
X	4. Key map not less than 1" - 1000" showing location of tract to surrounding streets, municipal boundaries, etc. within 500'.	
X	5. Schedule for required and proposed zone requirements for lot area, frontage, setbacks, impervious coverage, parking, etc.	
X	6. North arrow to top of sheet, scale and graphic scale	
X	7. Signature block for board chair, secretary and engineer.	
X	8. Date of property survey	
X	9. Acreage of tract to nearest tenth	
X	10. Date or original and all revisions	
X	11. Size and location of existing or proposed structures and their dimensioned setbacks	
X	12. Location and dimensions of any existing or proposed streets	
X	13. All proposed lot lines and area of lots in square feet	
X	14. Copy of and plan delineation of any existing or proposed deed restriction	
X	15. Any existing or proposed easement or land reserved or dedicated for public use	
X	16. Existing streets, other right-of-way or easements; water courses, wetlands, soils floodplains, or other environmentally sensitive areas within 200' of tract	
X	17. Topographical features of subject property from USGS 7.5 minute maps	

CONTINUED ON NEXT PAGE...

CHECK IF COMPLETED		*FOR OFFICE USE ONLY*
X	18. Boundary, limits, nature and extent of wooded areas, specimen trees and other significant physical features	
X	19. Drainage calculations	
X	20. Proposed utilities: sanitary sewer, water, storm water management, telephone, cable TV and electric	
X	21. Soil erosion and sediment control plan if more than 5000 sq. ft.	
X	22. Spot and finished elevations at all property corners, corners of structures, existing or proposed first floor elevations	
X	23. Construction details road and paving cross-sections and profiles if no profiles needed	
X	24. Lighting plan and details	
X	25. Landscape plan and details	
X	26. Site identification signs, traffic control signs, and directional signs	
X	27. Sight triangles	
X	28. Vehicular and pedestrian circulation patterns	
X	29. Parking plan indicating spaces, size and type aisle width internal collectors, curb cuts, drives and driveways and all ingress and egress areas with dimensions	
X	30. Preliminary architectural plan and elevations	
X	31. Environmental impact report; parcels 2 acres or larger	
X	32. Plan paper size should be 24 by 36	

ESCROW DEPOSIT AGREEMENT BETWEEN THE CITY OF CAMDEN AND

DEPOSITOR Holtec Technology Center, LLC

Address 1 Holtec Way
Camden, NJ 08104

Telephone No. 856-957-0924 Check No. _____

Depositor herewith deposits the sum of ONE THOUSAND TWO HUNDRED FOUR DOLLARS AND 31/00 dollars ($3,613.23) with the City of Camden in accordance with and subject to the provisions of the City of Camden Ordinance No. MC-2304, being incorporated by reference and made a part hereof, and agrees to the following:

1. Depositor's payment of said deposit is made in connection with an application for:
   Block 511, Lots 1, 77-87, 90-93 / Block 512, Lots 55-74, 33-53, 109, 110, 113-117
   Block 514, Lots 3-6, 9-32, 100-107, 118, 120, 145-149, 121, 150-155 / Block 515, Lot 1 and 3 through 11
   at (provide address with block and lot number):
2. The Treasurer of the City of Camden shall be authorized to disburse to the City Engineer from the funds deposited, those fees required to be paid for the technical and professional review by the Zoning Board of Adjustment and/or Planning Board pursuant to the terms of Ordinance MC-2304.
3. All fees shall be disbursed upon reconciliation of the Engineer & Insurance Escrow Accounts by Ordinance MC-2304.
4. If there are insufficient funds in the depositor's escrow account to pay all pending bill attributable to the aforementioned project, depositor shall be notified by the appropriate agency and requested to make an additional deposit into the escrow account.
5. Depositor understands that if he/she fails to make any additional deposit required, depositor's application shall be denied.
6. Any additional deposits shall be made to the Treasure, City of Camden, by way of the Division of Planning, in accordance with the terms set forth herein unless otherwise agreed to by the depositor and the approving agency.
7. The City of Camden shall not be required to pay interest on any sums held pursuant to this agreement.

IN WITNESS WHEREOF the undersigned hereby accepts the terms and conditions of this agreement.

DATED: 8/23/2024

Applicant or authorized signature

Kevin D. Sheehan, Attorney for Applicant

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See **Specific Instructions** on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Holtec International and Subsidiaries

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☑ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
1001 N. US Highway 1, Suite 800

Requester's name and address (optional)

6 City, state, and ZIP code
Jupiter, Fl 33477-4407

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–			–				

or

Employer identification number
2	0	–	4	5	9	8	4	3	3

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here **Signature of U.S. person** ▶ Ron | Delot **Date** ▶ 10/5/2023

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

DISCLOSURE STATEMENT PURSUANT TO N.J.S.A. 40:55D-48.1

The owners of 10% or more of Applicant – Holtec International Inc. S-Corporation Ownership Percentages is:

Dr. Krishna P. Singh – Great Banyan Trust: 36.33%
Martha J. Singh – Multi Decades Trust: 63.37%

4874-3363-3670, v. 1

EXECUTION COPY

GROUND LEASE

BY AND BETWEEN

SOUTH JERSEY PORT CORPORATION

AND

HOLTEC TECHONOLOGY CENTER, LLC

(HOLTEC TECHNOLOGY CENTER AT CAMDEN)

THIS GROUND LEASE ("Lease" or "Agreement") made and executed this 26th day of February, 2015, by and between the SOUTH JERSEY PORT CORPORATION ("SJPC" or "Landlord"), a public body corporate and politic, with succession established by the State of New Jersey ("State"), having its principal offices located at Second and Beckett Streets, Camden, New Jersey 08103, and HOLTEC TECHNOLOGY CENTER, LLC, a Delaware limited liability company ("Tenant"), having an office located at One Holtec Drive, Marlton, New Jersey 08053. Landlord and Tenant may each be referenced hereafter as a "Party" and collectively as the "Parties".

BACKGROUND

WHEREAS, SJPC has been created by the State, pursuant to the South Jersey Port Corporation Act, N.J.S.A. 12:11A-1, et seq. ("SJPC Act"); and

WHEREAS, Holtec International ("Holtec") is a leading edge, diversified energy technology company with global operation centers in Marlton, New Jersey, Pittsburgh, Pennsylvania, Orrville, Ohio, Lakeland, Florida, Jupiter, Florida, San Diego, California, Kiev, Ukraine and Pune, India and satellite offices in Barnwood, United Kingdom and Slavutich, Ukraine; and

WHEREAS, Holtec is widely acclaimed as the industry leader in the design and supply of critical heat exchange equipment such as steam generators, surface condensers, air-cooled condensers, and feed-water heaters to the global power industry; and

WHEREAS, Holtec enjoys a global client base and ongoing projects in China, Korea, Spain, the United Kingdom, Switzerland, Belgium, Sweden, Peru, Mexico, Argentina, Brazil and the United States; and

WHEREAS, since 2009, Holtec has been at the forefront in developing a new generation of safe and environmentally friendly energy technology; and

WHEREAS, SJPC owns significant property along the Delaware River waterfront in the City of Camden ("Camden" or "City"), including the complex known as the Broadway Marine Terminal and related land ("Broadway Marine Terminal") and

WHEREAS, as a result of business demands, expected growth and other factors, Holtec has determined a need exists for a new manufacturing, fabrication and assembly facility for its business products, which facility will also include space for research and product testing (together with related and ancillary facilities, the "Holtec Technology Center"); and

WHEREAS, Holtec has determined it would also be advantageous for its Operations Center of Excellence, currently located in Marlton, New Jersey ("Operations Center"; together with the Holtec Technology Center and related improvements, the "Project"), to be located in direct proximity to the Holtec Technology Center in order to improve efficiency and operations; and

WHEREAS, the State has enacted legislation, entitled "New Jersey Economic Opportunity Act of 2013," P.L. 2013, c.161 ("EOA"), which provides significant tax incentives for businesses like Holtec to locate in Camden; and

WHEREAS, Holtec has undertaken a national search and received significant offers of financial assistance from multiple states with respect to the siting of the Project and the location of its global corporate headquarters; and

WHEREAS, as a result of extensive analysis of the financial incentives available to it under the EOA, Holtec has determined that the most advantageous location to site the Project and to locate its global corporate headquarters in Camden is on the southernmost portion of Broadway Marine Terminal of approximately fifty-one (51) acres located in Camden, currently part of Block 455, Lot 1, Block 457, Lots 7, 8, 10 and 16, and Block 515, Lots 1, 3, 4, 5, 6, 7, 8, 9, 10 and 11, on the tax maps of the City, as more particularly described and set forth on the survey and plat map attached hereto as Exhibit "A" ("Premises"); and

WHEREAS, in furtherance of such determination, by letter dated September 2, 2014, Holtec has heretofore received approval from the New Jersey Economic Development Authority for the purposes obtaining tax credits ("Tax Credits") offered under the EOA in an amount sufficient to undertake the construction and completion of the Project on the Premises ("NJEDA Approval"); and

WHEREAS, upon completion of construction, the Holtec Technology Center will encompass approximately 400,000 square feet in one or more state-of-the-art buildings in Camden and the Holtec Operations Center of Excellence will be housed in an adjacent building approximately 180,000 square feet in size; and

WHEREAS, SJPC has heretofore determined it would be in its interest and further its statutory objectives by assisting Holtec in the siting of the Project on the Premises and to otherwise work with Holtec in furtherance of the development and completion of said Project; and

WHEREAS, in furtherance of the collective determination of the Parties to site the Project upon the Premises and to develop and construct the same, Holtec International, acting by and through Tenant, have heretofore entered into that certain Project Development Agreement, dated July 25, 2014 ("Project Development Agreement"), pursuant to which the Holtec and SJPC have agreed to, among other things, enter into this Lease for the purpose of providing to Tenant (on behalf of Holtec), a leasehold interest in the Premises for a term of years and to fix the respective obligations of the Parties in connection therewith; and

WHEREAS, by resolution duly adopted on October 22, 2014, a copy of which is attached hereto as Exhibit "B", the Board of Commissioners of SJPC authorized the execution of this Lease for the ground lease of the Premises to Tenant; and

WHEREAS, by corporate resolution, a copy of which is attached hereto as Exhibit "C", Tenant is authorized to enter into this Lease for the purpose of undertaking the development and construction of the Project on the Premises; and

ARTICLE V

LEASE TERM

Section 5.1 Initial Term.

(a) This Lease is effective upon the execution thereof and shall continue for a period of fifty (50) years following the Commencement Date, subject to earlier termination if the conditions set forth in this Section 5.1 are not met.

(b) Subject to Tenant's option to either: (i) terminate this Lease as set forth in Section 5.1(c) below; or (ii) renew this Lease for the renewal terms set forth in Section 5.2 below, the Initial Term expires on the fiftieth (50^{th}) anniversary of the Commencement Date and all rights and obligations shall be terminated.

(c) If and to the extent that Landlord has not substantially completed environmental remediation of the Premises and the demolition of the R&S Building, the WA Building, the T&U Building, the P6 Building and any other building or structure presently located on the Premises to the reasonable satisfaction of the Tenant, in Tenant's sole discretion, within twelve (12) months from the Commencement Date, Tenant shall have the right to terminate this Lease on such date and the Rent owed to Landlord shall be limited to the amount set forth in Section 7.1(a)(i)(A) hereof; provided, however, that the Landlord and Tenant may extend such twelve (12) month period by additional six (6) month increments if consented to by Tenant, which consent shall not be unreasonably withheld; provided, further, that if any delays related to the completion of environmental remediation and demolition shall result from or shall be caused by the action or inaction of Tenant or any contractors, subcontractors or consultants of Tenant, such that environmental remediation and demolition may not be completed within twelve (12) months from the Commencement Date, Tenant shall not be permitted to terminate this Lease and Landlord shall incur no liability to Tenant resulting from such delay.

Section 5.2 Renewal Options. Tenant has the exclusive right and option to renew this Lease for two (2) additional fifty (50) year terms beyond the Initial Period, provided that the Tenant notifies Landlord in writing its intent to renew this Lease within one hundred and twenty (120) days of expiration of the Initial Period or the Renewal Period, as applicable. Upon such renewal, Rent shall adjust and be payable pursuant to the terms and conditions set forth in Section 1.1(j)(2) and (3) and Section 7.1(b), (c) and (d) hereof

ARTICLE VI

DESIGN AND CONSTRUCTION OF THE IMPROVEMENTS

Section 6.1 **Improvements.** As used in this Lease, "Improvements" means all temporary and permanent structures, sidewalks, driveways, roadways, parking areas, loading areas, fixtures, equipment, permanently affixed trade fixtures and all other improvements which are constructed or located and to be constructed and located on the Premises at any time during the Term of this Lease by or on behalf of Tenant or any sublessee of Tenant and which are necessary to construct and operate the Project and any other building, facility, or structure now or hereafter located at or on the Premises.

Section 6.2 **Development and Construction; Costs Paid by Tenant.** (a) Tenant agrees that it will cause to be prepared designs, plans and specifications for the facilities and Improvements constituting the Project and any other additional Improvements ("Plans and Specifications") and it will submit such Plans and Specifications to Landlord in a timely manner for review and information, it being understood that Landlord shall have no rights of consent, dissent, or power of veto for the contents of any such Plans and Specifications; provided, however that Landlord shall maintain consent rights solely and directly related to the determination as to the relocation of the existing electric substation currently located on the Premises to a new location outside the boundaries of the Premises. In addition, Tenant shall be permitted to revise such Plans and Specifications, in its sole discretion, as necessary or desirable in order to complete the Project. Any such revisions shall be provided to Landlord in a timely manner for its review and information it being understood that Landlord shall have no rights of consent, dissent, or power of veto for any such revisions, except where such revisions relate solely and directly to the determination of the relocation of the existing electric substation outside of the boundaries of the Premises.

(b) Tenant shall be solely responsible for ensuring that the design of any Improvements is appropriate for its respective purposes. All costs associated with making changes to the Plans and Specifications shall be borne exclusively by Tenant, but Landlord shall bear all costs for its review of same. The Plans and Specifications shall be prepared in accordance with all applicable laws, regulations, ordinances, and codes. The final version of the Plans and Specifications shall be stamped by a professional engineer or architect, as applicable, licensed by the State. Landlord shall use its best efforts to accommodate reasonable requests from Tenant, or any duly authorized agent of Tenant, with respect to submissions to any governmental or regulatory authority for approvals of such Plans and Specifications and related permits and authorizations.

(c) Tenant, or Tenant's contractors, subcontractors or consultant, shall construct and undertake the Improvements constituting the Project and any other Improvements in accordance with the Plans and Specifications, as may reasonably be revised, and Tenant shall use its reasonable best efforts to obtain completion of the Project within the Project Schedule (as defined in the Project Development Agreement) and any other additional Improvements according to a hereafter provided project schedule; provided, however, that neither Landlord nor Tenant shall incur any liability for delays related thereto unless such delays were caused by Landlord and relate to leasehold interest of Tenant in the Premises, in which event Tenant shall have the rights provided by Section 2.1 hereof.

(d) Tenant shall take full responsibility for all aspects of the Project development process and the construction of any Improvements (excluding the Roadway Realignment (as defined below), the relocation of any facilities resulting from demolition of existing buildings on the Premises and those items set forth in Section 5.1(g) of the Project Development Agreement, which shall be undertaken by Landlord or by other parties) by directing and coordinating all necessary development services including but not limited to: (i) coordinating planning and development; (ii) procurement and supervision of professionals such as architects, engineers, planners, contractors, accountants and attorneys (except for those actions and activities to be conducted by Landlord or other parties identified in Sections 3.2, 4.4, 5.1(g) and 5.2(a) and (b) of the Project Development Agreement or as otherwise set forth herein); and (iii) overall coordination and supervision of the Project.

(e) Tenant shall be the applicant for and shall obtain all Federal, State, County, and City (or their respective authorities or agencies) approvals, permits and utility requirements for the development and construction of the Project and any Improvements (collectively, the "Permits"), except where Tenant has requested that Landlord serve as lead applicant on behalf of Tenant and Landlord has consented to such request (which consent shall not be unreasonably withheld). For purposes of assisting each Party in the obtainment of such Permits, Tenant or Landlord, as applicable, shall provide to respective other Party any documentation, plans, specifications or other materials necessary or required to enable such Party to make governmental and regulatory filings. In connection therewith, Tenant and Landlord each agrees to respond to all reasonable requests for information and will specifically prepare and file all applications that may require its specific action or response in a timely manner. The costs associated with the obtainment of all governmental approvals and Permits shall be borne by Tenant except where (i) Landlord is updating or modifying an existing governmental approval or Permit, or (ii) as otherwise specifically set forth in the Project Development Agreement. If the Parties have already retained professional expertise relating to the Permits, the Parties agree to cooperate, share information and instruct professionals accordingly so that such items and the Permits can be timely obtained. When requested by Tenant or Landlord, as applicable, such requested Party shall cooperate with and assist the requesting Party with the obtainment of any and all surveys, insurance, Permits and professionals necessary to effectuate the timely development, construction and implementation of the Project and any Improvements. In connection therewith, each Party agrees to respond to all reasonable requests for information, and will sign all applications that may require its signature or other action or response in a timely manner.

(f) Unless Landlord is undertaking any of the items set forth in Section 6.3(a) hereof or any SJPC Improvements (as defined in the Project Development Agreement) as part of the Project or is undertaking the completion of a portion of the Project on behalf of Tenant, all decisions with respect to: (i) the selection of any firm or firms necessary to undertake the development or construction of the Project or any other Improvements; (ii) the selection of the contractor for the award of any construction contract; (iii) any construction contracts; (iv) Project and Improvement development and construction; and (v) change orders affecting any construction contract shall be made at the sole discretion of Tenant, and in all cases in accordance with the applicable requirements of the EOA.

(g) Tenant, or any contractor, subcontractor or consultant of Tenant, and Landlord shall assist in the planning, design and implementation of the realignment of those portions of

Broadway and Morgan Street in Camden necessitated by the construction and location of the Project on the Premises and the future growth of the Broadway Marine Terminal, including costs and expenses thereof and for associated signalization and signage (collectively, the "Roadway Realignment"), it being understood that neither Tenant nor Landlord shall incur any costs in connection with the completion of such Roadway Realignment, with such costs to be paid or assumed by the County of Camden or by other governmental entity.

(h) Tenant, or Tenant's contractors, subcontractors or consultants, shall diligently construct the Improvements in a good, safe, and workmanlike manner, in conformity with the Plans and Specifications, and in compliance with all laws, regulations, ordinances, and codes of governmental authorities having jurisdiction over the work.

(i) At all times, Tenant shall have any and all necessary permits or approvals applicable to Tenant for the work and use new, first-class materials for the construction and completion of any Improvements.

(j) Tenant shall obtain, if applicable, a certificate of occupancy or other approval from the appropriate governmental authority prior to occupying the Premises for its permitted use hereunder. Landlord shall use its best efforts to accommodate reasonable requests from Tenant with respect to submissions to any governmental or regulatory authority for such certificate of occupancy or permitted use approval.

(l) During the period of construction, Tenant will erect a fence around the Premises or any portion thereof and take all other reasonable steps necessary to preclude unauthorized individuals from gaining access to the Premises and to secure the construction area.

(m) All costs of construction for the Improvements shall be paid for by Tenant except as otherwise set forth in the Project Development Agreement, in this Lease, or by separate written agreement.

Section 6.3 **Landlord's Obligations and Costs with Respect to Project.**

(a) In connection with the completion of the Project generally, unless otherwise set forth herein, in the Due Diligence Letter (as defined in the Project Development Agreement) or in the Project Development Agreement, Landlord shall be responsible for undertaking, and paying for the costs of the following, except where in those instances where Landlord may be entitled to certain payments or reimbursements by Tenant as specifically set forth herein and in the Project Development Agreement:

(i) the completion of the environmental remediation of any pre-existing adverse environmental conditions found within, upon, beneath, abutting or about the Premises, including any environmental conditions found within, upon, beneath, abutting or about any buildings or structures to be demolished, renovated, refurbished or otherwise disturbed and presently located on the Premises, whether discovered prior or subsequent to the execution of this Lease, and for environmental remediation associated with such adverse environmental conditions (other than any adverse environmental conditions directly caused by Tenant or any sublessee of Tenant) and the payment of the costs thereof (except for those costs paid or to be paid by Tenant pursuant to Section

FIRST AMENDMENT TO GROUND LEASE

BY AND BETWEEN

SOUTH JERSEY PORT CORPORATION

AND

HOLTEC TECHONOLOGY CENTER, LLC

(HOLTEC TECHNOLOGY CENTER AT CAMDEN)

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THIS FIRST AMENDMENT TO GROUND LEASE ("First Amendment" or "Amendment") made and executed this ____ day of November, 2016, by and between the SOUTH JERSEY PORT CORPORATION ("SJPC" or "Landlord"), a public body corporate and politic, with succession established by the State of New Jersey ("State"), having its principal offices located at Second and Beckett Streets, Camden, New Jersey 08103, and HOLTEC TECHNOLOGY CENTER, LLC, a Delaware limited liability company ("Tenant"), having an office located at One Holtec Drive, Marlton, New Jersey 08053, amends and supplements that certain Ground Lease Agreement, dated February 25, 2015 ("Original Lease"), between Landlord and Tenant. The Original Lease, as amended and supplemented by this First Amendment is referred to hereafter as the "Agreement"). Capitalized terms not otherwise defined herein shall have the meanings set forth in the Original Lease.

BACKGROUND

WHEREAS, SJPC has been created by the State, pursuant to the South Jersey Port Corporation Act, N.J.S.A. 12:11A-1, et seq. ("SJPC Act"); and

WHEREAS, Holtec International ("Holtec") is a leading edge, diversified energy technology company with global operation centers in Marlton, New Jersey, Pittsburgh, Pennsylvania, Orrville, Ohio, Lakeland, Florida, Jupiter, Florida, San Diego, California, Kiev, Ukraine and Pune, India and satellite offices in Barnwood, United Kingdom and Slavutich, Ukraine; and

WHEREAS, Holtec is widely acclaimed as the industry leader in the design and supply of critical heat exchange equipment such as steam generators, surface condensers, air-cooled condensers, and feed-water heaters to the global power industry; and

WHEREAS, SJPC owns significant property along the Delaware River waterfront in the City of Camden ("Camden" or "City"), including the complex known as the Broadway Marine Terminal and related land ("Broadway Marine Terminal") and

WHEREAS, as a result of business demands, expected growth and other factors, Holtec has heretofore determined that a need existed for a new manufacturing, fabrication and assembly facility for its business products, which facility would also include space for research and product testing (together with related and ancillary facilities, the "Holtec Technology Center"); and

WHEREAS, Holtec has also heretofore determined it would be advantageous for its Operations Center of Excellence, currently located in Marlton, New Jersey ("Operations Center"; together with the Holtec Technology Center and related improvements, the "Project"), to be located in direct proximity to the Holtec Technology Center in order to improve efficiency and operations; and

WHEREAS, as a result of extensive analysis of the financial incentives available to it under certain State law, Holtec has heretofore determined that the most advantageous location to site the Project and to locate its global corporate headquarters in Camden was on the southernmost portion of the Broadway Marine Terminal owned and operated by Landlord in

Camden on approximately fifty-one (51) acres, constituting Block 455, Lot 1, Block 457, Lot 10, Block 457, Lot 16, and Block 515, Lots 3 through 11, on the tax maps of the City, as more particularly described and set forth on the survey and plat map attached as Exhibit "A" to the Original Agreement ("Original Premises"); and

WHEREAS, in furtherance of the collective determination of Holtec and SJPC to site the Project upon the Original Premises and to develop and construct the same, Holtec International, acting by and through Tenant, have heretofore entered into the Original Lease, pursuant to which, among other things, SJPC has provided to Tenant a leasehold interest in the Original Premises for a term of years; and

WHEREAS, pursuant to Section 3.1(c) of the Original Lease, if and to the extent that additional land immediately abutting or adjacent to the Original Premises, and currently owned by Landlord, shall become available for lease or sale by Landlord to Tenant (such land being referred to as the "Additional Acreage" in the Original Lease), Landlord shall, within thirty (30) days of the date upon which such Additional Acreage becomes available for lease or for sale, advise Tenant of the availability of such Additional Acreage ("Notice") and, thereafter, Tenant shall be provided the exclusive, first and immediate right to lease or purchase such Additional Acreage from the Landlord upon terms provided in the Original Lease, subject to the payment of Rent (as described in Section 7.1(d) of the Original Lease) or the purchase price thereof (as shall be set forth in a separate agreement of sale between the Parties); and

WHEREAS, Landlord has provided Notice to Tenant that certain Additional Acreage constituting certain real property located to the north/northeast of the leasehold estate bordered by new Broadway to the north and east, Morgan Street to the south and old Broadway to the west, generally identified as portions of Block 515, Lot 1 on the tax maps of the City, all as more particularly set forth on the survey and plat map attached hereto as Exhibit "A" has become available for lease from Landlord to Tenant (referred to hereafter as the "Terraces Sites"); and

WHEREAS, pursuant to Section 3.1(c) of the Original Lease, Tenant has heretofore communicated to Landlord its determination to exercise its rights to lease the Additional Acreage constituting the Terraces Sites from Landlord; and

WHEREAS, in addition to Tenant's notice of its determination to the lease the Additional Acreage constituting the Terraces Sites from Landlord, Tenant and the Landlord have hereto collectively agreed that certain portions of real property constituting the southern portion of the Original Premises, generally identified as a portion of Block 457, Lot 16 and a portion of Block 457, Lot 10 on the tax maps of the City (collectively, the "Southern Site"), shall be released from the leasehold estate and returned to Landlord; and

WHEREAS, as a result of the determination of: (i) the Tenant to exercise its exclusive rights to lease the Additional Acreage constituting the Terraces Sites from the Landlord, pursuant to Section 3.1(d) of the Original Lease; and (ii) the Tenant and the Landlord to release the Released Premises from the leasehold estate, the Parties are now desirous of amending the Original Lease to, among other things: (i) provide for the lease of the Additional Acreage constituting the Terraces Sites to the Tenant; (ii) include such Additional Acreage as part of the "Premises" subject to lease by the Tenant from Landlord; (iii) release the Southern Site from the leasehold estate; and (iv) provide for the finalization and certification of the specific acreage

constituting the newly delineated Premises such that amount of Rent payable by Tenant to Landlord for such Premises shall be deemed fixed (subject to the lease of Additional Acreage in the future); and

NOW THEREFORE, in consideration of the mutual exchange of promises and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound hereby, the Original Lease is hereby amended and supplemented according to this First Amendment as follows:

ARTICLE I

DEFINITIONS

Section 1.1 **Definitions.** Unless the context otherwise specifically requires or indicates to the contrary, the defined terms as used in this First Amendment shall have the respective meanings set forth in the Original Lease and are deemed to be the defined terms unless otherwise expressly indicated.

ARTICLE II
LEASE OF TERRACES SITES TO TENANT; RELEASE OF SOUTHERN SITE; CALCULATION OF RENT

Section 2.1 **Lease of Terraces Sites to Tenant.**

(a) By execution of this First Amendment, Landlord hereby leases to Tenant and Tenant hereby agrees to lease from Landlord the Terraces Sites upon the terms and conditions set forth in the Original Lease as amended by this First Amendment.

(b) The Terraces Sites shall constitute Additional Acreage in accordance with Section 3.1(c) of the Lease and shall, thereafter, be characterized as part of the Morgan Street Parcels for purposes of the Premises and the payment of Rent therefor.

Section 2.2 Release of Southern Site from the Leasehold Estate.

By execution of this First Amendment, Tenant hereby agrees, simultaneously with the lease of the Additional Acreage constituting the Terraces Sites by Tenant as described in Section 2.1 above, Tenant shall release from the leasehold estate and shall return to Landlord the Southern Site, and, thereafter, the Southern Site shall no longer constitute part of the leased Premises.

Section 2.3 **Calculation of Rent for the Premises.**

(a) Upon (i) the lease of the Additional Acreage constituting the Terraces Site from Landlord, and (ii) the release of the Southern Site from the Premises and the leasehold estate, Tenant shall pay net Rent therefor in accordance with the provisions of Section 7.1(d)(1)(A) of the Original Lease payable as follows:

(i) the present value of all rental payments due and owing for a period of fifty (50) years (based upon a 360 day year consisting of twelve (12) thirty-day months) beginning on the date of execution of this First Amendment and ending on the last day of the Initial Period, calculated on the basis of $0.15 per square foot acreage multiplied by the number of acres constituting the Terraces Sites identified in Exhibit "A" of this First Amendment, based upon an effective annual interest rate of 8%, less

(ii) that portion of the Initial Period Base Rent pre-paid by Tenant attributable to the acreage of the Central Site Parcels constituting the Southern Site being released pursuant to this First Amendment (i.e., pre-paid Rent for the acreage attributable to the Southern Site for the remaining years of the Initial Period for which Tenant has already remitted payment to Landlord, but for which Tenant shall no longer have a leasehold interest for such remaining years upon release of the Southern Site).

(b) The Rent payable by Tenant (constituting the net difference between the Rent for the Additional Acreage constituting the Terraces Sites, less the amounts previously paid in

advance by Tenant for that portion of the Original Premises constituting the Southern Site), calculated in accordance with subsection (a) above shall be aggregated with the Rent payable by Tenant to Landlord in accordance with Section 7.1(a)(i) of the Original Lease and shall be payable as more particularly set forth in Section 4.1 of this First Amendment.

ARTICLE III
MODIFICATIONS TO ORIGINAL LEASE

Section 3.1 Amendment to Section 1.1(k) of Original Lease.

Section 2.1(k) of the Original Lease is hereby amended and restated to include the Additional Acreage constituting the Terraces Sites as part of the "Leaseable Area" as follows:

"(k) LEASABLE AREA: Approximately forty-six and seventy-five one hundredths (46.75) acres, subject to further refinement and certification by a final qualified survey and/or the inclusion of Additional Acreage (as hereinafter defined) as provided in Section 3.1(b) and Section 3.1(c) hereof."

Section 3.2 Amendment to Section 1.1(m) of Original Lease.

Section 2.1(m) of the Original Lease is hereby amended and restated to identify the final lot and block descriptions of the land constituting the Premises, which shall, pursuant to this First Amendment, include the Additional Acreage constituting the Terraces Sites, as follows:

"(m) PREMISES: The land generally identified as Block 455, Lot 1, Block 457, Lot 16, Block 515, Lot 1, and Block 515, Lots 3 through 11 on the tax maps of the City, and any Additional Acreage hereinafter included or acreage excluded as part of the Premises in accordance with Section 3.1 hereof, all as more fully described and depicted in Exhibit "A" attached hereto and made a part hereof, and any Improvements thereon."

Section 3.3 Amendment to Section 1.2(a) and Section 1.2(e) of Original Lease.

(a) The Description of the Premises set forth as Exhibit "A" to the Original Lease is hereby amended and restated in its entirety to include the Original Premises (excluding the Southern Site) and the Additional Acreage constituting the Terraces Sites in accordance with Exhibit "B" to this First Amendment. Exhibit "B" attached to this First Amendment shall hereafter constitute Exhibit "A" for purposes of the Lease.

(b) Exhibit "E" (Calculation of Initial Period Base Rent) of the Original Lease is hereby amended and restated in its entirety by Exhibit "C" attached to this First Amendment, which Exhibit "C" to this First Amendment shall hereafter constitute Exhibit "E" for purposes of the Lease.

Section 3.4 Amendment to Section 3.1(a) of Original Lease.

Section 3.1(a) of the Original Lease is hereby amended and restated to identify the revised lot and block descriptions of the land constituting the Premises, which shall, pursuant to this First Amendment, include the Additional Acreage constituting the Terraces Sites and shall exclude the Southern Site, as follows:

"(a) Subject to the terms and conditions of this Lease, Landlord hereby leases to Tenant for the Term of this Lease the Premises, as more particularly described and depicted in the site plans attached to this Lease as Exhibit "A" and generally identified as Block 455, Lot 1, Block 457, Lot 16, Block 515, Lot 1, and Block 515, Lots 3 through 11 on the tax maps of the City, consisting of approximately forty-six and seventy-five hundredths (46.75) acres, for the purpose of developing, constructing operating the Improvements."

ARTICLE IV

INITIAL PERIOD BASE RENT CALCULATION

Section 4.1 **Initial Period Base Rent Calculation.**

Using the calculation methodology set forth in Section 7.1(a)(i) of the Original Lease, Landlord and Tenant each herby agree that the Initial Period Base Rent payable from Tenant to Landlord for the lease of the Premises (including the Additional Acreage constituting the Terraces Site included as part of the Premises, but excluding the Southern Site as hereafter released from the leasehold estate, each pursuant to this First Amendment) shall be in the amount set forth in Exhibit "C" attached to this First Amendment, which Exhibit "C" shall hereafter constitute Exhibit "E" for purposes of the Lease.

ARTICLE V

MISCELLANEOUS PROVISIONS

Section 5.1 **Confirmation.** Except as amended and supplemented by this First Amendment, the Lease is ratified and confirmed in all respects. The Lease and all supplements thereto, including this First Amendment, shall be read, taken and construed as one and the same instrument.

Section 5.2 **Application of Laws and Regulations.** This First Amendment shall be interpreted under the laws of the State of New Jersey.

Section 5.3 **Notices.** All notices required or permitted to be given hereunder shall be in writing and shall be deemed to have been given when mailed by certified mail, return receipt requested, addressed to the intended recipient as follows:

If to Tenant:	Holtec Technology Center, LLC Holtec Center One Holtec Drive Marlton, New Jersey 08053 Attention: Andrew Ryan, Esquire *General Counsel*
With a copy to:	Parker McCay P.A. 9000 Midlantic Drive, Suite 300 Mount Laurel, New Jersey 08054 Attention: Jeffrey D. Winitsky, Esquire
If to Landlord:	South Jersey Port Corporation Second and Beckett Streets Camden, New Jersey 08103 Attention: Executive Director
With a copy to:	Raymond J. Zane, Esquire Zane & Lozuke 131 Delaware Street Woodbury, New Jersey 08096

Section 5.4 **Amendment or Modification.** This First Amendment may not be amended or modified except upon written consent of both parties hereto.

Section 5.5 **Captions.** All headings preceding the text of the several sections and paragraphs hereof are inserted solely for the convenience and reference of the parties and do not constitute a part of this First Amendment, nor affect the meaning or interpretation thereof.

Section 5.6 **Severability.** If any provision of this First Amendment is invalid or unenforceable, in whole or in part, such provision and this First Amendment shall be deemed and

construed to be modified or restricted to the extent that and in the manner necessary to render the same valid and enforceable, or shall be deemed excised from this First Amendment as the case may require.

Section 5.7 **Entire Agreement.** This First Amendment and the documents referred to herein, set forth all the promises, agreements, conditions, and understandings between Landlord and Tenant and there is no promise, agreement, condition or understanding, either oral or written, between them other than as is herein set forth.

Section 5.8 **Successors and Assigns.** This First Amendment shall bind and inure to the benefit of Landlord and Tenant and their respective successors and assigns.

Section 5.9 **Counterparts.** This First Amendment may be executed in any number of counterparts, each of which shall be an original, and all, when taken together, constitute one and the same document. Transmission by facsimile of an executed counterpart of this First Amendment is deemed to constitute due and sufficient delivery of such counterpart.

Section 5.10 **Broker's Commission.** Tenant and Landlord each represents and warrants to the other that it has not dealt with any broker or agent in negotiation for or obtaining of this First Amendment and there are no claims for brokerage commissions or finder's fees in connection with the execution of this First Amendment. Each Party agrees to be responsible for all liabilities arising from any compensation claimed by any such broker or agent employed by the respective Party or claiming to have been engaged by the respective Party, including attorneys' fees. Landlord represents and warrants that no person or firm has been employed, directly or indirectly, in violation of applicable law to solicit this First Amendment. The provisions of this paragraph survive the expiration or termination of the Lease.

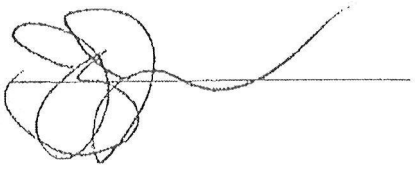
Section 5.11 **No Personal Liability.** No covenant, condition or agreement contained in this First Amendment shall be deemed to be the covenant, condition or agreement of any past, present or future officer, agent or employee of Tenant or Landlord, in his or her individual capacity, and neither the officers, agents or employees of Tenant or Landlord nor any officer or official executing this First Amendment shall be liable personally on this First Amendment by reason of the execution hereof by such person or arising out of any transaction or activity relating to this First Amendment.

Section 5.12 **No Construction Against Drafting Party** Landlord and Tenant acknowledge that each of them and their counsel have had an opportunity to review this First Amendment and this First Amendment will not be construed against Tenant merely because Tenant's counsel prepared it.

Section 5.13 **Further Assurances; Corrective Instruments.** Landlord and Tenant shall execute, acknowledge and deliver, or cause to be executed, acknowledged and delivered, such supplements hereto and such further instruments as may reasonably be required for correcting any inconsistent or ambiguous term hereof.

IN WITNESS WHEREOF, and intending to be bound hereby, the parties hereto have caused this FIRST AMENDMENT to be duly executed, effective as of the day and year first above written.

ATTEST:

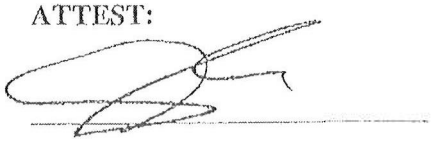


SOUTH JERSEY PORT CORPORATION

By: _____

KEVIN CASTAGNOLA,
Executive Director and
Chief Executive Officer

ATTEST:



HOLTEC TECHNOLOGY CENTER, LLC

By: Pankaj Chaudhary

Name: Pankaj Chaudhary

Title: Sr. V.P. of operations

Exhibit "A"

Description of Terraces Sites

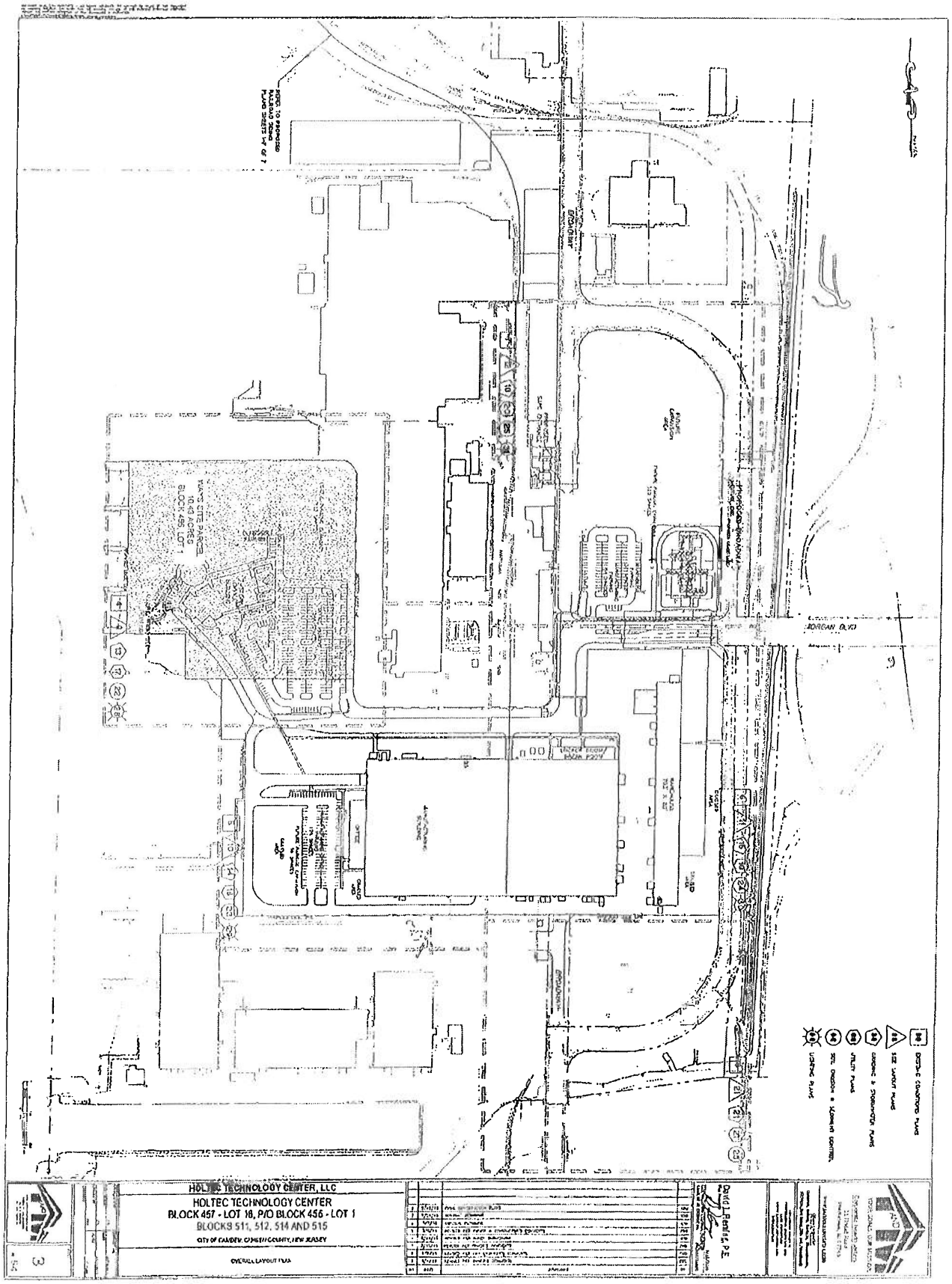
HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
BLOCKS 511, 512, 514 AND 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OVERALL LAYOUT PLAN
MORGAN BLVD
BROADWAY
NEW LEASE LINE
EXISTING DIRECTIONAL SIGNS
SITE LIGHT PLANS
ENGINE & TERMINATE PLANS
INLET PLANS
SOIL EROSION & SEDIMENT CONTROL
LARGE PLANS
3
54

HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 465 - LOT 1
BLOCKS 511, 512, 514 AND 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OVERALL LAYOUT PLAN
ORIGINAL LEASE
320 ACRES
DELAWARE AVENUE
BROADWAY
GRADING & STORMWATER PLANS
UTILITY PLANS
SOIL EROSION & TECHNICAL CONTROL
LIGHTING PLANS

Exhibit "B"

Amended and Restated Exhibit "A" to the Lease
(Description of the Premises)

HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
BLOCKS 611, 512, 514 AND 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OVERALL LAYOUT PLAN
BLOCK 515, LOT 1
BLOCK 457, LOT 16
BLOCK 455, LOT 1
BLOCK 457, LOT 1
BLOCK 455, LOT 1
MORGAN BLVD
HOLTEC INTERNATIONAL DEMISED PREMISES
EXISTING CONDITIONS PLANS
SITE LAYOUT PLANS
GRADING & STORMWATER PLANS
UTILITY PLANS
SOIL EROSION & SEDIMENT CONTROL
LIGHTING PLANS
David J. Bonnet, P.E.


HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 18, P/O BLOCK 456 - LOT 1
BLOCKS 511, 512, 514 AND 515
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY
OVERALL LAYOUT PLAN
JORDAN BLVD
Doug Reiss P.E.

HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
BLOCKS 511, 512, 514 AND 515
OVERALL LAYOUT PLAN

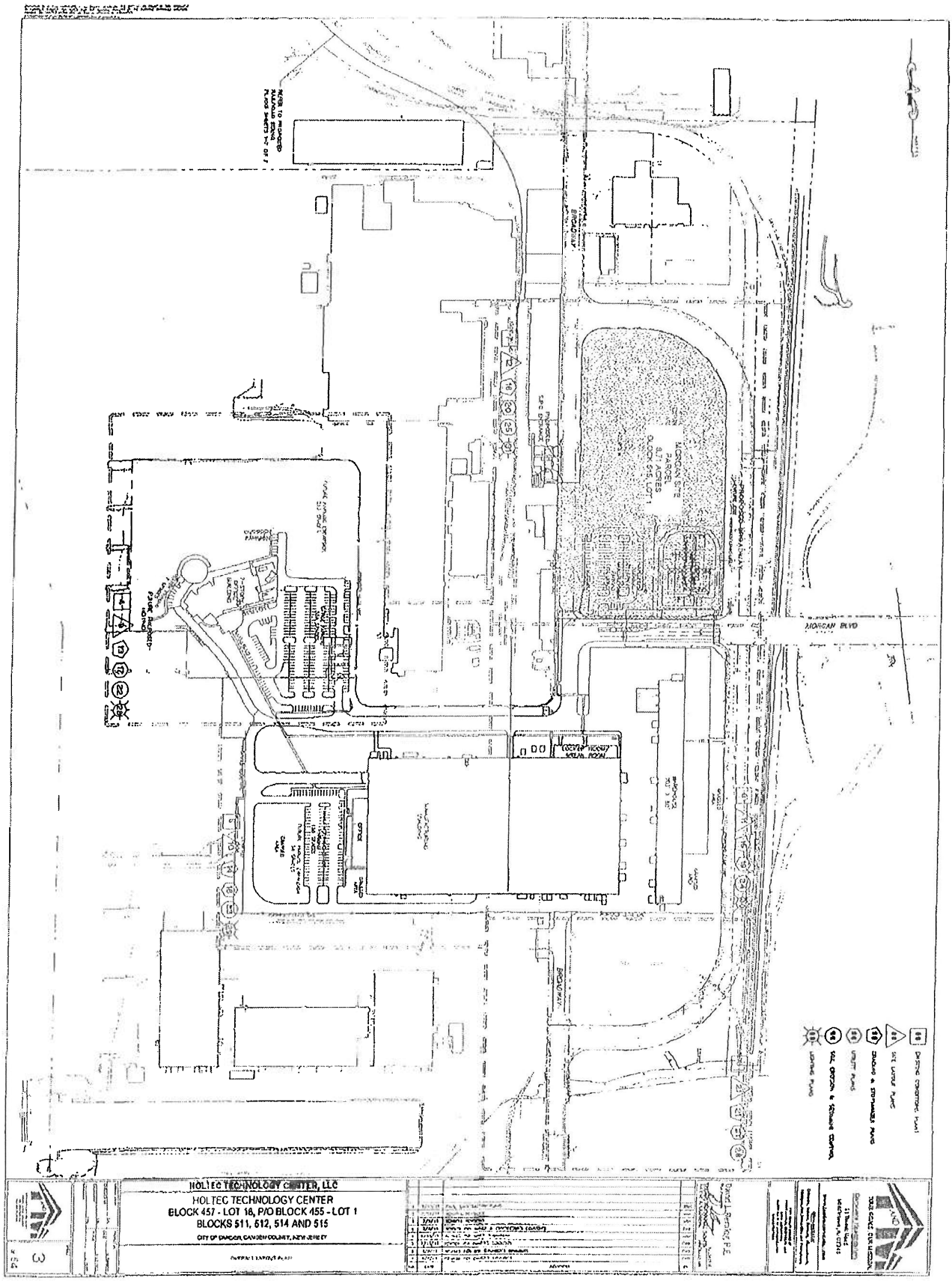

MORGAN BLVD
HOLTEC TECHNOLOGY CENTER, LLC
HOLTEC TECHNOLOGY CENTER
BLOCK 457 - LOT 16, P/O BLOCK 455 - LOT 1
BLOCKS 511, 512, 514 AND 515
CITY OF EMERSON, BERGEN COUNTY, NEW JERSEY

Exhibit "C"

Amended and Restated Exhibit "E" to Lease
(Calculation of Initial Period Base Rent)

Lease/Land Acquisition Estimated Payments — Calculations

$/sq ft	Acres	Interest Rate	Sq Ft/Acre	Lease Pmt per Year	Years	PV of Lease	
0.30		8.0%	43,560	347,739	50	($4,594,391)	Payment of Holtec to SJPC
$/sq ft	Acres*	Interest Rate	Sq Ft/Acre	Lease Pmt per Year	Years	PV of Lease	
0.15		8.0%	43,560	63,445	50	($838,248)	Payment of Holtec to SJPC
$/sq ft	Acres*	Interest Rate	Sq Ft/Acre	Lease Pmt per Year	Years	PV of Lease	
0.15		8.0%	43,560	68,150	50	($900,404)	Payment of Holtec to SJPC
						($4,000,000)	Relocation Cost of SJPC; Payment of Holtec to SJPC
						($10,333,042)	

	Estimated Costs to SJPC's account. [FINAL COSTS TBD] Could be greater or less than this amount at SJPC's risk/liability. Subtracted from the payment of Holtec to SJPC.

($8,620,042)	Total Payment

SOUTH JERSEY PORT CORPORATION

An agency of the State of New Jersey

2nd and Joseph A. Balzano Blvd.
Camden, New Jersey 08103

856.757.4927 phone
856.757.4903 fax

kcastagnola@southjerseyport.com
www.southjerseyport.com

Kevin Castagnola
Executive Director & CEO

November 23, 2016

Dr. Krishna P. Singh
President and Chief Executive Officer
Holtec International, Inc.
One Holtec Drive
Marlton, New Jersey 08053

RE: SOUTH JERSEY PORT CORPORATION | HOLTEC INTERNATIONAL – GROUND LEASE FOR THE HOLTEC TECHNOLOGY CENTER AT CAMDEN

Dear Dr. Singh:

On behalf of South Jersey Port Corporation ("SJPC"), I am pleased to enclose a final, execution copy of the First Amendment to Ground Lease ("First Amendment"), which First Amendment amends that certain Ground Lease, dated February 26, 2015 ("Ground Lease"), between SJPC and Holtec International, on behalf of Holtec Technology Center, LLC ("Holtec"). I would be appreciative if you (or an appropriate representative of Holtec) would execute five (5) of the enclosed signagture pages to the First Amendment where indicated. Thereafter, please forward the completed signature pages to Jeff Winitsky at Parker McCay P.A., who will compile complete, fully executed copies for distribution to SJPC and Holtec for our respective records. We remain dedicated to seeing this transformative project reach completion and, by vrtue of our mutual execution of the First Amendment, will have taken another step in our collective efforts to do so.

As we proceed with the execution of the First Amendment, I wanted to bring to your attention a small matter that I believe is deserving of some clarification. In particular, Exhibit "C" to the First Amendment includes as recalculation of the rent payble by Holtec to SJPC to reflect the addition of the additional acearge constituting the "terraces properties" and the removal of the acregae constituting the "AirProducts property" (referred to as the "Southern Site" in the First Amendment) from the leasehold. Within such Exhibit "C" is a line-item reflective of an estimated credit that will be due to Holtec against its rental obligations in the amount of $1,713,000. As part of that line-item, there is a general description of the source of the estimated credit deriving itself from certain environmental remeidiation costs that remain to to be finalized.

While such language is helpful for purposes of establishing the concept of a credit against total rent payable by Holtec, I wanted to ensure that there was a more defined understanding of the applicability of a credit against rent payable by Holtec such that there was a clear understanding that the credit derived not just from environmental remediation costs, but also from other relevant costs payable by SJPC as set forth in Section 6.3 of the Ground Lease.

Specifically, I wanted to clarify that, notwithstanding the language as contained in Exhibit "C" to the First Amendment relative to the credit due to Holtec against rent payable, the amount set forth therein only represents the original estimate for costs related solely to environmental remediation and that such amount may not be reflective of the current estimated SJPC costs for remediation or other costs that may be credited to SJPC's account. Final costs that may be the responsibility of SJPC have not yet been determined and, based upon continuing discussions between the parties, such costs may be greater than the amount included in Exhibit "C"; it being understood that no final determinations have been made as to the amount of any costs payable by SJPC. When finally determined, such amount may serve as a credit against (i.e., shall be subtracted from) rent payable by Holtec to SJPC.

To the extent you are in agreement with the above, please acknowledge your agreement by signing below. Thereafter, we will ensure that a copy of this letter is appended to the executed First Amendment (and to the Ground Lease in total) for the avoidance of any ambiguity in interpretation going forward.

We appreciate our continued relationship with Holtec as part of the continued revitalization and expansion of the Broadway Marine Terminal and wish you and the Holtec team continued success for the project.

Very truly yours,

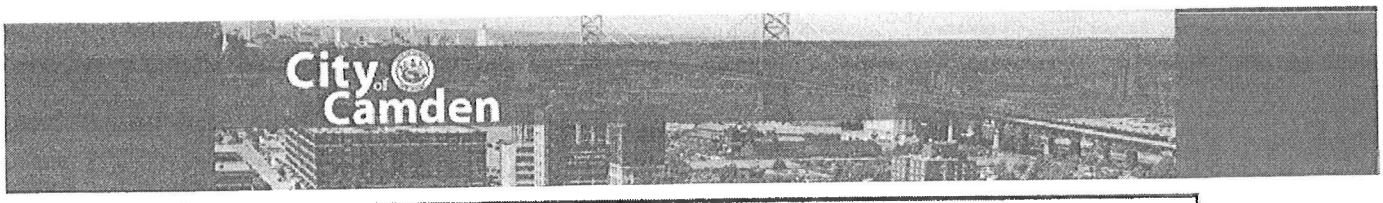
SOUTH JERSEY PORT CORPORATION

By:_____
KEVIN CASTAGNOLA
Executive Director and Chief Executive Officer

Agreed to this 10 day of ~~November~~ December, 2016.

HOLTEC INTERNATIONAL,
on behalf of Holtec Technology Center, LLC

By:_____
KRISHNA P. SINGH



Block/Lot/Qual:	511. 1.	**Tax Account Id:**	9878
Property Location:	2306 BROADWAY	**Property Class:**	15F - Other Exempt
Owner Name/Address:	SOUTH JERSEY PORT CORPORATION	**Land Value:**	22,900
	101 JOSEPH A BALZANO BLVD	**Improvement Value:**	0
	CAMDEN, NJ 08103	**Exempt Value:**	0
		Total Assessed Value:	22,900
		Additional Lots:	DEMOLISHED 2005
Special Taxing Districts:		**Deductions:**	

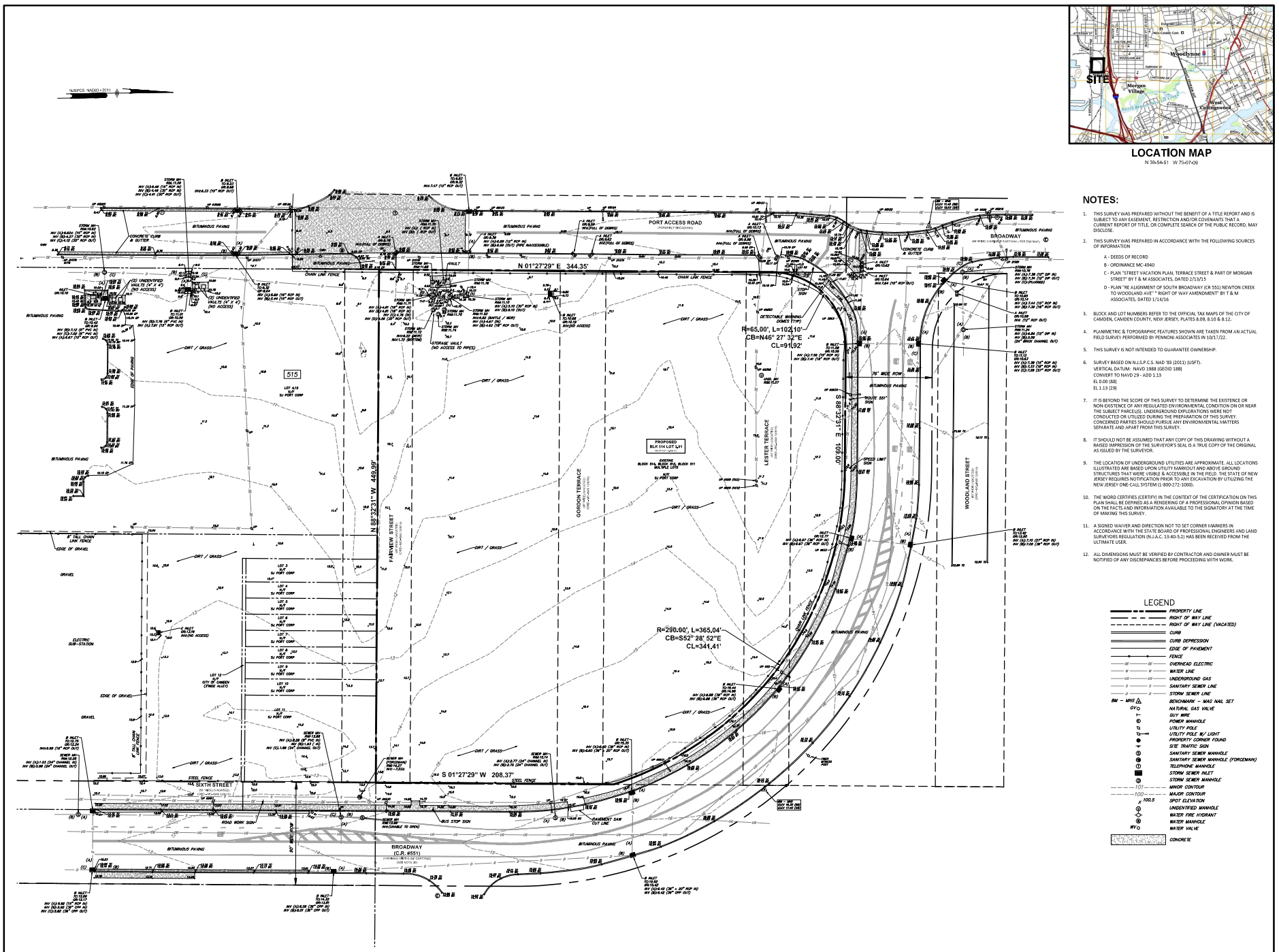
Taxes

Make a Payment | View Tax Rates | View Current Bill | Project Interest

Year	Due Date	Type	Billed	Balance	Interest	Total Due	Status

Last Payment: N/A

Return to Home



LOCATION MAP

N 39-54-51 W 75-07-09

NOTES:

1. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ANY EASEMENT, RESTRICTION AND/OR COVENANTS THAT A CURRENT REPORT OF TITLE, OR COMPLETE SEARCH OF THE PUBLIC RECORD, MAY DISCLOSE.
2. THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE FOLLOWING SOURCES OF INFORMATION
   - A - DEEDS OF RECORD
   - B - ORDINANCE MC-4940
   - C - PLAN "STREET VACATION PLAN, TERRACE STREET & PART OF MORGAN STREET" BY T & M ASSOCIATES, DATED 2/13/15
   - D - PLAN "RE ALIGNMENT OF SOUTH BROADWAY (CR 551) NEWTON CREEK TO WOODLAND AVE" " RIGHT OF WAY AMENDMENT" BY T & M ASSOCIATES, DATED 1/14/16
3. BLOCK AND LOT NUMBERS REFER TO THE OFFICIAL TAX MAPS OF THE CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY, PLATES 8.09, 8.10 & 8.12.
4. PLANIMETRIC & TOPOGRAPHIC FEATURES SHOWN ARE TAKEN FROM AN ACTUAL FIELD SURVEY PERFORMED BY PENNONI ASSOCIATES IN 10/17/22.
5. THIS SURVEY IS NOT INTENDED TO GUARANTEE OWNERSHIP.
6. SURVEY BASED ON N.J.S.P.C.S. NAD '83 (2011) (USFT).
   VERTICAL DATUM: NAVD 1988 (GEOID 18B)
   CONVERT TO NAVD 29 - ADD 1.13
   EL 0.00 (88)
   EL 1.13 (29)
7. IT IS BEYOND THE SCOPE OF THIS SURVEY TO DETERMINE THE EXISTENCE OR NON-EXISTENCE OF ANY REGULATED ENVIRONMENTAL CONDITION ON OR NEAR THE SUBJECT PARCEL(S). UNDERGROUND EXPLORATIONS WERE NOT CONDUCTED OR UTILIZED DURING THE PREPARATION OF THIS SURVEY. CONCERNED PARTIES SHOULD PURSUE ANY ENVIRONMENTAL MATTERS SEPARATE AND APART FROM THIS SURVEY.
8. IT SHOULD NOT BE ASSUMED THAT ANY COPY OF THIS DRAWING WITHOUT A RAISED IMPRESSION OF THE SURVEYOR'S SEAL IS A TRUE COPY OF THE ORIGINAL AS ISSUED BY THE SURVEYOR.
9. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS ILLUSTRATED ARE BASED UPON UTILITY MARKOUT AND ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD. THE STATE OF NEW JERSEY REQUIRES NOTIFICATION PRIOR TO ANY EXCAVATION BY UTILIZING THE NEW JERSEY ONE-CALL SYSTEM (1-800-272-1000).
10. THE WORD CERTIFIES (CERTIFY) IN THE CONTEXT OF THE CERTIFICATION ON THIS PLAN SHALL BE DEFINED AS A RENDERING OF A PROFESSIONAL OPINION BASED ON THE FACTS AND INFORMATION AVAILABLE TO THE SIGNATORY AT THE TIME OF MAKING THIS SURVEY.
11. A SIGNED WAIVER AND DIRECTION NOT TO SET CORNER MARKERS IN ACCORDANCE WITH THE STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS REGULATION (N.J.A.C. 13:40-5.2) HAS BEEN RECEIVED FROM THE ULTIMATE USER.
12. ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY LINE
- RIGHT OF WAY LINE (VACATED)
- CURB
- CURB DEPRESSION
- EDGE OF PAVEMENT
- FENCE
- OE — OE — OVERHEAD ELECTRIC
- W — W — WATER LINE
- UG — UG — UNDERGROUND GAS
- S — S — SANITARY SEWER LINE
- D — D — STORM SEWER LINE
- BM – MNS — BENCHMARK – MAG NAIL SET
- GV — NATURAL GAS VALVE
- GUY WIRE
- POWER MANHOLE
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- PROPERTY CORNER FOUND
- SITE TRAFFIC SIGN
- SANITARY SEWER MANHOLE
- SANITARY SEWER MANHOLE (FORCEMAIN)
- TELEPHONE MANHOLE
- STORM SEWER INLET
- STORM SEWER MANHOLE
- 101 — MINOR CONTOUR
- 100 — MAJOR CONTOUR
- x 100.5 — SPOT ELEVATION
- UNIDENTIFIED MANHOLE
- WATER FIRE HYDRANT
- WATER MANHOLE
- WV — WATER VALVE
- CONCRETE

PENNONI ASSOCIATES INC.
515 Grove Street, Suite 1B
Haddon Heights, NJ 08035
T: 856.547.1055 F: 856.547.3174
NJ COA NO. GA28033300

THIS PLAN WAS PREPARED UNDER MY IMMEDIATE SUPERVISION

Digitally signed by Keith Ludwig
Date: 2023.12.19 09:53:01 -05'00'

Keith M. Ludwig, PLS
New Jersey Lic. 24GS04224400

HOLTEC OFFICE BUILDING

2380 S BROADWAY
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

BOUNDARY & TOPOGRAPHIC SURVEY

USA ARCHITECTS
20 N DOUGHTY AVENUE
SOMERVILLE, NEW JERSEY 08876

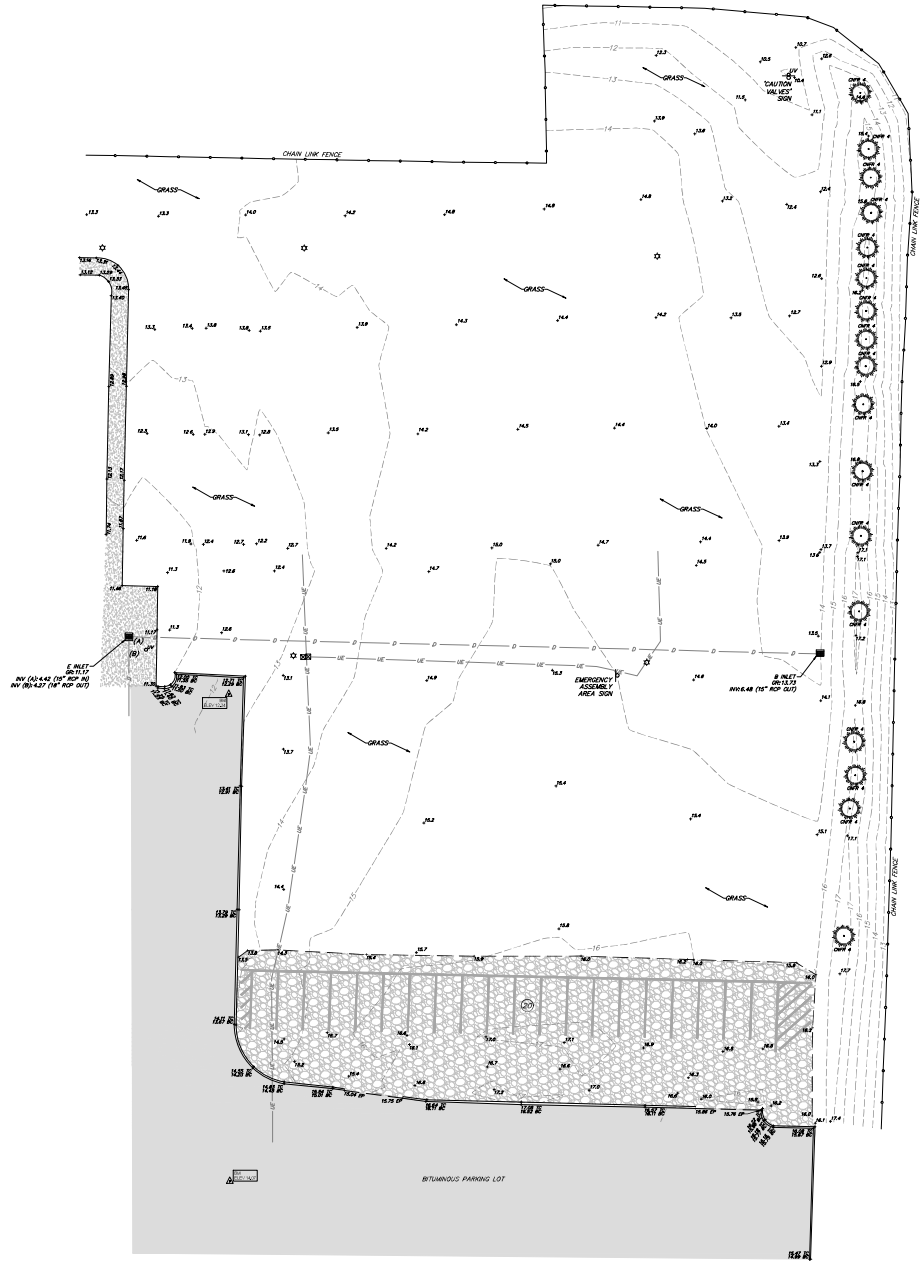
NO.	DATE	REVISIONS	BY
1	07/05/23	REVISED PER MUNICIPAL COMMENTS	CSC

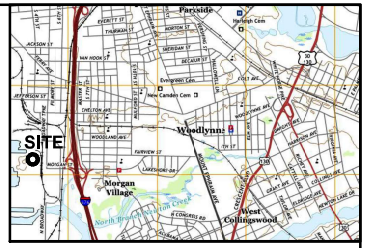
ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES. OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	10/17/22
DRAWING SCALE	1"=30'
DRAWN BY	CSC
APPROVED BY	KML

V0501

SHEET 1 OF 1





LOCATION MAP

N 39-54-49 W 75-07-21

NOTES:

1. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ANY EASEMENT, RESTRICTION AND/OR COVENANTS THAT A CURRENT REPORT OF TITLE, OR COMPLETE SEARCH OF THE PUBLIC RECORD, MAY DISCLOSE.
2. THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE FOLLOWING SOURCES OF INFORMATION
   - AN ACTUAL FIELD SURVEY PERFORMED BY PENNONI ASSOCIATES
3. PLANIMETRIC & TOPOGRAPHIC FEATURES SHOWN ARE TAKEN FROM ACTUAL FIELD SURVEYS PERFORMED BY PENNONI ASSOCIATES ON 6/28/24 AND 8/9/24.
4. THIS SURVEY IS NOT INTENDED TO GUARANTEE OWNERSHIP.
5. SURVEY BASED ON N.J.S.P.C.S. NAD '83 (2011) (USFT). VERTICAL DATUM: NAVD 1988 (GEOID 18B)
6. IT IS BEYOND THE SCOPE OF THIS SURVEY TO DETERMINE THE EXISTENCE OR NON-EXISTENCE OF ANY REGULATED ENVIRONMENTAL CONDITION ON OR NEAR THE SUBJECT PARCEL(S). UNDERGROUND EXPLORATIONS WERE NOT CONDUCTED OR UTILIZED DURING THE PREPARATION OF THIS SURVEY. CONCERNED PARTIES SHOULD PURSUE ANY ENVIRONMENTAL MATTERS SEPARATE AND APART FROM THIS SURVEY.
7. THIS PLAN HAS BEEN DIGITALLY SIGNED IN ACCORDANCE WITH N.J.A.C. 13:40-8.1A AND THUS CARRIES THE SAME WEIGHT, AUTHORITY AND EFFECT AS A HANDWRITTEN SIGNATURE AND IMPRESSION-TYPE SEAL.
8. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS ILLUSTRATED ARE BASED UPON UTILITY MARKOUT AND ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD. THE STATE OF NEW JERSEY REQUIRES NOTIFICATION PRIOR TO ANY EXCAVATION BY UTILIZING THE NEW JERSEY ONE-CALL SYSTEM (1-800-272-1000).
9. THE WORD CERTIFIES (CERTIFY) IN THE CONTEXT OF THE CERTIFICATION ON THIS PLAN SHALL BE DEFINED AS A RENDERING OF A PROFESSIONAL OPINION BASED ON THE FACTS AND INFORMATION AVAILABLE TO THE SIGNATORY AT THE TIME OF MAKING THIS SURVEY.
10. ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

LEGEND

- CURB
- EDGE OF PAVEMENT
- FENCE
- UE — UNDERGROUND ELECTRIC
- D — STORM SEWER LINE
- BENCHMARK
- LIGHT
- WATER IRRIGATION VALVE
- SIGN
- STORM SEWER INLET
- 11 — MINOR CONTOUR
- 10 — MAJOR CONTOUR
- UV 10.5 — SPOT ELEVATION UNIDENTIFIED VALVE
- CONCRETE
- BITUMINOUS PAVING
- STONE / GRAVEL
- CNFR 4 — CONIFEROUS TREE AND CALIPER

0 20' 40'

PENNONI ASSOCIATES INC.
515 Grove Street, Suite 1B
Haddon Heights, NJ 08035
T 856.547.0505 F 856.547.9174
NJ COA NO. GA0803300

THIS PLAN WAS PREPARED UNDER MY IMMEDIATE SUPERVISION

Digitally signed by Keith Ludwig
Date: 2024.08.12 13:33:16 -04'00'

Keith M. Ludwig, PLS
New Jersey Lic. 24GS04324400

HOLTEC OFFICE BUILDING
2360 S BROADWAY
CITY OF CAMDEN, CAMDEN COUNTY, NEW JERSEY

TOPOGRAPHIC SURVEY

USA ARCHITECTS
20 N DOUGHTY AVENUE
SOMERVILLE, NEW JERSEY 08876

NO.	DATE	REVISIONS	BY

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	USATX22001
DATE	8/9/24
DRAWING SCALE	1"=20'
DRAWN BY	CSC
APPROVED BY	KML

V0402

SHEET 1 OF 1

N:\SPCS NAD83 - 2011
PLOTTED: 8/12/2024 12:28 PM BY:
PROJECT STATUS: