LOYOLA FORWARD 2025

LOYOLA ACADEMY MASTER PLAN
PHASE 1 ENTITLEMENTS PACKAGE - FINAL

JULY 2017

LOYOLA ACADEMY AMDG EST 1909

THE LAKOTA GROUP.

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SECTION 1:

Introduction

PROJECT NARRATIVE

THE MISSION

Jesuit education emerges from the vision and example of St. Ignatius of Loyola who was convinced that our mission in life was to experience God in all things and to make of our lives a generous response of service and love. Since the first Jesuit school opened in 1548, students have been challenged to hone their God-given abilities in preparation for a life of service. This nearly 500-year-old tradition remains vibrant today. Opened in 1909 on the campus of Loyola University, Loyola Academy has formed generations of students to lead extraordinary lives. In 1957, the Academy moved to a new campus in Wilmette and the mission continues to thrive. Today, our mission to form women and men for meaningful lives of leadership and service in imitation of Jesus Christ through a college preparatory education in the Jesuit, Catholic tradition is alive and well.

The Jesuit spiritual and educational tradition demands that we constantly reflect on our mission and consider how we might respond more generously and more effectively. In educating young women and men at Loyola, we seek to be faithful to the best elements of our history and to creatively engage the new possibilities. While some things never change, our need to adapt and innovate fuels us to strive for ever better ways to live our mission. Our Campus Master Plan is a response to this call to continual improvement.

In recent years, the leadership of Loyola Academy has engaged in a thoughtful, prudent reflection on areas for improvement in our work. In December 2012, the Loyola Academy Board of Trustees approved a strategic vision for the future of the school titled Our Second Century of Excellence (available on the Loyola Academy website). Rooted in our Jesuit and Catholic mission, this document sets a bold agenda for Loyola and details the ideas, programs and facilities we will need to bring the dream to fruition. Innovation in the classroom and throughout the student experience has been outlined as our goals for the next 10 to 15 years. Significant enhancements to the campus including a new Theater and a new swimming pool are key components of that vision. The pool is needed to replace the existing facility, which is original to the 1957 construction and has begun to fail. A Theater of adequate size has been an articulated need of our community for many years.

It is important to note that the strategic planning of the Board of Trustees does not include plans for growth in the size of the student body. Rather, we believe our mission is best fulfilled if we continue to serve an enrollment of approximately 2,000 students. Our mission demands and the parents of our students expect a level of academic excellence and rigor that could not be achieved if our student body were significantly larger. Further, trends in Catholic school enrollment and general demographic forecasts suggest to us that smaller demand, not larger, is to be expected. None of the building we seek to undertake is designed to increase the space of the campus facility so that Loyola can serve a larger student enrollment. Rather, it is to deepen the learning experience of the students we serve. This question is explored in greater depth below as is the special challenge of enrollment management in a private school.

In early 2016, Loyola took a first step to our campus building projects and set out to construct two parking lots on property we own at the southwest corner of Laramie Avenue and Illinois Road. The addition of parking spaces and tending to neighbor concerns regarding traffic and car stacking were seen as important first steps to all other campus building projects. After neighborhood groups expressed significant concerns about our proposal, we withdrew the application for special use approval that we had filed with the Village of Wilmette in May 2016 and decided to plan for a more methodical, inclusive and transparent approach with a broader and more integrated vision for the campus. This strategy was affirmed by our Board of Trustees at its June 2016 meeting.

LOYOLA'S IMPACT ON THE COMMUNITY

Loyola's positive impact on the Wilmette and New Trier Township communities is significant, as evidenced by the following statistics.

- Approximately 450 New Trier Township students are enrolled at Loyola. This results in significant savings for taxpayers, as the cost of educating each student at New Trier High School is $20,023, according to the Illinois Board of Education Report Card.
- More than 1,200 Loyola-affiliated households live in Wilmette, including current families, parents of graduates and alumni.
- Loyola has a significant economic impact on Wilmette due to the consumer spending of our students, faculty, staff and parents who visit Wilmette daily.
- Loyola is the second largest employer in the Village of Wilmette, second only to Wilmette School District 39. Loyola employs approximately 300 full-time faculty and staff members and 107 part-time coaches who are not otherwise employees of the school.

THE CAMPUS MASTER PLAN PROCESS

OVERVIEW

In August 2016, Loyola Academy hired The Lakota Group to craft and oversee a campus Master Planning process that would engage neighbors and the Loyola community in a thoughtful and productive conversation. A Campus Master Planning Steering Committee was formed to partner with Lakota. Together they executed a process that included the study of campus facilities and a rigorous engagement process that included one-on-one interviews, focus groups and open houses to communicate with Loyola's neighbors, the Village of Wilmette and members of the Loyola Academy community. On February 21, 2017, the Board of Trustees gave approval to the resulting Loyola Forward 2025 Master Plan, to be implemented in phases. This Master Plan addresses the community's concerns while advancing Loyola's mission, strategic plan and vision for its future.

THE ENGAGEMENT PROCESS

Loyola Academy developed its long-term vision for its Wilmette campus over the past year by focusing on the integration of its strategic plan into a physical vision for its future campus needs. The Loyola Forward 2025 Master Plan and the Phase 1 Master Plan being presented to the Village were created through a continued successful dialogue with Loyola leadership, faculty, parents and students; Wilmette community leaders; Village of Wilmette staff; and residents in the immediate surrounding neighborhood. The planning team held many focus groups and one-on-one conversations, speaking in-depth with over 20 neighbors. Loyola provided information about the planning project on its website, held a community open house in January to hear reactions to four alternative concepts and hosted a neighborhood cookout in June to present the final concept.

Throughout, the intent was to not only listen to ideas and concerns but to share planning ideas and goals with interested stakeholders. This outreach and communication of ideas enabled our Campus Master Planning Steering Committee to work through and vet several iterations of concepts that balanced Loyola's goals with practical solutions to improve the function, quality and safety of its campus and the surrounding neighborhood. Neighbor input has had a dramatic impact on the Master Plan vision, which successfully blends a simple approach to both

physical and functional improvements for the campus that we are confident will improve the overall quality of life in our neighborhood. It has also led to what we believe is an important additional benefit of this Master Planning process: a renewed and positive dialogue with our neighbors, one that will result in ongoing, constructive management of concerns and issues and a better overall community for everyone.

THE LOYOLA FORWARD 2025 MASTER PLAN: A PHASED IMPLEMENTATION

The Loyola Forward 2025 Master Plan is a vision that Loyola anticipates implementing in phases over the next seven to ten years. The following section describes the long-term Master Plan. Below that is a description of the Phase 1 Master Plan, which Loyola hopes to begin implementing in early 2018.

THE MASTER PLAN

The Loyola Forward 2025 Master Plan, found at page 5.3 of this submittal package, was crafted for the entire Loyola Academy Wilmette campus: the main campus east of Laramie Avenue between Lake Avenue and Illinois Road, several parcels in the southwest corner of Laramie Avenue and Illinois Road, and one parcel north of Illinois Road, for a total of approximately 23.5 acres. The Master Plan identifies both physical and operational improvements to the Loyola campus that will improve the Jesuit educational experience of students, now and into the future.

The Master Plan contemplates the following over the next seven to ten years:

NEW BUILDING FACILITIES

Along with regular upgrades and internal renovation of existing building classrooms and administrative and specialty spaces, the Master Plan envisions four new facilities. Each of these facilities is focused on improving, enhancing or providing needed space for existing programs or services that do not meet current standards or provide the necessary quality of experience for our students today. These four new facilities are:

- **Natatorium**
  This Phase 1 addition and renovation (described more fully below, in the summary of Phase 1 improvements) consists of the replacement of the pool and enclosing structure, along with the gut renovation of the pool support functions. A new entrance and gathering hall will be built out between the new natatorium and the gymnasium to the west.
- **Theater**
  Phase 2 will include a 700-seat school Theater to serve Loyola's students and curriculum.
- **Student Commons/Resource Center**
  When the Theater is constructed in Phase 2, many uses in the existing building are likely to be relocated. Phase 2 of the Master Plan reconfigures those spaces and adds a new area for a Student Commons and Resource Center. In addition, part of the northwest section of the building known as the Jesuit wing will be demolished to provide improved parking and circulation.
- **Administrative Support and Mission Outreach**
  The Master Plan envisions construction of a residential-scale building for administrative support on Loyola's property north of Illinois Road in Phase 2.

SITE AND OPERATIONAL IMPROVEMENTS

The Master Plan also contemplates the construction of the following site-specific improvements as well as the implementation of certain improvements to the operations of the Academy. Unless indicated otherwise, all of these will be implemented in Phase 1:

- **Traffic Circulation and Stacking Moved onto Campus**
  The Master Plan creates a new more efficient traffic circulation pattern that will bring cars off neighborhood streets during pickup and drop-off. In Phase 1, the new main entry will be moved south, midway between Forest and Walnut Avenues, to run along the north edge of the newly relocated tennis courts. This expanded internal circulation roadway will make it possible for cars to head east into the campus, north along the western edge of the football stadium, and then west along the southern edge of the school building and back onto Laramie Avenue. Two lanes will make it possible for 72 cars to wait or "stack," bringing the peak traffic impacts onto the campus rather than on neighboring side streets. A second driveway for parking lot access, midway between Elmwood and Walnut Avenues, will be a monitored entry at peak morning drop-off time, an exit only in the afternoon and two-way at all other times. Adding another stacking for 10 cars in front of the school brings the total number of stacking spaces for cars waiting to pick-up to a total of 82.

  In Phase 2, the traffic circulation will remain substantially unchanged except as necessary to reflect minor changes in flow, such as the relocation of the driveway entrance from Illinois Road to align with Frontage Road or as impacted by the Theater building. Stacking will remain as described above.
- **More Effective Traffic Management**
  In Phase 1, a new Traffic Management Plan will improve traffic flow at the intersection of Lake and Laramie Avenues and make the impact of Loyola traffic on neighborhood streets safer and more efficient. If approved by the Village and Cook County, a police or community patrol officer, at Loyola Academy's cost, will manually control the traffic signal during peak school arrival/dismissal periods. School traffic aides will be posted at the three driveways on Laramie Avenue as well as at four other locations on campus. These elements of the new Traffic Management Plan will be appropriately communicated to students and parents to facilitate adherence to the plan.
- **Safer Crossing Solutions on Laramie Avenue**
  A new four-foot high decorative aluminum picket fence along Laramie Avenue will discourage mid-block pedestrian crossings, and a better-designed crosswalk will cue drivers and pedestrians to designated pedestrian crossings. Spaces for 63 bicycle parking spots will be located at three central locations on campus to encourage non-vehicular travel. These improvements will be accomplished as part of Phase 1 implementation.
- **Improved On-Campus Parking**
  The Master Plan calls for redesigned parking areas that will result in better circulation, increased on-campus parking and more attractive landscaping. After Phase 2 of the Master Plan is implemented, existing parking will increase from 627 spaces to 733 spaces, with 375 spaces being designated for students, 308 spaces being designated for faculty and staff, and 50 spaces being designated for visitors. In Phase 1, before the Theater is constructed and the Jesuit wing is demolished, there will be a total of 756 parking spaces on the campus, with 375 spaces being designated for students, 308 spaces being designated for faculty and staff, and 73 spaces being designated for visitors. In addition, Phase 2 of the Master Plan contemplates another 17 parking spaces on Outlot 1 and another 12 parking spaces on the lot north of Illinois Road. All required handicap spaces will be accommodated within these parking numbers.

- **Enhanced Landscape Buffers and Campus Edges**
  As part of Phase 1, the campus will be enhanced with landscape buffer and campus edge improvements along the east edge of Laramie Avenue from Lake Avenue to Illinois Road. A number of trees will be removed along Laramie to accommodate parking and circulation improvements, and replacement trees will be planted on campus as required by Village code. In addition, landscape plantings will be added to that buffer to soften and beautify the campus from the surrounding neighborhood.
- **New Tennis Courts**
  In order to accommodate parking and traffic circulation improvements in Phase 1, the existing tennis courts will be relocated south approximately 195 feet to allow for the improved circulation, the rebuilt parking lot, and the Phase 2 construction of the Theater.
- **Improved and Consistent Campus Signage**
  In Phase 1, new identity signage consisting of two small two-sided ground-mounted directional wayfinding signs will be added on the Laramie Avenue frontage, one at the new southernmost drive and one at Greenwood Avenue and Laramie Avenue. In addition, simple campus wayfinding signage will direct traffic into and within the new main vehicular entrances. No changes are anticipated to the existing monument sign on Lake Avenue or to the school building-mounted signage. No additional signage changes are anticipated in Phase 2.
- **Increased Stormwater Detention**
  As part of Phase 1, a new underground storage vault will be installed beneath the relocated tennis courts on campus. The vault will provide approximately 2.5 acre feet of stormwater detention capacity and increase the amount of stormwater detention being provided on the main campus by roughly 150 percent. This will satisfy Village and MWRD requirements for Phase 1 and for those Phase 2 improvements that will take place on the southern two-thirds of the campus (i.e., the Theater building). In addition, any Phase 2 parking and driveway improvement on Outlot 1 will require a separate underground storage vault that will provide approximately 0.25 acre-feet of stormwater detention capacity. Together with this traditional approach to the provision of stormwater detention, Loyola will investigate the possibility of utilizing sustainable water management techniques, such as parking lot islands, bioswales and rain gardens, and permeable pavers.

  As mentioned in this narrative, Loyola Academy ultimately intends to redevelop a significant portion of the campus north of the main building. Although these improvements are not included in the Phase 1 development plan, the stormwater runoff from these improvements will ultimately discharge to the Phase 1 underground storage system below the relocated tennis courts. Thus, the proposed stormwater management improvements will be able to serve both the Phase 1 and the Phase 2 improvements. The Phase 1 underground storage system (below the tennis courts) has been designed to allow for a future expansion. The expanded system will reside under the natural grass recreational area at the southern extremity of the property. This stormwater feature will include a gravel bottom, and it will be linked to the Phase 1 system (below tennis courts). It is assumed that a modification to the restrictor structure may be warranted at the time of the stormwater expansion. Although the underground storage (east of Laramie Avenue) will be installed in two phases, it will be permitted under one MWRD permit.
- **Outlot 1 Improvement/Use of Outlot 1 and Outlot 2**
  Under Phase 2 of the Master Plan, the northernmost vacant parcel situated west of Laramie Avenue and south of Illinois Road (Outlot 1) may be improved with a 17-car diagonal parking/pickup area running north across the parcel from Thornwood Avenue to Illinois Road. This new regulated short-term parking strip, if constructed, will provide off-street parking and space for school pickups and drop-offs. A Village-required 31-foot landscaped buffer area edged by a 5-foot solid wood board fence and preservation of select existing mature trees will enhance the attractiveness of the parcel and shield the homes to the west from the parking area. Loyola's current use of the vacant parcels situated west of Laramie Avenue (Outlot 1 and Outlot 2) for athletic practices and informal parking on special event days will continue.

THE PHASE 1 CAMPUS MASTER PLAN

The Phase 1 Master Plan identifies the physical and operational improvements to the Loyola campus that Loyola anticipates undertaking over the next several years.

A copy of the Phase 1 plan is included at page 5.4 in this submittal package. The Phase 1 plan contemplates the following:

NEW BUILDING FACILITIES - PHASE 1

The only new building initiative for Phase 1 is the Natatorium, which is to be built in the same area as the existing pool area. The new natatorium will provide Loyola Academy a facility fitting to the quality of its swimming and diving and physical education programs. The existing natatorium was built in 1957 and has outlived its useful life. The proposed addition and renovation consist of the replacement of the pool and enclosing structure along with the gut renovation of the pool support functions. A new entrance and gathering hall will be constructed between the new natatorium and the gymnasium to the west.

The Natatorium will occupy the site of the current structure and be similar in height to the adjacent gymnasiums. The east face will align with the existing building to the north. Exterior cladding will be predominantly a buff color masonry in keeping with the context of the campus. Large clear 2-story windows with integral sun-shading elements are proposed for the south elevation. The east elevation will have limited windows to mitigate the noise from the adjacent highway. The new pool will have two sections divided by a movable bulkhead. The main section will be 25 yards with eight lanes. The second section will accommodate three lap lanes of 25 yards and two one-meter diving boards. New locker and shower facilities will be built out within the footprint of the existing locker rooms. In addition to the lockers, new facilities will include a coach's office, laundry, unisex lockers, and storage rooms. A spectator gallery, offices and meeting rooms will be built out above this area. Mechanical equipment will be housed in the basement.

The new entry hall will serve as the primary athletics entrance and as a social hall for informal gatherings. It will join the new Natatorium with the gymnasium to the west. A mezzanine will connect to the upper level of the school and adjacent spectator area for the pool. Glass walls will provide a visual connection with these spaces. The hall's principal exposure will be to the south. A large glazed wall will be proposed to provide a strong visual connection with the outside and playing fields to the south. A large projecting canopy will serve to shade the glass as well as provide weather protection at the entry.

SITE AND OPERATIONAL IMPROVEMENTS - PHASE 1

Phase 1 of the Master Plan also contemplates the construction of certain site improvements and the implementation of certain improvements to the operations of the Academy. These include the following, as described above:

- **Traffic Circulation and Stacking Moved onto Campus**
  The on-site traffic circulation and stacking improvements outlined above will be accomplished in Phase 1, bringing cars off the side streets and onto campus. In Phase 2, the on-site traffic circulation will remain substantially unchanged except with respect to any improvement of Outlot 1 and as necessary to reflect minor changes in flow, such as the relocation of the driveway entrance from Illinois Road to align with Frontage Road or as impacted by the Theater building. Stacking will remain as described above.
- **More Effective Traffic Management**
  All of the traffic management operations will be implemented in Phase 1.

- **Safer Crossing Solutions on Laramie Avenue**
  All of the improvements contemplated by the Master Plan that will enhance pedestrian safety, as described above, will be accomplished in Phase 1.
- **Improved On-Campus Parking**
  In Phase 1, before the Theater is constructed and the Jesuit wing is demolished, there will be a total of 756 parking spaces, with 375 for students, 308 for staff and 73 for visitors. The on-campus parking area south of the building will be completely reconstructed and an underground stormwater vault installed. No work will be done on the on-campus parking areas further north or on Outlot 1 until Phase 2.
- **Enhanced Landscape Buffers and Campus Edges**
  These improvements, described above, will be accomplished in Phase 1.
- **Relocated Tennis Facilities**
  The work described above related to the tennis courts will be accomplished in Phase 1.
- **Improved and Consistent Campus Signage**
  All of the improved signage will be accomplished in Phase 1.
- **Increased Stormwater Detention**
  As part of Phase 1, the new underground storage vault described above will be installed on the southern portion of the campus under the new parking area.

STUDENT ENROLLMENT AT LOYOLA

THE HISTORY OF STUDENT ENROLLMENT

Loyola Academy opened its doors in 1909 on the campus of Loyola University Chicago. As a result of the growth of the University and the Academy in the years following World War II, the high school purchased property in Wilmette and opened the Laramie Avenue campus in 1957. In 1994, Loyola became a coeducational institution by merging with Marillac High School. At that time, there were 1,437 students enrolled at Loyola and 330 students enrolled at Marillac. When Ordinance No. 93-O-63 was adopted on May 11, 1993, the Village established as a condition of approval to the special use permit that Loyola had then sought that the maximum enrollment at the Academy not exceed 2,000 students.

ADMISSIONS, ENROLLMENT AND RETENTION

Loyola Academy is a private Catholic school operating in a difficult and dwindling market for Catholic education and a competitive overall market for secondary education in the Chicago and North Suburban metropolitan area. Annual declines in Catholic high school enrollment in the Archdiocese of Chicago hover in the three to five percent range.

To build an incoming class, Loyola, like many other selective high schools and colleges, has an annual admissions process. For purposes of comparison, consider the same yield management that colleges and universities go through. Even in the most sophisticated models, there are years that more students accept offers of admission than the college expects. As a result of this higher yield, colleges may experience housing challenges and other logistical concerns.

For Loyola, the admissions process has been as follows for the 2016–17 school year and prior years:

- Throughout the fall, Loyola's admissions staff members have visited grade schools, hosted an annual open house and hosted "shadow" students to experience the campus firsthand.
- In January, we have administered our entrance exam on a date set by the Archdiocese of Chicago—usually the second Saturday in January. Prospective student applications and academic records are due to Loyola approximately 10 days after the entrance exam. Applicants who are interested in applying for need-based financial aid must do so at this time.
- In early February, the Admissions Committee has reviewed applications and issued acceptances and nonacceptances.
- During the first two weeks of March, Loyola has hosted Freshman information nights for students who have been offered admission and for their parents. These freshman information nights have afforded Loyola the opportunity to provide additional information to students and parents as they make their high school choices. At these meetings, families have been informed of their financial aid awards. Historically, Loyola has awarded nearly $4,000,000 in need-based financial aid annually.
- In mid-March, prospective students commit to Loyola by submitting nonrefundable deposits.
- Over the spring and summer months, the incoming Freshman class has typically experienced an attrition in the number of students who will begin school in the fall.

In March, the Chicago Archdiocese made a decision to move the date for the administration of the common entrance exam to December. As a result, the above timeline may move up by one and one-half months for future school years.

Like all private schools whose budgets are tuition driven, our enrollment each year is filled with unknowns. These unknowns make it difficult to identify the precise number of students who will be enrolled at the Academy at either the beginning or the end of the academic year. Loyola routinely accepts more students than it expects will matriculate, because each year the ultimate number of enrollees declines by the start of the school year due to an assortment of factors, including financial circumstances, family situations or the decision by some students to attend school elsewhere.

Other factors can cause our enrollment to decrease at any given time throughout the school year, including family situations and academic, disciplinary and health issues. As a result, the admissions process is more of an art than a science. Our goal is to maintain a student body of approximately 2,000 students. Typically by May 30 of each year, we adjust our budget for the next school year based on emerging expectations of withdrawals and shifting incoming Freshman enrollment. For many years, despite our planning, our yield has surpassed our expectations. We do not rescind offers of admission once they are made.

ENROLLMENT REPORTING

Loyola provides enrollment numbers to the Illinois State Board of Education (ISBE), the Archdiocese of Chicago and Jesuit Schools Network (JSN). The Illinois High School Association (IHSA) uses the number provided to the ISBE and that number reflects the school's enrollment as of September of the previous school year.

Loyola's enrollment since the 1994–95 school year is set forth on the following enrollment chart:

LOYOLA ACADEMY: BEGINNING OF YEAR AND END OF YEAR ENROLLMENT

Academic Year	Beginning of School Year (September 30)[2]	End of School Year (May 30)	September-May Withdrawals
2016-17	2047	2039	8
2015-16	2113	2097	16
2014-15	2069	2059	10
2013-14	2052	2042	10
2012-13	2064	2048	16
2011-12[1]	2070	2054	16
2010-11	2079	2079	0
2009-10	2094	2078	16
2008-09	2045	2050	-5
2007-08	2051	2044	7
2006-07	2091	2063	28
2005-06	2078	2050	28
2004-05	2063	2055	8
2003-04	2041	2021	20
2002-03	2047	2034	13
2001-02	2057	2043	14
2000-01	2002	1998	4
1999-2000	2010	1984	26
1998-99	2035	2012	23
1997-98	2047	1995	52
1996-97	2016	1995	21
1995-96	1952	1890	62
1994-95	1925	1866	59
Average 1994-95 to 2015-16	**2045.56**	**2025.91**	**19.65**
% Over Cap	**2.30%**	**1.30%**	

1. Beginning in the 2011-12 school year, Loyola Academy named a new registrar. At the same time Loyola Academy switched from its own server and internal software to Blackbud's Education edge platform for enrollment records.

2. The numbers listed represent Loyola Academy's enrollment as reported to the ISBE.

As this chart indicates, Loyola's total enrollment at September 30 has averaged approximately 2,045 students or 2.30 percent over the established enrollment cap of 2,000 students, and at May 30 it has averaged approximately 2,026 students or 1.30 percent over the enrollment cap.

Enrollment above the stated cap has had and will continue to have no material impact on the neighborhood traffic, as confirmed by the traffic consultant Loyola retained to prepare a Traffic Impact Study and a new Traffic Management Plan to address neighborhood traffic concerns and ensure that Loyola traffic is safely and efficiently integrated into the surrounding street network. Copies of the Traffic Impact Study and new Traffic Management Plan are included with this submission.

THE CURRENT PROPOSAL FOR A CAP ON STUDENT ENROLLMENT

As part of its 2017 Application, Loyola Academy seeks to modify what was previously Condition 1 on Exhibit C to Ordinance No. 93-O-63 so that it will now read as follows:

Condition 1. Maximum enrollment for any given school year shall not exceed 2,000 students. To ensure ongoing compliance with this condition, Loyola shall timely notify the Village on or before October 31 of each school year of its enrollment on September 30, as reported by Loyola to the Illinois State Board of Education (ISBE) or such other entity as may succeed the ISBE as the customary school enrollment reporting agency. Notwithstanding the foregoing, because annual fluctuations in student enrollment occur and because it is often difficult to plan for and realize an enrollment of exactly 2,000 students and no more, Loyola shall not be deemed to be in violation of this condition unless the enrollment cap of 2,000 students is exceeded in a given school year by 10 percent or more.

ELEMENTS OF REQUIRED ZONING RELIEF FOR PHASE 1

In order to construct the improvements depicted on the Phase 1 plan, the following elements of zoning relief must be obtained from the Village of Wilmette:

AMENDMENT TO EXISTING SPECIAL USE PERMIT FOR MAIN CAMPUS

Approval of an amendment to Village Ordinance No. 93-O-36, entitled "An Ordinance Granting a Special Use Permit to Loyola Academy," which:

- Authorizes the construction of the Natatorium and other Phase 1 improvements, and
- Establishes new Conditions of Approval to Loyola Academy's Special Use Permit which conditions include, at a minimum: (1) the newly stated condition on enrollment set forth above; and (2) implementation of Loyola's new Traffic Management Plan.

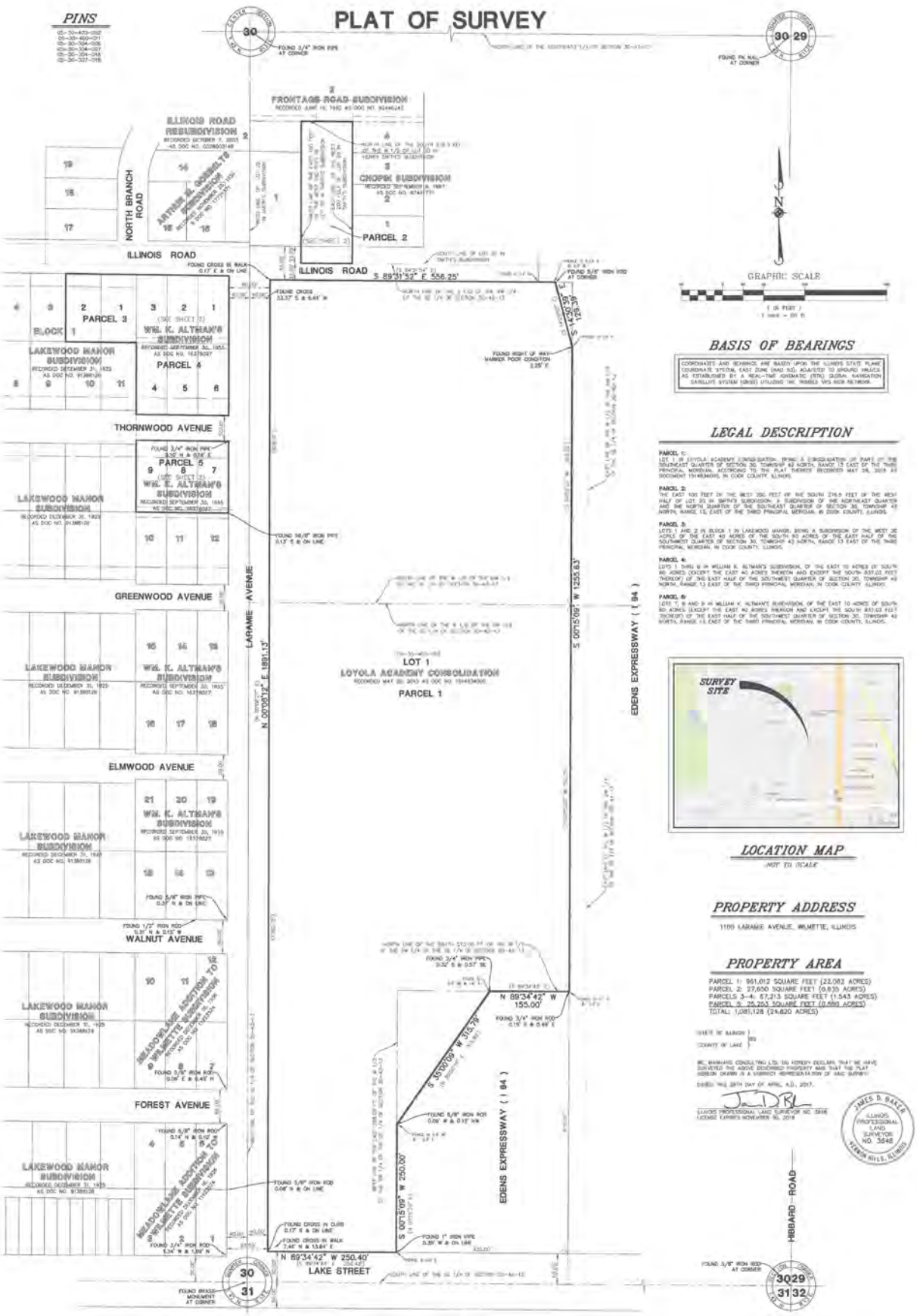
APPROVAL OF THE FOLLOWING VARIATIONS FROM THE WILMETTE ZONING ORDINANCE FOR THE IMPROVEMENTS TO BE CONSTRUCTED ON THE MAIN CAMPUS

- A variation from Section 8.3 to permit the encroachment of the tennis courts by 2.25 feet into the required 20-foot side yard setback along the west side of the relocated tennis courts;
- A variation from Section 8.3 to permit the encroachment of the tennis courts by 20 feet into the required 20-foot side yard setback along the east side of the relocated tennis courts;
- A variation from Section 13.4(H)(2)(i) to permit a tennis court fence height in excess of the six-foot maximum fence height otherwise permitted;
- A variation from Section 13.4(H)(2)(iii) to permit the use of chain link fencing for the relocated tennis courts;
- A variation from Section 16.10(D)(2)(b) to allow for increased sizes of identity or monument signs, as depicted on Loyola's signage plan; and
- A variation from Section 16.10(D)(1) to permit two new identity or monument signs along Laramie Avenue for the Loyola Academy campus.

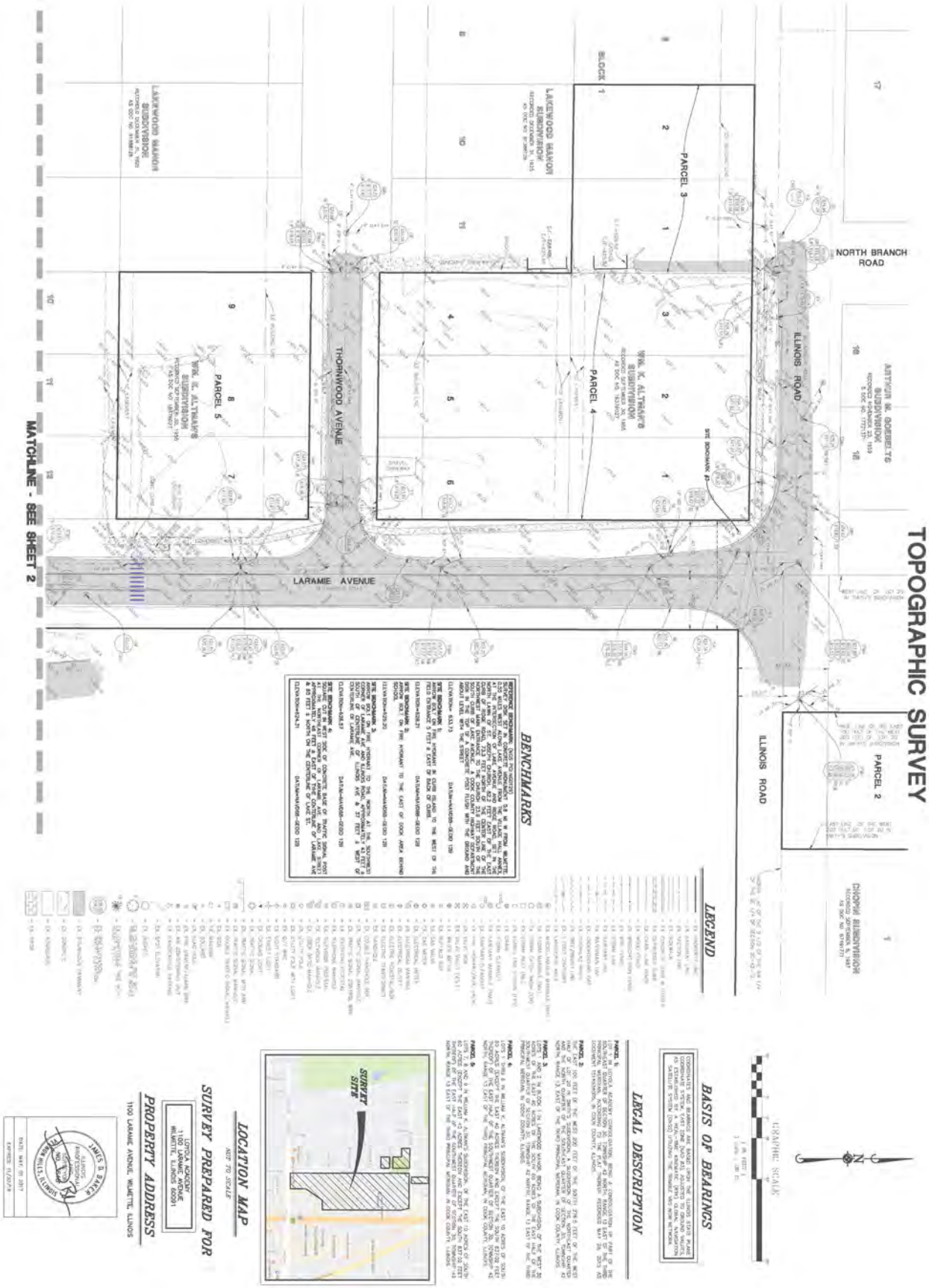
SECTION 2:

Preliminary Site Research

PLAT OF SURVEY



EXISTING TOPOGRAPHIC SURVEY



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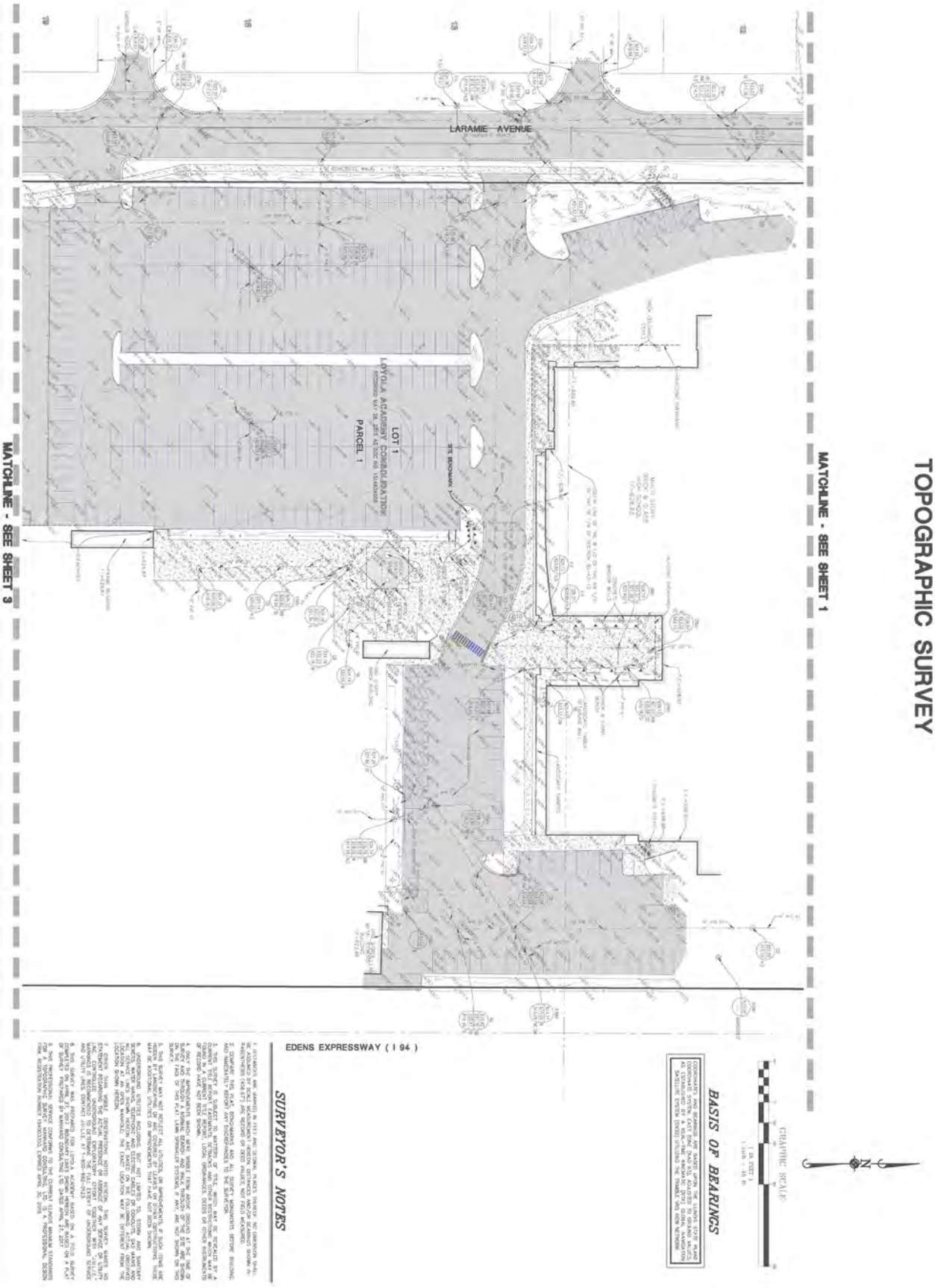
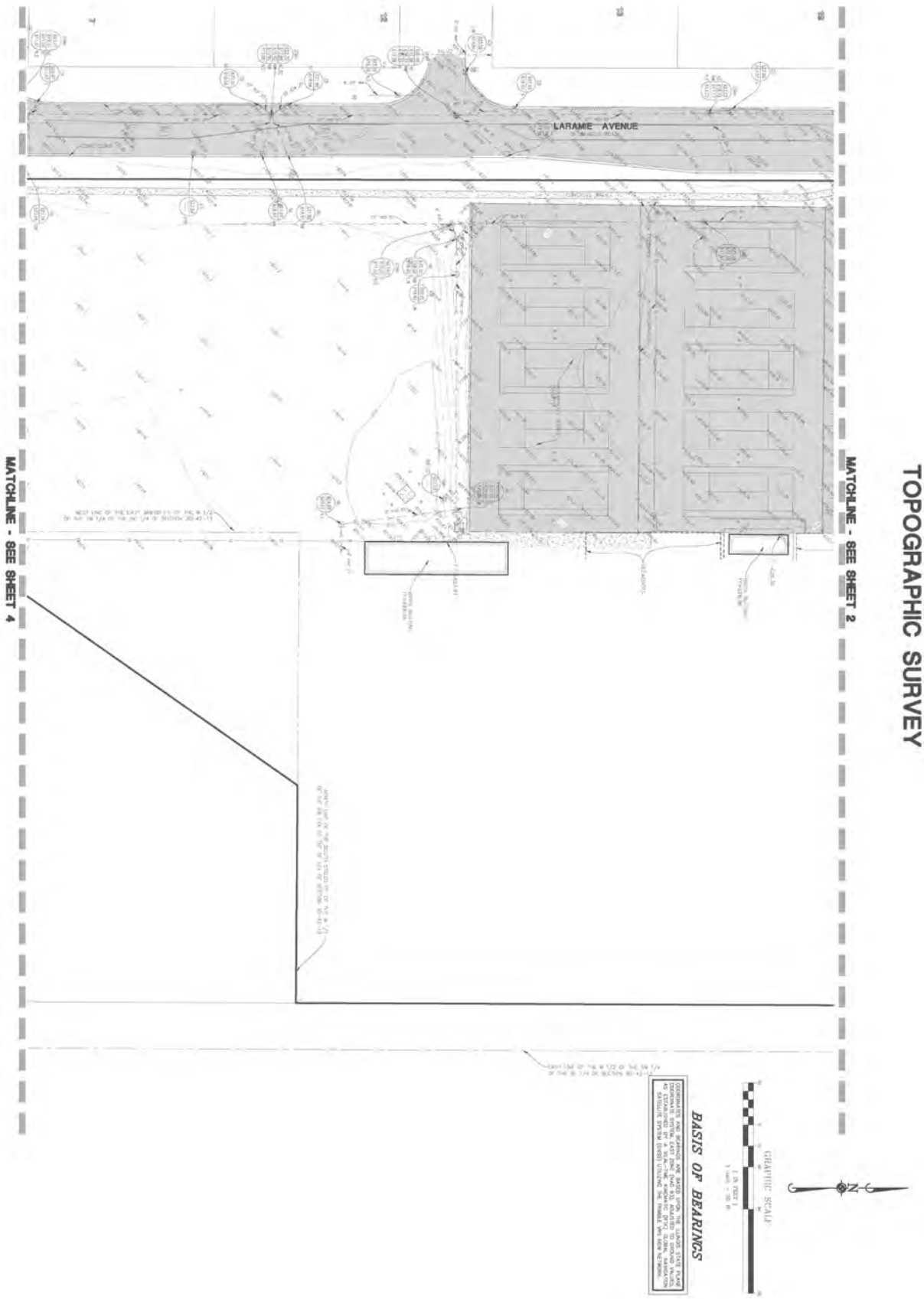
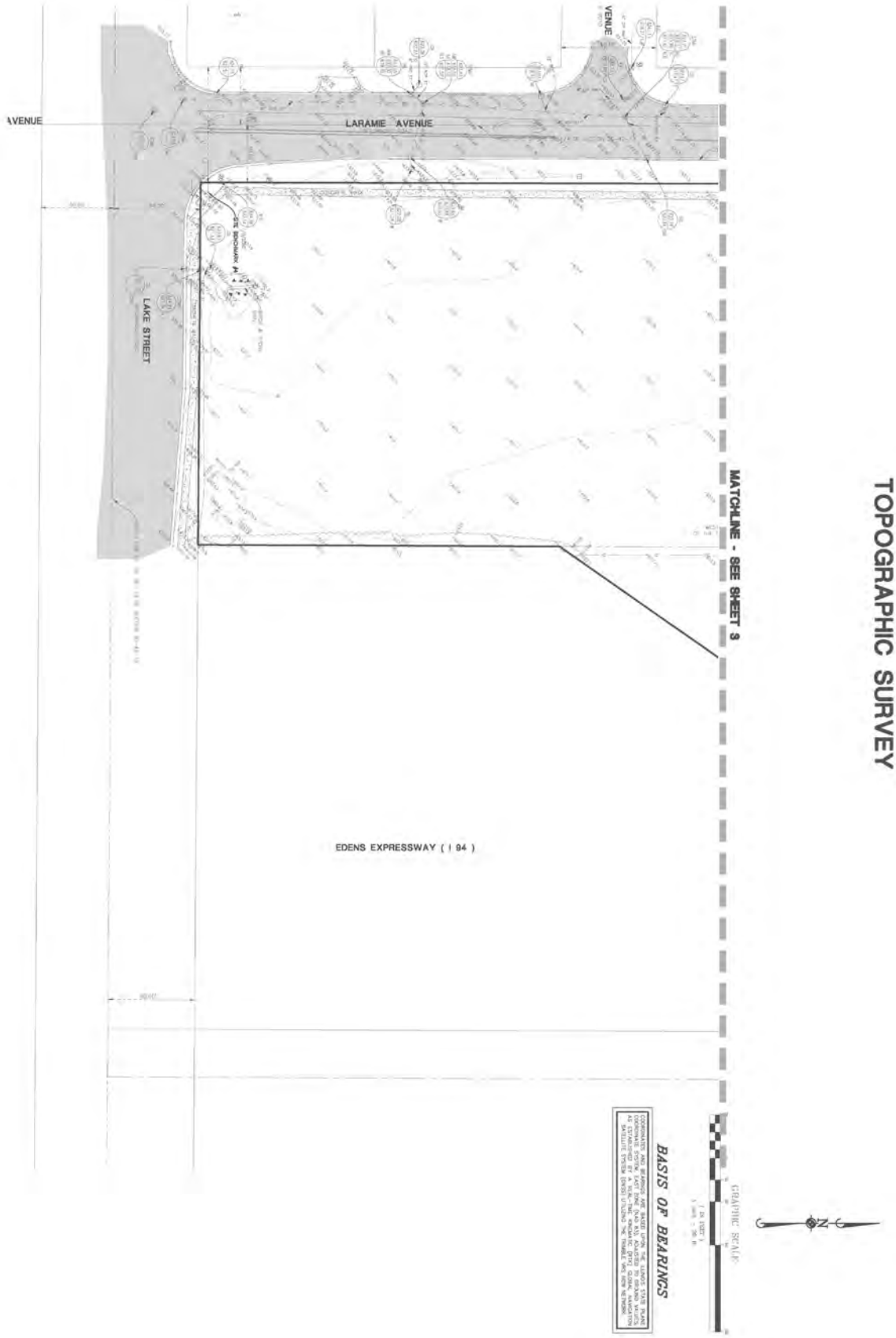


EXISTING TOPOGRAPHIC SURVEY



EXISTING TOPOGRAPHIC SURVEY



REGIONAL CONTEXT MAP

EXISTING CONDITIONS ANALYSIS

SITE PHOTOS

A - Open Space West of Laramie

B - North Campus Circulation

C - Campus Open Space

D - North Courtyard

E - West Entry Plaza

F - South Campus Circulation

G - South Entrance Near Pool

H - Campus Parking Lot

I - Car Stacking Along Thornwood

SITE ANALYSIS PLAN

SECTION 3:

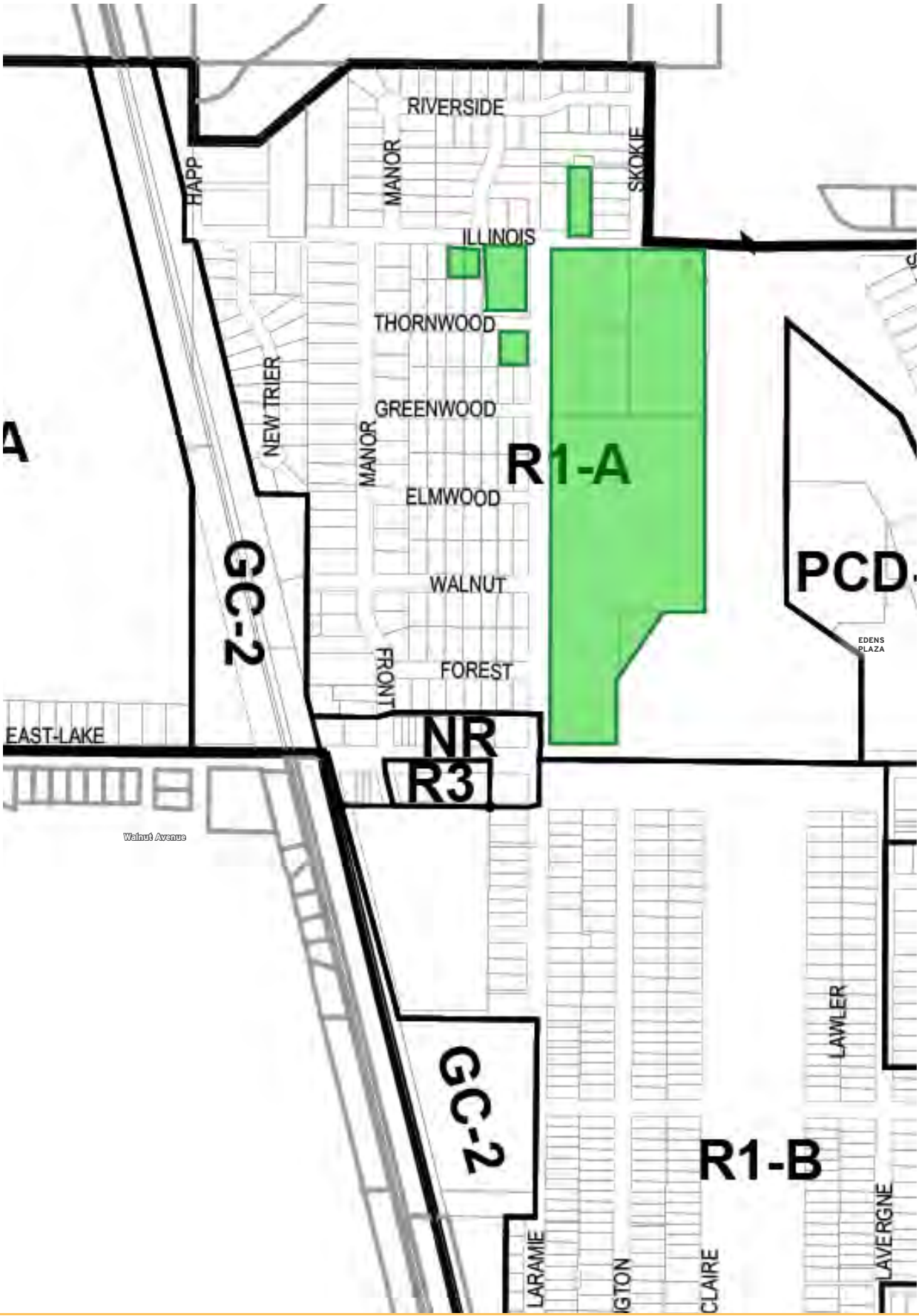
Zoning

KEY ZONING FACTS

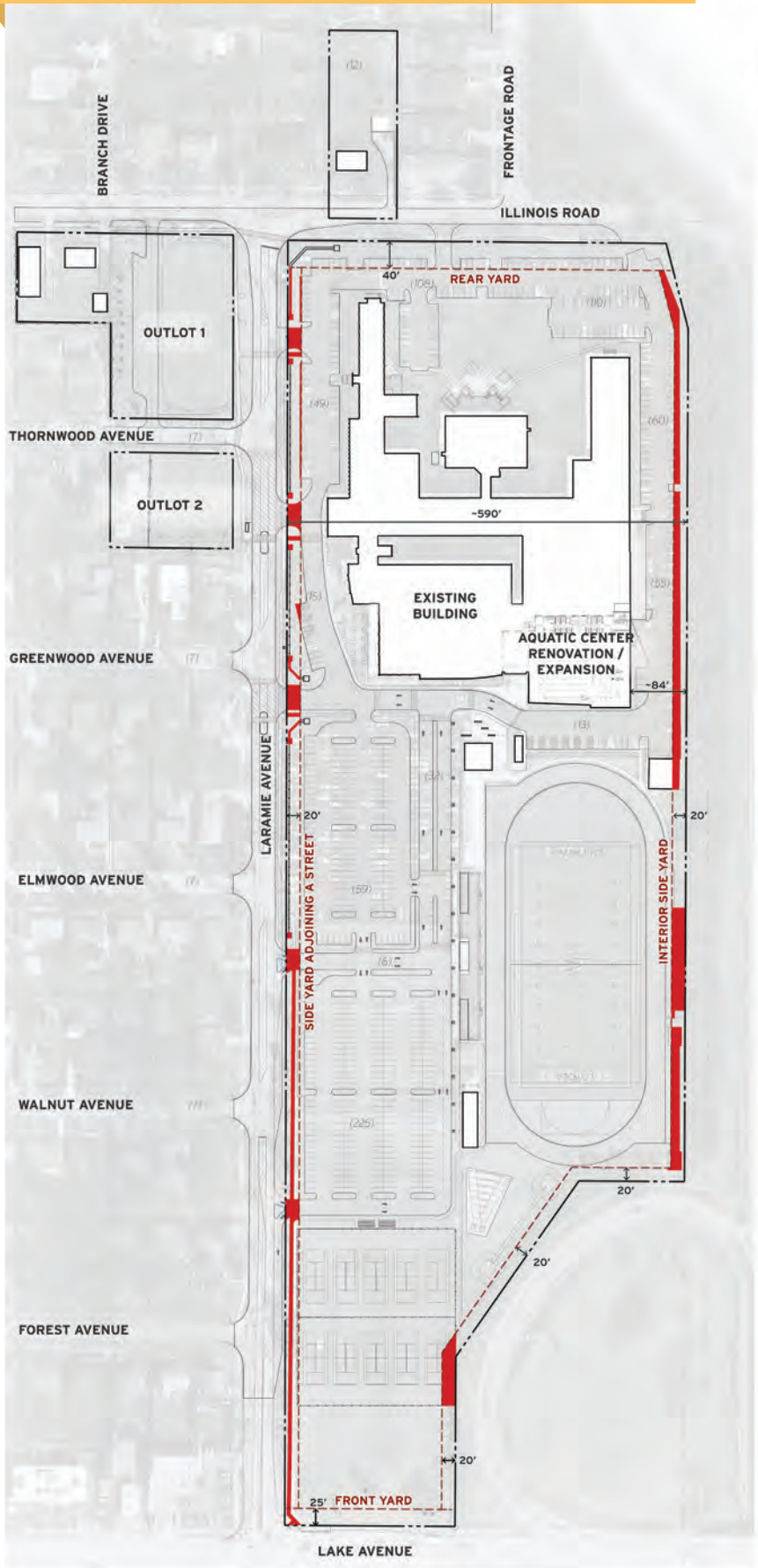
BULK & YARD REGULATIONS

- The entire Loyola campus, like surrounding residential areas, is in R1-A residential zoning district
  - » The Loyola campus was a "permitted use" when constructed in 1957 but due to changes in the zoning ordinance, Loyola must obtain a special use to make further improvements.
  - » While the campus is in a residential zoning district, the Village Comprehensive Plan expects the campus to remain an Institutional Use
  - » The R1-A Sub-district contains predominantly single story and split-level homes developed since the 1950s.
- Requirements of R1-A Zoning
  - » Permits single family residences by right
  - » Requires a special use for Educational Facilities such as Loyola Academy
  - » Building height
    - * Limited to the lesser of 35' or 2.5 stories
    - * Non-habitable architectural features on institutional use principal buildings shall not exceed a height of sixty (60) feet provided that all required side and rear yards shall be increased by one (1) foot for each additional foot of height over thirty-five (35) feet
- Floor Area Ratio
  - » For all Uses other than single family: (0.7 x Lot Area) (Zoning Ordinance Table 8-3)
- Impervious Surface Maximum Coverage (Zoning Ordinance Table 8-5)
  - » Front yard: 30%
  - » Combined side yard: 60%
  - » Side yard adjoining a street: 30%
  - » Rear yard: 60%
  - » Rear yard structure: 35%
  - » Rear yard pavement: 30%
- Since 1957 Loyola has sought three (3) expansions of its Special Use
  - » 1987: Obtained a special use to add a total of 60 parking spaces in the NE corner of the main campus, adjacent to the Edens and Illinois Road
  - » 1993: Obtained special use to renovate and construct a new addition in connection with the school becoming a coeducational institution
    - * As a condition of granting this special use, enrollment was capped at 2,000 students. Other conditions were also imposed, including the requirement of a neighborhood liaison committee.
  - » 2003: Obtained a special use to permit construction of five tennis courts

VILLAGE ZONING MAP



ZONING SETBACK EXHIBIT



ZONING REQUIREMENTS (R1-A)

METRICS

LOT COVERAGE SUMMARY

Total Site Acreage: +/- 22 AC (Main campus)
+/- 1.1 AC (Outlot 1)
+/- .39 AC (Outlot 2)

Existing Buildings: +/- 3 AC (Main campus)

PARKING (ON-SITE)

Existing Spaces: 627 (includes 10 ADA spaces)
Proposed Spaces: 756 (includes 14 ADA spaces)

SETBACK COVERAGE SUMMARY

MAIN CAMPUS

***FRONT YARD AT LAKE AVENUE** (25')*
Total Area: 6,260 SF
Semi / Impervious Areas: 190 SF (3.03%)

***REAR YARD AT ILLINOIS ROAD** (40')*
Total Area: 22,406 SF
Semi / Impervious Areas: N/A - No Proposed Improvements

***SIDE YARD AT LARAMIE AVENUE** (20')*
Total Area: 36,671 SF
Semi / Impervious Areas: 8,717 SF (23.77%)

***COMBINED INTERIOR SIDE YARDS** (20')*
Total Area: 40,723 SF
Semi / Impervious Areas: 13,926 SF (34.19%)

SECTION 4:

Community Engagement

SUMMARY OF COMMUNITY ENGAGEMENT

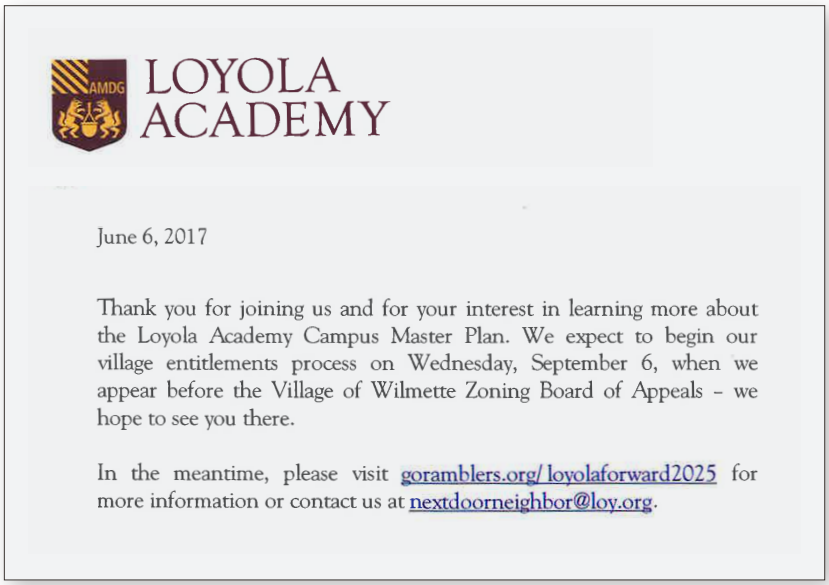
Loyola Academy asked the Lakota Group to partner with it on a community engagement effort so that Loyola's neighbors would be informed as to the development and substance of the Loyola Forward 2025 Master Plan. This process included individual and group stakeholder interviews, an open house, a community cookout, and publication of the draft Master Plan concepts as well as invitations to participate in the community engagement process on the Loyola Academy website at https://www.goramblers.org/page/loyola-forward-2025. The input from the community was very helpful in understanding the issues and concerns of local residents, vetting the four preliminary concepts, and crafting the final Master Plan.

Throughout the process, common themes heard were:

- The importance of maintaining the green spaces west of Laramie Avenue;
- Frustration with traffic and safety, especially caused by the stacking of cars on side streets;
- An openness to construction or other improvements on the main campus east of Laramie Avenue;
- Concern about stormwater runoff; and
- A desire for better communication between Loyola and the neighbors.

STAKEHOLDER INTERVIEWS

In the fall of 2016 Loyola identified a long list of potential stakeholders and invited them to participate in the community engagement process. Beginning in early November 2016, Lakota conducted three full days of stakeholder interviews with approximately 20 neighbors and representatives of institutions in the greater Wilmette area, as well as many additional in-person and telephone interviews with individual neighbors. Interviews took place at coffee shops as well as at the Wilmette Public Library, the Wilmette Golf Club, and the Wilmette Community Center. By and large, the format was a 30-minute conversation with individuals or small groups of up to three people. Lakota also communicated to all groups that Loyola and Lakota representatives would be happy to talk to any stakeholders who were unable to attend any scheduled sessions. Lakota also provided email contact information and phone numbers for neighbors to directly share thoughts with us or set up a time to meet. As a result, many additional conversations have been held over the succeeding months.



LOYOLA ACADEMY

June 6, 2017

Thank you for joining us and for your interest in learning more about the Loyola Academy Campus Master Plan. We expect to begin our village entitlements process on Wednesday, September 6, when we appear before the Village of Wilmette Zoning Board of Appeals – we hope to see you there.

In the meantime, please visit goramblers.org/ loyolaforward2025 for more information or contact us at nextdoorneighbor@loy.org.

OPEN HOUSE: JANUARY 26, 2017

Loyola Academy hosted a Community Open House on Thursday, January 26th at the Wilmette Golf Club at 6:30 pm. Three members of the Lakota Group, as well as Peter Lemmon of Kimley-Horn, engaged with 40-50 residents, Loyola staff, and steering committee members over nearly three hours in lively conversations about the four preliminary concept plans. This input from the community is reflected in the final version of the Master Plan.

NEIGHBORHOOD COOKOUT: JUNE 7, 2017

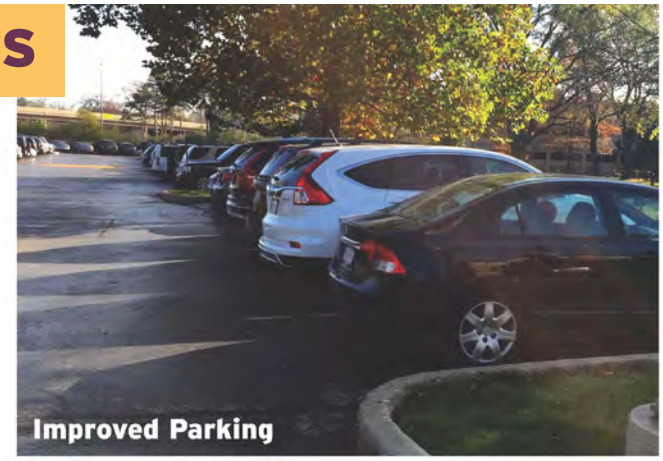
Loyola hosted a hot dog cookout and neighborhood gathering on June 7th at 6:00 pm under a pair of tents on the open space at the southwest corner of Laramie and Illinois. Approximately 40 people attended, including families with children. President Rev. Patrick McGrath, SJ and Executive VP Dennis Stonequist of Loyola, Scott Freres of Lakota, and Peter Lemmon of Kimley-Horn gave a presentation about the purpose, process, and results of the Master Planning effort, and answered questions. With a few exceptions, the Master Plan and Phase 1 plan were well received by the neighbors, who also expressed satisfaction with the level of community engagement throughout the process.

HOW PUBLIC INPUT SHAPED THE LOYOLA FORWARD 2025 CAMPUS MASTER PLAN

The input from the neighbors had a dramatic impact on the final Master Plan. The main campus has been re-thought and re-designed to increase efficiency and bring many of the school's impacts out of the neighborhood and onto campus. Cars will get off Laramie sooner and stack on the campus instead of on side streets. This new circulation pattern required moving the fairly-new tennis courts, but also makes additional parking possible. Better traffic management will make the neighborhood safer for pedestrians, bicyclists, and drivers. Stormwater detention on the main campus will increase by nearly 150% in Phase 1 alone. The proposed Theater is smaller and will no longer sit prominently at the corner of Laramie and Illinois. The open green spaces west of Laramie, so important to the neighborhood, will be retained during Phase 1, with only a small driveway, parking area, and 31-foot wide buffer on the west side of Outlot 1 being proposed in Phase 2. In response to concerns voiced at the June 7th neighborhood cookout, Loyola took these improvements out of the Phase 1 Plan and moved them to Phase 2. Loyola intends to seek future Village approval for those improvements only if it determines after Phase 1 is complete that they remain necessary to address parking and circulation needs. Finally, Loyola has re-affirmed its investment in remaining engaged with, and listening to, the community.

COMMUNITY PRIORITIES

Maintaining Neighborhood Open Space


Improved Parking

Improved Traffic Management & Circulation

New Stormwater Solutions

Stacking Moved onto Campus

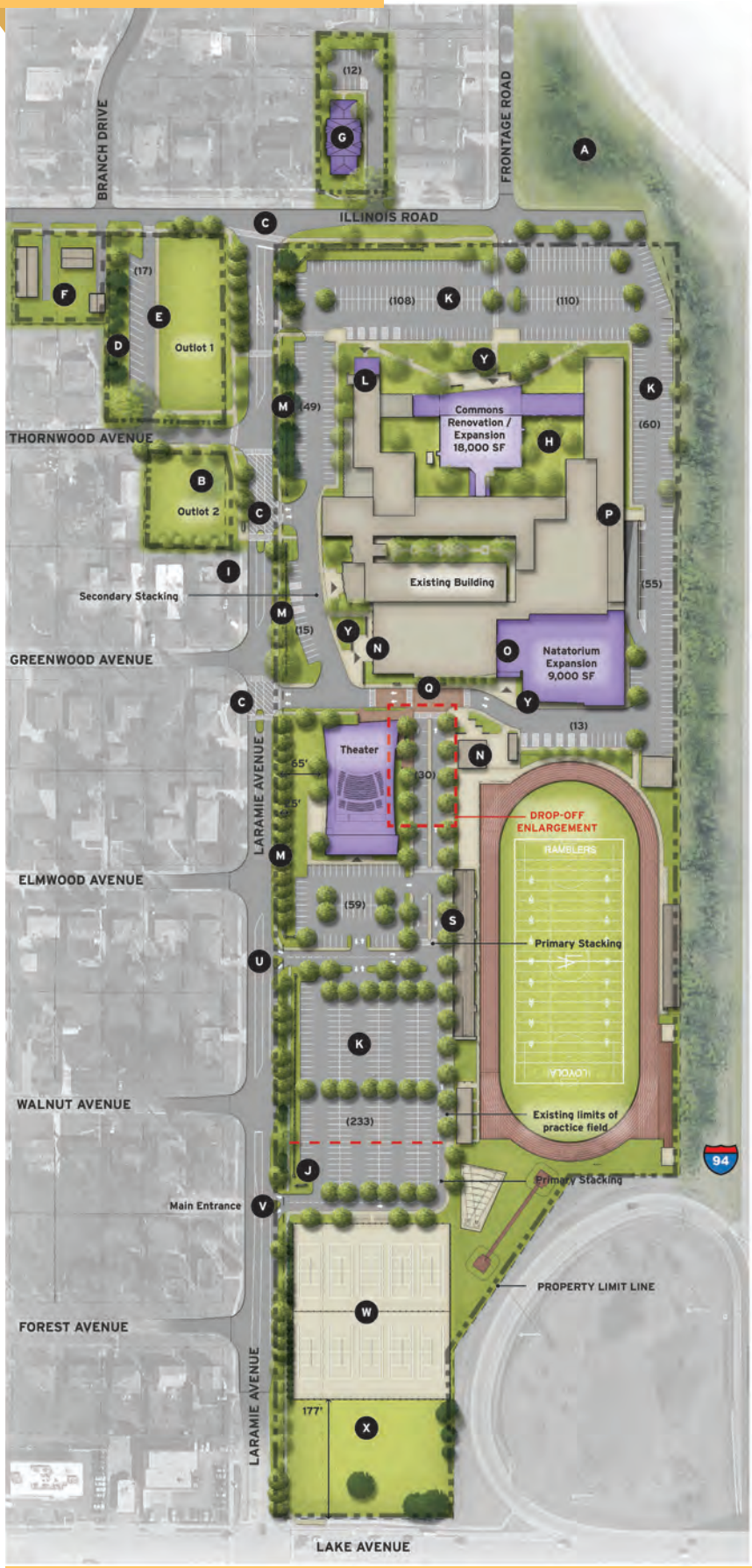
Enhanced Communication

Better Safety and Traffic Management

SECTION 5:

Design Documents

MASTER PLAN



LEGEND

- A FUTURE OPEN SPACE / STORMWATER / PARKING
- B GREENSPACE
- C CROSSWALK
- D LANDSCAPE BUFFER
- E FLEXIBLE GREENSPACE WITH OFF-STREET PARKING
- F EXISTING SINGLE FAMILY RESIDENTIAL
- G ADMINISTRATIVE BUILDING / PARKING
- H GREENSPACE
- I BUS STOP
- J CAMPUS SIGNAGE
- K IMPROVED PARKING AND CIRCULATION
- L NEW BUILDING ENTRANCE
- M IMPROVED CAMPUS EDGES
- N ENHANCED PLAZA SPACE
- O ENCLOSED BUILDING ENTRY IMPROVEMENT
- P TRUCK LOADING / SERVICE
- Q PEDESTRIAN CROSSING
- R PARALLEL PARKING
- S NEW WALKWAY ALONG PARKING/DROP-OFF
- T DOUBLE DROP-OFF LANE
- U MANAGED ACCESS DRIVE (PEAK HOURS ONLY)
- V NEW ACCESS FOR DROP-OFF / PARKING
- W RELOCATED TENNIS COURTS
- X GREENSPACE / PRACTICE FIELD
- Y BIKE RACK LOCATIONS (21 BIKES AT EACH LOCATION)

SITE DATA

EXISTING TOTAL SITE AREA

- 22 Acres (Main campus)
- 1.1 Acres (Outlot 1)
- .39 Acres (Outlot 2)

EXISTING PARKING (ON-SITE)

- 627 Parking Spaces (includes 10 ADA spaces)

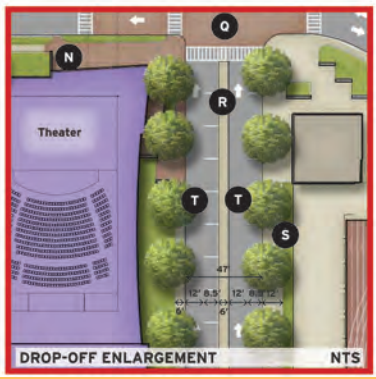
PROPOSED PARKING (ON-SITE)

- 733 Parking Spaces (includes 14 ADA spaces)
  - 375 Student (75% Seniors)
  - 308 Staff
  - 50 Visitor

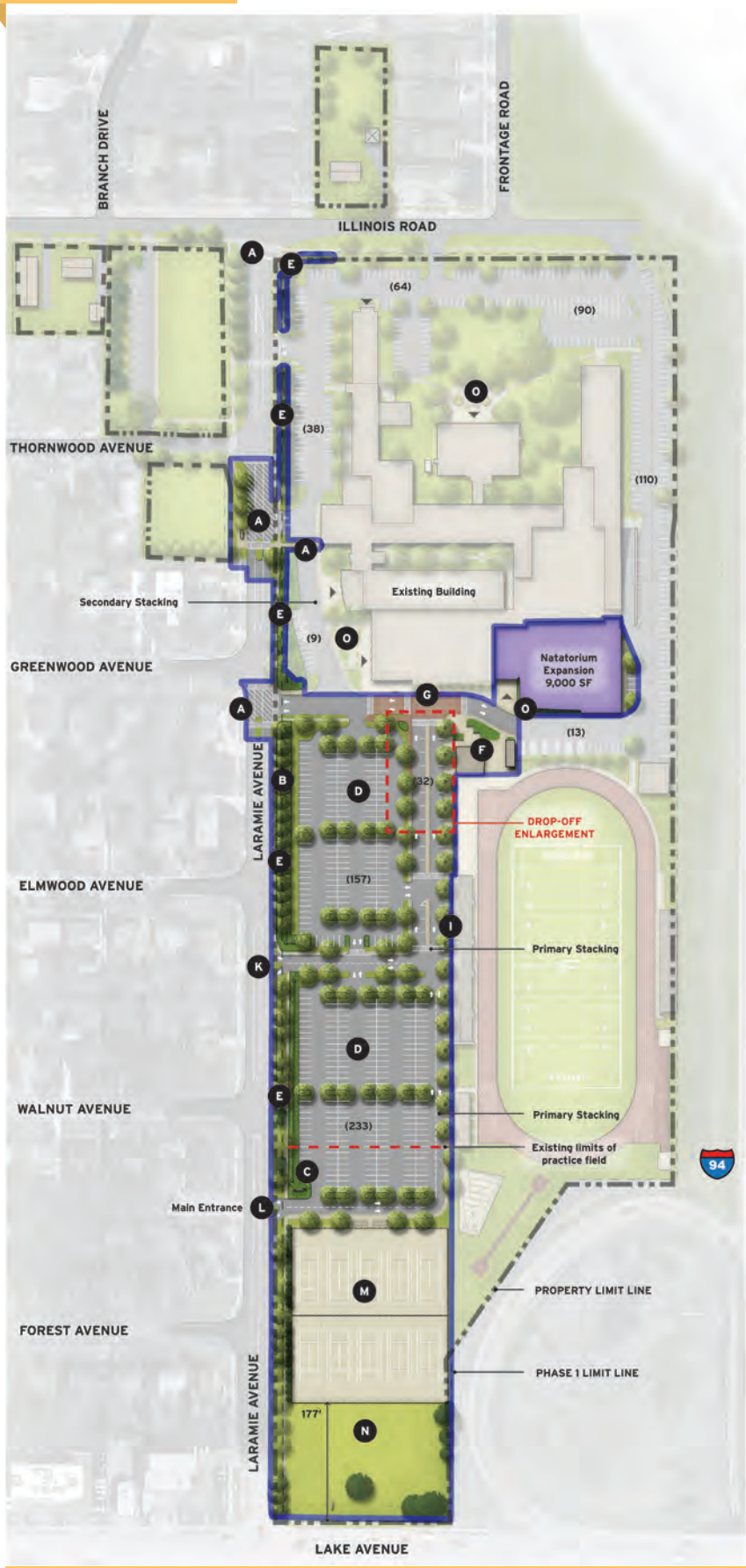
  Parking Goals

PROPOSED PARKING (OFF-SITE)

- 29 Parking Spaces (includes 2 ADA spaces)



PHASE 1



LEGEND

- A CROSSWALK
- B LANDSCAPE BUFFER
- C CAMPUS SIGNAGE
- D IMPROVED PARKING AND CIRCULATION
- E IMPROVED CAMPUS EDGES
- F ENHANCED PLAZA SPACE
- G PEDESTRIAN CROSSING
- H PARALLEL PARKING
- I NEW WALKWAY ALONG PARKING/DROP-OFF
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- O BIKE RACK LOCATIONS (22 BIKES AT EACH LOCATION)

SITE DATA

EXISTING TOTAL SITE AREA

- 22 Acres (Main campus)

EXISTING PARKING (ON-SITE)

- 627 Parking Spaces (includes 10 ADA spaces)

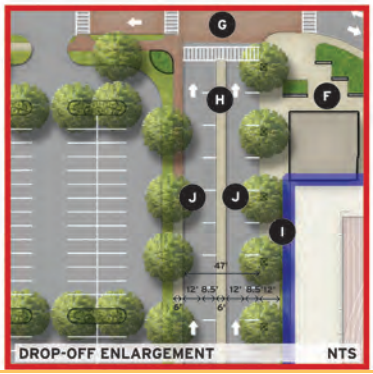
PROPOSED PARKING (ON-SITE)

- 756 Parking Spaces (includes 14 ADA spaces)
  - 375 Student (75% Seniors)
  - 308 Staff
  - 73 Visitor

  Parking Goals

MAIN CAMPUS FLOOR AREA

- Total Existing Floor Area: 344,784 SF
- Total Floor Area after Phase I: 353,217 SF



PHASE 1 ENLARGEMENTS

PHASE 1 ENLARGEMENTS

LANDSCAPE & SCREENING ANALYSIS PHASE 1

LEGEND

- **A** EXISTING TREE TO REMAIN
- **B** SHADE TREE
- **C** EVERGREEN TREE
- **D** SHRUBS PERENNIALS AND GROUNDCOVER
- **E** EXISTING UNDERSTORY PLANTINGS TO REMAIN
- **F** INTERNAL PARKING LOT LANDSCAPE
- **G** PARKING LOT PERIMETER LANDSCAPE YARD
- **H** NATATORIUM EXPANSION FOUNDATION PLANTINGS
- **I** EVERGREEN HEDGE

SUMMARY OF LANDSCAPE REQUIREMENTS

PARKING LOT PERIMETER LANDSCAPE YARD

- The landscape treatment must run the full length of the parking lot an must be located between the property line and the edge of the parking lot.
- Must be at least **5' wide**.

INTERIOR PARKING LOT LANDSCAPE

- One parking lot island is required every **20** contiguous parkings spaces.
- Parking lot islands must be at least **144 sf** in area.
- A minimum of **1 shade tree** is required for every parking lot island. **IF** the island extends the width of a double row, then **2 shade trees** are required.
- A minimum of **70%** of every parking lot island must be planted in turf or other live groundcover, perennials or ornamental grasses.

BUFFER YARDS

- Buffer yards are required in R1 districts
- Buffer yards must be provided in interior side or rear yards.
- Buffer yard must be a minimum of 10' in width.
- Shade trees must be planted on an average of **1 tree** for every **25 linear feet** of yard length.

BUILDING FOUNDATION LANDSCAPE

- Must be installed across **60%** of the length of the facade of the building, except where walkways and driveways are located.
- Can be a mix of trees, shrubs and perennials.

LANDSCAPING AND SCREENING ANALYSIS

BUFFER YARD
Main Campus

- Laramie Road

Length (Linear Feet):	1,629
Number of trees Required (1 per 25 LF):	65
Existing Trees to Remain:	33
Number of Additional Trees Provided:	32

SUMMARY OF TREE REMOVALS

	TOTAL QUANTITY	TOTAL CALIPER INCHES
TREES TO BE RELOCATED	3	18.5
TREES TO BE REMOVED	50	441
DEAD/POOR TREES TO BE REMOVED	10	142
** DEAD/POOR TREES ARE NOT FACTORED INTO THE TOTAL NUMBER OF REPLACEMENT TREES.*		
REQUIRED REPLACEMENT TREES (4" CALIPER)	75	299

PLANT PALETTE

DECIDUOUS TREES

ARMSTRONG MAPLE

AUTUMN BLAZE MAPLE

AMERICAN BEECH

THORNLESS HONEYLOCUST

AMERICAN SWEET GUM

SCARLET OAK

SWAMP WHITE OAK

LITTLELEAF LINDEN

ACCOLADE ELM

HOMESTEAD ELM

GINKGO

KENTUCKY COFFEE TREE

IVORY SILK JAPANESE LILAC

TULIP TREE

EVERGREEN TREES

CONCOLOR FIR

NORWAY SPRUCE

BLACK HILLS SPRUCE

COLORADO BLUE SPRUCE

DOUGLAS FIR

ORNAMENTAL TREES

AUTUMN BRILLIANCE SERVICEBERRY

HERITAGE RIVER BIRCH

AMERICAN HORNBEAM

RED BUD

THORNLESS COCKSAPUR HAWTHORN

CORNELIAN CHERRY DOGWOOD

NEWPORT FLOWERING PLUM

SHRUBS, PERENNIALS AND GROUNDCOVERS

GRO LOW SUMAC

RED JAVA WEIGELA

DWARF REDTWIG DOGWOOD

ARROWHEAD VIBURNUM

GLOSSY BLACK CHOKEBERRY

MISS KIM LILAC

EMERALD GREEN ARBORVITAE

KALLAY'S COMPACT JUNIPER

DENSE YEW

FEATHER REED GRASS

DWARF FOUNTAIN GRASS

PRAIRIE DROPSEED

HAPPY RETURNS DAYLILY

WALKERS LOW CATMINT

PURPLE CONEFLOWER

BLACK-EYED SUSAN

AUTUMN JOY SEDUM

PURPLE DOME NEW

GUACAMOLE HOSTA

PACHYSANDRA

LIROPE

TREE REMOVAL ANALYSIS PHASE 1

TREE INVENTORY AND ANALYSIS

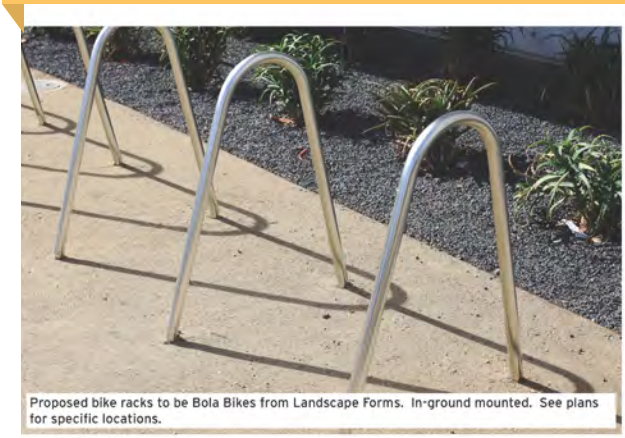
ID	TYPE	SIZE*	CONDITION	REMARK
1	SPRUCE	14' HT	FAIR	TO BE REMOVED
2	SPRUCE	14' HT	FAIR	TO BE REMOVED
3	SPRUCE	12' HT	FAIR	TO BE REMOVED
4	RED CEDAR	12"	FAIR	TO BE REMOVED
5	RED CEDAR	12"	FAIR	TO BE REMOVED
6	RED CEDAR	12"	POOR	TO BE REMOVED
7	RED CEDAR	8"	FAIR	TO BE REMOVED
8	HACKBERRY	11"	GOOD	TO REMAIN
9	RED CEDAR	8"	FAIR	TO BE REMOVED
10	RED CEDAR	5"	FAIR	TO BE REMOVED
11	SPRUCE	19' HT	GOOD	TO REMAIN
12	SPRUCE	14' HT	GOOD	TO REMAIN
13	SPRUCE	19' HT	GOOD	TO REMAIN
14	SPRUCE	17' HT	GOOD	TO REMAIN
15	CATALPA	3"	GOOD	TO REMAIN
16	OAK	18"	GOOD	TO REMAIN
17	OAK	18"	GOOD	TO REMAIN
18	OAK	18"	GOOD	TO REMAIN
19	MAGNOLIA	9"	GOOD	TO REMAIN
20	OAK	22"	GOOD	TO REMAIN
21	SPRUCE	16"	POOR	TO BE REMOVED
22	SPRUCE	16"	POOR	TO BE REMOVED
23	SPRUCE	16"	DEAD	TO BE REMOVED
24	SPRUCE	16"	POOR	TO BE REMOVED
25	MAPLE	18"	GOOD	TO REMAIN
26	BALD CYPRESS	6"	SPECIMEN	TO REMAIN
27	OAK	5"	GOOD	TO REMAIN
28	MAPLE	3.5"	GOOD	TO BE RELOCATED
29	ELM	36"	FAIR	TO REMAIN
30	SPRUCE	15"	FAIR	TO REMAIN
31	SPRUCE	13"	FAIR	TO REMAIN
32	LINDEN	24"	GOOD	TO REMAIN
33	SPRUCE	15"	FAIR	TO REMAIN
34	SPRUCE	15"	FAIR	TO REMAIN
35	LINDEN	19"	GOOD	TO BE REMOVED
36	SPRUCE	15"	DEAD	TO BE REMOVED
37	SPRUCE	15"	POOR	TO BE REMOVED
38	MAPLE	3.5"	GOOD	TO REMAIN
39	SPRUCE	9"	FAIR	TO BE REMOVED
40	CATALPA	5"	GOOD	TO REMAIN
41	SPRUCE	16"	FAIR	TO BE REMOVED
42	ELM	26"	GOOD	TO BE REMOVED
43	LONDON PLANETREE	3"	GOOD	TO REMAIN
44	MAPLE	12"	POOR	TO BE REMOVED
45	MAPLE	12"	POOR	TO BE REMOVED
46	OAK	9"	SPECIMEN	TO BE RELOCATED
47	HONEYLOCUST	21"	GOOD	TO REMAIN
48	MAPLE	16"	GOOD	TO REMAIN
49	MAPLE	15"	GOOD	TO REMAIN
50	OAK	2"	GOOD	TO REMAIN
51	BEECH	13"	GOOD	TO REMAIN
52	GINKGO	10"	GOOD	TO REMAIN
53	SPRUCE	10"	FAIR	TO REMAIN
54	SPRUCE	15"	GOOD	TO REMAIN
55	SPRUCE	12"	GOOD	TO REMAIN
56	CHERRY	8"	FAIR	TO REMAIN
57	SPRUCE	10"	GOOD	TO REMAIN
58	MAPLE	12"	GOOD	TO REMAIN
59	SPRUCE	15"	GOOD	TO REMAIN
60	MAPLE	12"	POOR	TO BE REMOVED
61	GINKGO	12"	SPECIMEN	TO REMAIN
62	SPRUCE	15"	GOOD	TO REMAIN
63	SPRUCE	12"	GOOD	TO REMAIN
64	MAPLE	11"	GOOD	TO REMAIN
65	MAPLE	11"	GOOD	TO REMAIN
66	MAPLE	11"	GOOD	TO REMAIN
67	ELM	2.5"	GOOD	TO BE REMOVED
68	ELM	2.5"	GOOD	TO BE REMOVED
69	ELM	2.5"	GOOD	TO BE REMOVED
70	ELM	2.5"	GOOD	TO BE REMOVED
71	ELM	2.5"	GOOD	TO BE REMOVED
72	ELM	2.5"	GOOD	TO BE REMOVED
73	ELM	2.5"	GOOD	TO BE REMOVED
74	ELM	2.5"	GOOD	TO BE REMOVED
75	ELM	2.5"	GOOD	TO BE REMOVED
76	ELM	2.5"	GOOD	TO BE REMOVED
77	PEAR	8"	GOOD	TO REMAIN
78	PEAR	8"	GOOD	TO REMAIN
79	PEAR	8"	GOOD	TO REMAIN
80	PEAR	8"	GOOD	TO REMAIN
81	PEAR	8"	GOOD	TO REMAIN
82	PEAR	8"	GOOD	TO REMAIN
83	PEAR	8"	GOOD	TO REMAIN
84	PEAR	8"	GOOD	TO BE REMOVED
85	REDBUD	3"	GOOD	TO BE REMOVED
86	REDBUD	3"	GOOD	TO BE REMOVED
87	REDBUD	3"	GOOD	TO BE REMOVED
88	HORNBEAM	5"	GOOD	TO BE REMOVED
89	HORNBEAM	5"	GOOD	TO BE REMOVED
90	HORNBEAM	5"	GOOD	TO BE REMOVED
91	HORNBEAM	5"	GOOD	TO BE REMOVED
92	PEAR	10"	GOOD	TO BE REMOVED
93	PEAR	12"	GOOD	TO BE REMOVED
94	PEAR	10"	GOOD	TO BE REMOVED
95	PEAR	10"	GOOD	TO BE REMOVED
96	PEAR	10"	GOOD	TO BE REMOVED
97	PEAR	10"	GOOD	TO BE REMOVED
98	MAPLE	5"	GOOD	TO BE REMOVED
99	PINE	5' HT	FAIR	TO BE REMOVED
100	GINKGO	6"	GOOD	TO BE RELOCATED
101	MAPLE	10"	GOOD	TO BE REMOVED

* SIZE = CALIPER UNLESS NOTED OTHERWISE

SUMMARY OF TREE REMOVALS

	TOTAL QUANTITY	TOTAL CALIPER INCHES
TREES TO BE RELOCATED	3	18.5
TREES TO BE REMOVED	50	441
DEAD/POOR TREES TO BE REMOVED	10	142
*DEAD/POOR TREES ARE NOT FACTORED INTO THE TOTAL NUMBER OF REPLACEMENT TREES.		
REQUIRED REPLACEMENT TREES (4" CALIPER)	75	299

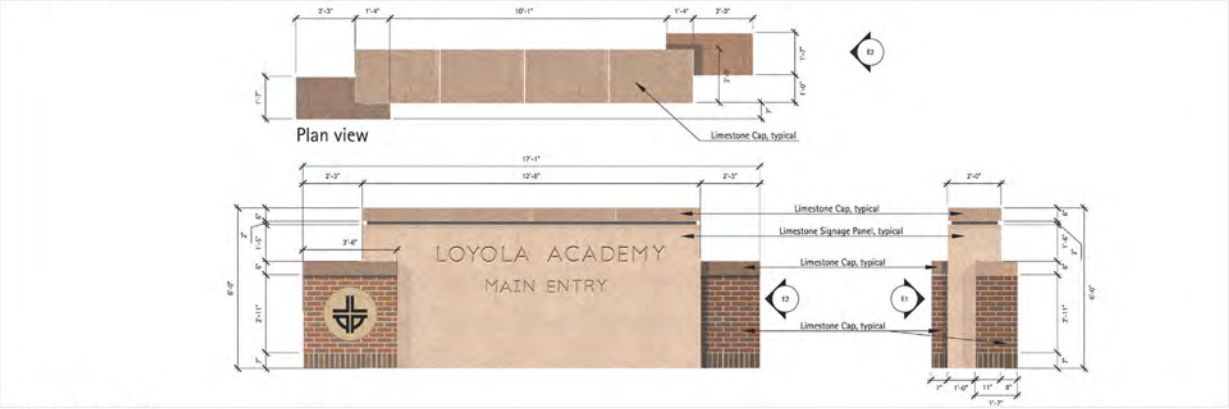
PROPOSED SITE ELEMENTS



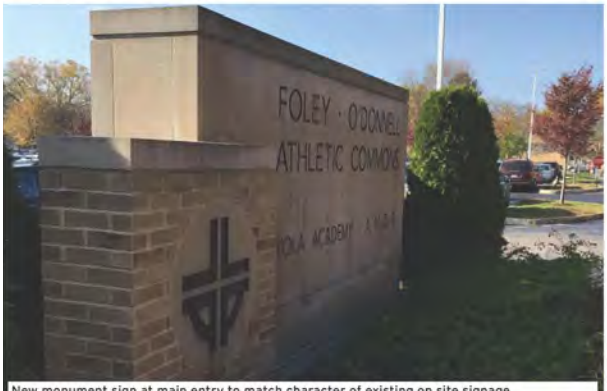
Proposed bike racks to be Bola Bikes from Landscape Forms. In-ground mounted. See plans for specific locations.

BIKE RACKS

REGULATORY SIGN



MONUMENT SIGN

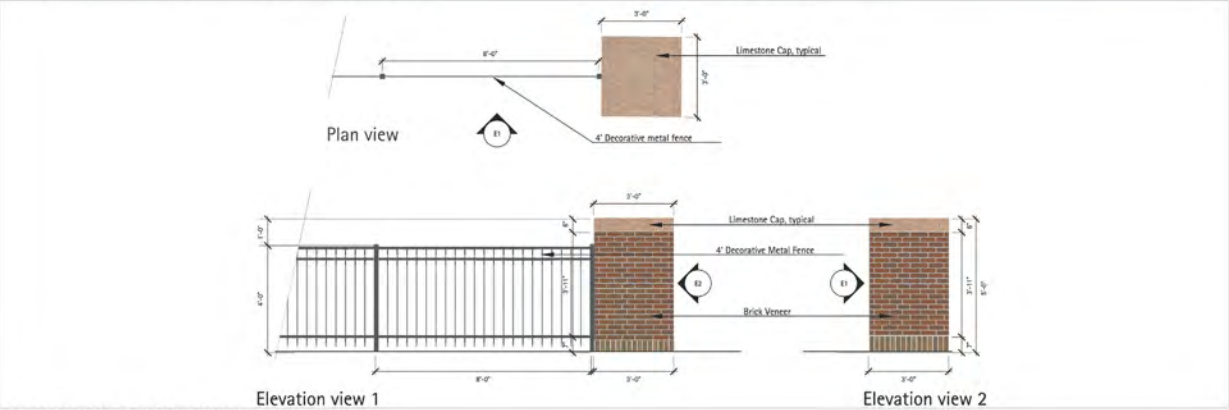


New monument sign at main entry to match character of existing on site signage.

EXISTING MONUMENT SIGN AT ATHLETIC FIELD

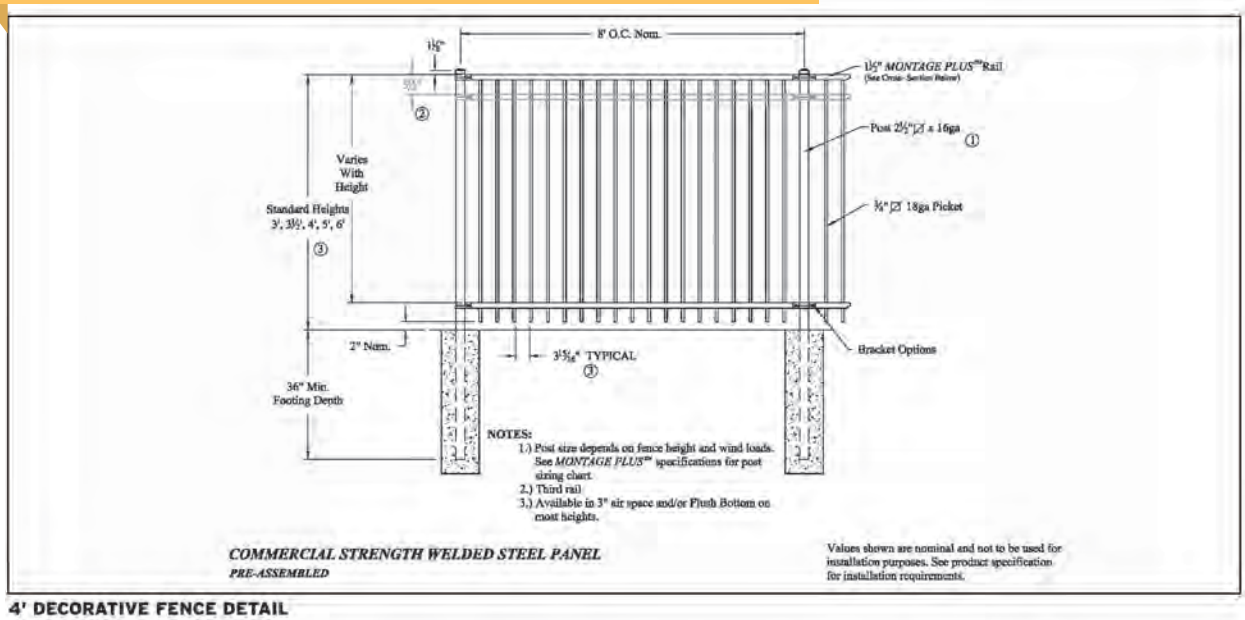
New 4' metal fencing to match existing Ameristar Montage line preferred. See site plan for specific locations.

4' DECORATIVE METAL FENCE

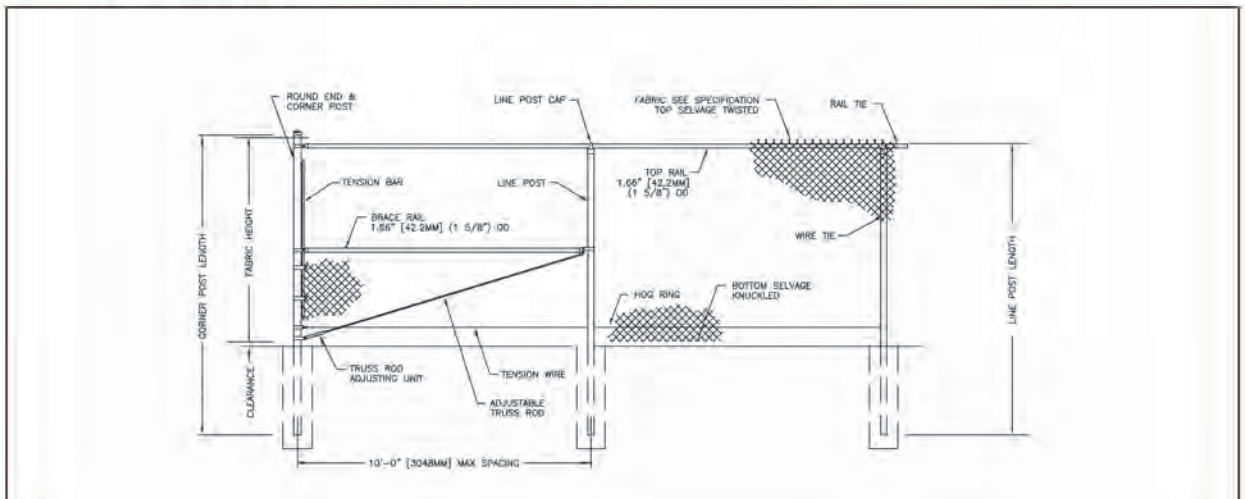


COLUMN AND DECORATIVE FENCE

PROPOSED SITE ELEMENTS

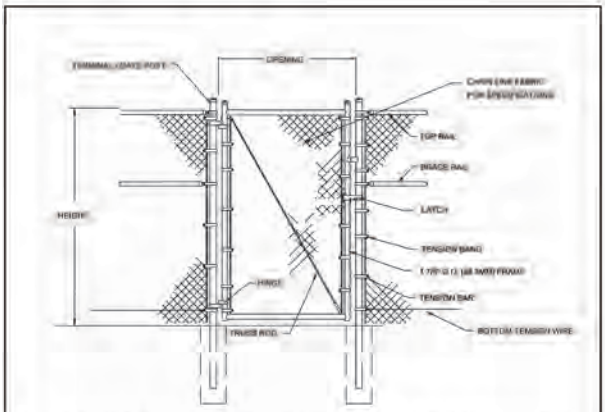


4' DECORATIVE FENCE DETAIL



Proposed fence to be chain link with black vinyl coating from Merchant Metals or approved equal. In-ground mounted. See plans for location.

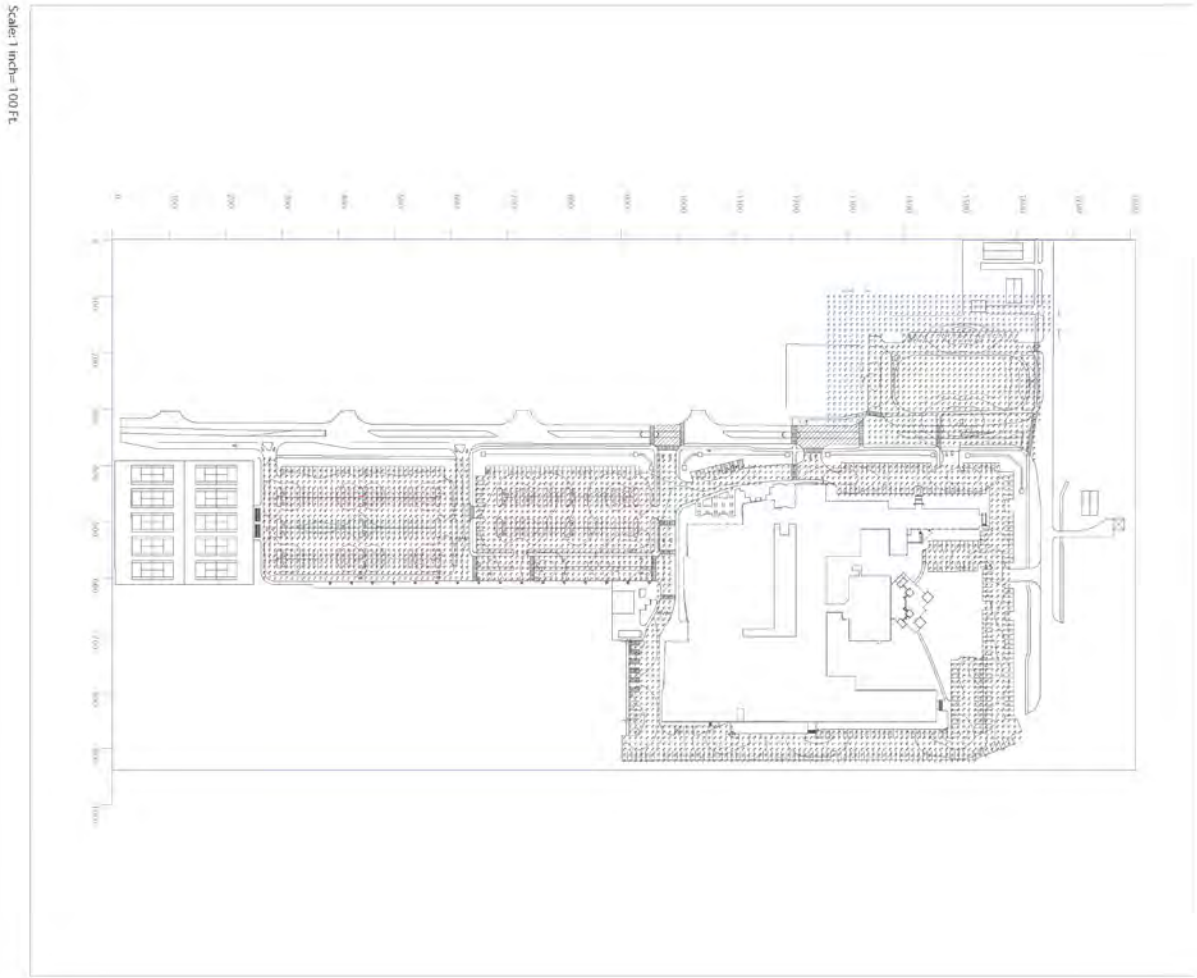
10' HEIGHT TENNIS COURT FENCE



Proposed gate to be chain link with black vinyl coating from Merchant Metals or approved equal. In-ground mounted. See plans for location.

TENNIS COURT GATE

PHOTOMETRIC PLAN



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Prepared For:
Archibald + Meek
537 W. Wrightwood Ave
Elmhurst, IL 60126

Job Name:
Loyola Academy
Wilmette, IL
Lighting Layout
Version A

Scale: as noted

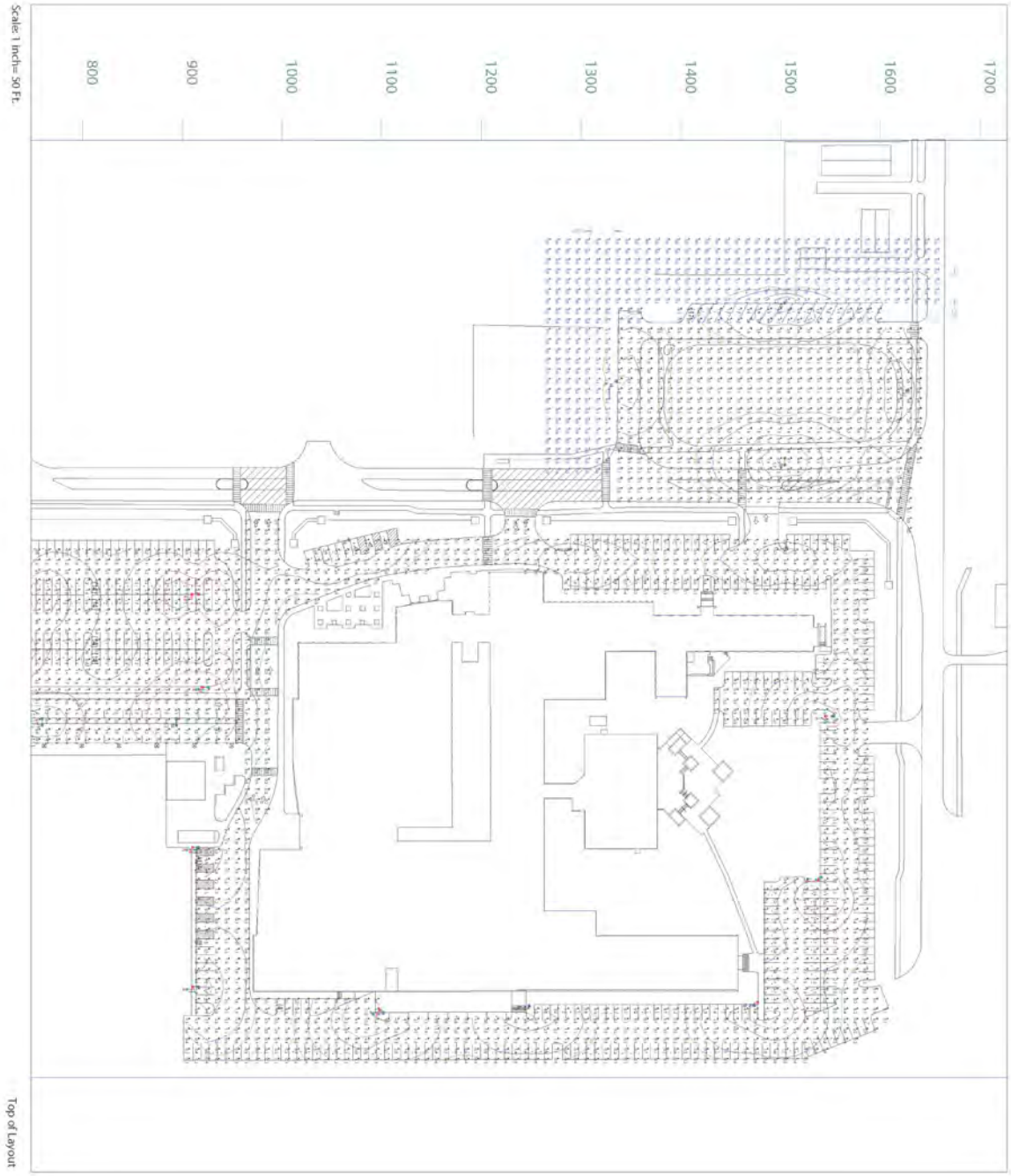
Date: 6/30/2017 | CASE # 00116609

Filename: Loyola Academy Layout 00116609 H.AGI

Drawn By: AMurphy

Filename: Z:\Job Files\Archibald and Meek Service Electric\Supp\Addsu\ 165179\Loyola Academy\Wilmette, Il\ RSS\SED\Loyola Academy Layout 00116609 H.AGI

PHOTOMETRIC PLAN - ENLARGEMENT



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Job Name:
Loyola Academy
Wilmette, IL
Lighting Layout
Version A

Scale: as noted

Date: 6/30/2017 | CASE # 001 16609

Filename: Loyola Academy Layout 001 16609 HLAGI

Drawn By: AKlusphy

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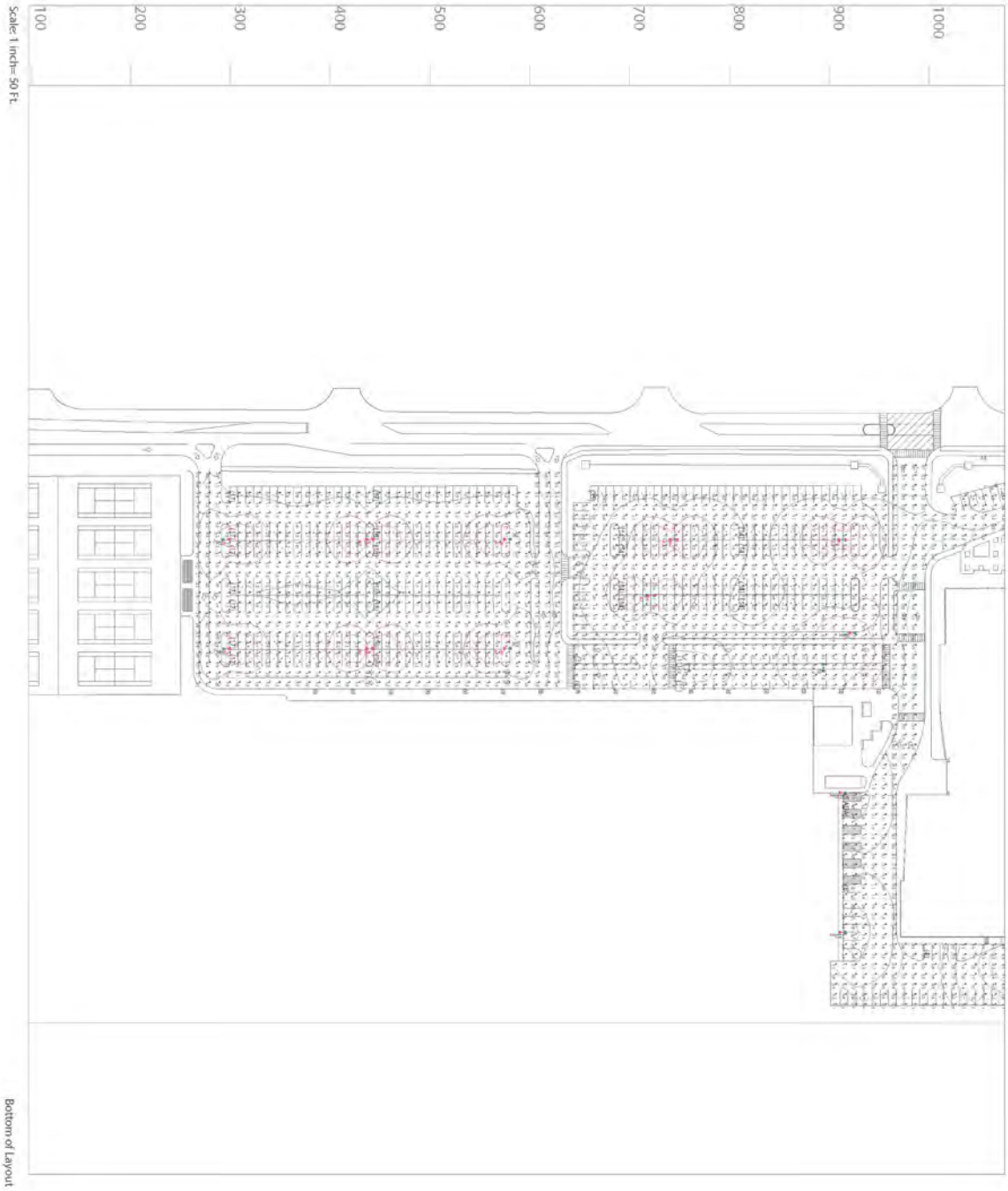

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Loyola Academy
Wilmette IL
Lighting Layout
Version A

Scale: as noted

Date: 6/30/2017 | CASE # 00116609

Filename: Loyola Academy Layout 00116609 HLAGI

Drawn By: Aalurphy

Filename: Z:_as Firm\Archibald and Meak\Sunrise Force Team\Archibald_53-17\ALL\Loyola Academy\Phase 2 Final_17\00116609 Loyola Academy Layout 00116609 HLAGI

PHOTOMETRIC PLAN - CALCULATIONS

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Description	PtSpcLr	PtSpcTb	Meter Type
CalcPts - Existing Lots	Illuminance	Fc	2.01	12.9	0.0	N.A.	N.A.	Readings taken at 0'-0" AFG	10	10	Horizontal
CalcPts - Light Spill	Illuminance	Fc	0.12	6.0	0.0	N.A.	N.A.	Readings taken at 5'-0" AFG	10	10	Horizontal
CalcPts - New Parking Lot	Illuminance	Fc	2.46	9.0	0.2	12.30	45.00	Readings taken at 0'-0" AFG	10	10	Horizontal
CalcPts - New Service Rd Lot	Illuminance	Fc	1.25	8.9	0.0	N.A.	N.A.	Readings taken at 0'-0' AFG	10	10	Horizontal

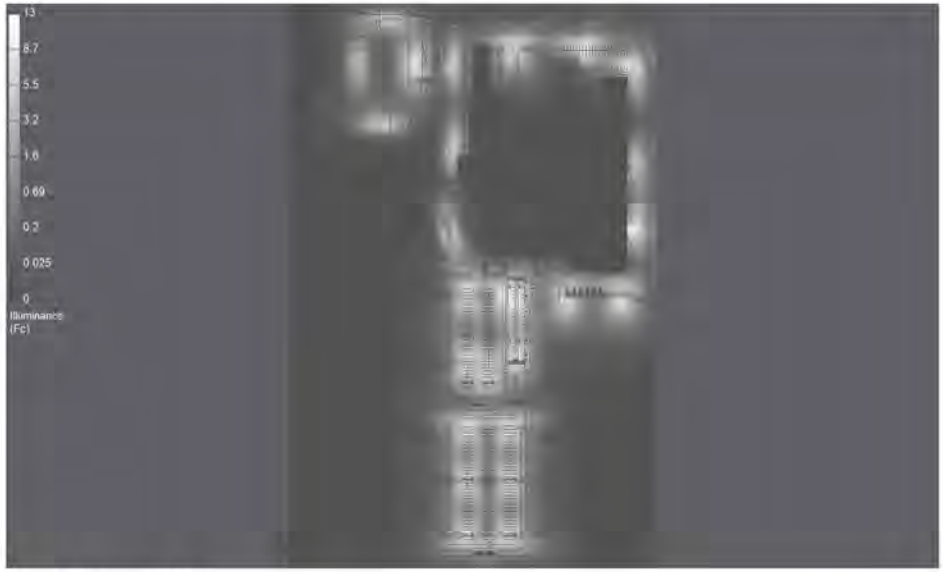
Luminaire Schedule

Symbol	Qty	Tag	Label	Arrangement	Lum. Lumens	Arr. Lum. Lumens	LLF	Description	Lum. Watts	Arr. Watts	Total Watts	Filename
	5	A2	ALED4T150YWX2@180°	BACK-BACK	17507	35014	1.000	Type IV Pole Mounted x2 @180	154.2	308.4	1542	ALED4T150Y - Warm - RAB02138MOD1
	11	A	ALED4T150YW	SINGLE	17507	17507	1.000	Type IV Pole Mounted	154.2	154.2	1696.2	ALED4T150Y - Warm - RAB02138MOD1
	6	B	ALED3T150YW	SINGLE	15966	15966	1.000	Type III Pole Mounted	153.6	153.6	921.6	ALED3T150Y - Warm - RAB02127.IES
	12	C	ALED2T150YW	SINGLE	16909	16909	1.000	Type II Pole Mounted	151.6	151.6	1819.2	ALED2T150Y - Warm - RAB02266MOD1
	3	C2	ALED2T150YWX2@180°	BACK-BACK	16909	33818	1.000	Type II Pole Mounted x2 @180	151.6	303.2	909.6	ALED2T150Y - Warm - RAB02266MOD1

Expanded Luminaire Location Summary

LumNo	Label	Tag	X	Y	MTG HT	Orient
1	ALED2T150YW	C	407.439	1505.636	25	0
2	ALED4T150YW	A	577.096	1545.613	25	270
3	ALED4T150YW	A	740.885	1537.882	25	0
4	ALED2T150YW	C	738.564	1539.888	25	90
5	ALED4T150YW	A	863.976	1476.291	25	90
6	ALED3T150YW	B	866.335	1473.53	25	0
7	ALED2T150YW	C	409.228	1289.172	25	0
8	ALED3T150YW	B	867.085	1247.852	25	0
9	ALED3T150YW	B	873.968	1101.199	25	0
10	ALED4T150YW	A	871.931	1098.358	25	270
11	ALED3T150YW	B	848.422	915.358	25	90
12	ALED4T150YW	A	848.369	911.176	25	270
13	ALED3T150YW	B	708.693	915.358	25	90
14	ALED4T150YW	A	708.64	911.176	25	270
15	ALED4T150YWX2@180°	A2	455.024	914.788	25	90
15	ALED4T150YWX2@180°	A2	455.024	911.288	25	270
16	ALED4T150YW	A	548.206	920.71	25	270
17	ALED2T150YW	C	548.206	925.352	25	90
18	ALED2T150YWX2@180°	C2	581.273	894.201	25	180
18	ALED2T150YWX2@180°	C2	584.673	894.201	25	360
19	ALED4T150YWX2@180°	A2	455.024	745.938	25	90
19	ALED4T150YWX2@180°	A2	455.024	742.438	25	270
20	ALED4T150YWX2@180°	A2	510.697	723.064	25	90
20	ALED4T150YWX2@180°	A2	510.697	719.564	25	270
21	ALED2T150YWX2@180°	C2	581.273	759.723	25	180
21	ALED2T150YWX2@180°	C2	584.673	759.723	25	360
23	ALED2T150YW	C	577.167	1551.558	25	90
24	ALED2T150YW	C	400.09	1067.033	25	14.178
25	ALED4T150YW	A	454.715	575.02	25	270
26	ALED4T150YW	A	564.174	575.125	25	270
27	ALED4T150YWX2@180°	A2	454.715	441.42	25	90
27	ALED4T150YWX2@180°	A2	454.715	437.92	25	270
28	ALED4T150YWX2@180°	A2	564.174	441.42	25	90
28	ALED4T150YWX2@180°	A2	564.174	437.92	25	270
29	ALED4T150YW	A	454.715	298.084	25	90
30	ALED4T150YW	A	564.174	298.084	25	90
31	ALED2T150YW	C	454.919	293.274	25	270
32	ALED2T150YW	C	564.356	293.885	25	270
33	ALED2T150YW	C	162.368	1504.226	25	0
34	ALED3T150YW	B	241.623	1335.017	25	90
35	ALED2T150YW	C	454.583	579.75	25	90
36	ALED2T150YW	C	564	579.75	25	90
37	ALED2T150YW	C	251	1627.25	25	270
38	ALED2T150YWX2@180°	C2	323.7	1504	25	0
38	ALED2T150YWX2@180°	C2	320.3	1504	25	180

Total Quantity: 45



Grayscale Rendering : Top View

NOTES:

* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (product) of mean lumens / initial lumens per lamp manufacturer specifications.

* Luminaire orientation shown on this and other plans is intended as a guide only. For placement of calculation points, horizontal, vertical or tilted up designated by the calculation grid only. Aiming orientation is normal to the plane of calculation.

* The calculated results at the lighting simulation represent an anticipated condition of system performance. Actual measured results may vary from the anticipated performance and are subject to issues and methods which are beyond the control of RAB Lighting Inc.

* Mounting height is determined based on site specific, our lighting simulations assume a mounting height (luminaire point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaires mounting configurations.

* RAB Lighting Inc. luminaires and poles LC Designs are produced in the U.S. and International and meet all applicable Buy American requirements.

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Prepared for:
Archdiocese of Gary
5151 W. Ridgewood Ave
Hammond, IN 46324

Job Name:
Loyola Academy
Wilmette, IL
Lighting Layout
Photometrics

Scale: as noted

Date: 06/06/2017

CAD: 4-06171667

Filename: Loyola Academy Layout 06171667 06162017.dwg

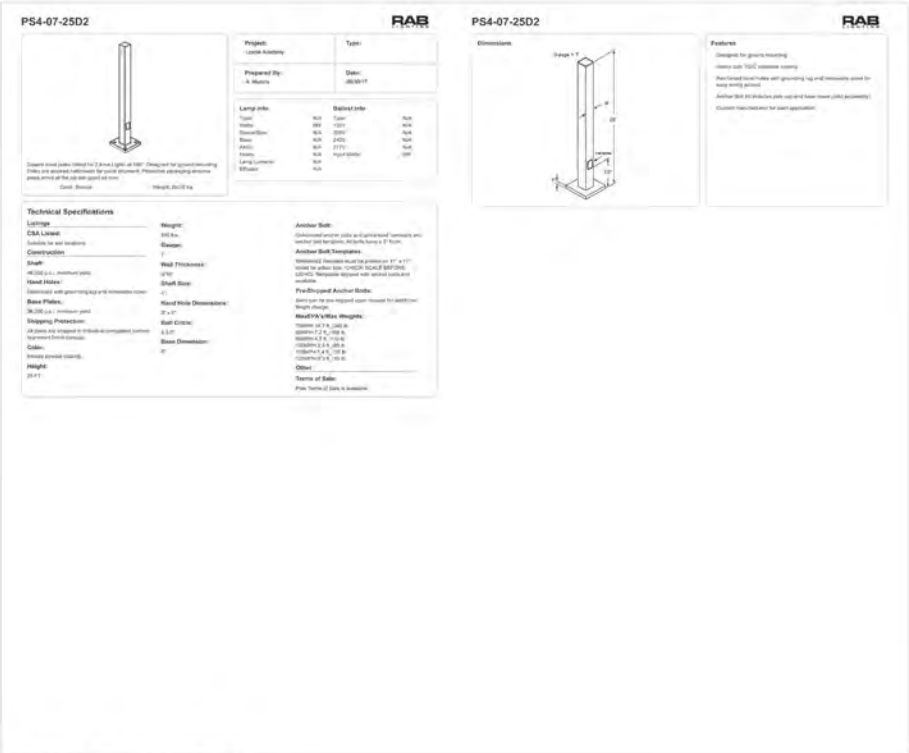
Drawn By: Jeffrey

PHOTOMETRIC PLAN - LIGHT FIXTURES

VEHICULAR LIGHT FIXTURES

EXISTING VEHICULAR LIGHT FIXTURE

EXISTING BOLLARD LIGHT FIXTURE



LIGHT POLE CONNECTION

SECTION 6:

Architectural Designs

NATATORIUM NARRATIVE

OVERVIEW

The Natatorium project will provide Loyola Academy with a facility fitting to the quality of their swimming and diving program. The existing natatorium was built in 1957 and has outlived its functional life. The proposed addition and renovation consists of the replacement of the pool and enclosing structure along with the gut renovation of the pool support functions. A new entrance and gathering hall will be built out between the new natatorium and the gymnasium to the west.

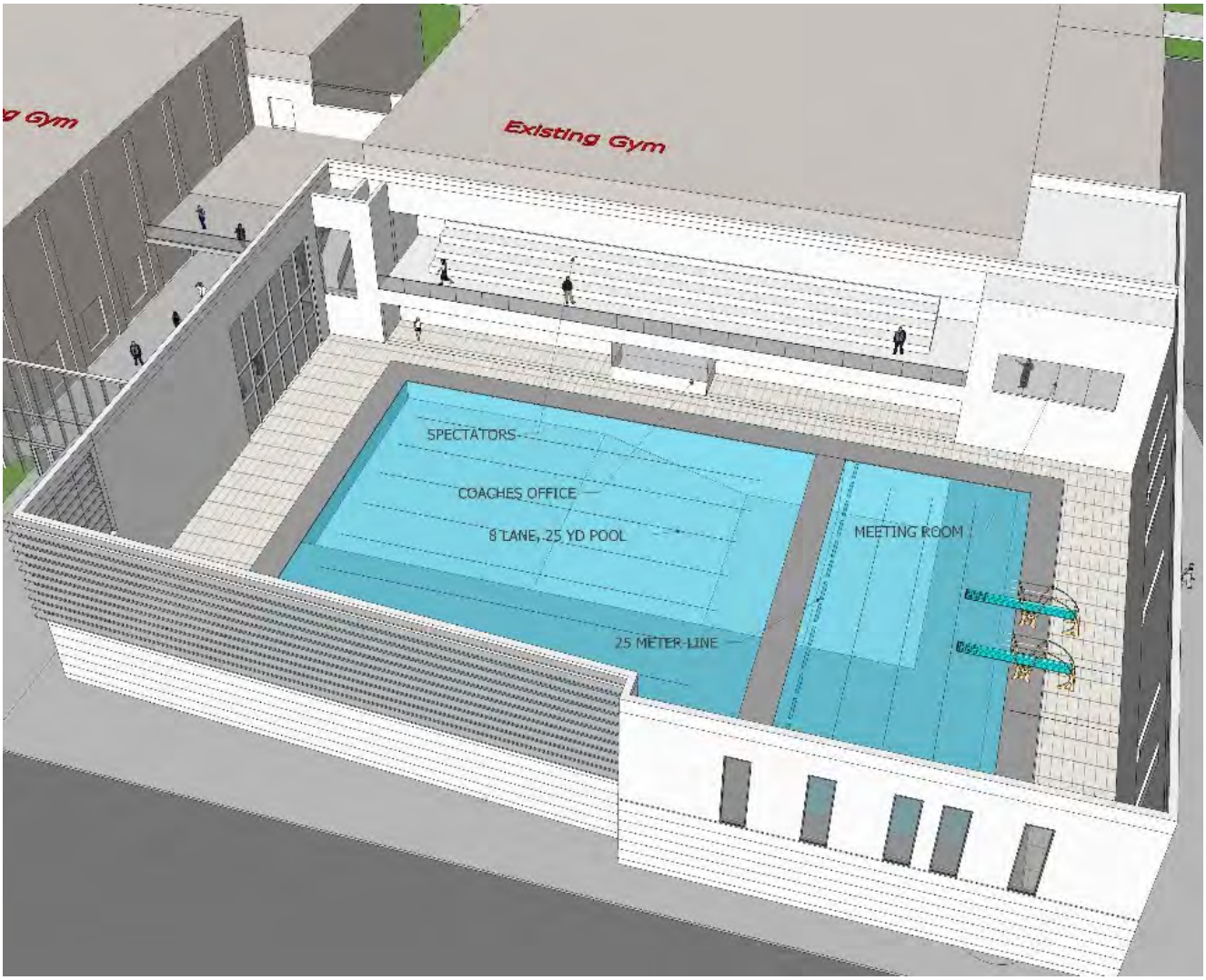
NATATORIUM

The natatorium enclosure will occupy the site of the current structure and be similar in height to the adjacent gymnasiums. The east face will align with existing building to the north. Exterior cladding will be predominantly a buff color masonry in keeping with the context of the campus. Large clear story windows with integral sun shading elements are proposed for the south elevation. The east elevation will have limited windows to mitigate the noise from the adjacent highway. The new pool will have two sections divided by a movable bulkhead. The main section will be 25 yards with 8 lanes. The second section will accommodate 3 lap lanes of 25 yards and two 1 meter diving boards. New locker and shower facilities will be built out within the footprint of the existing locker rooms. In addition to the lockers, new facilities will include a coaches office, laundry, unisex lockers and storage rooms. A spectator gallery, offices and meeting rooms will be built out above this area. Mechanical equipment will be housed in the basement.

ENTRY HALL

The new entry hall will serve as the primary athletics entrance and as a social hall for informal gathering. It will join the new natatorium with the gymnasium to the west. A mezzanine will connect to the upper level of the school and adjacent spectator area for the pool. Glass walls will provide a visual connection with these spaces. The hall's principal exposure is to the south. A large glazed wall is proposed to provide a strong visual connection with the outside and playing fields to the south. A large projecting canopy will serve to shade the glass as well as provide weather protection at the entry.

NATATORIUM DRAWINGS POOL 3D DIAGRAM



HOLABIRD & ROOT

04.26.2017

NATATORIUM DRAWINGS MASSING DIAGRAM

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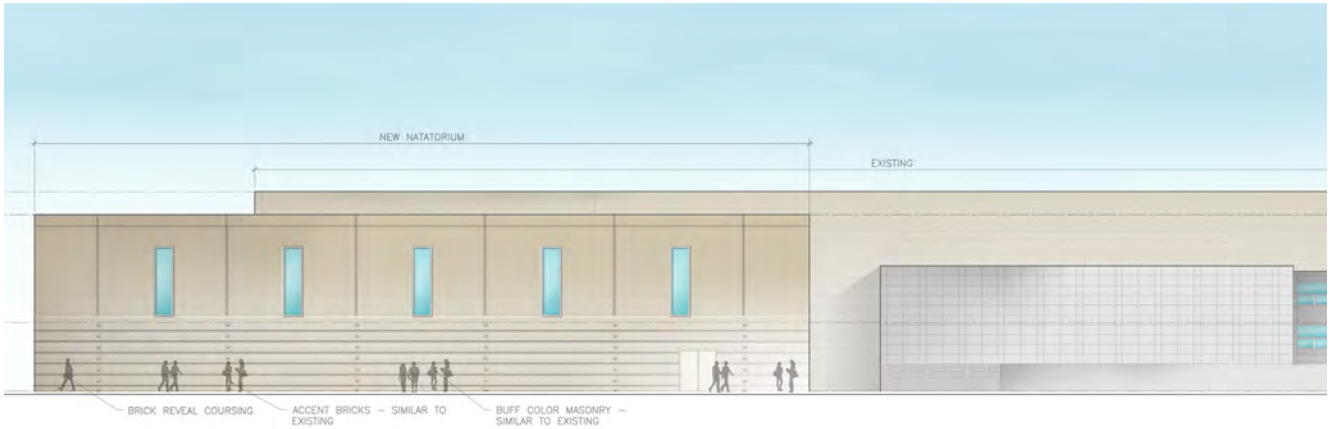
04.26.2017

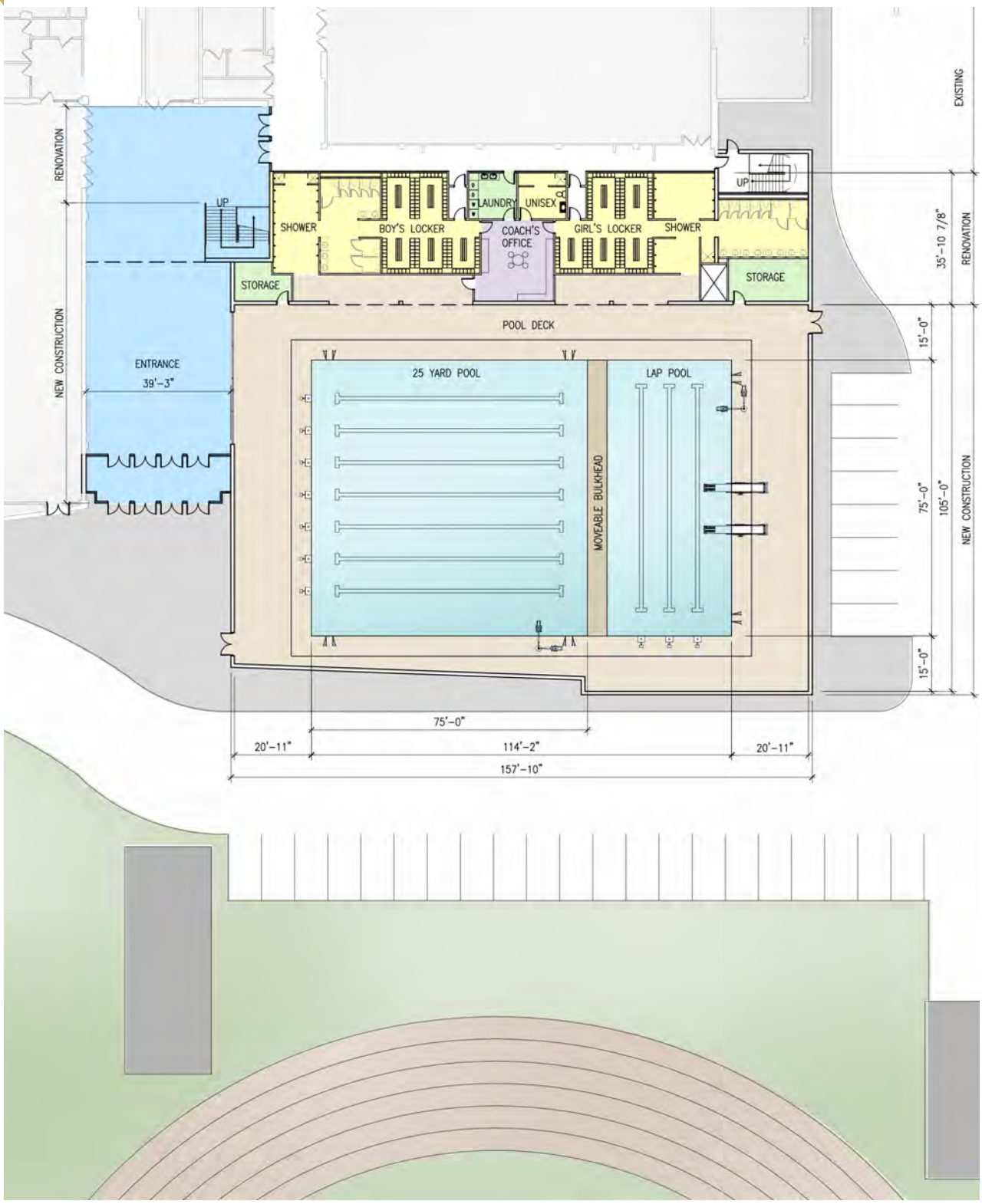
NATATORIUM DRAWINGS ELEVATIONS



HOLABIRD & ROOT

04.26.2017

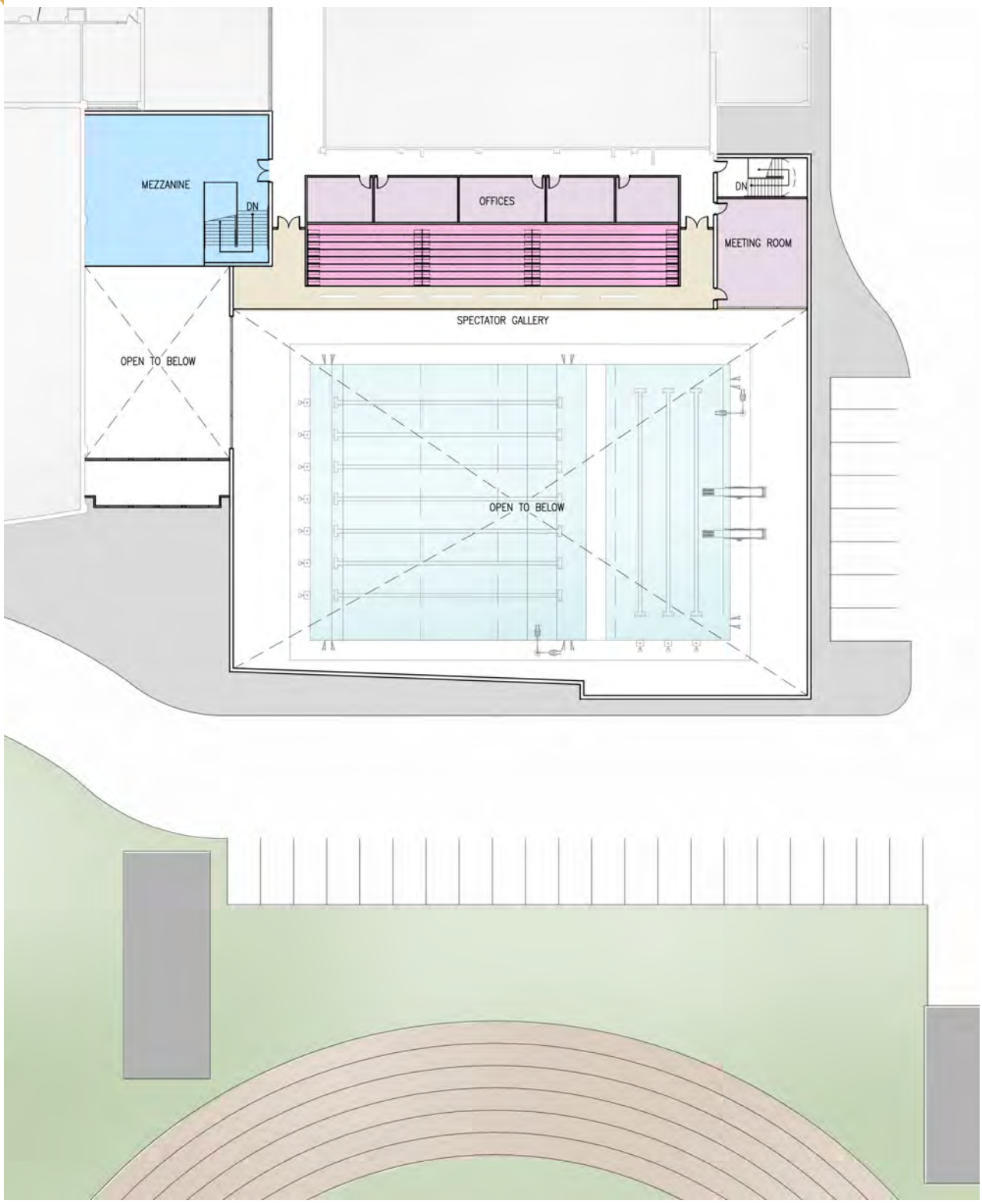
NATATORIUM DRAWINGS FIRST FLOOR PLAN



HOLABIRD & ROOT

04.26.2017

NATATORIUM DRAWINGS SECOND FLOOR PLAN



SECTION 7:

Traffic Study

LOYOLA ACADEMY MASTER PLAN – PHASE I

Traffic Study

Wilmette, Illinois

June 2017

Prepared for:

Loyola Academy

Kimley»Horn

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1. INTRODUCTION

Loyola Academy is a four-year Jesuit high school located on the east side of Laramie Avenue between Illinois Road and Lake Avenue in Wilmette, Illinois. Established in 1909, the school moved to its current campus (shown on a map in **Exhibit 1**) in 1957. Loyola Academy recently completed a Campus Master Plan to provide a framework for planned infrastructure improvements. Designed to be completed in multiple phases, the Master Plan takes a comprehensive look at the campus while engaging with the community through Open House events and input sessions with neighborhood residents and community stakeholders.

The completed Master Plan will be submitted to the Village of Wilmette as part of the municipal review process for a Special Use Permit, which is required to implement the initial phase of the planned campus improvements. This traffic study focuses on Phase I of the Master Plan, which includes:

New Building Facilities

- Renovated/Expanded Natatorium/Aquatics Facility

Site and Operational Improvements

- Increased On-Site Parking
- Increased On-Site Traffic Circulation and Vehicle Stacking
- Relocated Tennis Facilities
- Pedestrian Safety Improvements
- Improved Open and Green Space
- Landscape Buffer, Campus Edge Treatments, and Signage
- Underground Stormwater Storage

A copy of a supplemental Transportation Management Plan (TMP) can be found in the Appendix.

In addition to these building, site and operational improvements, Loyola Academy is seeking to modify the language of the 1993 Special Use Permit condition which establishes a cap on enrollment at Loyola Academy of 2,000 students. Under the modified language, the 2,000-student cap on enrollment would remain in place, but Loyola Academy would not be deemed to be in violation of this condition as long as the cap was not exceeded by more than 10% in any given school year. This "buffer" is proposed to account for yearly fluctuations in student acceptance and retention. Because increases in the student body can have an effect on transportation conditions, Kimley-Horn assumed the maximum possible enrollment of 2,200 students in order to undertake a conservative analysis of potential transportation impacts.

This report presents and documents Kimley-Horn's data collection and field observations of traffic, pedestrian, parking, and transit conditions in the surrounding area. The anticipated effect of the proposed project on these items is detailed, and recommendations to promote safe and efficient traffic conditions within the study area are identified.

Kimley»Horn

EXHIBIT 1
SITE LOCATION MAP

2. EXISTING CONDITIONS

Kimley-Horn conducted a field visit to collect relevant information pertaining to existing land uses in the surrounding area, the adjacent street system, current traffic volumes and operating conditions, lane configurations and traffic controls at nearby intersections, and other key roadway characteristics. This section of the report details information on these existing conditions.

2.1. Loyola Academy and Surrounding Land Uses

The Loyola Academy site is bound by Laramie Avenue on the west, Illinois Road on the north, Lake Avenue on the south, and Interstate 94 on the east. The school day begins at 7:45AM and ends at 3:00PM; faculty and staff are contractually obligated to arrive before 7:30AM and leave after 3:30PM. Some students may arrive later than 7:45AM or leave earlier than 3:30PM if they have a free period at the beginning or end of the school day. As of Spring 2017 semester, there are 2,043 students at Loyola Academy and 308 members of faculty and staff.

The school is currently served by 627 parking spaces, including 10 handicap-accessible spaces and 30 spaces reserved for visitors, volunteers, and specific user groups. Student parking is allowed at the school on a permit-only basis. The school distributes 382 student parking permits (350 of which are for on-campus parking spaces) to seniors only, using a lottery system. Access to Loyola Academy is currently provided via four access driveways on Laramie Avenue (including one outbound-only driveway (Access E) and one driveway with outbound movements restricted to left turns only (Access F) and two access driveways on Illinois Road. For the purpose of this study, the Laramie Avenue access driveways are labeled Access A through Access F, beginning at the northeastern corner of campus and proceeding in a counterclockwise direction.

Residential neighborhoods are located to the immediate north and west of the school. To the south, Lake Avenue frontage is occupied by a variety of commercial uses to the immediate west of Laramie Avenue, including an auto service center, Dairy Queen, a gas station, an office building with neighborhood ground-floor retail, and a Starbucks coffee shop. Additional retail and restaurant uses are also located nearby in the Edens Plaza shopping center, located on the east side of I-94 directly opposite Loyola Academy and accessible via both Lake Avenue and Skokie Boulevard. Beyond these commercial uses, the rest of the area is largely residential and recreational in nature.

2.2. Roadway Network

A field investigation was conducted within the study area and along the study segments of Laramie Avenue, Lake Avenue, Illinois Road, Frontage Road, Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue. Based on this approach and other information observed in the field, the following information was obtained about the existing roadway network.

Laramie Avenue is a north-south roadway that runs along the western edge of the Loyola Academy site. Throughout the study area, Laramie Avenue provides one travel lane in each direction and a center lane for left-turns. At its signalized intersection with Lake Avenue, Laramie Avenue provides a dedicated left-turn lane, a shared through/right-turn lane, and a single receiving lane on the north and

south approaches. Laramie Avenue meets Illinois Road at a T-intersection that operates under all-way stop control. At Illinois Road, Laramie Avenue provides separate left- and right-turn lanes for northbound traffic and a single receiving lane for southbound traffic. A 30MPH speed limit is posted on Laramie Avenue, along with a 20 MPH School Zone speed limit in the southbound direction. Laramie Avenue is under the jurisdiction of the Village of Wilmette.

Lake Avenue is a four-lane, east-west roadway that runs along the southern edge of the Loyola Academy site. At its signalized intersection with Laramie Avenue, Lake Avenue provides a dedicated left-turn lane and two through lanes (with shared right-turn movement) on the west leg, while the east leg provides a dedicated left-turn lane, two through lanes, and an exclusive right-turn lane. Approximately 300 feet east of Laramie Avenue, Lake Avenue meets I-94 and provides access to/from the south via four directional ramps. A 35 MPH speed limit is posted within the study area. Lake Avenue is under the jurisdiction of the Cook County Department of Transportation and Highways (CCDOTH).

Illinois Road is a two-lane, east-west roadway located immediately north of the Loyola Academy site. At its all-way stop-controlled intersection with Laramie Avenue, Illinois Road provides a shared left-turn/through lane and a single receiving lane on the east leg. On the west leg, a shared through/right-turn lane and a single receiving lane is provided. A 30 MPH speed limit is posted in the vicinity. Illinois Road is under CCDOTH jurisdiction west of Laramie Avenue and under Village jurisdiction east of Laramie Avenue.

Frontage Road is a two-lane, north-south roadway that extends north from Illinois Road in the vicinity of Loyola Academy. At its T-intersection with Illinois Road, Frontage Road provides a single approach lane and operates under minor-leg stop control. A 30 MPH speed limit is posted within the study area. Frontage Road is under the jurisdiction of the Illinois Department of Transportation (IDOT).

Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue are east-west local roadways that extend west from Laramie Avenue near the Loyola Academy site and end at Manor Drive. All three roadways are bidirectional with a single travel lane in each direction. On-street parking is generally permitted on these roadways for vehicles with a residential parking permit. A 25 MPH speed limit is posted on Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue. These roadways are under the jurisdiction of the Village of Wilmette.

2.3. Pedestrian Accommodations

The Laramie Avenue corridor currently includes sidewalks on the east and west sides extending from Illinois Road to south of Lake Avenue. Lake Avenue also provides sidewalks on both sides within the study area. Pedestrian crosswalks are provided on all legs of the Laramie Avenue/Illinois Road and Lake Avenue/Laramie Avenue intersections with pedestrian signal heads provided at Lake/Laramie. These pedestrian phases at Lake/Laramie are triggered manually via push buttons.

Marked crosswalks are provided on the west leg of every intersection on Laramie Avenue between Illinois Road and Lake Avenue, including Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue. Across Laramie Avenue itself, a single mid-block crosswalk is striped immediately south of

Access D (between Thornwood Avenue and Greenwood Avenue). This crosswalk uses continental-style (high-visibility) striping and connects the school to a Pace Bus shelter on the west side of the street.

2.4. Transit Service

The study area is serviced by three Pace Suburban Bus routes, as detailed below:

- Route 421: Weekday service along Laramie Avenue, including specific stops at Loyola Academy during the school arrival and dismissal peak periods.
- Route 422: Weekday service to Loyola Academy during school arrival and dismissal peaks only.
- Route 423: Weekday service to Loyola Academy during school arrival and dismissal peaks only.

These bus routes connect Loyola Academy to the Linden CTA Station (Purple Line service to/from Chicago), the Harlem CTA Station (Blue Line service to/from Chicago), and Metra service along the Union Pacific North Line (Wilmette and Winnetka Stations) and Milwaukee District North Line (Glenview Station), as well as providing service to the communities of Wilmette, Winnetka, Northfield, Northbrook, Glenview, Morton Grove, Niles, Skokie, Evanston, and Chicago.

3. DATA COLLECTION & OBSERVATIONS

In order to document existing transportation conditions within the study area, Kimley-Horn performed turning movement counts and observed traffic operation during the school arrival and dismissal periods. These observations were supplemented with field notes obtained previously for a February 2016 study performed by Kimley-Horn for Loyola Academy. Details of these data collection efforts are provided in the following sections.

3.1. Traffic Count Data Collection

In order to determine current traffic activity within the study area, turning movement count data was collected on Tuesday, April 11, 2017, at the following locations:

- Illinois Road/Frontage Road/Access A
- Illinois Road/Access B
- Laramie Avenue/Illinois Road
- Laramie Avenue/Access C
- Laramie Avenue/Thornwood Avenue
- Laramie Avenue/Access D
- Laramie Avenue/Greenwood Avenue/Access E
- Laramie Avenue/Elmwood Avenue/Access F
- Lake Avenue/Laramie Avenue

The traffic counts were performed in the morning from 6:00-9:00 AM and in the afternoon from 2:00-6:00 PM in order to capture peak traffic volume during the school arrival and dismissal periods and during the typical commuter rush periods on the adjacent roadway network. The resulting traffic counts indicate that the heaviest traveled hours occur from 7:00-8:00AM in the morning, 3:00-4:00PM surrounding school dismissal and after school activities, and from 4:45-5:45PM during the evening rush period. Existing peak hour vehicle traffic volumes during these peak hours are presented in **Exhibit 2**.

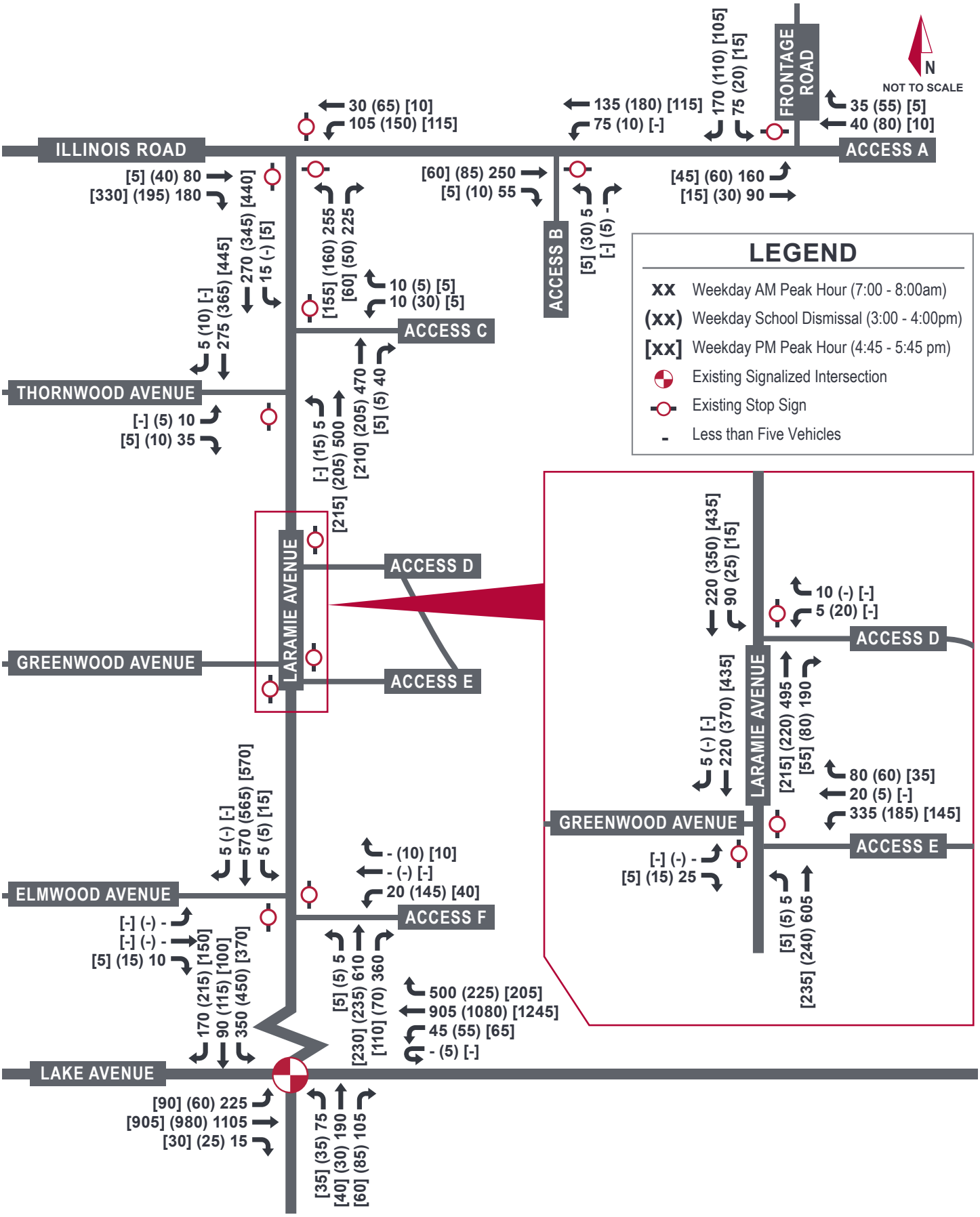

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EXHIBIT 2

EXISTING TRAFFIC VOLUMES

A review of the peak hour traffic volumes reveals several key details about travel patterns for Loyola-related vehicles and about the area roadway network. Based on turning movements at the Loyola Academy access driveways, roughly 75 percent of school-related trips are approaching from the south via Lake Avenue or Laramie Avenue. It can be assumed that a large portion of these vehicles are traveling to/from I-94 and other locations east of the school, as demonstrated by the heavy westbound right-turn at Lake/Laramie in the morning and the heavy southbound left-turn volume during school dismissal. Approximately 15 percent of Loyola trips travel to and from the west via Illinois Street, and roughly 10 percent travel via Frontage Road.

Traffic volumes turning onto and off Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue at Laramie Avenue are relatively low, and the predominant movement on these roadways is the eastbound right turn to southbound Laramie Avenue. During the morning peak hour, these may consist of residents who are leaving home to travel to work and parents dropping off students. During the school dismissal peak hour, many of these trips may be student vehicles departing their parking space leased from an area resident (as will be addressed further in the *Parking Demand Survey* discussion) or parents picking up students off site. A small number of vehicles can be noted exiting Loyola Academy and traveling westbound from Access E onto Greenwood Avenue (roughly 20 vehicles in the morning and 5 vehicles during school dismissal). Only one vehicle was observed performing a similar movement from Access F onto Elmwood Avenue during the dismissal peak hour, and no vehicles performed this movement from Access F during the morning and evening peak hours. The number of vehicles documented turning onto these local streets from Laramie Avenue range from 5 to 25 per roadway during each peak hour.

3.2. Peak Period Observations

In multiple field visits conducted since December 2015, Kimley-Horn has been on site during the school arrival and dismissal peaks to observe traffic circulation and congestion, pick-up/drop-off behaviors, pedestrian activity, and transit routing. Observations were focused along Laramie Avenue and at the Laramie Avenue access driveways, but also included the school's main entrance pick-up/drop-off area, the Lake Avenue/Laramie Avenue intersection, Illinois Road, and Frontage Road. Key findings of these observations are summarized below:

Traffic Operation and Pick-up/Drop-off Behavior

Peak congestion on the Laramie Avenue corridor was observed from approximately 7:20-8:00AM during the school arrival period and from approximately 3:00-3:40PM during the school dismissal period. Concentrated congestion lasting for 20 to 30 minutes is common at schools, since the majority of users are arriving and departing at the same time. It should be noted that the Laramie Avenue corridor not only provides direct access to Loyola Academy, but is also a primary route for the New Trier High School Northfield Campus, located less than one mile to the northwest. While Kimley-Horn's observations were focused on the access driveways and traffic circulation for Loyola Academy, some of the background traffic volume observed within the study area is related to the nearby New Trier campus.

As noted previously, a significant portion of Loyola Academy-related vehicles are traveling to/from the south via Laramie Avenue and ultimately via I-94 and other locations east of school. This predominant travel pattern resulted in significant queues that were seen on northbound Laramie

Avenue and extend onto westbound Lake Avenue during portions of the morning peak hour. The close proximity of the I-94 interchange on Lake Avenue further complicates the congestion at this location, since the tight spacing between the intersection and interchange ramps restricts the length of the westbound right-turn lane on Lake Avenue at Laramie Avenue. The short storage length provided for this turn lane can result in queue starvation during periods when heavy westbound commuter traffic is present, further exacerbating delay on westbound Lake Avenue. Because some students are dropped off at school, there was also a notable southbound queue of departing parents' vehicles on Laramie Avenue that extended as far as the existing Loyola Academy tennis courts and was observed from approximately 7:30-7:45AM.

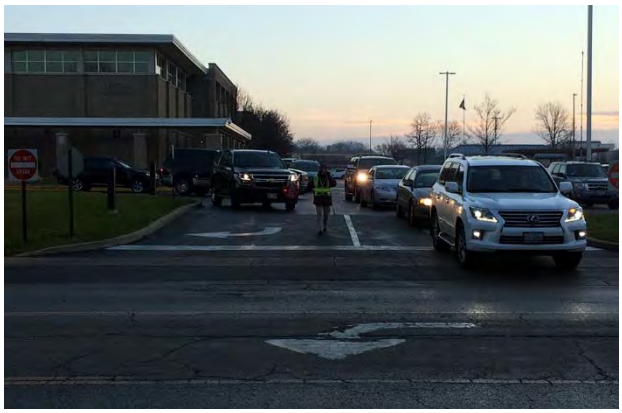

Image 1 Looking east at traffic exiting Access E before school (7:26 AM)

Image 2 Looking north along Laramie Avenue from Elmwood Avenue before school (7:40 AM)

During school dismissal, Kimley-Horn observed parent vehicles parked near the main entrance as early as 2:20PM in anticipation of the 3:00PM release. Shortly before 3:00PM, more than 20 vehicles were staged near the main entrance, 15 vehicles were observed on Greenwood Avenue, and 17 cars were counted on Thornwood Avenue. After the school bell rang, the departure of parent and student vehicles from both on-site parking lots and from residential driveways to the west resulted in a highly concentrated volume of traffic on southbound Laramie Avenue, in particular. Because a significant portion of these southbound vehicles are making a left turn onto Lake Avenue, the signalized intersection at Lake/Laramie is a controlling factor in the release of traffic from southbound Laramie Avenue and the study area. For a period of nearly 20 minutes, southbound queues were observed extending from Lake Avenue onto Illinois Road. Other factors affecting queues during the school dismissal period include the need for crossing guards to stop traffic on Laramie Avenue in order to allow pedestrians to cross and/or release traffic exiting the Loyola Academy site and local side streets. During observations, peak outbound movement from Loyola Academy was largely completed by 3:20PM and queues on Laramie Avenue had significantly subsided by 3:25PM.

Image 3 Vehicles staged for pick-up on Thornwood Avenue at dismissal (3:00 PM).

Image 4 The pick-up queuing on site in front of the main entrance south of Access D (3:01 PM)

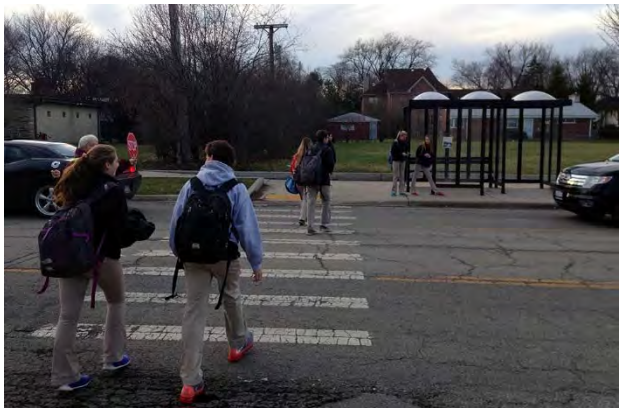

Image 5 Students crossing Laramie Avenue using the marked crosswalk after dismissal (3:08 PM).

Image 6 Looking north along Laramie Avenue from Access D at the southbound queue after dismissal (3:13 PM)

Pedestrian Activity

During the school dismissal period in particular, a high volume of Loyola students was observed crossing Laramie Avenue at a variety of locations along the school frontage. These students were seen walking to the Pace bus shelter on the west side of Laramie Avenue at Access D, to awaiting vehicles on both Thornwood and Greenwood Avenues, and to vehicles that park in area residential driveways during the school day. Traffic control aides were observed managing pedestrian crossings in order to concentrate the platoons of pedestrians to guarded locations and allow students to cross safely, as well as to minimize the frequency of disruptions to the heavy traffic volume on Laramie Avenue.

Because students have a variety of destinations to walk to after school, pedestrian crossing locations were not confined only to the marked crosswalk on Laramie Avenue at Access D or to locations that were managed by traffic aides. Observed pedestrian desire paths also include routes on the site near

the main entrance across the pick-up/drop-off lanes, through the landscaping and parkway to Laramie Avenue, and in various locations across Laramie Avenue north of Greenwood Avenue.

Transit Routing

Before the first bell, Pace buses were observed arriving sporadically at Loyola Academy. Stops took place on north- and southbound Laramie Avenue and within the Loyola Academy parking lot.

During school dismissal, five Pace buses from the three routes that serve Loyola Academy were seen staged on site waiting for students to be released. These buses all approached from the south via Laramie Avenue and entered at Access D to wait in the parking lot immediately north of this driveway. As shown in **Image 7** below, these buses did not obstruct pick-up activity. A school traffic aide manages the queuing for parent vehicles in the pick-up area in front of the main entrance so that vehicles do not block entry for the Pace buses at Access D. Because these buses were staged in a parking lot designated for faculty and staff (who are contractually obligated to remain on site until 3:30PM), these buses also did not obstruct vehicles departing from the parking lot. After students had boarded, all five buses departed via Access C, with four returning toward the south and one turning north.

Image 7 Pace buses stage on the west side of the school between Access C and Access D before school dismissal

4. PROPOSED MASTER PLAN IMPROVEMENTS – PHASE I

As shown on the Master Plan in the attached appendix, proposed Phase I improvements for the Loyola Academy campus include an expansion of the existing aquatic center and several modifications to the existing transportation and parking network. A summary of these transportation-related elements is provided below.

Increased Parking Supply On Campus

With an expanded parking lot in the southwest corner of the campus, a total of 756 spaces would be provided on campus, a 129-space increase over existing conditions. This will accommodate Loyola Academy's 308 staff/faculty members, 375 student parking spaces (equivalent to roughly 75 percent of the senior class), 73 visitor spaces.

Improved Access & Circulation Plan

To promote more efficient traffic flow both on and off-campus during peak periods, the following access modifications are recommended under the Master Plan's Phase I. An illustration of these changes is provided on **Exhibit 3**.

- Access E will be modified to allow inbound and outbound traffic during non-peak periods. During the school arrival and dismissal peaks, this access will be managed by one of the school's traffic control personnel and will serve outbound traffic only, as it does today.
- Access F will be shifted approximately 90 feet south to accommodate the revised on-site circulation plan and in anticipation of further infrastructure improvements under Phase II of the Master Plan. This access will operate as inbound-only during the morning peak hour and outbound-only during the school dismissal peak hour in order to better support the heavy directional traffic volumes that occur during these time periods. At all other times of day, Access F will operate with a single inbound lane and a single outbound lane.
- Access G is a new access driveway that will be located at the southern edge of the expanded southwestern parking lot. Operating as an inbound-only driveway at all times, Access G will serve as the main entrance for pick-up/drop-off activity during the school arrival and dismissal periods.

These access changes support a revised on-site pick-up/drop-off plan that increases the capacity for on-site vehicle stacking and allows traffic to move through the campus more efficiently than it does under current conditions.

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EXHIBIT 3

PROPOSED CAMPUS ACCESS CONFIGURATION

In order to provide detailed guidance on how to promote efficient traffic operation and pedestrian safety following the implementation of the Master Plan improvements, a Transportation Management Plan (TMP) was prepared. This TMP builds upon the findings of a February 2016 study performed by Kimley-Horn, which included recommendations for improved pedestrian accommodations, a new northbound bus stop, and changes to the pick-up/drop-off pattern in order to provide more on-site vehicle stacking. As illustrated on the TMP (included in the study appendix), traffic management personnel will be placed at strategic locations to provide guidance and promote safe and efficient transportation operation during the busy arrival and dismissal periods. A summary of the changes recommended in the TMP and their associated benefits is provided in **Table 1**.

Table 1. Summary of Traffic Management Plan Key Elements

Category	Existing Condition	Proposed Condition	Anticipated Benefits
Traffic Operation & Circulation	Pick-up/drop-off vehicles enter at Access D and exit from Access E, creating a conflict point where inbound and outbound vehicles cross paths at Laramie Avenue/Access E.	Pick-up/drop-off vehicles approaching from the south will generally enter via Access G and exit via Access E. Pick-up/drop-off vehicles approaching from the north will enter via Access D and exit via Access E.	The heaviest movements of inbound and outbound traffic (to and from the south on Laramie Avenue) will no longer cross paths with each other, thus eliminating a conflict point and allowing traffic management personnel to move traffic through the area more efficiently.
	Pick-up/drop-off vehicles stack in various locations, including along the main entrance between Access D and Access E, in the southwestern parking lot, and on neighborhood streets.	On-site stacking for 82 vehicles will be provided.	All drop-off and pick-up activity is accommodated on school property. Pick-up/drop-off activities off site will be discouraged and within campus parking lots will be encouraged by increasing the space for and efficiency of on-site vehicle stacking.
	Cars stack along adjacent neighborhood streets as parents pick up (and some drop off).	School staff will place portable "No Student Drop-Off / Pick-Up" signs on neighborhood streets while periodically patrolling to promote compliance with the restrictions.	In combination with increased capacity on the school's property and more efficient access and circulation paths, this restriction and placement of associated portable signs will help shift drop-off/pick-up activity from neighborhood streets the school property

Table 1. Summary of Traffic Management Plan Key Elements

Category	Existing Condition	Proposed Condition	Anticipated Benefits
Traffic Operation & Circulation (cont.)	The signalized intersection of Lake Avenue and Laramie Avenue runs an actuated timing plan during the school dismissal peak with Lake Avenue receiving priority.	Station a police officer (or other authorized personnel) at the Lake Avenue/Laramie Avenue intersection to control signal timings manually during peak school arrival and dismissal periods.*	This will allow congestion at Lake Avenue/Laramie Avenue to be managed in a more dynamic manner in order to dissipate school traffic more quickly during the school peaks.
	School traffic aides are posted at 2 (AM) / 4 (PM) locations along Laramie Avenue.	Post school traffic aides at: - 3 driveways on Laramie - 4 internal locations	Additional personnel will increase management of traffic on-site while controlling exiting traffic to Laramie Avenue with fewer conflict points.
Pedestrian Accommodations	Students departing the campus on foot leave the main entrance and walk directly west toward the existing southbound bus stop and vehicles parked in the adjacent neighborhood, resulting in numerous pedestrians crossing at unmarked locations on Laramie Avenue, particularly between the school's main entrance and Greenwood Avenue.	Install additional sidewalk connections and erect a fence along the east side of Laramie between Accesses D and E to direct pedestrian traffic toward new and improved marked crosswalks.	By concentrating pedestrian activity at visibly marked locations, traffic management personnel will be better equipped to facilitate safe pedestrian crossings.
	One high-visibility crosswalk is striped on Laramie Avenue immediately south of Access D.	• Stripe high-visibility continental-style crosswalks at additional key crossing locations on Laramie Avenue. • Post appropriate signage to alert drivers to the presence of pedestrians.	This will improve driver awareness of the likely presence of pedestrians, and communicate the need for drivers to yield the right-of-way to pedestrians in the crosswalk.

* - Subject to receipt of necessary governmental approvals

Table 1. Summary of Traffic Management Plan Key Elements (continued)

Category	Existing Condition	Proposed Condition	Anticipated Benefits
Communications	Limited notification of school traffic, parking, and drop-off / pick-up instructions is formally communicated to students, parents, and neighbors.	Improved communication methods and frequency to students, parents, and neighbors: • Include the TMP in the school handbook, which is signed in acknowledgement by parents and students prior to each academic year • Regular e-mail reminders • Website • Social media	Increased education and promotion with recognition of plan will help facilitate adherence to the plan and an understanding of expectations for students and staff.

5. ANALYSIS AND RECOMMENDATIONS

In order to assess the impact of the proposed improvements under Phase I of the Master Plan—as well as the potential for increased student enrollment—Kimley-Horn evaluated future traffic operations during the morning, school dismissal, and evening peak hours.

5.1. Future Traffic Volumes & Travel Patterns

Three key elements were considered in the development of future traffic volumes within the study area: the redistribution of existing traffic to fit the proposed campus access and circulation plan, additional traffic related with new student parking passes, and pick-up/drop-off activity associated with a student enrollment that may exceed the cap on student enrollment by up to 10%. Each factor is detailed in the following sections.

Redistribution of Existing Traffic

Based on the planned modifications to the campus access configuration and on-site circulation plan, existing travel patterns during the peak hours are expected to change. These changes, illustrated on **Exhibit 4**, were based on the assumptions detailed below:

- During the morning and school dismissal peak hours, it was assumed that 90 percent of northbound right turns at Access D would shift to Access G in order to follow the new on-site circulation plan for school pick-up and drop-off. This percentage allows for the possibility that some parents may elect to continue pick up and drop off near the main entrance. It was assumed that southbound left turns at Access D will maintain their current travel pattern, and so no adjustments were made to this volume.
- Access E will operate as an outbound-only driveway during the morning and school dismissal peak hours when traffic management personnel are present to direct traffic. At all other times, this driveway will serve two-way traffic. To reflect this new opportunity to enter the campus via Access E during the evening peak hour, all southbound left turns at Access F were shifted to Access E. Similarly, half of northbound right turns at Access F were reallocated to Access E during the evening peak hour.

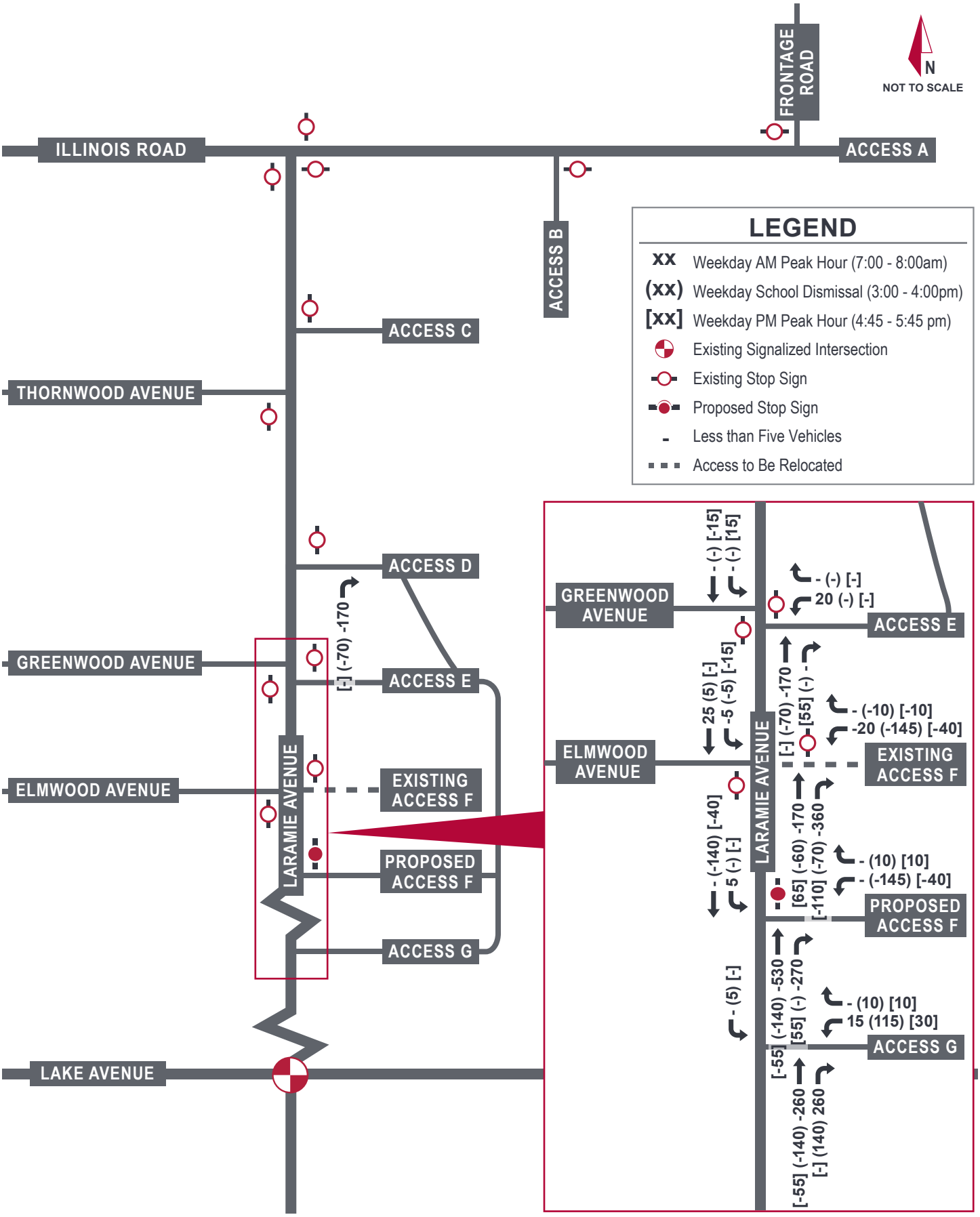

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EXHIBIT 4

REDISTRIBUTION OF EXISTING TRAFFIC

- As noted previously, Access F will be inbound-only during the morning peak hour and outbound-only during the school dismissal peak. For the remainder of the day, Access F will support two-way traffic. To reflect these directional restrictions, the following adjustments were made:
  - During the morning peak hour (when Access F is inbound-only), all outbound traffic on Access F was shifted to Access E (which will operate as outbound-only during the morning and school dismissal peak hours). Additionally, approximately 75 percent of northbound right turns were shifted from Access F to Access G to reflect the new circulation plan in the TMP.
  - During the school dismissal peak (when Access F is outbound-only), all inbound traffic at Access F was shifted to Access G in accordance with the proposed pick-up/drop-off circulation plan.

With increased space for vehicle stacking, parents will be encouraged to perform all pick-up/drop-off activities on campus during the school dismissal period, rather than on neighborhood streets west of the school. To account for this possibility, Kimley-Horn added 45 pick-up/drop-off trips to the study network during the school dismissal period. This value was estimated based on field observations of pick-up/drop-off activity on neighborhood streets, as well as a review of existing traffic volumes turning onto and off of Thornwood Avenue, Greenwood Avenue, and Elmwood Avenue.

In order to provide a conservative analysis, these 45 trips were added as new traffic within the study area, rather than subtracting this volume from the neighborhood streets. The assignment of these new trips is based on the existing trip distribution of Loyola Academy traffic, which was discussed briefly in *Section 3.1. Traffic Count Data Collection* and is summarized in **Table 2** below.

Table 2. Distribution of New Loyola Academy Trips

Travel to/from	Percent of Trips
North via Frontage Road	10%
South via Laramie Avenue	15%
East via Lake Avenue	40%
West via Lake Avenue	20%
West via Illinois Road	15%
Total	100%

Exhibit 5 illustrates the resulting trip assignment for vehicles that are expected to shift from the neighborhood streets to perform pick-up/drop-off on campus.

New Student Parking on Campus

As a result of the planned increase in campus parking supply, Loyola Academy plans to offer an additional 25 on-campus parking permits to seniors. This brings the number of on-campus student parking permits to 375, equivalent to roughly 75 percent of the senior class. To account for the additional traffic associated with these new permits, 25 trips were assigned to the study area based

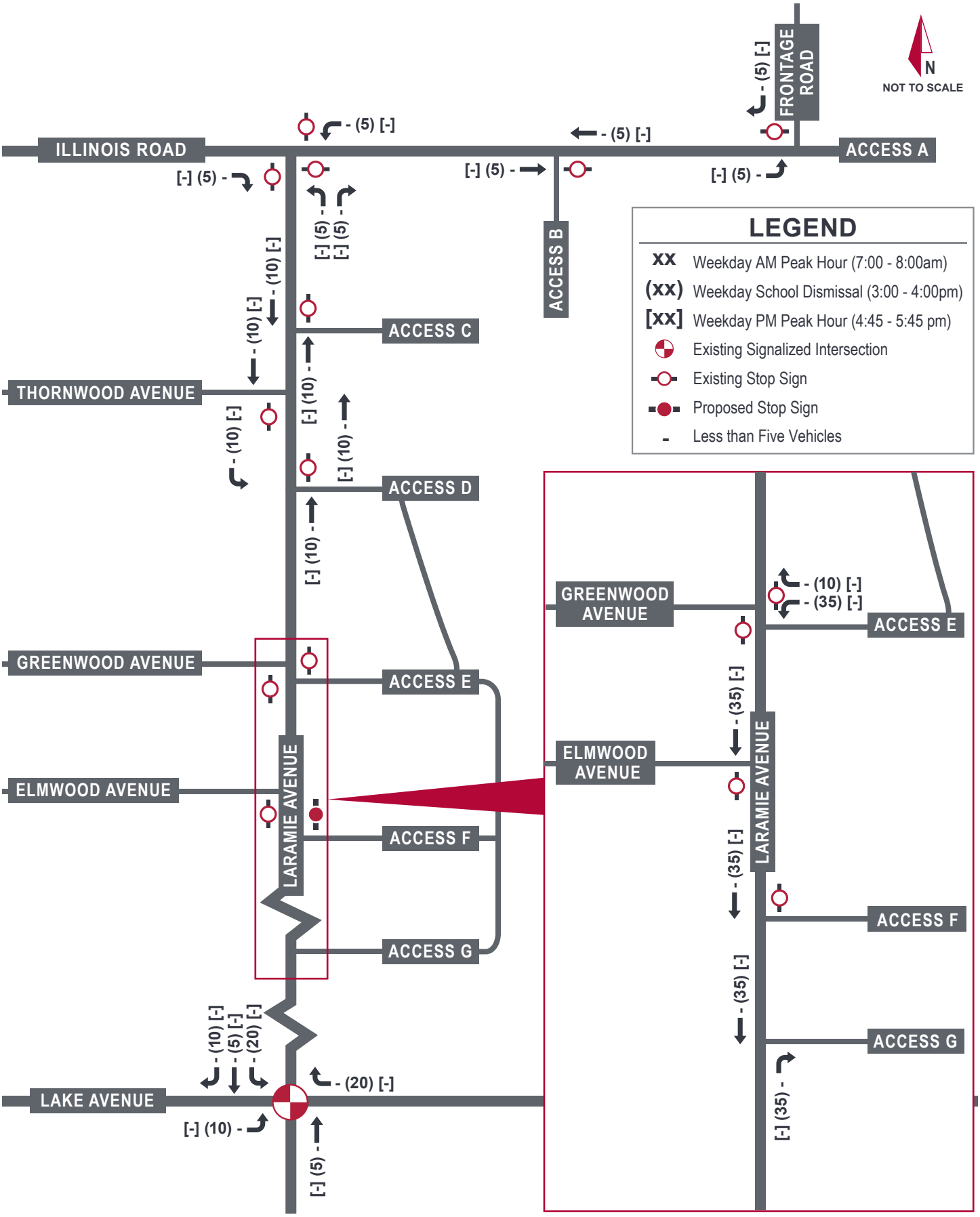

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EXHIBIT 5

TRIP ASSIGNMENT - SHIFTED PICK UP

on the trip distribution shown previously in Table 2. The resulting trip assignment is illustrated in **Exhibit 6**.

Pick-Up/Drop-Off Based on Fluctuations in Student Enrollment

In recognition of Loyola Academy's request to modify the language of the enrollment cap condition, this study considers the potential for increased pick-up/drop-off activity. To undertake a conservative analysis, Kimley-Horn assumed the maximum possible enrollment of 2,200 students. This is an increase of 157 students over the Spring 2017 enrollment of 2,043 students.

In order to estimate the change in pick-up/drop-off traffic that may result from this level of student enrollment, Kimley-Horn relied upon the results of an online travel survey that was distributed to all Loyola students. The survey collected data regarding various student transportation characteristics, including mode share, parking, and vehicle occupancy. The following outlines a few data highlights from the survey.

- 14.6 percent of students use transit, walk, or bike to school
- 85.4 percent of students either drive and park, carpool with a student who parks, or get dropped off/picked up
- 38 percent of those traveling to school by car are dropped off and picked up
- Of those dropped off and picked up, vehicle occupancy is reported at 1.62 students/vehicle

Based on these surveyed characteristics and the fact that each pick-up/drop-off vehicle generates two trips (one entering and one exiting), campus-related traffic is expected to increase at a rate of 0.4 trips per additional student, as detailed below.

85.4%	x	38%	÷	1.62	x	2	=	0.4
auto-oriented trip		drop-off/pick-up		students per vehicle		trips (enter + exit)		trips/student

This trip generation rate was used to calculate the projected increase in pick-up/drop-off traffic during the morning peak hour and the school dismissal peak, as shown below in **Table 3**.

Table 3. Projected Future Increase in Pick-Up/Drop-Off Trips

Maximum Potential Increase in Student Enrollment	Trip Generation Rate per Student	Weekday Morning Peak Hour			School Dismissal Peak Hour		
		In	Out	Total	In	Out	Total
157 Students	0.4	35	35	70	35	35	70

Using the trip distribution percentages shown in Table 2, these new pick-up/drop-off trips were assigned to the study intersections as presented in **Exhibit 7**.

Existing traffic volumes (Exhibit 2) were adjusted according to the anticipated redistribution of travel patterns and new trips (Exhibits 4 through 7) to develop future traffic projections within the study area. These volumes, shown in **Exhibit 8**, provide the basis for a capacity analysis of future traffic operation at Loyola Academy.

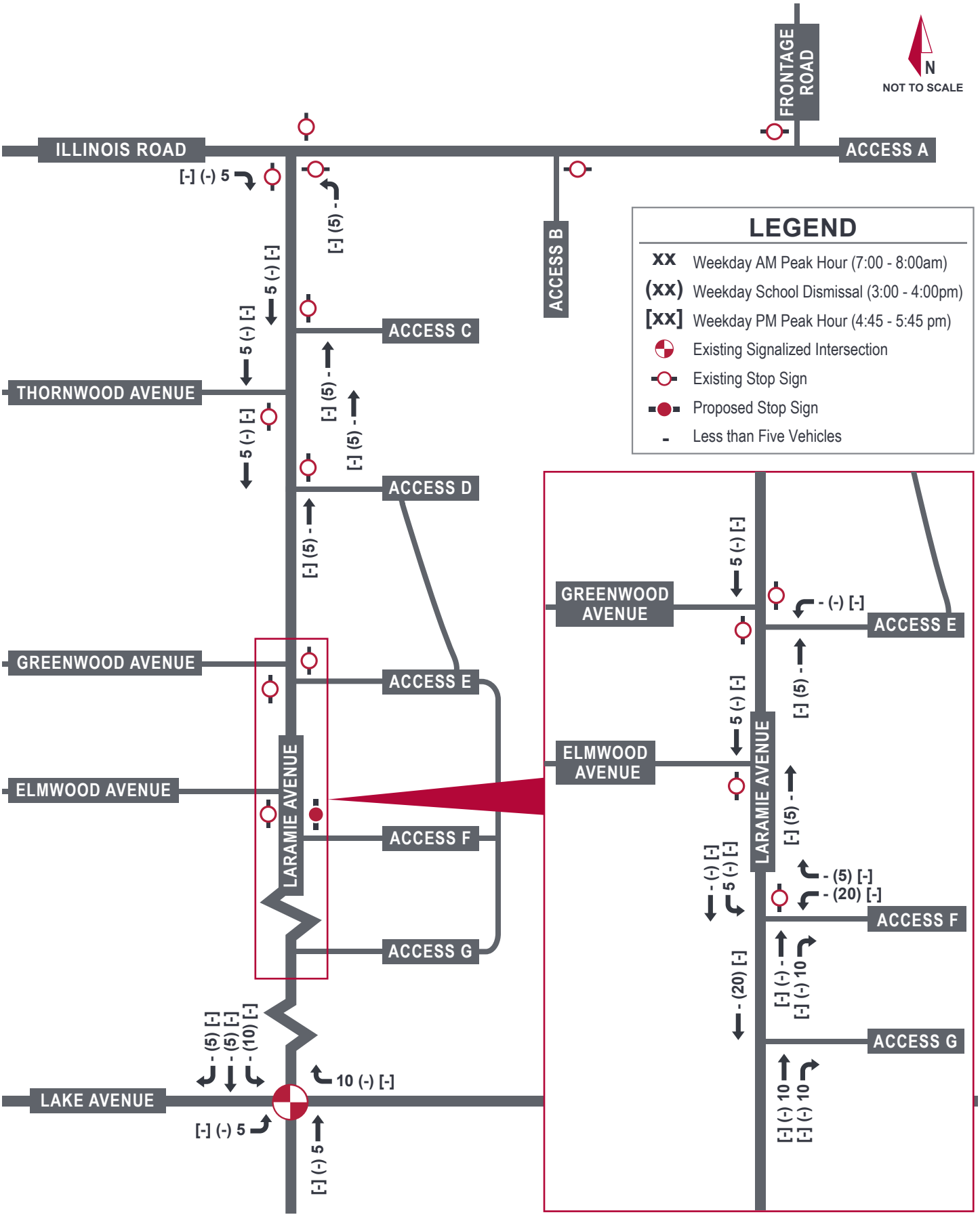

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EXHIBIT 6

TRIP ASSIGNMENT - STUDENTS WITH PARKING PASSES

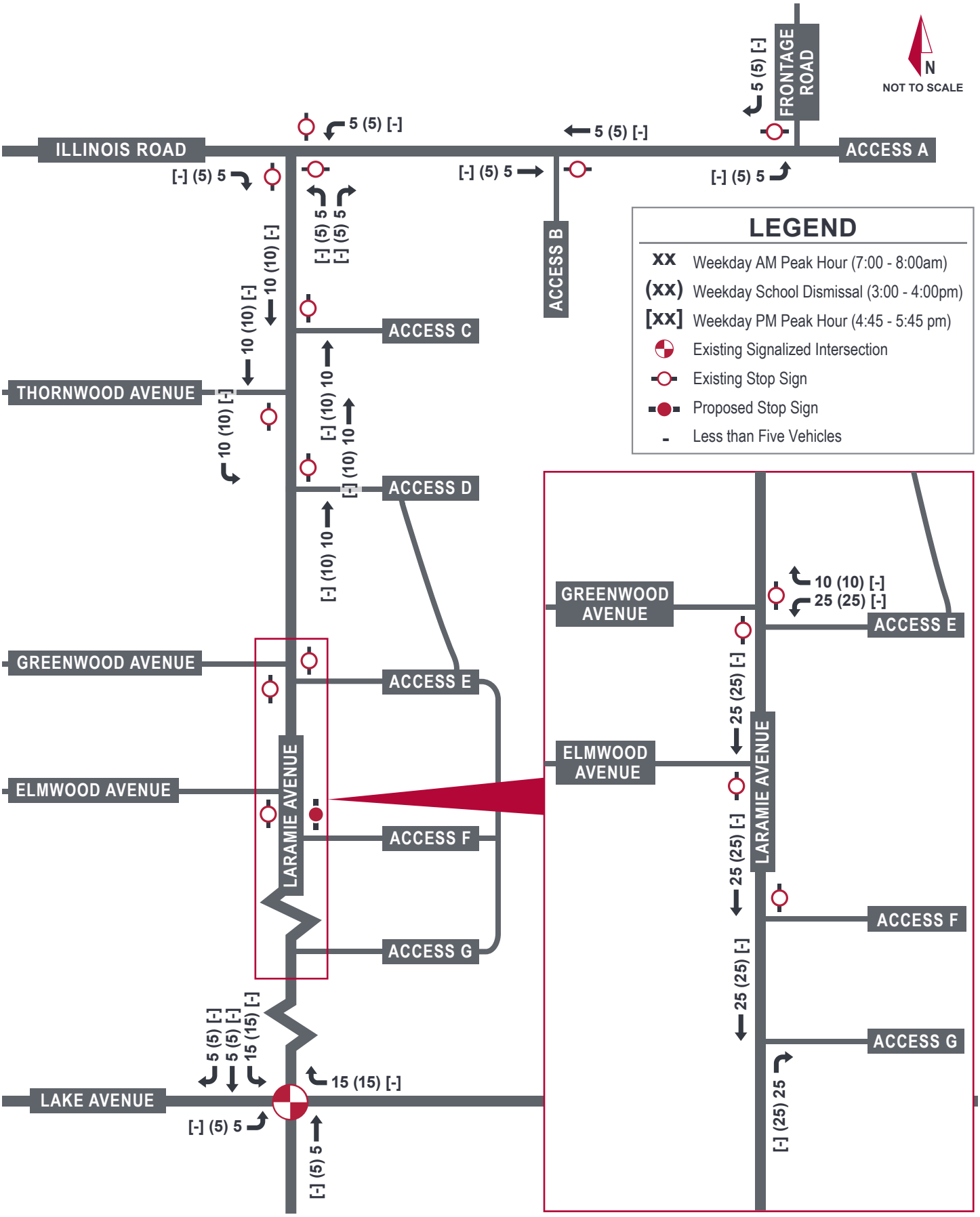

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EXHIBIT 7

TRIP ASSIGNMENT - NEW PICK UP/DROP OFF

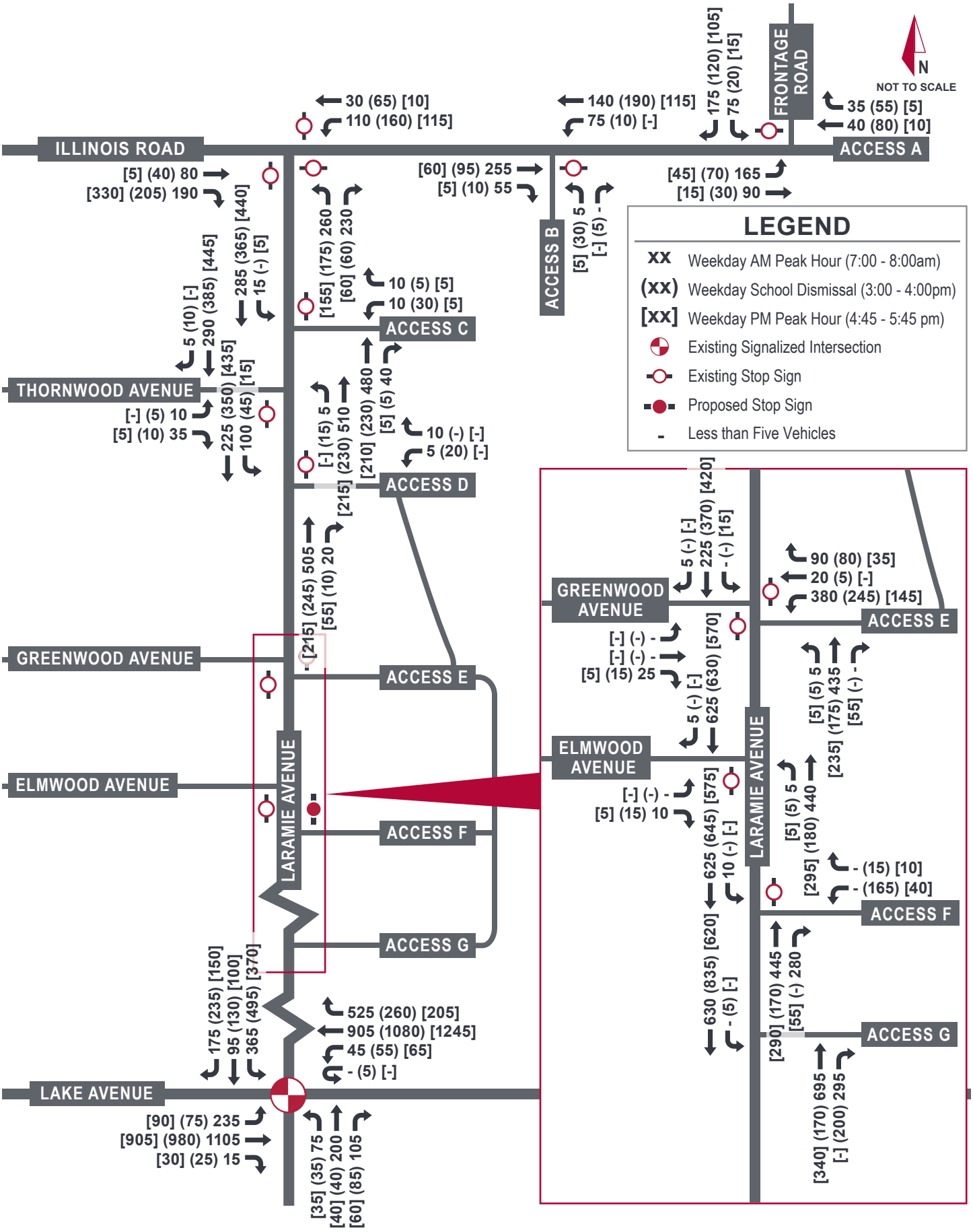

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EXHIBIT 8

FUTURE TRAFFIC PROJECTIONS

5.2. Capacity Analysis

The capacity of an intersection quantifies its ability to accommodate traffic volumes and is expressed in terms of level of service (LOS) according to the average delay per vehicle as it passes through the intersection. Levels of service range from A to F with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions).

Capacity analysis was performed with the use of Synchro software. It is important to note that Synchro evaluates traffic operation based on such characteristics as lane configuration, intersection control, and traffic volume in accordance with standard rules of the road. Due to the dynamic nature of intersection control under management by a crossing guard, Synchro may not yield results that are directly representative of traffic operation under these conditions. The results provided in this study can, however, provide a relative comparison of existing and future operational characteristics within the study area.

As noted previously, the TMP recommends that the Lake Avenue/Laramie Avenue intersection operate under manual control during the school dismissal peak in order to provide more dynamic congestion relief than can be achieved with an actuated signal. Under existing conditions, this intersection operates on a coordinated system along the Lake Avenue corridor, which requires a fixed cycle length of 90 seconds at the time of school dismissal. In order to approximate the recommended manual control in capacity analyses of the future dismissal peak, the Lake Avenue/Laramie Avenue intersection was set to run “free,” which means that the signal timings remain actuated but are not required to adhere to a set cycle length. The signal splits were also optimized.

Other improvements that were included in capacity analysis for future conditions include minor-leg stop control at all new or relocated access driveways and dedicated northbound right-turn lanes on Laramie Avenue at Access F and Access G. It is assumed that the median on Laramie Avenue would be restriped as marked on the Master Plan in order to facilitate or restrict inbound left turns as needed to conform to the recommended access modifications. Capacity analysis results are reported in **Table 4** by intersection and approach for the study periods for existing and future traffic conditions.

Table 4. Intersection Levels of Service

Intersection	Existing Conditions						Future Conditions					
	AM Peak		Dismissal Peak		PM Peak		AM Peak		Dismissal Peak		PM Peak	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Illinois Rd/Access A at Frontage Road △												
Eastbound	6	A	6	A	6	A	6	A	6	A	6	A
Southbound	37	E	14	B	9	A	41	E	15-	B	9	A
Illinois Road at Access B △												
Westbound	4	A	1	A	< 1	A	4	A	1	A	< 1	A
Northbound	17	C	13	B	9	A	17	C	13	B	9	A
Laramie Ave at Illinois Road ▲												
Eastbound	15-	B	12	B	10-	A	16	C	13	B	10-	A
Westbound	12	B	14	B	9	A	13	B	15-	B	9	A
Northbound	16	C	12	B	9	A	17	C	13	B	9	A
Intersection	*15+*	*C*	*13*	*B*	*10-*	*A*	*16*	*C*	*14*	*B*	*10-*	*A*
Laramie Ave at Access C △												
Westbound	16	C	12	B	11	B	16	C	13	B	11	B
Southbound (Left)	10-	A	8	A	8	A	10-	A	8	A	8	A
Laramie Ave at Thornwood Ave △												
Eastbound	12	B	12	B	11	B	12	B	12	B	11	B
Northbound (Left)	8	A	8	A	8	A	8	A	9	A	8	A
Laramie Ave at Access D △												
Westbound	15-	B	13	B	11	B	14	B	13	B	11	B
Southbound (Left)	10+	B	8	A	8	A	10-	A	8	A	8	A

★ – Signalized Intersection ▲ – All-Way Stop-Controlled Intersection △ – Minor-Leg Stop-Controlled Intersection

Table 4. Intersection Levels of Service (continued)

Intersection	Existing Conditions						Future Conditions					
	AM Peak		Dismissal Peak		PM Peak		AM Peak		Dismissal Peak		PM Peak	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Laramie Ave at Greenwood Ave/Access E △												
Eastbound	12	B	13	B	12	B	11	B	13	B	12	B
Westbound	129	F	19	C	14	B	87	F	23	C	16	C
Northbound (Left)	8	A	9	A	8	A	8	A	9	A	8	A
Southbound (Left)	N/A						N/A		N/A		8	A
Laramie Ave at Elmwood Ave/Existing Access F △												
Eastbound	18	C	19	C	13	B	18	C	20	C	13	B
Westbound	22	C	61	F	14	B	N/A					
Northbound (Left)	10+	B	11	B	9	A	11	B	12	B	9	A
Southbound (Left)	12	B	9	A	8	A	N/A					
Laramie Ave at Proposed Access F △												
Westbound	N/A						N/A		37	E	13	B
Southbound (Left)	N/A						10+	B	N/A		8	A
Laramie Ave at Access G △												
Southbound (Left)	N/A						13	B	9	A	8	A
Lake Avenue at Laramie Ave ★												
Eastbound	41	D	30	C	21	C	43	D	35-	C	21	C
Westbound	39	D	27	C	23	C	42	D	29	C	23	C
Northbound	38	D	14	B	23	C	39	D	21	C	23	C
Southbound	52	D	51	D	42	D	62	E	32	C	42	D
Intersection	*42*	*D*	*33*	*C*	*26*	*C*	*45*	*D*	*31*	*C*	*26*	*C*

★ – Signalized Intersection ▲ – All-Way Stop-Controlled Intersection △ – Minor-Leg Stop-Controlled Intersection

A review of capacity results reveals that traffic operation is relatively unchanged at several of the study intersections between existing and future conditions. At Access E, delay is expected to decrease for outbound Loyola Academy traffic during the morning peak hour, despite an anticipated increase in traffic volume. This improvement can be attributed to a reduction in conflicting northbound traffic, which is an outcome of the revised access and on-site circulation plan for drop-off and pick-up activity. For this same reason, Access E is only expected to experience a modest increase in delay during the future school dismissal peak, despite a 32 percent increase in outbound volume.

At the intersection of Lake Avenue/Laramie Avenue, it is anticipated that the presence of a police officer to control the signal timings manually could yield significant capacity benefits during the school dismissal peak. Based on the approximated methodology employed in this report, delay on southbound Laramie Avenue is shown to improve by 37 percent. Additionally, overall intersection delay is shown to decrease slightly during this peak. During the morning peak hour, the additional traffic associated with the increased student enrollment is shown to exacerbate operation for the southbound left turn, which operates at LOS E today. While the increase in traffic on southbound Laramie Avenue is relatively low (25 vehicles, or 4 percent of existing peak hour volume on this approach), the overall southbound level of service is shown to change from LOS D to LOS E. While the potential may exist to shift green time from northbound Laramie Avenue to the southbound left-turn movement in order to reduce this delay, this modification would encroach on the minimum pedestrian interval needed for the crosswalk on the east leg. As such, it may not be possible to modify the signal timings to provide a longer protected left-turn phase for southbound traffic.

Elsewhere in the study area, it can be noted that the southbound approach of Illinois Road/Frontage Road operates with high delay during the morning peak hour, and field observations of this approach revealed long queues during concentrated periods of congestion. The current southbound stop bar location is set back from the intersection, an issue that combines with residential landscaping to provide poor sight distance for southbound drivers to see approaching vehicles from the east. To improve this sight line, the relocation of this stop bar should be explored. Because Frontage Road is a State road, coordination with IDOT would be necessary.

With little to no change in operation at the remaining study intersections, it is generally anticipated that the recommended Phase I Master Plan improvements will yield benefits to traffic operation within the study area.

6. RECOMMENDATIONS & CONCLUSIONS

In order to assess the transportation-related implications of the Master Plan's Phase I improvements, an analysis was conducted to compare existing and future traffic operation within the study area. The results of this assessment reveal that traffic flow is expected to be generally improved following completion of the proposed modifications on and off the Loyola Academy campus. Several recommendations were identified to promote safe and efficient traffic operation within the study area as a part of these Master Plan improvements, as summarized below.

- Laramie Avenue/Access F:
  - Construct a northbound right-turn lane (125-foot storage, 155-foot taper) to facilitate inbound movements during the morning peak hour.
  - Post minor-leg stop control at Access F.
- Laramie Avenue/Access G:
  - Construct a northbound right-turn lane (125-foot storage, 155-foot taper) to facilitate inbound movements during the morning and school dismissal peaks.
  - Post minor-leg stop control at Access G.
- Re-stripe Laramie Avenue as marked on the Master Plan in order to provide marked pedestrian crosswalks at key locations and to facilitate or restrict inbound left turns in accordance with the recommended access modifications.
- Implement the strategies detailed on the Transportation Management Plan during the morning and school dismissal peaks, including:
  - Stationing a police officer (or other appropriate authority) at the Lake Avenue/Laramie Avenue intersection during the school dismissal period, if possible, in order to manually control the signal timings for more dynamic congestion management.
  - Installing traffic management personnel at key locations to promote pedestrian safety and the efficient movement of traffic into and out of the campus.
  - Implementing a revised access and on-site circulation plan that enables 82 vehicles to stack on campus simultaneously during peak pick-up/drop-off periods.

With these recommendations in place, it is anticipated that traffic operations within the vicinity of Loyola Academy will improve over existing conditions, resulting in a safer pedestrian environment, greater transit efficiency, and more efficient traffic flow on the area roadway network.

APPENDIX

Existing Capacity Reports

Future Capacity Reports

EXISTING SYNCHRO CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday School Dismissal Peak Hour

Weekday Evening Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	90	40	35	75	170
Future Volume (vph)	160	90	40	35	75	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.937		0.906	
Flt Protected		0.969			0.985	
Satd. Flow (prot)	0	1685	1629	0	1607	0
Flt Permitted		0.969			0.985	
Satd. Flow (perm)	0	1685	1629	0	1607	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)						26
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	286	161	71	63	134	304
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	447	134	0	438	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	90	40	35	75	170
Future Volume (Veh/h)	160	90	40	35	75	170
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	286	161	71	63	134	304
Pedestrians		26				
Lane Width (ft)		10.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		2				
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	134				836	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	134				836	128
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				51	66
cM capacity (veh/h)	1451				271	902

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	447	134	438
Volume Left	286	0	134
Volume Right	0	63	304
cSH	1451	1700	527
Volume to Capacity	0.20	0.08	0.83
Queue Length 95th (ft)	18	0	210
Control Delay (s)	5.8	0.0	37.1
Lane LOS	A		E
Approach Delay (s)	5.8	0.0	37.1
Approach LOS			E

Intersection Summary			
Average Delay	18.5		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	250	55	75	135	5	2
Future Volume (vph)	250	55	75	135	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.976				0.963	
Flt Protected				0.982	0.965	
Satd. Flow (prot)	1697	0	0	1707	1673	0
Flt Permitted				0.982	0.965	
Satd. Flow (perm)	1697	0	0	1707	1673	0
Link Speed (mph)	30			30	20	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	4.6	
Confl. Peds. (#/hr)		11	11		3	21
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Adj. Flow (vph)	403	89	121	218	8	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	0	0	339	11	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	250	55	75	135	5	2
Future Volume (Veh/h)	250	55	75	135	5	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	403	89	121	218	8	3
Pedestrians	3			21	11	
Lane Width (ft)	10.0			10.0	11.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			2	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			503		922	480
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			503		922	480
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		97	99
cM capacity (veh/h)			1051		262	571

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	492	339	11
Volume Left	0	121	8
Volume Right	89	0	3
cSH	1700	1051	308
Volume to Capacity	0.29	0.12	0.04
Queue Length 95th (ft)	0	10	3
Control Delay (s)	0.0	3.9	17.1
Lane LOS		A	C
Approach Delay (s)	0.0	3.9	17.1
Approach LOS			C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	80	180	105	30	255	225
Future Volume (vph)	80	180	105	30	255	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.907					0.850
Flt Protected				0.963	0.950	
Satd. Flow (prot)	1690	0	0	1674	1711	1531
Flt Permitted				0.963	0.950	
Satd. Flow (perm)	1690	0	0	1674	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		8	8		2	104
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	111	250	146	42	354	313
Shared Lane Traffic (%)						
Lane Group Flow (vph)	361	0	0	188	354	313
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 47.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	80	180	105	30	255	225
Future Volume (vph)	80	180	105	30	255	225
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	111	250	146	42	354	313

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	361	188	354	313
Volume Left (vph)	0	146	354	0
Volume Right (vph)	250	0	0	313
Hadj (s)	-0.38	0.19	0.53	-0.67
Departure Headway (s)	5.5	6.3	6.6	5.4
Degree Utilization, x	0.55	0.33	0.65	0.47
Capacity (veh/h)	636	539	528	650
Control Delay (s)	14.9	12.4	19.8	11.9
Approach Delay (s)	14.9	12.4	16.1	
Approach LOS	B	B	C	

Intersection Summary			
Delay	15.2		
Level of Service	C		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	10	470	40	15	270
Future Volume (vph)	10	10	470	40	15	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.989			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1578	0	1781	0	1711	1783
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1578	0	1781	0	1711	1783
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)				89	89	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	33%	8%	2%	2%	2%	3%
Adj. Flow (vph)	13	13	595	51	19	342
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	646	0	19	342
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	10	470	40	15	270
Future Volume (Veh/h)	10	10	470	40	15	270
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	13	13	595	51	19	342
Pedestrians	89					
Lane Width (ft)	15.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	11					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1090	710			735	
vC1, stage 1 conf vol	710					
vC2, stage 2 conf vol	380					
vCu, unblocked vol	1090	710			735	
tC, single (s)	6.7	6.3			4.1	
tC, 2 stage (s)	5.7					
tF (s)	3.8	3.4			2.2	
p0 queue free %	96	97			98	
cM capacity (veh/h)	353	379			778	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	646	19	342
Volume Left	13	0	19	0
Volume Right	13	51	0	0
cSH	365	1700	778	1700
Volume to Capacity	0.07	0.38	0.02	0.20
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	15.6	0.0	9.7	0.0
Lane LOS	C		A	
Approach Delay (s)	15.6	0.0	0.5	
Approach LOS	C			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	35	5	500	275	5
Future Volume (vph)	10	35	5	500	275	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.895				0.997	
Flt Protected	0.989		0.950			
Satd. Flow (prot)	1649	0	1711	1801	1771	0
Flt Permitted	0.989		0.950			
Satd. Flow (perm)	1649	0	1711	1801	1771	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)		2	4			4
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	2%	2%	2%	2%	3%	25%
Adj. Flow (vph)	13	46	7	658	362	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	7	658	369	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	35	5	500	275	5
Future Volume (Veh/h)	10	35	5	500	275	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	13	46	7	658	362	7
Pedestrians	4			2		
Lane Width (ft)	12.0			11.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1042	372	373			
vC1, stage 1 conf vol	370					
vC2, stage 2 conf vol	672					
vCu, unblocked vol	1042	372	373			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	93	99			
cM capacity (veh/h)	450	671	1181			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	59	7	658	369
Volume Left	13	7	0	0
Volume Right	46	0	0	7
cSH	605	1181	1700	1700
Volume to Capacity	0.10	0.01	0.39	0.22
Queue Length 95th (ft)	8	0	0	0
Control Delay (s)	11.6	8.1	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.6	0.1		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	10	495	190	90	220
Future Volume (vph)	5	10	495	190	90	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.908		0.963			
Flt Protected	0.984				0.950	
Satd. Flow (prot)	1831	0	1734	0	1711	1766
Flt Permitted	0.984				0.950	
Satd. Flow (perm)	1831	0	1734	0	1711	1766
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	28	4				
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%
Adj. Flow (vph)	6	13	627	241	114	278
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	868	0	114	278
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	495	190	90	220
Future Volume (Veh/h)	5	10	495	190	90	220
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	13	627	241	114	278
Pedestrians			28			4
Lane Width (ft)			11.0			11.0
Walking Speed (ft/s)			3.5			3.5
Percent Blockage			2			0
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1282	752			868	
vC1, stage 1 conf vol	748					
vC2, stage 2 conf vol	534					
vCu, unblocked vol	1282	752			868	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	97			85	
cM capacity (veh/h)	361	409			776	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	19	868	114	278
Volume Left	6	0	114	0
Volume Right	13	241	0	0
cSH	392	1700	776	1700
Volume to Capacity	0.05	0.51	0.15	0.16
Queue Length 95th (ft)	4	0	13	0
Control Delay (s)	14.6	0.0	10.4	0.0
Lane LOS	B		B	
Approach Delay (s)	14.6	0.0	3.0	
Approach LOS	B			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	25	335	20	80	5	605	0	0	220	5
Future Volume (vph)	2	0	25	335	20	80	5	605	0	0	220	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.877			0.880						0.997	
Flt Protected		0.996		0.950			0.950					
Satd. Flow (prot)	0	1598	0	1947	1803	0	1711	1895	0	0	1761	0
Flt Permitted		0.996		0.950			0.950					
Satd. Flow (perm)	0	1598	0	1947	1803	0	1711	1895	0	0	1761	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	88					88	28		4	4		28
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	3	0	32	429	26	103	6	776	0	0	282	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	429	129	0	6	776	0	0	288	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	25	335	20	80	5	605	0	0	220	5
Future Volume (Veh/h)	2	0	25	335	20	80	5	605	0	0	220	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	3	0	32	429	26	103	6	776	0	0	282	6
Pedestrians		28			4						88	
Lane Width (ft)		12.0			15.0						11.0	
Walking Speed (ft/s)		3.5			3.5						3.5	
Percent Blockage		3			0						8	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1305	1105	313	1109	1108	868	316			780		
vC1, stage 1 conf vol	313	313		792	792							
vC2, stage 2 conf vol	992	792		317	316							
vCu, unblocked vol	1305	1105	313	1109	1108	868	316			780		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	95	0	93	68	100			100		
cM capacity (veh/h)	167	365	703	347	364	323	1211			833		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	35	429	129	6	776	288
Volume Left	3	429	0	6	0	0
Volume Right	32	0	103	0	0	6
cSH	552	347	331	1211	1700	1700
Volume to Capacity	0.06	1.24	0.39	0.00	0.46	0.17
Queue Length 95th (ft)	5	470	45	0	0	0
Control Delay (s)	12.0	161.2	22.7	8.0	0.0	0.0
Lane LOS	B	F	C	A		
Approach Delay (s)	12.0	129.2		0.1		0.0
Approach LOS	B	F				

Intersection Summary			
Average Delay	43.6		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	10	20	1	1	5	610	360	5	570	5
Future Volume (vph)	1	1	10	20	1	1	5	610	360	5	570	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		100	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.882			0.995				0.850		0.999	
Flt Protected		0.997			0.955		0.950			0.950		
Satd. Flow (prot)	0	1638	0	0	1947	0	1711	1895	1583	1711	1797	0
Flt Permitted		0.997			0.955		0.950			0.950		
Satd. Flow (perm)	0	1638	0	0	1947	0	1711	1895	1583	1711	1797	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		663			1007			1000			327	
Travel Time (s)		18.1			34.3			22.7			7.4	
Confl. Peds. (#/hr)							83		11	11		83
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	17%
Adj. Flow (vph)	1	1	14	28	1	1	7	847	500	7	792	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	30	0	7	847	500	7	799	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	10	20	1	1	5	610	360	5	570	5
Future Volume (Veh/h)	1	1	10	20	1	1	5	610	360	5	570	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	1	1	14	28	1	1	7	847	500	7	792	7
Pedestrians		83			11							
Lane Width (ft)		12.0			15.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		8			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1000				
pX, platoon unblocked												
vC, conflicting volume	1755	2264	878	1692	1768	858	882			1358		
vC1, stage 1 conf vol	892	892		872	872							
vC2, stage 2 conf vol	862	1372		820	896							
vCu, unblocked vol	1755	2264	878	1692	1768	858	882			1358		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	96	88	100	100	99			99		
cM capacity (veh/h)	226	169	320	241	244	352	706			500		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	16	30	7	847	500	7	799
Volume Left	1	28	7	0	0	7	0
Volume Right	14	1	0	0	500	0	7
cSH	296	244	706	1700	1700	500	1700
Volume to Capacity	0.05	0.12	0.01	0.50	0.29	0.01	0.47
Queue Length 95th (ft)	4	10	1	0	0	1	0
Control Delay (s)	17.9	21.8	10.1	0.0	0.0	12.3	0.0
Lane LOS	C	C	B			B	
Approach Delay (s)	17.9	21.8	0.1			0.1	
Approach LOS	C	C					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	44.7%	ICU Level of Service	A	
Analysis Period (min)	15			

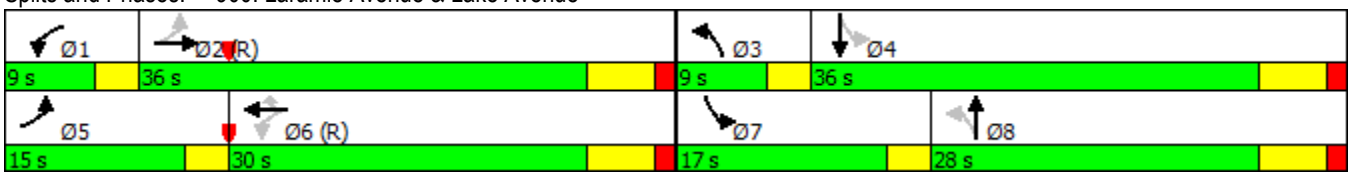
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1105	15	45	905	500	75	190	105	350	90	170
Future Volume (vph)	225	1105	15	45	905	500	75	190	105	350	90	170
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00					0.97	0.99		0.99	0.96	
Frt		0.998				0.850		0.947			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3404	0	1711	3654	1583	1711	1911	0	1711	1619	0
Flt Permitted	0.137			0.153			0.580			0.239		
Satd. Flow (perm)	247	3404	0	276	3654	1583	1014	1911	0	426	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				344		29			114	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			1000	
Travel Time (s)		14.9			50.5			17.6			22.7	
Confl. Peds. (#/hr)			7	7			36		18	18		36
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	23%	2%	4%	2%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	256	1256	17	51	1028	568	85	216	119	398	102	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	1273	0	51	1028	568	85	335	0	398	295	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	25.0	25.0	6.0	28.0		6.0	28.0	
Total Split (s)	15.0	36.0		9.0	30.0	30.0	9.0	28.0		17.0	36.0	
Total Split (%)	16.7%	40.0%		10.0%	33.3%	33.3%	10.0%	31.1%		18.9%	40.0%	
Maximum Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	44.8	36.2		36.0	26.8	26.8	28.1	19.2		39.2	29.0	
Actuated g/C Ratio	0.50	0.40		0.40	0.30	0.30	0.31	0.21		0.44	0.32	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.81	0.93		0.25	0.94	0.80	0.23	0.78		1.03	0.49	
Control Delay	38.7	41.4		16.5	50.0	21.9	16.6	43.3		77.2	17.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	38.7	41.4		16.5	50.0	21.9	16.6	43.3		77.2	17.8	
LOS	D	D		B	D	C	B	D		E	B	
Approach Delay		40.9			39.3			37.9			51.9	
Approach LOS		D			D			D			D	
90th %ile Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Max		Max	Hold	
70th %ile Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Max		Max	Hold	
50th %ile Green (s)	13.5	30.6		6.9	24.0	24.0	6.0	20.5		14.0	28.5	
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Max	Gap		Max	Hold	
30th %ile Green (s)	12.6	43.3		0.0	27.7	27.7	6.0	17.7		14.0	25.7	
30th %ile Term Code	Gap	Coord		Skip	Coord	Coord	Max	Gap		Max	Hold	
10th %ile Green (s)	9.8	47.3		0.0	34.5	34.5	0.0	13.7		14.0	30.7	
10th %ile Term Code	Gap	Coord		Skip	Coord	Coord	Skip	Gap		Max	Hold	
Queue Length 50th (ft)	87	~437		15	~340	123	27	162		~162	80	
Queue Length 95th (ft)	#208	#556		34	#447	#299	51	244		#320	147	
Internal Link Dist (ft)		683			2514			693			920	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	325	1371		209	1089	713	363	489		385	617	
Starvation Cap Reductn	0	0		0	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	0.79	0.93		0.24	0.94	0.80	0.23	0.69		1.03	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 41.8 Intersection LOS: D
Intersection Capacity Utilization 89.9% ICU Level of Service E
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: 900: Laramie Avenue & Lake Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	30	80	55	20	110
Future Volume (vph)	60	30	80	55	20	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.945		0.886	
Flt Protected		0.968			0.992	
Satd. Flow (prot)	0	1609	1643	0	1513	0
Flt Permitted		0.968			0.992	
Satd. Flow (perm)	0	1609	1643	0	1513	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)	22			22	44	27
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	9%	2%	2%	2%	5%	7%
Adj. Flow (vph)	118	59	157	108	39	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	177	265	0	255	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	30	80	55	20	110
Future Volume (Veh/h)	60	30	80	55	20	110
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51
Hourly flow rate (vph)	118	59	157	108	39	216
Pedestrians		27	44		22	
Lane Width (ft)		10.0	10.0		11.0	
Walking Speed (ft/s)		3.5	3.5		3.5	
Percent Blockage		2	3		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	287				572	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	287				572	260
tC, single (s)	4.2				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	90				90	71
cM capacity (veh/h)	1212				407	736

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	177	265	255
Volume Left	118	0	39
Volume Right	0	108	216
cSH	1212	1700	655
Volume to Capacity	0.10	0.16	0.39
Queue Length 95th (ft)	8	0	46
Control Delay (s)	5.8	0.0	14.0
Lane LOS	A		B
Approach Delay (s)	5.8	0.0	14.0
Approach LOS			B

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	85	10	10	180	30	5
Future Volume (vph)	85	10	10	180	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985				0.981	
Flt Protected				0.997	0.959	
Satd. Flow (prot)	1669	0	0	1702	1694	0
Flt Permitted				0.997	0.959	
Satd. Flow (perm)	1669	0	0	1702	1694	0
Link Speed (mph)	30			30	20	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	4.6	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	5%	2%	2%	4%	2%	2%
Adj. Flow (vph)	157	19	19	333	56	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	0	352	65	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	85	10	10	180	30	5
Future Volume (Veh/h)	85	10	10	180	30	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	157	19	19	333	56	9
Pedestrians				1		
Lane Width (ft)				10.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			176		538	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			176		538	168
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	99
cM capacity (veh/h)			1400		498	876

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	176	352	65
Volume Left	0	19	56
Volume Right	19	0	9
cSH	1700	1400	529
Volume to Capacity	0.10	0.01	0.12
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	0.5	12.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	12.8
Approach LOS			B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	40	195	150	65	160	50
Future Volume (vph)	40	195	150	65	160	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.888					0.850
Flt Protected				0.966	0.950	
Satd. Flow (prot)	1654	0	0	1679	1711	1531
Flt Permitted				0.966	0.950	
Satd. Flow (perm)	1654	0	0	1679	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		10	10		6	71
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	59	287	221	96	235	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	346	0	0	317	235	74
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	40	195	150	65	160	50
Future Volume (vph)	40	195	150	65	160	50
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	59	287	221	96	235	74

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	346	317	235	74
Volume Left (vph)	0	221	235	0
Volume Right (vph)	287	0	0	74
Hadj (s)	-0.46	0.17	0.53	-0.67
Departure Headway (s)	4.9	5.5	6.7	5.5
Degree Utilization, x	0.47	0.49	0.44	0.11
Capacity (veh/h)	700	624	501	609
Control Delay (s)	12.2	13.7	13.7	8.0
Approach Delay (s)	12.2	13.7	12.4	
Approach LOS	B	B	B	

Intersection Summary			
Delay	12.7		
Level of Service	B		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	5	205	5	1	345
Future Volume (vph)	30	5	205	5	1	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.981		0.997			
Flt Protected	0.959				0.950	
Satd. Flow (prot)	1664	0	1729	0	1711	1766
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	1664	0	1729	0	1711	1766
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)		4		76	76	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	13%	50%	6%	2%	2%	4%
Adj. Flow (vph)	37	6	250	6	1	421
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	256	0	1	421
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	5	205	5	1	345
Future Volume (Veh/h)	30	5	205	5	1	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	37	6	250	6	1	421
Pedestrians	76					4
Lane Width (ft)	15.0					11.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	9					0
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	752	333			332	
vC1, stage 1 conf vol	329					
vC2, stage 2 conf vol	423					
vCu, unblocked vol	752	333			332	
tC, single (s)	6.5	6.7			4.1	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.8			2.2	
p0 queue free %	93	99			100	
cM capacity (veh/h)	523	554			1116	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	256	1	421
Volume Left	37	0	1	0
Volume Right	6	6	0	0
cSH	527	1700	1116	1700
Volume to Capacity	0.08	0.15	0.00	0.25
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	12.4	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	12.4	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	10	15	205	365	10
Future Volume (vph)	5	10	15	205	365	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.908				0.996	
Flt Protected	0.984		0.950			
Satd. Flow (prot)	1590	0	1711	1749	1744	0
Flt Permitted	0.984		0.950			
Satd. Flow (perm)	1590	0	1711	1749	1744	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)			8			8
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	17%	2%	2%	5%	5%	2%
Adj. Flow (vph)	6	13	19	259	462	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	19	259	475	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	10	15	205	365	10
Future Volume (Veh/h)	5	10	15	205	365	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	13	19	259	462	13
Pedestrians	8					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	774	476	483			
vC1, stage 1 conf vol	476					
vC2, stage 2 conf vol	297					
vCu, unblocked vol	774	476	483			
tC, single (s)	6.6	6.2	4.1			
tC, 2 stage (s)	5.6					
tF (s)	3.7	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	523	584	1071			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	19	19	259	475
Volume Left	6	19	0	0
Volume Right	13	0	0	13
cSH	563	1071	1700	1700
Volume to Capacity	0.03	0.02	0.15	0.28
Queue Length 95th (ft)	3	1	0	0
Control Delay (s)	11.6	8.4	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.6	0.6		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	2	220	80	25	350
Future Volume (vph)	20	2	220	80	25	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989		0.964			
Flt Protected	0.956				0.950	
Satd. Flow (prot)	1937	0	1686	0	1711	1749
Flt Permitted	0.956				0.950	
Satd. Flow (perm)	1937	0	1686	0	1711	1749
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	70			35	35	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	5%	5%	2%	5%
Adj. Flow (vph)	22	2	247	90	28	393
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	337	0	28	393
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	2	220	80	25	350
Future Volume (Veh/h)	20	2	220	80	25	350
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	22	2	247	90	28	393
Pedestrians	35		70			
Lane Width (ft)	15.0		11.0			
Walking Speed (ft/s)	3.5		3.5			
Percent Blockage	4		6			
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	846	327			372	
vC1, stage 1 conf vol	327					
vC2, stage 2 conf vol	519					
vCu, unblocked vol	846	327			372	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			98	
cM capacity (veh/h)	486	685			1137	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	24	337	28	393
Volume Left	22	0	28	0
Volume Right	2	90	0	0
cSH	498	1700	1137	1700
Volume to Capacity	0.05	0.20	0.02	0.23
Queue Length 95th (ft)	4	0	2	0
Control Delay (s)	12.6	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	12.6	0.0	0.5	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	15	185	5	60	5	240	0	0	370	1
Future Volume (vph)	2	0	15	185	5	60	5	240	0	0	370	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.883			0.861							
Flt Protected		0.993		0.950			0.950					
Satd. Flow (prot)	0	1633	0	1947	1687	0	1711	1859	0	0	1749	0
Flt Permitted		0.993		0.950			0.950					
Satd. Flow (perm)	0	1633	0	1947	1687	0	1711	1859	0	0	1749	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	91		1	1		91	75		22	22		75
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	4%	2%	2%	5%	2%
Adj. Flow (vph)	3	0	19	240	6	78	6	312	0	0	481	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	240	84	0	6	312	0	0	482	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	15	185	5	60	5	240	0	0	370	1
Future Volume (Veh/h)	2	0	15	185	5	60	5	240	0	0	370	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	19	240	6	78	6	312	0	0	481	1
Pedestrians		75			22			1			91	
Lane Width (ft)		12.0			15.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		7			3			0			8	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1052	902	558	848	903	425	557			334		
vC1, stage 1 conf vol	556	556		346	346							
vC2, stage 2 conf vol	496	346		502	557							
vCu, unblocked vol	1052	902	558	848	903	425	557			334		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	99	100	96	47	99	86	99			100		
cM capacity (veh/h)	340	422	491	451	419	555	941			1193		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	22	240	84	6	312	482
Volume Left	3	240	0	6	0	0
Volume Right	19	0	78	0	0	1
cSH	463	451	542	941	1700	1700
Volume to Capacity	0.05	0.53	0.15	0.01	0.18	0.28
Queue Length 95th (ft)	4	76	14	0	0	0
Control Delay (s)	13.2	21.7	12.9	8.8	0.0	0.0
Lane LOS	B	C	B	A		
Approach Delay (s)	13.2	19.4		0.2		0.0
Approach LOS	B	C				

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	15	145	1	10	5	235	70	5	565	2
Future Volume (vph)	2	2	15	145	1	10	5	235	70	5	565	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		100	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.893			0.991				0.850		0.999	
Flt Protected		0.995			0.956		0.950			0.950		
Satd. Flow (prot)	0	1655	0	0	1941	0	1396	1859	1583	1711	1764	0
Flt Permitted		0.995			0.956		0.950			0.950		
Satd. Flow (perm)	0	1655	0	0	1941	0	1396	1859	1583	1711	1764	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		663			1007			1000			327	
Travel Time (s)		18.1			34.3			22.7			7.4	
Confl. Peds. (#/hr)	6		4	4		6	71		22	22		71
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	25%	4%	2%	2%	4%	2%
Adj. Flow (vph)	3	3	23	220	2	15	8	356	106	8	856	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	237	0	8	356	106	8	859	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	15	145	1	10	5	235	70	5	565	2
Future Volume (Veh/h)	2	2	15	145	1	10	5	235	70	5	565	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	3	3	23	220	2	15	8	356	106	8	856	3
Pedestrians		71			22			4			6	
Lane Width (ft)		12.0			15.0			11.3			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		7			3			0			1	
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1000				
pX, platoon unblocked												
vC, conflicting volume	1338	1444	932	1294	1340	384	930			484		
vC1, stage 1 conf vol	944	944		394	394							
vC2, stage 2 conf vol	394	500		900	946							
vCu, unblocked vol	1338	1444	932	1294	1340	384	930			484		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	99	99	92	19	99	98	99			99		
cM capacity (veh/h)	267	280	300	271	283	643	605			1051		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	29	237	8	356	106	8	859
Volume Left	3	220	8	0	0	8	0
Volume Right	23	15	0	0	106	0	3
cSH	294	281	605	1700	1700	1051	1700
Volume to Capacity	0.10	0.84	0.01	0.21	0.06	0.01	0.51
Queue Length 95th (ft)	8	177	1	0	0	1	0
Control Delay (s)	18.6	60.8	11.0	0.0	0.0	8.5	0.0
Lane LOS	C	F	B			A	
Approach Delay (s)	18.6	60.8	0.2			0.1	
Approach LOS	C	F					

Intersection Summary			
Average Delay	9.4		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

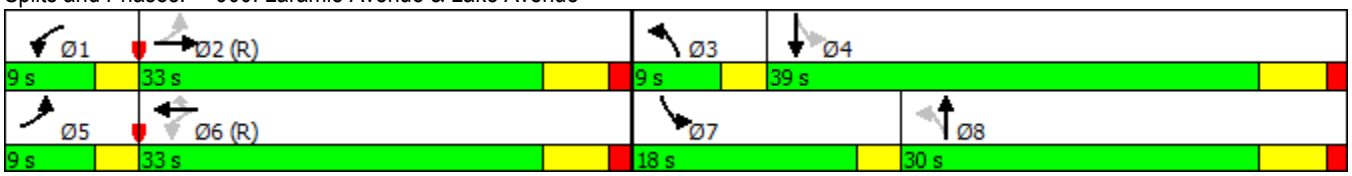
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	980	25	55	1080	225	35	30	85	450	115	215
Future Volume (vph)	60	980	25	55	1080	225	35	30	85	450	115	215
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00				0.95	0.97	0.98		0.98	0.96	
Frt		0.996				0.850		0.889			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1631	3405	0	1711	3725	1553	1711	1762	0	1678	1620	0
Flt Permitted	0.112			0.113			0.539			0.565		
Satd. Flow (perm)	192	3405	0	203	3725	1468	945	1762	0	983	1620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				145		97			118	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			1000	
Travel Time (s)		14.9			50.5			17.6			22.7	
Confl. Peds. (#/hr)	15		4	4		15	36		16	16		36
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	2%	2%	2%	4%	2%	6%	2%	4%	2%	2%
Adj. Flow (vph)	68	1114	28	63	1227	256	40	34	97	511	131	244
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1142	0	63	1227	256	40	131	0	511	375	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	25.0	25.0	6.0	28.0		6.0	28.0	
Total Split (s)	9.0	33.0		9.0	33.0	33.0	9.0	30.0		18.0	39.0	
Total Split (%)	10.0%	36.7%		10.0%	36.7%	36.7%	10.0%	33.3%		20.0%	43.3%	
Maximum Green (s)	6.0	27.0		6.0	27.0	27.0	6.0	24.0		15.0	33.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	46.2	37.4		46.0	37.3	37.3	23.4	14.5		35.5	27.1	
Actuated g/C Ratio	0.51	0.42		0.51	0.41	0.41	0.26	0.16		0.39	0.30	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.33	0.81		0.29	0.80	0.37	0.14	0.36		1.02	0.66	
Control Delay	16.2	31.3		15.4	30.4	11.5	16.9	13.1		70.0	24.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.2	31.3		15.4	30.4	11.5	16.9	13.1		70.0	24.5	
LOS	B	C		B	C	B	B	B		E	C	
Approach Delay		30.4			26.7			14.0			50.7	
Approach LOS		C			C			B			D	
90th %ile Green (s)	7.2	27.0		7.2	27.0	27.0	6.0	22.8		15.0	31.8	
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Hold		Max	Gap	
70th %ile Green (s)	8.2	31.9		7.9	31.6	31.6	6.0	17.2		15.0	26.2	
70th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
50th %ile Green (s)	7.2	37.4		7.0	37.2	37.2	6.0	12.6		15.0	21.6	
50th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
30th %ile Green (s)	6.4	40.7		6.3	40.6	40.6	0.0	10.0		15.0	28.0	
30th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Skip	Min		Max	Hold	
10th %ile Green (s)	0.0	50.0		0.0	50.0	50.0	0.0	10.0		15.0	28.0	
10th %ile Term Code	Skip	Coord		Skip	Coord	Coord	Skip	Min		Max	Hold	
Queue Length 50th (ft)	17	291		15	313	39	14	17		~280	139	
Queue Length 95th (ft)	45	#508		42	#528	112	27	56		#356	198	
Internal Link Dist (ft)		683			2514			693			920	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	210	1416		219	1542	692	297	541		503	668	
Starvation Cap Reductn	0	0		0	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	0.32	0.81		0.29	0.80	0.37	0.13	0.24		1.02	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 76.6% ICU Level of Service D
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: 900: Laramie Avenue & Lake Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	15	10	5	15	105
Future Volume (vph)	45	15	10	5	15	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.955		0.882	
Flt Protected		0.964			0.994	
Satd. Flow (prot)	0	1655	1660	0	1579	0
Flt Permitted		0.964			0.994	
Satd. Flow (perm)	0	1655	1660	0	1579	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)	4			4	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	7%	2%	2%	2%	2%
Adj. Flow (vph)	53	18	12	6	18	124
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	71	18	0	142	0
Sign Control		Free	Free		Stop	

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	15	10	5	15	105
Future Volume (Veh/h)	45	15	10	5	15	105
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	53	18	12	6	18	124
Pedestrians		2	1		4	
Lane Width (ft)		10.0	10.0		11.0	
Walking Speed (ft/s)		3.5	3.5		3.5	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22				144	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				144	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	88
cM capacity (veh/h)	1588				817	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	71	18	142
Volume Left	53	0	18
Volume Right	0	6	124
cSH	1588	1700	1014
Volume to Capacity	0.03	0.01	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	5.5	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	5.5	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	60	5	1	115	5	2
Future Volume (vph)	60	5	1	115	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.961	
Flt Protected					0.966	
Satd. Flow (prot)	1721	0	0	1739	1672	0
Flt Permitted					0.966	
Satd. Flow (perm)	1721	0	0	1739	1672	0
Link Speed (mph)	30			30	20	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	4.6	
Confl. Peds. (#/hr)		2	2		1	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	66	5	1	126	5	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	0	127	7	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	5	1	115	5	2
Future Volume (Veh/h)	60	5	1	115	5	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	5	1	126	5	2
Pedestrians	1			4	2	
Lane Width (ft)	10.0			10.0	11.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			73		200	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			73		200	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1524		787	982

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	71	127	7
Volume Left	0	1	5
Volume Right	5	0	2
cSH	1700	1524	834
Volume to Capacity	0.04	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.4
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	5	330	115	10	155	60
Future Volume (vph)	5	330	115	10	155	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.867					0.850
Flt Protected				0.956	0.950	
Satd. Flow (prot)	1615	0	0	1662	1711	1531
Flt Permitted				0.956	0.950	
Satd. Flow (perm)	1615	0	0	1662	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		1	1		3	5
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	344	120	10	161	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	349	0	0	130	161	63
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	5	330	115	10	155	60
Future Volume (vph)	5	330	115	10	155	60
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	344	120	10	161	63

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	349	130	161	63
Volume Left (vph)	0	120	161	0
Volume Right (vph)	344	0	0	63
Hadj (s)	-0.56	0.22	0.53	-0.67
Departure Headway (s)	4.2	5.1	6.1	4.9
Degree Utilization, x	0.40	0.19	0.27	0.09
Capacity (veh/h)	825	658	556	681
Control Delay (s)	9.9	9.3	10.2	7.2
Approach Delay (s)	9.9	9.3	9.3	
Approach LOS	A	A	A	

Intersection Summary			
Delay	9.6		
Level of Service	A		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	210	5	5	440
Future Volume (vph)	5	5	210	5	5	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.997			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1864	0	1795	0	1711	1801
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1864	0	1795	0	1711	1801
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)				8	8	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	5	219	5	5	458
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	224	0	5	458
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	5	210	5	5	440
Future Volume (Veh/h)	5	5	210	5	5	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	5	219	5	5	458
Pedestrians	8					
Lane Width (ft)	15.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	698	230			232	
vC1, stage 1 conf vol	230					
vC2, stage 2 conf vol	468					
vCu, unblocked vol	698	230			232	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	575	802			1323	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	10	224	5	458
Volume Left	5	0	5	0
Volume Right	5	5	0	0
cSH	670	1700	1323	1700
Volume to Capacity	0.01	0.13	0.00	0.27
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	10.5	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	10.5	0.0	0.1	
Approach LOS	B			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	5	2	215	445	2
Future Volume (vph)	1	5	2	215	445	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1639	0	1711	1801	1799	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1639	0	1711	1801	1799	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	5	2	224	464	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	2	224	466	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	5	2	215	445	2
Future Volume (Veh/h)	1	5	2	215	445	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1	5	2	224	464	2
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	695	467	468			
vC1, stage 1 conf vol	467					
vC2, stage 2 conf vol	228					
vCu, unblocked vol	695	467	468			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	579	595	1091			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	6	2	224	466
Volume Left	1	2	0	0
Volume Right	5	0	0	2
cSH	592	1091	1700	1700
Volume to Capacity	0.01	0.00	0.13	0.27
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	11.1	8.3	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.1	0.1		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	215	55	15	435
Future Volume (vph)	2	1	215	55	15	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.972			
Flt Protected	0.968				0.950	
Satd. Flow (prot)	1894	0	1750	0	1711	1801
Flt Permitted	0.968				0.950	
Satd. Flow (perm)	1894	0	1750	0	1711	1801
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	19			7	7	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	1	226	58	16	458
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	284	0	16	458
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	1	215	55	15	435
Future Volume (Veh/h)	2	1	215	55	15	435
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1	226	58	16	458
Pedestrians	7		19			
Lane Width (ft)	15.0		11.0			
Walking Speed (ft/s)	3.5		3.5			
Percent Blockage	1		2			
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	771	262			291	
vC1, stage 1 conf vol	262					
vC2, stage 2 conf vol	509					
vCu, unblocked vol	771	262			291	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	535	770			1260	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	3	284	16	458
Volume Left	2	0	16	0
Volume Right	1	58	0	0
cSH	596	1700	1260	1700
Volume to Capacity	0.01	0.17	0.01	0.27
Queue Length 95th (ft)	0	0	1	0
Control Delay (s)	11.1	0.0	7.9	0.0
Lane LOS	B		A	
Approach Delay (s)	11.1	0.0	0.3	
Approach LOS	B			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	5	145	1	35	5	235	0	0	435	1
Future Volume (vph)	1	0	5	145	1	35	5	235	0	0	435	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.887			0.854							
Flt Protected		0.992		0.950			0.950					
Satd. Flow (prot)	0	1639	0	1947	1750	0	1711	1895	0	0	1801	0
Flt Permitted		0.992		0.950			0.950					
Satd. Flow (perm)	0	1639	0	1947	1750	0	1711	1895	0	0	1801	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	2		1	1		2	4		4	4		4
Confl. Bikes (#/hr)									1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1	0	5	159	1	38	5	258	0	0	478	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	159	39	0	5	258	0	0	479	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	5	145	1	35	5	235	0	0	435	1
Future Volume (Veh/h)	1	0	5	145	1	35	5	235	0	0	435	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	0	5	159	1	38	5	258	0	0	478	1
Pedestrians		4			4			1			2	
Lane Width (ft)		12.0			15.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	791	754	484	756	755	264	483			262		
vC1, stage 1 conf vol	482	482		272	272							
vC2, stage 2 conf vol	308	272		484	483							
vCu, unblocked vol	791	754	484	756	755	264	483			262		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	68	100	95	100			100		
cM capacity (veh/h)	486	496	580	500	493	770	1076			1296		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	6	159	39	5	258	479
Volume Left	1	159	0	5	0	0
Volume Right	5	0	38	0	0	1
cSH	562	500	759	1076	1700	1700
Volume to Capacity	0.01	0.32	0.05	0.00	0.15	0.28
Queue Length 95th (ft)	1	34	4	0	0	0
Control Delay (s)	11.5	15.5	10.0	8.4	0.0	0.0
Lane LOS	B	C	B	A		
Approach Delay (s)	11.5	14.4		0.2		0.0
Approach LOS	B	B				

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	5	40	1	10	5	230	110	15	570	1
Future Volume (vph)	1	1	5	40	1	10	5	230	110	15	570	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		100	100		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.904			0.973				0.850			
Flt Protected		0.993			0.962		0.950			0.950		
Satd. Flow (prot)	0	1672	0	0	1918	0	1711	1895	1583	1711	1801	0
Flt Permitted		0.993			0.962		0.950			0.950		
Satd. Flow (perm)	0	1672	0	0	1918	0	1711	1895	1583	1711	1801	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		663			1007			1000			327	
Travel Time (s)		18.1			34.3			22.7			7.4	
Confl. Peds. (#/hr)							4		11	11		4
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1	1	5	43	1	11	5	247	118	16	613	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	55	0	5	247	118	16	614	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	5	40	1	10	5	230	110	15	570	1
Future Volume (Veh/h)	1	1	5	40	1	10	5	230	110	15	570	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	1	5	43	1	11	5	247	118	16	613	1
Pedestrians		4			11							
Lane Width (ft)		12.0			15.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			1							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								1000				
pX, platoon unblocked												
vC, conflicting volume	918	1036	618	918	918	258	618			376		
vC1, stage 1 conf vol	650	650		268	268							
vC2, stage 2 conf vol	268	386		650	650							
vCu, unblocked vol	918	1036	618	918	918	258	618			376		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	89	100	99	99			99		
cM capacity (veh/h)	414	400	488	409	418	770	958			1167		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	7	55	5	247	118	16	614
Volume Left	1	43	5	0	0	16	0
Volume Right	5	11	0	0	118	0	1
cSH	462	451	958	1700	1700	1167	1700
Volume to Capacity	0.02	0.12	0.01	0.15	0.07	0.01	0.36
Queue Length 95th (ft)	1	10	0	0	0	1	0
Control Delay (s)	12.9	14.1	8.8	0.0	0.0	8.1	0.0
Lane LOS	B	B	A			A	
Approach Delay (s)	12.9	14.1	0.1			0.2	
Approach LOS	B	B					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

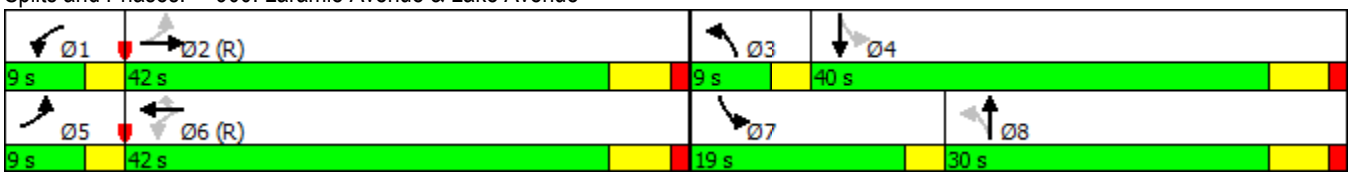
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	905	30	65	1245	205	35	40	60	370	100	150
Future Volume (vph)	90	905	30	65	1245	205	35	40	60	370	100	150
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00					1.00	0.99		1.00	0.99	
Frt		0.995				0.850		0.910			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3402	0	1601	3725	1583	1711	1849	0	1711	1672	0
Flt Permitted	0.085			0.190			0.594			0.557		
Satd. Flow (perm)	153	3402	0	320	3725	1583	1067	1849	0	1002	1672	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				131		65			81	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			1000	
Travel Time (s)		14.9			50.5			17.6			22.7	
Confl. Peds. (#/hr)			2	2			3		1	1		3
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	9%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	97	973	32	70	1339	220	38	43	65	398	108	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1005	0	70	1339	220	38	108	0	398	269	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	25.0	25.0	6.0	28.0		6.0	28.0	
Total Split (s)	9.0	42.0		9.0	42.0	42.0	9.0	30.0		19.0	40.0	
Total Split (%)	9.0%	42.0%		9.0%	42.0%	42.0%	9.0%	30.0%		19.0%	40.0%	
Maximum Green (s)	6.0	36.0		6.0	36.0	36.0	6.0	24.0		16.0	34.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	58.6	48.8		57.5	48.3	48.3	20.5	11.6		33.6	25.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.59	0.49		0.58	0.48	0.48	0.20	0.12		0.34	0.25	
v/c Ratio	0.46	0.60		0.25	0.74	0.26	0.15	0.40		0.88	0.56	
Control Delay	17.9	21.7		11.2	25.7	8.4	23.9	22.7		52.0	28.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.9	21.7		11.2	25.7	8.4	23.9	22.7		52.0	28.1	
LOS	B	C		B	C	A	C	C		D	C	
Approach Delay		21.4			22.8			23.0			42.4	
Approach LOS		C			C			C			D	
90th %ile Green (s)	10.5	39.8		9.5	38.8	38.8	6.0	16.7		16.0	26.7	
90th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
70th %ile Green (s)	8.6	47.0		7.9	46.3	46.3	6.0	11.1		16.0	21.1	
70th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
50th %ile Green (s)	7.7	48.8		7.2	48.3	48.3	6.0	10.0		16.0	20.0	
50th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Min		Max	Hold	
30th %ile Green (s)	7.0	49.5		6.5	49.0	49.0	0.0	10.0		16.0	29.0	
30th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Skip	Min		Max	Hold	
10th %ile Green (s)	0.0	59.0		0.0	59.0	59.0	0.0	10.0		16.0	29.0	
10th %ile Term Code	Skip	Coord		Skip	Coord	Coord	Skip	Min		Max	Hold	
Queue Length 50th (ft)	23	234		16	349	30	17	26		223	111	
Queue Length 95th (ft)	62	359		41	#566	89	36	72		#332	183	
Internal Link Dist (ft)		683			2514			693			920	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	213	1663		279	1798	832	258	493		450	621	
Starvation Cap Reductn	0	0		0	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	0.46	0.60		0.25	0.74	0.26	0.15	0.22		0.88	0.43	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 900: Laramie Avenue & Lake Avenue



FUTURE SYNCHRO CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday School Dismissal Peak Hour

Weekday Evening Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	90	40	35	75	175
Future Volume (vph)	165	90	40	35	75	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.937		0.905	
Flt Protected		0.969			0.985	
Satd. Flow (prot)	0	1685	1629	0	1605	0
Flt Permitted		0.969			0.985	
Satd. Flow (perm)	0	1685	1629	0	1605	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)						26
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Adj. Flow (vph)	295	161	71	63	134	313
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	456	134	0	447	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	165	90	40	35	75	175
Future Volume (Veh/h)	165	90	40	35	75	175
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56
Hourly flow rate (vph)	295	161	71	63	134	313
Pedestrians		26				
Lane Width (ft)		10.0				
Walking Speed (ft/s)		3.5				
Percent Blockage		2				
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	134				854	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	134				854	128
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				49	65
cM capacity (veh/h)	1451				262	902

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	456	134	447
Volume Left	295	0	134
Volume Right	0	63	313
cSH	1451	1700	521
Volume to Capacity	0.20	0.08	0.86
Queue Length 95th (ft)	19	0	228
Control Delay (s)	5.9	0.0	40.6
Lane LOS	A		E
Approach Delay (s)	5.9	0.0	40.6
Approach LOS			E

Intersection Summary			
Average Delay	20.1		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	255	55	75	140	5	2
Future Volume (vph)	255	55	75	140	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.976				0.963	
Flt Protected				0.983	0.965	
Satd. Flow (prot)	1818	0	0	1831	1731	0
Flt Permitted				0.983	0.965	
Satd. Flow (perm)	1818	0	0	1831	1731	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	3.1	
Confl. Peds. (#/hr)		11	11		3	21
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Adj. Flow (vph)	411	89	121	226	8	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	0	0	347	11	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	255	55	75	140	5	2
Future Volume (Veh/h)	255	55	75	140	5	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	411	89	121	226	8	3
Pedestrians	3			21	11	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			2	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			511		938	488
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			511		938	488
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		97	99
cM capacity (veh/h)			1043		256	563

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	500	347	11
Volume Left	0	121	8
Volume Right	89	0	3
cSH	1700	1043	301
Volume to Capacity	0.29	0.12	0.04
Queue Length 95th (ft)	0	10	3
Control Delay (s)	0.0	3.9	17.4
Lane LOS		A	C
Approach Delay (s)	0.0	3.9	17.4
Approach LOS			C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	80	190	110	30	260	230
Future Volume (vph)	80	190	110	30	260	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905					0.850
Flt Protected				0.962	0.950	
Satd. Flow (prot)	1686	0	0	1672	1711	1531
Flt Permitted				0.962	0.950	
Satd. Flow (perm)	1686	0	0	1672	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		8	8		2	104
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	111	264	153	42	361	319
Shared Lane Traffic (%)						
Lane Group Flow (vph)	375	0	0	195	361	319
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 48.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	80	190	110	30	260	230
Future Volume (vph)	80	190	110	30	260	230
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	111	264	153	42	361	319

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	375	195	361	319
Volume Left (vph)	0	153	361	0
Volume Right (vph)	264	0	0	319
Hadj (s)	-0.39	0.19	0.53	-0.67
Departure Headway (s)	5.5	6.4	6.7	5.5
Degree Utilization, x	0.57	0.35	0.67	0.48
Capacity (veh/h)	633	534	523	642
Control Delay (s)	15.6	12.7	21.0	12.3
Approach Delay (s)	15.6	12.7	16.9	
Approach LOS	C	B	C	

Intersection Summary			
Delay	15.9		
Level of Service	C		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	10	480	40	15	285
Future Volume (vph)	10	10	480	40	15	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.990			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1578	0	1783	0	1711	1783
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1578	0	1783	0	1711	1783
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)				89	89	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	33%	8%	2%	2%	2%	3%
Adj. Flow (vph)	13	13	608	51	19	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	659	0	19	361
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	10	480	40	15	285
Future Volume (Veh/h)	10	10	480	40	15	285
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	13	13	608	51	19	361
Pedestrians	89					
Lane Width (ft)	15.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	11					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1122	722			748	
vC1, stage 1 conf vol	722					
vC2, stage 2 conf vol	399					
vCu, unblocked vol	1122	722			748	
tC, single (s)	6.7	6.3			4.1	
tC, 2 stage (s)	5.7					
tF (s)	3.8	3.4			2.2	
p0 queue free %	96	97			98	
cM capacity (veh/h)	346	372			769	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	659	19	361
Volume Left	13	0	19	0
Volume Right	13	51	0	0
cSH	359	1700	769	1700
Volume to Capacity	0.07	0.39	0.02	0.21
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	15.8	0.0	9.8	0.0
Lane LOS	C		A	
Approach Delay (s)	15.8	0.0	0.5	
Approach LOS	C			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	35	5	510	290	5
Future Volume (vph)	10	35	5	510	290	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.895				0.998	
Flt Protected	0.989		0.950			
Satd. Flow (prot)	1649	0	1711	1801	1773	0
Flt Permitted	0.989		0.950			
Satd. Flow (perm)	1649	0	1711	1801	1773	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)		2	4			4
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles (%)	2%	2%	2%	2%	3%	25%
Adj. Flow (vph)	13	46	7	671	382	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	7	671	389	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	35	5	510	290	5
Future Volume (Veh/h)	10	35	5	510	290	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	13	46	7	671	382	7
Pedestrians	4			2		
Lane Width (ft)	12.0			11.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1074	392	393			
vC1, stage 1 conf vol	390					
vC2, stage 2 conf vol	685					
vCu, unblocked vol	1074	392	393			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	93	99			
cM capacity (veh/h)	441	653	1161			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	59	7	671	389
Volume Left	13	7	0	0
Volume Right	46	0	0	7
cSH	591	1161	1700	1700
Volume to Capacity	0.10	0.01	0.39	0.23
Queue Length 95th (ft)	8	0	0	0
Control Delay (s)	11.8	8.1	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.8	0.1		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	10	505	20	100	225
Future Volume (vph)	5	10	505	20	100	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.908		0.995			
Flt Protected	0.984				0.950	
Satd. Flow (prot)	1831	0	1792	0	1711	1766
Flt Permitted	0.984				0.950	
Satd. Flow (perm)	1831	0	1792	0	1711	1766
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	28	4				
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%
Adj. Flow (vph)	6	13	639	25	127	285
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	664	0	127	285
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 47.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	10	505	20	100	225
Future Volume (Veh/h)	5	10	505	20	100	225
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	13	639	25	127	285
Pedestrians			28			4
Lane Width (ft)			11.0			11.0
Walking Speed (ft/s)			3.5			3.5
Percent Blockage			2			0
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1218	656			664	
vC1, stage 1 conf vol	652					
vC2, stage 2 conf vol	567					
vCu, unblocked vol	1218	656			664	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	97			86	
cM capacity (veh/h)	378	464			925	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	19	664	127	285
Volume Left	6	0	127	0
Volume Right	13	25	0	0
cSH	433	1700	925	1700
Volume to Capacity	0.04	0.39	0.14	0.17
Queue Length 95th (ft)	3	0	12	0
Control Delay (s)	13.7	0.0	9.5	0.0
Lane LOS	B		A	
Approach Delay (s)	13.7	0.0	2.9	
Approach LOS	B			

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	25	380	20	90	5	435	0	0	225	5
Future Volume (vph)	2	0	25	380	20	90	5	435	0	0	225	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.877			0.878						0.997	
Flt Protected		0.996		0.950			0.950					
Satd. Flow (prot)	0	1598	0	1947	1799	0	1711	1895	0	0	1761	0
Flt Permitted		0.996		0.950			0.950					
Satd. Flow (perm)	0	1598	0	1947	1799	0	1711	1895	0	0	1761	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	88					88	28		4	4		28
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Adj. Flow (vph)	3	0	32	487	26	115	6	558	0	0	288	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	487	141	0	6	558	0	0	294	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	25	380	20	90	5	435	0	0	225	5
Future Volume (Veh/h)	2	0	25	380	20	90	5	435	0	0	225	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	3	0	32	487	26	115	6	558	0	0	288	6
Pedestrians		28			4						88	
Lane Width (ft)		12.0			15.0						11.0	
Walking Speed (ft/s)		3.5			3.5						3.5	
Percent Blockage		3			0						8	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1105	893	319	897	896	650	322			562		
vC1, stage 1 conf vol	319	319		574	574							
vC2, stage 2 conf vol	786	574		323	322							
vCu, unblocked vol	1105	893	319	897	896	650	322			562		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	95	0	94	73	100			100		
cM capacity (veh/h)	235	444	698	438	442	431	1205			1005		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	35	487	141	6	558	294
Volume Left	3	487	0	6	0	0
Volume Right	32	0	115	0	0	6
cSH	597	438	433	1205	1700	1700
Volume to Capacity	0.06	1.11	0.33	0.00	0.33	0.17
Queue Length 95th (ft)	5	423	35	0	0	0
Control Delay (s)	11.4	107.4	17.3	8.0	0.0	0.0
Lane LOS	B	F	C	A		
Approach Delay (s)	11.4	87.2		0.1		0.0
Approach LOS	B	F				

Intersection Summary			
Average Delay	36.3		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	10	5	440	625	5
Future Volume (vph)	1	10	5	440	625	5
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.874				0.999	
Flt Protected	0.997		0.950			
Satd. Flow (prot)	1623	0	1711	1895	1797	0
Flt Permitted	0.997		0.950			
Satd. Flow (perm)	1623	0	1711	1895	1797	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	663			116	327	
Travel Time (s)	18.1			2.6	7.4	
Confl. Peds. (#/hr)			83			83
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	17%
Adj. Flow (vph)	1	14	7	611	868	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	7	611	875	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	10	5	440	625	5
Future Volume (Veh/h)	1	10	5	440	625	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	1	14	7	611	868	7
Pedestrians	83					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	8					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1000		
pX, platoon unblocked						
vC, conflicting volume	1580	954	958			
vC1, stage 1 conf vol	954					
vC2, stage 2 conf vol	625					
vCu, unblocked vol	1580	954	958			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	99			
cM capacity (veh/h)	298	289	661			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	15	7	611	875
Volume Left	1	7	0	0
Volume Right	14	0	0	7
cSH	289	661	1700	1700
Volume to Capacity	0.05	0.01	0.36	0.51
Queue Length 95th (ft)	4	1	0	0
Control Delay (s)	18.1	10.5	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	18.1	0.1		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	445	280	10	625
Future Volume (vph)	0	0	445	280	10	625
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	50	
Storage Lanes	0	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	0	1895	1583	1770	1895
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	1895	1583	1770	1895
Link Speed (mph)	20		30			30
Link Distance (ft)	1317		350			116
Travel Time (s)	44.9		8.0			2.6
Confl. Peds. (#/hr)				11	11	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	0	0	618	389	14	868
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	618	389	14	868
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	445	280	10	625
Future Volume (Veh/h)	0	0	445	280	10	625
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	0	618	389	14	868
Pedestrians	11					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			884			
pX, platoon unblocked						
vC, conflicting volume	1525	629			1018	
vC1, stage 1 conf vol	629					
vC2, stage 2 conf vol	896					
vCu, unblocked vol	1525	629			1018	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			98	
cM capacity (veh/h)	329	482			682	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	618	389	14	868
Volume Left	0	0	14	0
Volume Right	0	389	0	0
cSH	1700	1700	682	1700
Volume to Capacity	0.36	0.23	0.02	0.51
Queue Length 95th (ft)	0	0	2	0
Control Delay (s)	0.0	0.0	10.4	0.0
Lane LOS			B	
Approach Delay (s)	0.0		0.2	
Approach LOS				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	695	295	1	630
Future Volume (vph)	0	0	695	295	1	630
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	125	
Storage Lanes	0	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	0	1895	1583	1770	1895
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	1895	1583	1770	1895
Link Speed (mph)	20		30			30
Link Distance (ft)	671		534			350
Travel Time (s)	22.9		12.1			8.0
Confl. Peds. (#/hr)				11	11	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	0	0	965	410	1	875
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	965	410	1	875
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	695	295	1	630
Future Volume (Veh/h)	0	0	695	295	1	630
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	0	965	410	1	875
Pedestrians	11					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			534			
pX, platoon unblocked	0.96	0.96			0.96	
vC, conflicting volume	1853	976			1386	
vC1, stage 1 conf vol	976					
vC2, stage 2 conf vol	877					
vCu, unblocked vol	1869	953			1381	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	272	301			475	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	965	410	1	875
Volume Left	0	0	1	0
Volume Right	0	410	0	0
cSH	1700	1700	475	1700
Volume to Capacity	0.57	0.24	0.00	0.51
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	12.6	0.0
Lane LOS			B	
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

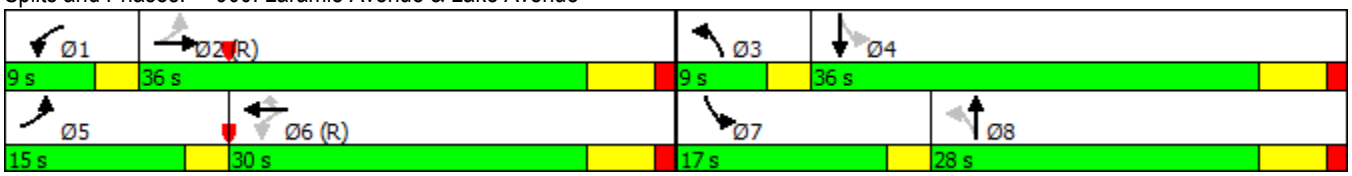
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	1105	15	45	905	525	75	200	105	365	95	175
Future Volume (vph)	235	1105	15	45	905	525	75	200	105	365	95	175
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00					0.97	0.99		0.99	0.96	
Frt		0.998				0.850		0.948			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3404	0	1711	3654	1583	1711	1914	0	1711	1622	0
Flt Permitted	0.139			0.156			0.573			0.227		
Satd. Flow (perm)	250	3404	0	281	3654	1583	1002	1914	0	405	1622	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				361		28			111	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			534	
Travel Time (s)		14.9			50.5			17.6			12.1	
Confl. Peds. (#/hr)			7	7			36		18	18		36
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	23%	2%	4%	2%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	267	1256	17	51	1028	597	85	227	119	415	108	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	1273	0	51	1028	597	85	346	0	415	307	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	25.0	25.0	6.0	28.0		6.0	28.0	
Total Split (s)	15.0	36.0		9.0	30.0	30.0	9.0	28.0		17.0	36.0	
Total Split (%)	16.7%	40.0%		10.0%	33.3%	33.3%	10.0%	31.1%		18.9%	40.0%	
Maximum Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	44.5	35.9		35.4	26.3	26.3	28.5	19.5		39.5	29.3	
Actuated g/C Ratio	0.49	0.40		0.39	0.29	0.29	0.32	0.22		0.44	0.33	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.83	0.94		0.25	0.96	0.83	0.23	0.79		1.09	0.51	
Control Delay	41.6	42.7		16.6	53.9	24.1	16.5	44.2		94.4	18.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	41.6	42.7		16.6	53.9	24.1	16.5	44.2		94.4	18.7	
LOS	D	D		B	D	C	B	D		F	B	
Approach Delay		42.6			42.1			38.7			62.2	
Approach LOS		D			D			D			E	
90th %ile Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Max		Max	Hold	
70th %ile Green (s)	12.0	30.0		6.0	24.0	24.0	6.0	22.0		14.0	30.0	
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Max		Max	Hold	
50th %ile Green (s)	12.9	30.0		6.9	24.0	24.0	6.0	21.1		14.0	29.1	
50th %ile Term Code	Max	Coord		Max	Coord	Coord	Max	Gap		Max	Hold	
30th %ile Green (s)	13.5	42.7		0.0	26.2	26.2	6.0	18.3		14.0	26.3	
30th %ile Term Code	Gap	Coord		Skip	Coord	Coord	Max	Gap		Max	Hold	
10th %ile Green (s)	10.6	46.8		0.0	33.2	33.2	0.0	14.2		14.0	31.2	
10th %ile Term Code	Gap	Coord		Skip	Coord	Coord	Skip	Gap		Max	Hold	
Queue Length 50th (ft)	94	~445		15	~340	134	27	168		~189	86	
Queue Length 95th (ft)	#224	#556		34	#447	#321	51	254		#351	156	
Internal Link Dist (ft)		683			2514			693			454	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	326	1359		209	1066	717	364	489		381	618	
Starvation Cap Reductn	0	0		0	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	0.82	0.94		0.24	0.96	0.83	0.23	0.71		1.09	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 45.3 Intersection LOS: D
Intersection Capacity Utilization 91.6% ICU Level of Service F
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: 900: Laramie Avenue & Lake Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	30	80	55	20	120
Future Volume (vph)	70	30	80	55	20	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.945		0.884	
Flt Protected		0.966			0.993	
Satd. Flow (prot)	0	1603	1643	0	1511	0
Flt Permitted		0.966			0.993	
Satd. Flow (perm)	0	1603	1643	0	1511	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)	22			22	44	27
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	9%	2%	2%	2%	5%	7%
Adj. Flow (vph)	137	59	157	108	39	235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	196	265	0	274	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	30	80	55	20	120
Future Volume (Veh/h)	70	30	80	55	20	120
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51
Hourly flow rate (vph)	137	59	157	108	39	235
Pedestrians		27	44		22	
Lane Width (ft)		10.0	10.0		11.0	
Walking Speed (ft/s)		3.5	3.5		3.5	
Percent Blockage		2	3		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	287				610	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	287				610	260
tC, single (s)	4.2				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	89				90	68
cM capacity (veh/h)	1212				380	736

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	196	265	274
Volume Left	137	0	39
Volume Right	0	108	235
cSH	1212	1700	649
Volume to Capacity	0.11	0.16	0.42
Queue Length 95th (ft)	10	0	52
Control Delay (s)	6.1	0.0	14.5
Lane LOS	A		B
Approach Delay (s)	6.1	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	95	10	10	190	30	5
Future Volume (vph)	95	10	10	190	30	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.987				0.981	
Flt Protected				0.997	0.959	
Satd. Flow (prot)	1791	0	0	1823	1752	0
Flt Permitted				0.997	0.959	
Satd. Flow (perm)	1791	0	0	1823	1752	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	3.1	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	5%	2%	2%	4%	2%	2%
Adj. Flow (vph)	176	19	19	352	56	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	0	0	371	65	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	95	10	10	190	30	5
Future Volume (Veh/h)	95	10	10	190	30	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	176	19	19	352	56	9
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				3.5		
Percent Blockage				0		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			195		576	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			195		576	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		88	99
cM capacity (veh/h)			1378		473	855

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	195	371	65
Volume Left	0	19	56
Volume Right	19	0	9
cSH	1700	1378	504
Volume to Capacity	0.11	0.01	0.13
Queue Length 95th (ft)	0	1	11
Control Delay (s)	0.0	0.5	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	13.2
Approach LOS			B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	40	205	160	65	175	60
Future Volume (vph)	40	205	160	65	175	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887					0.850
Flt Protected				0.966	0.950	
Satd. Flow (prot)	1652	0	0	1679	1711	1531
Flt Permitted				0.966	0.950	
Satd. Flow (perm)	1652	0	0	1679	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		10	10		6	71
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Adj. Flow (vph)	59	301	235	96	257	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	360	0	0	331	257	88
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 50.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	40	205	160	65	175	60
Future Volume (vph)	40	205	160	65	175	60
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Hourly flow rate (vph)	59	301	235	96	257	88

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	360	331	257	88
Volume Left (vph)	0	235	257	0
Volume Right (vph)	301	0	0	88
Hadj (s)	-0.47	0.18	0.53	-0.67
Departure Headway (s)	5.1	5.7	6.8	5.6
Degree Utilization, x	0.51	0.52	0.49	0.14
Capacity (veh/h)	680	608	494	600
Control Delay (s)	13.1	14.8	15.0	8.3
Approach Delay (s)	13.1	14.8	13.3	
Approach LOS	B	B	B	

Intersection Summary			
Delay	13.7		
Level of Service	B		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	5	230	5	1	365
Future Volume (vph)	30	5	230	5	1	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.981		0.997			
Flt Protected	0.959				0.950	
Satd. Flow (prot)	1664	0	1729	0	1711	1766
Flt Permitted	0.959				0.950	
Satd. Flow (perm)	1664	0	1729	0	1711	1766
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)		4		76	76	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	13%	50%	6%	2%	2%	4%
Adj. Flow (vph)	37	6	280	6	1	445
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	286	0	1	445
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	5	230	5	1	365
Future Volume (Veh/h)	30	5	230	5	1	365
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	37	6	280	6	1	445
Pedestrians	76					4
Lane Width (ft)	15.0					11.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	9					0
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	806	363			362	
vC1, stage 1 conf vol	359					
vC2, stage 2 conf vol	447					
vCu, unblocked vol	806	363			362	
tC, single (s)	6.5	6.7			4.1	
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.8			2.2	
p0 queue free %	93	99			100	
cM capacity (veh/h)	504	532			1088	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	286	1	445
Volume Left	37	0	1	0
Volume Right	6	6	0	0
cSH	508	1700	1088	1700
Volume to Capacity	0.08	0.17	0.00	0.26
Queue Length 95th (ft)	7	0	0	0
Control Delay (s)	12.7	0.0	8.3	0.0
Lane LOS	B		A	
Approach Delay (s)	12.7	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	10	15	230	385	10
Future Volume (vph)	5	10	15	230	385	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.908				0.996	
Flt Protected	0.984		0.950			
Satd. Flow (prot)	1590	0	1711	1749	1744	0
Flt Permitted	0.984		0.950			
Satd. Flow (perm)	1590	0	1711	1749	1744	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)			8			8
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	17%	2%	2%	5%	5%	2%
Adj. Flow (vph)	6	13	19	291	487	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	19	291	500	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	10	15	230	385	10
Future Volume (Veh/h)	5	10	15	230	385	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	13	19	291	487	13
Pedestrians	8					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	830	502	508			
vC1, stage 1 conf vol	502					
vC2, stage 2 conf vol	329					
vCu, unblocked vol	830	502	508			
tC, single (s)	6.6	6.2	4.1			
tC, 2 stage (s)	5.6					
tF (s)	3.7	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	503	565	1049			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	19	19	291	500
Volume Left	6	19	0	0
Volume Right	13	0	0	13
cSH	544	1049	1700	1700
Volume to Capacity	0.03	0.02	0.17	0.29
Queue Length 95th (ft)	3	1	0	0
Control Delay (s)	11.9	8.5	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.9	0.5		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	2	245	10	45	350
Future Volume (vph)	20	2	245	10	45	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989		0.995			
Flt Protected	0.956				0.950	
Satd. Flow (prot)	1937	0	1740	0	1711	1749
Flt Permitted	0.956				0.950	
Satd. Flow (perm)	1937	0	1740	0	1711	1749
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	70			35	35	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	5%	5%	2%	5%
Adj. Flow (vph)	22	2	275	11	51	393
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	286	0	51	393
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	2	245	10	45	350
Future Volume (Veh/h)	20	2	245	10	45	350
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	22	2	275	11	51	393
Pedestrians	35		70			
Lane Width (ft)	15.0		11.0			
Walking Speed (ft/s)	3.5		3.5			
Percent Blockage	4		6			
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	880	316			321	
vC1, stage 1 conf vol	316					
vC2, stage 2 conf vol	565					
vCu, unblocked vol	880	316			321	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			96	
cM capacity (veh/h)	461	695			1187	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	24	286	51	393
Volume Left	22	0	51	0
Volume Right	2	11	0	0
cSH	475	1700	1187	1700
Volume to Capacity	0.05	0.17	0.04	0.23
Queue Length 95th (ft)	4	0	3	0
Control Delay (s)	13.0	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.0	0.0	0.9	
Approach LOS	B			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	15	245	5	80	5	175	0	0	370	1
Future Volume (vph)	2	0	15	245	5	80	5	175	0	0	370	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.883			0.858							
Flt Protected		0.993		0.950			0.950					
Satd. Flow (prot)	0	1633	0	1947	1680	0	1711	1859	0	0	1749	0
Flt Permitted		0.993		0.950			0.950					
Satd. Flow (perm)	0	1633	0	1947	1680	0	1711	1859	0	0	1749	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	91		1	1		91	75		22	22		75
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	4%	2%	2%	5%	2%
Adj. Flow (vph)	3	0	19	318	6	104	6	227	0	0	481	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	318	110	0	6	227	0	0	482	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	15	245	5	80	5	175	0	0	370	1
Future Volume (Veh/h)	2	0	15	245	5	80	5	175	0	0	370	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	19	318	6	104	6	227	0	0	481	1
Pedestrians		75			22			1			91	
Lane Width (ft)		12.0			15.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		7			3			0			8	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	994	818	558	762	818	340	557			249		
vC1, stage 1 conf vol	556	556		261	261							
vC2, stage 2 conf vol	437	261		502	557							
vCu, unblocked vol	994	818	558	762	818	340	557			249		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	99	100	96	33	99	83	99			100		
cM capacity (veh/h)	349	437	491	471	433	620	941			1282		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	22	318	110	6	227	482
Volume Left	3	318	0	6	0	0
Volume Right	19	0	104	0	0	1
cSH	465	471	605	941	1700	1700
Volume to Capacity	0.05	0.67	0.18	0.01	0.13	0.28
Queue Length 95th (ft)	4	124	16	0	0	0
Control Delay (s)	13.1	27.0	12.3	8.8	0.0	0.0
Lane LOS	B	D	B	A		
Approach Delay (s)	13.1	23.2		0.2		0.0
Approach LOS	B	C				

Intersection Summary			
Average Delay	8.8		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	15	5	180	630	2
Future Volume (vph)	2	15	5	180	630	2
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.881					
Flt Protected	0.994		0.950			
Satd. Flow (prot)	1631	0	1396	1859	1766	0
Flt Permitted	0.994		0.950			
Satd. Flow (perm)	1631	0	1396	1859	1766	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	663			116	327	
Travel Time (s)	18.1			2.6	7.4	
Confl. Peds. (#/hr)	6	4	71			71
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	25%	4%	4%	2%
Adj. Flow (vph)	3	23	8	273	955	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	8	273	958	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	15	5	180	630	2
Future Volume (Veh/h)	2	15	5	180	630	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	3	23	8	273	955	3
Pedestrians	71			4	6	
Lane Width (ft)	12.0			11.0	11.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	7			0	1	
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1000		
pX, platoon unblocked						
vC, conflicting volume	1322	1032	1029			
vC1, stage 1 conf vol	1028					
vC2, stage 2 conf vol	295					
vCu, unblocked vol	1322	1032	1029			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.4			
p0 queue free %	99	91	99			
cM capacity (veh/h)	305	263	553			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	26	8	273	958
Volume Left	3	8	0	0
Volume Right	23	0	0	3
cSH	267	553	1700	1700
Volume to Capacity	0.10	0.01	0.16	0.56
Queue Length 95th (ft)	8	1	0	0
Control Delay (s)	19.9	11.6	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	19.9	0.3		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	165	15	170	0	0	645
Future Volume (vph)	165	15	170	0	0	645
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	50	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	1859	1863	1863	1859
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	1859	1863	1863	1859
Link Speed (mph)	20		30			30
Link Distance (ft)	1317		350			116
Travel Time (s)	44.9		8.0			2.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%
Adj. Flow (vph)	250	23	258	0	0	977
Shared Lane Traffic (%)						
Lane Group Flow (vph)	250	23	258	0	0	977
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	165	15	170	0	0	645
Future Volume (Veh/h)	165	15	170	0	0	645
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	250	23	258	0	0	977
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	2					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			884			
pX, platoon unblocked						
vC, conflicting volume	1257	280			280	
vC1, stage 1 conf vol	280					
vC2, stage 2 conf vol	977					
vCu, unblocked vol	1257	280			280	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	27	97			100	
cM capacity (veh/h)	344	743			1256	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	250	23	258	0	0	977
Volume Left	250	0	0	0	0	0
Volume Right	0	23	0	0	0	0
cSH	344	743	1700	1700	1700	1700
Volume to Capacity	0.73	0.03	0.15	0.00	0.00	0.57
Queue Length 95th (ft)	136	2	0	0	0	0
Control Delay (s)	38.9	10.0	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	36.5		0.0		0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	170	200	5	835
Future Volume (vph)	0	0	170	200	5	835
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	125	
Storage Lanes	0	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	0	1859	1583	1770	1859
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	1859	1583	1770	1859
Link Speed (mph)	20		30			30
Link Distance (ft)	671		534			350
Travel Time (s)	22.9		12.1			8.0
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	4%	2%	2%	4%
Adj. Flow (vph)	0	0	258	303	8	1265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	258	303	8	1265
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	170	200	5	835
Future Volume (Veh/h)	0	0	170	200	5	835
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	0	0	258	303	8	1265
Pedestrians	22					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			534			
pX, platoon unblocked						
vC, conflicting volume	1561	280			583	
vC1, stage 1 conf vol	280					
vC2, stage 2 conf vol	1281					
vCu, unblocked vol	1561	280			583	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	248	759			991	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	258	303	8	1265
Volume Left	0	0	8	0
Volume Right	0	303	0	0
cSH	1700	1700	991	1700
Volume to Capacity	0.15	0.18	0.01	0.74
Queue Length 95th (ft)	0	0	1	0
Control Delay (s)	0.0	0.0	8.7	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.1	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

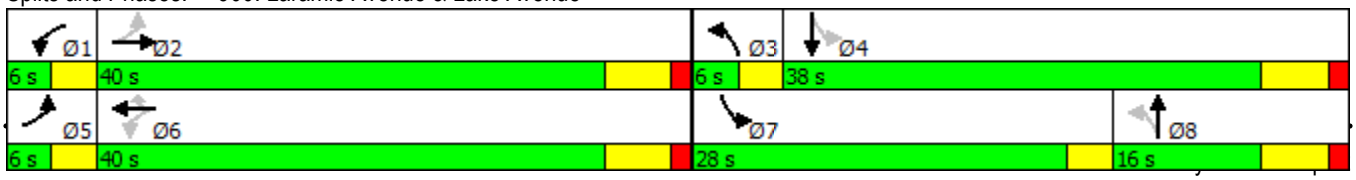
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	980	25	55	1080	260	35	40	85	495	130	235
Future Volume (vph)	75	980	25	55	1080	260	35	40	85	495	130	235
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00				0.95	0.98	0.98		0.99	0.96	
Frt		0.996				0.850		0.898			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1631	3405	0	1711	3725	1553	1711	1779	0	1678	1622	0
Flt Permitted	0.118			0.118			0.519			0.489		
Satd. Flow (perm)	203	3405	0	212	3725	1468	911	1779	0	851	1622	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				176		97			112	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			534	
Travel Time (s)		14.9			50.5			17.6			12.1	
Confl. Peds. (#/hr)	15		4	4		15	36		16	16		36
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	2%	2%	2%	4%	2%	6%	2%	4%	2%	2%
Adj. Flow (vph)	85	1114	28	63	1227	295	40	45	97	563	148	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	1142	0	63	1227	295	40	142	0	563	415	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	21.0	21.0	6.0	16.0		6.0	16.0	
Total Split (s)	6.0	40.0		6.0	40.0	40.0	6.0	16.0		28.0	38.0	
Total Split (%)	6.7%	44.4%		6.7%	44.4%	44.4%	6.7%	17.8%		31.1%	42.2%	
Maximum Green (s)	3.0	34.0		3.0	34.0	34.0	3.0	10.0		25.0	32.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None	None	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	39.4	34.0		39.4	34.0	34.0	16.0	10.0		41.0	34.5	
Actuated g/C Ratio	0.44	0.38		0.44	0.38	0.38	0.18	0.11		0.46	0.39	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.62	0.87		0.44	0.86	0.44	0.21	0.50		0.90	0.59	
Control Delay	36.3	34.7		23.0	33.1	10.6	20.1	20.9		40.3	20.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	36.3	34.7		23.0	33.1	10.6	20.1	20.9		40.3	20.6	
LOS	D	C		C	C	B	C	C		D	C	
Approach Delay		34.8			28.5			20.7			32.0	
Approach LOS		C			C			C			C	
90th %ile Green (s)	3.0	34.0		3.0	34.0	34.0	3.0	10.0		25.0	32.0	
90th %ile Term Code	Max	Max		Max	Max	Max	Max	Max		Max	Max	
70th %ile Green (s)	3.0	34.0		3.0	34.0	34.0	3.0	10.0		25.0	32.0	
70th %ile Term Code	Max	Max		Max	Max	Max	Max	Max		Max	Hold	
50th %ile Green (s)	3.0	34.0		3.0	34.0	34.0	3.0	10.0		25.0	32.0	
50th %ile Term Code	Max	Max		Max	Max	Max	Max	Max		Max	Hold	
30th %ile Green (s)	3.0	34.0		3.0	34.0	34.0	0.0	10.0		25.0	38.0	
30th %ile Term Code	Max	Max		Max	Max	Max	Skip	Max		Max	Hold	
10th %ile Green (s)	0.0	34.0		0.0	34.0	34.0	0.0	10.0		25.0	38.0	
10th %ile Term Code	Skip	Max		Skip	Max	Max	Skip	Max		Max	Hold	
Queue Length 50th (ft)	26	313		19	334	45	12	24		253	141	
Queue Length 95th (ft)	#63	#405		39	410	107	29	76		#389	234	
Internal Link Dist (ft)		683			2514			693			454	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	138	1306		144	1427	671	191	286		626	698	
Starvation Cap Reductn	0	0		0	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	0.62	0.87		0.44	0.86	0.44	0.21	0.50		0.90	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 31.0 Intersection LOS: C
Intersection Capacity Utilization 89.1% ICU Level of Service E
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 90
30th %ile Actuated Cycle: 90
10th %ile Actuated Cycle: 84
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 900: Laramie Avenue & Lake Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	15	10	5	15	105
Future Volume (vph)	45	15	10	5	15	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.955		0.882	
Flt Protected		0.964			0.994	
Satd. Flow (prot)	0	1655	1660	0	1579	0
Flt Permitted		0.964			0.994	
Satd. Flow (perm)	0	1655	1660	0	1579	0
Link Speed (mph)		30	20		30	
Link Distance (ft)		100	982		364	
Travel Time (s)		2.3	33.5		8.3	
Confl. Peds. (#/hr)	4			4	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	7%	2%	2%	2%	2%
Adj. Flow (vph)	53	18	12	6	18	124
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	71	18	0	142	0
Sign Control		Free	Free		Stop	

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	15	10	5	15	105
Future Volume (Veh/h)	45	15	10	5	15	105
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	53	18	12	6	18	124
Pedestrians		2	1		4	
Lane Width (ft)		10.0	10.0		11.0	
Walking Speed (ft/s)		3.5	3.5		3.5	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22				144	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				144	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	88
cM capacity (veh/h)	1588				817	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	71	18	142
Volume Left	53	0	18
Volume Right	0	6	124
cSH	1588	1700	1014
Volume to Capacity	0.03	0.01	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	5.5	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	5.5	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	60	5	1	115	5	2
Future Volume (vph)	60	5	1	115	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.961	
Flt Protected					0.966	
Satd. Flow (prot)	1844	0	0	1863	1729	0
Flt Permitted					0.966	
Satd. Flow (perm)	1844	0	0	1863	1729	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	267			100	136	
Travel Time (s)	6.1			2.3	3.1	
Confl. Peds. (#/hr)		2	2		1	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	66	5	1	126	5	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	0	127	7	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	5	1	115	5	2
Future Volume (Veh/h)	60	5	1	115	5	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	66	5	1	126	5	2
Pedestrians	1			4	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			73		200	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			73		200	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1524		786	981

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	71	127	7
Volume Left	0	1	5
Volume Right	5	0	2
cSH	1700	1524	834
Volume to Capacity	0.04	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.4
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	5	330	115	10	155	60
Future Volume (vph)	5	330	115	10	155	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	11	11
Storage Length (ft)		0	0		55	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.867					0.850
Flt Protected				0.956	0.950	
Satd. Flow (prot)	1615	0	0	1662	1711	1531
Flt Permitted				0.956	0.950	
Satd. Flow (perm)	1615	0	0	1662	1711	1531
Link Speed (mph)	30			30	30	
Link Distance (ft)	787			267	184	
Travel Time (s)	17.9			6.1	4.2	
Confl. Peds. (#/hr)		1	1		3	5
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	344	120	10	161	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	349	0	0	130	161	63
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	5	330	115	10	155	60
Future Volume (vph)	5	330	115	10	155	60
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	344	120	10	161	63

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	349	130	161	63
Volume Left (vph)	0	120	161	0
Volume Right (vph)	344	0	0	63
Hadj (s)	-0.56	0.22	0.53	-0.67
Departure Headway (s)	4.2	5.1	6.1	4.9
Degree Utilization, x	0.40	0.19	0.27	0.09
Capacity (veh/h)	825	658	556	681
Control Delay (s)	9.9	9.3	10.2	7.2
Approach Delay (s)	9.9	9.3	9.3	
Approach LOS	A	A	A	

Intersection Summary			
Delay	9.6		
Level of Service	A		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	210	5	5	440
Future Volume (vph)	5	5	210	5	5	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.997			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1864	0	1795	0	1711	1801
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1864	0	1795	0	1711	1801
Link Speed (mph)	20		30			30
Link Distance (ft)	1014		150			184
Travel Time (s)	34.6		3.4			4.2
Confl. Peds. (#/hr)				8	8	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	5	219	5	5	458
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	224	0	5	458
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	5	210	5	5	440
Future Volume (Veh/h)	5	5	210	5	5	440
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	5	219	5	5	458
Pedestrians	8					
Lane Width (ft)	15.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	698	230			232	
vC1, stage 1 conf vol	230					
vC2, stage 2 conf vol	468					
vCu, unblocked vol	698	230			232	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	575	802			1323	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	10	224	5	458
Volume Left	5	0	5	0
Volume Right	5	5	0	0
cSH	670	1700	1323	1700
Volume to Capacity	0.01	0.13	0.00	0.27
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	10.5	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	10.5	0.0	0.1	
Approach LOS	B			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	5	2	215	445	2
Future Volume (vph)	1	5	2	215	445	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	40			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887				0.999	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1639	0	1711	1801	1799	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1639	0	1711	1801	1799	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	667			100	150	
Travel Time (s)	18.2			2.3	3.4	
Confl. Peds. (#/hr)			2			2
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	5	2	224	464	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	2	224	466	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	5	2	215	445	2
Future Volume (Veh/h)	1	5	2	215	445	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1	5	2	224	464	2
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	695	467	468			
vC1, stage 1 conf vol	467					
vC2, stage 2 conf vol	228					
vCu, unblocked vol	695	467	468			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	579	595	1091			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	6	2	224	466
Volume Left	1	2	0	0
Volume Right	5	0	0	2
cSH	592	1091	1700	1700
Volume to Capacity	0.01	0.00	0.13	0.27
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	11.1	8.3	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.1	0.1		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	1	215	55	15	435
Future Volume (vph)	2	1	215	55	15	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	11	12	11	11
Storage Length (ft)	0	0		0	40	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.972			
Flt Protected	0.968				0.950	
Satd. Flow (prot)	1894	0	1750	0	1711	1801
Flt Permitted	0.968				0.950	
Satd. Flow (perm)	1894	0	1750	0	1711	1801
Link Speed (mph)	20		30			30
Link Distance (ft)	1020		227			100
Travel Time (s)	34.8		5.2			2.3
Confl. Peds. (#/hr)	19			7	7	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	1	226	58	16	458
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	284	0	16	458
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	1	215	55	15	435
Future Volume (Veh/h)	2	1	215	55	15	435
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1	226	58	16	458
Pedestrians	7		19			
Lane Width (ft)	15.0		11.0			
Walking Speed (ft/s)	3.5		3.5			
Percent Blockage	1		2			
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	771	262			291	
vC1, stage 1 conf vol	262					
vC2, stage 2 conf vol	509					
vCu, unblocked vol	771	262			291	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	535	770			1260	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	3	284	16	458
Volume Left	2	0	16	0
Volume Right	1	58	0	0
cSH	596	1700	1260	1700
Volume to Capacity	0.01	0.17	0.01	0.27
Queue Length 95th (ft)	0	0	1	0
Control Delay (s)	11.1	0.0	7.9	0.0
Lane LOS	B		A	
Approach Delay (s)	11.1	0.0	0.3	
Approach LOS	B			

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	5	145	1	35	5	235	55	15	420	1
Future Volume (vph)	1	1	5	145	1	35	5	235	55	15	420	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	12	12	15	15	12	11	11	12	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.904			0.974			0.972				
Flt Protected		0.993			0.961		0.950			0.950		
Satd. Flow (prot)	0	1672	0	0	1918	0	1711	1842	0	1711	1801	0
Flt Permitted		0.993			0.961		0.950			0.950		
Satd. Flow (perm)	0	1672	0	0	1918	0	1711	1842	0	1711	1801	0
Link Speed (mph)		25			20			30			30	
Link Distance (ft)		652			1800			327			227	
Travel Time (s)		17.8			61.4			7.4			5.2	
Confl. Peds. (#/hr)	2		1	1		2	4		4	4		4
Confl. Bikes (#/hr)									1			1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1	1	5	159	1	38	5	258	60	16	462	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	198	0	5	318	0	16	463	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 45.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	5	145	1	35	5	235	55	15	420	1
Future Volume (Veh/h)	1	1	5	145	1	35	5	235	55	15	420	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	1	5	159	1	38	5	258	60	16	462	1
Pedestrians		4			4			1			2	
Lane Width (ft)		12.0			15.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	807	830	468	802	801	294	467			322		
vC1, stage 1 conf vol	498	498		302	302							
vC2, stage 2 conf vol	308	332		500	499							
vCu, unblocked vol	807	830	468	802	801	294	467			322		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	67	100	95	100			99		
cM capacity (veh/h)	470	468	593	479	475	740	1090			1232		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	198	5	318	16	463
Volume Left	1	159	5	0	16	0
Volume Right	5	38	0	60	0	1
cSH	551	513	1090	1700	1232	1700
Volume to Capacity	0.01	0.39	0.00	0.19	0.01	0.27
Queue Length 95th (ft)	1	45	0	0	1	0
Control Delay (s)	11.6	16.3	8.3	0.0	8.0	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	11.6	16.3	0.1		0.3	
Approach LOS	B	C				

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	5	5	295	570	1
Future Volume (vph)	1	5	5	295	570	1
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900
Lane Width (ft)	12	12	11	11	11	12
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887					
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1639	0	1711	1895	1801	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1639	0	1711	1895	1801	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	663			116	327	
Travel Time (s)	18.1			2.6	7.4	
Confl. Peds. (#/hr)			4			4
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1	5	5	317	613	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	5	317	614	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	5	5	295	570	1
Future Volume (Veh/h)	1	5	5	295	570	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	5	5	317	613	1
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1000		
pX, platoon unblocked						
vC, conflicting volume	944	618	618			
vC1, stage 1 conf vol	618					
vC2, stage 2 conf vol	327					
vCu, unblocked vol	944	618	618			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	99			
cM capacity (veh/h)	482	488	958			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	6	5	317	614
Volume Left	1	5	0	0
Volume Right	5	0	0	1
cSH	487	958	1700	1700
Volume to Capacity	0.01	0.01	0.19	0.36
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	12.5	8.8	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	12.5	0.1		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	10	290	55	1	575
Future Volume (vph)	40	10	290	55	1	575
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	50	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.972			0.850		
Flt Protected	0.962				0.950	
Satd. Flow (prot)	1742	0	1895	1583	1770	1895
Flt Permitted	0.962				0.950	
Satd. Flow (perm)	1742	0	1895	1583	1770	1895
Link Speed (mph)	20		30			30
Link Distance (ft)	1317		350			116
Travel Time (s)	44.9		8.0			2.6
Confl. Peds. (#/hr)				11	11	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	43	11	312	59	1	618
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	312	59	1	618
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	10	290	55	1	575
Future Volume (Veh/h)	40	10	290	55	1	575
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	43	11	312	59	1	618
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			884			
pX, platoon unblocked						
vC, conflicting volume	943	323			382	
vC1, stage 1 conf vol	323					
vC2, stage 2 conf vol	620					
vCu, unblocked vol	943	323			382	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			100	
cM capacity (veh/h)	482	710			1164	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	54	312	59	1	618
Volume Left	43	0	0	1	0
Volume Right	11	0	59	0	0
cSH	516	1700	1700	1164	1700
Volume to Capacity	0.10	0.18	0.03	0.00	0.36
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	12.8	0.0	0.0	8.1	0.0
Lane LOS	B			A	
Approach Delay (s)	12.8	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	340	1	1	620
Future Volume (vph)	0	0	340	1	1	620
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		125	125	
Storage Lanes	0	0		1	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	0	0	1895	1583	1770	1895
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	1895	1583	1770	1895
Link Speed (mph)	20		30			30
Link Distance (ft)	671		534			350
Travel Time (s)	22.9		12.1			8.0
Confl. Peds. (#/hr)				11	11	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	366	1	1	667
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	366	1	1	667
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	340	1	1	620
Future Volume (Veh/h)	0	0	340	1	1	620
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	366	1	1	667
Pedestrians	11					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			534			
pX, platoon unblocked						
vC, conflicting volume	1046	377			378	
vC1, stage 1 conf vol	377					
vC2, stage 2 conf vol	669					
vCu, unblocked vol	1046	377			378	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	453	670			1180	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	366	1	1	667
Volume Left	0	0	1	0
Volume Right	0	1	0	0
cSH	1700	1700	1180	1700
Volume to Capacity	0.22	0.00	0.00	0.39
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	8.1	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

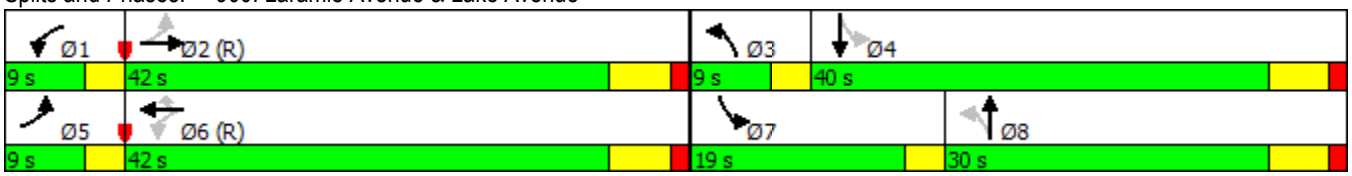
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	905	30	65	1245	205	35	40	60	370	100	150
Future Volume (vph)	90	905	30	65	1245	205	35	40	60	370	100	150
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	15	12	11	12	12
Storage Length (ft)	250		0	90		125	75		0	430		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	145			95			75			80		
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
Ped Bike Factor		1.00					1.00	0.99		1.00	0.99	
Frt		0.995				0.850		0.910			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3402	0	1601	3725	1583	1711	1849	0	1711	1672	0
Flt Permitted	0.085			0.190			0.594			0.557		
Satd. Flow (perm)	153	3402	0	320	3725	1583	1067	1849	0	1002	1672	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				131		65			81	
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		763			2594			773			534	
Travel Time (s)		14.9			50.5			17.6			12.1	
Confl. Peds. (#/hr)			2	2			3		1	1		3
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	9%	2%	2%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	97	973	32	70	1339	220	38	43	65	398	108	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1005	0	70	1339	220	38	108	0	398	269	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	15.0	3.0	10.0		3.0	10.0	
Minimum Split (s)	6.0	21.0		6.0	25.0	25.0	6.0	28.0		6.0	28.0	
Total Split (s)	9.0	42.0		9.0	42.0	42.0	9.0	30.0		19.0	40.0	
Total Split (%)	9.0%	42.0%		9.0%	42.0%	42.0%	9.0%	30.0%		19.0%	40.0%	
Maximum Green (s)	6.0	36.0		6.0	36.0	36.0	6.0	24.0		16.0	34.0	
Yellow Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5		3.0	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	7.0		3.0	7.0	7.0	3.0	4.0		3.0	4.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)					7.0	7.0		7.0			7.0	
Flash Dont Walk (s)					12.0	12.0		15.0			15.0	
Pedestrian Calls (#/hr)					0	0		0			0	
Act Effct Green (s)	58.6	48.8		57.5	48.3	48.3	20.5	11.6		33.6	25.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.59	0.49		0.58	0.48	0.48	0.20	0.12		0.34	0.25	
v/c Ratio	0.46	0.60		0.25	0.74	0.26	0.15	0.40		0.88	0.56	
Control Delay	17.9	21.7		11.2	25.7	8.4	23.9	22.7		52.0	28.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.9	21.7		11.2	25.7	8.4	23.9	22.7		52.0	28.1	
LOS	B	C		B	C	A	C	C		D	C	
Approach Delay		21.4			22.8			23.0			42.4	
Approach LOS		C			C			C			D	
90th %ile Green (s)	10.5	39.8		9.5	38.8	38.8	6.0	16.7		16.0	26.7	
90th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
70th %ile Green (s)	8.6	47.0		7.9	46.3	46.3	6.0	11.1		16.0	21.1	
70th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Hold		Max	Gap	
50th %ile Green (s)	7.7	48.8		7.2	48.3	48.3	6.0	10.0		16.0	20.0	
50th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Max	Min		Max	Hold	
30th %ile Green (s)	7.0	49.5		6.5	49.0	49.0	0.0	10.0		16.0	29.0	
30th %ile Term Code	Gap	Coord		Gap	Coord	Coord	Skip	Min		Max	Hold	
10th %ile Green (s)	0.0	59.0		0.0	59.0	59.0	0.0	10.0		16.0	29.0	
10th %ile Term Code	Skip	Coord		Skip	Coord	Coord	Skip	Min		Max	Hold	
Queue Length 50th (ft)	23	234		16	349	30	17	26		223	111	
Queue Length 95th (ft)	62	359		41	#566	89	36	72		#332	183	
Internal Link Dist (ft)		683			2514			693			454	
Turn Bay Length (ft)	250			90		125	75			430		
Base Capacity (vph)	213	1663		279	1798	832	258	493		450	621	
Starvation Cap Reductn	0	0		0	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	0.46	0.60		0.25	0.74	0.26	0.15	0.22		0.88	0.43	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 900: Laramie Avenue & Lake Avenue



SECTION 8:

Traffic Management Plan

LOYOLA ACADEMY

Transportation Management Plan

Kimley»Horn

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LIST OF EXHIBITS

Exhibit 1 Overall School Master Plan

Exhibit 2 School Master Plan – Phase 1

Exhibit 3 School Arrival Period Access/Circulation Plan

Exhibit 4 School Dismissal Period Access/Circulation Plan

Exhibit 5 Parking Plan

Exhibit 6 Pedestrian Plan

INTRODUCTION

Purpose and Objectives

The Transportation Management Plan (TMP) is a summary of Loyola Academy's proposed objectives and strategies to manage the various the transportation conditions at the school during the typical school day.

Like most high schools, Loyola Academy experiences concentrations of traffic and parking activity in the morning leading up to the start of the school day and after school leading up to and after dismissal. To a lesser degree, midday transportation needs, in particular for school visitors, require attention. However, unlike most high schools, Loyola Academy geographically draws student enrollment from an area beyond the local community. Thus, school bus service is not practical and the school is faced with some unique challenges. Students commute by auto and park (using on and off-site locations), auto and dropped off/picked up by a parent/guardian, public transportation, foot, and bicycle.

As part of a recent Campus Master Plan process in 2016 and 2017, The Loyola Forward 2025 Master Plan, several new campus elements were identified to address current transportation issues and improve conditions both on school property and along the adjacent roadways. This TMP has been prepared to assure that the use of these key elements is maximized and related strategies and policies to manage transportation conditions at the school are documented.

The TMP is a dynamic document in the sense that it should not be considered static or complete. The TMP has been created concurrently with the identification of Phase 1 of the Master Plan. Subsequent phases may result in adjustments to select parking areas and facilities on school property. Prior to implementing subsequent phases, the TMP should be updated, as appropriate to incorporate associated changes to the school campus. Further, as operational conditions may evolve over time, the TMP should be reviewed and updated periodically to identify opportunities for supplemental or modified measures.

School Overview

Loyola Academy is a Jesuit high school generally located east of Laramie Avenue between Lake Avenue and Illinois Road in Wilmette, Illinois. The school also owns adjacent parcels west of Laramie Avenue and north of Illinois Road. Student enrollment at the school varies year to year, but is generally near 2,000 students with a relatively even distribution among Freshman, Sophomore, Junior, and Senior classes.

Starting with the 2017-18 academic year, the scheduled school day starts at 7:45 AM with dismissal at 2:48 PM. This dismissal time represents a 12-minute adjustment from previous years at 3:00 PM.

Campus Master Plan

The Loyola Forward 2025 Master Plan was crafted for the entire 23.5-acre Loyola Academy campus, which includes parcels of land Loyola Academy owns both north of Illinois Road and east and west of Laramie Avenue. Loyola anticipates implementing its vision for its campus over a period of approximately seven to ten years. Key elements of the multi-phase Master Plan include (with Phase 1 components noted with an *):

New Building Facilities

- Upgrades and renovation of existing building classrooms, administrative, and specialty spaces*
- Natatorium*
- Theater
- Student Commons/Resource Center
- Administrative Support and Mission Outreach

Site and Operational Improvements

- Improved On-Site Parking*
- On-Site Traffic Circulation and Vehicle Stacking*
- Relocated Tennis Facilities*
- Pedestrian Safety Improvements*
- Improved Open Park and Recreation Space*
- Landscape Buffer, Campus Edge Treatments, and Signage*
- Underground Stormwater Storage*

The overall Campus Master Plan and the Phase 1 plan are illustrated in **Exhibit 1** and **Exhibit 2**, respectively.

PLANNING PRINCIPLES

As part of the improved traffic management operations at the campus, Loyola Academy has established the following planning principles to guide transportation management programs, policies, and planning efforts. Referencing these principles is intended to consider transportation conditions at the school and the surrounding area.

- Provide a safe environment for all school and community populations, including pedestrians, bicyclists, transit riders, and vehicle drivers/passengers.
- Promote orderly and efficient flow of traffic on and off school property
- Limit impacts on traffic congestion during school peak arrival and dismissal periods
- Support the awareness and understanding of the plan's key elements by students, parents, and the community through multiple communication means and methods

TRANSPORTATION MANAGEMENT PLAN

Vehicular Traffic

Strategy: *If possible, post a police or community patrol officer at the Lake Avenue/Laramie Avenue intersection to manually control the traffic signal during peak school arrival and dismissal periods*

The default traffic signal timing prioritizes east-west traffic along Lake Avenue. Thus, the relatively short peaks of traffic activity coinciding with school arrival and dismissal periods result in congestion along Laramie Avenue. To help flush southbound traffic from Laramie Avenue during these periods and reduce the level/duration of congestion, the Village of Wilmette Police Department would post a police or community patrol officer at the Lake/Laramie intersection, at the expense of Loyola Academy, and manually control the traffic signal timing during these peak periods on school days provided staff resources are available. During these periods, anticipated to occur for approximately 30 minutes each morning and afternoon, manual control of the traffic signal should seek to reduce congestion on Laramie Avenue while balancing safety and operational considerations along Lake Avenue.

Strategy: *Shift school dismissal time up to reduce overlap with New Trier's West Campus dismissal time*

Starting with the 2017-18 academic year, Loyola Academy will shift the school dismissal bell up 12 minutes from 3:00 PM to 2:48 PM. This shift will create a 17-minute difference between dismissal times at Loyola Academy and New Trier's West Campus (3:05 PM dismissal), limiting the overlap of related traffic and combined traffic impacts on nearby streets.

Strategy: *Implement peak period access restrictions to facilitate on-site drop-off and pick-up circulation and a new stacking plan*

Using the access labels shown on Exhibit 2, Table 1 outlines the ingress and egress designations for each school driveway.

Table 1. Access Ingress/Egress Designations

Access	Description	Time	Use
A – D	Parking Access	All Times	Entry + Exit
E	Arrival/Dismissal Exit	AM Arrival + PM Dismissal	Exit-Only
	Parking Access	All Other Times	Entry-Only
F	Student Parking	AM Arrival	Entry-Only
		PM Dismissal	Exit-Only
	Parking Access	All Other Times	Entry + Exit
G	Arrival/Dismissal Entry + Parking Access	All Times	Entry-Only

Exhibit 3 and **Exhibit 4** illustrate the peak arrival and dismissal access and circulation routes, respectively.

Strategy: *Provide capacity to accommodate all drop-off and pick-up stacking on site*

Currently, on-site stacking at Loyola Academy has been observed to collectively reach approximately 40 vehicles across multiple locations during the dismissal period. During the same time, up to approximately 35 vehicles have been waiting on Thornwood Avenue, Greenwood Avenue, Elmwood Avenue, and Walnut Avenue just west of Laramie Avenue. The Master Plan provides capacity (82 vehicles) to accommodate all stacking needs and shift vehicles from neighborhood streets to the school property.

As shown on **Exhibit 3** and **Exhibit 4**, the Master Plan includes a new dual lane student loading and stacking area along the west side of the stadium. Between Access E and Access F, the dual lane configuration includes curbside parking/stacking with an adjacent bypass lane so that vehicles may continue to circulation through the area, particularly vehicles further upstream in the queue that have picked up their student(s). Additional stacking is available along the north side of the relocated tennis courts and in front of the main school building entrance (between Access D and Access E).

Strategy: *Deploy portable "No Student Drop-Off or Pick-Up" signs on neighborhood streets just west of Laramie Avenue on school days*

To support the plan to shift drop-off/pick-up activity from adjacent neighborhood streets, Loyola Academy will deploy temporary "No Student Drop-Off or Pick-Up" signs just west of Laramie Avenue on school days. These areas should be monitored, particularly at the start of each academic year, to promote this restriction. As needed, this restriction should be re-communicated to students and parents during the school year as a reminder and to request compliance.

Strategy: *Adjust drop-off/pick-up access and circulation routes to eliminate a conflict between entering and exiting traffic on Laramie Avenue*

Drop-off and pick-up traffic currently enters the school property at Access D, turns south in front of the school building's main entrance, and exits at Access E. In order to allow vehicles to exit the school property and keep traffic moving through the student loading area during peak periods, traffic control aides stop north-south traffic on Laramie Avenue which results in residual congestion along the corridor through other intersections.

The Master Plan incorporates a new access location and circulation pattern for entering traffic as shown on **Exhibit 3** and **Exhibit 4**. Entering traffic will now enter at new Access G and the south end of the parking lot, circulate counterclockwise through the new student loading area, and exit to Laramie Avenue at Access E. Since the entry and exit routes will not cross, less traffic will need to stop on Laramie Avenue to let out vehicles that just dropped off or picked up students.

Strategy: *Post traffic control aides at key external access and on-site locations during peak school arrival and dismissal periods*

Loyola Academy currently posts traffic control aides at select access locations along Laramie Avenue. As indicated on **Exhibit 3** and **Exhibit 4**, an expanded deployment of traffic control aides is recommended both on-site (3-4 locations) and at access driveways (2-3 locations) to facilitate access, foster orderly traffic flow on-site, and direct drivers to efficiently use the loading and stacking queue areas during peak arrival and dismissal periods.

Parking

Exhibit 5 illustrates the allocation of student permit, staff, visitor, and ADA-accessible parking spaces.

Strategy: *Allow visitor parking within the dual-lane student loading area along the west side of the stadium*

To accommodate the varying demands for visitor parking throughout the academic year, the 32 parallel parking spaces within the dual-lane student loading area should be available for visitor parking needs between 8:00 AM and 2:00 PM. This period starts after students are in school and allows time before parents begin to line up for dismissal (observed to be up to 30 minutes in advance) for school officials to locate owners of any remaining parked vehicles after 2:00 PM so they may be relocated.

Strategy: *Student Parking Permits*

The Campus Master Plan includes a provision for 375 on-site student permit parking spaces. The remaining spaces are allocated for staff and school visitors. The 375 spaces for student parking generally represent 75 percent of the Senior class. Since all students who wish to drive to school cannot be accommodated on-site, the school will continue to utilize a lottery system for permit distribution. However, to maximize the utility of the limited parking capacity and increase the average vehicle occupancy, assignment of student permits should prioritize students that commit to regular carpool arrangements. Illinois law regulates the number of passengers in a vehicle driven by a motorist within 12 months of receiving their license, or until the driver turns 18, whichever comes first. In that period, the driver is limited to one passenger under the age of 20 unless they are a sibling or child of the driver. Considering that most Seniors will have maintained their license for at least 12 months, carpool commitments among Senior applicants should receive priority assignment of permits. The school should also occasionally monitor compliance of carpool commitments.

Pedestrians

Exhibit 6 shows key pedestrian-related elements of the Master Plan, including new fencing, and new/improved crosswalk markings and signs. It also illustrates the allocation of student permit, staff, visitor, and ADA-accessible parking spaces.

Strategy: *Install new fencing along Laramie Avenue between Access D and Access E to direct pedestrians to marked/controlled crosswalks*

Students regularly use a set of stone stairs west of the school building's main entrance and cross Laramie Avenue at various locations/directions north and through the Laramie Avenue/Greenwood Avenue intersection. The new fence will orient pedestrians north to the crosswalk at Access D or south to a new crosswalk at Access E. At both of these locations, traffic control aides will be posted with objectives to control traffic and safely manage the pedestrian crosswalks.

Public Transportation

Strategy: *Maintain on-site Pace Bus staging for school dismissal*

Approximately 14 percent of students commute to/from Loyola Academy via Pace Bus, with 60 percent of those pairing with another form of public transportation (CTA Rail or Metra). Prior to school dismissal, Pace Bus stacks 4-5 buses in the parking aisle between Access D (entry) and Access C (exit). After loading passengers, the buses exit to the north and south on Laramie Avenue. Subsequent buses follow their regular routes and pick-up passengers at the bus stop/shelter on the west side of Laramie Avenue across from Access D, where a traffic control aide assists in safely managing the pedestrian crosswalk. **Exhibit 3** and **Exhibit 4** illustrate the bus stop and staging locations.

COMMUNICATION + COORDINATION

A key planning principle for the TMP includes increasing education and promotion of the plan's objectives, strategies, and expectations of students, parents, and staff. In addition, the TMP is intended to be a dynamic document that will be updated to reflect subsequent phases of the Campus Master Plan's implementation and in response to monitoring of observed transportation conditions. Thus, it is important that Loyola Academy remains active and open in communicating the plan with students, parents, staff, and the community. The following section summarizes the methods of communication and coordination among stakeholders.

Website, E-mail, and Social Media

In addition to the school's website and use of e-mail distribution lists, Loyola Academy maintains a presence several social media outlets which can be used to communicate the plan, share reminders, and post alerts or notices regarding plan adjustments or special events. The school can be followed via the following:

- Website www.goramblers.org
- Twitter @LoyolaAcademy
- Facebook @goramblers

School Handbook and Plan Acknowledgment

Each Summer, before the start of the academic year, is an opportune time to introduce the plan to incoming Freshmen and their families. It is also a time to remind Sophomores, Juniors, and Seniors of the TMP, it's key elements, and the expectations of students, parents, and staff to adhere to the plan in order to facilitate safe and orderly conditions for transportation access, circulation, and parking. Thus, the TMP will be included and fully explained within the school handbook. The school handbook is a document containing a range of school policies that is reviewed and signed by both parents and students to acknowledge their agreement and understanding of said policies and plans along with their corresponding expectations, including those outlined in the TMP.

Village and Community Coordination

As a continuation of the Campus Master Plan process, Loyola Academy will continue to host periodic meeting forums to provide plan updates, solicit input and feedback, and interface with Village Staff and neighbors. This coordination and communication with Village Staff departments and neighbors is necessary to implement components of the Campus Master Plan, to monitor and manage the transportation and parking conditions on site, and review transportation management activities and effectiveness.

Loyola Academy recognizes the importance of maintaining healthy dialogue with the Village and surrounding community regarding upcoming events, planning, and facility changes that affect both the school and neighborhood. Continued relationships with these groups are a desired and useful method to communicate on transportation issues going forward.

Contact Information

The following is key contact information for Loyola Academy related to the TMP.

Dennis Stonequist - Executive Vice President
Tel: (847) 920-2443
E-mail dstonequist@loy.org

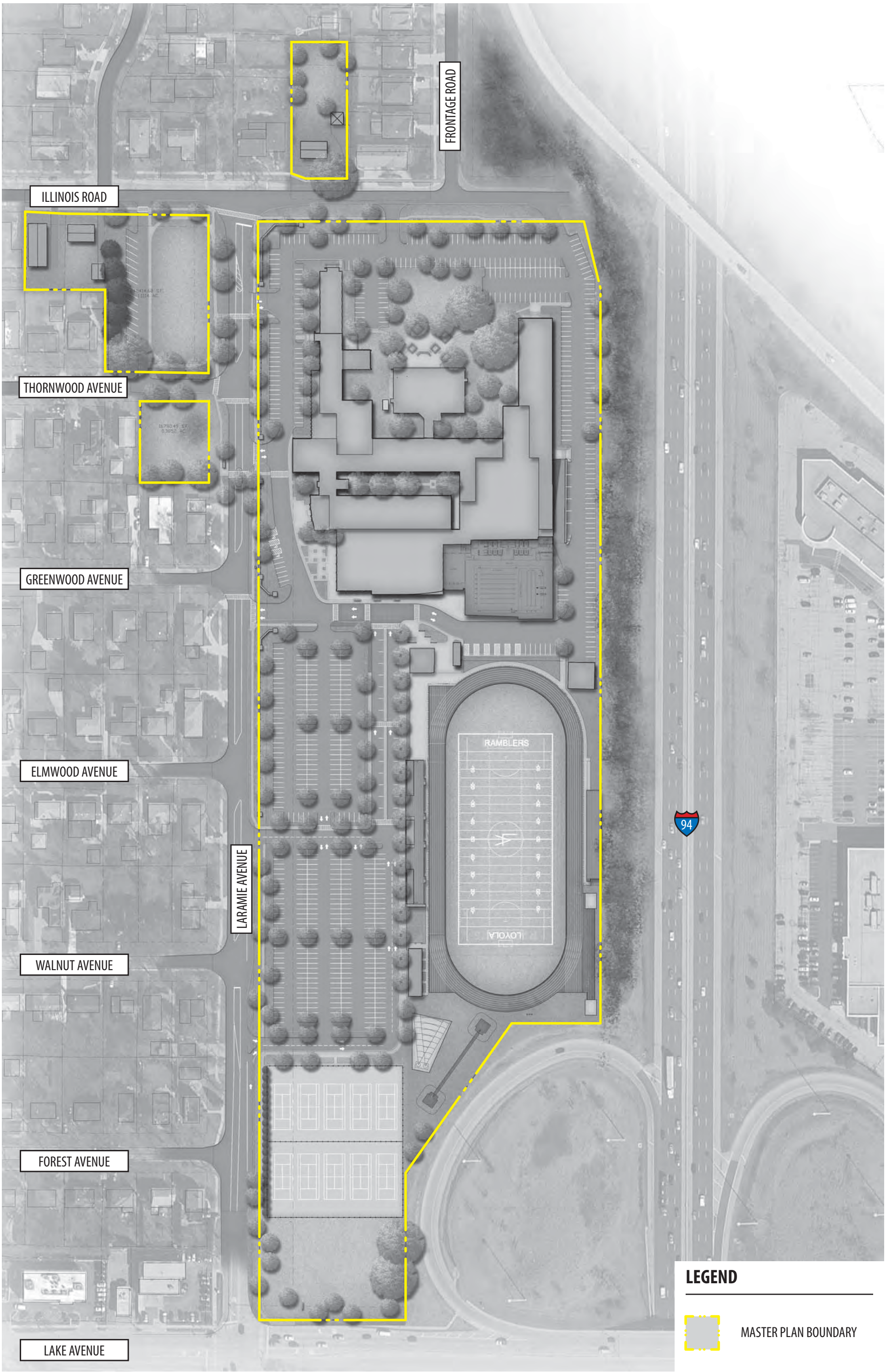

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EXHIBIT 1

LOYOLA FORWARD 2025 MASTER PLAN

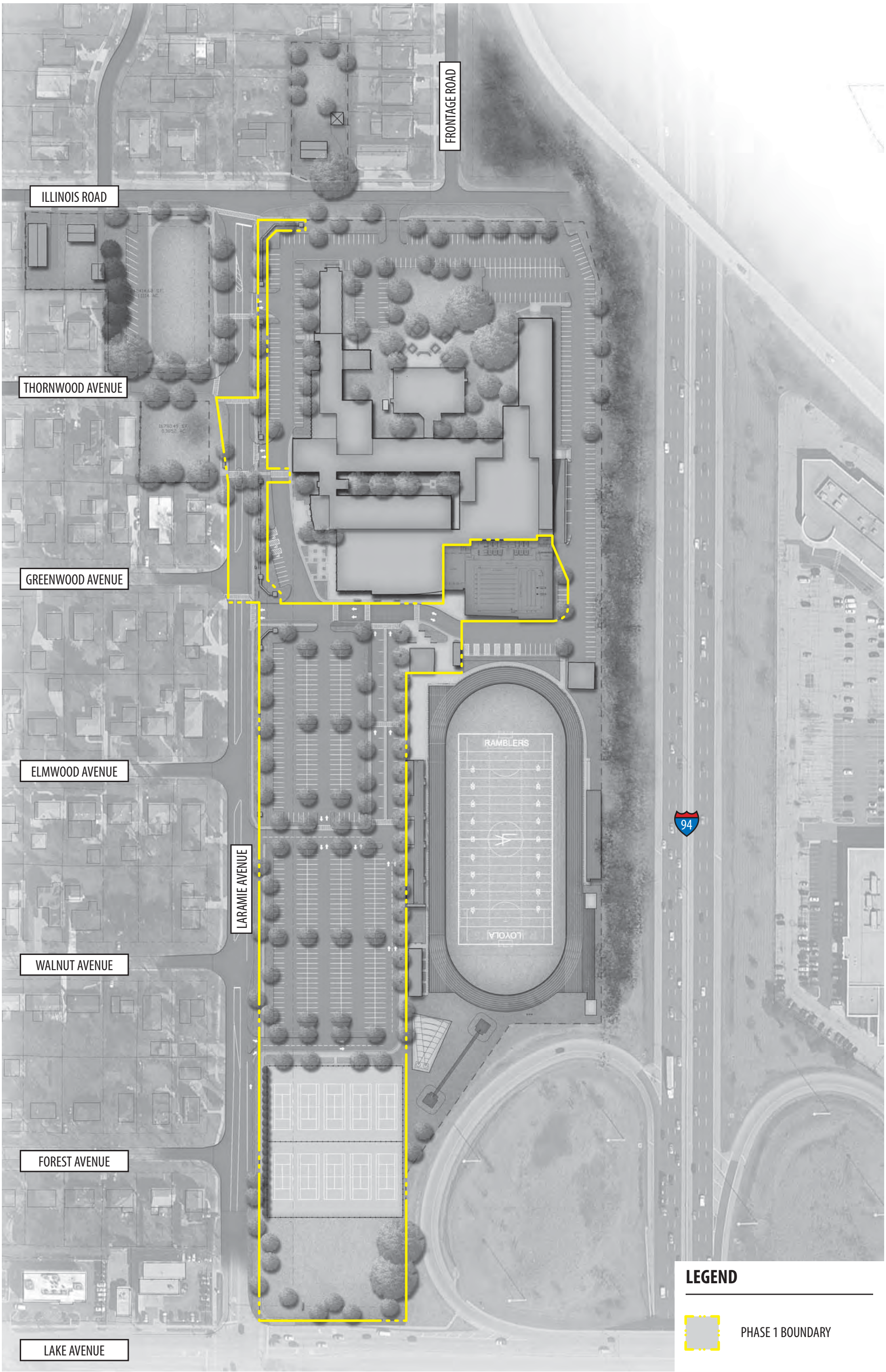

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EXHIBIT 2

LOYOLA FORWARD 2025 MASTER PLAN - PHASE 1

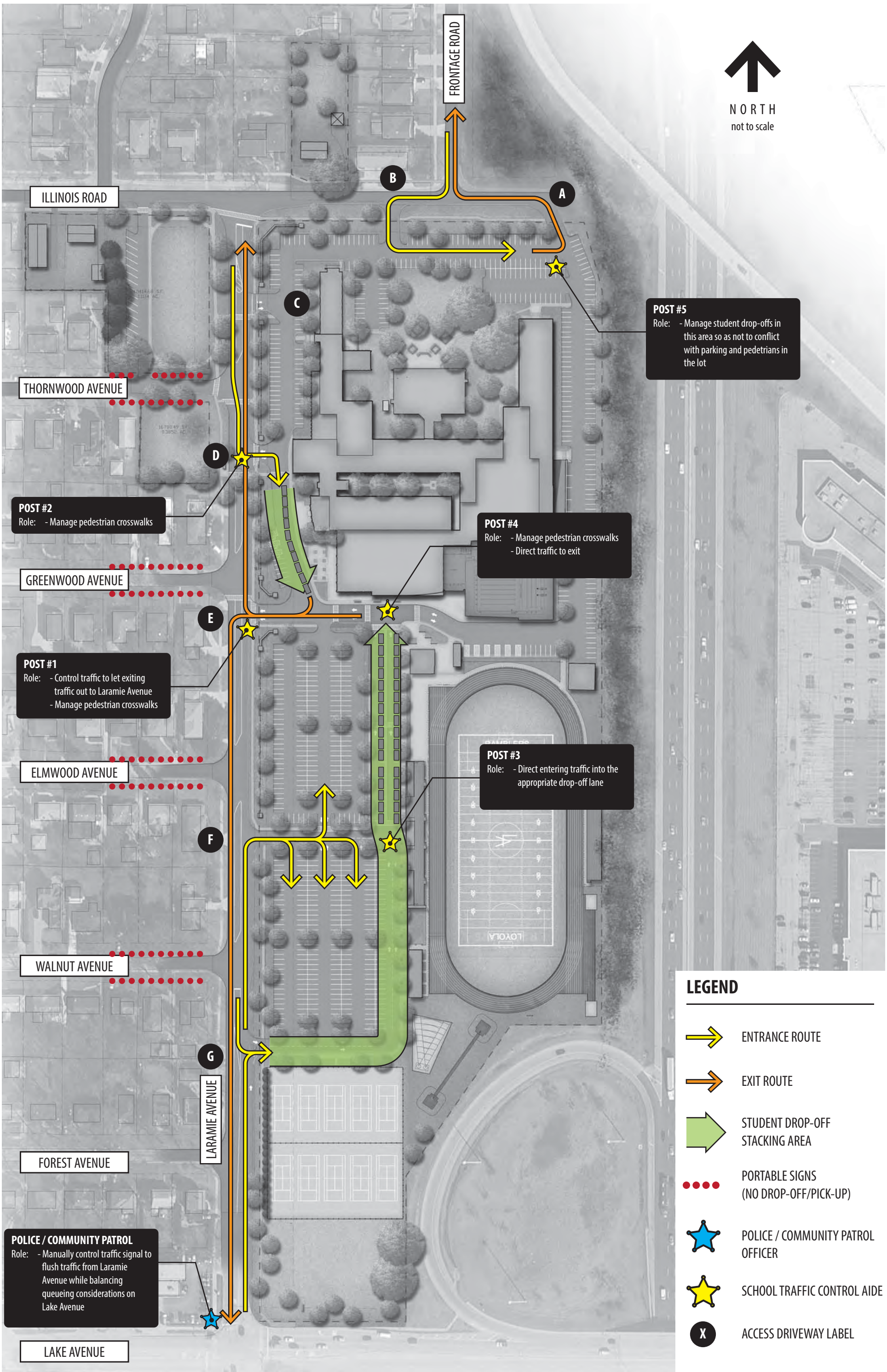

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EXHIBIT 3

ARRIVAL PERIOD TRAFFIC/CIRCULATION PLAN

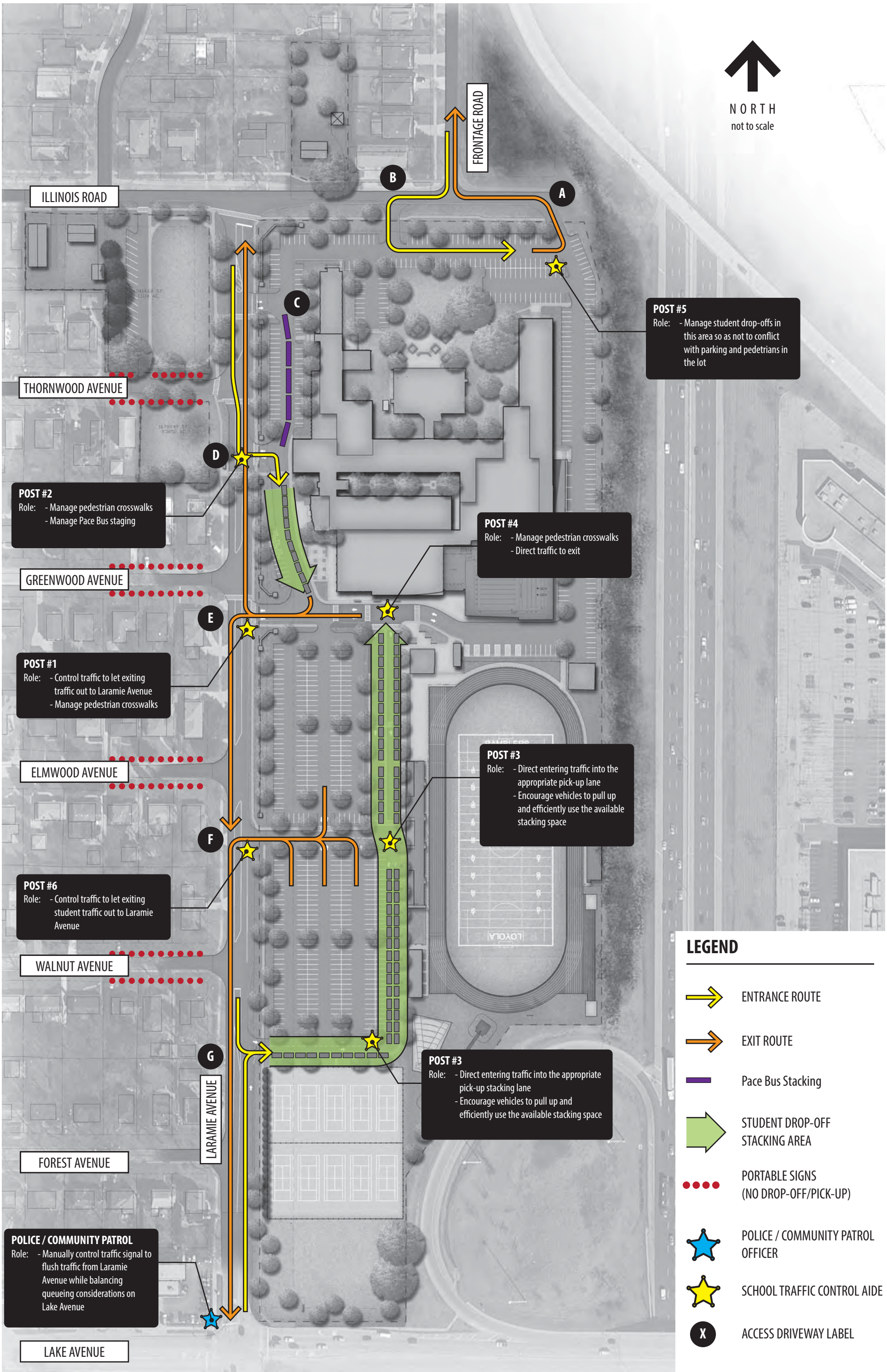

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EXHIBIT 4

DISMISSAL PERIOD TRAFFIC/CIRCULATION PLAN

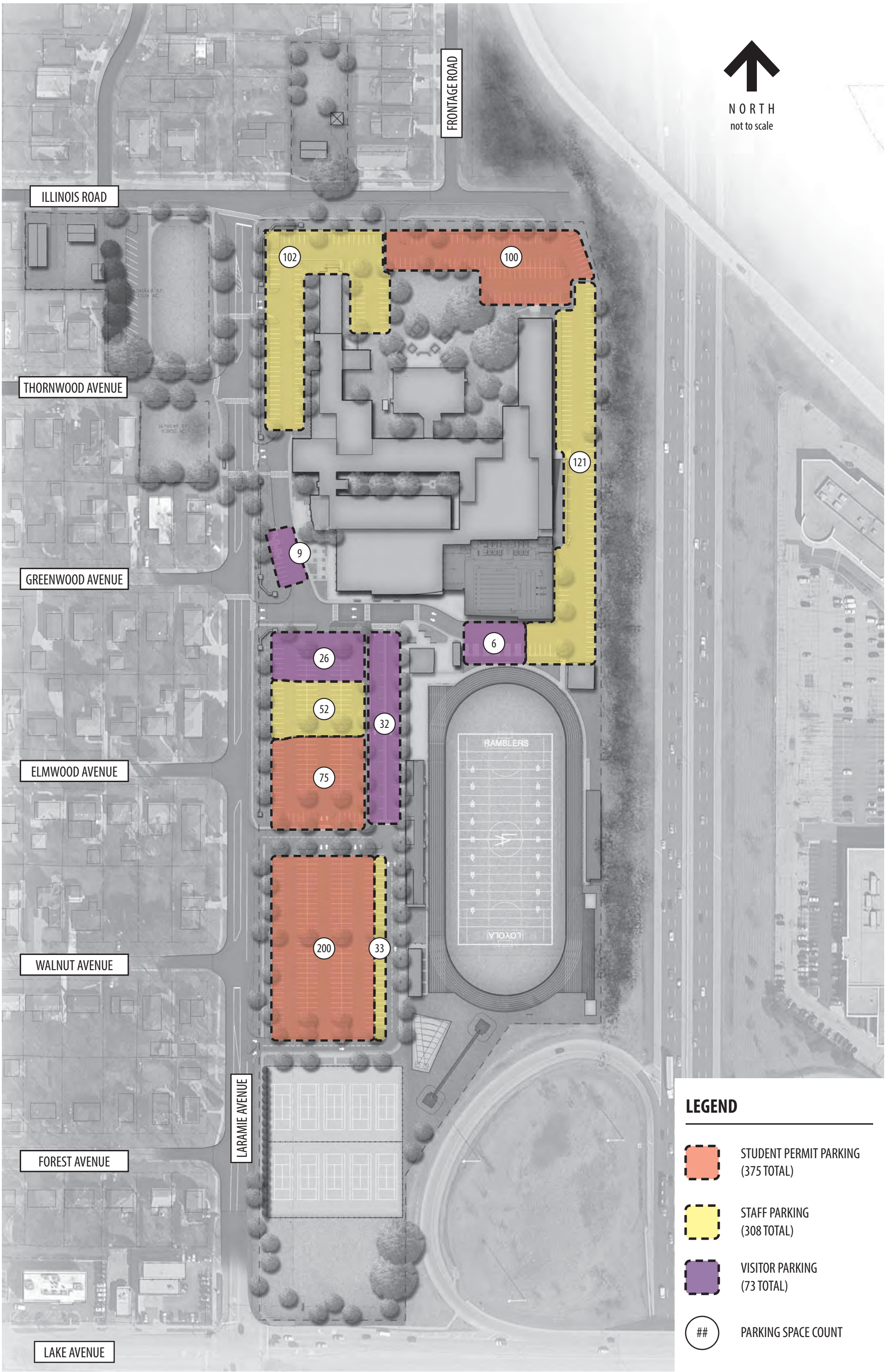

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EXHIBIT 5
PARKING PLAN

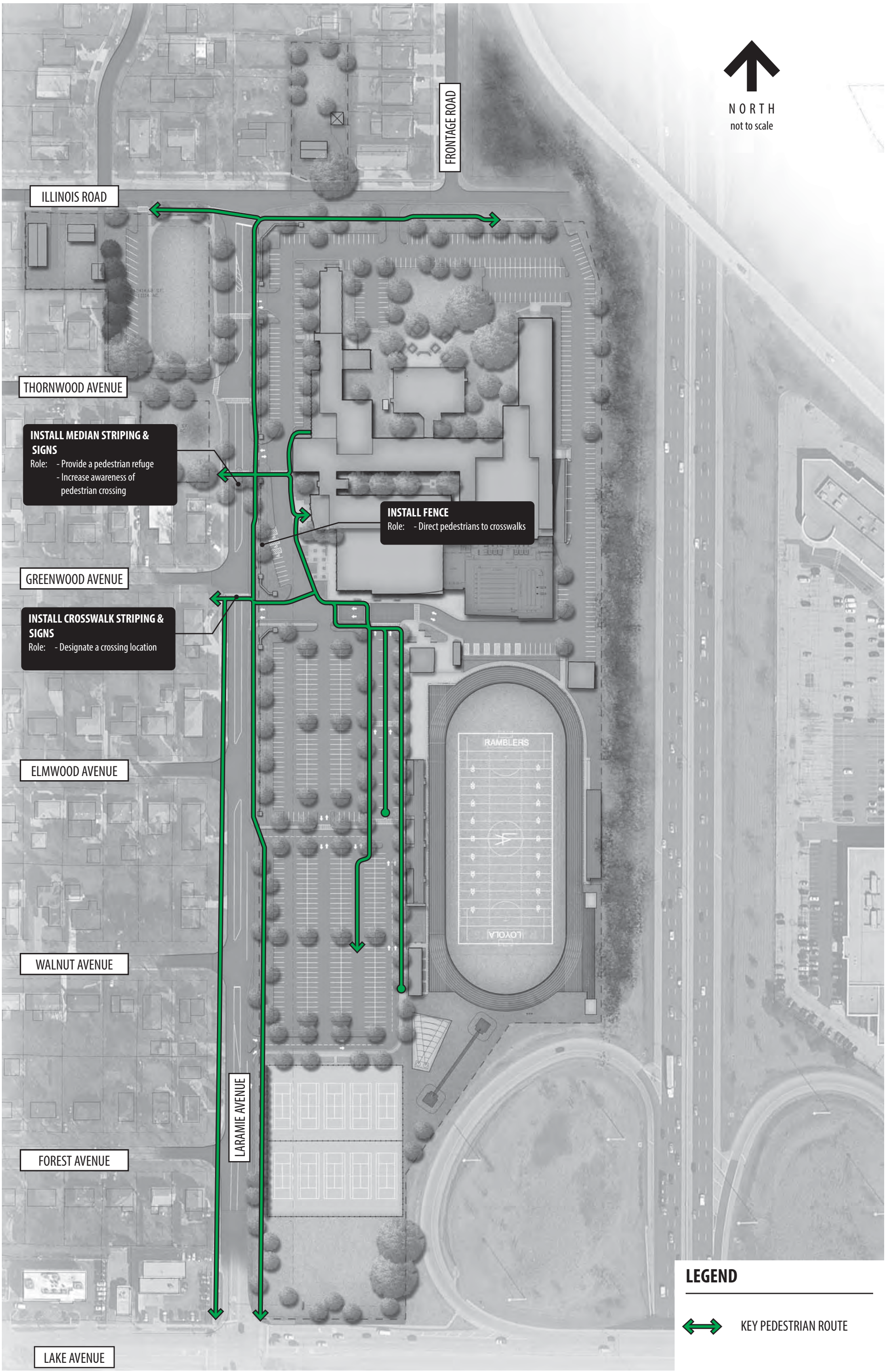

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EXHIBIT 6
PEDESTRIAN PLAN

SECTION 9:

Stormwater Analysis & Engineering Plan

STORMWATER MANAGEMENT EXECUTIVE SUMMARY

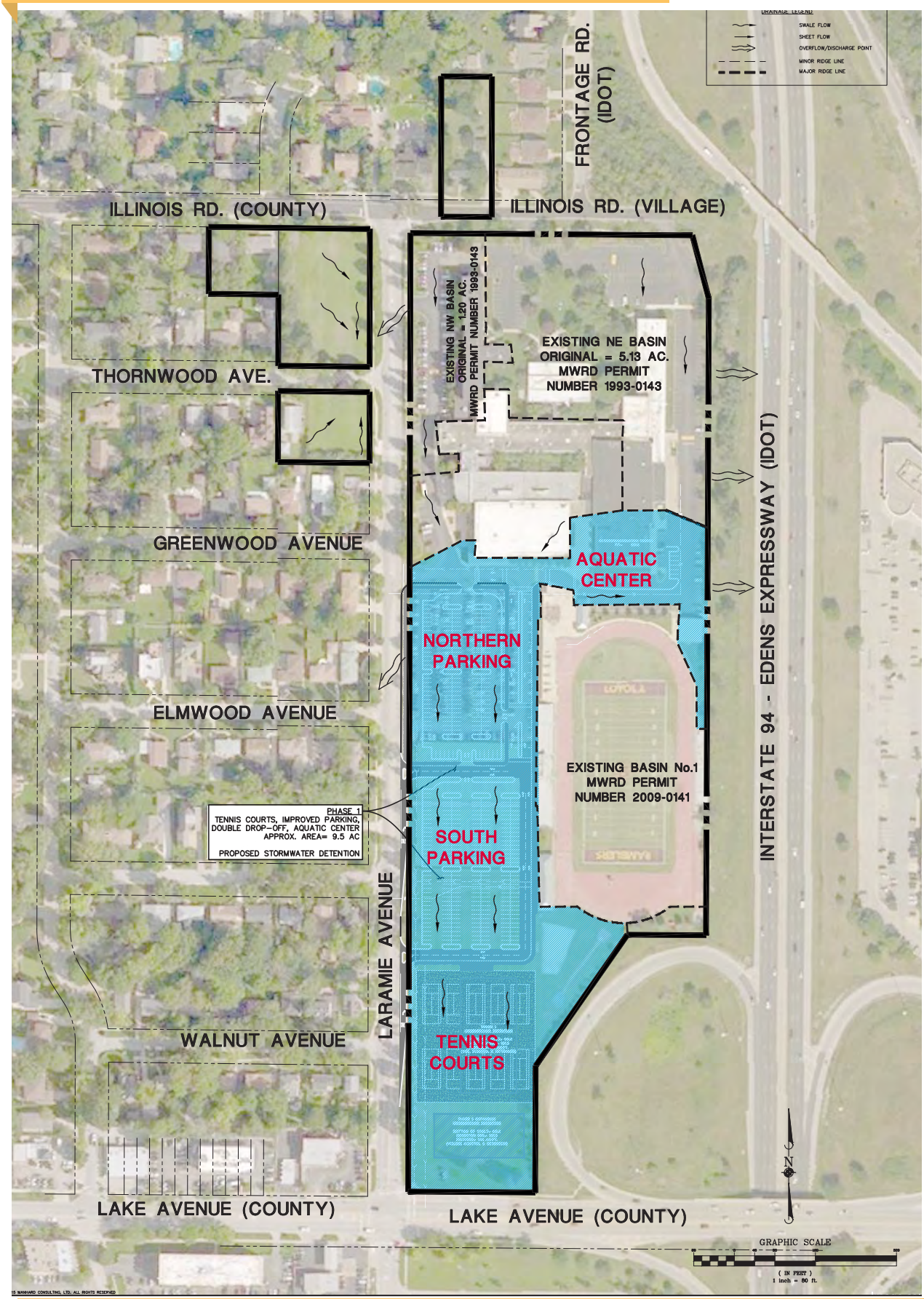
The original development of the Loyola Academy campus did not include stormwater detention, though subsequent improvements that were permitted by the Metropolitan Water Reclamation District of Greater Chicago (MWRD) required stormwater detention. These were the 1993 expansion plans and the 2009 stadium renovation and synthetic turf field addition.

Because the site is non-residential and greater than three acres, Runoff Requirements, Volume Control Requirements, and Detention Requirements must be met per the MWRD Watershed Management Ordinance (WMO). The proposed underground storage will be a CMP Detention System.

Construction of the proposed improvements will minimally increase impervious area and provide both volume control and underground detention for the onsite tributary areas. Stormwater runoff from the site will be collected and routed to the proposed detention facility, where water will be detained, and the flow will be restricted.

The total flow into the downstream storm sewer system (Village of Wilmette) will be under the net allowable release rate. The stormwater design is in compliance with the MWRD Watershed Management Ordinance. Although the underground storage (East of Laramie) will be installed within two (2) phases, it will be permitted under one (1) MWRD Permit.

STORMWATER IMPROVEMENTS



PRELIMINARY ENGINEERING PLAN
for
LOYOLA ACADEMY
PROJECT ADDRESS
VILLAGE OF WILMETTE, ILLINOIS

STANDARD SYMBOLS

EXISTING / PROPOSED

STORM SEWER
SANITARY SEWER
COMBINED SEWER
FORCEMAIN
DRAINTILE
WATER MAIN
ELECTRIC
GAS
TELEPHONE
OVERHEAD WIRES
SANITARY MANHOLE
STORM MANHOLE
CATCH BASIN
STORM INLET
CLEANOUT
HAY BALES
RIP RAP
VALVE IN VAULT
VALVE IN BOX
FIRE HYDRANT
BUFFALO BOX
FLARED END SECTION
STREET LIGHT
SUMMIT / LOW POINT
RIM ELEVATION
INVERT ELEVATION
DITCH OR SWALE
DIRECTION OF FLOW
OVERFLOW RELIEF SWALE
1 FOOT CONTOURS
CURB AND GUTTER
DEPRESSED CURB AND GUTTER
REVERSE CURB AND GUTTER
SIDEWALK
DETECTABLE WARNINGS
PROPERTY LINE
EASEMENT LINE
SETBACK LINE
MAIL BOX
SIGN
TRAFFIC SIGNAL
POWER POLE
GUY WIRE
GAS VALVE
HANDHOLE
ELECTRICAL EQUIPMENT
TELEPHONE EQUIPMENT
CHAIN-LINK FENCE
SPOT ELEVATION
BRUSH/TREE LINE
DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)
CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)
SILT FENCE
RETAINING WALL
WETLAND

ABBREVIATIONS

ADJ	ADJUST
AGG.	AGGREGATE
ARCH	ARCHITECT
B.A.M.	BITUMINOUS AGGREGATE MIXTURE
B-B	BACK TO BACK
B/C	BACK OF CURB
B/P	BOTTOM OF PIPE
B/W	BACK OF WALK
B-BOX	BUFFALO BOX
BIT.	BITUMINOUS
BM.	BENCHMARK
B.O.	BY OTHERS
C.E.	COMMERCIAL ENTRANCE
CB	CATCH BASIN
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CNTRL.	CONTROL
C.O.	CLEANOUT
CONC.	CONCRETE
CY	CUBIC YARD
D	DITCH
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
DWM	DUCTILE IRON WATER MAIN
DS	DOWNSPOUT
DT	DRAIN TILE
E	ELECTRIC
E-E	EDGE TO EDGE
ELEV.	ELEVATION
E/P	EDGE OF PAVEMENT
EX.	EXISTING
F.E.	FIELD ENTRANCE
F-F	FACE TO FACE
F.F.	FINISHED FLOOR
FES	FLARED END SECTION
F/L	FLOW LINE
FM	FORCE MAIN
G	GROUND
G/F	GRADE AT FOUNDATION
GW	GUY WIRE
HDWL	HEADWALL
HH	HANDHOLE
HWL	HIGH WATER LEVEL
HYD.	HYDRANT
INL	INLET
INV.	INVERT
IP	IRON PIPE
LT	LEFT
MAX.	MAXIMUM
MB	MAILBOX
M/E	MEET EXISTING
MH	MANHOLE
MIN.	MINIMUM
NWL	NORMAL WATER LEVEL
P.E.	PRIVATE ENTRANCE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
⅊	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
P	PAVEMENT
P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT
R	RADIUS
R.O.W.	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
REM	REMOVAL
REV	REVERSE
RR	RAILROAD
RT	RIGHT
SAN	SANITARY
SF	SQUARE FOOT
SHLD.	SHOULDER
SL	STREET LIGHT
SMH	SANITARY MANHOLE
ST	STORM
STA.	STATION
STD	STANDARD
SW	SIDEWALK
SY	SQUARE YARDS
TBR	TO BE REMOVED
T	TELEPHONE
T-A	TYPE A
T/C	TOP OF CURB
T/F	TOP OF FOUNDATION
T/P	TOP OF PIPE
T/W	TOP OF WALK
T/WALL	TOP OF WALL
TEMP	TEMPORARY
TRANS	TRANSFORMER
V.B.	VALVE BOX
VCP	VITRIFIED CLAY PIPE
V.V.	VALVE VAULT
WL	WATER LEVEL
WM	WATER MAIN

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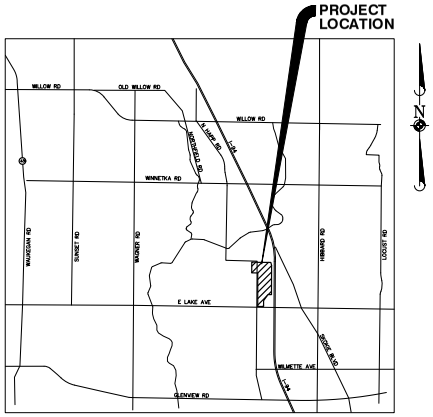

LOCATION MAP
N.T.S.

LOYOLA ACADEMY
1100 N. LARAMIE AVENUE
WILMETTE, ILLINOIS 60091
847-256-1100

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JULIE ILLINOIS CALL BEFORE YOU DIG

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SITE PLAN – NORTH
3	SITE PLAN – SOUTH
4	GRADING AND UTILITY PLAN – NORTH
5	GRADING AND UTILITY PLAN – SOUTH

ATTACHMENTS

CONTECH UNDERGROUND DETENTION SYSTEM PLANS (PRELIMINARY)

NOTES:

1. THE BOUNDARY LINES AND TOPOGRAPHY FOR THIS PROJECT ARE BASED ON A FIELD SURVEY COMPLETED BY MANHARD CONSULTING, LTD. ON APRIL 17, 2017. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY MANHARD CONSULTING AND THE CLIENT IN WRITING OF ANY DIFFERING CONDITIONS.

REFERENCE BENCHMARK: (NGS PID:NG0129)
SURVEY DISK SET IN CONCRETE MIONUMENT 0.6 MI W FROM WILMETTE. 0.55 MILES WEST ALONG LAKE AVENUE FROM THE VILLAGE HALL ANNEX, AT THE INTERSECTION OF LAKE AVENUE AND RIDGE ROAD, SET IN THE NORTH LAWN OF ST. JOSEPH CHURCH, 82.2 FEET EAST OF THE EAST CURB OF RIDGE ROAD, 73.3 FEET NORTH OF THE CENTER LINE OF THE NORTHWEST MAIN ENTRANCE TO THE CHURCH 23.9 FEET SOUTH OF THE SOUTH CURB OF LAKE AVENUE. A COOK COUNTY HIGHWAY DEPARTMENT DISK IN THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND AND ABOUT LEVEL WITH THE STREET

ELEVATION= 633.73 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 1:
ARROW BOLT ON FIRE HYDRANT IN CURB ISLAND TO THE WEST OF THE FIELD ENTRANCE 5 FEET ± EAST OF BACK OF CURB.

ELEVATION=628.21 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 2:
ARROW BOLT ON FIRE HYDRANT TO THE EAST OF DOCK AREA BEHIND SCHOOL

ELEVATION=625.20 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 3:
ARROW BOLT ON FIRE HYDRANT TO THE NORTH AT THE SOUTHWEST CORNER OF LARAMIE AVE AND ILLINOIS ROAD, APPROXIMATELY 43 FEET ± SOUTH OF CENTERLINE OF ILLINOIS AVE & 37 FEET ± WEST OF CENTERLINE OF LARAMIE AVE.

ELEVATION=626.57 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 4:
SQUARE CUT IN WEST SIDE OF CONCRETE BASE OF TRAFFIC SIGNAL POST AT THE NORTHEAST CORNER OF LARAMIE AVE. AND LAKE STREET APPROXIMATELY 46 FEET ± EAST OF TYHE CENTERLINE OF LARAMIE AVE & 65 FEET ± NORTH ON THE CENTERLINE OF LAKE ST.

ELEVATION=624.31 DATUM=NAVD88-GEOID 12B

EXP. 11/30/17
SEAL

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REVISIONS
DATE | DESCRIPTION | BY

Manhard CONSULTING LTD

LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS
TITLE SHEET

PROJ. MGR.: SMS
PROJ. ADDR.: DM3
DRAWN BY: SL
DATE: 07/14/17
SCALE: 1" = 30'

SHEET 1 OF 5

LACWMIL01

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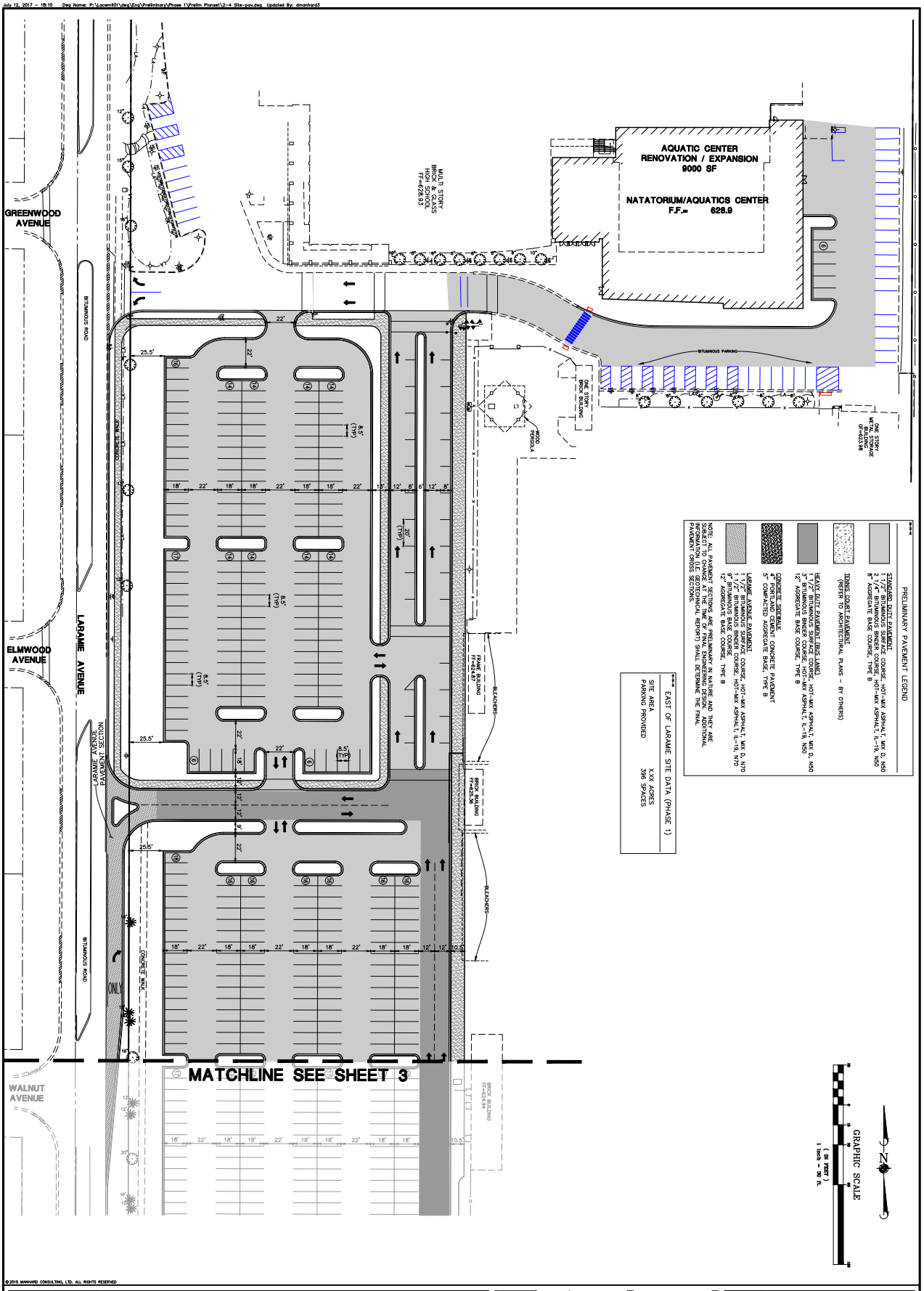
July 12, 2017 – 18:10 Dwg Name: P:\Locwm101\dwg\Eng\Preliminary\Phase 1\Prelim Planset\2-4 Site-pov.dwg Updated By: dmanhard3
GREENWOOD AVENUE
ELMWOOD AVENUE
WALNUT AVENUE
LARAMIE AVENUE
LARAMIE AVENUE PAVEMENT SECTION
BITUMINOUS ROAD
CONCRETE WALK
ONLY
MATCHLINE SEE SHEET 3
MULTI STORY BRICK & GLASS HIGH SCHOOL FF=628.83
AQUATIC CENTER RENOVATION / EXPANSION 9000 SF
NATATORIUM/AQUATICS CENTER F.F.= 628.9
BITUMINOUS PARKING
ONE STORY BRICK BUILDING
WOOD GAZEBO
ONE STORY METAL STORAGE BUILDING FF=623.98
BRICK BUILDING FF=626.87
BRICK BUILDING FF=626.84
BLEACHERS
8.5' (TYP)
22'
25.5'
18'
12'
8'
6'
10.5'
PRELIMINARY PAVEMENT LEGEND
STANDARD DUTY PAVEMENT
2 1/2" BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
2 1/2" BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
8" AGGREGATE BASE COURSE, TYPE B
TENNIS COURT PAVEMENT
(REFER TO ARCHITECTURAL PLANS – BY OTHERS)
HEAVY DUTY PAVEMENT (BUS LANE)
1 1/2" BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
3 1/2" BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
12" AGGREGATE BASE COURSE, TYPE B
CONCRETE SIDEWALK
4" PORTLAND CEMENT CONCRETE PAVEMENT
5" COMPACTED AGGREGATE BASE, TYPE B
LARAMIE AVENUE PAVEMENT
1 1/2" BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N70
1 1/2" BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N70
9" BITUMINOUS BASE COURSE
12" AGGREGATE BASE COURSE, TYPE B
NOTE: ALL PAVEMENT SECTIONS ARE PRELIMINARY IN NATURE AND THEY ARE SUBJECT TO CHANGE BASED ON FUTURE GEOTECHNICAL INFORMATION (I.E. GEOTECHNICAL REPORT) SHALL DETERMINE THE FINAL PAVEMENT CROSS SECTIONS.
EAST OF LARAMIE SITE DATA (PHASE 1)
SITE AREA XXX ACRES
PARKING PROVIDED 396 SPACES
GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.
N
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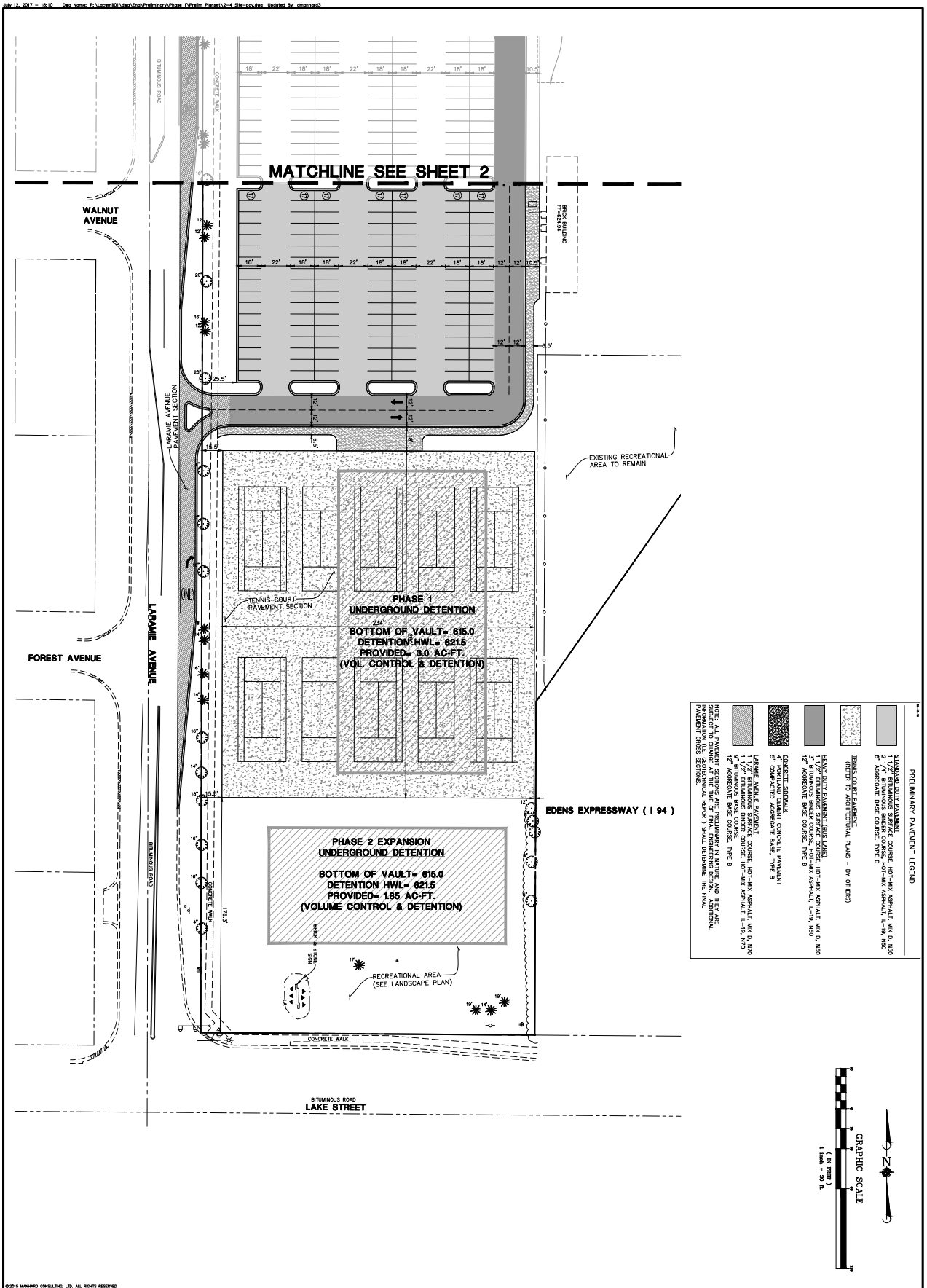
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS
SITE PLAN - NORTH
Manhard CONSULTING LTD
SHEET 2 OF 5
LACWMLI01
DATE: 07/14/17
SCALE: 1
PROJ. MGR.: DMA
DRAWN BY: DMA
DATE
REVISIONS
DRAWN BY
FOR REVIEW AND V. - NOT FOR CONSTRUCTION



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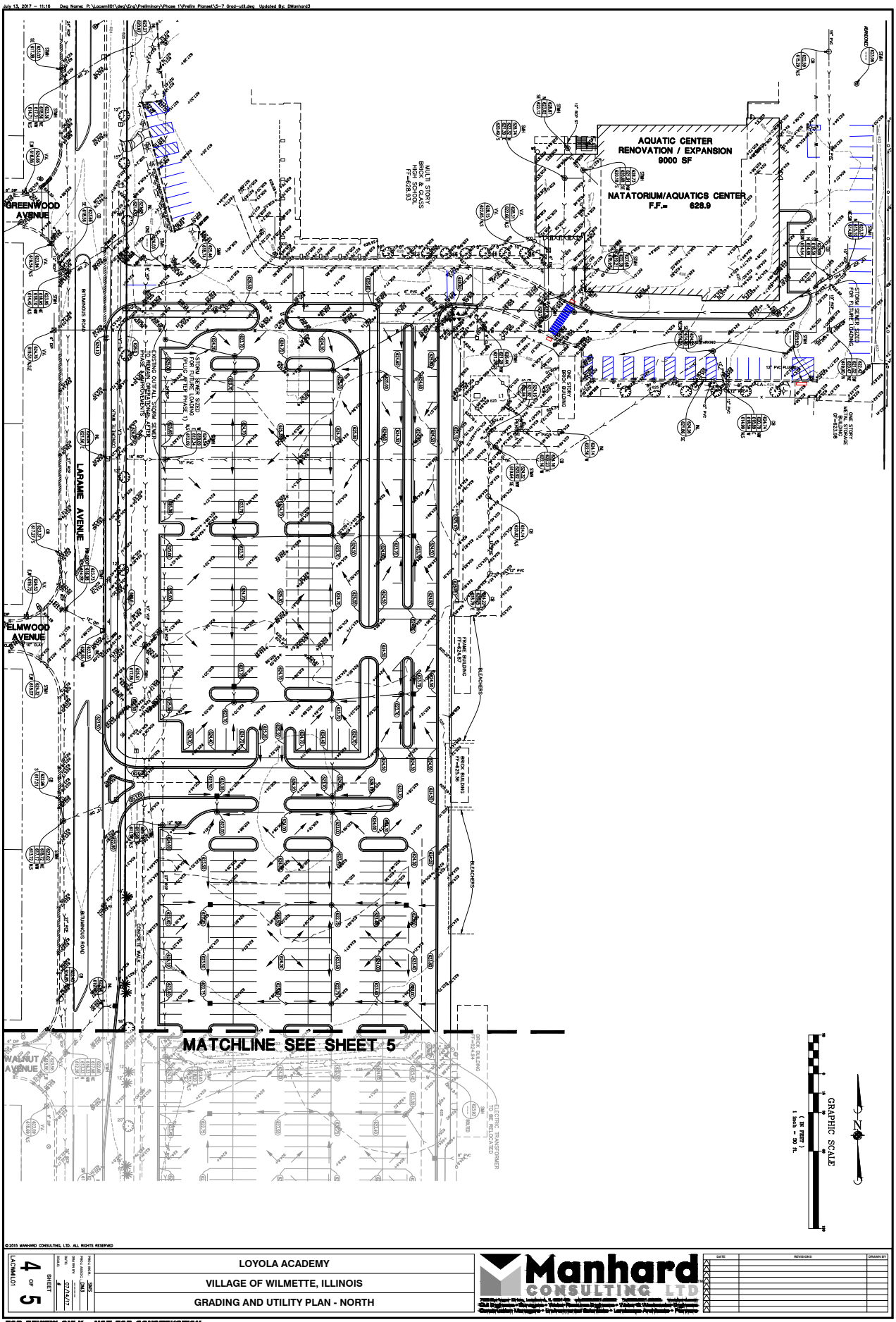

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LOYOLA ACADEMY

VILLAGE OF WILMETTE, ILLINOIS

GRADING AND UTILITY PLAN - NORTH

Manhard CONSULTING LTD

Civil Engineers • Structural Engineers • Water Resources Engineers • Water Treatment Engineers • Land Surveyors • Land Planners • Landscape Architects • Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

SHEET 4 OF 5

LAOWMLO1

DATE: 07/14/17

SCALE: 1"

DRAWN BY: DMH

PROJ. MGR.: DMH

PROJ. ENGR.: DMH

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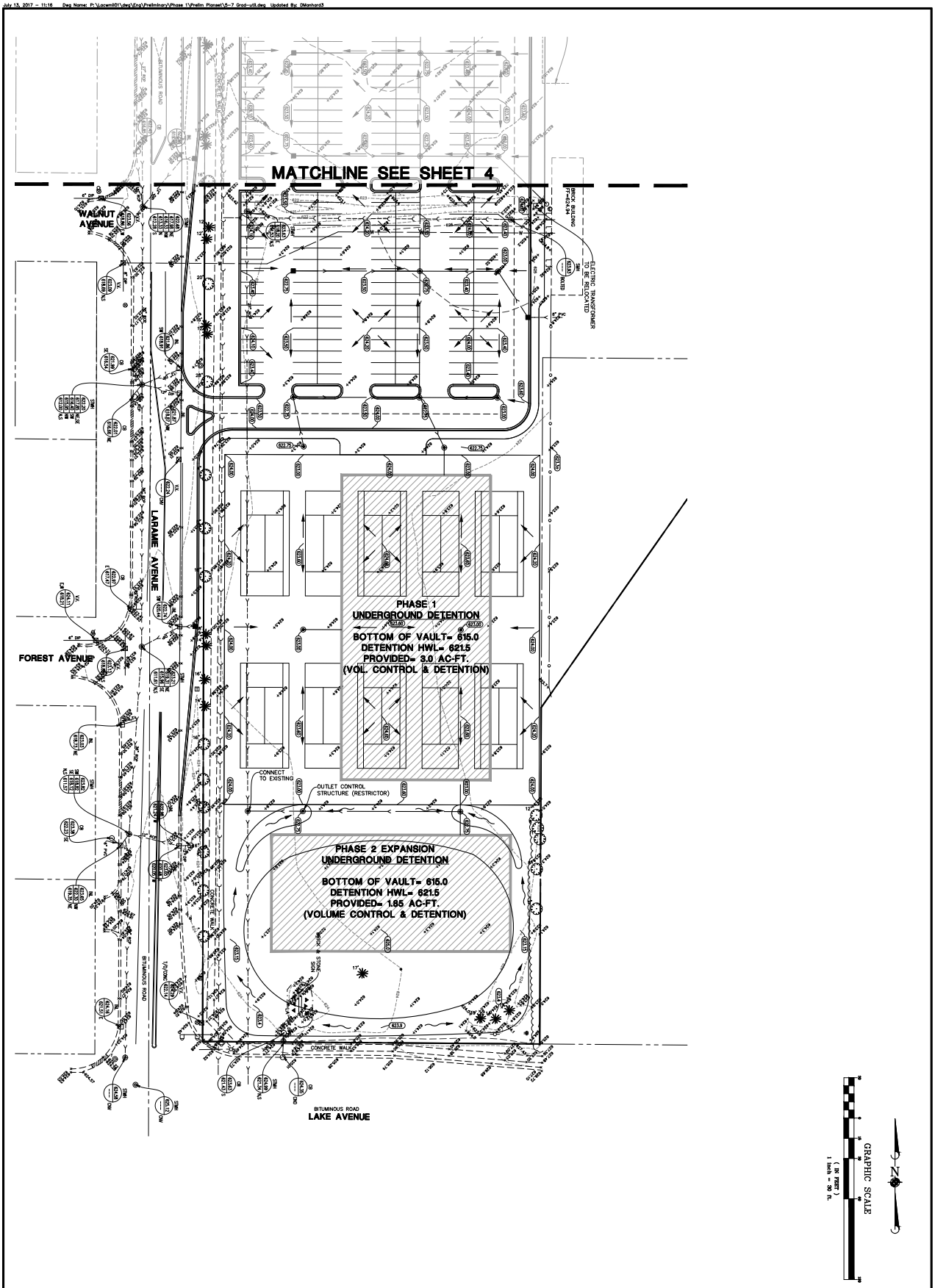

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SHEET 5 OF 5 LACWML01	LOYOLA ACADEMY	Manhard CONSULTING LTD
	VILLAGE OF WILMETTE, ILLINOIS	
	GRADING AND UTILITY PLAN - SOUTH	

DATE	REVISIONS	DRAWN BY

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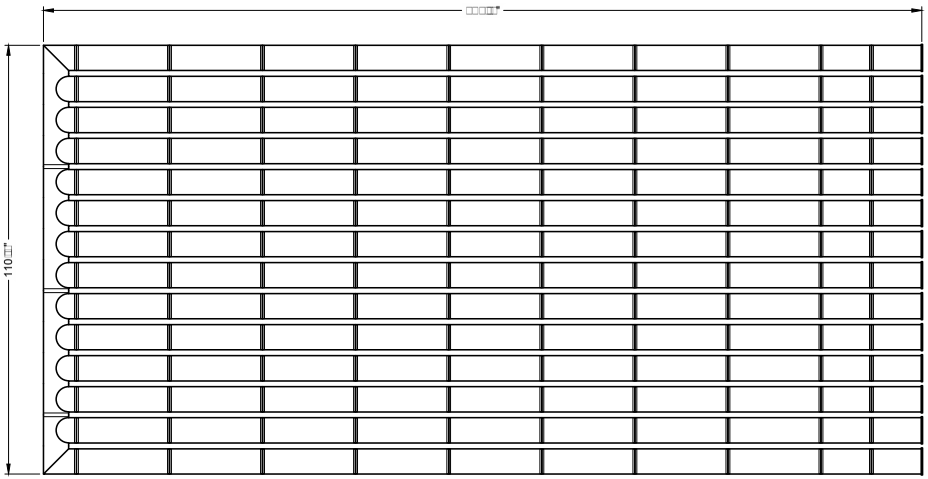

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PROJECT SUMMARY

CALCULATION DETAILS

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PIPE DETAILS

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CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
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CONTECH® CMP DETENTION SYSTEMS

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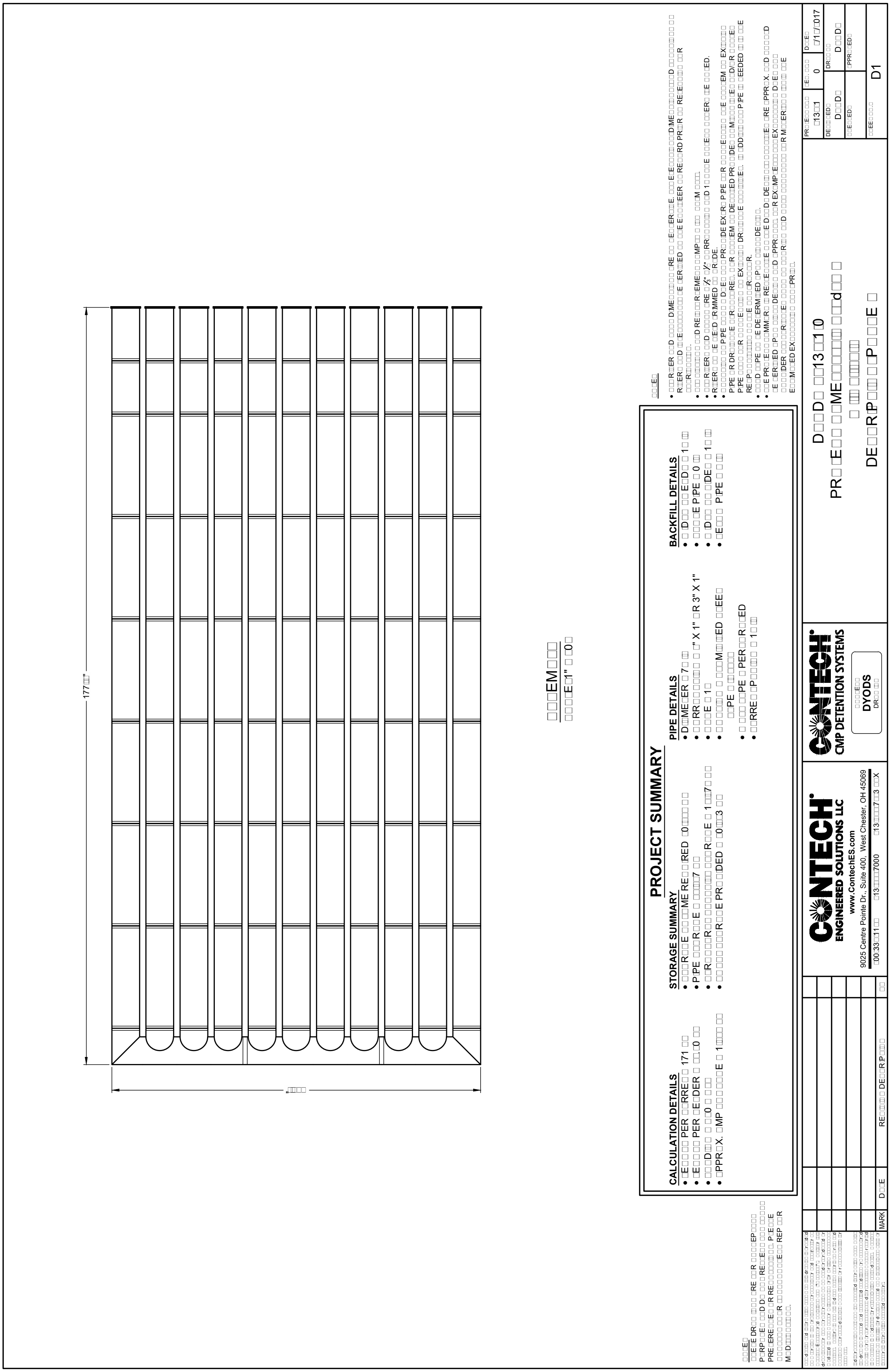

177
PROJECT SUMMARY
CALCULATION DETAILS
STORAGE SUMMARY
PIPE DETAILS
BACKFILL DETAILS
CONTECH ENGINEERED SOLUTIONS LLC
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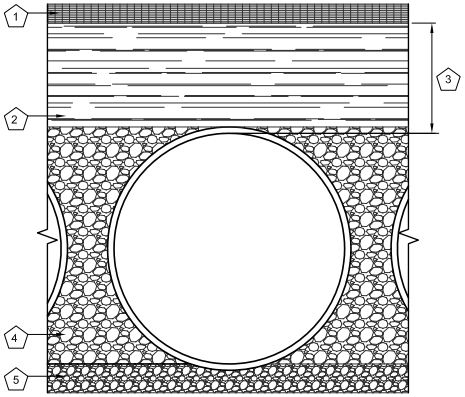
CONTECH CMP DETENTION SYSTEMS
DYODS
MARK
D1



1.) RIGID OR FLEXIBLE PAVEMENT

2.) GRANULAR ROAD BASE (CA-6).

3.) 12" MIN. FOR DIAMETERS THROUGH 96"
18" MIN. FOR DIAMETERS FROM 102"
AND LARGER MEASURED TO TOP OF
RIGID OR BOTTOM OF FLEXIBLE
PAVEMENT.

4.) FREE DRAINING ANGULAR WASHED
STONE 3/8" MIN. PARTICLE SIZE.
COMPACT TO MIN. 90% STANDARD
DENSITY PER AASHTO T-99. (CA-7).

5.) RELATIVELY LOOSE GRANULAR
BEDDING, ROUGHLY SHAPED TO
FIT BOTTOM OF PIPE, 3" TO 4" IN
DEPTH. (CA-7).

FOUNDATION/BEDDING PREPARATION

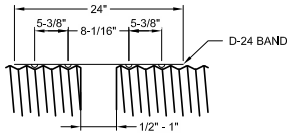
PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE 4 INCHES OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

BACKFILL

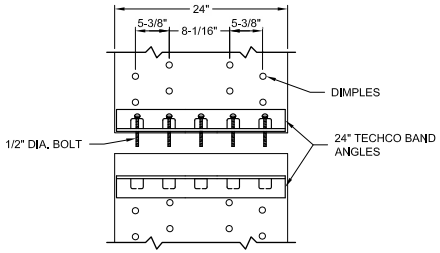
THE BACKFILL SHALL BE AN A1, A2 OR A3 GRANULAR FILL PER AASHTO M-145 OR A WELL-GRADED GRANULAR FILL AS APPROVED BY THE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIAL SHALL BE PLACED IN 8-INCH LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

1 / P2 BACKFILL DETAIL
SCALE: N.T.S.



SECTION



CONNECTION DETAIL

CORRUGATIONS	PIPE PRODUCTS
2-2/3"X1/2"	GALVANIZED
3" X 1"	ALUMINIZED
5" X 1"	BITUMINOUS COATED
	ALUMINUM

GENERAL NOTES:

1. REFER TO CONTECH BAND SELECTION GUIDE FOR BAND WIDTH, GAGE, AND FASTENER TYPES.
2. BANDS FOR PIPE-ARCH ARE THE SAME AS FOR EQUIVALENT DIAMETER ROUND PIPE.
3. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48" 1-PIECE
   54" THRU 96" 2-PIECE
   102" THRU 144" 3-PIECES.
4. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS. ALL ALUMINUM BANDS, BOTH SINGLE AND DOUBLE BB&S, ARE FURNISHED WITH A 14 GAGE ALUMINUM BACK-UP PLATE WELDED TO THE BAND AND THE STRAP.
5. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2-2/3" X 1/2".
6. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

2 / P2 EXFILTRATION JOINT (D-24) BAND DETAIL
N.T.S.

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www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH **PROPOSAL** DRAWING

UNDERGROUND DETENTION SYSTEM

PROJECT No.:	SEQ. No.: 010	DATE: 7/18/2016
DESIGNED: MEA	DRAWN: MEA	
CHECKED:	APPROVED:	
SHEET NO.: P2 OF 3		

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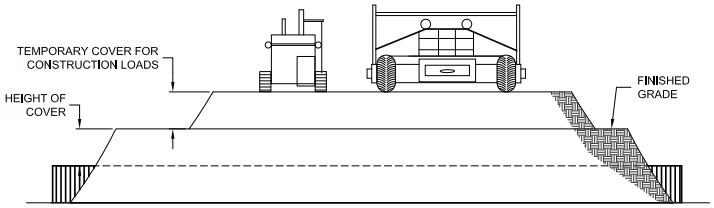


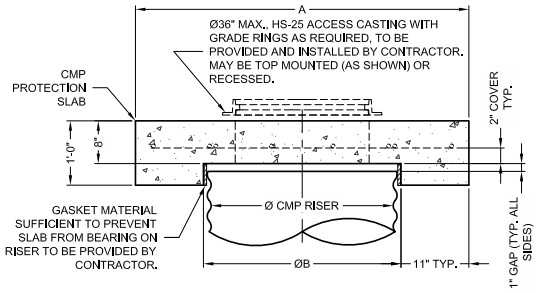
CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (klps)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

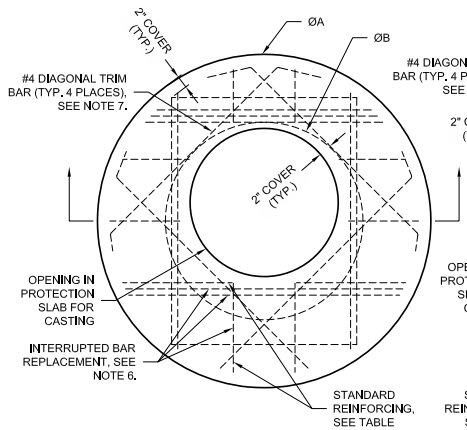
3 / P3 CONSTRUCTION LOADING DIAGRAM
N.T.S.



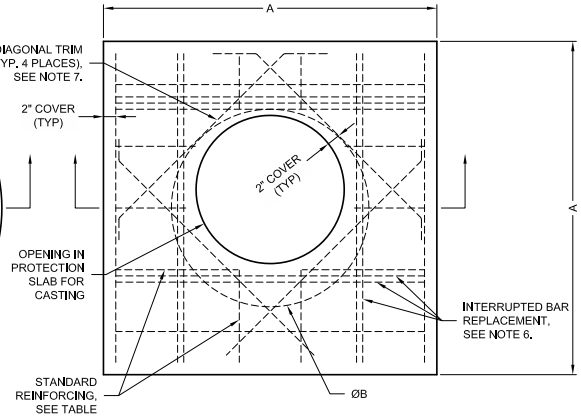
SECTION VIEW

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'x4'	26"	#5 @ 10" OCEW #5 @ 10" OCEW	2,540 1,900
30"	Ø 4'-6" 4'-6" x 4'-6"	32"	#5 @ 10" OCEW #5 @ 9" OCEW	2,260 1,670
36"	Ø 5' 5' x 5'	38"	#5 @ 9" OCEW #5 @ 8" OCEW	2,060 1,500
42"	Ø 5'-6" 5'-6" x 5'-6"	44"	#5 @ 8" OCEW #5 @ 8" OCEW	1,490 1,370
48"	Ø 6' 6' x 6'	50"	#5 @ 7" OCEW #5 @ 7" OCEW	1,210 1,270

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

4 / P3 MATERIAL SPECIFICATION

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION AND ACI 350.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,000 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERS, ARCHITECTS AND LAND SURVEYORS, ENDWELL, NY.

5 / P3 MANHOLE CAP DETAIL
N.T.S.

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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH® CMP DETENTION SYSTEMS

CONTECH PROPOSAL DRAWING

UNDERGROUND DETENTION SYSTEM

PROJECT No.:	SEQ. No.: 010	DATE: 7/18/2016
DESIGNED: MEA	DRAWN: MEA	
CHECKED:	APPROVED:	
SHEET NO.: P3 OF 3		

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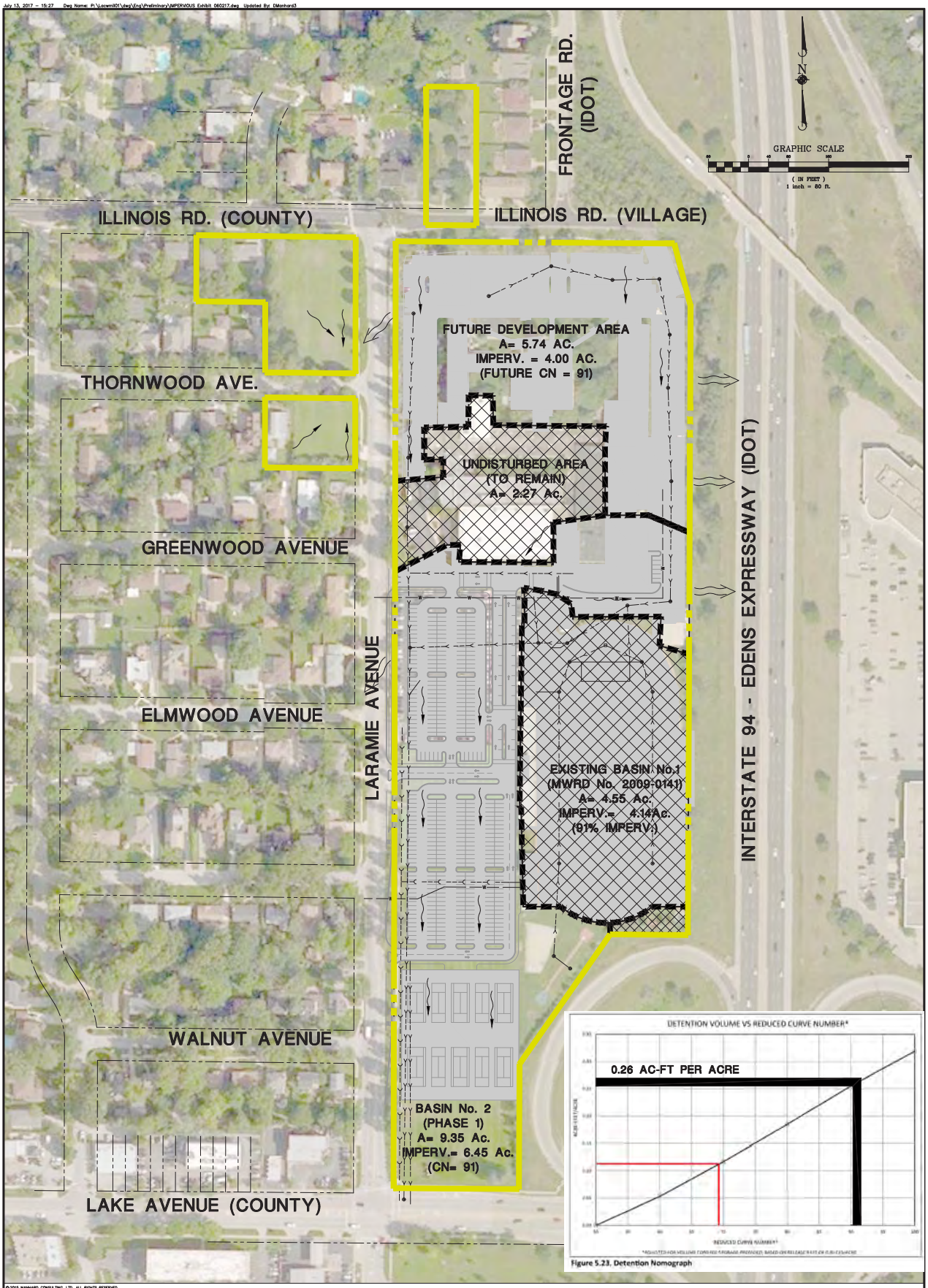
July 13, 2017 – 15:27 Dwg Name: P:\Lacwmi01\dwg\Eng\Preliminary\IMPERVIOUS Exhibit 060217.dwg Updated By: DManhard3
FRONTAGE RD. (IDOT)
N
GRAPHIC SCALE
(IN FEET)
1 inch = 80 ft.
ILLINOIS RD. (COUNTY)
ILLINOIS RD. (VILLAGE)
FUTURE DEVELOPMENT AREA
A= 5.74 AC.
IMPERV. = 4.00 AC.
(FUTURE CN = 91)
THORNWOOD AVE.
UNDISTURBED AREA
(TO REMAIN)
A= 2.27 Ac.
GREENWOOD AVENUE
LARAMIE AVENUE
ELMWOOD AVENUE
EXISTING BASIN No.1
(MWRD No. 2009-0141)
A= 4.55 Ac.
IMPERV.= 4.14Ac.
(91% IMPERV.)
INTERSTATE 94 - EDENS EXPRESSWAY (IDOT)
WALNUT AVENUE
BASIN No. 2
(PHASE 1)
A= 9.35 Ac.
IMPERV.= 6.45 Ac.
(CN= 91)
LAKE AVENUE (COUNTY)
DETENTION VOLUME VS REDUCED CURVE NUMBER*
0.26 AC-FT PER ACRE
Figure 5.23. Detention Nomograph
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SHEET 1 OF 1
LAC.WMIL01.01
PROJ. MGR.: SMS
PROJ. ASSOC.: SMS
DRAWN BY: SMS
DATE: 04-26-17
SCALE: 1" = 75'
LOYOLA ACADEMY - MASTER PLAN
WILMETTE, ILLINOIS
PROPOSED CONDITIONS EXHIBIT
Manhard CONSULTING LTD
DATE
REVISIONS
DRAWN BY
PENDING REVIEW - NOT FOR CONSTRUCTION

Stormwater Report

PRELIMINARY STORMWATER MANAGEMENT REPORT

FOR

LOYOLA ACADEMY
PHASE 1 IMPROVEMENTS

WILMETTE, COOK COUNTY, ILLINOIS

PREPARED FOR:

LOYOLA ACADEMY
1100 LARAMIE AVENUE
WILMETTE, IL 60091

PREPARED BY:
MANHARD CONSULTING, LTD.
700 SPRINGER DRIVE
LOMBARD, ILLINOIS 60148
PHONE: (630) 691-8500
FAX: (630) 691-8585

LAC.WMIL01

DATE: JULY 14, 2017

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STORMWATER MANAGEMENT SUMMARY

INTRODUCTION

Loyola Academy is located in Wilmette, Illinois. It is a private, co-educational, college preparatory high school in Cook County. Loyola Academy is in the Roman Catholic Archdiocese of Chicago. The school property is located at the southeast corner of Illinois Road and Laramie Avenue in Section 30, Township 42N, and Range 13E. There is no existing floodplain on the site per FEMA, and there are no wetlands present on site. Stormwater management is subject to review by the Metropolitan Water Reclamation District of Greater Chicago (MWRD) and the Village of Wilmette.

PROJECT DESCRIPTION

The existing school property is comprised of approximately 24.8 acres. At this time, Loyola Academy has adopted the "Loyola Forward 2025 Master Plan" to identify both physical and operational improvements to the campus. The end goal of this process will be to improve the Jesuit educational experience and expectations of currents and future students. It is anticipated that the Master Plan will be implemented over the course of a five-year period.

At this time, Loyola Academy plans to move forward with Phase I Construction operations. The following scope is currently included within this portion of the development plan:

- Improvements East of Laramie Avenue
    - Natatorium/Aquatics Center Building
    - Relocated Tennis Courts
    - Improvement On-Campus Parking
        - Traffic Circulation and Stacking lanes constructed
        - Pick-up and Drop-Off Lanes onsite
        - Improved on-campus parking (west of Laramie and east of stadium)
        - Landscape Buffer

Also, Loyola Academy plans to move forward with the complete Master Plan (Phase II) within the near future. The following scope is currently included within the Phase II portion of the development plan:

- Fine Arts/Theater Building located within the Phase 1 parking field
- Redesigned parking areas north of the existing school building
- Student Commons/Resource Center Building Expansion
- Administrative Support and Mission Outreach Building (North of Illinois Street)

- Outlot No. 1 Improvements (West of Laramie Avenue and South of Illinois Street)

This Stormwater Management Report quantifies the detention and volume control bmp volume required and provided for the project. Also, it establishes the release rate requirements per the MWRD's WMO (effective May 1, 2014).

EXISTING CONDITIONS

The existing school site has an existing building, multiple parking lots with access roads, tennis courts, recreational fields, and a track/football field. It shall be noted that the property is in a separate sewer area per the MWRD Atlas. The original development of the campus did not include stormwater detention. However, there has since been improvements to the facility that were permitted by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). Per a Freedom of Information Act (FOIA) Request, the following information was provided by the MWRD:

MWRD Permit No. 93-143 (Loyola Academy Expansion Plans)

- Size of Development Area = 11.83 Acres
- New Impervious Area = 1.38 Acres
- Detention Capacity Required = 0.28 Ac-Ft.
- Detention Capacity Provided = 0.75 Ac-Ft.

The Loyola Academy Expansion Plans (MWRD Permit No. 93-143) have been provided for reference. The scope of these improvements consists of parking lot expansion, storm sewer design, and a building addition. At that time, all the required stormwater detention was provided within the parking lot (surface storage) and storm sewer pipe networks. The emergency overflow locations were provided along the eastern property line of the campus. A large portion of the existing school building was undisturbed at that time, so stormwater detention was not provided for the undisturbed areas. It shall be understood that the elevations provided in this permit (MWRD Permit No. 93-143) shall be subtracted by 1.32' to convert the information to the current datum of the recent topographic survey provided by Manhard Consulting, LTD. (2017 Topographic Survey). The areas covered within this permit (MWRD Permit No. 93-143) have been identified on the Existing Condition Exhibit (Prepared by MCL) for clarification.

MWRD Permit No. 09-141 (Loyola Academy Stadium Renovations)

- Size of Development Area = 5.88 Acres
- New Impervious Area = 2.52 Acres
- Basin No. 1 Detention Capacity Required = 0.92 Ac-Ft.

- Basin No. 1 Detention Capacity Provided = 1.01 Ac-Ft. (Underground Vault)
- Basin No. 2 Detention Capacity Required = 0.20 Ac-Ft.
- Basin No. 2 Detention Capacity Required = 0.20 Ac-Ft.

The Loyola Academy Stadium Renovations (MWRD Permit No. 09-141) have been provided for reference. The scope of these improvements consists of parking lot expansion, storm sewer design, and a synthetic turf field/track. At that time, all the required stormwater detention for those improvements was provided within two (2) surface storage ponds and one (1) stormwater vault under the synthetic turf field. Although the emergency overflow location was depicted into Laramie Avenue within these plans (MWRD Permit No. 09-141), the actual grading plan confirms that the overflow would actually activate along the eastern property line similar to MWRD Permit No. 93-143. In other words, the proposed overflow was incorrectly labeled on the 2009 renovation plans.

A large portion of the existing school building was undisturbed during these improvements (09-141), and therefore stormwater detention was not provided for these undisturbed areas. It shall be understood that the elevations provided in this permit (MWRD Permit No. 09-141) shall be subtracted by 0.05' to convert the information to the current datum of the recent topographic survey provided by Manhard Consulting, LTD. (2017 Topographic Survey). The areas covered within this permit (MWRD Permit No. 09-141) have been identified on the Existing Condition Exhibit (Prepared by MCL) for clarification.

WETLANDS

The U.S. Fish and Wildlife Service's National Wetlands Inventory Map does not identify any existing wetland data within the vicinity of the project. Therefore, a qualified wetland consulting firm's investigation is not required. Please refer to the provided National Wetland Inventory Map for further clarification.

FLOODPLAIN

The Federal Emergency Management Agency (FEMA) FIRM Map shows no floodplain located on the site. The site is located on Map Panel 17031C0234J dated August 19, 2008. Since the site is located at the southeast corner of Panel 234. The site ultimately drains to a Village of Wilmette interceptor sewer that flows west along Lake Avenue.

PROPOSED CONDITIONS

The site is non-residential and greater than 3 acres, and therefore Runoff Requirements, Volume Control Requirements, and Detention Requirements must be met per the Metropolitan Water Reclamation District of Greater Chicago (MWRD) Watershed Management Ordinance (WMO). Therefore, an underground stormwater detention is planned to maximize the amount of recreational open space within the existing campus. The proposed underground storage is planned to be CMP Detention System as specified by Contech Engineered Solutions, LLC. The preliminary design drawings and specifications for this system has been included within the Preliminary Stormwater Report for reference.

East of Laramie (Loyola Campus) – Phase 1 and Phase 2

Due to the preliminary nature of the project, the stormwater detention has been sized per Figure No. 5.23 (Detention Nomograph) provided in the MWRD's Technical Guidance Manual. It is understood that stormwater modeling and hydraulic analysis will be provided during the final design stage of Phase 1 Improvements. At this time, the following detention requirements are established in connection with Phase 1 and Phase 2 Improvements: Refer to the Proposed Conditions Exhibit provided within the Appendix of this report for additional information:

Phase 1 Detention Requirement = 9.35 Ac x 0.26 Ac.-Ft/Ac. = 2.43 Ac.-Ft.

See Attached Detention vs. Percent Impervious Chart on Proposed Condition

Phase 2 Detention Requirement = 5.74 Ac x 0.26 Ac.-Ft/Ac. = 1.49 Ac.-Ft.

See Attached Detention vs. Percent Impervious Chart on Proposed Condition

The proposed underground detention system (Contech CMP) for Phase 1 (East of Laramie) would reside under the proposed tennis courts. The stormwater feature will include a gravel bottom and a restrictor structure. This system will outfall to a proposed storm sewer, and it will connect to an existing storm sewer (onsite) that runs parallel to Laramie Road. The Phase 1 detention system (2.43 Ac-Ft) will be sized and constructed for the Phase 1 Development area only (Approximately 9.35 acres). The entire stormwater system will ultimately discharge to the Village of Wilmette's storm interceptor along Lake Avenue.

As mentioned previously in this report, Loyola Academy intends to redevelop a significant portion of the campus north of the main building. Although these improvements are not included within the Phase 1 development plan, the stormwater runoff within this watershed ultimately discharges to the Phase 1 underground storage system below the proposed tennis courts. Therefore, this stormwater

management area shall be treated as a regional detention facility that will ultimately service the future development.

The proposed underground storage system (below tennis courts) has been designed to allow for a future expansion. The expanded system would reside under the turf grass recreational area. The stormwater feature will include a gravel bottom and it will be linked to the Phase 1 system (below tennis courts). It is assumed that a modification to the restrictor structure may be warranted at the time of the stormwater expansion. Although the underground storage (West of Laramie) will be installed within two (2) phases, it will be permitted under one (1) MWRD Permit.

Per the WMO, detention must be provided such that the restricted release is equal to or less than 0.30 cfs/acre. It shall be understood that a HEC-HMS stormwater model will be analyzed during the Final Design Stage of Phase 1. Furthermore, the underground detention will be sized to provide adequate storage, and there is no tailwater condition on the underground detention facility. HEC-HMS results as well as the MWRD Storage Calculator will be provided at the time of final engineering.

Existing Basin No. 1 (MWRD Permit No. 2009-0141)

As mentioned previously, this existing underground storage vault was constructed to service the synthetic turf field and stadium renovations in 2009. This underground stormwater system will not be altered during any phase of the improvement plans. However, the overall drainage area to this existing vault will be considerably reduced per the Phase 1 Improvements. Therefore, a Legacy Schedule D will be submitted to the MWRD During the Final Design of Phase 1. The calculations will support the functionality of the existing system under the 2009 MWRD requirements. The analysis will document the reduction in overall drainage area to the existing stormwater vault.

VOLUME CONTROL MEASURES

Volume control has been provided for the site within the stone base of the Contech Underground Detention Facilities. Site soil borings shall be included at the time of final design. Per the WMO Volume Control shall be provided for new impervious area. The project plans to provide Volume Control for all impervious area both existing and new with respect to each drainage area. Below is a summary of the required and provided volumes.

East of Laramie (Loyola Campus) – Phase 1

New Impervious Area = 280,900 SF = 6.45 Ac

Required Vol = (280,900 SF x 1.00 IN)/(12 IN/FT) = 23,400 CF = 0.54 Ac-Ft

East of Laramie (Loyola Campus) – Phase 2 (VAULT EXPANSION)

New Impervious Area = 174,240 SF = 4.00 Ac

Required Vol = (174,240 SF x 1.00 IN)/(12 IN/FT) = 14,520 CF = 0.33 Ac-Ft

STORM SEWER DESIGN

The proposed storm sewer will be designed to convey the 100-year storm event to the underground detention facility. The proposed storm sewer will be designed using Bentley StormCAD to accurately analyze the capacity of the system based on gravity flow. StormCAD utilizes the rational method and Manning's equation to compute the flow rate and determine the hydraulic grade line throughout the proposed pipe network. Illinois State Water Survey Bulletin 70 Rainfall Depth for Northeastern Section, as specified within the MWRD WMO, will be entered into the model to analyze the entire system. The system will be designed to properly convey the onsite runoff to the underground detention facility while maintaining the recommended maximum pipe velocities for the 100-year storm event. A complete analysis of the proposed storm sewer pipe network will be provided during the Final Design of Phase I Improvements.

CONCLUSION

Construction of the proposed improvements minimally increase impervious area and provide both volume control and underground detention for the onsite tributary areas. Stormwater runoff from the site, will be collected and routed to the proposed detention facility, where water will be detained, and the flow will be restricted. The total flow into the downstream storm sewer system (Village of Wilmette) will be under the net allowable release rate. The stormwater design is in compliance with the MWRD Watershed Management Ordinance. Although the underground storage (East of Laramie) will be installed within two (2) phases, it will be permitted under one (1) MWRD Permit.

LOYOLA FORWARD 2025
LOYOLA ACADEMY MASTER PLAN

REGIONAL CONTEXT MAP

WILMETTE, ILLINOIS

IN-PROGRESS DRAFT

SCALE: 1"=200'
0 100' 200' 400'
NORTH

JULY 6, 2017

PREPARED FOR:
LOYOLA ACADEMY

PROJECT TEAM:
THE LAKOTA GROUP
KIMLEY-HORN
MANHARD CONSULTING
HOLIBIRD & ROOT

THE LAKOTA GROUP.

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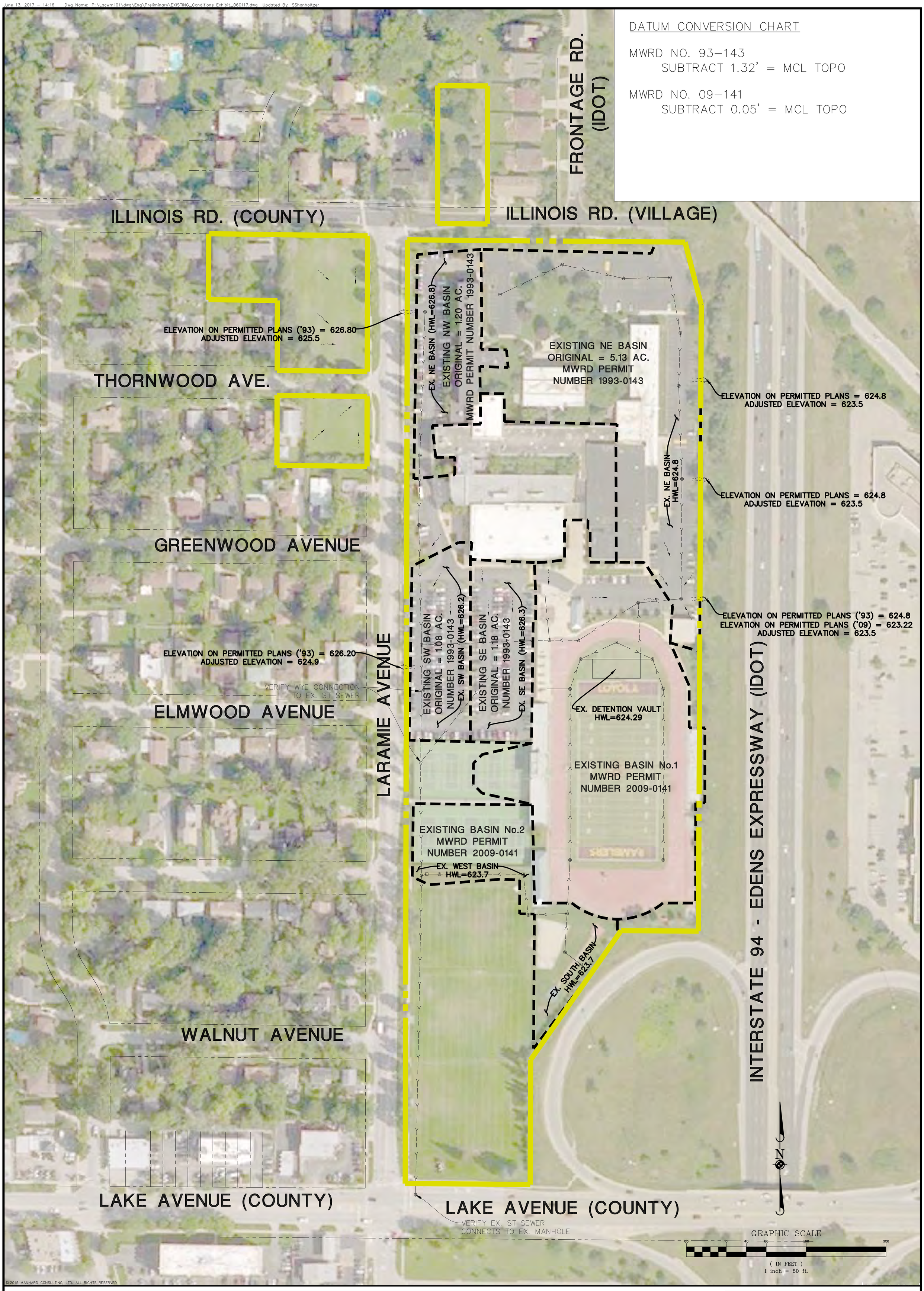

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SHEET 1 OF 1

LAC.WMIL01.01

PROJ. MGR.: SMS
PROJ. ASSOC.: SMS
DRAWN BY: SMS
DATE: 04–26–17
SCALE: 1" = 75'

LOYOLA ACADEMY - MASTER PLAN

WILMETTE, ILLINOIS

EXISTING CONDITIONS EXHIBIT

Manhard CONSULTING LTD
700 Springer Drive, Lombard, IL 60148 ph:630.691.8500 fx:630.691.8585 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

PENDING REVIEW - NOT FOR CONSTRUCTION

Hydrologic Soil Group—Cook County, Illinois

Map Scale: 1:3,920 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

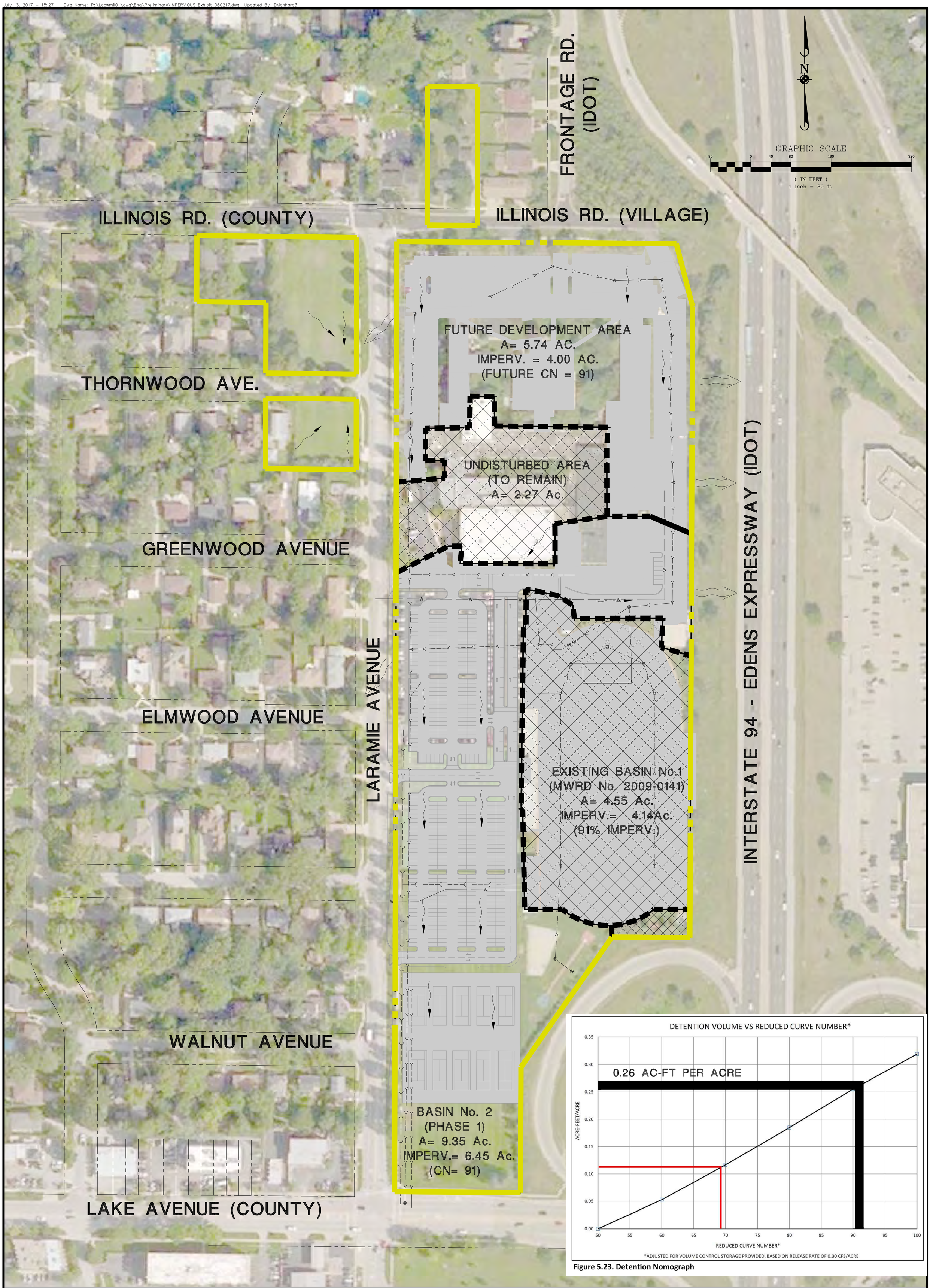

Figure 5.23. Detention Nomograph

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SHEET 1 OF 1

LAC.WMIL01.01

PROJ. MGR.: SMS
PROJ. ASSOC.: SMS
DRAWN BY: SMS
DATE: 04–26–17
SCALE: 1" = 75'

LOYOLA ACADEMY - MASTER PLAN

WILMETTE, ILLINOIS

PROPOSED CONDITIONS EXHIBIT

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Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

PENDING REVIEW - NOT FOR CONSTRUCTION

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 10, Sep 16, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 3, 2014—Sep 22, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Cook County, Illinois (IL031)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
533	Urban land		10.5	40.6%
571A	Whitaker loam, 0 to 2 percent slopes	B/D	9.4	36.2%
805D	Orthents, clayey, rolling	D	0.6	2.4%
2571A	Orthents, loamy-Urban land-Whitaker complex, 0 to 2 percent slopes	C	5.4	20.8%
Totals for Area of Interest			**26.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

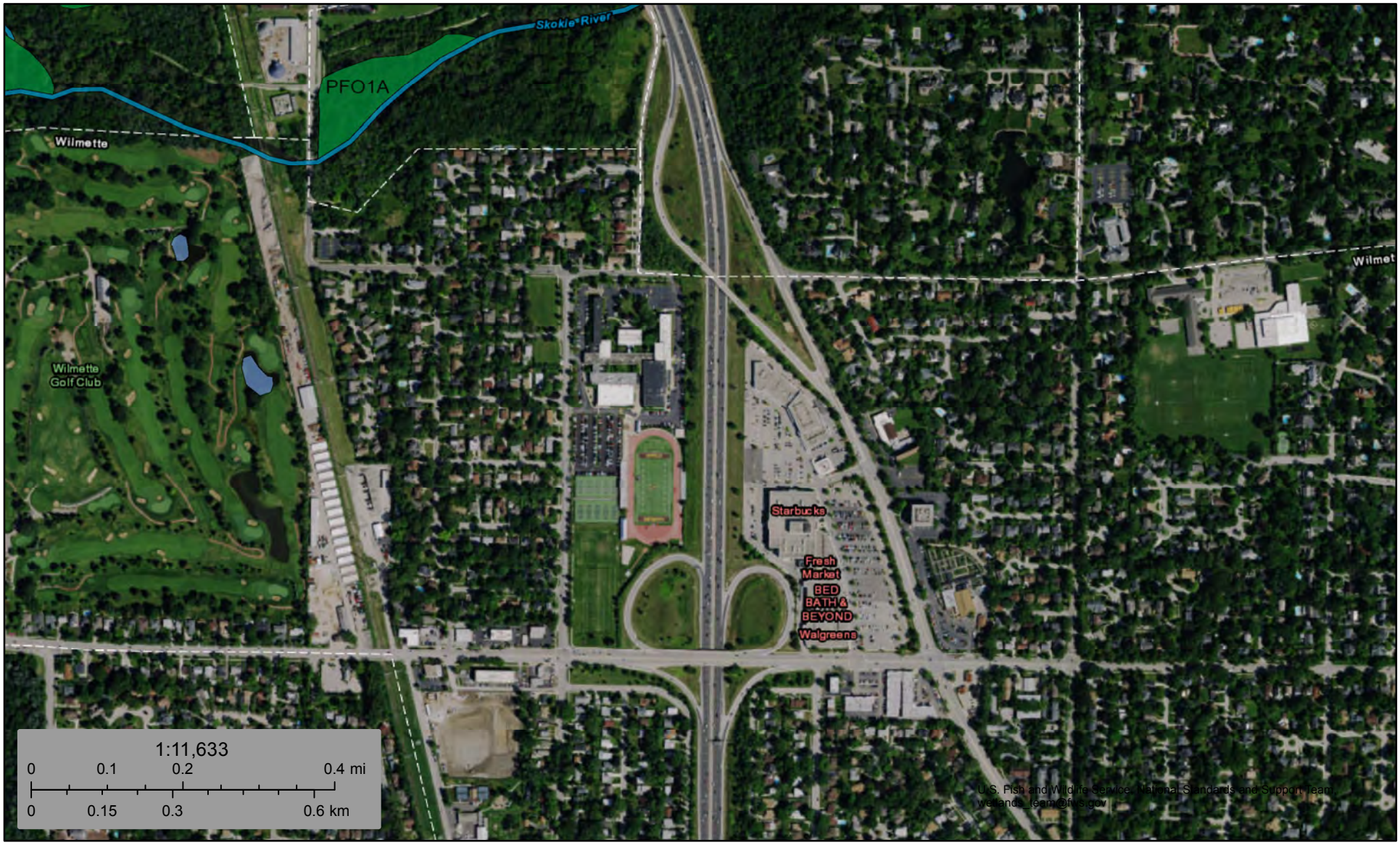
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

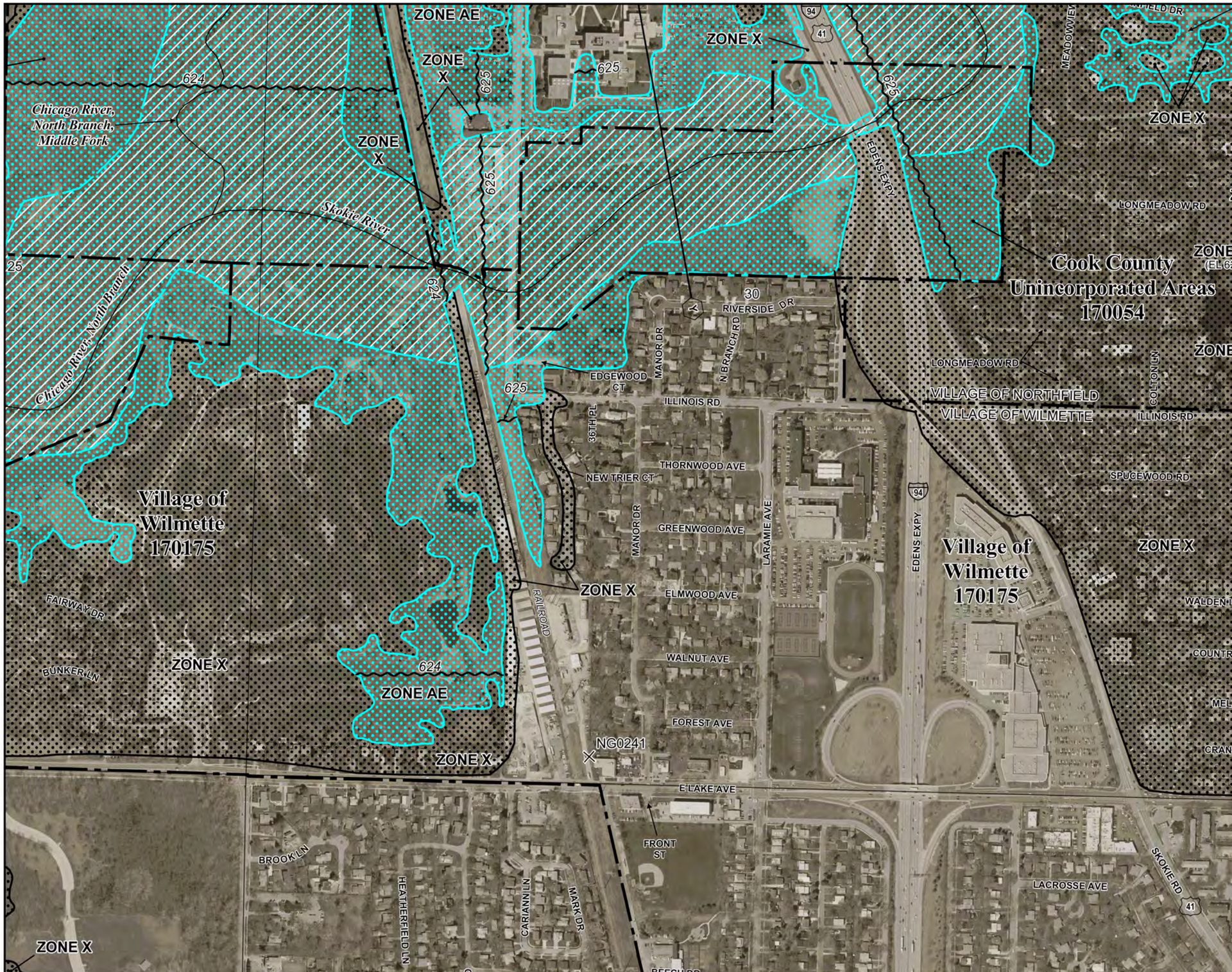


April 25, 2017

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper



MAP SCALE 1" = 500'

0 500 1000 FEET

METE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0234J

FIRM

FLOOD INSURANCE RATE MAP

COOK COUNTY, ILLINOIS

AND INCORPORATED AREAS

PANEL 234 OF 832

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COOK COUNTY	170054	0234	J
GLENVIEW, VILLAGE OF	170096	0234	J
GOLF, VILLAGE OF	170098	0234	J
NORTHFIELD, VILLAGE OF	170133	0234	J
SKOKIE, VILLAGE OF	171000	0234	J
WILMETTE, VILLAGE OF	170175	0234	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
17031C0234J

MAP REVISED
AUGUST 19, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

SEWERAGE SYSTEM PERMIT

METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO
100 EAST ERIE, CHICAGO, ILLINOIS
312-751-5600

93 APR 14 PM 12: 03

MWRDGC Permit No. 93 143

OFFICE COPY

INSTRUCTIONS FOR COMPLETING PERMIT FORM: Submit four typed copies of permit application (eight pages) and any required schedules listed below; do not leave any blank spaces; use "X" for checking applicable information. Also submit four copies of location map and plans. Submit two copies of specifications, if specifications are not part of the plan sheets. Address all correspondence to the Local Sewer Systems Section; for any inquiries or assistance, telephone (312)751-3260.

NAME AND LOCATION:

Name of project (as shown on plans): LOYOLA ACADEMY EXPANSION

Location of Project (street address or with respect to two major streets): 1100 NORTH LARAMIE AVENUE

Municipality (Township, if unincorporated) WILMETTE, ILLINOIS

Section 30, Township 42 N, Range 13 E.

Is project in MWRDGC combined sewer area Yes [ ] No [xxx]

SERVICE BASIN
NOR WRP

DOCUMENTS BEING SUBMITTED:

- [X] Basic Information (Required in all cases) ..... Schedule A ..... (Page 4 of 8)
- [X] Sewer Summary (Required in all cases) ..... Schedule B ..... (Page 5 of 8)
- [X] Sewer Connections (Required in all cases) ..... Schedule C ..... (page 6 of 8)
- [X] Detention Facilities ..... Schedule D ..... (2 pages)
- [ ] Lift Station and/or Force Main ..... Schedule E ..... (1 page)
- [ ] Characteristics of Waste Discharges ..... Schedule F ..... (1 page)
- [ ] Treatment or Pre-treatment Facilities ..... Schedule G ..... (2 pages)
- [ ] Certification Relative to Compliance with Art. 4-1, 6-2d, and 6-3b ..... Schedule H ..... (1 page)
- [ ] Affidavit Relative to Compliance with Art. 4-1, 6-2d, and 6-3b ..... Schedule J ..... (1 page)
- [X] Affidavit of Disclosure of Property Interest ..... Schedule K ..... (2 pages)
- [ ] Notice of Requirements for Storm Water Detention ..... Schedule L ..... (2 pages)
- [X] Current Survey of Property Interests ..... Exhibit A

OTHER DOCUMENTS: Indicate title, number of pages and originator: FINAL ENGINEERING PLANS 11 SHEETS PREPARED BY GEWALT-HAMILTON ASSOC., INC. , EXHIBIT B - DETENTION AND SANITARY SEWAGE CALCULATIONS, EXHIBIT C - DRAINAGE EXHIBIT

NOTE: ATTACH FEE PAYMENT VOUCHER AND PAYMENT IF APPLICABLE

MWRDGC USE ONLY
Application received on: APR 14 1993 Permit issued on: MAY 11 1993

GENERAL CONDITIONS OF THE PERMIT

1. Adequacy of Design. The schedules, plans, specifictions and all other data and documents submitted for this permit are made a part hereof. The responsibility for the adequacy of the design shall rest solely with the Design Engineer and the issuing of this permit shall not relieve him of that responsibility. The issuance of this permit shall not be construed as approval of the concept or construction details of the proposed facilities and shall not absolve the Permittee, Co-Permittee or Design Engineer of their respective responsibilities.

2. Joint Construction and Operation Permits. Unless otherwise stated by the Special Conditions, the issuance of this permit shall be a joint construction and operation permit provided all General, Standard and Special Conditions are complied with.

3. Allowable Discharges. Discharges into the sanitary sewer system constructed under this permit shall consist of sanitary sewage only. Unless otherwise stated by the Special Conditions, there shall be no discharge of industrial wastes under this permit. Storm waters shall not be permitted to enter the sanitary sewer system. Without limiting the general prohibition of the previous sentence, roof and footing drains shall not be connected to the sanitary sewer system.

4. Construction Inspection. All sewer construction shall be inspected and approved by a Registered Professional Engineer acting on behalf of the Permittee or the owner of the project, or by a duly authorized and competent representative of the Professional Engineer. No sewer trenches shall be backfilled except as authorized by the Inspection Engineer after having inspected and approved the sewer installation.

5. Maintenance. The sewer connections, lines, systems or facilities constructed hereunder or serving the facilities constructed hereunder shall be properly maintained and operated at all times in accordance with all applicable requirements. It is understood that the responsibility for maintenance shall run as a joint and several obligation against the property served, the owner and/or the operator of the facilities, and said responsibility shall not be discharged nor in any way affected by change of ownership of said property.

MWRDGC STANDARD CONDITIONS

6. Indemnification. The Permittee shall be solely responsible for and shall defend, indemnify and save harmless the Metropolitan Water Reclamation District of Greater Chicago (hereinafter MWRDGC) from and against any and all claims, costs, damages, or expenses the MWRDGC may suffer, incur, sustain or become liable for on account of any injury to, or death of, any person or persons, or any damage to, or destruction of, any real or personal property that may be caused by the construction, use, state of repair; operation and maintenance of the proposed facilities, arising out of or in consequence of the issuance of this permit. Without limiting the generality of the preceding sentence, the provisions of this paragraph shall extend to indemnify and save harmless the MWRDGC from any claims or damages arising out of or in connection with the termination or revocation of this permit.

7. Construction by MWRDGC. Permittee understands and acknowledges that the MWRDGC has the right and power to construct and extend sewer service facilities and render such services within the area to be served by the project for which this permit is issued, and that by the MWRDGC constructing and extending such sewer service facilities and rendering such services, the facilities constructed by the Permittee under this permit may decrease in value, become useless or of no value whatsoever, the Permittee may also sustain a loss of business, income and profits.

Therefore, by accepting this permit and acting thereon, the Permittee, for itself, its successors and assigns, does remise, release and forever discharge the MWRDGC of any and all claims whatsoever which Permittee may now have or hereafter aquire and which Permittee's successors and assigns hereafter can, shall, or may have against the MWRDGC for all losses and damages, either direct or indirect, claimed to have been incurred by reason of the construction or extension at any time hereafter by the MWRDGC of sewer service facilities in the service area contemplated by this permit, the rendering of such services, which MWRDGC facilities and services decrease the value of the facilities constructed by the Permittee under this permit, make same useless or of no value whatsoever, including but not limited to, any and all damages arising under Illinois Revised Statutes, Chapter 42, Section 339; the taking of private property for public use without due compensation; the interference with the contracts of Permittee; the interference with Permittee's use and enjoyment of its land; and the decrease in value of Permittee's land.

8. Third Parties. This permit does not grant the right or authority to the Permittee: (a) to construct or encroach upon any lands of the MWRDGC or of any other parties, (b) to construct outside of the territorial boundaries of the MWRDGC, (c) to construct or encroach upon the territorial boundaries of any units of local government within the MWRDGC, (d) to connect to or discharge into or be served by (directly or indirectly) any sewer or sewer system owned or operated by third parties.

9. Costs. It is expressly stipulated and clearly understood that the sewerage system or facilities for which the permit is issued shall be constructed, operated and maintained at no cost to the MWRDGC.

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10. Other Construction. The MWRDGC reserves the right, privilege and authority to permit others to reconstruct, change, alter and replace all sewers and appurtenances thereto at the point of connection of any sewerage system to an MWRDGC interceptor and/or in public right-of-ways of MWRDGC easements, and to introduce additional sewage flow through this connection into the intercepting sewer of said MWRDGC.

11. Change of Use. This permit shall be incorporated in the Building and Occupancy Permit for the building or buildings served under this permit. The owner or occupant of any building served under this permit shall not cause, or permit, a change of use of the building to a use other than that indicated in this permit without first having obtained a written permission from the General Superintendent of the MWRDGC.

12. Interceptors Overloading. The MWRDGC hereby serves notice that its interceptors may flow full and may surcharge, and flooding of the proposed system may occur. The Permittee agrees that the proposed systems shall be constructed, operated and maintained at the sole risk of the Permittee.

13. Non-Transferability. This permit may not be assigned or transferred without the written consent of the General Superintendent of the MWRDGC.

14. Termination. It is understood and agreed that in the event the Permittee shall default in or fail to perform and carry out any of the covenants, conditions and provisions of this permit and such default or violation shall continue for sixty (60) days after receipt or notice thereof in writing given by the General Superintendent of the MWRDGC, then it shall be lawful for the MWRDGC at or after the expiration of said sixty (60) days to declare said permit terminated. The Permittee agrees that immediately upon receipt of written notice of such termination it will stop all operations, discontinue any discharges and disconnect the sewerage system or facilities constructed under this permit. If the Permittee fails to do so, the MWRDGC shall have the right to disconnect said system. The Permittee hereby agrees to pay for any costs incurred by the MWRDGC for said disconnection. The various rights and remedies of the MWRDGC contained in this permit shall be construed as cumulative, and no one of them shall be construed as exclusive of any one or more of the others or exclusive of any other rights or remedies allowed by applicable rules, regulations, ordinances and laws. An election by the MWRDGC to enforce any one or more of its rights or remedies shall not be construed as a waiver of the rights of the MWRDGC to pursue any other rights or remedies provided under the terms and provisions of this permit or under any applicable rules, regulations, ordinances or laws.

15. Expiration. This permit shall expire if construction has not started within one (1) year from the date of issue. Construction under an expired permit is deemed construction without a permit. All construction under this permit shall be completed within two (2years) after start of construction. If conditions so warrant, an extension may be granted. For publicly financed projects (e.g. special assessments) the one (1) year period indicated will be considered from the date of final court action.

16. Revocation. In issuing this permit, the MWRDGC has relied upon the statements and representations made by the Permittee or his agent. Any incorrect statements or representations shall be cause for revocation of this permit, and all the rights of the Permittee hereunder shall immediately become null and void.

17. Advance Notice. Prior to commencement of construction under this permit, the Permittee shall give the MWRDGC an advance notice of at least two working days. When advance notice is given, the Permittee shall provide the permit number, municipality and location.

18. Compliance with Plans and Specifications. All construction shall be in accordance with the plans and specifications submitted for this permit and made a part hereof. No changes in, or deviation from the plans and specifications which affect capacity, maintenance, design requirements, service area or permit requirements shall be permitted unless revised plans shall have been submitted to, and approved by the MWRDGC. The permit together with a set of the plans and specifications (revised plans and specifications, if any) shall be kept on the job site at all times during construction until final inspection and approval by the MWRDGC.

19. Testing and Approval. All construction under this permit shall be subject to inspection, testing and approval by the MWRDGC. All testing shall be made, or caused to be made, by the Permittee at no cost to the the MWRDGC and in the presence of the MWRDGC representative. Upon satisfactory completion of construction, the Permittee and the owner shall submit, or cause to be submitted, a completion certificate and request for approval on the form prescribed by the MWRDGC. No sewer or other facilities shall be put in service until all the conditions of the permit have been satisfactorily met.

20. Record Drawings. Within sixty (60) days after final inspection and approval by the MWRDGC, the Permittee shall furnish, or cause to be furnished to the MWRDGC, a set of Record drawings, or a statement that the project was constructed in accordance with the original plans and specifications.

21. Compliance with Rules and Regulations. The Permittee hereby expressly assumes all responsibilities for meeting the requirements of all applicable rules, regulations, ordinances and laws of Local, State and Federal authorities. Issuance of this permit shall not constitute a waiver of any applicable requirements.

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SCHEDULE A
BASIC INFORMATION

MWRDGC Permit No. 93 143

1. NAME OF PROJECT LOYOLA ACADEMY EXPANSION
(as shown on plans)

2. APPURTENANCES (check all applicable items)

- [ ] Siphon
- [ ] Drop Manholes
- [ ] Stream Crossing
- [ ] Direct Connections to MWRDGC

3. RECEIVING SANITARY SEWER SYSTEM

A. System that project will connect to is:

[X] Existing [ ] Proposed/Under Construction—>MWRDGC Permit # _____

B. List owners of all sewers from project to MWRDGC interceptor VILLAGE OF WILMETTE

4. EXISTING LIFT STATION

[X] No [ ] Yes—> Receiving system includes existing lift station

If Yes, indicate location _____

5. FLOOD PLAIN

Is any part of the project area in a flood plain?

[X] No [ ] Yes—> Percentage of area in flood plain _____ %

Flood crest elevation _____ Ft.

Identify any manholes in flood plain: _____

6. SIZE OF PROJECT

A. What is the size of this project? 11.83 acres

B. Total contiguous ownership, **including project** 23.71 acres

C. Existing impervious area within project 7.19 acres

D. New impervious area created within project 1.38 acres

7. DETENTION

A. Is detention provided under this permit?

[ ] No [X] Yes —> Detention required by: [ ] MWRDGC [X] Other VILLAGE OF WILMETTE

B. Is project in the service area of existing detention reservoir?

[X] No [ ] Yes —> MWRDGC Permit No. _____

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SCHEDULE B
SEWER SUMMARY

COMPLETE IN ALL CASES

MWRDGC Permit No. 93 143

PROJECT NAME LOYOLA ACADEMY EXPANSION
(as shown on the plans)

1. Sewer Summary, including all building service sewers, stubs and risers:
   Include all sewers in combined sewer area
   Include all sanitary sewers in separate sewered area

Pipe Size in.	6"	8"					
Total length ft.	51	522					
Min. slope used -%	1.00	0.40					
Pipe Material *	DIP CLASS 52	DIP CLASS 52					
Total manholes	1	3					
Total cleanouts	0	0					

* Pipe material and joint specifications must be shown on plans. See Manual of Procedures for acceptable specifications.

2. **NATURE OF PROJECT** (Check all that apply)

   ☐ Project is publicly financed

   ☐ Sewer system serving a subdivision

   ☐ Off-site trunk sewer to serve subdivision

   ☐ Sewer extension to serve future development

   ☐ Storm sewers in combined sewer area

   ☒ Service connections to serve buildings (Schedule C)

   ☐ Other _____

3. **SEWER EXTENSIONS**
   If any part of the proposed project is designed to service future connections (not included in Schedule C), check yes below and submit service area map and estimate of population equivalent to be served.

   ☒ NO ☐ YES ——> ☐ Service area map

   ☐ P.E. estimate submitted

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SCHEDULE C
SEWER CONNECTIONS
(FILL OUT ALL SECTIONS THAT APPLY)

MWRDGC Permit No. 93 143

1) BUILDING CONNECTION DATA

A) RESIDENTIAL BUILDINGS

☐ Single Family Total dwelling units * _____

Number of sewer connections * _____ PE** _____

☐ Multi Family Total dwelling units * _____

Number of sewer connections * _____ PE** _____

B) COMMERCIAL & RECREATIONAL BUILDINGS

		EXISTING	PROPOSED	INCRE
☒ Number of sewer connections	* 3*	PE** 124	165	41

C) INDUSTRIAL BUILDINGS

☐ Number of sewer connections * _____ PE** _____

*2 OF THE 3 CONNECTIONS ARE RECONNECTIONS OF EXISTING SERVICES

* Each sanitary line exiting a building is a connection
** Population Equivalent

2) BUILDING USE - (Check all that apply)

A) COMMERCIAL & RECREATIONAL

☐ Food preparation or processing (install grease separator) *

☐ Auto service (install triple basin)

☐ Auto wash (install mud basin)

☐ Swimming pool (provide pool plans) *

☒ Other STUDENT LABORATORY WASTE (INTERNAL ACID NEUTRALIZING BASIN TO BE INSTALLED WITHIN BUILDING)

(SEE ENCLOSED PLUMBING PLAN) EXHIBIT D

B) INDUSTRIAL BUILDINGS

☐ Sewer connections will receive domestic sewage only

☐ Industrial waste is produced

NOTE: If industrial waste is produced, submit Schedules F & G and plumbing plans along with flow diagram for pretreatment system.

* EXISTING KITCHEN & SWIMMING POOL DRAINS DO NOT DISCHARGE TO PROPOSED SANITARY SEWERS.

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SCHEDULE D - DETENTION

MWRDGC Permit No. 93 143

A. PROJECT INFORMATION

Name of Project LOYOLA ACADEMY EXPANSION
(as shown on plans)

B. Method of Detention:

☐ Reservoir ☐ Rooftop ☒ Parking Lot

☐ Other _____

C. UNDEVELOPED SITE-DETERMINATION OF ALLOWABLE RELEASE

1. Area of site	22.20 *	acres
2. Average ground slope	0.0126*	feet\foot
3. Overland flow distance	500 *	feet
4. Overland flow time of concentration	27 *	minutes
5. Average slope of channelized flow (see note)		feet\foot
6. Channelized flow distance (see note)		feet
7. Channelized flow time of concentration		minutes
8. Total time of concentration (line 4 + line 7)	27 *	minutes
9. Rainfall intensity for 3-year storm	2.56*	inches/hr
10. Allowable release rate, (0.15*line 9*line 1 or Q=0.15*i*A)	8.45*	cfs
11. Actual release rate (cannot be greater than line 10)		cfs
12. Restrictor size		inches

* NUMBERS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. SITE IS FULLY DEVELOPED, BUT DOES NOT PRESENTLY PROVIDE STORMWATER DETENTION.

NOTE: For flow time in a well defined channel, determine time of concentration from measured lengths, cross-sections and slopes. Submit necessary calculation.

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SCHEDULE D - DETENTION (continued)

MWRDGC Permit No. 93 143

D. DEVELOPED SITE-DETERMINATION OF RESERVOIR SIZE

(Submit calculations for 3 and 4)

	EXISTING	PROPOSED	
1. Impervious drainage area	7.19	8.57	acres
2. Pervious drainage area	4.64	3.26	acres
3. Composite runoff coefficient(c)	0.68	0.76	
4. Required detention capacity		0.28	acre-feet
5. Actual detention capacity provided:		0.75	acre-feet

E. REQUIRED BYPASS RATE THROUGH DEVELOPMENT SITE FROM UPSTREAM AREA

NOTE: Design frequency shall be determined by local ordinance. If no local requirement is established use 5 year storm frequency.

1. Total area upstream		acres
2. Impervious area		acres
3. Pervious area		acres
4. Composite runoff coefficient (minimum of 0.35)		
5. Design storm frequency for the upstream area		year
6. Time of concentration for upstream area at point of entry; upstream area to be considered as developed		minutes
7. Rainfall intensity for time of concentration		inches/hr
8. Permissible bypass rate (line 1*line 4*line 7)		cfs

Name DONALD E. MATTHEWS, P.E.

Title CIVIL ENGINEER

Signature Donald E. Matthews Date 3-4-93

Engineering Firm GEWALT-HAMILTON ASSOCIATES, INC.

DONALD E. MATTHEWS 062-048081 P.E. SEAL REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

SPECIAL CONDITIONS FOR PERMIT NO. 93-143

---

1. This permit is issued in reliance upon the Affidavit of Disclosure of Property Interest (Schedule K) submitted by the owner, and said Affidavit is incorporated herein and made a part hereof.

2. All drains from the service area shall be connected to an acid dilution basin.

3. The stormwater detention facilities shown on the drawings are provided in accordance with local requirements. The detention is provided by ponding on the parking areas with a 3-inch and a 12-inch diameter restrictors.

DETENTION REVIEW SHEET

A. PROJECT

Permit No. 93 143 Date Received 04/14/93

Name of Project LOYOLA ACADEMY EXPANSION

Location 1100 N. LARAMIE AVE, WILMETTE, IL.

B. Basic Information

1. Total Project Area 11.83 Acres
2. Impervious Area: (a) Existing 7.19; (b) New 1.38
3. Runoff Coefficient _____
4. Project is: Residential ____; Non-Residential X
5. Project is in flood plain area ..... ~~yes~~/no
6. Building Connections are proposed under this permit ..... yes/~~no~~
7. Detention is required for the project covered by this permit ..... ~~yes~~/no
8. Detention is provided under this permit ..... yes/~~no~~
9. Detention criteria: MSD ____; Other X

C. Non-Applicability

Detention requirements are not applicable for the reason(s) indicated:

1. Project is in combined sewer area ..... ____
2. Total contiguous ownership is less than 5 acres ..... ____
3. Remaining developable ownership as of 1/1/72 is less than 5 acres . X
4. Project is single family, residential and area is less than 10 acres ..... ____
5. Project consists of an outlet sewer only and no connections are proposed ..... ____
6. Project consists of sewer rehabilitation work only ..... ____
7. Buildings existing and currently served by septic system ..... ____
8. No new impervious area proposed ..... ____
9. Other _____ ..... ____

D. Relation with Other Projects

1. Detention required for this project is provided by existing/proposed detention facilities ..... ____
   Facilities are covered by Permit No. _____

MSD Permit No. 93 143

D. Relation with Other Projects

2. Detention facilities provided under this permit are intended to serve other areas ..... _____
If so, contributing area is _____ acres.

3. Project covered by permit receives drainage from another area and the flow is bypassed ..... _____

4. This project is part of a previous development that exceeded five/ten acres and for which detention has been previously provided in full or in part ..... _____

5. This project is part of a total contiguous land holding that exceeds five/ten acres and for which no detention has been provided ..... _____

6. This project is part of an area previously encumbered for detention ..... _____

E. Design Summary

	MSD Requirements	Project Design
1. Drainage area for which detention is provided under this permit	xxxx	_____ acre
2. Detention requirements for area above	____ ac. ft.	_____ ac. ft.
3. Detention requirements for this project	____ ac. ft.	_____ ac. ft.
4. Release rate for drainage area (1) above	____ cfs	_____ cfs
5. Bypass rate, if any	____ cfs	_____ cfs
6. Total discharge	____ cfs	_____ cfs

F. Method of Detention

1. Method of Storage: Roof___, Ground____, Parking Lot___, Pond____, Other____

2. Method of Control: Roof Restrictor _____, Weir_____.
Pipe Outlet ____, Size_____, Length_____,

Restrictor/Orifice_____, Size_____, Edge Type_____

G. Other Comments

_____

_____

_____

_____

_____

_____

_____

Reviewed: G.S. Date 04/26/93 Checked MD Date _____

LSS-72-09-01 Rev. 2/27/81

OFFICE COPY RL 93-048

OFFICE COPY

93 143

SCHEDULE B
SEWER SUMMARY

MWRDGC Permit No. 93 143

COMPLETE IN ALL CASES

PROJECT NAME LOYOLA ACADEMY EXPANSION
(as shown on the plans)

1. Sewer Summary, including all building service sewers, stubs and risers:
   Include all sewers in combined sewer area
   Include all sanitary sewers in separate sewered area

Pipe Size in.	6"	8"	6"	8"	4"		
Total length ft.	51	522	73	169	50		
Min. slope used -%	1.00	0.40	1.00	1.00	1.00		
Pipe Material *	DIP CLASS 52	DIP CLASS 52	PVC SDR 26	PVCSDR26	HIGH SILICON IRON. ASTM A-518 *		
Total manholes	1	3	0	3	ACID NEUTRALIZING BASIN		
Total cleanouts	0	0	1	0	2		

* Pipe material and joint specifications must be shown on plans. See Manual of Procedures for acceptable specifications.

*-ACID RESISTANCE PIPE

2. NATURE OF PROJECT (Check all that apply)

- [ ] Project is publicly financed
- [ ] Sewer system serving a subdivision
- [ ] Off-site trunk sewer to serve subdivision
- [ ] Sewer extension to serve future development
- [ ] Storm sewers in combined sewer area
- [X] Service connections to serve buildings (Schedule C)
- [ ] Other _____

3. SEWER EXTENSIONS
   If any part of the proposed project is designed to service future connections (not included in Schedule C), check yes below and submit service area map and estimate of population equivalent to be served.

   [X] NO [ ] YES ——> [ ] Service area map
   [ ] P.E. estimate submitted

FIELD COPY

RL 93-048 8-30-93

LOCAL SEWER SECTION

93 JUL 23 AM 10:10

M.W.R.D. OF GRT. CHGO.

SCHEDULE B
SEWER SUMMARY

COMPLETE IN ALL CASES

MWRDGC Permit No. 93 143

PROJECT NAME LOYOLA ACADEMY EXPANSION
(as shown on the plans)

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Min. slope used -%	1.00	0.40	1.00	1.00	1.00		
Pipe Material *	DIP CLASS 52	DIP CLASS 52	PVC SDR 26	PVCSDR26	HIGH SILICON IRON. ASTM A-518 *		
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Total cleanouts	0	0	1	0	2		

* Pipe material and joint specifications must be shown on plans. See Manual of Procedures for acceptable specifications.

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- [ ] Project is publicly financed
- [ ] Sewer system serving a subdivision
- [ ] Off-site trunk sewer to serve subdivision
- [ ] Sewer extension to serve future development
- [ ] Storm sewers in combined sewer area
- [X] Service connections to serve buildings (Schedule C)
- [ ] Other _____

3. SEWER EXTENSIONS
   If any part of the proposed project is designed to service future connections (not included in Schedule C), check yes below and submit service area map and estimate of population equivalent to be served.

[X] NO [ ] YES ——> [ ] Service area map

[ ] P.E. estimate submitted

Schedule K

MWRD Permit Application No. 93 143

AFFIDAVIT OF DISCLOSURE OF PROPERTY INTEREST

STATE OF ILLINOIS)
)SS
COUNTY OF COOK)

OFFICE COPY

Name of Project: LOYOLA ACADEMY EXPANSION

Location of Project: 1100 N. LARAMIE AVENUE WILMETTE, IL. 60091

A. FATHER RAYMOND CALLAHAN, after first being duly
(Name of Affiant - Type or Print)
sworn under oath, states that he is (the owner and record title holder), (a principal beneficiary of Land Trust No._____, held by_____ as Trustee), (an Officer
(Name of Trust Holder)
PRESIDENT of LOYOLA ACADEMY Corporation), (a
(official capacity) (Name of Corporation)
General Partner of_____ Partnership), which is the record title holder of
(Name of Partnership)
the property which is the subject of a certain sewerage system permit application (covering the project indicated and designated by the number shown above) filed with the Metropolitan Water Reclamation District of Greater Chicago, which property is shown on the attached plat of survey which together with the legal description of the property are attached hereto as Exhibit "A" and specifically incorporated by reference herein.

B. Affiant further states that said property described in Exhibit "A" has a total area of 23.71 acres and constitutes the total contiguous ownership of the owner, and that the portion of the property currently proposed for development consists of 11.83 acres, and the property is intended for use as described hereinafter:

HIGH SCHOOL CAMPUS

*C. Affiant further states that, because of its size and intended use, the property described in Exhibit "A" comes under the requirements of the MWRDGC with respect to the establishment of on-site storm water detention, and that such detention facilities will be provided as part of the project in accordance with the design and calculations furnished to satisfy said requirements with respect to the property described in Exhibit "A", and further states that:

1. The owner of the property or any beneficiary of a land trust, if any, which is the record title holder of the property has no present interest, nor had any interest at any time during the previous two years, in any lands contiguous to said property. (If such interest is or was held, detention must be provided for the total.)

2. No owner of any lands contiguous to the property and no beneficiary of a land trust, if any, which is the record title holder of any land contiguous to the property has any interest in the property. (If such interest is held, detention must be provided for the total.)

3. Affiant understands and agrees that any permit issued by MWRDGC in reliance upon this affidavit shall be deemed to contain a special condition that if, within two years after the issuance of the permit, the owner or any beneficiary of a land trust, if any, which is the record title holder of the property, acquires any interest in lands contiguous to the property, the owner shall provide for storm water detention for such lands in which an interest is acquired, regardless of the size of such lands.

~~*D. Affiant further states that, because of its size and intended use, the property described in Exhibit "A" is exempt from the requirements of the MWRDGC with respect to the establishment of on-site storm water detention, and further states that:~~

~~1. The owner of the property or any beneficiary of a land trust, if any, which is the record title holder of the property has no present interest, nor had any interest at any time during the previous two years, in any lands contiguous to said property, such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres. (If such interest is or was held, detention must be provided for the total.)~~

(Affidavit to be submitted with all permit applications in separate sewer areas.)

*Delete paragraph C if exemption is claimed. Delete paragraph D if no exemption is claimed.

93 143

MWRD Permit Application No._____

2. No owner of any lands contiguous to the property and no beneficiary of a land trust, if any, which is the record title holder of any contiguous to the property has any interest in the property, such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres. (If such interest is held, detention must be provided for the total.)

3. Affiant understands and agrees that any permit issued by MWRDGC in reliance upon this affidavit shall be deemed to contain a special conditions that if, within two years after the issuance of the permit, the owner or any beneficiary of a land trust, if any, which is the record title holder of the property acquires any interest in lands contiguous to the property such that the aggregate area of the property and the contiguous lands exceeds five (5) acres, the owner shall provide for storm water detention for the entire aggregate area.

This affidavit is given to induce the Metropolitan Water Reclamation District of Greater Chicago to issue its sewerage system permit with respect to the aforedescribed property and to exempt said property from any present requirements to provide and maintain storm water detention facilities thereon.

E. Affiant further states, that for the purpose of this affidavit, the following terms have the meanings indicated:

Owner: means record title holder or a beneficiary of a land trust which is the record title holder, and includes singular and plural; if the owner is other than an individual, the term includes beneficiaries, agents, shareholders, officers and directors.

Ownership: means holding of record title or any beneficial interest.

Interest: means property interest or contractual interest, legal or equitable, directly or indirectly, in part or in full, and includes option to buy. In the case of shareholder interest, the shareholder shall be deemed to have interest if he owns or controls 5% or more of the shares.

Contiguous: means adjacent to and touching at one point or more; if the lands are separated by an easement or a dedicated right-of-way, it shall be considered contiguous.

F. Affiant understands and agrees that in the event that any of the aforementioned information is incorrect, erroneous, false or misleading, the District shall have the option to immediately terminate any permit issued based on the above information.

Dated this 13th day of April 1993.

Raymond Kallet Sj
(Affiant)

SUBSCRIBED and SWORN to before me this 13th day of April 1993.

Clarice M Schultz
(Notary Public)

OFFICIAL SEAL
CLARICE M SCHULTZ
NOTARY PUBLIC STATE OF ILLINOIS
MY COMMISSION EXP. NOV. 1,1996

OFFICE COPY

SPECIAL CONDITIONS:

MWRDGC Permit No. 93 143

This permit is issued subject to the MWRDGC's General Conditions, Standard Conditions and the following Special Conditions:

☐ NONE ☒ SEE ATTACHED SHEET

If permit is granted:

☐ Please return two copies of the permit to the Permittee ; or

XX Please mail one copy to Permittee and one copy to the person designated below:

Name GEWALT-HAMILTON ASSOC., INC., ATTN: DONALD E. MATTHEWS

Address 3100 DUNDEE RD., SUITE 404 NORTHBROOK, ILL. 60062

CERTIFICATE BY APPLICANTS: We have read and thoroughly understand the conditions and requirements of this permit application, and agree to conform to the permit conditions and other applicable requirements of the MWRDGC. It is understood that construction hereunder, after the permit is granted, shall constitute acceptance by the applicants of any Special Conditions that may be placed hereon by the MWRDGC. It is further understood that this application shall not constitute a permit until it is approved, signed and returned by the Chief Engineer of the MWRDGC.

Title to permit premises is held in a land trust: Yes ☐ No XX

If yes, Co-Permittee shall be beneficiary with Power of Direction.

PERMITTEE	CO-PERMITTEE (Co-Permittee is Property Owner)
Municipality VILLAGE OF WILMETTE	Owner LOYOLA ACADEMY
Address 1200 WILMETTE AVE	Address 1100 N. LARAMIE AVENUE
WILMETTE, ILL. Zip 60091	WILMETTE, IL. Zip 60091
Signature Heidi Voorhees	Signature Raymond Callahan SJ
Name Heidi Voorhees (Type or Print)	Name FATHER RAYMOND CALLAHAN (Type or Print)
Title Village Manager	Title PRESIDENT
Date 4-12-93 Phone 708-251-2700	Date _____ Phone 708-251-4031

REVIEW AND APPROVAL BY THE MWRDGC

Reviewed by: Jean P. Joseph (Local Sewer Systems) Date 05/11/93

Approved for issue:

Date of Issue 5/11/93 By: R. J. Friesbach For the Chief Engineer

OFFICE COPY

ENGINEERING CERTIFICATIONS

MWRDGC Permit No. 93 143

CERTIFICATE BY DESIGN ENGINEER: I hereby certify that the project described herein has been designed in accordance with the requirements set forth in this application and all applicable ordinances, rules, regulations, Local, State and Federal Laws, and design criteria of the issuing authority; that the storm drainage and sanitary sewer system designed for this project are proper and adequate; that, where the design involves one or more connections to an existing local sewer system, the capacity of said system has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

Comments, if any: _____

Engineering Firm: GEWALT-HAMILTON ASSOCIATES, INC. Telephone: (708) 272-7750

Address: 3100 DUNDEE RD., SUITE 404 City: NORTHBROOK, IL. Zip: 60062

P.E. SEAL

Signature Donald E. Matthews Date: 3-4-93

(Name and Title) DONALD E. MATTHEWS, P.E. CIVIL ENGINEER

CERTIFICATE BY MUNICIPAL OR SYSTEM ENGINEER: The application and the drawings, together with other data being submitted with this application, have been examined by me and are found to be in compliance with all applicable requirements. The manner of drainage is satisfactory and proper. The existing local sewer system to which the project discharges has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

Comments, if any: _____

Owner of Local Sewer System: VILLAGE OF WILMETTE

Municipal Engineer: RICHARD HANSEN Telephone: (708) 251-2700

Address: 1200 WILMETTE AVENUE City: WILMETTE, IL. Zip: 60091

P.E. SEAL

Signature Richard A. Hansen, Village Engineer Date: 4-12-93

(Name and Title)

CERTIFICATE BY INSPECTION ENGINEER: I hereby certify that construction of the project will be in substantial compliance with the data and the plans submitted with this application; that approval will be obtained from the issuing authority prior to making any changes that would affect capacity, maintenance, design requirements, service area or the permit requirements; that a set of RECORD drawings, signed and sealed by the undersigned Engineer will be furnished to the MWRDGC within sixty (60) days after testing and approval by the District of the completed work.

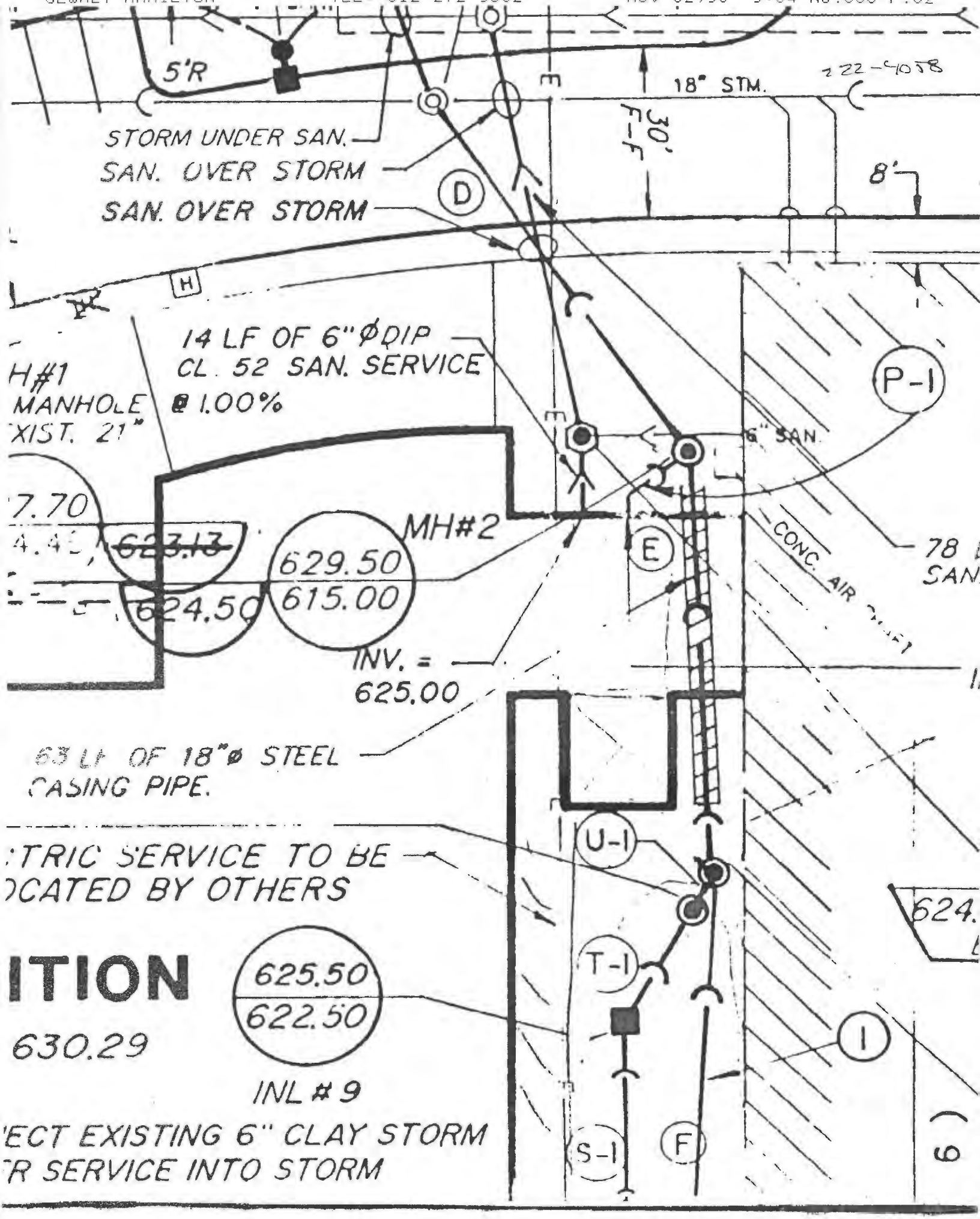
Engineering Firm: GEWALT-HAMILTON ASSOC., INC. Telephone: (708) 272-7750

Address: 3100 DUNDEE RD., SUITE 404 City: NORTHBROOK, ILL. Zip: 60062

P.E. SEAL

Signature Donald E. Matthews Date: 3-4-93

(Name and Title) DONALD E. MATTHEWS, P.E. CIVIL ENGINEER


5'R
18" STM.
30' F-F
8'
STORM UNDER SAN.
SAN. OVER STORM
SAN. OVER STORM
D
H
14 LF OF 6"ØDIP
CL. 52 SAN. SERVICE
@ 1.00%
H#1
MANHOLE
XIST. 21"
P-1
6" SAN.
MH#2
629.50
615.00
624.50
E
CONC. AIR
INV. =
625.00
63 LF OF 18"ø STEEL
CASING PIPE.
U-1
T-1
625.50
622.50
630.29
INL # 9
1
S-1
F
ECT EXISTING 6" CLAY STORM
R SERVICE INTO STORM

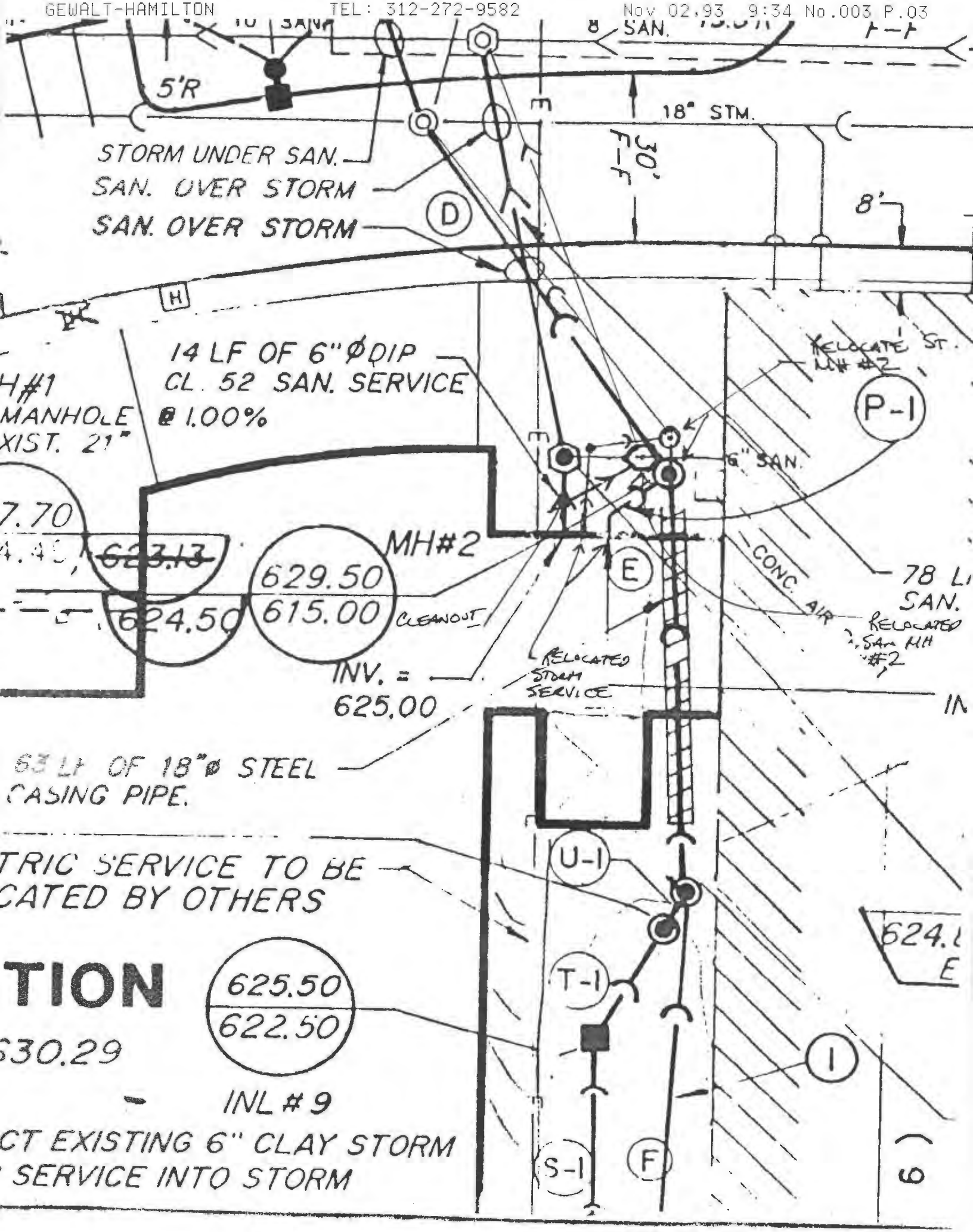

8" SAN.
5'R
18" STM.
30'
STORM UNDER SAN.
SAN. OVER STORM
SAN. OVER STORM
D
8'
H
14 LF OF 6"ØDIP
CL. 52 SAN. SERVICE
@ 1.00%
H#1
MANHOLE
XIST. 21"
RELOCATE ST.
MH #2
P-1
6" SAN.
MH#2
629.50
615.00
624.50
CLEANOUT
E
CONC.
AIR
78 L
SAN.
RELOCATED
SAN MH
#2
RELOCATED
STORM
SERVICE
INV. =
625.00
63 LF OF 18"Ø STEEL
CASING PIPE.
TRIC SERVICE TO BE
CATED BY OTHERS
U-1
TION
625.50
622.50
630.29
T-1
INL #9
CT EXISTING 6" CLAY STORM
SERVICE INTO STORM
I
S-1
F
624.
E

EXHIBIT D

TO DO
1. COORD. SURVEY
2. PITCH FOR DT
3. DRAINS
4. DT DETAIL
5. SAN PIPE

OFFICE COPY

True copy of plans on file with Metropolitan Water Reclamation District of Greater Chicago Sewerage Permit 93 143

OFFICE COPY

Revisions

Mark	Date	Description

Mark	Date	Description

FOUNDATION PLAN - PLUMBING

CLASSROOM AND GYMNASIUM ADDITION TO
LOYOLA ACADEMY
1100 NORTH LARAMIE AVENUE
WILMETTE, ILLINOIS 60091

WMA
Consulting Engineers, Ltd.
818 South Wabash Ave., Chicago, Illinois 60605
Phone 312-922-1000 Fax 312-922-7616

Drawn: BM
Checked: BM/KC Date:
Approved: KC Date:
Scale:
Sheet: PL.1
2 of 3 Sheets
Date:
Project Number:

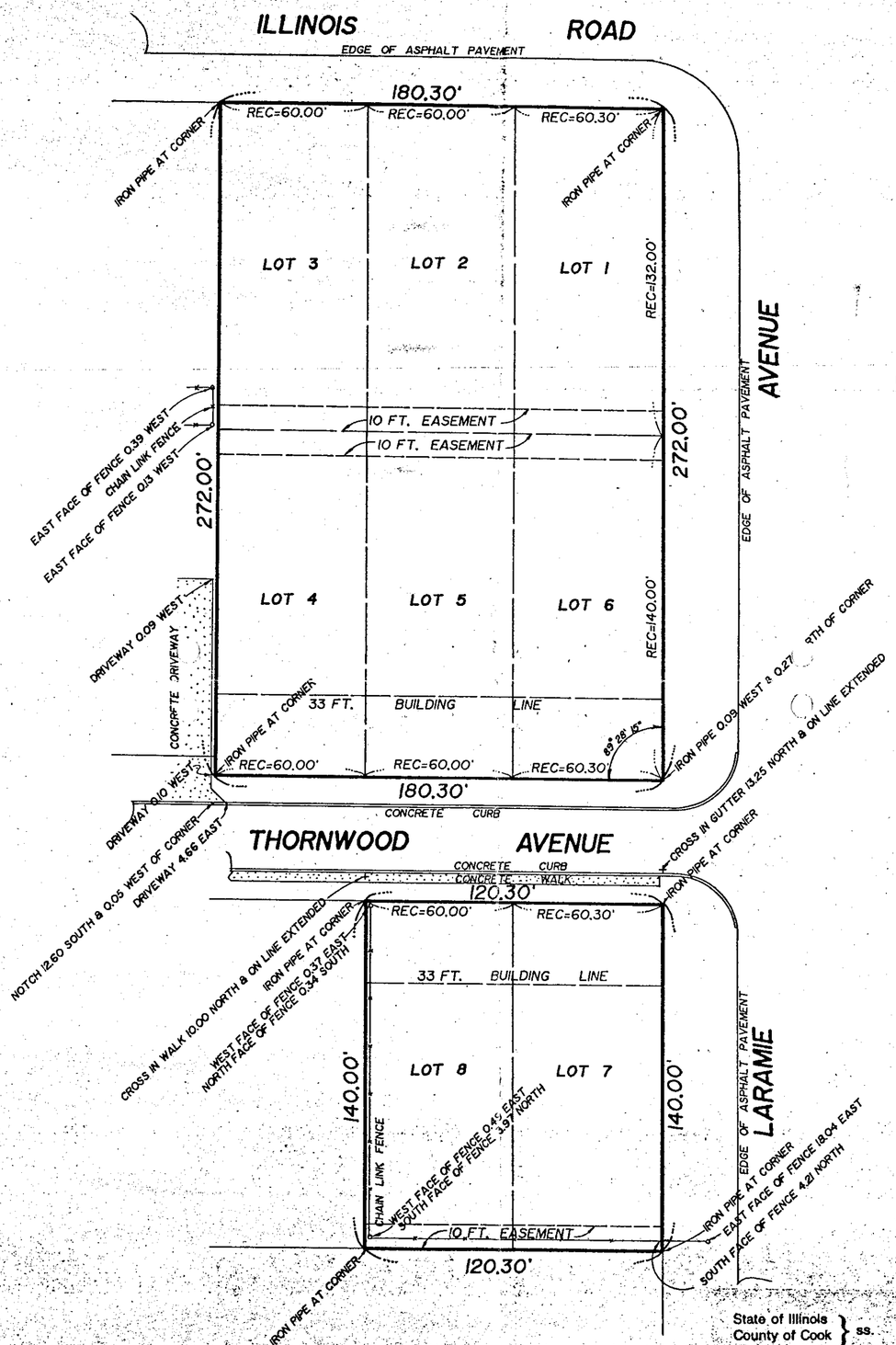
EXHIBIT A 1 OF 2

4505 N. ELSTON AVENUE
CHICAGO, ILLINOIS 60630
PHONE: AC 312/685-5102
FAX # 312/286-4184

PLAT OF SURVEY

GREMLEY & BIEDERMANN INC.

Lots 1, 2, 3, 4, 5, 6, 7 and 8 in William K. Altman's Subdivision of the East 10 acres of the South 60 acres (except the East 40 feet thereof taken for street and except the South 837.02 feet thereof) of the East Half of the Southwest Quarter of Section 30, Township 42 North, Range 13, East of the Third Principal Meridian, in Wilmette, Cook County, Illinois.



93 143

Order No. 922746 | DRAWN RL | CHECKED SS

Scale 1 inch = 40 feet

Date SEPTEMBER 28, 1992

Owner

Ordered by JAMES T. MURRAY

DISTANCES ARE MARKED IN FEET AND DECIMAL PARTS THEREOF. COMPARE ALL POINTS BEFORE BUILDING BY SAME AND AT ONCE REPORT ANY DIFFERENCES BEFORE DAMAGE IS DONE.
FOR EASEMENTS, BUILDING LINES AND OTHER RESTRICTIONS NOT SHOWN ON SURVEY PLAT REFER TO YOUR ABSTRACT, DEED, CONTRACT, TITLE POLICY AND LOCAL BUILDING LINE REGULATIONS.
NO DIMENSIONS SHALL BE ASSUMED BY SCALE MEASUREMENT UPON THIS PLAT.

© GREMLEY & BIEDERMANN, INC. 1983 "ALL RIGHTS RESERVED"

State of Illinois
County of Cook } ss.

We, GREMLEY & BIEDERMANN, INC. hereby certify that we have surveyed the above described property and that the plat hereon drawn is a correct representation of said survey corrected to a temperature of 62° Fahrenheit.

Professional Illinois Land Surveyor

ROBERT E. BIEDERMANN
PROFESSIONAL LAND SURVEYOR
STATE OF ILLINOIS

EXHIBIT A

93 143

OFFICE COPY

4505 N. ELSTON AVENUE
CHICAGO, ILLINOIS 60630
PHONE: AC312 / 685-5102
FAX #: AC 312 / 286-4184

PLAT OF SURVEY

GREMLEY & BIEDERMANN INC.

ALTA / ACSM LAND TITLE SURVEY

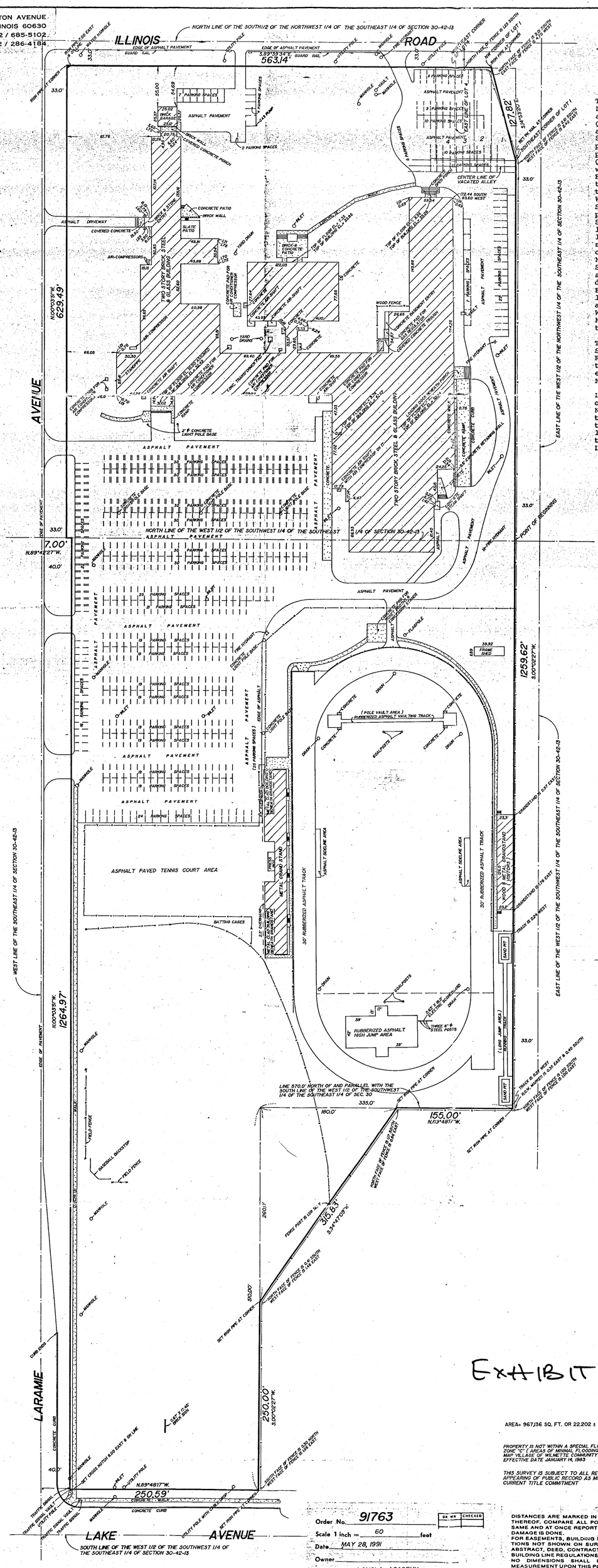
That part of the West Half of the Southeast Quarter of Section 30, Township 42 North, Range 13, East of the Third Principal Meridian, bounded and described as follows: beginning on the North line of the West Half of the Southwest Quarter of the Southeast Quarter of said Section 30 at a point 33 feet West of and measured at right angles to the East line of the West Half of the Southwest Quarter of the Southeast Quarter of said Section 30; Thence South parallel with said East line to a point 570 feet (as measured along said parallel line) North of the South line of the West Half of the Southwest Quarter of the Southeast Quarter of said Section 30; Thence West parallel with said South line a distance of 335 feet; Thence South parallel with said East line a distance of 510 feet; Thence West parallel with said South line to a point 40 feet East of and measured at right angles to the West line of the Southeast Quarter of said Section 30; Thence North parallel with said West line to the North line of the West Half of the Southwest Quarter of the Southeast Quarter of said Section 30; Thence West along said North line to a point 33 feet East of and measured at right angles to the West line of the Southeast Quarter of said Section 30; Thence North parallel with said West line to a point 33 feet South of and measured at right angles to the North line of the South Half of the Northwest Quarter of the Southeast Quarter of said Section 30; Thence East parallel with the North line of the South Half of the Northwest Quarter of the Southeast Quarter of said Section to the Northeast corner of Lot 4 in Block 2 in the Subdivision of the West 3/4 of the South Half of the Northwest Quarter of the Southeast Quarter of Section 30, according to the plat of said Subdivision recorded December 12, 1892 as document 1783909; Thence South along the East line of said Lot 4 and the said East line extended South to the center line of the alley (now vacated) which lies South of and adjoining Lots 1 to 10 of Block 2 of said Subdivision aforesaid; Thence East along the center line of said alley to a point 33 feet West of and measured at right angles to the East line of the West Half of the Northwest Quarter of the Southeast Quarter of said Section 30; Thence South to the point of beginning;

ALSO

That part of the East 368 feet of the South 570 feet of the West Half of the Southwest Quarter of the Southeast Quarter of Section 30, Township 42 North, Range 13, lying Northwesterly of the following described line: beginning in the West line of said tract 260 feet South of the Northwest corner thereof; and extending Northeasterly to the North line of said tract 180 East of the said Northwest corner.

ALSO

Lots 2 and 3 in Block 2 in the Subdivision of the West 3/4 of the South Half of the Northwest Quarter of the Southeast Quarter of Section 30, Township 42 North, Range 13, (except the South Half of the East Half of the West Half of the Southwest Quarter of the Northwest Quarter of the Southeast Quarter), also that part of Lot 1 in Block 2 of said subdivision lying Southwest of a straight line drawn from the Southeast to the Northwest corner of said Lot 1. and that part of the North Half of vacated alley lying South of and adjoining said Lots 1, 2 and 3 in Block 2 aforesaid, in Cook County, Illinois.



AREA= 967,136 SQ. FT. OR 22.202 ± ACRES

PROPERTY IS NOT WITHIN A SPECIAL FLOOD HAZARD AREA BUT APPEARS IN ZONE "C" (AREAS OF MINIMAL FLOODING) AS PER FLOOD INSURANCE RATE MAP VILLAGE OF WILMETTE COMMUNITY PANEL NO. 170175 0005 B EFFECTIVE DATE JANUARY 14, 1983

THIS SURVEY IS SUBJECT TO ALL RESTRICTIONS AND MATTERS APPEARING OF PUBLIC RECORD AS MIGHT BE DISCLOSED BY A CURRENT TITLE COMMITMENT

Order No. 91763
Scale 1 inch = 60 feet
Date MAY 28, 1991
Owner
Ordered by LOYOLA ACADEMY

DR. #	CHECKED

DISTANCES ARE MARKED IN FEET AND DECIMAL PARTS THEREOF. COMPARE ALL POINTS BEFORE BUILDING BY SAME AND AT ONCE REPORT ANY DIFFERENCES BEFORE DAMAGE IS DONE.
FOR EASEMENTS, BUILDING LINES AND OTHER RESTRICTIONS NOT SHOWN ON SURVEY PLAT REFER TO YOUR ABSTRACT, DEED, CONTRACT, TITLE POLICY AND LOCAL BUILDING LINE REGULATIONS.
NO DIMENSIONS SHALL BE ASSUMED BY SCALE MEASUREMENT UPON THIS PLAT.

© GREMLEY & BIEDERMANN, INC. 1988 "ALL RIGHTS RESERVED"

State of Illinois)
County of Cook)ss

This is to certify that this map or plat and the survey on which it is based were made in accordance with "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys" jointly established and adopted by ALTA and ACSM in 1988, and meets the accuracy requirements of a Class A Survey, as defined therein.

Dated: MAY 30, A.D.1991.

Professional Illinois Land Surveyor #1439

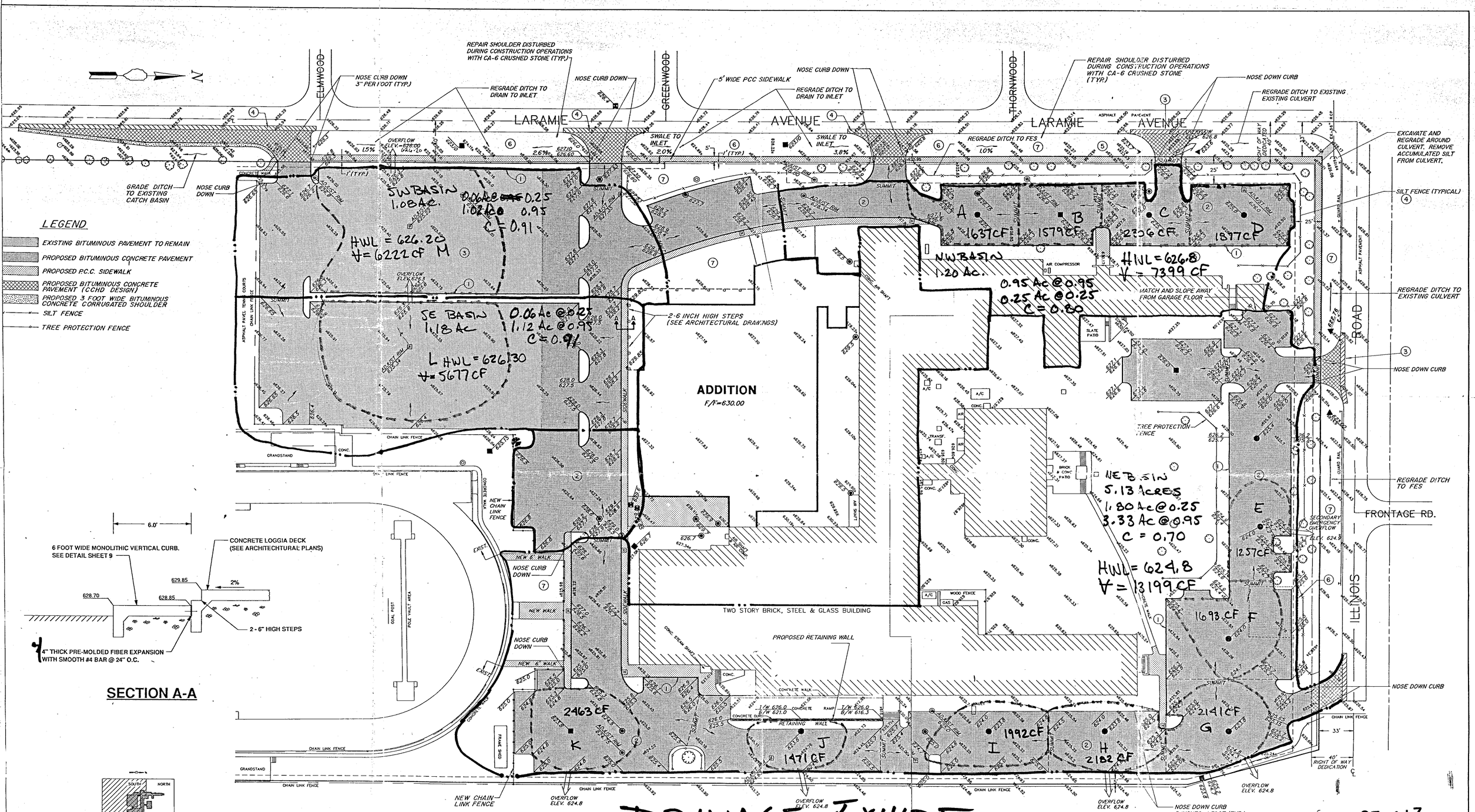
OFFICE COPY

EXHIBIT A

93 143

OFFICE COPY

EXHIBIT A 2 OF 2



DRAINAGE EXHIBIT

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

93 143

GRADING PLAN - SOUTH

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION

PROJECT NO. 9207.000
SCALE: 1"=40'
DRAWN BY: RTH
DATE: 2-19
CHECKED BY: ION
NOIS
DATE: 2-19

NO.	BY	DATE	REVISION

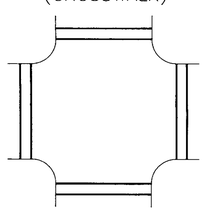
PROJECT NO. 9207.000
SCALE: 1"=40'
DRAWN BY: LLM
DATE: 2-19-93
CHECKED BY: RBH
DATE: 2-19-93
SHEET NO. 4 OF 11 SHEETS
DWG-FILE-NAME: 9207-N.DWG

CAMPUS SIGNS

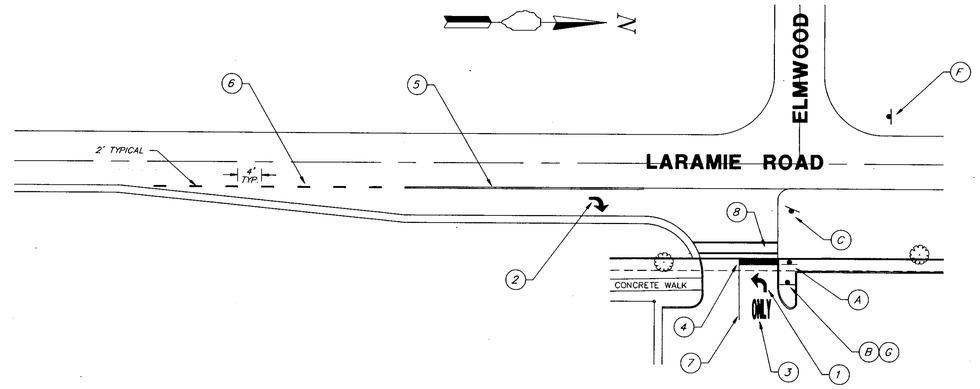
KEY	U.T.C.D. CODE	SIZE	TYPE
Ⓐ	R1-1	24"x 24"	STOP SIGN
Ⓑ	R3-5	18"x 18"	LEFT TURN ONLY
Ⓒ	R5-1	18"x 18"	DO NOT ENTER
Ⓓ		6"x 18"	7 – 9 AM
Ⓔ		6"x 18"	2 – 4 PM
Ⓕ		18"x 18"	NO LEFT TURN
Ⓖ		6"x 18"	EXCEPT 7 – 9 AM

CAMPUS PAVEMENT MARKINGS

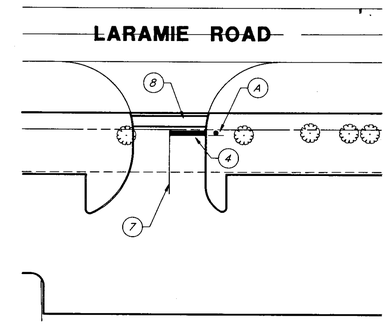
KEY	MARKING	COLOR	SIZE
①		WHITE	8'
②		WHITE	8'
③	ONLY	WHITE	8'x 6'
④	(STOP BAR)	WHITE	24"x 12' to 16'
⑤	(SOLID LINE)	WHITE	4"x AS SHOWN
⑥	(DASHED LINE)	WHITE	4"
⑦	(SOLID LINE)	YELLOW	4"x 25'
⑧	(CROSSWALK)	WHITE	2 @ 6"x WIDTH OF APPROACH



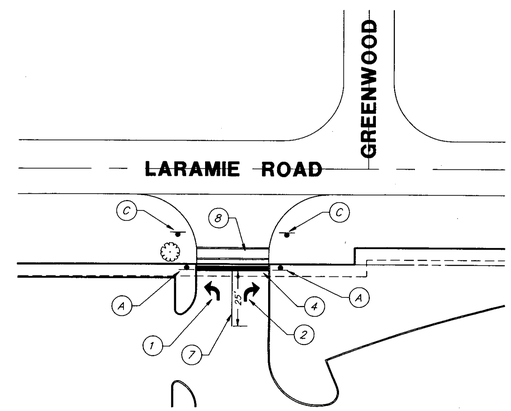
NOTE: ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.



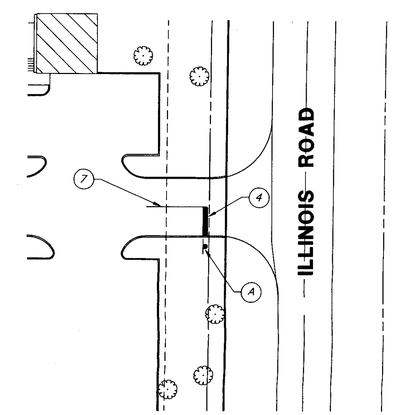
DRIVEWAY A



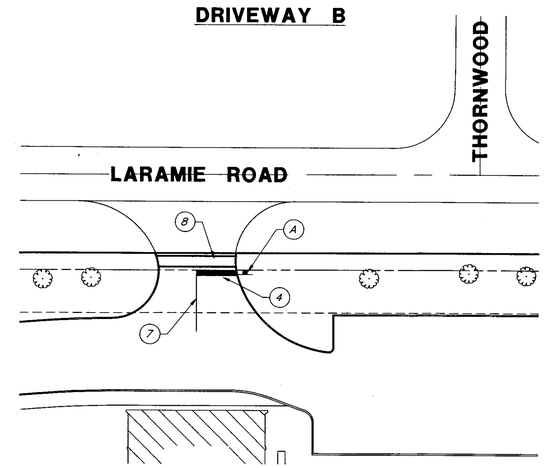
DRIVEWAY D



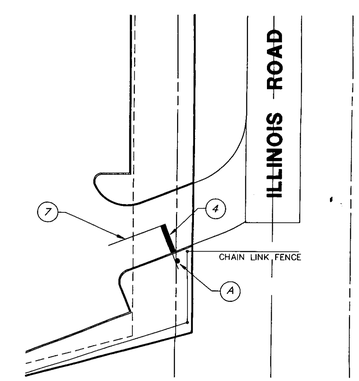
DRIVEWAY B



DRIVEWAY E



DRIVEWAY C



DRIVEWAY F

93-142

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

SIGNAGE & PAVEMENT MARKING PLAN

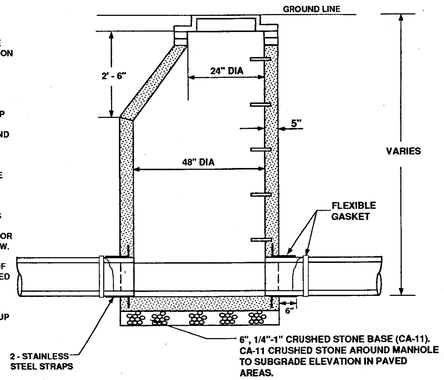
LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
2	LLM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRICS.

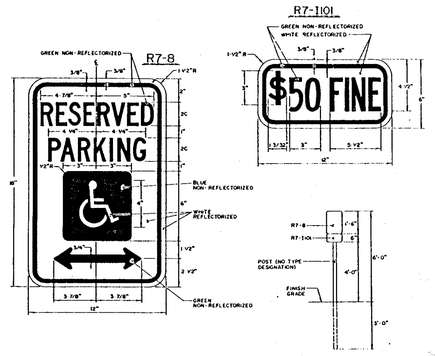
PROJECT NO. 9207.000	DRAWN BY: LLM	SHEET NO. 11
SCALE: 1"=30'	DATE: 3-1-93	OF 11 SHEETS
	CHECKED BY: RBH	
	DATE: 3-1-93	DWG-FILE-NAME: 9207-INT.DWG

NOTES:

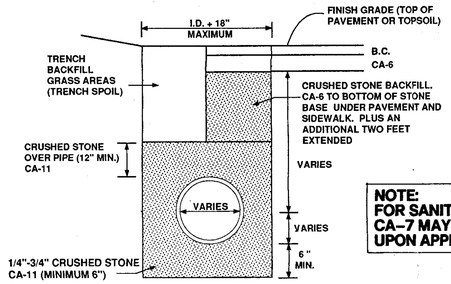
1. STEPS SHALL BE IMBEDDED INTO WALL A MINIMUM OF 3".
2. FRAME TO BE LAID IN A MASTIC BED.
3. FRAME TO BE NEENAH R-1712-B LID TO BE SELF-SEALING WITH "SANITARY" IMPRINTED ON COVER AND BLIND PICK HOLE.
4. MANHOLE BOTTOM TO BE POURED INTEGRALLY WITH WALLS.
5. FLEXIBLE BOOT GAKET TO BE REQUIRED FOR ALL MANHOLES.
6. STAIRS TO BE 16" ON CENTER. FIRST STEP TO BE 6" BELOW FRAME.
7. PCC BENCH SHALL EXTEND TO CROWN AND SLOPE 2" TO OUTSIDE WALL.
8. INVERT TO BE FORMED WITH HALF-PIPE. POUR PCC BENCH TO TROUGH.
9. BUTYL ONE INCH JOINT SEALANT, IN ROPE FORM, REQUIRED BETWEEN MANHOLE SECTIONS.
10. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-N-NEK OR E Z STIK) TO EACH JOINT TO PREVENT INFLOW.
11. WHEN ADJUSTMENTS ARE NECESSARY, THEY'LL BE PREFORMED WITH A MAXIMUM OF TWO PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON-HARDENING MASTIC (RUB-N-NEK OR APPROVED EQUAL) TO A MAXIMUM HEIGHT OF 8 INCHES.
12. NO MORTAR SHALL BE USED TO DRESS UP INSIDE ADJUSTING RINGS.



SANITARY MANHOLE DETAIL



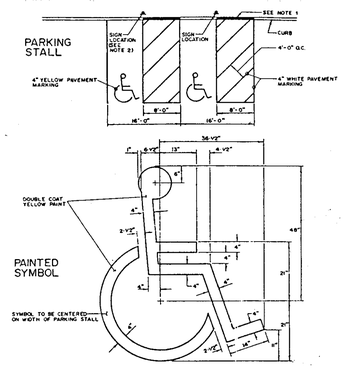
HANDICAPPED PARKING SIGN



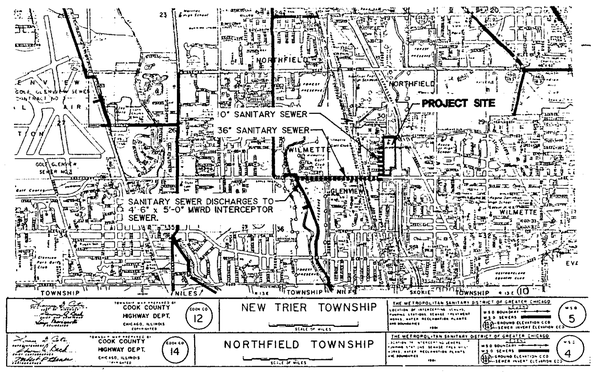
NOTE:
FOR SANITARY SEWER INSTALLATION, CA-7 MAY BE USED IN LIEU OF CA-11 UPON APPROVAL OF THE ENGINEER.

SANITARY TRENCH DETAIL

NTS

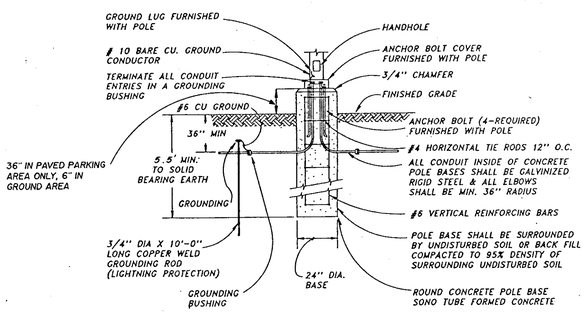


HANDICAPPED PAINTED SYMBOL & PARKING STALL DIMENSIONS

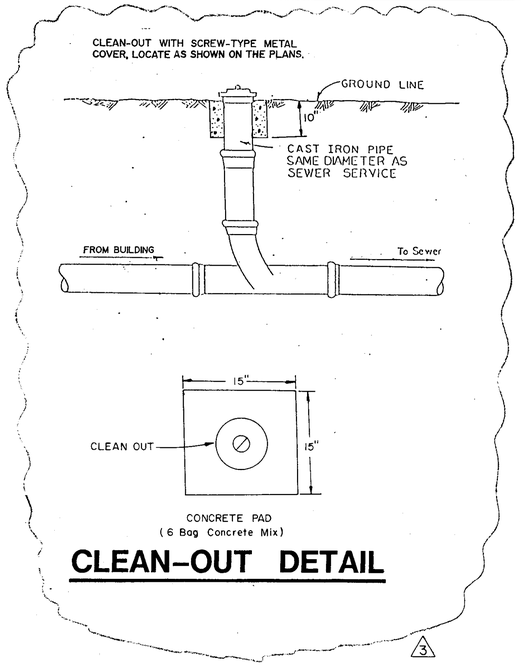


SANITARY SEWER ROUTING

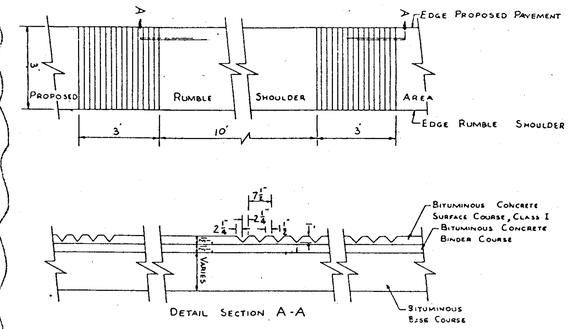
1. The project site service discharges to a 10" diameter sanitary sewer on Loyola Property, flowing south parallel to Laramie Avenue.
2. The 10" diameter sanitary sewer flows south to a 36" diameter sanitary sewer on Lake Avenue and Laramie Avenue.
3. The 36" diameter sanitary sewer flows west discharging into a MWRD 4'-6" x 5'-0" interceptor sewer.



LIGHT STANDARD DETAIL



CLEAN-OUT DETAIL



It is the intent of this Contract to provide a narrow 3 ft. rumble type shoulder adjoining each side of proposed pavement.

The placement of the binder and surface courses shall be for the full width of the base course with the outer 3 ft. being compacted to not less than 85 percent of theoretical density and grooved at 10 ft. intervals as shown on detail, with the rumble shoulder being constructed simultaneously with the surface course.

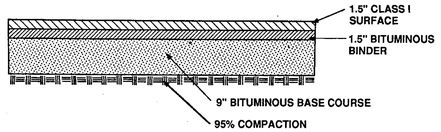
The method of grooving and compaction shall be submitted to and approved by the Engineer.

Contractor shall protect rumble area with suitable safety devices as work progresses to prevent vehicular use until shoulder area has cooled sufficiently to prevent deformation of grooves as directed by the Engineer.

The material necessary for the rumble area construction shall be included in the Contract unit bid price per ton for Bituminous Concrete Binder Course and Bituminous Concrete Surface Course, Class I with the Grooving and safety devices being paid for as Sq. Yd. of Rumble Shoulder which shall include area of rumble effect only.

A separate Tandem Roller shall be used in the construction of the Rumble Shoulder.

RUMBLE SHOULDER DETAIL



COOK COUNTY HIGHWAY DEPT. PAVEMENT DETAIL

LARAMIE AVENUE AND ILLINOIS ROAD

93-143

NOT FOR CONSTRUCTION

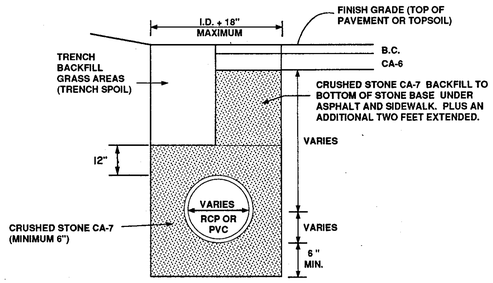
GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

DETAIL SHEET

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
3	DLK	3-29-93	PER ARCHITECT
1	JRD	3-16-93	PARKING LOT LIGHTING

PROJECT NO. 9207.000	DRAWN BY: WEG	SHEET NO. 10
SCALE: NONE	DATE: 2-19-93	
	CHECKED BY: DEM	OF 11 SHEETS
	DATE: 2-19-93	DWG-FILE-NAME: 9207-TL.DWG

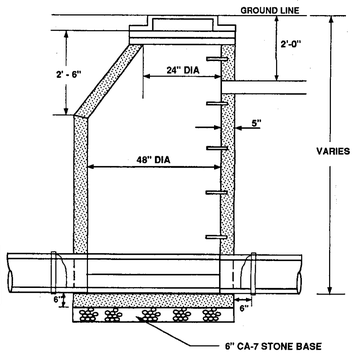


STORM SEWER TRENCH DETAIL

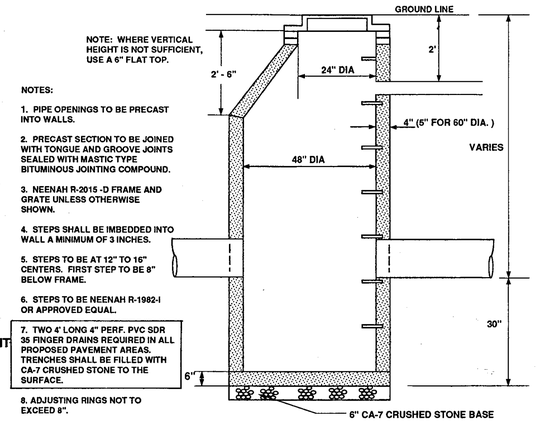
NTS

NOTES:
1. STEPS SHALL BE IMBEDDED INTO WALL A MINIMUM OF 3".
2. FRAME TO BE LAID IN A MASTIC BED.
3. FRAME TO BE NEENAH R-1712. LID TO HAVE "STORM" IMPRINTED ON COVER .
4. ADJUSTING RINGS NOT TO EXCEED 8".
5. STAIRS TO BE 16" ON CENTER. FIRST STEP TO BE 8" BELOW FRAME.
6. STEPS TO BE NEENAH R-1981-I OR APPROVED EQUAL.
7. INVERT TO BE FORMED WITH HALF-PIPE. POUR PCC BENCH TO CROWN, SLOPE BENCH TO TROUGH.
8. PREFORMED MASTIC JOINTS REQUIRED BETWEEN MANHOLE SECTIONS. MORTAR MANHOLE JOINTS SURFACES WITH MORTAR, INSIDE AND OUT.
9. TWO 4' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. TRENCHES SHALL BE FILLED WITH CA-7 CRUSHED STONE TO THE SURFACE.

IMPORTANT NOTE!



STORM MANHOLE DETAIL

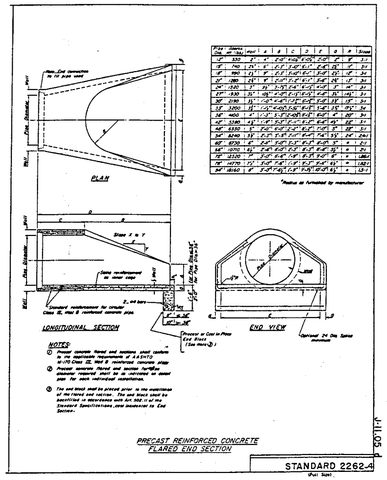


NOTE: WHERE VERTICAL HEIGHT IS NOT SUFFICIENT, USE A 6" FLAT TOP.

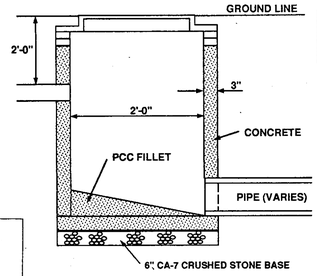
NOTES:
1. PIPE OPENINGS TO BE PRECAST INTO WALLS.
2. PRECAST SECTION TO BE JOINED WITH TONGUE AND GROOVE JOINTS SEALED WITH MASTIC TYPE BITUMINOUS JOINTING COMPOUND.
3. NEENAH R-2015 -D FRAME AND GRATE UNLESS OTHERWISE SHOWN.
4. STEPS SHALL BE IMBEDDED INTO WALL A MINIMUM OF 3 INCHES.
5. STEPS TO BE AT 12" TO 16" CENTERS. FIRST STEP TO BE 8" BELOW FRAME.
6. STEPS TO BE NEENAH R-1982-I OR APPROVED EQUAL.
7. TWO 4' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. TRENCHES SHALL BE FILLED WITH CA-7 CRUSHED STONE TO THE SURFACE.
8. ADJUSTING RINGS NOT TO EXCEED 8".

IMPORTANT NOTE!

CATCH BASIN DETAIL TYPE 'A'



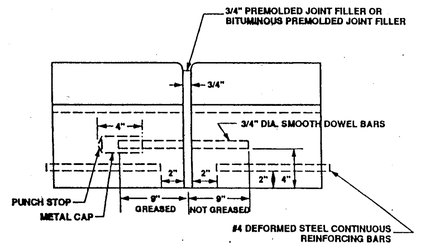
FLARED END SECTION DETAIL



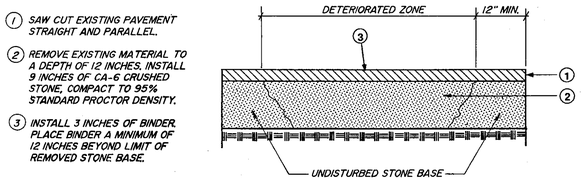
NOTES:
1. NEENAH R-2015-D FRAME AND GRATE UNLESS OTHERWISE SHOWN.
2. ADJUSTING RINGS NOT TO EXCEED 8".
3. TWO 4' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. TRENCHES SHALL BE FILLED WITH CA-7 CRUSHED STONE TO THE SURFACE.
4. CONCRETE FILLETS SHALL BE MADE WITH NON-SHRINK MORTAR TO PROVIDE A SMOOTH TRANSITION BETWEEN THE CASTING AND ADJUSTING RING (OR TOP OF STRUCTURE).
5. WHEN ADJUSTMENTS ARE NECESSARY, THEY WILL BE PERFORMED WITH A MAXIMUM OF TWO PRECAST CONCRETE RINGS SET IN A BED PERFORMED NON-HARDENING MASTIC (RUB-R-NEK OR APPROVED EQUAL) TO A MAXIMUM HEIGHT OF 8" INCHES. TWO INCH RINGS SHALL ONLY BE USED WHEN ADJUSTMENT IS LESS THAN THREE INCHES.
6. NO MORTAR SHALL BE USED TO DRESS UP INSIDE ADJUSTING RINGS.
7. PROVIDE CRUSHED STONE BACKFILL, CA-7 AROUND INLET TO SUBGRADE ELEVATION IN PAVED AREAS.

IMPORTANT NOTE!

INLET DETAIL TYPE 'A'

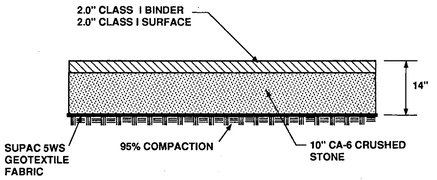


EXPANSION JOINT DETAIL

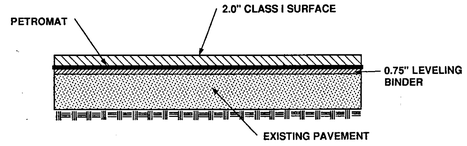


1. SAW CUT EXISTING PAVEMENT STRAIGHT AND PARALLEL.
2. REMOVE EXISTING MATERIAL TO A DEPTH OF 12 INCHES. INSTALL 9 INCHES OF CA-6 CRUSHED STONE, COMPACT TO 95% STANDARD PROCTOR DENSITY.
3. INSTALL 3 INCHES OF BINDER. PLACE BINDER A MINIMUM OF 12 INCHES BEYOND LIMIT OF REMOVED STONE BASE.

PAVEMENT PATCH DETAIL

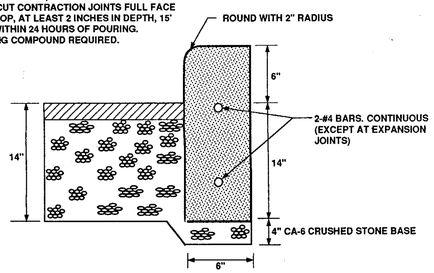


PAVEMENT DETAIL

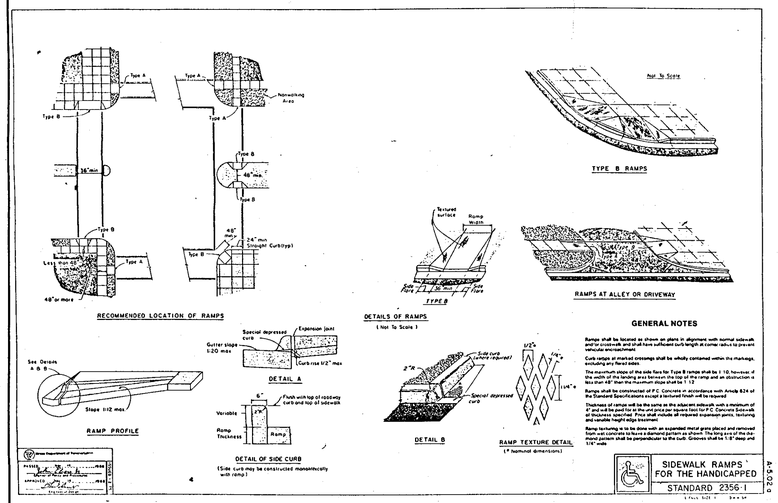


PAVEMENT OVERLAY DETAIL

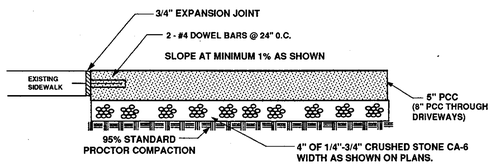
SET EXPANSION JOINTS AT ALL PC'S, PT'S, CURB RETURNS, AND AT 45' O.C. MAXIMUM. SAW CUT CONTRACTION JOINTS FULL FACE AND TOP, AT LEAST 2 INCHES IN DEPTH, 15' O.C. WITHIN 24 HOURS OF POURING. CURING COMPOUND REQUIRED.



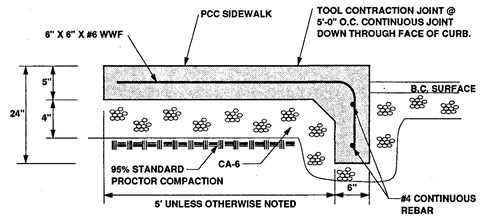
VERTICAL CURB DETAIL



SIDEWALK RAMPS FOR THE HANDICAPPED



PCC SIDEWALK DETAIL



MONOLITHIC VERTICAL CURB

(INSTALL WHERE SIDEWALK PARALLELS CURB LINE)

93-143

NOT FOR CONSTRUCTION

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

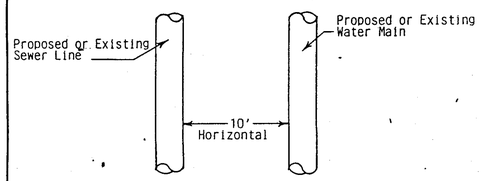
DETAIL SHEET

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION

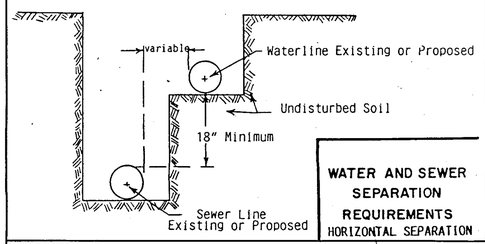
PROJECT NO. 9207.000	DRAWN BY: WEG	SHEET NO. 9
SCALE: NONE	DATE: 2-19-93	OF 11 SHEETS
	CHECKED BY: DEM	
	DATE: 2-19-93	DWG-FILE-NAME: 9207-TL.DWG

Proposed sewer (or water) is located 10 feet or more from existing water (or sewer).



PLAN VIEW

Proposed sewer (or water) is located less than 10 feet from existing water (or sewer).

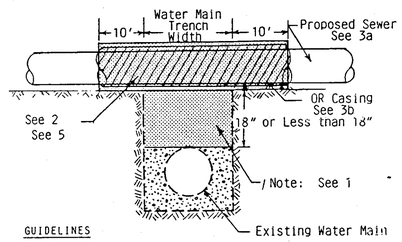


WATER AND SEWER SEPARATION REQUIREMENTS
HORIZONTAL SEPARATION

Existing watermain below proposed sewer line with 18" minimum separation.

Existing watermain below proposed sewer line with less than 18" separation.

NOTE: CLASS IV MATERIAL TO BE COMPACTED TO 95 % OF STANDARD PROCTOR MAXIMUM DENSITY.



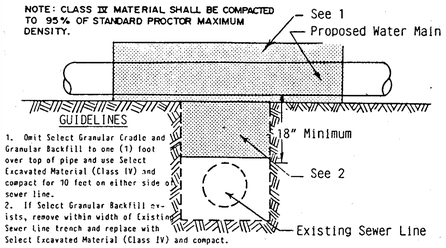
GUIDELINES

1. If Select Granular Backfill exists; remove within width of Proposed Sewer trench and replace with Select Excavated Material (Class IV) and compact.
2. Omit Select Granular Cradle and Granular Backfill to one (1) foot over top of pipe and use Select Excavated Material (Class IV) and compact for 10 feet on either side of water main.
3. a. Construct 10 feet of casing for Proposed Sewer of Water Main material and pressure test, or;
   b. Use 10 feet of casing for Proposed Sewer and Seal ends of casing.
4. Point loads shall not be allowed between sewer or sewer casing and water main.
5. Provide adequate support for Existing Water Main to prevent damage due to settlement of sewer trench.

WATER AND SEWER SEPARATION REQUIREMENTS
(VERTICAL SEPARATION)

Proposed water main above existing sewer line with 18" minimum separation.

NOTE: CLASS IV MATERIAL SHALL BE COMPACTED TO 95 % OF STANDARD PROCTOR MAXIMUM DENSITY.

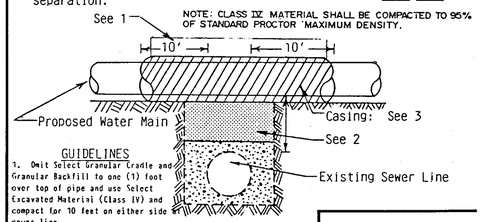


GUIDELINES

1. Omit Select Granular Cradle and Granular Backfill to one (1) foot over top of pipe and use Select Excavated Material (Class IV) and compact for 10 feet on either side of sewer line.
2. If Select Granular Backfill exists, remove within width of Existing Sewer Line trench and replace with Select Excavated Material (Class IV) and compact.

Proposed water main above existing sewer line with less than 18" separation.

NOTE: CLASS IV MATERIAL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DENSITY.



GUIDELINES

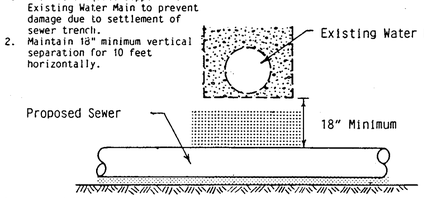
1. Omit Select Granular Cradle and Granular Backfill to one (1) foot over top of pipe and use Select Excavated Material (Class IV) and compact for 10 feet on either side of sewer line.
2. If Select Granular Backfill exists, remove within width of Existing Sewer Line trench and replace with Select Excavated Material (Class IV) and compact.
3. Use a casing for proposed Water Main and seal ends of casing.
4. Point loads shall not be allowed between water main or water main casing and sewer.

WATER AND SEWER SEPARATION REQUIREMENTS
(VERTICAL SEPARATION)

Proposed sewer line below existing water main with 18" minimum separation.

GUIDELINES

1. Provide adequate support for Existing Water Main to prevent damage due to settlement of sewer trench.
2. Maintain 18" minimum vertical separation for 10 feet horizontally.

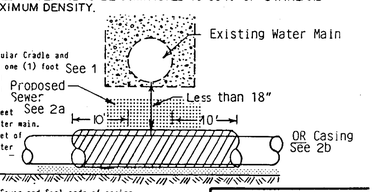


Proposed sewer line below existing water main with less than 18" separation.

NOTE: CLASS IV MATERIAL TO BE COMPACTED TO 95 % OF STANDARD PROCTOR MAXIMUM DENSITY.

GUIDELINES

1. Omit Select Granular Cradle and Granular Backfill to one (1) foot over top of pipe and use Select Excavated Material (Class IV) and compact for 10 feet on either side of water main.
   2 a. Construct 10 feet of Proposed Sewer of Water Main material and pressure test, or;
   b. Use 10 feet of casing for Proposed Sewer and Seal ends of casing.
3. Point loads shall not be allowed between sewer or sewer casing and water main.
4. Provide adequate support for Existing Water Main to prevent damage due to settlement of sewer trench.



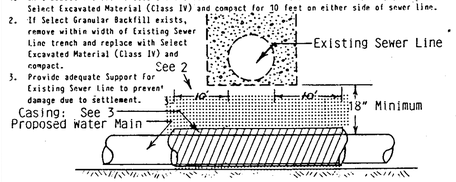
WATER AND SEWER SEPARATION REQUIREMENTS
(VERTICAL SEPARATION)

Proposed water main below existing sewer line with 18" minimum separation.

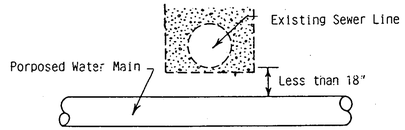
GUIDELINES

NOTE: CLASS IV MATERIAL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DENSITY.

1. Omit Select Granular Cradle and Granular Backfill to one (1) foot over top of pipe and use Select Excavated Material (Class IV) and compact for 10 feet on either side of sewer line.
2. If Select Granular Backfill exists, remove within width of Existing Sewer Line trench and replace with Select Excavated Material (Class IV) and compact.
3. Provide adequate Support for Existing Sewer Line to prevent damage due to settlement.

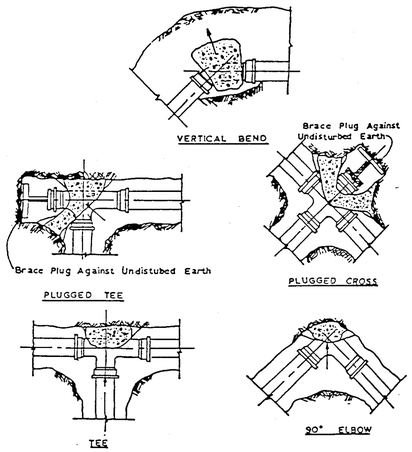


Proposed water main below existing sewer line with less than 18" minimum separation.



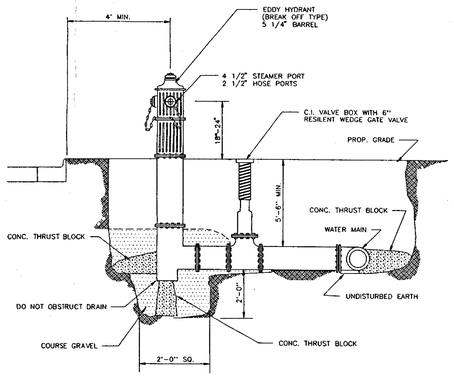
NOT ALLOWED*
Must Maintain 18" Vertical Separation

WATER AND SEWER SEPARATION REQUIREMENTS
(VERTICAL SEPARATION)



NOTES:
All blocks bear against undisturbed earth.
Arrows indicate direction of thrust.
All blocks to be 3000 P.S.I. concrete.
All fittings shown in plan except vertical bend

TYPICAL THRUST BLOCK INSTALLATIONS



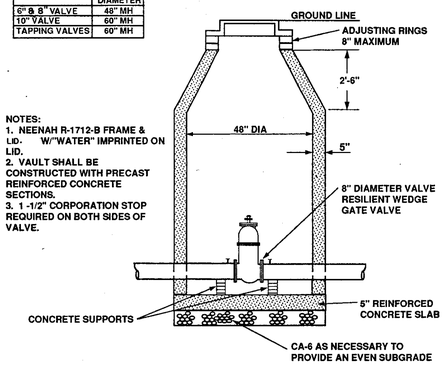
NOTES:

1. ALL MAINS TO HAVE MINIMUM 5'-6" COVER.
2. ALL HYDRANTS TO FACE STREET AND LOCATED MINIMUM 4'-0" FROM BACK OF CURB TO CENTER LINE OF HYDRANT.
3. SET GRADE RING 0.2' ABOVE FINISHED GRADE.

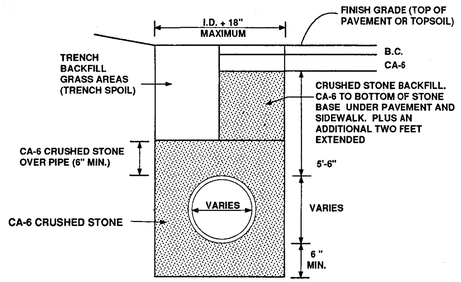
FIRE HYDRANT DETAIL

VALVE SIZE	VAULT DIAMETER
6" & 8" VALVE	48" MH
10" VALVE	60" MH
TAPPING VALVES	60" MH

NOTES:
1. NEENAH R-1712-B FRAME & LID. W/"WATER" IMPRINTED ON LID.
2. VAULT SHALL BE CONSTRUCTED WITH PRECAST REINFORCED CONCRETE SECTIONS.
3. 1 -1/2" CORPORATION STOP REQUIRED ON BOTH SIDES OF VALVE.

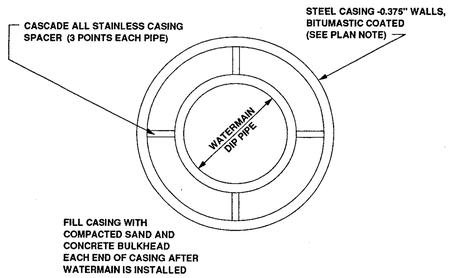


WATER VAULT DETAIL



WATER MAIN TRENCH DETAIL

NTS



CASING DETAIL

93-143

NOT FOR CONSTRUCTION

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

DETAIL SHEET

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION

PROJECT NO. 9207.000	DRAWN BY: WEG	SHEET NO. 8
SCALE: NONE	DATE: 2-19-93	OF 11 SHEETS
	CHECKED BY: DEM	
	DATE: 2-19-93	DWG-FILE-NAME: 9207-TL.DWG

GENERAL NOTES

1. THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION, THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" LATEST EDITION, ALL APPLICABLE REQUIREMENTS OF THE VILLAGE OF WILMETTE, ORDINANCES OF AUTHORITIES HAVING JURISDICTION AND ALL ADDENDA THERETO SHALL GOVERN THIS WORK.

2. THE STANDARD SPECIFICATIONS, CONSTRUCTION PLANS AND SUBSEQUENT DETAILS ARE ALL TO BE CONSIDERED AS PART OF THE CONTRACT. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THIS WORK MAY NOT BE SPECIFICALLY NOTED BUT ARE TO BE CONSIDERED A PART OF THE CONTRACT.

3. NO CONSTRUCTION PLANS SHALL BE USED FOR CONSTRUCTION UNLESS SPECIFICALLY MARKED 'FOR CONSTRUCTION'. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, AND CONDITIONS AFFECTING THEIR WORK WITH THE ACTUAL CONDITIONS AT THE JOB SITE. IN ADDITION, THE CONTRACTOR MUST VERIFY THE ENGINEER'S LINE AND GRADES. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY OMISSION OR DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS OWN RISK AND EXPENSE. IN THE EVENT OF ANY DOUBT OR QUESTION ARISING WITH RESPECT TO THE TRUE MEANING OF THE CONSTRUCTION PLANS OR SPECIFICATIONS, THE DECISION OF THE ENGINEER SHALL BE FINAL AND CONCLUSIVE.

4. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR AND HIS SURETY FOR A PERIOD OF 18 MONTHS FROM THE DATE OF INITIAL ACCEPTANCE OF THE WORK BY THE OWNER AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE.

5. BEFORE ACCEPTANCE BY THE OWNER AND FINAL PAYMENT, ALL WORK SHALL BE INSPECTED AND APPROVED BY THE OWNER OR HIS REPRESENTATIVES. FINAL PAYMENT WILL BE MADE AFTER ALL OF THE CONTRACTOR'S WORK HAS BEEN APPROVED AND ACCEPTED.

6. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHTS-OF-WAY ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.

7. REMOVED PAVEMENT, SIDEWALK, CURB AND GUTTER, ETC. SHALL BE DISPOSED OF OFFSITE AT LOCATIONS PROVIDED BY THE CONTRACTOR AT HIS OWN EXPENSE.

8. WHENEVER, DURING CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THE LOOSE MATERIAL WILL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES, AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION.

10. WHENEVER THE PERFORMANCE OF WORK IS INDICATED ON THE PLANS, AND NO ITEM IS INCLUDED IN THE CONTRACT FOR PAYMENT, THE WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

11. DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHALL INSURE POSITIVE SITE DRAINAGE AT THE CONCLUSION OF EACH DAY. SITE DRAINAGE MAY BE ACHIEVED BY DITCHING, PUMPING OR ANY OTHER METHOD ACCEPTABLE TO THE ENGINEER. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF.

12. ALL CONSTRUCTION WILL BE INSPECTED BY THE OWNER'S ENGINEER. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MUNICIPALITY AS WELL AS THE STANDARD SPECIFICATIONS.

13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE FROM THE SITE ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM HIS CONSTRUCTION OPERATIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.

2. 14. ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

15. EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

UTILITY/IEPA/MWRD NOTES

16. ALL CONSTRUCTION SHALL CONFORM TO THE ILLINOIS RECOMMENDED STANDARDS FOR SEWAGE WORKS, LATEST EDITION, PUBLISHED BY THE IEPA.

17. THE SEWER AND WATER CONTRACTOR SHALL BE REQUIRED TO BE LICENSED AND BONDED WITH THE VILLAGE OF WILMETTE BEFORE JOB IS STARTED.

18. THE CONTRACTOR SHALL PROVIDE A LIST OF SEWER AND WATER SERVICE MEASUREMENTS TO THE VILLAGE AND TO THE PROJECT ENGINEER AT THE CONCLUSION OF THE JOB.

1. 19. CONTRACTOR SHALL NOTIFY THE VILLAGE OF WILMETTE (708-251-2700), THE MWRD LOCAL SEWER PERMIT SECTION (708-222-4055) AND THE PROJECT ENGINEER AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT. 2.

20. UNDERGROUND WORK SHALL INCLUDE TRENCHING, DEWATERING, INSTALLATION OF PIPE, CASTINGS, STRUCTURES, BACKFILLING OF TRENCHES AND COMPACTION, AND TESTING AS SHOWN ON THE CONSTRUCTION PLANS. FITTINGS AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. ALL SEWER SHALL BE INSTALLED USING A LASER. CONTRACTOR SHALL PROVIDE "AS-BUILT" DRAWINGS OF ALL SEWER AND WATER MAIN INSTALLATIONS.

7. 21. 'BAND-SEAL' OR SIMILAR FLEXIBLE TYPE COUPLINGS SHALL BE USED WHEN CONNECTING SEWER PIPES OF DISSIMILAR MATERIALS.

8. 22. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE, ONE OF THE FOLLOWING SHALL BE USED:

A) CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS ("SHEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB-WYE OR HUB-TEE SADDLE.

B) REMOVE AN ENTIRE SECTION OF PIPE (BREAKING ONLY THE TOP OF ONE BELL) AND REPLACE WITH A WYE OR BRANCH SECTION.

C) WITH A PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF PROPER FITTING USING "BAND-SEAL" OR SIMILAR COUPLINGS TO HOLD IT FIRMLY IN PLACE.

23. STORM SEWERS SHALL BE PERFORATED PVC, SDR 35 WITH RUBBER GASKET JOINTS CONFORMING TO ASTM D-3212. WHERE SPECIFIED STORM SEWER SHALL BE RCP CLASS IV CONFORMING TO ASTM C-361 WITH "O" RING TYPE JOINTS UTILIZING A FLEXIBLE GASKET MATERIAL CONFORMING TO ASTM C-443, OR DIP CLASS 52 CONFORMING TO ANSI A21.51 OR AWWA C-151 WITH JOINTS CONFORMING TO ANSI 21.11 OR AWWA C-110 OR C-111, OR RCP CLASS IV CONFORMING TO ASTM C-76 WITH MASTIC JOINTS.

24. ALL STORM SEWER SHALL BE INSTALLED ON A CRUSHED STONE BEDDING, CA-7 OR CA-11, WITH A MINIMUM THICKNESS EQUAL TO 1/4th THE OUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN 6". THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED AROUND AND OVER THE CROWN OF THE PIPE BY A MINIMUM OF 12 INCHES. BLOCKING OF ANY KIND FOR GRADE IS NOT PERMITTED.

25. ALL WATER MAIN AND SANITARY TRENCHES BENEATH PROPOSED OR EXISTING UTILITIES, PROPOSED OR EXISTING PAVEMENT, DRIVEWAYS, SIDEWALKS AND FOR A DISTANCE OF THE TWO FEET ON EITHER SIDE OF SAME, AND/OR WHEREVER ELSE SHOWN ON THE CONSTRUCTION PLAN SHALL BE BACKFILLED WITH CRUSHED STONE CA-6 BACKFILL AND THOROUGHLY COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS. (STORM SEWER TRENCHES SHALL BE BACKFILLED WITH CRUSHED STONE CA-7 OR CA-11.

26. ALL STRUCTURE SECTIONS AND ADJUSTING RINGS SHALL BE SECURELY SEALED TO EACH OTHER OR TO THE CONE SECTION OR TOP BARREL SECTION OF THE MANHOLE USING RESILIENT, FLEXIBLE, NON-HARDENING, PREFORMED, BITUMINOUS MASTIC (RAM-NEK, OR APPROVED EQUAL.) THIS MASTIC SHALL BE APPLIED IN SUCH A MANNER THAT NO SURFACE WATER OR GROUND WATER INFLOW CAN ENTER THE MANHOLE THROUGH GAPS BETWEEN BARREL SECTIONS OR CONE SECTIONS AND ADJUSTING RINGS.

27. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING JULIE AS WELL AS LOCAL CABLE T.V. COMPANIES. THE FACILITIES SHALL BE LOCATED PRIOR TO ANY WORK WITHIN ANY EASEMENT, R.O.W, OR SUSPECTED UTILITY LOCATION.

28. MACHINE CORE ALL CONNECTIONS TO EXISTING STRUCTURES.

29. ALL EXISTING STRUCTURES SHALL BE ADJUSTED AS NECESSARY TO MATCH PROPOSED GRADES & LANDSCAPING AT NO ADDITIONAL COST TO THE OWNER.

5. 30. ALL SANITARY SEWER PIPE AND SERVICES SHALL BE PVC SDR 26, ASTM D-3034 WITH ASTM D-3212 RUBBER GASKET JOINTS. WHERE SPECIFIED SANITARY SEWER SHALL BE DIP CLASS 52 CONFORMING TO ANSI A21.51 OR AWWA C-151 WITH JOINTS CONFORMING TO ANSI 21.11 OR AWWA C-110 OR C-111.

6. 31. ALL SANITARY SEWERS SHALL BE INSTALLED ON CRUSHED STONE BEDDING 1/4" TO 3/4" IN SIZE, CA-11, WITH A MINIMUM THICKNESS EQUAL TO 1/4th THE OUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN 6". THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED AROUND AND OVER THE CROWN OF THE PIPE BY A MINIMUM OF 12 INCHES. BLOCKING OF ANY KIND FOR GRADE IS NOT PERMITTED.

11 32. SANITARY SEWER MANHOLES SHALL BE 4 FOOT DIAMETER PRECAST CONCRETE WITH RUBBER GASKETS PRECAST INTO MANHOLE SIDEWALL TO SEAL PIPE TO MANHOLE. FRAME COVER SHALL BE NEENAH R-1712-B WITH CONCEALED PICK HOLE AND THE WORD " SANITARY" ON THE COVER.

33. CONNECTION TO THE EXISTING WATERMAIN SHALL BE MADE WITHOUT INTERRUPTION OF EXISTING WATERMAIN FLOW UNLESS AUTHORIZED BY THE ENGINEER AND VILLAGE OF WILMETTE. THE CONTRACTOR MAY TEST AGAINST THE EXISTING VALVE OR MAY UTILIZE A TEMPORARY PLUG, TO BE REMOVED.

3&4 34. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER. ALL DOWNSPOUTS, FOOTING DRAINS AND OUTSIDE DRAINS SHALL DISCHARGE TO THE STORM SYSTEM OR OVER GROUND.

9. 35. SEWER CROSSING WATERMAIN SHALL BE LAID TO PROVIDE A MINIMUM 10' HORIZONTAL DISTANCE AND VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATERMAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN JOINTS. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, ONE OF THE FOLLOWING METHODS MUST BE SPECIFIED:

A) THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE, AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.

B) EITHER THE WATERMAIN OR THE SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE WHICH EXTENDS 10 FEET ON BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATERMAIN. THE CARRIER PIPE SHALL BE OF MATERIALS APPROVED FOR USE IN WATERMAIN CONSTRUCTION.

36. WATERMAIN SHALL BE DUCTILE IRON PIPE, CLASS 52, CONFORMING TO ANSI A21.51 OR AWWA C-151. WATERMAIN SHALL BE CEMENT LINED IN ACCORDANCE WITH AWWA C-104. GASKETS AND CAST IRON FITTINGS SHALL CONFORM TO ANSI A21.11 OR AWWA C-110 OR C-111. WATERMAIN COVER FROM FINISHED GRADE TO TOP OF WATERMAIN SHALL BE 5.5 FEET. WATERMAIN SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C-600 AND C-601

37. WATER MAIN TRENCHES SHALL BE EXCAVATED SO THE INSTALLED DEPTH OF THE WATER MAIN SHALL NOT BE LESS THAN 5 1/2 FEET FROM EXISTING /PROPOSED GROUND ELEVATION TO THE TOP OF THE PIPE, EXCEPT WHERE SHOWN DIFFERENTLY OR AS DIRECTED BY THE ENGINEER. IF THE EXCAVATION HAS BEEN MADE DEEPER THAN NECESSARY, OR IS REQUIRED DEEPER FOR ADJUSTMENTS FOR FIRE HYDRANTS, VALVE VAULTS, AND SERVICES OR FOR SEPARATION FROM SEWERS AND OTHER UTILITIES, THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WATERMAIN AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED. DEPRESSIONS OF SUFFICIENT DEPTH SHALL BE PROVIDED IN THE STONE BEDDING TO ACCOMMODATE THE BELL OF THE PIPE AND TO ENSURE UNIFORM SUPPORT FOR THE PIPE. WHERE ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, WATER MAIN TRENCHES SHALL BE STABILIZED IN THE MANNER DIRECTED BY THE ENGINEER.

38. ALL WATERMAIN TRENCHES BENEATH PROPOSED OR EXISTING UTILITIES, PROPOSED OR EXISTING PAVEMENT, DRIVEWAYS, OR SIDEWALKS FOR A DISTANCE OF TWO FEET ON EITHER SIDE OF SAME, AND/OR WHERE EVER ELSE SHOWN ON THE CONSTRUCTION PLANS SHALL BE BACKFILLED WITH CRUSHED STONE BACKFILL (CA-6) AND THOROUGHLY COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS. ALL WATER USED FOR JETTING SHALL BE METERED. THERE SHALL BE A 3 WEEK WAITING PERIOD BETWEEN THE TIME THAT THE JETTING OF THE TRENCHES IS COMPLETED AND THE INSTALLATION OF THE PAVEMENT.

39. TAPPING VALVES AND VALVES 10 INCHES AND LARGER SHALL BE IN A 60 INCH DIAMETER VAULT. 6 INCH AND 8 INCH VALVES SHALL BE IN 48 INCH DIAMETER VAULT. FRAMES AND COVERS SHALL BE NEENAH R-1712-B WITH THE WORD "WATER" ON THE COVER. ALL VALVES SHALL BE RESILIENT WEDGE GATE VALVES CONFORMING TO AWWA C509 , NON-RISING STEM, MECHANICAL JOINT ENDS, 200 PSI WORKING PRESSURE INSTALLED WITH PROPER BACKING, LEFT-HAND TURN OPENING. PRIOR TO ORDERING, VERIFICATION OF ACTUAL MODEL AND MANUFACTURER BY VILLAGE IS REQUIRED. SET CORPORATION STOPS AS REQUIRED BY VILLAGE.

40. FIRE HYDRANTS SHALL BE SET ON PRECAST CONCRETE OR CONCRETE BLOCK CAPABLE OF SUPPORTING SAME. THE BOTTOM TWO FEET OF BACKFILL SHALL BE COARSE GRAVEL. THE BACK OF THE HYDRANT SHALL BE SECURELY BRACED AGAINST UNDISTURBED EARTH WITH PRECAST CONCRETE OR CONCRETE BLOCK.

41. FIRE HYDRANTS SHALL BE EDDY 5 1/4 INCH BARREL HYDRANTS WITH BREAKAWAY FLANGE, A 4 1/2 INCH STEAMER PORT AND TWO 2 1/2 INCH HOSE PORTS, ALL WITH NATIONAL STANDARD THREADS. FIRE HYDRANTS SHALL BE SET SO THE CENTER OF THE PORTS ARE 18-24 INCHES ABOVE FINISHED GRADE. GRADE RING SHOULD BE 0.2 FEET ABOVE FINISHED GRADE. IF EXTENSIONS ARE NECESSARY, THE CONTRACTOR SHALL FURNISH AND INSTALL THE SAME AT NO ADDITIONAL COST. VERIFY FIRE HYDRANT AND AUXILIARY VALVE MODELS WITH VILLAGE PRIOR TO ORDERING.

42. THRUST BLOCKING SHALL BE PROVIDED ON WATER MAIN AT ALL BENDS, TEES, ELBOWS, ETC. INDIVIDUAL INSPECTION FOR ALL THRUST BLOCKING IS REQUIRED. ALL BENDS, TEES, AND FITTINGS SHALL BE M.J. WITH RETAINING GLANDS.

43. ALL WATERMAIN SHALL BE THOROUGHLY FLUSHED AND THEN SUBJECTED TO A 2 HOUR PRESSURE AND LEAKAGE TEST AT 150 PSI BY THE CONTRACTOR AND SHALL BE CHLORINATED IN ACCORDANCE WITH VILLAGE STANDARDS AND THE STANDARD SPECIFICATIONS. MAKE-UP WATER SHALL BE SUPPLIED FROM AN OPEN DRUM, AND THE VOLUME OF WATER USED SHALL NOT EXCEED THAT ALLOWED BY THE STANDARD SPECIFICATIONS.

PAVING AND GRADING NOTES

44. ALL PAVEMENT DIMENSIONS ARE TO THE BACK OF CURB, UNLESS OTHERWISE INDICATED.

45. PAVING WORK SHALL INCLUDE FINAL SUB-GRADE SHAPING AND PREPARATION, FORMING, PLACEMENT OF BASE COURSE MATERIALS, PATCHING, PETROMAT, AND SUBSEQUENT BINDER AND/OR SURFACE COURSES, FINISHING AND CURING OF CONCRETE, FINAL CLEAN-UP AND ALL RELATED WORK.

46. THE PROPOSED PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION'.LATEST EDITION.

47. PRIOR TO PLACEMENT OF FABRIC AND STONE, THE SUBGRADE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER. PROOF-ROLLING SHALL BE DONE USING A THREE AXLE DUMP TRUCK TOGETHER WITH LOAD WEIGHING AT LEAST TWENTY-FIVE (25) TONS. THE LOAD SHALL BE UNIFORMLY PLACED IN THE DUMP BODY. ALL DEFICIENCIES SHALL BE REPAIRED AND RE-PROOF-ROLLED UNTIL FOUND ACCEPTABLE TO THE ENGINEER.

48. SAW CUT ALL PATCH AREAS AS SHOWN, OR AS DIRECTED BY THE ENGINEER. REMOVE AND REPLACE PAVEMENT AS INDICATED IN THE PAVEMENT PATCHING DETAIL.

49. REPAIR CRACKS OF 1/4 INCH OR MORE IN WIDTH AS DIRECTED BY THE ENGINEER. BLOW OUT ALL LOOSE MATERIAL, DIRT, VEGETATION, AND FOREIGN MATTER. USING A MECHANICAL ROUTER, ENLARGE THE TOP OF THE CRACK TO RECEIVE CRACKFILL MATERIAL. FILL WITH HOT POURED RUBBERIZED ASPHALT CRACK FILLER.

50. CURB AND GUTTER SHALL BE B6.12, VERTICAL CURB, OR MATCH EXISTING FOR SHORT SECTIONS. THE CURB SHALL CONSIST OF PORTLAND CEMENT CONCRETE, 4" SLUMP, 6.5 BAG MIX, AND AIR ENTRAINMENT OF NOT LESS FIVE (5%) OR MORE THAN EIGHT (8%). CONCRETE SHALL BE A MINIMUM COMPRESSIVE STRENGTH (4000 PSI) AT FOURTEEN (14) DAYS. ALL CURB AND GUTTER SHALL BE BROOM FINISHED. SAW CONTRACTION JOINTS AT 15' O.C. WITHIN 24 HOURS. MONOLITHIC VERTICAL CURB SHALL BE USED WHERE SPECIFIED.

51. 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINTS WITH 3/4" x 18" **PLAIN** ROUND, STEEL DOWEL BARS SHALL BE INSTALLED IN ALL CURBS, 1/2" x 12" **PLAIN** ROUND STEEL DOWEL BARS IN SIDEWALK AT (45') FORTY-FIVE FOOT INTERVALS AND AT ALL P.C.'S, P.T.'S, CURB RETURNS. ALTERNATE ENDS OF THE DOWEL BARS SHALL BE GREASED AND FITTED WITH METAL EXPANSION TUBES. ALL EXPANSION JOINTS MUST BE FREE OF CONCRETE FOR FULL DEPTH. CONTRACTION JOINTS SHALL BE TOOLED AT 5' INTERVALS IN THE SIDEWALK. THE COST OF THESE JOINTS SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. CONTRACTION JOINTS SHALL ALSO BE TOOLED DOWN THE CENTER OF ALL SIDEWALKS GREATER THAN 6' WIDE. (FIVE FOOT SPACING MAXIMUM).

52. ALL PORTLAND CEMENT CONCRETE SHALL BE CURED AND PROTECTED IN ACCORDANCE WITH ARTICLE 625 OF THE STANDARD SPECIFICATIONS. METHOD OF CURING SHALL BE APPROVED BY THE ENGINEER PRIOR TO STARTING THE WORK.

53. WHEN DIRECTED BY THE ENGINEER, TWO (2) COATS OF BOILED LINSEED OIL IN CONFORMANCE WITH SECTION 408 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, COST OF WHICH SHALL BE INCIDENTAL TO THE CONTRACT PRICE. THIS SHALL BE DONE UNDER THE SUPERVISION OF THE ENGINEER.

54. A SELF-PROPELLED SHEEPSFOOT (CAT 815 OR EQUIVALENT) IS REQUIRED FOR ALL SUBGRADE COMPACTION UNDER PARKING AREAS AND RECONSTRUCTION ZONES. A STANDARD PROCTOR DENSITY OF 95% IS REQUIRED FOR SUB-BASE AND STONE BASE. A STANDARD PROCTOR DENSITY OF 93% IS REQUIRED FOR ASPHALT.

55. CONCRETE SURFACE (SIDEWALKS)
   A) FINISH WITH A LIGHT BROOM FINISH.
   B) 6.1 BAG MIX, 4" SLUMP MAX, 5%-8% AIR-ENTRAINED, READY-MIX CONCRETE.
   C) 4000 PSI AT 28 DAYS, TWO CYLINDERS/25 CY. (TO BE PROVIDED AND TAKEN BY CONTRACTOR).
   D) SLOPE AT MINIMUM 1% AS NOTED ON PLANS.

56. WHENEVER NEW CONCRETE ABUTS EXISTING CONCRETE OR A BUILDING, SET A 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINT AND DOWEL WITH **SMOOTH** 12" #4 BARS @ 24" O.C. THIS INCLUDES CONCRETE POURED ADJACENT TO EXISTING SIDEWALKS, CURBS AND BUILDING. THE DOWEL BARS SHOULD BE 4" INTO EXISTING CONCRETE WITH 6" EXTENDING INTO NEW CONCRETE.

57. PRIME COAT FOR THE STONE BASE COURSE AND BINDER COURSE SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT AND SHALL BE APPLIED TO THE STONE AT A RATE OF 0.25 GALLONS PER SQUARE YARD. (P.E.P.); 0.07 GAL/SY TO THE BINDER (SS-1).

58. WHEREVER A PAVEMENT OVERLAY OCCURS ADJACENT TO A CONCRETE SURFACE OR EXISTING PAVEMENT, THE CONTRACTOR SHALL GRIND DOWN (OR REMOVE) ASPHALT 3' WIDE BY A 3" DEPTH. THIS IS CONSIDERED INCIDENTAL TO THE CONTRACT.

59. WHERE PETROMAT IS USED APPLY AC-10 AT THE RATE OF 0.25 GALLONS PER SQUARE YARD IMMEDIATELY PRIOR TO LAYING OF PETROMAT. LIGHT PASSENGER TRAFFIC IS ALLOWED FOR 24 HOURS AFTER PETROMAT IS APPLIED.

DRAINAGE

60. RECONNECT ALL EXISTING TILE LINES FOUND IN THE EXCAVATION TO THE NEW STORM LINES USING WYE OR TEE IN ACCORDANCE WITH UTILITY NOTES. NOTE THE LOCATION ON THE "AS-CONSTRUCTED" DRAWINGS. THIS IS CONSIDERED INCIDENTAL TO THE CONTRACT.

61. SPREAD A MINIMUM OF 6" OF TOPSOIL ON ALL DISTURBED TURF AREAS AND PROPOSED GREEN AREAS. FINE GRADE FOR MINIMUM 1% SLOPE ON DRAINAGE. SEED WITH TYPE I SEEDING AND MULCH APPLIED WITH A HYDRAULIC SEEDER IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. ALTERNATE SEEDING MIXTURES AND APPLICATION METHODS MUST BE APPROVED BY THE ENGINEER.

62. SOD SHALL BE USED IN THOSE AREAS DESIGNATED ON THE PLANS. (REFER TO LANDSCAPING PLAN.)

SOIL EROSION NOTES

63. ALL STORM WATER INLETS., C.B., AND MANHOLES SHALL BE PROTECTED WITH BALES. DURING CONSTRUCTION ALL SEDIMENT SHALL BE REMOVED ADJACENT TO STRAW BALES WHEN DEPTH OF SEDIMENT EXCEEDS SIX INCHES.

64. ALL STRAW BALES SHALL BE REPAIRED OR REPLACED AS NEEDED.

65. ALL PROPOSED GREEN AREAS SHALL BE VEGETATED WITHIN 2 MONTHS OF BEING DISTURBED WITH CRITICAL DRAINAGE AREAS REQUIRING IMMEDIATE ATTENTION. ALL GREEN AREAS SHALL RECEIVE A MINIMUM OF 6" OF TOPSOIL AND BE SEEDED OR SODDED IMMEDIATELY.

66. AFTER ACHIEVING PERMANENT VEGETATION, ALL BALES SHALL BE REMOVED AND ALL DRAINAGE STRUCTURES CLEANED.

MISCELLANEOUS

67. WHEN A CONFLICT BETWEEN PLANS AND SPECIFICATIONS OR NOTES OCCURS, THE ENGINEER SHALL DECIDE WHICH GOVERNS. GENERALLY, THE MORE RESTRICTIVE, MORE SPECIFIC, OR STRICTER PROVISION SHALL GOVERN.

68. CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL AREAS AFFECTED BY EQUIPMENT OR LABORERS TO EXISTING CONDITIONS. CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING ALL NEW WORK UNTIL COMPLETION OF THIS CONTRACT.

69. ALL GEOTEXTILE FABRIC SHALL BE SUPAC 5WS OR APPROVED EQUAL. OVERLAP ALL EDGES BY AT LEAST 18". USE OF SMALL PIECES SHALL NOT BE PERMITTED. ALTERNATE MATERIAL MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO ORDERING.

70. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY ROAD OF MATERIAL THAT IS FROM THE PROJECT. THIS WILL BE DONE AT THE CLOSE OF EACH DAY OF WORK OR MORE FREQUENTLY AS MAY BE REQUIRED DUE TO FIELD CONDITIONS.

71. ALL THERMOPLASTIC AND PAINT PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION"STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL ITEMS" ADOPTED APRIL 1, 1989.

93-143

NOT FOR CONSTRUCTION

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

GENERAL NOTES AND DETAILS

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION

PROJECT NO. 9207.000	DRAWN BY: WEG	SHEET NO. 7
SCALE: NONE	DATE: 2-19-93	OF 11 SHEETS
	CHECKED BY: DEM	
	DATE: 2-19-93	DWG-FILE-NAME: 9207-7L.DWG

NORTH UTILITY NOTES

(1) Install storm sewer services as shown. Prior to installation Contractor shall excavate and verify the exact location and elevations of the existing services and sewers to be reconnected and the exact location and elevation of the watermain at points of crossings. Should a discrepancy from the information shown on the plans, or conflict with an existing utility be found, the Contractor shall notify and secure written instruction from the Engineer prior to proceeding with any part of the work. Coordinate all service relocations with Internal Plumbing Contractor and the Academy. Existing services may not be interrupted at any time without prior approval of both the Engineer and the Academy.

(2) Install watermain as shown in order to by-pass and abandon the existing water meter and check valve. Coordinate abandonment and by-pass with the Internal Plumbing Contractor. Watermain may be placed in the ground, but may not be connected until all the internal plumbing is completed. See North Grading Note #7 regarding surface improvements in the area. Removed watermeter shall be returned to the Village.

(3) Install signage and pavement markings as shown. (See Sheet 11.)

(4) After placement of final surface course, install concrete car stops as shown. Pin car stops to pavement with two (2) #6 rebars.

(5) Install parking lot lighting as shown.

PARKING LOT LIGHTING LEGEND

- "QUALITY LIGHTING" #125-23-VR-MH-400-208-DBZ-FD TWIN HEAD 400 WATT METAL HALIDE FIXTURE (2)
- "QUALITY LIGHTING" #125-23-VR-MH-400-208-DBZ-FD SINGLE HEAD 400 WATT METAL HALIDE FIXTURE
- 2" GALVANIZED STEEL CONDUIT, IN TRENCH
- (HH) ELECTRIC CABLE IN CONDUIT, 600 V (EPR-TYPE R.H.W.), 3-1/C NO.6
- PROPOSED JUNCTION BOX

NOTE: 1. POLES SHALL BE "QUALITY LIGHTING" # SQSS-30-5.0-7-BRZP-D2.

2. CONTROL COMPLEX SHALL BE LOCATED INSIDE OF THE BUILDING AS SHOWN ON SHEET 6. THE CONTROL PANEL SHALL BE A WALL MOUNTED 4"x16" CONTROL ENCLOSED IN AN ALUMINUM ENCLOSURE CABINET. IT SHALL BE A 120/240 VOLT PHOTO ELECTRIC 2 CIRCUIT CONTROL PANEL WITH A 60 AMP. CIRCUIT BREAKER. THE EXACT LOCATION OF THE MOUNTING WILL BE DETERMINED BY THE ENGINEER AND ELECTRICAL CONTRACTOR PRIOR TO CONSTRUCTION.

NORTH STORM SEWER TABLE

Reach	Diameter	Length	Material	Slope
N	15"	60 LF	RCP Class IV *	0.30%
O	15"	110 LF	Perf. PVC SDR 35	0.30%
P	15"	118 LF	Perf. PVC SDR 35	0.30%
Q	8"	50 LF	RCP Class IV *	1.00%
R	12"	88 LF	Perf. PVC SDR 35	0.30%
S	12"	110 LF	RCP Class IV *	0.30%
T	12"	85 LF	Perf. PVC SDR 35	0.35%
U	8"	100 LF	Perf. PVC SDR 35	1.00%
V	12"	20 LF	Perf. PVC SDR 35	4.00%
W	10"	85 LF	Perf. PVC SDR 35	1.00%
X	12"	271 LF (2)	Perf. PVC SDR 35	1.00%
Y	15"	70 LF	RCP Class IV **	0.22%
Z	15"	80 LF	RCP Class IV **	0.30%

* Conforming to ASTM C-361 with "O" ring joints conforming to ASTM C-443.

** Conforming to ASTM C-76 with mastic joints.

SPECIAL WATERMAIN NOTES

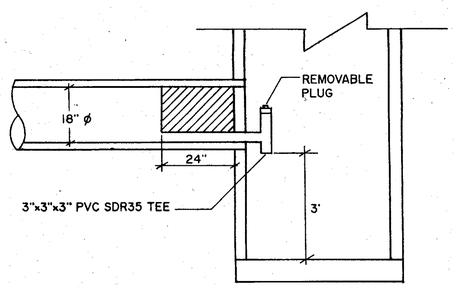
1. The condition of the existing 8-inch fire line/watermain along the south side of the Addition is unknown. Provide an Alternate bid cost for the complete removal and replacement of 400 LF of this main, including all testing, chlorination, trench backfill, disposal, etc.

2. All watermain (including existing main on campus which is to remain) is to be thoroughly flushed and tested in accordance with the specifications. These tests include both pressure and bacteriological tests. Repairs to the existing watermain necessary to pass the pressure/leakage test will be considered "Extra Work".

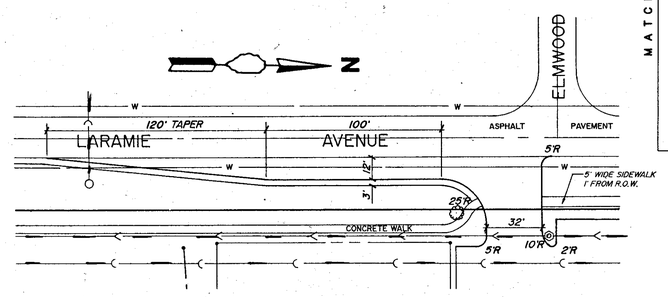
NOTE: 1. ALL REGULAR PARKING SPACES ARE 8.5 FEET WIDE. HANDICAPPED ACCESSIBLE PARKING SPACES 16 FEET WIDE.

2. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

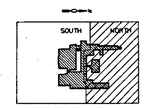
3. FOR SIGNAGE AND PAVEMENT MARKINGS AT DRIVEWAYS, SEE SHEET 11.



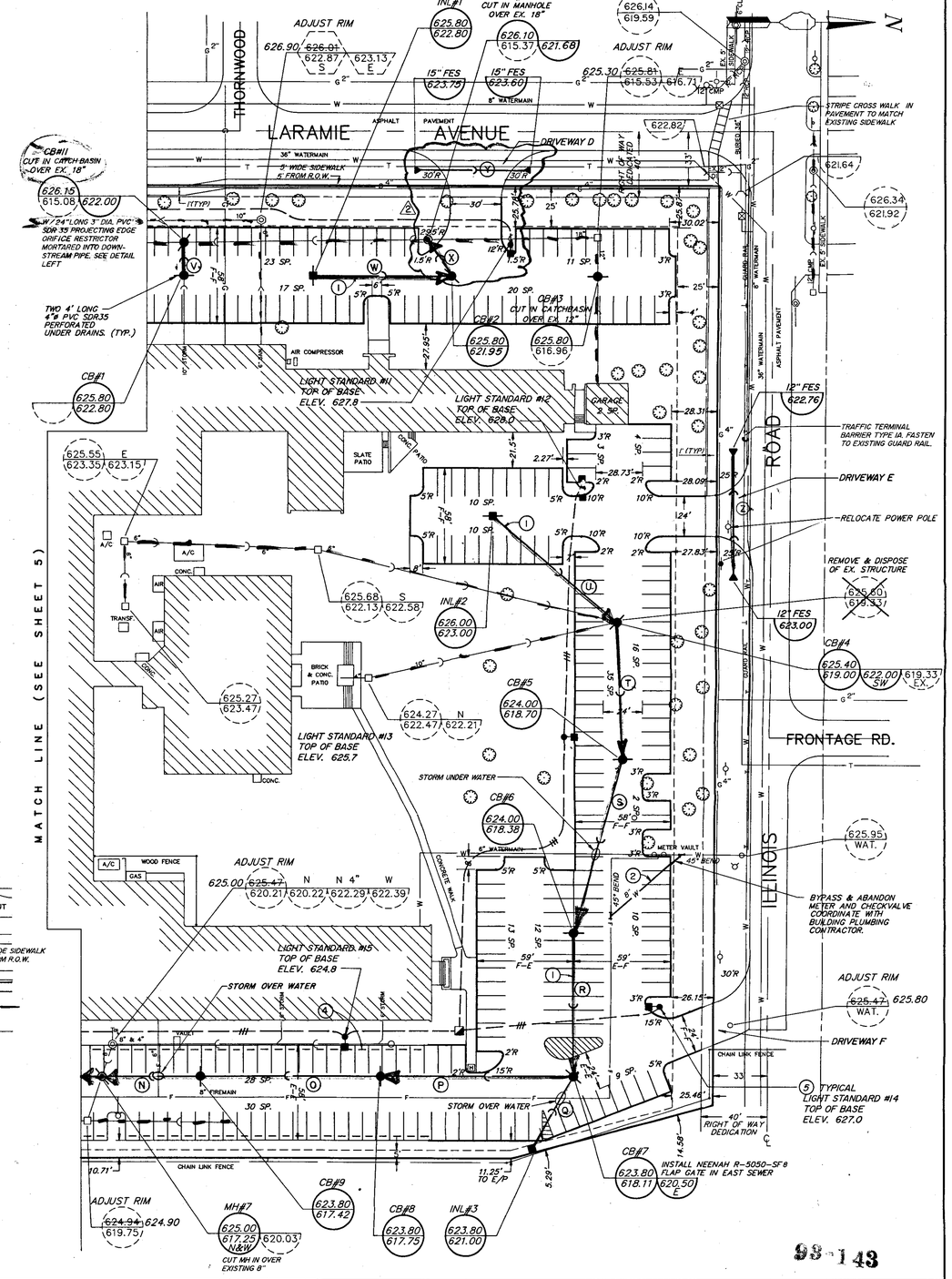
CATCH BASIN #11 RESTRICTOR DETAIL



RIGHT-TURN LANE GEOMETRY



LOCATION MAP



NOT FOR CONSTRUCTION

93-143

NO.	BY	DATE	REVISION
4	DLK	4-5-93	EXISTING GAS AND TELEPHONE
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY
1	JRD	3-16-93	PARKING LOT LIGHTING

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
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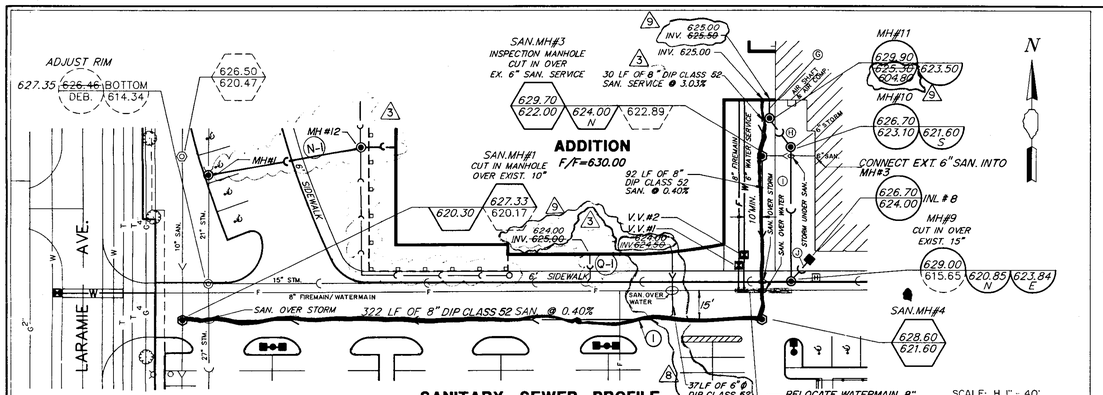
UTILITY AND GEOMETRICS - NORTH

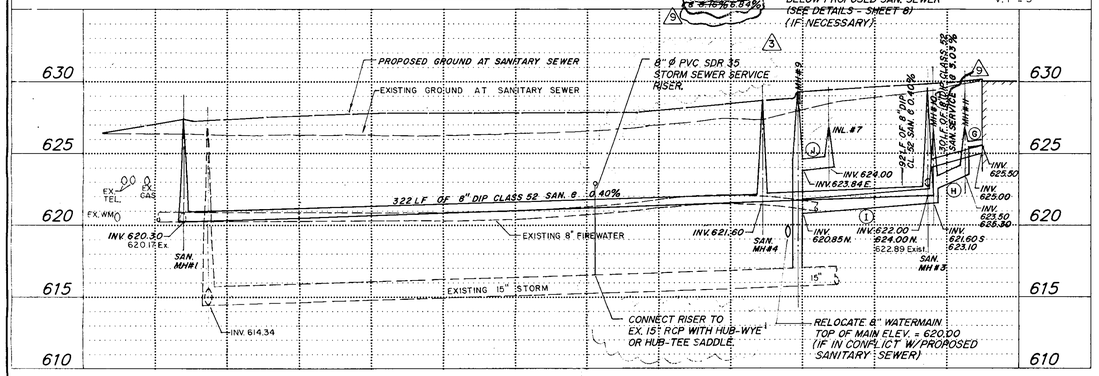
LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

PROJECT NO. 9207.000	DRAWN BY: LLM	SHEET NO. 6	
SCALE: 1"=40'	DATE: 2-19-93	OF 11 SHEETS	
	CHECKED BY: DEM		
	DATE: 2-19-93	DWG-FILE-NAME: 9207-N.DWG	



SANITARY SEWER PROFILE

SCALE: H. 1" = 40'
V. 1" = 5'



SOUTH STORM SEWER TABLE

Reach	Diameter	Length	Material	Slope
A	15"	47 LF	RCP Class IV **	1.00%
B	8"	27 LF	Perf. PVC SDR 35	1.00%
C	15"	53 LF	RCP Class IV **	2.00%
D	12"	75 LF	DIP Class 52	0.25%
E	12"	72 LF	DIP Class 52 ***	0.22%
F	12"	148 LF	DIP Class 52	1.00%
G	12"	9 LF	DIP Class 52	2.22%
H	12"	20 LF	RCP Class IV **	2.00%
I	12"	75 LF	RCP Class IV **	1.00%
J	10"	16 LF	RCP Class IV **	1.00%
K	10"	48 LF	RCP Class IV *	1.00%
L	15"	170 LF	Perf. PVC SDR 35	0.30%
M	15"	117 LF	Perf. PVC SDR 35	0.30%
N-I	12"	87LF	RCP Class IV **	1.00%
P-I	8"	15LF	PVC SDR 35	1.00%
Q-I	8"	13LF	PVC SDR 35	1.00%
R-I	6"	50LF	PVC SDR 35	1.00%
S-I	6"	50LF	PVC SDR 35	1.00%
T-I	6"	28LF	DIP Class 52	1.00%
U-I	6"	7LF	DIP Class 52	1.00%

* Conforming to ASTM C-361 with "O" ring joints conforming to ASTM C-443.

** Conforming to ASTM C-76 with mastic joints.

*** Encase sewer in 18" steel casing pipe under foundation and 5 feet extended. Seal ends of encasement with lean concrete. Completely encase casing pipe in well compacted clay. Do not use stone bedding.

SOUTH UTILITY NOTES

1. Install storm and sanitary sewers and services as shown. Prior to installation Contractor shall excavate and verify the exact locations and elevations of the existing services to be reconnected and the exact location and elevation of the watermain at points of crossings. Should a discrepancy from the information shown on the plans or a conflict with existing utilities be found, the Contractor shall notify and secure written instruction from the Engineer prior to proceeding with any part of the work. Coordinate all service relocations with the Internal Plumbing Contractor and the Academy. Existing services may not be interrupted at any time without prior approval of both the Engineer and the Academy.

2. Install watermain as shown. Open cutting of Laramie Avenue is not permitted. Auger watermain under Laramie Avenue as shown. Encase watermain in 16-inch diameter steel casing pipe with 0.375-inch thick walls. Extend the casing pipe from the tapping valve vault to a point 5-feet beyond the 36-inch diameter transmission watermain. The proposed watermain must be augered below the existing 36-inch diameter watermain in order to maintain adequate pipe cover. (See Auger Detail on Sheet #10.) Coordinate existing watermain abandonment with the Internal Plumbing Contractor and the Academy.

3. Install signage and pavement markings as shown. (See Sheet 11.)

4. After placement of final surface course, install concrete car stops as shown. Pin car stops to pavement with two (2) #6 rebars.

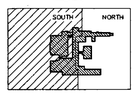
~~5. Install parking lot lighting as shown. See sheet 6 for "Parking Lot Lighting Legend".~~ 6

NOTE: FOR SITE LIGHTING SEE ELECTRICAL DOCUMENTS. 6

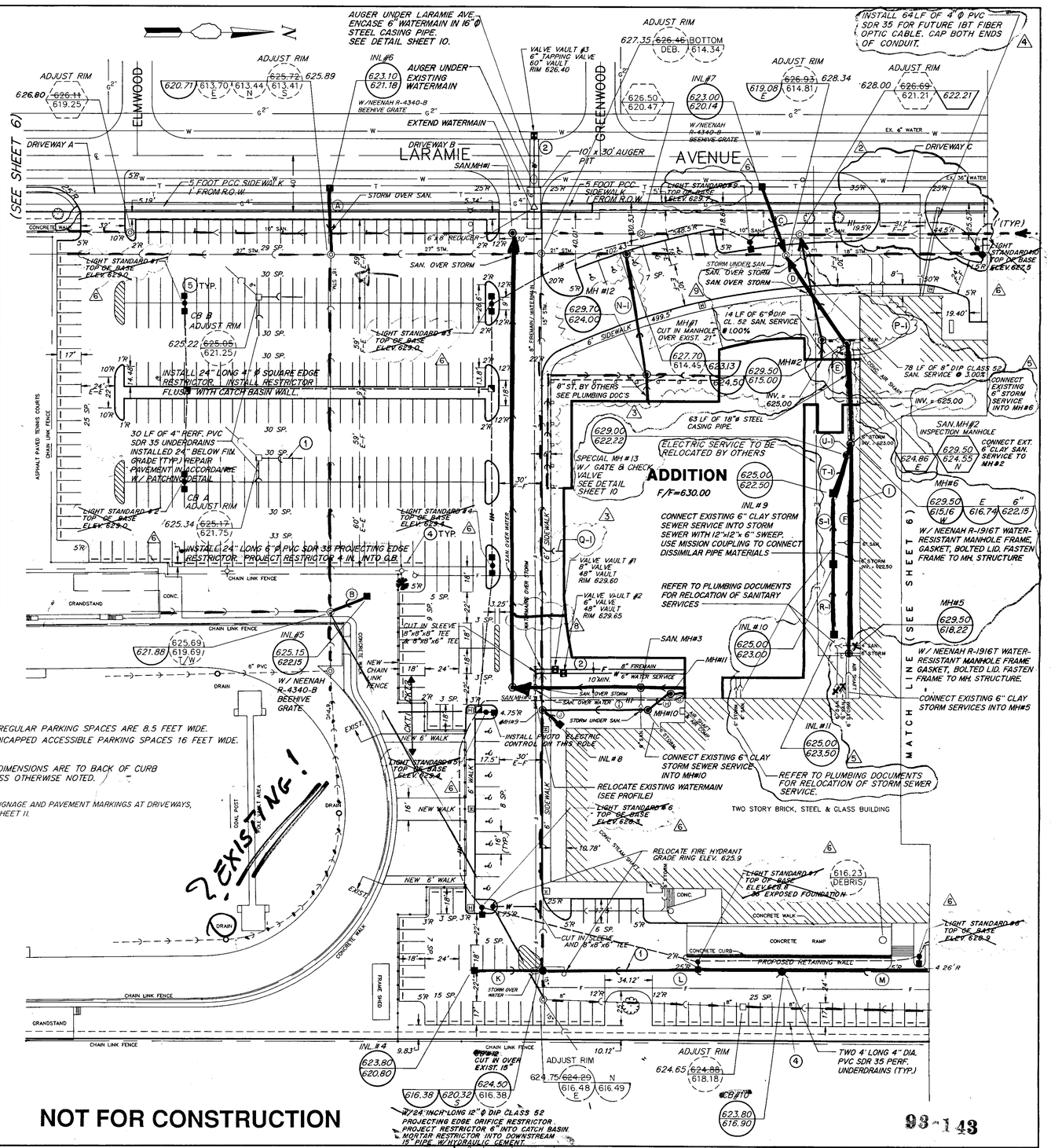
NOTE: 1. ALL REGULAR PARKING SPACES ARE 8.5 FEET WIDE. HANDICAPPED ACCESSIBLE PARKING SPACES 16 FEET WIDE.

2. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

3. FOR SIGNAGE AND PAVEMENT MARKINGS AT DRIVEWAYS, SEE SHEET 11.



LOCATION MAP



NOT FOR CONSTRUCTION

93-143

GEWALT-HAMILTON ASSOCIATES, INC.
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NO.	BY	DATE	REVISION
9	DEM	5-3-93	PER MWRD COMMENTS
8	DEM	4-21-93	SAN. SERVICE S.E. ADDITION

UTILITY AND GEOMETRICS - SOUTH

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
6	DLK	4-21-93	DELETE SITE LIGHTING
5	DLK	4-21-93	COURTYARD STORM SEWER
4	DLK	4-5-93	EXISTING GAS AND TELEPHONE & IBT CONDUIT
3	DLK	3-29-93	PER ARCHITECT
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY
1	JWC	3-16-93	PARKING LOT LIGHTING

PROJECT NO. 9207.000	DRAWN BY: LLM	SHEET NO. 5	
SCALE: 1"=40'	DATE: 2-19-93	OF 11 SHEETS	
	CHECKED BY: DEM		
	DATE: 2-19-93	DWG-FILE-NAME: 9207-S.DWG	

NORTH GRADING PLAN NOTES

1. Install vertical curb around perimeter of parking lots and in islands as shown. Where vertical curb terminates and at handicapped ramps, nose curb down at a rate of 3 inches per foot. Where proposed curb abuts and parallels proposed sidewalk, install monolithic vertical curb.

2. In proposed pavement areas, excavate to subbase, compact to 95% density and install SUPAC 5WS geotextile fabric. Prior to installation of stone, all parking areas will be proof rolled using a fully loaded 3 axle dump truck, together with load weighing at least 25 tons. Install 10 inches of crushed stone CA6 and compact to 95% density. Prime with P.E.P. at 0.25 gallons per square yard and install 2 inches of bituminous concrete binder course. Install binder around all structures to protect rims from snow plows. Provide temporary ramps at all handicapped ramps. Paint binder course as shown on the utility plan with 4 inch yellow paint. Prior to surface course installation, thoroughly clean and sweep binder. Repair any and all cracks with rubberized crackfiller. Remove and replace any pavement sections which may have deteriorated during construction process. Prime binder with 0.07 gallons per square yard with SS-1. Install final 2 inch lift of Class I surface course. Final 2 inches of Class I surface course shall be applied upon completion of the building addition. (Fall of 1994). Paint final surface course as shown on the Utility Plan. (Color to be determined by the Academy).

3. Where driveway aprons abut Laramie Avenue and Illinois Road, sawcut and mill existing roadway pavement approximately 18 inches wide and 1 1/2 inches deep. Install 1 1/2 inches of Class I surface when final surface course is installed. All new pavement within Laramie Avenue and Illinois Road right-of-way must use Cook County Highway Department Pavement Design. (see Detail Sheet 9).

4. Install silt fence as shown in accordance with IEPA standards. Specifically, silt fence must be trenched in place. All storm structures intended to take water must have 4 staked in-place straw bales surrounding rim until vegetation has taken hold, or binder course has been installed in paved areas. Contractor shall maintain straw bales and replace as necessary. Upon completion of project, all storm sewer structures and sewers shall be cleaned of any accumulated debris or soil.

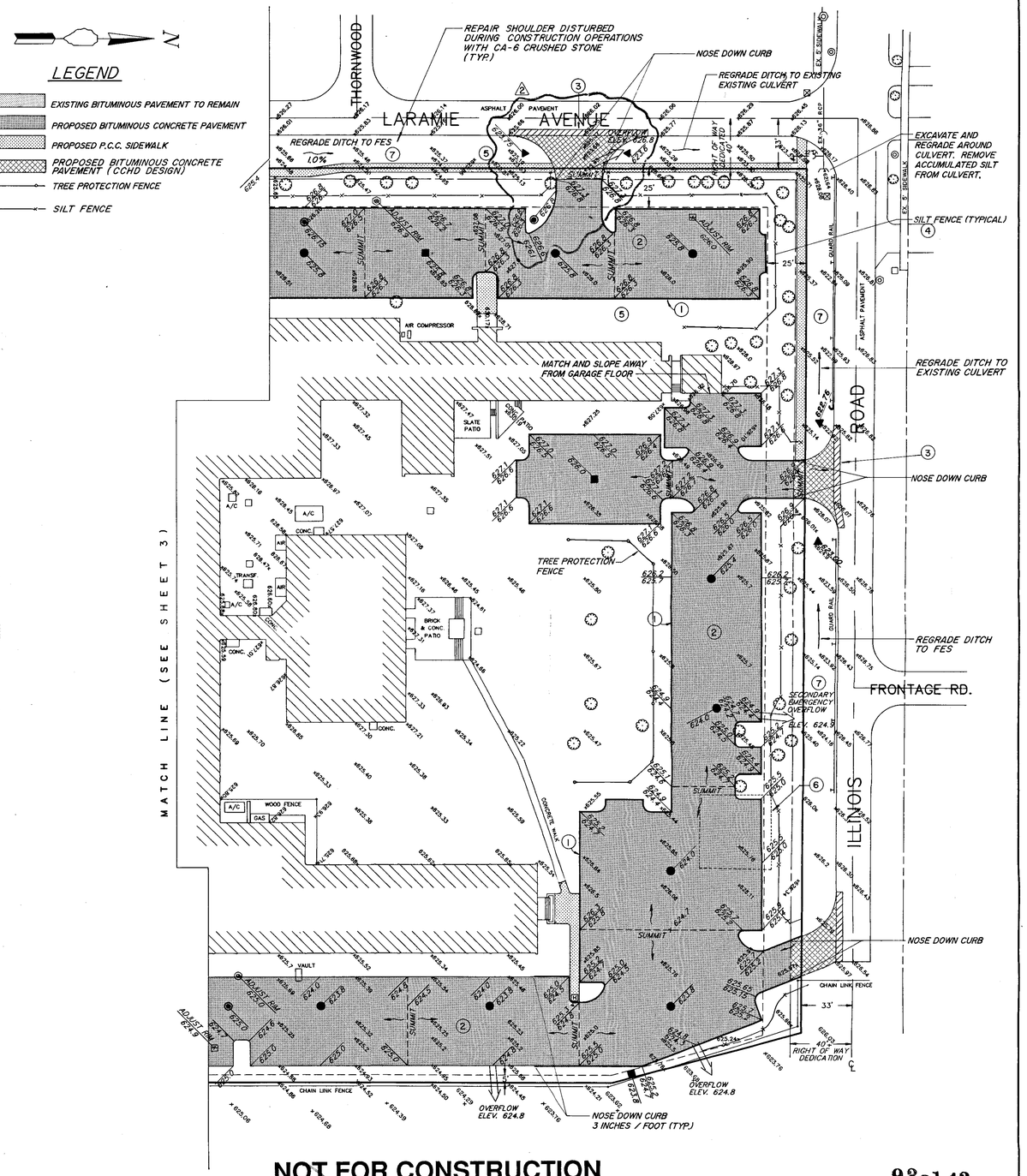
5. Proposed green areas are to have all debris removed and replaced with 6 inches of sandy topsoil. Seed and mulch proposed green areas and areas disturbed during construction operations. Sod shall be used as shown on landscape plans.

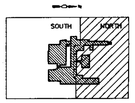
6. Provide gap in curb and pavement section in area of existing water meter and check valve. Upon abandonment of meter and valve and completion of watermain bypass, complete curb and pavement installation. (See sheet 6).

7. Regrade roadway ditches on Laramie Avenue and Illinois Road as shown. Restore areas as noted.

8. Install sidewalk as shown. Sidewalk installed on Cook County right-of-way shall be one foot from property line.

9. Install tree protection fence as shown. contractor shall maintain fence during construction and shall remove and dispose of at conclusion of site work.





LOCATION MAP

NOT FOR CONSTRUCTION

93-143

GEWALT-HAMILTON ASSOCIATES, INC.
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NORTHBROOK, ILLINOIS 60062
{708} 272-7750

GRADING PLAN - NORTH

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY

PROJECT NO. 9207.000	DRAWN BY: LLM	DATE: 2-19-93	SHEET NO. 4
SCALE: 1"=40'	CHECKED BY: RBH		OF 11 SHEETS
	DATE: 2-19-93		DWG-FILE-NAME: 9207-N.DWG

SOUTH GRADING PLAN NOTES

1. Install vertical curb around perimeter of parking lots and islands as shown. Where vertical curb terminates and at handicapped ramps, nose down at a rate of 3 inches per foot. Where curb is to be installed in existing pavement areas, sawcut and remove pavement approximately 18 inches in front of proposed curb. Install vertical curb and repair pavement in accordance with the pavement patching detail. Curb installed in existing pavement areas shall be formed so that 8 inches of curb is exposed relative to the existing pavement grade. Where proposed curb abuts and parallels proposed sidewalk, install monolithic vertical curb.

2. In proposed pavement areas, excavate to subbase, compact to 95% density and install SUPAC 5WS geotextile fabric. Prior to installations of stone, all parking areas will be proof rolled using a fully loaded 3 axle dump truck, together with a load weighting at least 25 tons. Install 10 inches of crushed stone CA6 and compact to 95% density. Prime with P.E.P. at 0.25 gallons per square yard and install 2 inches of bituminous concrete binder course. Install binder around all structures to protect rims from snow plows. Provide temporary ramps at all handicapped ramps. Paint binder course as shown on the Utility Plan with 4 inch yellow paint. Prior to surface course installation, thoroughly clean and sweep binder. Repair any and all cracks with hot rubberized crackfiller. Remove and replace any pavement sections which may have deteriorated during construction process. Prime binder with 0.07 gallons per square yard with SS-1. Install final 2 inch lift of Class I surface course. The final surface course shall be applied upon completion of the building addition. (Fall, 1994). Paint final surface course with 4 inch paint as shown on the Utility Plans (color to be determined by the Academy).

3. Fill cracks and patch pavement in accordance with the specifications and details as directed by the engineer. For bidding purposes, assume approximately 600 linear feet of crack filling and 500 square yards of pavement patching. Install leveling binder as directed by the Engineer. (Average of 3/4"). Thoroughly sweep and clean pavement and install Petromat in accordance with the specifications. Overlay pavement with 2 inches Class I bituminous concrete surface. Crack filling, pavement patching, leveling and petromat installation are to be done immediately prior to final surface course installation in the new pavement areas. (Fall, 1994)

4. Where driveway aprons and turn lanes abut existing pavement on Laramie Avenue, sawcut and mill existing roadway pavement approximately 18 inches wide and 1 1/2 inches deep. Install 1 1/2 inches of Class I surface when final surface course is installed. All new pavement within Laramie Avenue right-of-way (within 40 feet of centerline) must use Cook County Highway Department Pavement Design. (see Detail Sheet 9).

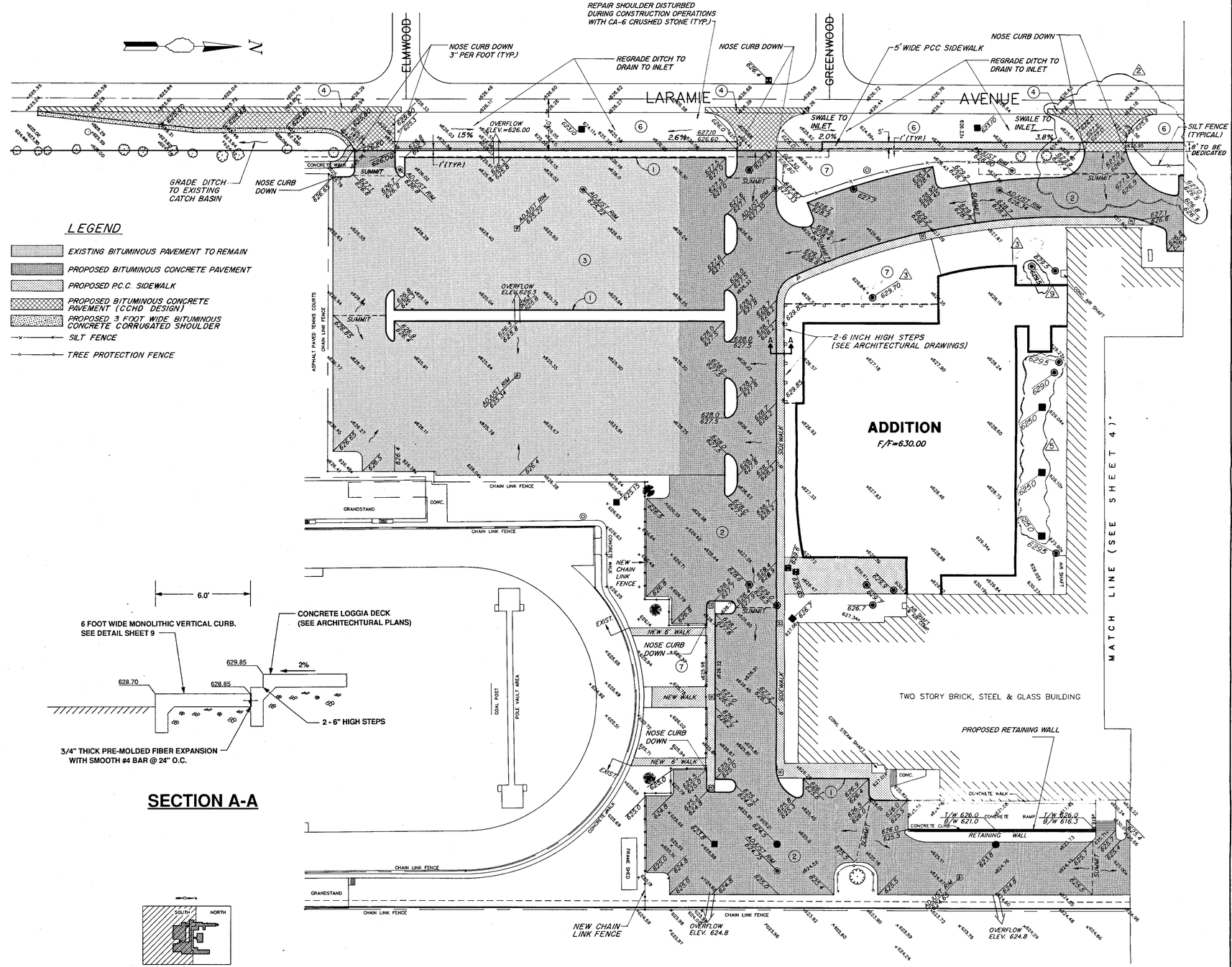
5. Install silt fences as shown in accordance with IEPA standards. Specifically, silt fence must be trenched in-place. All storm structures intended to take water must have four (4) staked in-place straw bales surrounding rim until vegetation has taken hold or binder course has been installed in paved areas. The contractor shall maintain straw bales and replace as necessary. Upon completion of project, all storm sewer structures and sewers shall be cleaned of any accumulated debris or soil.

6. Regrade roadway ditches on Laramie Avenue as shown. Restore areas as noted.

7. Proposed green areas are to have all debris removed and replaced with 6 inches of sandy topsoil. Seed and mulch proposed green areas and areas disturbed during construction operations, Sod shall be used as shown on Landscape Plans.

8. Install right turn lane as shown. Pavement and shoulder designs shall be in accordance with CCHD standards. (see detail sheet 9). Regrade ditch as shown. Restore ditch as noted. See Utility and Geometric Plan for turn lane dimensions.

9. Install tree protection fence as shown. Contractor shall maintain fence during construction and remove and dispose of at conclusion of site work.



SECTION A-A

NOT FOR CONSTRUCTION

93-143

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

GRADING PLAN - SOUTH

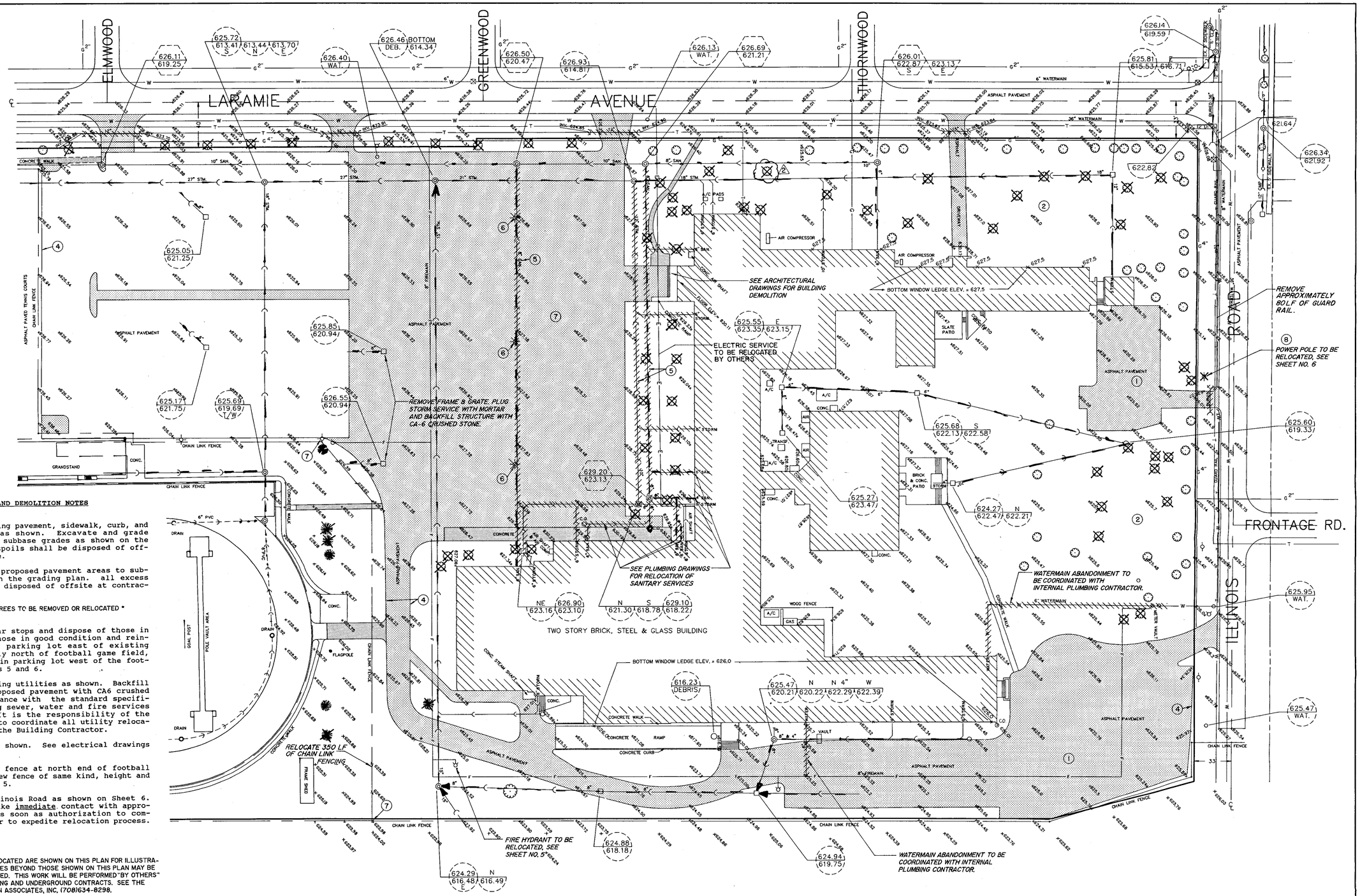
LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
9	DEM	5-3-93	PER MWRD COMMENTS
5	DEM	4-21-93	COURTYARD STORM SEWER
3	DLK	3-29-93	PER ARCHITECT
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY

PROJECT NO.	9207.000
SCALE:	1"=40'
DRAWN BY:	LLM
DATE:	2-19-93
CHECKED BY:	DEM
DATE:	2-19-93
SHEET NO.	3 OF || SHEETS
DWG-FILE-NAME:	9207-S.DWG

LEGEND

- BITUMINOUS CONCRETE PAVEMENT REMOVAL
- PORTLAND CEMENT CONCRETE REMOVAL
- EXISTING UTILITY TO BE REMOVED
- TREE TO BE REMOVED OR RELOCATED



EXISTING CONDITION AND DEMOLITION NOTES

1. Remove and dispose of existing pavement, sidewalk, curb, and concrete retaining walls as shown. Excavate and grade proposed pavement areas to subbase grades as shown on the grading plan. All excess spoils shall be disposed of off-site at contractor's expense.
2. Strip topsoil and excavate proposed pavement areas to sub-base grades as indicated on the grading plan. all excess topsoil and spoils shall be disposed of offsite at contractor's expense.
3. REFER TO LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED OR RELOCATED *
4. Remove existing concrete car stops and dispose of those in poor condition. Salvage those in good condition and reinstall around perimeter of parking lot east of existing school, parking lot directly north of football game field, and the east side of the main parking lot west of the football game field. See Sheets 5 and 6.
5. Remove and dispose of existing utilities as shown. Backfill utilities removed under proposed pavement with CA6 crushed stone and compact in accordance with the standard specifications. Existing building sewer, water and fire services may <u>not</u> be interrupted. It is the responsibility of the sewer and water contractor to coordinate all utility relocations with the Academy and the Building Contractor.
6. Remove existing lighting as shown. See electrical drawings for further information.
7. Remove existing chain link fence at north end of football game field. Replace with new fence of same kind, height and color as indicated on Sheet 5.
8. Relocate power pole on Illinois Road as shown on Sheet 6. Contractor is advised to make <u>immediate</u> contact with appropriate Utility Companies as soon as authorization to commence work is given in order to expedite relocation process.

*NOTE TREES SHOWN TO BE REMOVED OR RELOCATED ARE SHOWN ON THIS PLAN FOR ILLUSTRATIVE PURPOSES ONLY. ADDITIONAL TREES BEYOND THOSE SHOWN ON THIS PLAN MAY BE REQUIRED TO BE REMOVED OR RELOCATED. THIS WORK WILL BE PERFORMED "BY OTHERS" PRIOR TO COMMENCEMENT OF THE PAVING AND UNDERGROUND CONTRACTS. SEE THE LANDSCAPE PLAN PREPARED BY MARTIN ASSOCIATES, INC. (708)634-8298.

NOT FOR CONSTRUCTION

93-143

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
{708} 272-7750

EXISTING CONDITIONS / DEMOLITION

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
4	DLK	4-5-93	EXISTING GAS AND TELEPHONE
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY

PROJECT NO. 9207.000	DRAWN BY: LLM	SHEET NO. 2	
SCALE: 1"=40'	DATE: 2-19-93	OF 11 SHEETS	
	CHECKED BY: DEM		
	DATE: 2-19-93	DWG-FILE-NAME: 9207-EX.DWG	

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

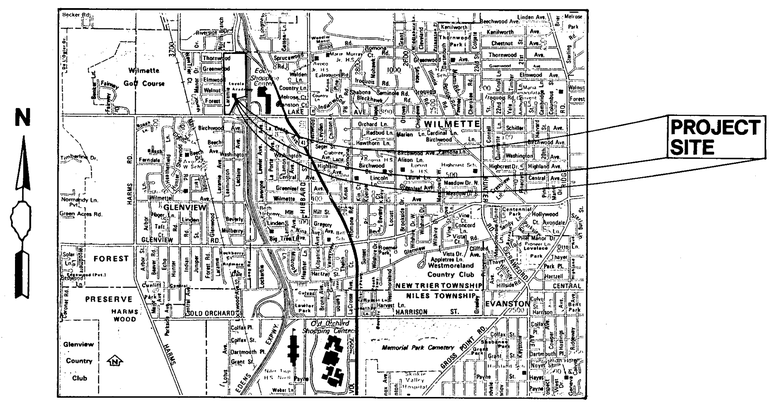
STANDARD SYMBOLS

EXISTING	FEATURE	PROPOSED
BM/TBM	BENCHMARK	BM/TBM
▫	CONCRETE R.O.W. MONUMENT	
	R.O.W. LINE	
	STORM SEWER	
◎	STORM SEWER MANHOLE	◉
○	CATCH BASIN	●
□	INLET	■
○C.O.	CLEAN OUT	○C.O.
	SANITARY SEWER	
◎	SANITARY SEWER MANHOLE	◉
⊠	WATER VAULT	■
⊗	VALVE BOX	●
W	WATERMAIN	W
	FIRE HYDRANT	
⊙GAS	GAS MANHOLE	⊙GAS
△GAS	GAS VALVE	△GAS
G	GAS MAIN	G
T	TELEPHONE LINES	T
□IBT	IBT BOX	□IBT
⊙IBT	IBT MANHOLE	⊙IBT
E	ELECTRIC LINES	E
⊙ELEC.	ELECTRIC MANHOLE	⊙ELEC.
	UTILITY POLE	
	SIGN	
	LIGHT STANDARD	
X X X X	FENCE	X X X X
10"⌀	TREE	
	SHRUB	
857	CONTOUR LINE	857
x 854.7	SPOT GRADE	x 857.4
	HEADWALL	
	FLARED END SECTION	
	CULVERT	
	SWALE	
•	PROPERTY PIN	•
RIM INV.	STORM SEWER STRUCTURE ELEVATION	RIM INV.
RIM INV.	SANITARY SEWER STRUCTURE ELEVATION	RIM INV.
	HANDICAPPED RAMP	H

EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES, DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

CONTRACTOR IS RESPONSIBLE FOR CONTACTING J.U.L.I.E. AT 1-800-892-0123 AND MUST ACQUIRE A DIG NUMBER A MINIMUM OF 72 HOURS PRIOR TO ANY WORK BEING DONE.

LOCATION MAP



PERMITTING AGENCIES

VILLAGE OF WILMETTE	1-708-251-2700
MWRD	1-708-222-4055
IEPA – DIV. WATER SUPPLIES	1-217-782-9470
IEPA – DIV. WATER POLLUTION CONTROL	1-217-782-1654
COOK COUNTY HIGHWAY DEPARTMENT	1-312-443-5988

TOPOGRAPHY PROVIDED BY:

GREMLEY & BIEDERMANN, INC.
4505 N. ELSTON AVE.
CHICAGO, ILLINOIS 60630
(312) 685-5102

CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE VILLAGE OF WILMETTE FOR LOCATION OF WATERMAIN, SEWER, AND STREET LIGHT CABLE UTILITIES 72 HOURS PRIOR TO ANY WORK BEING DONE. (1)

BENCHMARK:

BM#56 – TOP OF RIM OF WATER VALVE VAULT AT SOUTHEAST CORNER OF FRONTAGE ROAD AND ILLINOIS ROAD.
VILLAGE DATUM ELEVATION = 46.91.
U.S.G.S. ELEVATION = 625.98

BM#58 – TOP OF COLLAR NUT THAT ARROW POINTS TO ON FIRE HYDRANT AT SOUTHWEST CORNER OF LARAMIE AVENUE AND ILLINOIS ROAD.
VILLAGE DATUM ELEVATION = 48.84.
U.S.G.S. ELEVATION = 627.91.

DONALD E. MATTHEWS 062-048081 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

SHEET INDEX

1. TITLE SHEET
2. EXISTING CONDITIONS / DEMOLITION
3. GRADING PLAN - SOUTH
4. GRADING PLAN - NORTH
5. UTILITY AND GEOMETRICS - SOUTH
6. UTILITY AND GEOMETRICS - NORTH
7. GENERAL NOTES AND DETAILS
8. DETAILS
9. DETAILS
10. DETAILS
11. SIGNAGE & PAVEMENT MARKING PLAN

OFFICE COPY
True copy of plans on file with Metropolitan Water Reclamation District of Greater Chicago
Sewerage Permit 93 143
OFFICE COPY

DESIGN TEAM
DRAFTING: LLM, HWL, JRD
DESIGN: DEM, WEG
REVIEW: RBH

NOT FOR CONSTRUCTION

GEWALT-HAMILTON ASSOCIATES, INC.
3100 Dundee Road, Suite 404
NORTHBROOK, ILLINOIS 60062
(708) 272-7750

NO.	BY	DATE	REVISION
9	DEM	5-3-93	PER MWRD COMMENTS
8	DEM	4-21-93	SAN.SERVICE S.E. ADDITION
7	DEM	4-21-93	PER VILLAGE ENGINEER
6	DEM	4-21-93	DELETE SITE LIGHTING FROM CIVIL
5	DEM	4-21-93	COURTYARD STORM SEWER
4	DLK	4-5-93	EXISTING GAS AND TELEPHONE & IBT CONDUIT
3	DLK	3-29-93	PER ARCHITECT
2	DEM	3-26-93	LIGHTING FIXTURES, NW PARKING LOT GEOMETRY
1	JRD	3-16-93	PARKING LOT LIGHTING

TITLE SHEET

LOYOLA ACADEMY EXPANSION
VILLAGE OF WILMETTE, ILLINOIS

PROJECT NO. 9207.000
SCALE: NONE
DRAWN BY: WEG
DATE: 2-19-93
CHECKED BY: DEM
DATE: 2-19-93
SHEET NO. 1 OF 11 SHEETS
DWG-FILE-NAME: 9207-TL.DWG

OFFICE COPY

SEWERAGE SYSTEM PERMIT

MWRDGC Permit No. 09-141

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
100 EAST ERIE, CHICAGO, ILLINOIS, 60611
312-751-5600
http://www.mwrd.org

INSTRUCTIONS FOR COMPLETING PERMIT FORM: Submit four typed copies of permit application (eight pages) and any required schedules listed below; do not leave any blank spaces; use "X" for checking applicable information. Also submit four copies of location map and plans. Submit two copies of specifications, if specifications are not part of the plan sheets. Address all correspondence to the Local Sewer Systems Section; for any inquiries or assistance, telephone (312) 751-3260.

NAME AND LOCATION:

Name of project (as shown on plans): Loyola Academy Stadium Improvements - Phase 2

Location of Project (street address or with respect to two major streets): 1100 Laramie Avenue, Wilmette, IL 60091

Municipality (Township, if unincorporated) Village of Wilmette

Section 30, Township 42 N, Range 13 E

Is project in MWRDGC combined sewer area Yes ☐ No ☒

SERVICE BASIN Northside WRP

DOCUMENTS BEING SUBMITTED

☒ Basic Information (Required in all cases)	Schedule A	(Page 4 of 8)
☒ Sewer Summary (Required in all cases)	Schedule B	(Page 5 of 8)
☒ Sewer Connections (Required in all cases)	Schedule C	(Page 6 of 8)
☒ Detention Facilities	Schedule D	(2 Pages)
☐ Lift Station and/or Force Main	Schedule E	(1 Page)
☐ Characteristics of Waste Discharges	Schedule F	(1 Page)
☐ Treatment or Pre-treatment Facilities	Schedule G	(2 Pages)
☐ Certification Relative to Compliance with Art. 4-1, 6-2d, & 6-3b	Schedule H	(1 Page)
☐ Affidavit Relative to Compliance with Art. 4-1, 6-2d, & 6-3b	Schedule J	(1 Page)
☒ Affidavit of Disclosure of Property Interest ~~Refer to Permit #93-143~~	Schedule K	(2 Pages)
☐ Notice of Requirements for Storm Water Detention	Schedule L	(2 Pages)
☒ Current Survey of Property Interests ~~Refer to MWRD Permit #93-143~~		Exhibit A

OTHER DOCUMENTS: Indicate title, number of pages and originator **Loyola Academy Stadium Improvements - Phase 2 Plans as prepared by Gewalt Hamilton Assoc., Inc., 14 shts**

NOTE: ATTACH FEE PAYMENT VOUCHER AND PAYMENT IF APPLICABLE

MWRDGC USE ONLY

Application received: JUN 11 2009 Permit issued: APR 20 2010 WRP: Northside

OFFICE COPY 09-141

GENERAL CONDITIONS OF THE PERMIT

1. **Adequacy of Design.** The schedules, plans, specifications and all other data and documents submitted for this permit are made a part hereof. The responsibility for the adequacy of the design shall rest solely with the Design Engineer and the issuing of this permit shall not relieve him of that responsibility. The issuance of this permit shall not be construed as approval of the concept or construction details of the proposed facilities and shall not absolve the Permittee, Co-permittee or Design Engineer of their respective responsibilities.
2. **Joint Construction and Operation Permits.** Unless otherwise stated by the Special Conditions, the issuance of this permit shall be a joint construction and operation permit provided all General, Standard and Special Conditions are complied with.
3. **Allowable Discharges.** Discharges into the sanitary sewer system constructed under this permit shall consist of sanitary sewage only. Unless otherwise stated by the Special Conditions, there shall be no discharge of industrial wastes under this permit. Storm waters shall not be permitted to enter the sanitary sewer system. Without limiting the general prohibition of the previous sentence, roof and footing drains shall not be connected to the sanitary sewer system.
4. **Construction Inspection.** All sewer construction shall be inspected and approved by a Registered Professional Engineer acting on behalf of the Permittee or the owner of the project, or by a duly authorized and competent representative of the Professional Engineer. No sewer trenches shall be backfilled except as authorized by the Inspection Engineer after having inspected and approved the sewer installation.
5. **Maintenance.** The sewer connections, lines, systems or facilities constructed hereunder or serving the facilities constructed hereunder shall be properly maintained and operated at all times in accordance with all applicable requirements. It is understood that the responsibility for maintenance shall run as a joint and several obligation against the property served, the owner and/or the operator of the facilities, and said responsibility shall not be discharged nor in any way affected by change of ownership of said property.

MWRDGC STANDARD CONDITIONS

6. **Indemnification.** The Permittee shall be solely responsible for and shall defend, indemnify and save harmless the Metropolitan Water Reclamation District of Greater Chicago (hereinafter MWRDGC) from and against any and all claims, costs, damages, or expenses the MWRDGC may suffer, incur, sustain or become liable for on account of any injury to, or death of, any person or persons, or any damage to, or destruction of, any real or personal property that may be caused by the construction, use, state of repair; operation and maintenance of the proposed facilities, arising out of or in consequence of the issuance of this permit. Without limiting the generality of the preceding sentence, the provisions of this paragraph shall extend to indemnify and save harmless the MWRDGC from any claims or damages arising out of or in connection with the termination or revocation of this permit.
7. **Construction by MWRDGC.** Permittee understands and acknowledges that the MWRDGC has the right and power to construct and extend sewer service facilities and render such services within the area to be served by the project for which this permit is issued, and that by the MWRDGC constructing and extending such sewer service facilities and rendering such services, the facilities constructed by the Permittee under this permit may decrease in value, become useless or of no value whatsoever, the Permittee may also sustain a loss of business, income and profits.

   Therefore, by accepting this permit and acting thereon, the Permittee, for itself, its successors and assigns, does remise, release and forever discharge the MWRDGC of any and all claims whatsoever which Permittee may now have or hereafter acquire and which Permittee's successors and assigns hereafter can, shall, or may have against the MWRDGC for all losses and damages, either direct or indirect, claimed to have been incurred by reason of the construction or extension at any time hereafter by the MWRDGC of sewer service facilities in the service area contemplated by this permit, the rendering of such services, which MWRDGC facilities and services decrease the value of the facilities constructed by the Permittee under this permit, make same useless or of no value whatsoever, including but not limited to, any and all damages arising under Illinois Revised Statutes, Chapter 42, Section 339; the taking of private property for public use without due compensation; the interference with the contracts of Permittee; the interference with Permittee's use and enjoyment of its land; and the decrease in value of Permittee's land.

8. **Third Parties.** This permit does not grant the right or authority to the Permittee: (a) to construct or encroach upon any lands of the MWRDGC or of any other parties, (b) to construct outside of the territorial boundaries of the MWRDGC, (c) to construct or encroach upon the territorial boundaries of any units of local government within the MWRDGC, (d) to connect to or discharge into or be served by (directly or indirectly) any sewer or sewer system owned or operated by third parties.

9. **Costs.** It is expressly stipulated and clearly understood that the sewerage system or facilities for which the permit is issued shall be constructed, operated and maintained at no cost to the MWRDGC.

OFFICE COPY 09-141

10. **Other Construction.** The MWRDGC reserves the right, privilege and authority to permit others to reconstruct, change, alter and replace all sewers and appurtenances thereto at the point of connection of any sewerage system to an MWRDGC interceptor and/or in public right-of-ways of MWRDGC easements, and to introduce additional sewage flow through this connection into the intercepting sewer of said MWRDGC.
11. **Change of Use.** This permit shall be incorporated in the Building and Occupancy Permit for the building or buildings served under this permit. The owner or occupant of any building served under this permit shall not cause, or permit, a change of use of the building to a use other than that indicated in this permit without first having obtained a written permission from the General Superintendent of the MWRDGC.
12. **Interceptors Overloading.** The MWRDGC hereby serves notice that its interceptors may flow full and may surcharge, and flooding of the proposed system may occur. The Permittee agrees that the proposed systems shall be constructed, operated and maintained at the sole risk of the Permittee.
13. **Non-Transferability.** This permit may not be assigned or transferred without the written consent of the General Superintendent of the MWRDGC.
14. **Termination.** It is understood and agreed that in the event the Permittee shall default in or fail to perform and carryout any of the covenants, conditions and provisions of this permit and such default or violation shall continue for sixty (60) days after receipt or notice thereof in writing given by the General Superintendent of the MWRDGC, then it shall be lawful for the MWRDGC at or after the expiration of said sixty (60) days to declare said permit terminated. The Permittee agrees that immediately upon receipt of written notice of such termination it will stop all operations, discontinue any discharges and disconnect the sewerage system or facilities constructed under this permit. If the Permittee fails to do so, the MWRDGC shall have the right to disconnect said system. The Permittee hereby agrees to pay for any costs incurred by the MWRDGC for said disconnection. The various rights and remedies of the MWRDGC contained in this permit shall be construed as cumulative, and no one of them shall be construed as exclusive of any one or more of the others or exclusive of any other rights or remedies allowed by applicable rules, regulations, ordinances and laws. An election by the MWRDGC to enforce any one or more of its rights or remedies shall not be construed as a waiver of the rights of the MWRDGC to pursue any other rights or remedies provided under the terms and provisions of this permit or under any applicable rules, regulations, ordinances or laws.
15. **Expiration.** This permit shall expire if construction has not started within one (1) year from the date of issue. Construction under an expired permit is deemed construction without a permit. All construction under this permit shall be completed within two (2) years after start of construction. If conditions so warrant, an extension may be granted. For publicly financed projects (e.g. special assessments) the one(1) year period indicated will be considered from the date of final court action.
16. **Revocation.** In issuing this permit, the MWRDGC has relied upon the statements and representations made by the Permittee or his agent. Any incorrect statements or representations shall be cause for revocation of this permit, and all the rights of the Permittee hereunder shall immediately become null and void.
17. **Advance Notice.** Prior to commencement of construction under this permit, the Permittee shall give the MWRDGC an advance notice of at least two working days. When advance notice is given, the Permittee shall provide the permit number, municipality and location.
18. **Compliance with Plans and Specifications.** All construction shall be in accordance with the plans and specifications submitted for this permit and made a pan hereof. No changes in, or deviation from the plans and specifications which affect capacity, maintenance, design requirements, service area or permit requirements shall be permitted unless revised plans shall have been submitted to, and approved by the MWRDGC. The permit together with a set of the plans and specifications (revised plans and specifications, if any) shall be kept on the job site at all times during construction until final inspection and approval by the MWRDGC.
19. **Testing and Approval.** All construction under this permit shall be subject to inspection, testing and approval by the MWRDGC. All testing shall be made, or caused to be made, by the Permittee at no cost to the MWRDGC and in the presence of the MWRDGC representative. Upon satisfactory completion of construction, the Permittee and the owner shall submit, or cause to be submitted, a completion certificate and request for approval on the form prescribed by the MWRDGC. No sewer or other facilities shall be put in service until all the conditions of the permit have been satisfactorily met.
20. **Record Drawings.** Within sixty (60) days after final inspection and approval by the MWRDGC, the Permittee shall furnish, or cause to be furnished to the MWRDGC, a set of Record drawings, or a statement that the project was constructed in accordance with the original plans and specifications.

21. **Compliance with Rules and Regulations.** The Permittee here by expressly assumes all responsibilities for meeting the requirements of all applicable rules, regulations, ordinances and laws of Local, State and Federal authorities. Issuance of this permit shall not constitute a waiver of any applicable requirements.

SCHEDULE A
BASIC INFORMATION

MWRDGC Permit No. 09-141

OFFICE COPY

1. **NAME OF PROJECT** Stadium Renovations - Loyola Academy
(as shown on the plans)

2. **APPURTENANCES** (check all applicable items)

☐ Siphon ☐ Drop Manholes
☐ Stream Crossing ☐ Direct Connections to MWRDGC

3. **RECEIVING SANITARY SEWER SYSTEM**

A. System that project will connect to is:
☒ Existing ☐ Proposed /Under Construction → MWRDGC Permit # _____

B. List owners of all sewers from project to MWRDGC interceptor Village of Wilmette

4. **EXISTING LIFT STATION**

☒ No ☐ Yes → Receiving system includes existing lift station

If yes, indicate location _____

5. **FLOOD PLAIN**
Is any part of the project area in a flood plain?
☒ No ☐ Yes → Percentage of area in flood plain _____%

Flood crest elevation _____ ft.

Identify any manholes in flood plain: _____

6. **SIZE OF PROJECT**

A. What is the size of this project? 5.88 acres
B. Total contiguous ownership, including project 23.52 acres
C. Existing impervious area within project ~~2.07~~ 2.65 acres
D. New impervious area created within project 2.52 acres

7. **DETENTION**

A. Is detention provided under this permit?
☐ No ☒ Yes → Detention required by: ☒ MWRDGC ☒ Other

B. Is project in the service area of existing detention reservoir?
☒ No ☐ Yes → MWRDGC Permit No. _____

SCHEDULE B

MWRDGC Permit No 2009-0141 09-141

SEWER SUMMARY

COMPLETE IN ALL CASES

OFFICE COPY

PROJECT NAME: Stadium Renovations - Loyola Academy
(as shown on the plans)

1. **Sewer Summary,** including all building service sewers, stubs and risers:
   Include all sewers in combined sewer area
   Include all sanitary sewers in separate sewered area

Pipe Size in.	6	10					
Total length ft.	285	24					
Min. slope used -%	1.0	0.28					
Pipe Material *	SDR 26 ASTM D2241	SDR26 ASTM D2241					
Total manholes	1	0					
Total cleanouts	1	0					

* Pipe material and joint specifications must be shown on plans. See Manual of Procedures for acceptable specifications.

2. **NATURE OF PROJECT** (Check all that apply)

- ☐ Project is publicly financed
- ☐ Sewer system serving a subdivision
- ☐ Off-site trunk sewer to serve subdivision
- ☐ Sewer extension to serve future development
- ☐ Storm sewers in combined sewer area
- ☒ Service connections to serve buildings (Schedule C)
- ☐ Other _____

3. **SEWER EXTENSIONS**

If any part of the proposed project is designed to service future connections (not included in Schedule C), check yes below and submit service area map and estimate of population equivalent to be served.

☒ NO ☐ YES → ☐ Service area map

☐ P.E. estimate submitted

OFFICE COPY

SCHEDULE - C
SEWER CONNECTIONS
(FILL OUT ALL SECTIONS THAT APPLY)

MWRDGC Permit No. 09-141

1. **BUILDING CONNECTION DATA**

A. RESIDENTIAL BUILDINGS

☐ Single Family Total dwelling units * _____
Number of sewer connections * _____ PE** _____

☐ Multi Family Total dwelling units * _____
Number of sewer connections * _____ PE** _____

B. COMMERCIAL& RECREATIONAL BUILDINGS

☒ Number of sewer connections 2 PE** 62

C. INDUSTRIAL BUILDINGS

☐ Number of sewer connections _____ PE** _____

* Each sanitary line exiting a building is a connection
** Population Equivalent

Training Room/Restroom 4 staff x 20 gal/staff = 80 gal
2000 visitors x 3 gal/visitor = 6000 gal
Concession Stand (No Food Preparation) 4 staff x 20 gal/staff = 80 gal
6160 gal
62 PE

2. **BUILDING USE - (Check all that apply)**

A. COMMERCIAL & RECREATIONAL

☐ Food preparation or processing (install grease separator)
☐ Auto service (install triple basin)
☐ Auto wash (install mud basin)
☐ Swimming pool (provide pool plans)
☒ Other Athletic Training Facility & Concession Stand

B. INDUSTRIAL BUILDINGS

☐ Sewer connections will receive domestic sewage only
☐ Industrial waste is produced

NOTE: If industrial waste is produced, submit Schedule F & Schedule G and plumbing plans along with flow diagram for pretreatment system.

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SCHEDULE D – DETENTION

MWRDGC Permit No. 09-141

A. PROJECT INFORMATION

Name of Project Loyola Academy Stadium Renovations - Basin 1
(as shown on plans)

B. METHOD OF DETENTION

☒ Reservoir ☐ Rooftop ☐ Parking Lot ☒ Others Surface

C. UNDEVELOPED SITE-DETERMINATION OF ALLOWABLE RELEASE (Delineate total, developed, undeveloped and unrestricted areas on a grading plan)

1. Area of site	4.78 (= 4.53 project area + 0.25 undisturbed trib. area)	acres
2. Average ground slope	0.01	feet/foot
3. Longest overland flow distance (show on a contour map for undeveloped site)	920	feet
4. Overland flow time of concentration	38	minutes
5. Average slope of channelized flow (see note)	0	feet/foot
6. Channelized flow distance (see note)...	0	feet
7. Channelized flow time of concentration	0	minutes
8. Total time of concentration (line 4 + line 7)	38	minutes
9. Rainfall intensity for 3-year storm	2.2	inches/hr
10. Gross Allowable release rate (0.15* line 9* line 1 or Q = 0.15*I*A)	1.58	cfs
11. Unrestricted release rate (Qun).... Qun = Cun Iun Aun; Cun-developed site, Iun-100 year storm, Aun-unrestricted site	0	cfs
12. Net allowable release rate (line 10 – line 11)	1.58	cfs
13. Actual release rate at HWL..... (cannot be greater than line 12)	1.55	cfs
14. Restrictor type and size..... (Provide details & calculations)	4.4" Sharp Edge invert 615.07	inches

NOTE: For flow time in a well defined channel, determine time of concentration from measured lengths, cross-sections and slopes. Submit necessary calculations.

Rev. 2/10/01

SCHEDULE D – DETENTION (continued) **MWRDGC Permit No.** 09-141

Basin 1

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D. DEVELOPED SITE-DETERMINATION OF RESERVOIR SIZE
(Submit calculations for Items 1 thru 6)

1. Impervious drainage area excluding wet pond area*.	Imp =4.43 Gravel = 0.16	acres
2. Impervious wet pond area*	0	acres
3. Pervious drainage area*	0.19	acres
4. Composite runoff coefficient(c).....	0.88	
5. Required detention capacity at actual release rate	0.92	acre-feet
6. Actual detention capacity provided at HWL.	0.92 at 624.24 (underground detention vault, pipes & surface)	acre-feet

* Unrestricted areas shall be excluded here.

E. REQUIRED BYPASS RATE THROUGH DEVELOPMENT SITE FROM UPSTREAM AREA

NOTE: Following steps are applicable to bypass flow over a weir or bypassing detention system. Design frequency shall be determined by local ordinance. If no local requirement is established, use 5-year storm frequency. (Delineate bypass areas on grading plans or USGS maps).

1. Total area upstream.....		acres
2. Impervious area.....		acres
3. Pervious area.....		acres
4. Composite runoff coefficient (minimum of 0.35)		
5. Design storm frequency for the upstream area		year
6. Time concentration for upstream area at point of entry; upstream area to be considered as developed.		minutes
7. Rainfall intensity for time of concentration		inches/hr.
8. Permissible bypass rate... (line 1* line 4 * line 7)		cfs
9. Bypass system – Type & capacity... (Provide detail and calculations)		cfs

Name Mei Zhu, PE Title Senior Engineer

Signature Mei Zhu Date 4-09-10

Engineering Firm Gewalt Hamilton Associates, Inc.

LICENSED PROFESSIONAL ENGINEER MEI ZHU 062-056576 STATE OF ILLINOIS

P.E. SEAL

SCHEDULE D – DETENTION

MWRDGC Permit No. 09-141

A. PROJECT INFORMATION

Name of Project Loyola Academy Stadium Renovations - Basin 2 OFFICE COPY
(as shown on plans)

B. METHOD OF DETENTION

☒ Reservoir ☐ Rooftop ☐ Parking Lot ☒ Others Surface

C. UNDEVELOPED SITE-DETERMINATION OF ALLOWABLE RELEASE (Delineate total, developed, undeveloped and unrestricted areas on a grading plan)

1. Area of site	1.35+0.25=1.60 total	acres
2. Average ground slope	0.01 ✓	feet/foot
3. Longest overland flow distance (show on a contour map for undeveloped site)	920 ✓	feet
4. Overland flow time of concentration	40	minutes
5. Average slope of channelized flow (see note)	0	feet/foot
6. Channelized flow distance (see note)...	0	feet
7. Channelized flow time of concentration	0	minutes
8. Total time of concentration (line 4 + line 7)	40	minutes
9. Rainfall intensity for 3-year storm	2.15	inches/hr
10. Gross Allowable release rate (0.15* line 9* line 1 or Q = 0.15*I*A)	0.52 (total) ✓	cfs
11. Unrestricted release rate (Qun).... Qun = Cun Iun Aun; Cun-developed site, Iun-100 year storm, Aun-unrestricted site	0	cfs
12. Net allowable release rate (line 10 – line 11)	0.52	cfs
13. Actual release rate at HWL..... (cannot be greater than line 12)	0.44	cfs
14. Restrictor type and size..... (Provide details & calculations)	2.70" Sharp Edge invert 618.49 ✓	inches

NOTE: For flow time in a well defined channel, determine time of concentration from measured lengths, cross-sections and slopes. Submit necessary calculations.

Rev. 2/10/01

Basin 2 OFFICE COPY

D. DEVELOPED SITE-DETERMINATION OF RESERVOIR SIZE
(Submit calculations for Items 1 thru 6)

1. Impervious drainage area excluding wet pond area*.	Imp = 0.74 Gravel = 0.10	acres
2. Impervious wet pond area*	0	acres
3. Pervious drainage area*	0.51	acres
4. Composite runoff coefficient(c).....	0.72	
5. Required detention capacity at actual release rate	0.20	acre-feet
6. Actual detention capacity provided at HWL.	0.20 at 623.70	acre-feet

* Unrestricted areas shall be excluded here.

E. REQUIRED BYPASS RATE THROUGH DEVELOPMENT SITE FROM UPSTREAM AREA

NOTE: Following steps are applicable to bypass flow over a weir or bypassing detention system. Design frequency shall be determined by local ordinance. If no local requirement is established, use 5-year storm frequency. (Delineate bypass areas on grading plans or USGS maps).

1. Total area upstream.....	0.25	acres
2. Impervious area.....	0.25	acres
3. Pervious area.....	0	acres
4. Composite runoff coefficient (minimum of 0.35)	0.90	
5. Design storm frequency for the upstream area	100	year
6. Time concentration for upstream area at point of entry; upstream area to be considered as developed.	10	minutes
7. Rainfall intensity for time of concentration	7.6	inches/hr.
8. Permissible bypass rate... (line 1* line 4 * line 7)	1.71	cfs
9. Bypass system – Type & capacity... (Provide detail and calculations)	Grass overflow weir toward Laramie Ave. (calculations provided 1.71cfs)	cfs

Name Walter Graft, PE Title Senior Engineer

Signature Walter E. Graft Date 3/5/10

Engineering Firm Gewalt Hamilton Associates, Inc.

WALTER E. GRAFT 062-048837 LICENSED PROFESSIONAL ENGINEER P.E. SEAL OF ILLINOIS

SPECIAL CONDITIONS FOR MWRD PERMIT NO. 09-141

1. This permit does not serve as, substitute for, or preclude the need for any permit/permission/authorization which may be required for the project from the Illinois Environmental Protection Agency.

2. This permit is issued in reliance upon the Affidavit of Disclosure of Property Interest (Schedule K) submitted by the owner, and said Affidavit is incorporated herein and made a part hereof.

3. The storm water detention facilities shown on the plans are made a part of this permit. Construction of these facilities shall proceed prior to or concurrently with other construction on the project and shall be completed before any occupancy occurs. The detention is provided as tabulated below.

Drainage Basin No.	Detention Storage	Restrictor Size	Description
1	Storage on athletic track and field; underground vault; storm sewers	4.4-inch dia.	Sharp edge 'C'=0.61
2	Three (3) dry basins	2.7 –inch dia.	Sharp edge 'C'=0.61

4. The Permittee/Co-Permittee is hereby warned, and does hereby acknowledge that the proposed restrictor less than 4-inch in diameter may result in increased maintenance problems, and does hereby represent that all necessary maintenance will be undertaken so that the system will perform satisfactorily at all times.

5. The following storm sewer structures shall be equipped with solid covers at all times: Structure nos. 67, 69, 70, 72, 73, 78 and 120.

6. The storm water detention storage and related outflow control and drainage facilities under this permit, as shown on the plans, shall be maintained and operated in perpetuity by the Permittee(s)/Co-Permittee so that the required stormwater storage volume and restricted outflow rate are provided at all times. The facilities cannot be modified, adjusted, relocated, removed, or abandoned without written permission from the Director of Engineering of the MWRD.

7. The Permittee is advised that this permit is issued contingent on the proposed area shown on the plans (Sheet 5 of 17) as seeded/planted with native grasses/plants (IDOT Class 4A modified seed mixture) being maintained permanently as such unless written permission from the Director of Engineering of the MWRD is obtained.

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ENGINEERING CERTIFICATIONS

MWRDGC Permit No. 09-141

CERTIFICATE BY DESIGN ENGINEER: I hereby certify that the project described herein has been designed in accordance with the requirements set forth in this application and all applicable ordinances, rules, regulations, Local, State and Federal laws, and design criteria of the issuing authority; that the storm drainage and sanitary sewer system designed for this project are proper and adequate; that where the design involves one or more connections to a existing local sewer system, the capacity of said system has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

Comments, if any: _____

Engineering Firm: Gewalt Hamilton Associates, Inc. **Telephone:** (847) 478 - 9700

Address: 850 Forest Edge Drive **City:** Vernon Hills **Zip:** 60061

Signature: P.E. **Date:** 5/11/09
(Name and Title)

WALTER E. GRAFT 062-048837 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

CERTIFICATE BY MUNICIPAL OR SYSTEM ENGINEER: The application and the drawings, together with other data being submitted with this application, have been examined by me and are found to be in compliance with all applicable requirements. The manner of drainage is satisfactory and proper. The existing local sewer system to which the project discharges has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

I hereby certify that the project area is within the municipal corporate limits. ☒ YES ☐ NO

Owner of Local Sewer System: Village of Wilmette

Municipal Engineer: Brigitte Mayerhofer **Telephone:** (847) 853-7660

Address: 1200 Wilmette Avenue **City:** Wilmette **Zip** 60091

Signature: Brigitte Mayerhofer, Dir. of Engineering **Date:** 06.09.09
(Name and Title)

BRIGITTE A. MAYERHOFER 062-054023 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

CERTIFICATE BY INSPECTION ENGINEER: I hereby certify that construction of the project will be in substantial compliance with the data and the plans submitted with this application; that approval will be obtained from the issuing authority prior to making any changes that would affect capacity, maintenance, design requirements, service area or the permit requirements; that a set of RECORD drawings, signed and sealed by the undersigned Engineer will be furnished to the MWRDGC within sixty (60) days after testing and approval by the District of the completed work.

Engineering Firm: Gewalt Hamilton Associates, Inc. **Telephone:** (847) 478-9700

Address: 850 Forest Edge Drive **City:** Vernon Hills **Zip** 60015

Signature: P.E. **Date:** 5/11/09
(Name and Title)

WALTER E. GRAFT SEAL 062-048837 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

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SPECIAL CONDITIONS

MWRDGC Permit No. 09-141

This permit is issued subject to the MWRDGC's General Conditions, Standard Conditions and the following Special Conditions:

☒ **NONE** ☒ **SEE ATTACHED**

If permit is granted:

☐ **Please return two (2) copies of the permit to the Permittee; or**
☒ **Please mail one (1) copy to Permittee and one (1) copy to the person designated below:**

Name: **Mr. Walter Graft, P.E.**

Address: **850 Forest Edge Drive, Vernon Hills, Illinois 60061**

CERTIFICATE BY APPLICANTS: We have read and thoroughly understand the conditions and requirements of this permit application, and agree to conform to the permit conditions and other applicable requirements of the MWRDGC. It is understood that construction hereunder, after the permit is granted, shall constitute acceptance by the applicants of any Special Conditions that may be placed hereon by the MWRDGC. It is further understood that this application shall not constitute a permit until it is approved, signed and returned by the Chief Engineer of the MWRDGC.

PERMITTEE	**CO-PERMITTEE**
The project area is within municipal corporate limits. ☒ Yes ☐ No ☐ Not Applicable	**(Co-Permittee is Property Owner)** Title to property is held in a land trust: ☐ Yes ☒ No If yes, Co-Permittee shall be beneficiary with Power of Direction
Municipality **Village of Wilmette**	Owner **Loyola Academy**
Address **1200 Wilmette Avenue**	Address **1100 Laramie Avenue**
City **Wilmette** Zip **60091**	City **Wilmette** Zip **60091**
Signature Brigette Mayerhofer	Signature
Name **Brigette Mayerhofer** (Print)	Name **Chris Kournetas** (Print)
Title **Director of Engineering**	Title **Director of Operations**
Date 6/09/09 Phone **847-853-7660**	Date 5/14/09 Phone **847-920-2461**

REVIEW AND APPROVAL BY THE MWRDGC

Reviewed by: Jerome P. McGovern (Local Sewer Systems) **Date** 4/19/10

Approved for Issue: Maureen Darkin 4/20/10

Approved by: (For the Chief Engineer) **Date** 4/20/10

DETENTION REVIEW SHEET

A. PROJECT

Permit No. 09-141 Date Received 6/11/2010

Name of Project LOYOLA ACADEMY STADIUM Improvement

Location 1100 Laramie Avenue, Wilmette, IL 60091

B. Basic Information

1. Total Project Area 5.88 Acres

2. Impervious Area: (a) Existing 2.62; (b) New 2.52

3. Runoff Coefficient Basin 1 C = 0.85 " 2 C = 0.72

4. Project is: Residential ___; Non-Residential X

5. Project is in flood plain area ..... yes/no

6. Building Connections are proposed under this permit ..... yes/no

7. Detention is required for the project covered by this permit ..... yes/no

8. Detention is provided under this permit ..... yes/no

9. Detention criteria: MSD X; Other ___

C. Non-Applicability

Detention requirements are not applicable for the reason(s) indicated:

1. Project is in combined sewer area ..... ___

2. Total contiguous ownership is less than 5 acres ..... ___

3. Remaining developable ownership as of 1/1/72 is less than 5 acres . ___

4. Project is single family, residential and area is less than 10 acres ..... ___

5. Project consists of an outlet sewer only and no connections are proposed ..... ___

6. Project consists of sewer rehabilitation work only ..... ___

7. Buildings existing and currently served by septic system ..... ___

8. No new impervious area proposed ..... ___

9. Other _____ ..... ___

D. Relation with Other Projects

1. Detention required for this project is provided by existing/ proposed detention facilities ..... ___
Facilities are covered by Permit No. _____

MSD Permit No. 09-141

D. Relation with Other Projects

2. Detention facilities provided under this permit are intended to serve other areas ..... _____
If so, contributing area is _____ acres.

3. Project covered by permit receives drainage from another area and the flow is bypassed ..... _____

4. This project is part of a previous development that exceeded five/ten acres and for which detention has been previously provided in full or in part ..... _____

5. This project is part of a total contiguous land holding that exceeds five/ten acres and for which no detention has been provided ..... _____

6. This project is part of an area previously encumbered for detention ..... _____

E. Design Summary

	MSD Requirements		Project Design	
1. Drainage area for which detention is provided under this permit	1	2 xxxx	1 4.78	2 1.35 acre
2. Detention requirements for area above	.92	.2 ac. ft.	0.92	0.20 ac. ft.
3. Detention requirements for this project	.92	0.2 ac. ft.	0.92	0.20 ac. ft.
4. Release rate for drainage area (1) above	1.50	0.52 cfs	1.55	0.44 cfs
5. Bypass rate, if any	-	1.71 cfs		1.71 cfs
6. Total discharge (EXCLUDE BY-PASS)	1.58	0.52 cfs	1.55	0.44 cfs

F. Method of Detention

1. Method of Storage: Roof___, Ground____, Parking Lot___, Pond X, Other Underground Vault Storm Sewers

2. Method of Control: Roof Restrictor _____, Weir_____.
Pipe Outlet ____, Size_____, Length_____,

Restrictor/Orifice ✓, Size 2.7" 4.4" , Edge Type Sharp Sharp

G. Other Comments

Tc based on longest diagonal distance of project development at 10% (per JRR).

Reviewed: [illegible] Date 4/16/2010 Checked _____ Date _____

LSS-72-09-01 Rev. 2/27/81

MWRD Storm Water Detention Calculations

Permit Number: 20090141 | Name of Project | Pond Name: LOYOLA

Page 1 | Page 2 | Weir Flow Calculations | Pond/Pipe Vol. Calculation

Undeveloped Site Allowable Release Rate

Overland Flow Tc

6.38	Total Site Area (ac)
0.010	Average Ground Slope (ft/ft)
920	Overland Flow Distance (ft)
	Native Grass Area (ac)
6.38	Net Site Area (ac)
38.26	Overland Flow Time of Concentration (min)

Is there channelized flow on this site? ○ Yes ◉ No

○ Yes by Mannings Eqn. ○ Yes by Velocity Method

Channel Flow Tc

	Slope (ft/ft)		Velocity (ft/sec)
	Channel Length		Channel Length
0.013	Mannings (n)		
	Hydraulic Radius		
###	Channel Flow Time of Concentration (min)		

38.26	Total Time of Concentration (min)	☑ To Override	40
2.15	Rainfall Intensity (in/hr) - 3 Yr Storm		
3.70	Rainfall Intensity (in/hr) -100 Yr storm		
2.06	Gross Allowable Release Rate (cfs)		

☐ Change Developed Runoff Coef.

Pervious Runoff Coefficient = 0.45

Impervious Runoff Coefficient = 0.90

Loose Gravel Coefficient = 0.75

Uncontrolled Release

○ Compute for 10 min. ○ Enter as Constant

○ Compute Overland ◉ None

2.06	Net Allowable Pond Release Rate (cfs)
0.32	cfs/acre Net Release

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

MWRD Storm Water Detention Calculations

Permit Number: 20090141 Name of Project: Pond Name: LOYOLA

Page 1 | **Page 2** | Weir Flow Calculations | Pond/Pipe Vol. Calculation

No. of Ponds: 2 For interconnected ponds, enter data starting with the most upstream pond.

Pond 1 | Pond 2

☐ Enter Release Rate as a Constant (cfs)

☑ This Pond Flows Off-Site

Restrictor Design

624.24 High Water Elevation 0 Length of Restrictor (ft)

4.4 Dia. Restrictor (in)

Invert El. - Restrictor (Open Discharge) 615.07

OR

Tail Water El, 100-Yr (Submerged Discharge)

Orifice Flow Design

- ○ Projecting Edge Cd=0.52
- ◉ Sharp/Square Edge (L < 2d) Cd=0.61
- ○ Re-Entrant Tube (L=2 to 3d) Cd=0.73
- ○ Short Tube (L=2 to 3d) Cd=0.82
- ○ Round Edge Cd=0.98
- ○ Other (Specify)

1.55 Actual Restrictor Release Rate

Pond 1

.92 Storage Required (ac-ft)

.92 Storage Provided (ac-ft)

Developed Site Conditions

4.43 Impervious Area (ac) 0.16 Loose Gravel (ac)

.19 Pervious Area (ac) Pond Area at NWL (ac)

0.88 Composite Runoff ☐ To Override

Method of Detention Storage

☐ Basin/Reservoir ☐ Parking Lot

☐ Underground ☐ Other

1.12 = Total Detention Required (ac-ft)
1.20 = Total Detention Provided (ac-ft)
1.99 = Total Off-Site Release Rate from All Ponds (cfs)
6.13 = Total of All Sub-Areas Used in Calculations (ac)

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

BASIN 1

MWRD Storm Water Detention Calculations

Permit Number: 20090141 Name of Project: Pond Name: LOYOLA

Page 1 | **Page 2** | Weir Flow Calculations | Pond/Pipe Vol. Calculation

No. of Ponds: 2 For interconnected ponds, enter data starting with the most upstream pond.

Pond 1 | **Pond 2**

☐ Enter Release Rate as a Constant (cfs)

☑ This Pond Flows Off-Site

Restrictor Design

623.7 High Water Elevation 0 Length of Restrictor (ft)

2.7 Dia. Restrictor (in)

Invert El. - Restrictor (Open Discharge) 618.49

OR

Tail Water El, 100-Yr (Submerged Discharge)

Orifice Flow Design

- ○ Projecting Edge Cd=0.52
- ◉ Sharp/Square Edge (L < 2d) Cd=0.61
- ○ Re-Entrant Tube (L=2 to 3d) Cd=0.73
- ○ Short Tube (L=2 to 3d) Cd=0.82
- ○ Round Edge Cd=0.98
- ○ Other (Specify)

0.44 Actual Restrictor Release Rate

Pond 2

.20 Storage Required (ac-ft)

0.2 Storage Provided (ac-ft)

Developed Site Conditions

.74 Impervious Area (ac) 0.10 Loose Gravel (ac)

.51 Pervious Area (ac) Pond Area at NWL (ac)

0.72 Composite Runoff ☐ To Override

Method of Detention Storage

☐ Basin/Reservoir ☐ Parking Lot

☐ Underground ☐ Other

1.12 = Total Detention Required (ac-ft)
1.20 = Total Detention Provided (ac-ft)
1.99 = Total Off-Site Release Rate from All Ponds (cfs)
6.13 = Total of All Sub-Areas Used in Calculations (ac)

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

Basin 2

MWRD Storm Water Detention Calculations

Permit Number: 09147 Name of Project Pond Name Basin 1

Page 1 | Page 2 | Weir Flow Calculations | **Pond/Pipe Vol. Calculation**

** Note: calculations are for typical pond configurations and circular pipes.

# of Ponding Areas provided (max # of ponds is 9) 1

Ponding Area in : ○ Acres ◉ sq.ft.

Pond 1

☐ Pond bottom is flat

☑ Pond bottom is a point **
** Do not enter 1st area

# of contour lines (max 20)

Elevation	Area
623.83	
624	7703
624.04	19881
624.1	38147
624.24	85656

# of pipes (max 20)

Diameter	Length (ft)
6	32
8	459
10	211
12	1244

Calculate Volume

Reset Fields

Volume at Ponding Area (ac-ft): 0.262

Pipe Storage Volume (ac-ft) 0.029

Total Volume (ac-ft) 0.291

Total Volume for all Ponds (ac-ft) 0.291

≃.3

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

TRACK AND STORM SEWERS

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SCHEDULE - K

MWRDGC Permit No. 2009-0141 09-141

AFFIDAVIT OF DISCLOSURE OF PROPERTY INTEREST

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

Name of Project: Stadium Renovations - Loyola Academy

A. Rev. Patrick E. McGrath, S.J. (Name of Affiant -Type or Print) after first being duly sworn under oath, states that he is (the owner and record title holder), (a principal beneficiary of Land Trust No. _____ held by _____ (Name of Trust Holder) as Trustee), (an officer President (Official Capacity) of Loyola Academy (Name of Corporation) Corporation), (a General Partner of _____ (Name of Partnership) Partnership), which is the record title holder of the property which is the subject of a certain sewerage system permit application (covering the project indicated and designated by the number shown above) filed with the Metropolitan Water Reclamation District of Greater Chicago, which property is shown on the attached plat of survey which together with the legal description of the property are attached hereto as Exhibit "A" and specifically incorporated by reference herein.

B. Affiant further states that said property described, in Exhibit "A" (Plat of Survey with legal description) has a total area, including project area, of 23.52 acres and constitutes the total contiguous ownership of the owner, and that the portion of the property currently proposed for development consists of 5.88 acres, and the property is intended for use as described hereinafter: High School and Athletic Facilities

*C. Affiant further states that, because of its size and intended use, the property described in Exhibit "A" comes under the requirements of the MWRDGC with respect to the establishment of on-site storm water detention, and that such detention facilities will be provided as part of the project in accordance with the design and calculations furnished to satisfy said requirements with respect to the property described in Exhibit "A", and further states that:

1. The owner of the property or any beneficiary of a land trust, if any, which is the record title holder of the property has no present interest, nor had any interest at any time during the previous two years, in any lands contiguous to said property. (If such interest is or was held, detention must be provided for the total.)

2. No owner of any lands contiguous to the property and no beneficiary of a land trust, if any, which is the record title holder of any land contiguous to the property has any interest in the property. (if such interest is held, detention must be provided for the total.)

3. Affiant understands and agrees that any permit issued by MWRDGC in reliance upon this affidavit shall be deemed to contain a special condition that if, within two years after the issuance of the permit, the owner or any beneficiary of a land trust, if any, which is the record title holder of the property, acquires any interest in lands contiguous to the property, the owner shall provide for storm water detention for such lands in which an interest is acquired, regardless of the size of such lands.

Affidavit to be submitted with all permit applications in separate sewer areas
* Delete paragraph C if exemption is claimed
* Delete paragraph D if no exemption is claimed.

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SCHEDULE - K (Continued)

MWRDGC Permit No. 2009-0141 09-141

*D. Affiant further states that, because of its size and intended use, the property described in Exhibit "A" is exempt from the requirements of the MWRDGC with respect to the establishment of on-site storm water detention, and further states that:

1. The owner of the property or any beneficiary of a land trust, if any, which is the record title holder of the property has no present interest, nor had any interest at any time during the previous two years, in any lands contiguous to said property, such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres. (If such interest is or was held, detention must be provided for the total.)

2. No owner of any lands contiguous to the property and no beneficiary of a land trust, if any, which is the record title holder of any land contiguous to the property has any interest in the property, such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres. (If such interest is held, detention must be provided for the total.)

3. Affiant understands and agrees that any permit issued by MWRDGC in reliance upon this affidavit shall be deemed to contain a special condition that if, within two years after the issuance of the permit, the owner or any beneficiary of a land trust, if any, which is the record title holder of the property acquires any interest in lands contiguous to the property such that the aggregate area of the property and the contiguous lands exceeds five (5) acres, the owner shall provide for storm water detention for the entire aggregate area.

This affidavit is given to induce the Metropolitan Water Reclamation District of Greater Chicago to issue its sewerage system permit with respect to the aforedescribed property and to exempt said property from any present requirements to provide and maintain storm water detention facilities thereon.

E. Affiant further states, that for the purpose of this affidavit, the following terms have the meanings indicated:

Owner: means record title holder or a beneficiary of a land trust which is the record title holder, and includes singular and plural; if the owner is other than an individual, the term includes beneficiaries, agents, shareholders, officers and directors.

Ownership: means holding of record title or any beneficial interest.

Interest: means property interest or contractual interest, legal or equitable, directly or indirectly, in part or in full, and includes option to buy. In the case of shareholder interest, the shareholder shall be deemed to have interest if he owns or controls 5% or more of the shares.

Contiguous: means adjacent to and touching at one point or more; if the lands are separated by an easement or a dedicated right-of-way, it shall be considered contiguous.

F. Affiant understands and agrees that in the event that any of the aforementioned information is incorrect, erroneous, false or misleading, the District shall have the option to immediately terminate any permit issued based on the above information.

Dated this 8th day of MARCH 20 10

Patrick E. McGrath, Sr.
(Affiant)

SUBSCRIBED and SWORN to before me this 8 day of March 20 10

Mary J Candioto
(Notary Public)

OFFICIAL SEAL
MARY J CANDIOTO
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:02/08/11

Affidavit to be submitted with all permit applications in separate sewer areas
* Delete paragraph C if exemption is claimed
* Delete paragraph D if no exemption is claimed.

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09-141

Basin 1

Area (acres)		Impervious	Pervious	Gravel
	3.5	3.31	0.15	0.04
Track	1.03	1.03	0	0
Bleacher tributary	0.12	0	0	0.12
North of parking lot tributary	0.13	0.09	0.04	0
Total (acre)	**4.78**	**4.43**	**0.19**	**0.16**

GEWALT HAMILTON & ASSOCIATES, INC.
MWRD DETENTION CALCULATIONS

OFFICE COPY

09-141

Basin 1

Criteria Modified Rational Method Using Existing 3-Year Release
100 year Rainfall Intensity Source: TP40

Project Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
4/9/2010

DESCRIPTION	User Input	Program Output
BASIN AREA	4.78 ACRES	
NET ALLOWABLE RELEASE		**1.58 CFS**
AREA @ 0.90	4.43 ACRES	(Including 1.03-ac track)
AREA @ 1.00	0.00 ACRES	
AREA @ 0.45	0.19 ACRES	
AREA @ 0.75	0.16 ACRES	
DEV. C FACTOR		0.88 FACTOR

TIME (HR.)	100 YR RATE (IN./HR.)	FLOW IN (CFS)	STORAGE RATE (CFS)	STORAGE VOLUME (AC-FT.)
0.17	7.60	31.60	30.022	0.425
0.33	5.50	22.87	21.291	0.585
0.5	4.40	18.29	16.717	0.697
0.67	3.70	15.38	13.807	0.771
0.83	3.20	13.31	11.728	0.811
1	2.80	11.64	10.065	0.839
1.5	2.09	8.69	7.113	0.889
2	1.70	7.07	5.491	0.915
3	1.25	5.20	3.620	0.905
4	1.00	4.16	2.580	0.860
5	0.84	3.49	1.915	0.798
6	0.73	3.04	1.458	0.729
7	0.65	2.70	1.125	0.656
8	0.58	2.41	0.834	0.556
9	0.53	2.20	0.626	0.470
10	0.49	2.04	0.460	0.383
11	0.46	1.91	0.335	0.307
12	0.43	1.79	0.210	0.210
13	0.40	1.66	0.086	0.093
14	0.38	1.58	0.003	0.003
15	0.36	1.50	-0.081	-0.101
16	0.34	1.41	-0.164	-0.218
17	0.33	1.37	-0.205	-0.291
18	0.31	1.29	-0.288	-0.433
19	0.30	1.25	-0.330	-0.523
20	0.29	1.21	-0.372	-0.619
21	0.28	1.16	-0.413	-0.723
22	0.27	1.12	-0.455	-0.834
23	0.26	1.08	-0.496	-0.951
24	0.25	1.04	-0.538	-1.076

MAXIMUM DETENTION VOLUME **0.92 AC-FT**
39,864 CF

OFFICE COPY

Basin 1 Restrictor

DESIGN AN ORIFICE AS A RESTRICTOR
MSD BASED C'd FACTORS

	User Input	Program Output
HI WATER ELEV	624.29 FEET	
INVERT/LWL	615.07 FEET	
C'd SEE BELOW	0.61 FACTOR	
RESTRICT. DIA	4.4 INCHES	
Q ALLOWABLE		1.58 CFS FOR SITE
SYSTEM HEAD		9.04 VERTICAL FEET
ORIFICE AREA		0.107 SQ. FT.
		15.46 SQ. IN.
ORIFICE DIA.		4.4 IN. DIA.
SELECTED DIAMETER	4.4 IN. DIA.	
ACTUAL RELEASE	1.55 CFS RELEASE	

FACTORS FOR C'd RELEASE RATES
BASED ON MSD CRITERIA
Q = C'd * A * (64.4 * Head)^0.5

Square Edged	0.79-0.82
Round Edged	0.93-0.98
Sharp Edged	0.58-0.64
Projecting Edge	0.52

OFFICE COPY

Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
4/9/2010

Basin 1 Detention Volume Summary

MWRD Required Detention Volume = 0.92 ac-ft => Design HWL = 624.24

Provided Volume :

Underground Detention Vault:	0.62 ac-ft
Pipe Storage:	0.03 ac-ft (See below for calculations)
Track:	0.36 ac-ft (See below for calculations)
Total volume provided:	**1.01 ac-ft @ HWL 624.29**

Pipe Volumes

Diameter (in)	Length (ft.)	Area (sq. ft.)	Volume (cubic ft.)	
6	32	0.20	6	
8	459	0.35	160	
10	211	0.55	115	
12	1244	0.79	977	
		Total:	1258	**= 0.03 ac-ft**

Track Volumes

Elevation (ft)	Area (sf)	A1+A2+sqr(A1*A2) (sf)	Volume (cf)	Volume Sum (cf)	Volume Sum (ac-ft)	
623.83	0	0	0	0	0	
624.00	7703	7703	437	437	0.01	
624.04	19881	29819	1102	1276	0.03	
624.10	38147	62992	2100	2536	0.06	
624.24	**85656**	**168700**	**9749**	**11818**	**0.27**	**<= Design HWL**
624.28	99230	198902	11934	14470	0.33	
624.29	110682	314712	1049	15519	0.36	

MWRD Storm Water Detention Calculations

BASIN 2

Permit Number: 20090141 Name of Project: loyola Academy Pond Name: 2

Page 1 | Page 2 | Weir Flow Calculations | **Pond/Pipe Vol. Calculation**

** Note: calculations are for typical pond configurations and circular pipes.

# of Ponding Areas provided (max # of ponds is 9): 3

Ponding Area in : ○ Acres ◉ sq.ft.

Pond 1 | Pond 2 | **Pond 3**

☐ Pond bottom is flat

☑ Pond bottom is a point **
** Do not enter 1st area

# of contour lines (max 20)

Elevation	Area
620	
621	125
622	1298
622.5	2226
623	3140
623.5	5030
623.7	7301

# of pipes (max 20)

Diameter	Length (ft)

Calculate Volume

Reset Fields

Volume at Ponding Area (ac-ft): 0.144

Pipe Storage Volume (ac-ft): 0

Total Volume (ac-ft): 0.144

Total Volume for all Ponds (ac-ft): 0.21

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

TENNIS COURT

MWRD Storm Water Detention Calculations

Permit Number: 20090141 Name of Project loyola Academy Pond Name 2

Page 1 | Page 2 | Weir Flow Calculations | **Pond/Pipe Vol. Calculation**

** Note: calculations are for typical pond configurations and circular pipes.

# of Ponding Areas provided (max # of ponds is 9) 3

Ponding Area in : ○ Acres ◉ sq.ft.

Pond 1 | **Pond 2** | Pond 3

☐ Pond bottom is flat

☑ Pond bottom is a point **
** Do not enter 1st area

# of contour lines (max 20)

Elevation	Area
623	
623.4	1282
623.5	1925
623.7	5922

# of pipes (max 20)

Diameter	Length (ft)

Calculate Volume

Reset Fields

Volume at Ponding Area (ac-ft): 0.026

Pipe Storage Volume (ac-ft) 0

Total Volume (ac-ft) 0.026

Total Volume for all Ponds (ac-ft) 0.21

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

ponding around CB #15

MWRD Storm Water Detention Calculations

Permit Number: 20090141 Name of Project loyola Academy Pond Name 2

Page 1 | Page 2 | Weir Flow Calculations | **Pond/Pipe Vol. Calculation**

** Note: calculations are for typical pond configurations and circular pipes.

# of Ponding Areas provided (max # of ponds is 9) 3

Ponding Area in : ○ Acres ◉ sq.ft.

Pond 1 | Pond 2 | Pond 3

☐ Pond bottom is flat

☑ Pond bottom is a point **
** Do not enter 1st area

# of contour lines (max 20)

Elevation	Area
622.3	
623	1545
623.7	2425

# of pipes (max 20)

Diameter	Length (ft)

Calculate Volume

Reset Fields

Volume at Ponding Area (ac-ft): 0.04

Pipe Storage Volume (ac-ft) 0

Total Volume (ac-ft) 0.04

Total Volume for all Ponds (ac-ft) 0.21

Calculate | Help | Save Data | Get Data | Print Active Page | Print All | Print Schedule D | Clear all input fields | Quit

ponding around CB #16

GEWALT HAMILTON & ASSOCIATES, INC.
MWRD DETENTION CALCULATIONS

OFFICE COPY

09-141

BASIN 2

Criteria Modified Rational Method Using Existing 3-Year Release
100 year Rainfall Intensity Source: TP40

Project Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
1/19/2010

DESCRIPTION	User Input	Program Output
BASIN AREA	1.35 ACRES	
TIME OF CONC.	40 MIN.	
EXIST. "C" FACTOR	0.15	
3 YEAR INTENSITY	2.15 INCH/HR	
ALLOWABLE RELEASE		**0.44 CFS**
AREA @ 0.90	0.740 ACRES	
AREA @ 1.00	0.000 ACRES	
AREA @ 0.45	0.510 ACRES	
AREA @ 0.75	0.100 ACRES	
DEV. C FACTOR		0.72 FACTOR

TIME (HR.)	100 YR RATE (IN./HR.)	FLOW IN (CFS)	STORAGE RATE (CFS)	STORAGE VOLUME (AC-FT.)
0.17	7.60	7.31	6.879	0.097
0.33	5.50	5.29	4.858	0.134
0.5	4.40	4.23	3.800	0.158
0.67	3.70	3.56	3.126	0.175
0.83	3.20	3.08	2.645	0.183
1	2.80	2.69	2.260	0.188
1.5	2.09	2.01	1.576	0.197
2	1.70	1.64	1.201	0.200
3	1.25	1.20	0.768	0.192
4	1.00	0.96	0.527	0.176
5	0.84	0.81	0.373	0.155
6	0.73	0.70	0.267	0.134
7	0.65	0.63	0.190	0.111
8	0.58	0.56	0.123	0.082
9	0.53	0.51	0.075	0.056
10	0.49	0.47	0.036	0.030
11	0.46	0.44	0.007	0.007
12	0.43	0.41	-0.022	-0.022
13	0.40	0.38	-0.050	-0.055
14	0.38	0.37	-0.070	-0.081
15	0.36	0.35	-0.089	-0.111
16	0.34	0.33	-0.108	-0.144
17	0.33	0.32	-0.118	-0.167
18	0.31	0.30	-0.137	-0.206
19	0.30	0.29	-0.147	-0.232
20	0.29	0.28	-0.156	-0.260
21	0.28	0.27	-0.166	-0.290
22	0.27	0.26	-0.176	-0.322
23	0.26	0.25	-0.185	-0.355
24	0.25	0.24	-0.195	-0.390

MAXIMUM DETENTION VOLUME **0.20 AC-FT**
8,718 CF

Basin 2 Restrictor

DESIGN AN ORIFICE AS A RESTRICTOR
MSD BASED C'd FACTORS

	User Input	Program Output
HI WATER ELEV	623.70 FEET	
INVERT/LWL	618.49 FEET	
C'd SEE BELOW	0.61 FACTOR	
RESTRICT. DIA	2.7 INCHES	
Q ALLOWABLE		0.44 CFS FOR SITE
SYSTEM HEAD		5.10 VERTICAL FEET
ORIFICE AREA		0.040 SQ. FT.
		5.73 SQ. IN.
ORIFICE DIA.		2.7 IN. DIA.
SELECTED DIAMETER	2.70 IN. DIA.	
ACTUAL RELEASE	0.44 CFS RELEASE	

FACTORS FOR C'd RELEASE RATES
BASED ON MSD CRITERIA
Q = C'd * A * (64.4 * Head)^0.5

Square Edged	0.79-0.82
Round Edged	0.93-0.98
Sharp Edged	0.58-0.64
Projecting Edge	0.52

Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
1/19/2010

Basin 2 Detention Volume Summary

MWRD Required Detention Volume = 0.20 ac-ft
Provided Volume (See below for calculations) :

Tennis Court:	0.14 ac-ft
At CB#16	0.04 ac-ft
At CB#15	0.02 ac-ft
Total volume provided:	**0.20 ac-ft**

Tennis Court

Elevation (ft)	Area (sf)	A1+A2+sqr(A1*A2) (sf)	Volume (cf)	Vol. Sum (cf)	Volume Sum (ac-ft)
620.00	0	0	0	0	0.000
621.00	125	125	42	42	0.001
622.00	1298	1826	609	650	0.015
622.50	2226	5224	871	1521	0.035
623.00	3140	8010	1335	2856	0.066
623.50	5030	12144	2024	4880	0.112
623.70	7301	18391	1226	6106	**0.140**

CB #16 (ponding around)

Elevation (ft)	Area (sf)	A1+A2+sqr(A1*A2) (sf)	Volume (cf)	Volume Sum (cf)	Volume Sum (ac-ft)
622.30	0	0	0	0	0
623.00	1545	1545	361	361	0.008
623.70	2425	5906	1378	1738	**0.040**

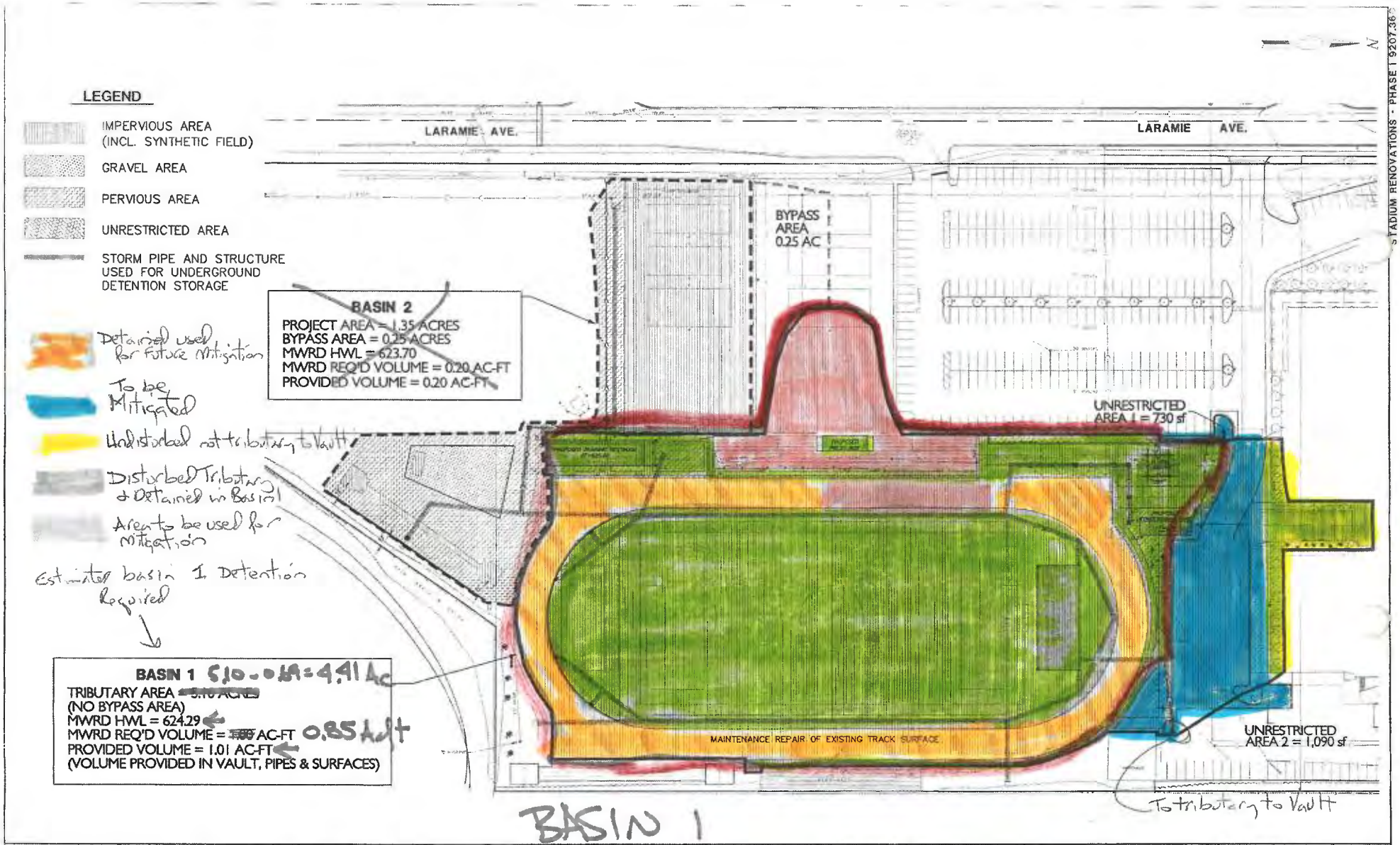
CB #15 (ponding around)

Elevation (ft)	Area (sf)	A1+A2+sqr(A1*A2) (sf)	Volume (cf)	Volume Sum (cf)	Volume Sum (ac-ft)
623.00	0	0	0	0	0.000
623.40	1282	1282	171	171	0.004
623.50	1925	4778	159	330	0.008
623.70	5922	11223	748	1078	**0.025**

Stadium Renovations
Loyola Academy
Project No. 9207.270
Date: 11/25/09

Basin 2 Overflow Weir

100 yr peak inflow (cfs)		**1.71**
100 yr HWL elevation (ft)		623.86
Crest level of the weir		623.70
Length of the crest of weir (ft) (L)		10.0
Weir coefficient (C)		3.0
Head over weir (ft.)	(H)	0.16
Discharge $Q = CLH^{3/2}$	(cfs)	**1.92**



GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
540 Jarvis Edge Drive Vernon Hills, IL 60061 Tel. 847.478.0700 Fax 847.478.9701

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MWRD DRAINAGE EXHIBIT

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

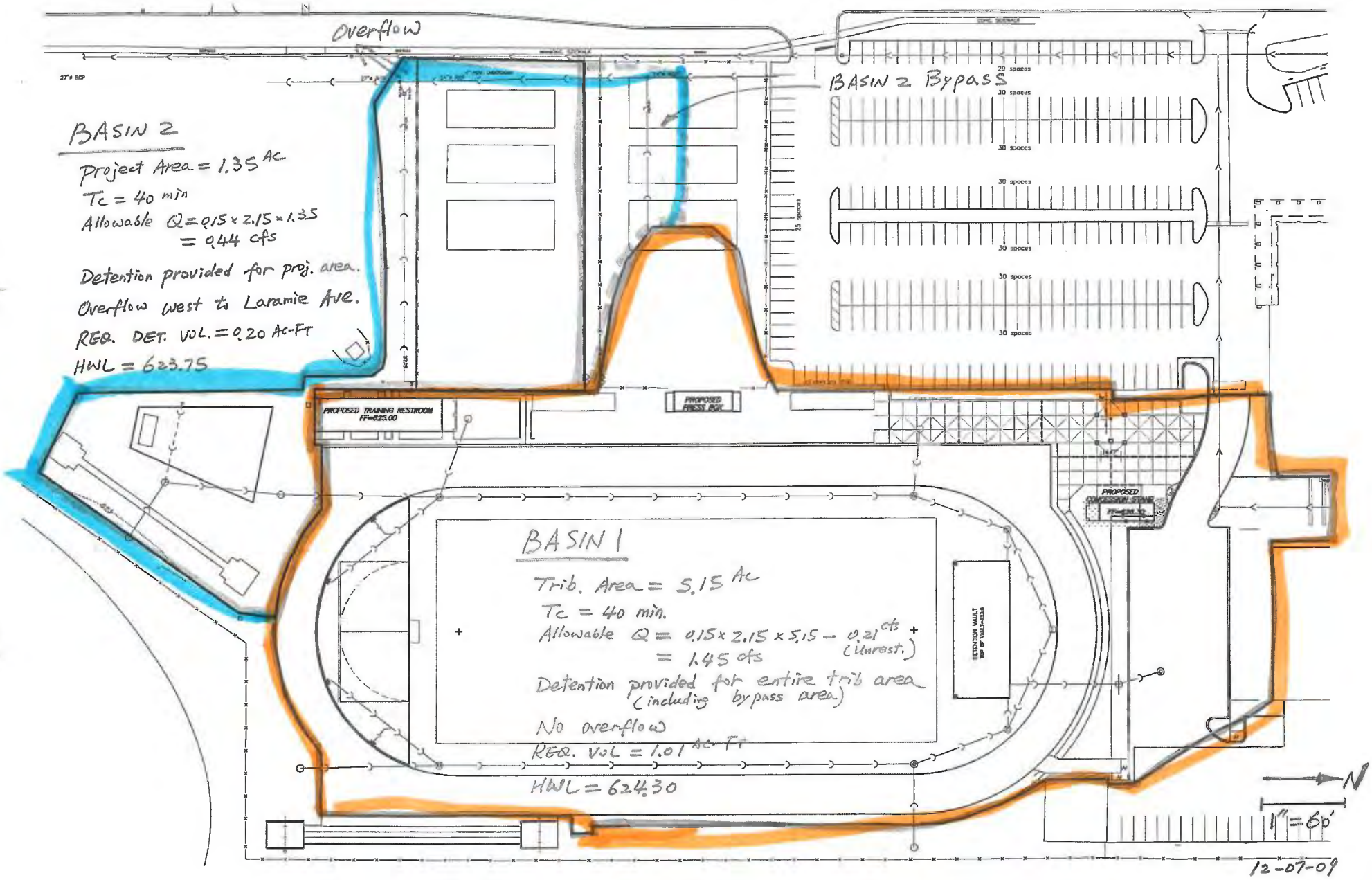
NO.	BY	DATE	REVISION
1			FOR MWRD REVIEW COMMENTS
2			FOR MWRD REVIEW COMMENTS
3			FOR MWRD REVIEW COMMENTS
4			FOR MWRD REVIEW COMMENTS
5			FOR MWRD REVIEW COMMENTS
6			FOR MWRD REVIEW COMMENTS

NO.	BY	DATE	REVISION
A			FOR MWRD REVIEW & PERMIT

FILE NO. 9207.36 PHASE I

DRAWN BY DATE
CHECKED BY DATE
G-W PROJECT #
SCALE

SHEET NUMBER
EX-B
OF SHEETS


Overflow
BASIN 2 Bypass
BASIN 2
Project Area = 1.35 Ac
Tc = 40 min
Allowable Q = 0.15 x 2.15 x 1.35
= 0.44 cfs
Detention provided for proj. area.
Overflow west to Laramie Ave.
REQ. DET. VOL. = 0.20 Ac-Ft
HWL = 623.75
PROPOSED TRAINING RESTROOM
FF=625.00
PROPOSED
BASIN 1
Trib. Area = 5.15 Ac
Tc = 40 min.
Allowable Q = 0.15 x 2.15 x 5.15 - 0.21 cfs
(Unrest.)
= 1.45 cfs
Detention provided for entire trib area
(including bypass area)
No overflow
REQ. VOL = 1.01 Ac-Ft
HWL = 624.30
RETENTION VAULT
N
1" = 60'
12-07-09

GEWALT HAMILTON & ASSOCIATES, INC.
MWRD DETENTION CALCULATIONS

Basin 1

Criteria Modified Rational Method Using Existing 3-Year Release
100 year Rainfall Intensity Source: TP40

Project Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
12/7/2009

DESCRIPTION	User Input	Program Output
BASIN AREA	5.150 ACRES	
TIME OF CONC.	40 MIN.	
EXIST. "C" FACTOR	0.15	
3 YEAR INTENSITY	2.15 INCH/HR	
ALLOWABLE RELEASE		**1.66 CFS**
UNRESTRICTED RELEASE		**0.21 CFS**
NET ALLOWABLE RELEASE		**1.45 CFS**
AREA @ 0.90	4.630 ACRES	
AREA @ 1.00	0.000 ACRES	
AREA @ 0.45	0.470 ACRES	
AREA @ 0.75	0.050 ACRES	
DEV. C FACTOR		0.86 FACTOR

TIME (HR.)	100 YR RATE (IN./HR.)	FLOW IN (CFS)	STORAGE RATE (CFS)	STORAGE VOLUME (AC-FT.)
0.17	7.60	33.28	31.833	0.451
0.33	5.50	24.09	22.636	0.623
0.5	4.40	19.27	17.819	0.742
0.67	3.70	16.20	14.753	0.824
0.83	3.20	14.01	12.564	0.869
1	2.80	12.26	10.812	0.901
1.5	2.09	9.15	7.702	0.963
2	1.70	7.45	5.994	0.999
3	1.25	5.47	4.024	1.006
4	1.00	4.38	2.929	0.976
5	0.84	3.68	2.228	0.928
6	0.73	3.20	1.746	0.873
7	0.65	2.85	1.396	0.814
8	0.58	2.54	1.089	0.726
9	0.53	2.32	0.870	0.653
10	0.49	2.15	0.695	0.579
11	0.46	2.01	0.564	0.517
12	0.43	1.88	0.432	0.432
13	0.40	1.75	0.301	0.326
14	0.38	1.66	0.213	0.249
15	0.36	1.58	0.126	0.157
16	0.34	1.49	0.038	0.051
17	0.33	1.45	-0.006	-0.008
18	0.31	1.36	-0.093	-0.140
19	0.30	1.31	-0.137	-0.217
20	0.29	1.27	-0.181	-0.301
21	0.28	1.23	-0.225	-0.393
22	0.27	1.18	-0.268	-0.492
23	0.26	1.14	-0.312	-0.598
24	0.25	1.09	-0.356	-0.712

MAXIMUM DETENTION VOLUME **1.01 AC-FT**
43,816 CF

GEWALT HAMILTON & ASSOCIATES, INC.
MWRD DETENTION CALCULATIONS

BASIN 2

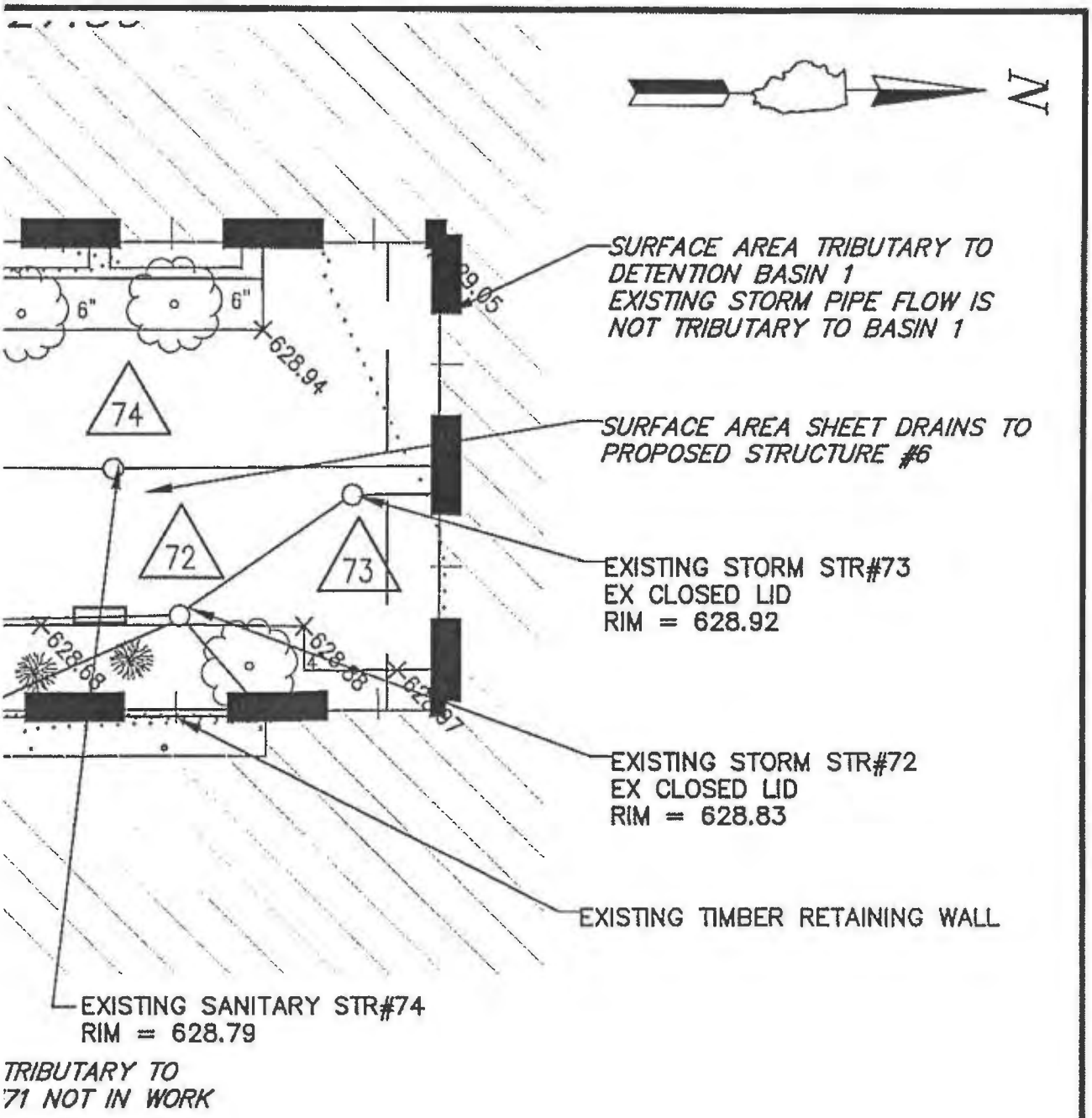
Criteria Modified Rational Method Using Existing 3-Year Release
100 year Rainfall Intensity Source: TP40

Project Stadium Renovations - Loyola Academy
Village of Wilmette
GHA Project No. 9207.270
12/7/2009

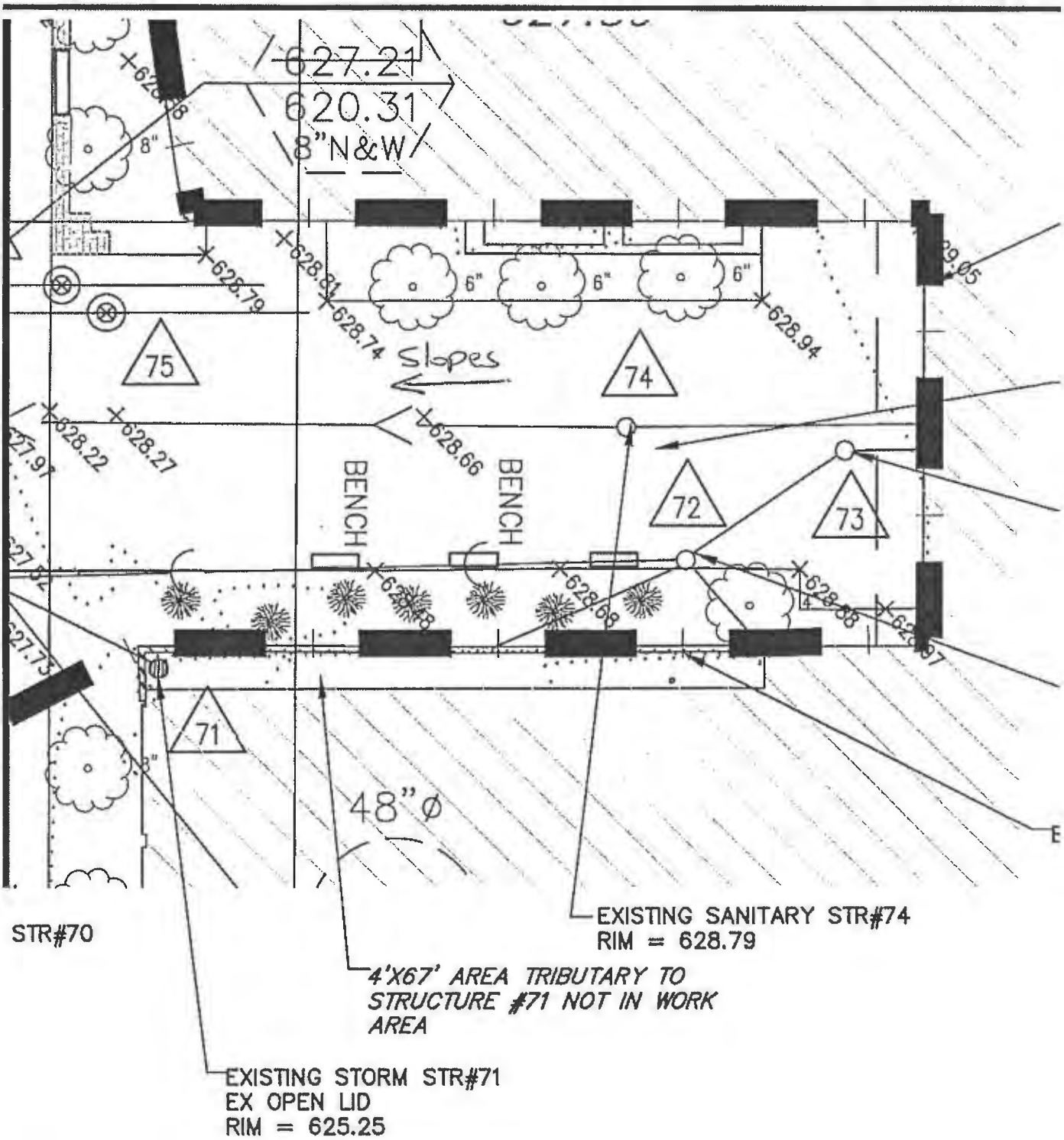
DESCRIPTION	User Input	Program Output
BASIN AREA	1.35 ACRES	
TIME OF CONC.	40 MIN.	
EXIST. "C" FACTOR	0.15	
3 YEAR INTENSITY	2.15 INCH/HR	
ALLOWABLE RELEASE		**0.44 CFS**
AREA @ 0.90	0.740 ACRES	
AREA @ 1.00	0.000 ACRES	
AREA @ 0.45	0.510 ACRES	
AREA @ 0.75	0.100 ACRES	
DEV. C FACTOR		0.72 FACTOR

TIME (HR.)	100 YR RATE (IN./HR.)	FLOW IN (CFS)	STORAGE RATE (CFS)	STORAGE VOLUME (AC-FT.)
0.17	7.60	7.31	6.879	0.097
0.33	5.50	5.29	4.858	0.134
0.5	4.40	4.23	3.800	0.158
0.67	3.70	3.56	3.126	0.175
0.83	3.20	3.08	2.645	0.183
1	2.80	2.69	2.260	0.188
1.5	2.09	2.01	1.576	0.197
2	1.70	1.64	1.201	0.200
3	1.25	1.20	0.768	0.192
4	1.00	0.96	0.527	0.176
5	0.84	0.81	0.373	0.155
6	0.73	0.70	0.267	0.134
7	0.65	0.63	0.190	0.111
8	0.58	0.56	0.123	0.082
9	0.53	0.51	0.075	0.056
10	0.49	0.47	0.036	0.030
11	0.46	0.44	0.007	0.007
12	0.43	0.41	-0.022	-0.022
13	0.40	0.38	-0.050	-0.055
14	0.38	0.37	-0.070	-0.081
15	0.36	0.35	-0.089	-0.111
16	0.34	0.33	-0.108	-0.144
17	0.33	0.32	-0.118	-0.167
18	0.31	0.30	-0.137	-0.206
19	0.30	0.29	-0.147	-0.232
20	0.29	0.28	-0.156	-0.260
21	0.28	0.27	-0.166	-0.290
22	0.27	0.26	-0.176	-0.322
23	0.26	0.25	-0.185	-0.355
24	0.25	0.24	-0.195	-0.390

MAXIMUM DETENTION VOLUME **0.20 AC-FT**
8,718 CF



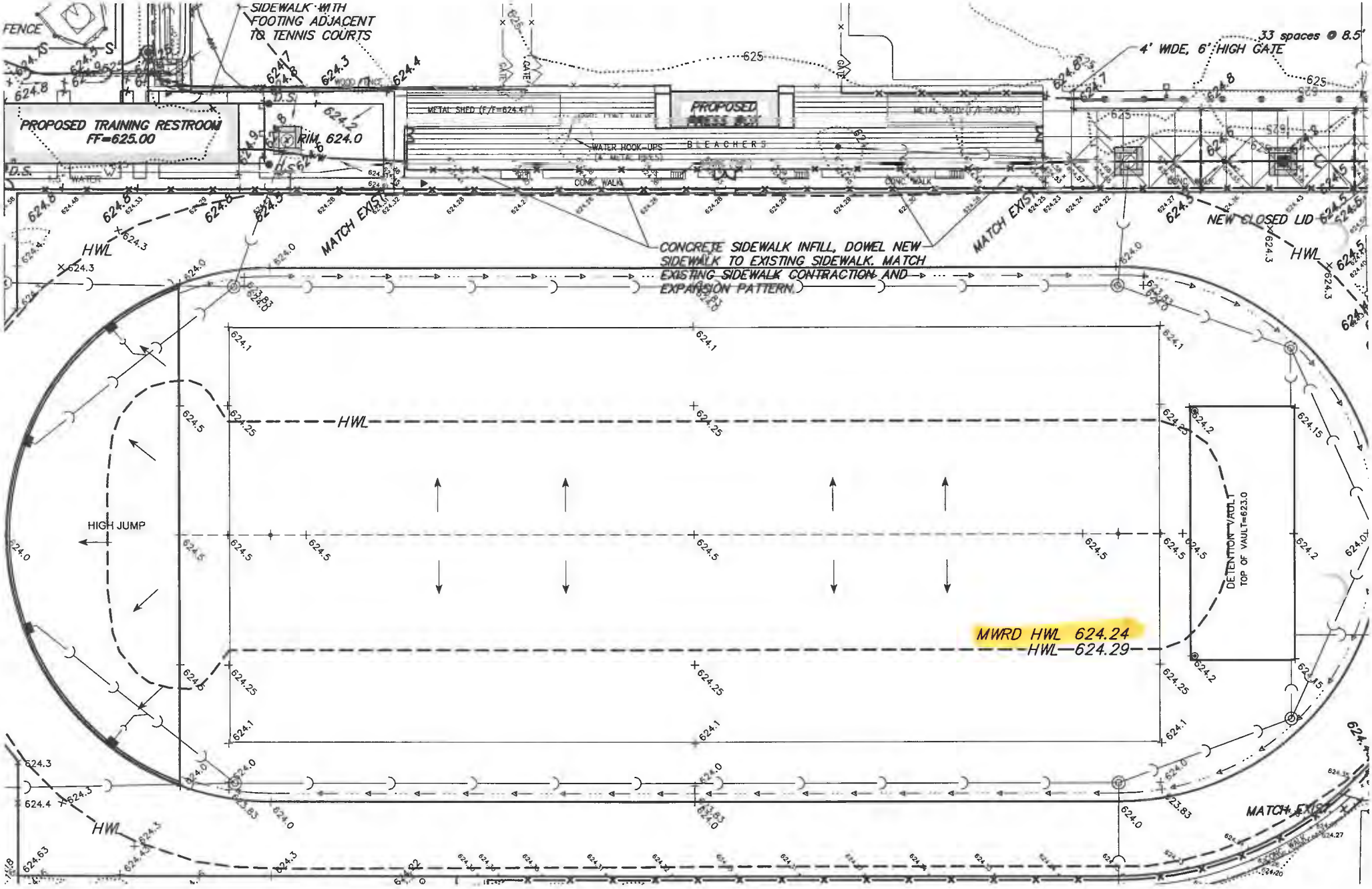
STURBED AREA EXHIBIT C	FILE: 9207.270 MWRD 4-09-10.dwg	
M RENOVATIONS	DRAWN BY: WEG	GHA PROJECT #
OLA ACADEMY	DATE: 4-16-10	9207.270
WILMETTE, ILLINOIS	CHECKED BY:	SCALE: 1"=20'

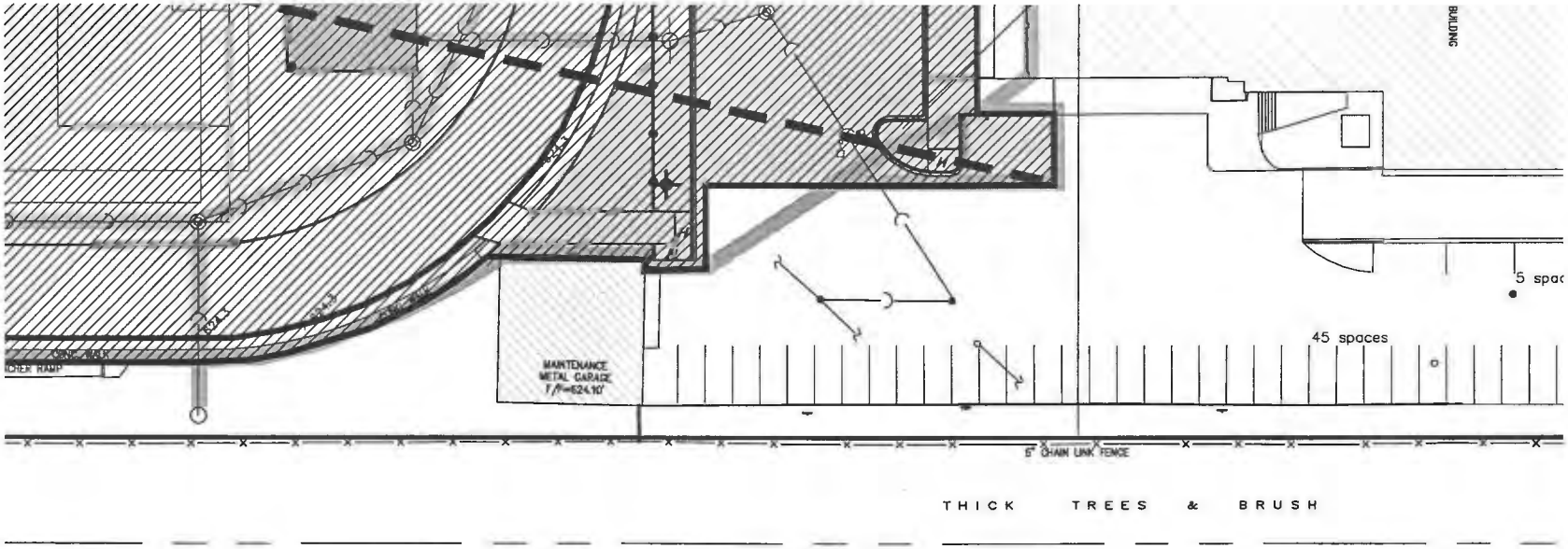


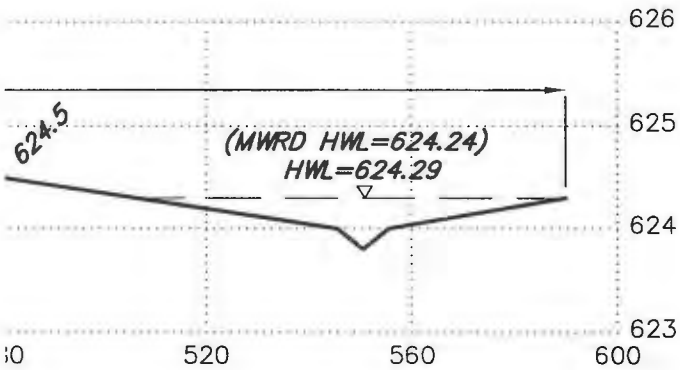
AMILTON
ES, INC.
Hills, IL. 60061

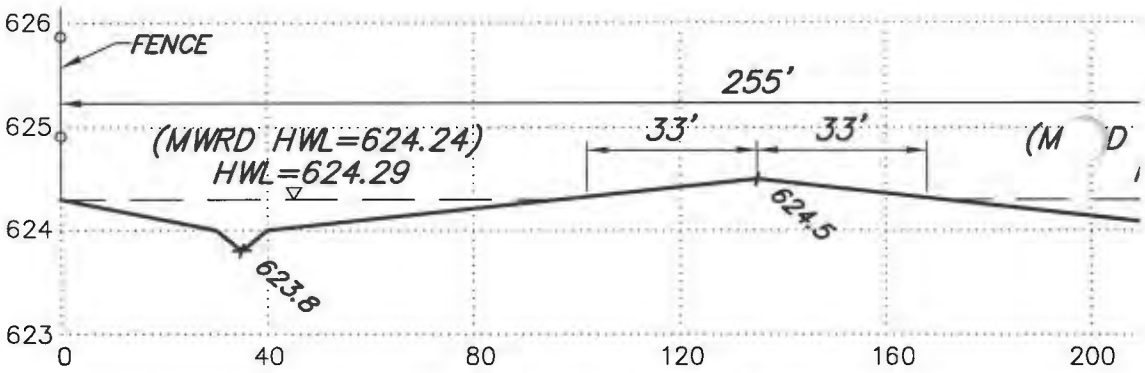
LARGE SCALE UNDISTURBED AREA EXHIBIT C

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS


SIDEWALK WITH FOOTING ADJACENT TO TENNIS COURTS
FENCE
PROPOSED TRAINING RESTROOM FF=625.00
RIM 624.0
METAL SHED (F/F=624.4)
PROPOSED
BLEACHERS
WATER HOOK-UPS
CONC. WALK
4' WIDE, 6' HIGH GATE
33 spaces @ 8.5'
NEW CLOSED LID
MATCH EXIST.
HWL
CONCRETE SIDEWALK INFILL, DOWEL NEW SIDEWALK TO EXISTING SIDEWALK. MATCH EXISTING SIDEWALK CONTRACTION AND EXPANSION PATTERN.
HIGH JUMP
DETENTION VAULT
TOP OF VAULT=623.0
MWRD HWL 624.24
HWL 624.29



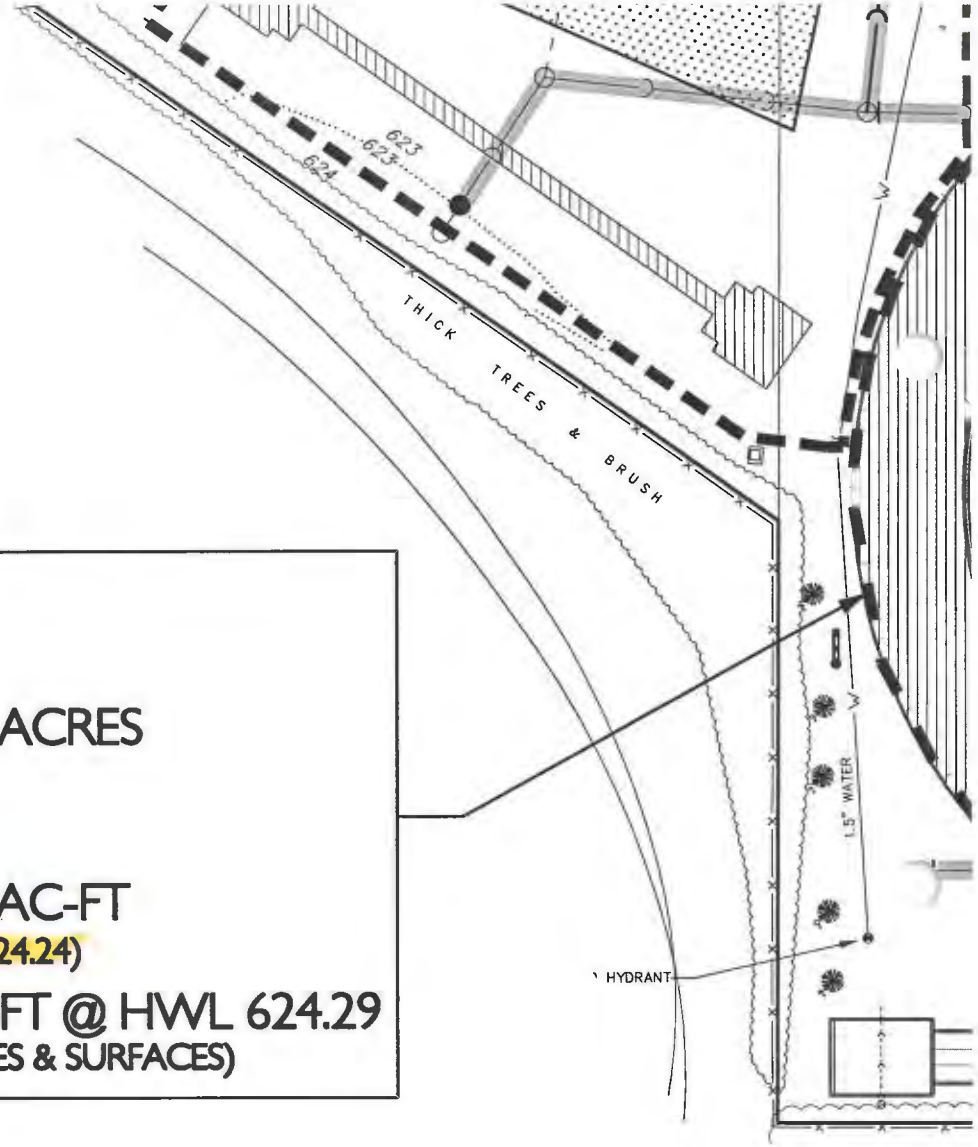




SECTION D-D

CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'

POSED
NING



BASIN 1

PROJECT AREA = 4.53 ACRES

TOTAL TRIBUTAR AREA = 4.78 ACRES

IMPERVIOUS = 4.43 ACRES
GRAVEL = 0.16 ACRES
PERVIOUS = 0.19 ACRES

MWRD REQ'D VOLUME = 0.92 AC-FT

(VOLUME MET AT MWRD HWL = 624.24)

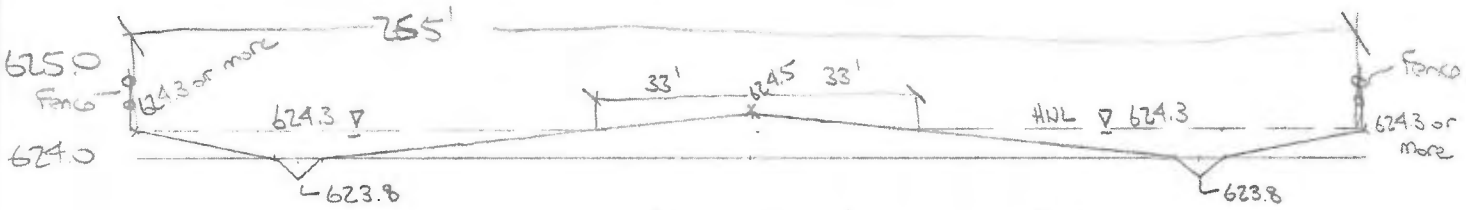
PROVIDED VOLUME = 1.01 AC-FT @ HWL 624.29

(VOLUME PROVIDED IN VAULT, PIPES & SURFACES)

GEWALT HAMILTON ASSOCIATES, INC.
850 FOREST EDGE DRIVE
VERNON HILLS, ILLINOIS 60061
TEL (847) 478-9700
FAX (847) 478-9701

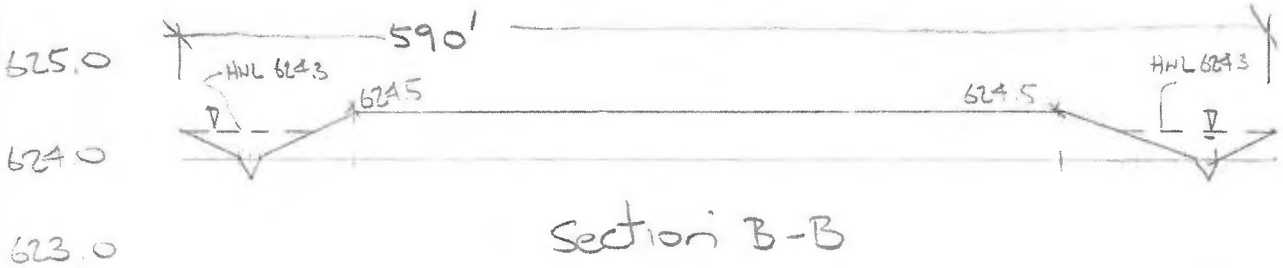
JOB: Lafia Academy 9207.000
SHEET NO. ____ OF ____
CALCULATED BY: WEG DATE: 1/3/10
CHECKED BY ____ DATE ____
SCALE ____

Scale 1" = 40' Hort 1" = 2' Vert.

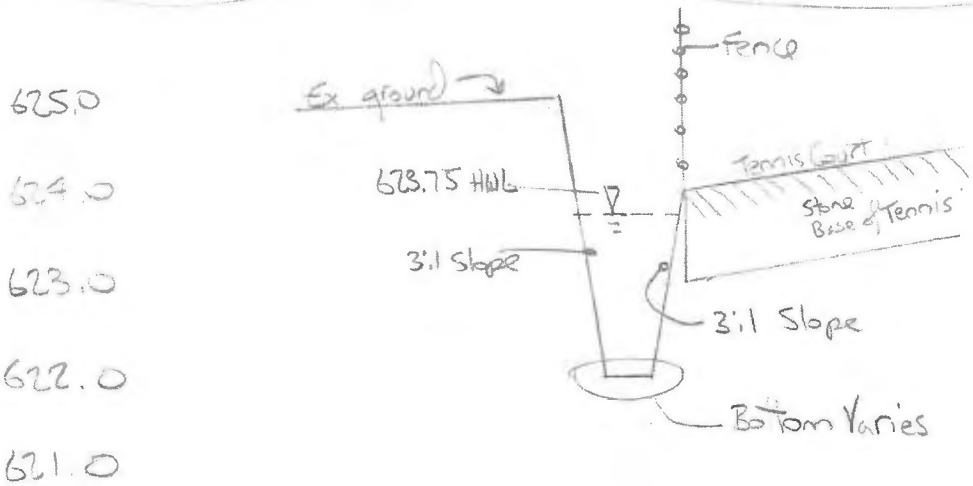


Section A-A 6" PONDING MAX.

Scale 1" = 100' Hort 1" = 2' Vert



Section B-B



GHA will provide cad drawn + section on new plans

Section C-C

Scale 1" = 40' Hort 1" = 2' Vert

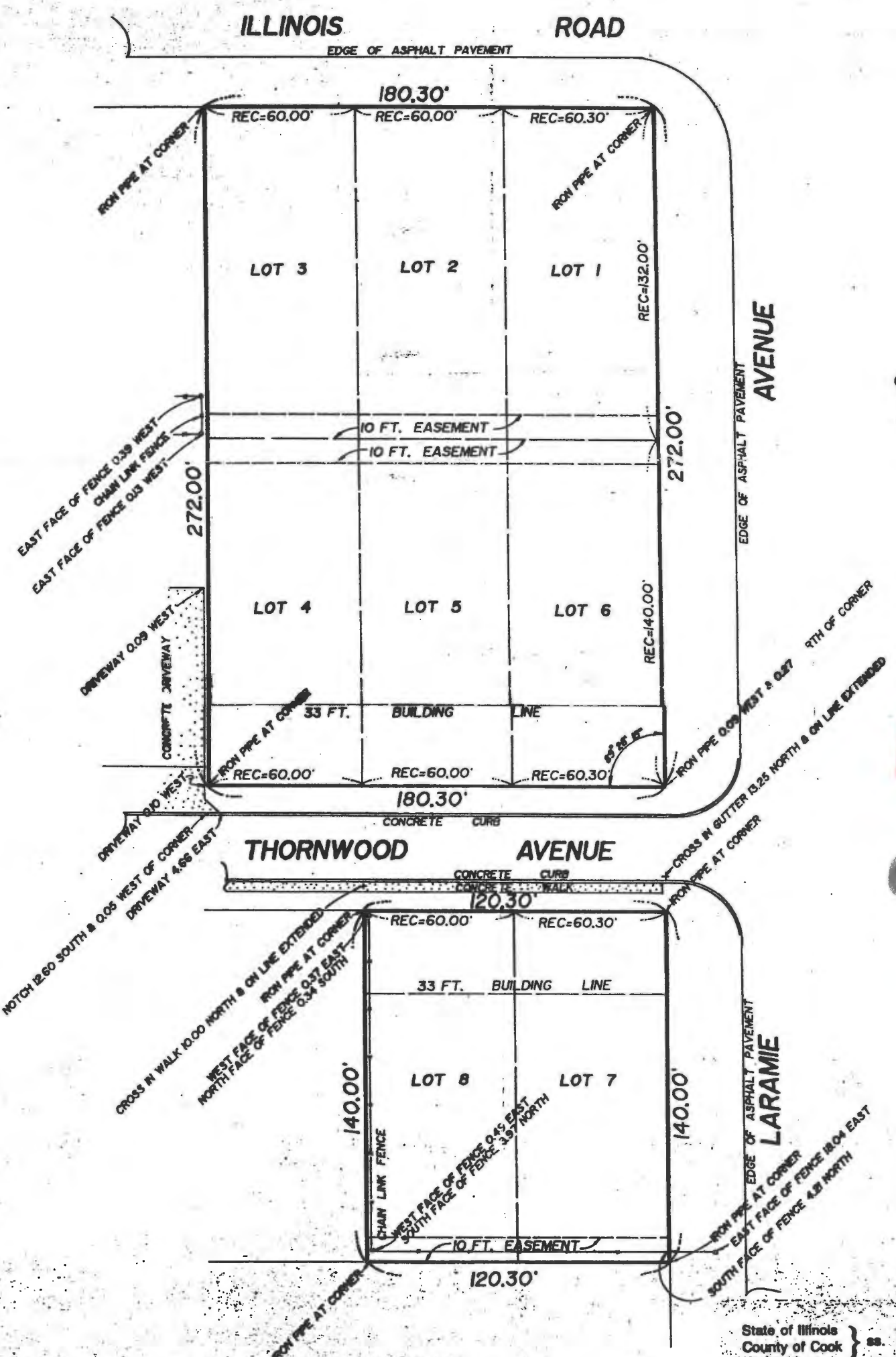
EXHIBIT A 2 of 2

505 N. ELSTON AVENUE
CHICAGO, ILLINOIS 60630
PHONE: AC 312/685-5102
FAX # 312/286-4184

PLAT OF SURVEY

GREMLEY & BIEDERMANN INC.

Lots 1, 2, 3, 4, 5, 6, 7 and 8 in William K. Altman's Subdivision of the East 10 acres of the South 60 acres (except the East 40 feet thereof taken for street and except the South 837.02 feet thereof) of the East Half of the Southwest Quarter of Section 30, Township 42 North, Range 13, East of the Third Principal Meridian, in Wilmette, Cook County, Illinois.



93 143

EXHIBIT A

09-141

OFFICE COPY

ROBERT E. BIEDERMANN JR. PROFESSIONAL ILLINOIS LAND SURVEYOR STATE OF ILLINOIS

Order No. 922746

DRAWN	CHECKED
RL	JT

Scale 1 inch = 40 NTS feet

Date SEPTEMBER 28, 1992

Owner

Ordered by JAMES T. MURRAY

DISTANCES ARE MARKED IN FEET AND DECIMAL PARTS THEREOF. COMPARE ALL POINTS BEFORE BUILDING BY SAME AND AT ONCE REPORT ANY DIFFERENCES BEFORE DAMAGE IS DONE.
FOR EASEMENTS, BUILDING LINES AND OTHER RESTRICTIONS NOT SHOWN ON SURVEY PLAT REFER TO YOUR ABSTRACT, DEED, CONTRACT, TITLE POLICY AND LOCAL BUILDING LINE REGULATIONS.
NO DIMENSIONS SHALL BE ASSUMED BY SCALE MEASUREMENT UPON THIS PLAT.

© GREMLEY & BIEDERMANN, INC. 1988 "ALL RIGHTS RESERVED"

State of Illinois
County of Cook } ss.

We, GREMLEY & BIEDERMANN, INC. hereby certify that we have surveyed the above described property and that the plat hereon drawn is a correct representation of said survey corrected to a temperature of 62° Fahrenheit.

Professional Illinois Land Surveyor

DETENTION VAULT

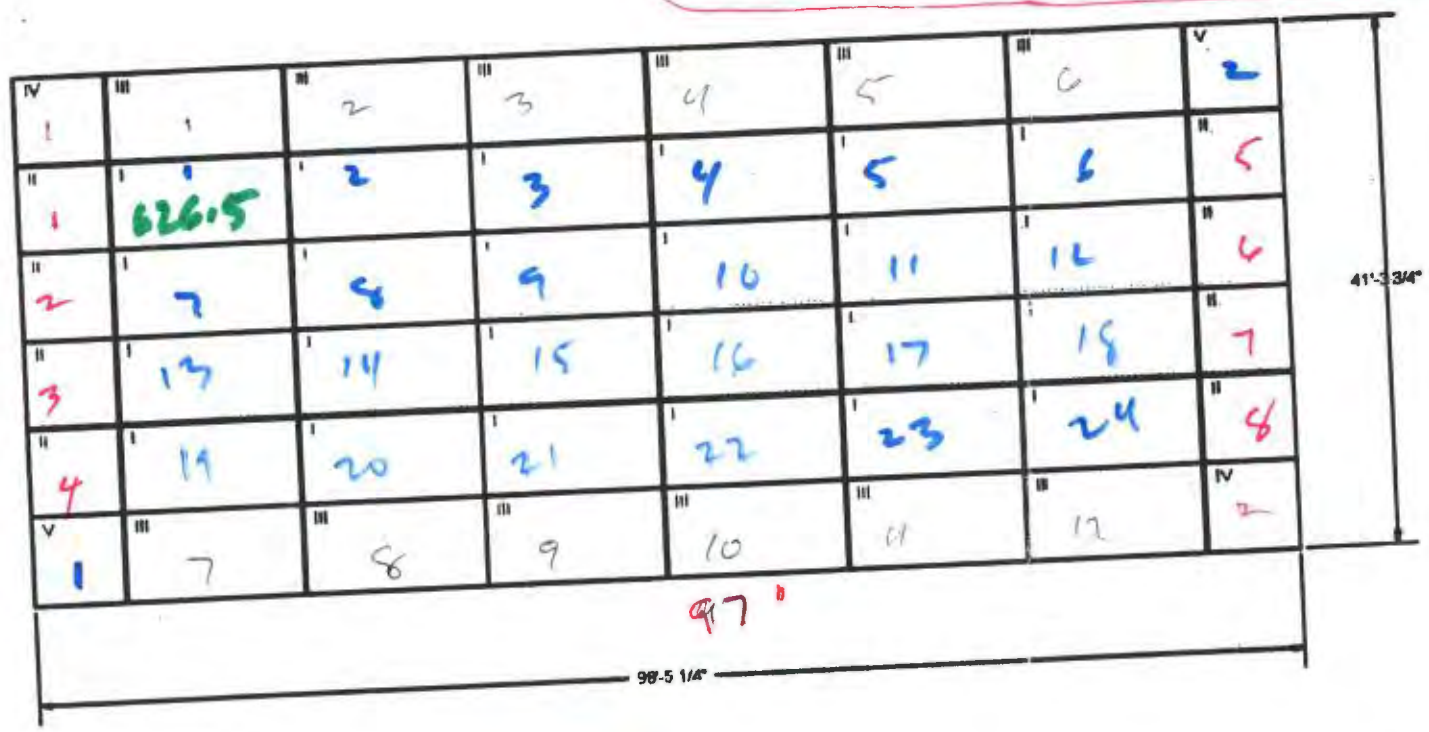
BASIN 1

BILL OF MATERIALS		
QTY	PART NO	DESCRIPTION
24	TYPE I	7'-0" DOUBLETRAP TYPE I
8	TYPE II	7'-0" DOUBLETRAP TYPE II
8	TYPE III	7'-0" DOUBLETRAP TYPE III
3	TYPE IV	7'-0" DOUBLETRAP TYPE IV
2	TYPE V	7'-0" DOUBLETRAP TYPE V
24	JOINT TAPE	JOINT TAPE - 14.5' PER ROLL
10	JOINT WRAP	JOINT WRAP - 150' PER ROLL

12

626.5 ~~873~~, 7' height
295 7'
606 - 7'
284.5 - 7'

TOP OF VAULT 623.0
INV = 615.3
7.7'



~~873~~

DESIGN CRITERIA
ELEVATION = 622.3

STORMTRAP
P.O. BOX 782
MORRIS, IL 60450
1-87-STORMTRAP
1-877-867-6672

ENGINEER INFORMATION:
DEWALT HAMILTON ASSOCIATES
960 FOREST EDGE DRIVE
VERNON HILLS, IL 60061
Phone: 847-478-9700
Fax: 847-478-9701

PROJECT INFORMATION:
LOYOLA ACADEMY
WILMETTE, IL

CURRENT ISSUE DATE:
03/06/08

APPROVED BY:

ISSUED FOR:
PRELIMINARY

REV.	DATE:	DESC:	BY:
1		ISSUED FOR PRELIMINARY	JS

SCALE:
NTS

SHEET TITLE:
LAYOUT DETAIL

SHEET NUMBER:

24 (626.5) = 15036
~~8 23~~ 8 (295) = 2360
12 (606) = 7272
2 (284.5) 569
2 (284.5) 569
25806

40 (97)(7) = 27160 = .623 Ac-ft OK

GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.

GRADING PLAN NOTES

1. Prior to any excavation work, provide erosion control and rock construction entrance as shown on the SWPPP Plan Sheets 8, 9 and 10.

2. Refer to SWPPP Plan Sheets 8 and 9 for sequence of construction. Note mass grading work zone areas shall be minimized to prevent erosion. Once a work zone has been rough graded, stabilize area with erosion fabric and proceed to next work area until site is completed.

3. In proposed pavement areas, excavate to sub-base, compact soil to 95% Modified Proctor density (ASTM D-1557) and install pavement section as noted on the plans. Prior to approval of the sub-base, all pavement areas will be proof rolled. Any areas found to deflect shall be scarified and recompacted as directed by the engineer, until this standard is achieved. Note, portions of existing parking lot stone base may remain if proposed stone base grade lies above existing grade. If new grade is below existing grade, the entire existing stone base will need to be removed.

4. Subgrade soils shall be compacted to 95% Modified Proctor density unless otherwise noted. Base course stone and trench backfill shall be compacted to 95% Modified Proctor density unless otherwise noted.

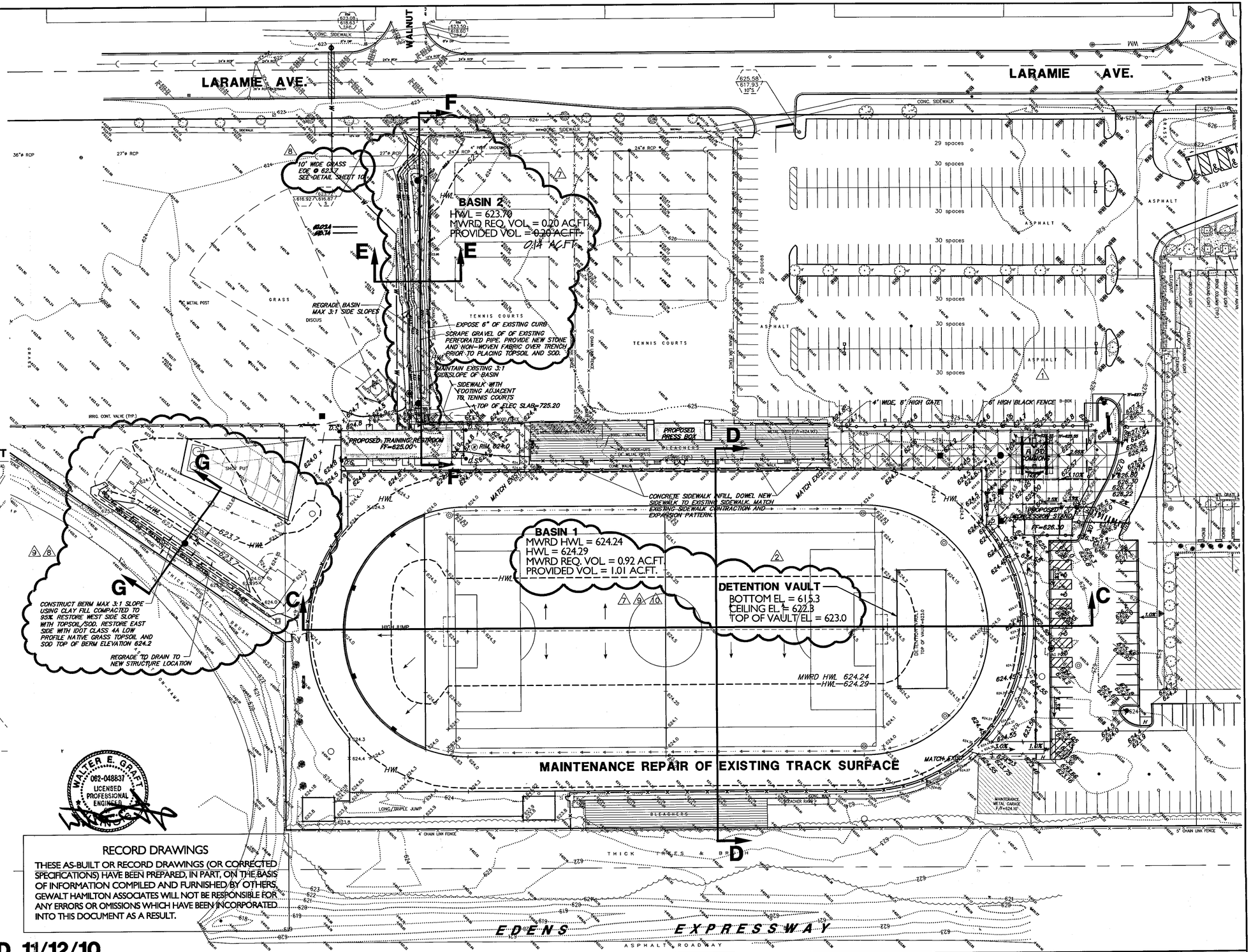
5. The contractor shall import or export soil as necessary to construct the site to specified plan grades. Such work is considered incidental to the contract and no additional compensation shall be allowed for such work.

6. Crushed concrete shall not be allowed for pavement base course or trench backfill.

7. All proposed green areas are to have all debris removed and replaced with six inches of topsoil and sodded. Topsoil shall be furnished and placed by the contractor. All topsoil shall be free of clods, stones, sticks and debris. All slopes that are 4:1 or steeper shall be protected with North American Green S-75 erosion control blanket. Install blanket in accordance with manufacturer's recommendations particularly with respect to stapling fabric in place.

8. After establishment of vegetation, or placement of base course in paved areas, remove and dispose of all temporary erosion control devices.

9. Campus and public roadways shall be kept clean of all debris and soil at all times. It is the contractor's responsibility to sweep and wash the road on a daily basis or more frequently as may be needed.



DETENTION BASIN
VOLUME PROVIDED = 0.20 AC.FT.
VOLUME REQUIRED = 0.20 AC.FT.

Detention Basin West Total Volume Calculation

#Units=Elevation, ft, Area, ft2, Volume, acft

# Elev ft	Area ft2	Cumul Conic acft
623.7000	6295.2474	0.140
623.0000	3045.4698	0.060
622.5000	2066.9797	0.031
622.0000	921.4530	0.014
621.0000	164.1295	0.001
620.2400	0.0122	0.000

Detention Basin South Total Volume Calculation

#Units=Elevation, ft, Area, ft2, Volume, acft

# Elev ft	Area ft2	Cumul Conic acft
623.7000	2181.5086	0.030
623.0000	603.0838	0.003
622.5100	0.0134	0.000

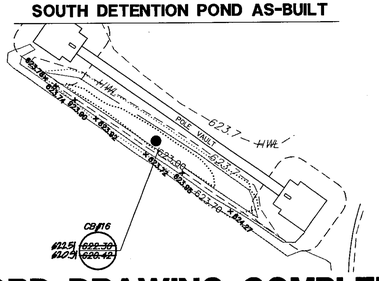
Detention Basin #15 Total Volume Calculation

#Units=Elevation, ft, Area, ft2, Volume, acft

# Elev ft	Area ft2	Cumul Conic acft
623.7000	5922.0000	0.030
623.5000	1925.0000	0.010
623.4000	1282.0000	0.004
622.9500	0.0000	0.000

WEST DETENTION POND AS-BUILT

SOUTH DETENTION POND AS-BUILT



WALTER E. GRAFF
062-048837
LICENSED PROFESSIONAL ENGINEER

RECORD DRAWINGS

THESE AS-BUILT OR RECORD DRAWINGS (OR CORRECTED SPECIFICATIONS) HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED AND FURNISHED BY OTHERS. GEWALT HAMILTON ASSOCIATES WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT.

RECORD DRAWING COMPLETED 11/12/10

GEWALT HAMILTON
ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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GRADING PLAN

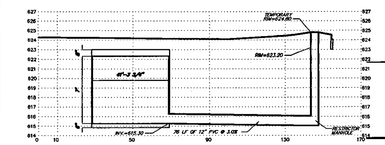
STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

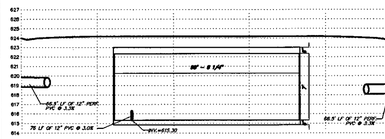
NO.	BY	DATE	REVISION
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS
8	WEG	3-4-10	PER MWRD REVIEW COMMENTS
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS
1	WEG	6-24-09	SITE PATIO GRADING

NO.	BY	DATE	REVISION
11	MAG	11-12-10	RECORD DRAWING MWRD #09-141
10	MZ	4-9-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270-ASB.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'

SHEET NUMBER: 7 OF 16 SHEETS

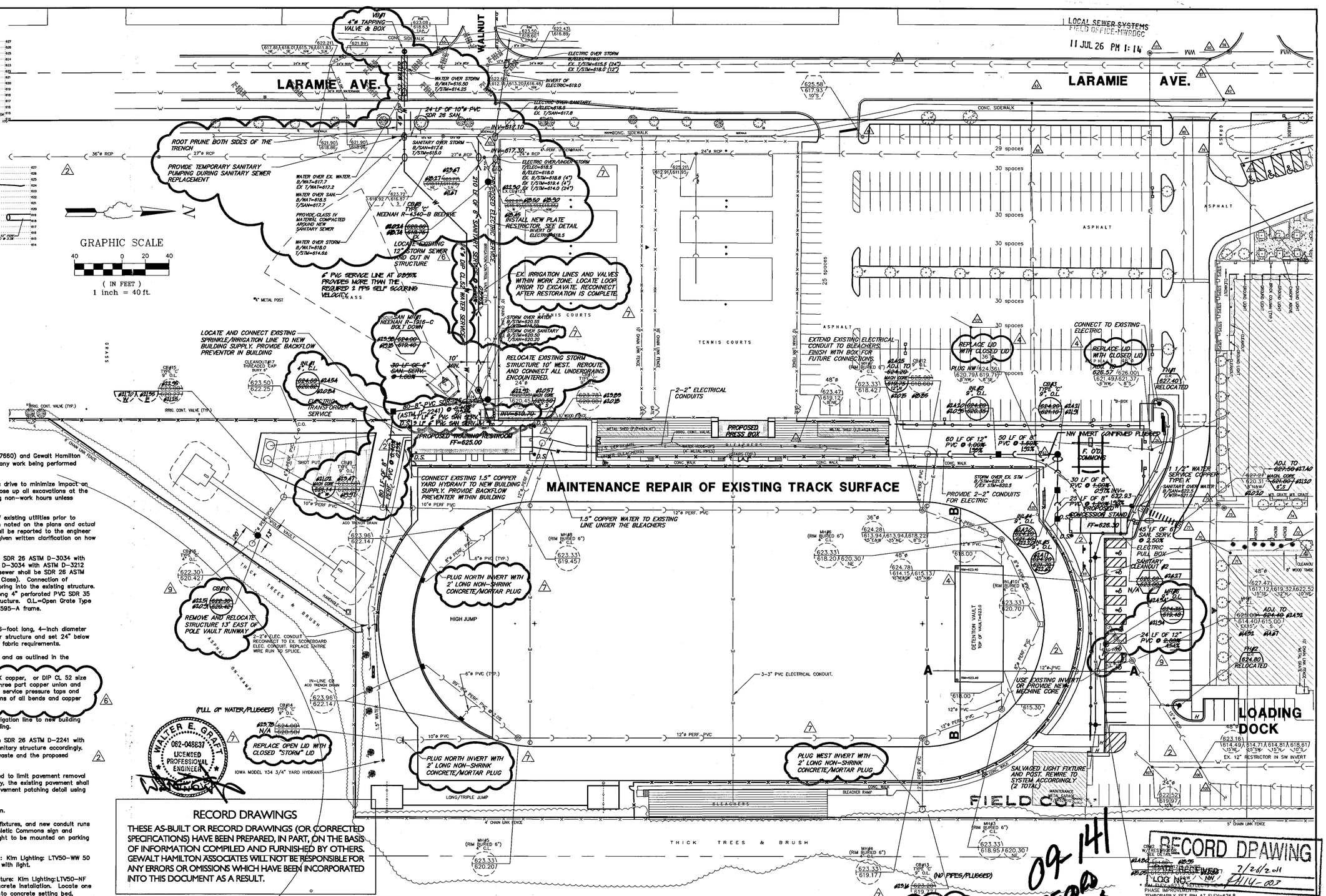




GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.



UTILITY PLAN NOTES

1. The contractor shall notify the Village of Wilmette (847-853-7650) and Gewalt Hamilton Associates, Inc. (847-478-9700) 3 working days in advance of any work being performed on-site.

2. Organize and limit all activities along the existing east access drive to minimize impact on school services. Be prepared to move equipment, as needed. Close up all excavations at the close of work each day. No excavations can be left open during non-work hours unless excavations are fenced and locked from the public.

3. The contractor shall verify the exact location and elevation of existing utilities prior to initiating work. Any discrepancies found between the information noted on the plans and actual field conditions, or any conflicts with proposed improvements shall be reported to the engineer immediately. The contractor shall not proceed any further until given written clarification on how to proceed.

4. Install all storm sewers as shown. All solid wall PVC shall be SDR 26 ASTM D-3034 with ASTM D-3212 joints. All Perforated PVC shall be SDR 35 ASTM D-3034 with ASTM D-3212 joints. Where storm sewer crosses over watermain, PVC storm sewer shall be SDR 26 ASTM D-2241 with ASTM D-3139 /ASTM F-477-76 joints (Watermain Class). Connection of proposed storm sewers to existing manholes shall be done by coring into the existing structure. All storm structures within paved areas shall have two-6 foot long 4" perforated PVC SDR 35 fingerdrains . Frame and grates are noted on the plans per structure. O.L.=Open Grate Type 'D', C.L.=Closed Lid. 9"=Neenah R-1713 frame, 4"=Neenah R-2595-A frame. Catch-all=Permanent Inlet Filter basket.

5. All storm sewer structures within paved areas, shall have 2, 6-foot long, 4-inch diameter perforated PVC SDR 35 under drains installed in the storm sewer structure and set 24" below finished grade refer to fingerdrain Detail Sheet 12 for stone and fabric requirements.

6. Storm sewer construction shall begin at downstream manhole and as outlined in the construction sequence.

7. Install all watermain as shown. All watermain shall be Type K copper, or DIP CL 52 size as noted. Each section of copper shall be connected using a three part copper union and copper flare. Drill water service under Laramie Avenue. Provide service pressure taps and valve boxes as noted per detail. Provide as-constructed locations of all bends and copper connection points. Relocate existing fire hydrants as shown.

8. Reconnect existing 1.5" copper yard hydrant and sprinkler irrigation line to new building supply service providing individual backflow preventers within building.

9. Install sanitary sewer as shown. All sanitary sewers shall be SDR 26 ASTM D-2241 with ASTM D-3139/ASTM F-477-76 joints. Machine core existing sanitary structure accordingly. Proposed Training Room/Restroom building generates restroom waste and the proposed concession stand produces hand washing sink waste.

10. Utilities proposed in existing pavement areas shall be installed to limit pavement removal and replacement to the extent possible. Prior to installing utility, the existing pavement shall be sawcut straight. Repair pavement in accordance with the pavement patching detail using heavy duty pavement method.

11. Install site electrical conduits and electrical pull box as shown.

12. Install parking lot light post foundations, salvage posts and fixtures, and new conduit runs as shown. In addition, provide electric conduit runs for new Athletic Commons sign and Memorial Trellis structure dedication common area. New spot light to be mounted on parking lot light post and directed to new flag location.

13. Provide 3 in-ground light fixtures for Athletic Commons sign: Kim Lighting: LTV50-WW 50 PMH-120 volt. Locate fixtures North of sign face to wash sign with light.

14. Provide 4 in-ground light fixtures for "Memorial Trellis" structure: Kim Lighting: LTV50-NF 50 PMH-120 volt. Provide GM 50 grout mask accessory for concrete installation. Locate one fixture to "inside" of each of 4 columns. Fixtures to be cast into concrete setting bed, depressed for loose set power installation.

15. Existing structures: 67, 69, 70, 78 and 120 shall be equipped with closed lids.

WALTER E. GRAFF
062-048637
LICENSED PROFESSIONAL ENGINEER

RECORD DRAWINGS

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RECORD DRAWING COMPLETED 11/12/10

RECORD DRAWING
7/26/2011
LOG NO. 09-141
PHASE IMPROVEMENTS
TEMPORARILY SET RIM AT ELEV=624.8

REMOVE EXISTING PVC RISER RESTRICTOR AND REPLACE WITH STEEL PLATE RESTRICTOR PER CB#2 RESTRICTOR DETAIL ON SHEET 12

True copy of plans on file with Metropolitan Water Reclamation District of Greater Chicago Sewerage Permit 2009-141

GEWALT HAMILTON
ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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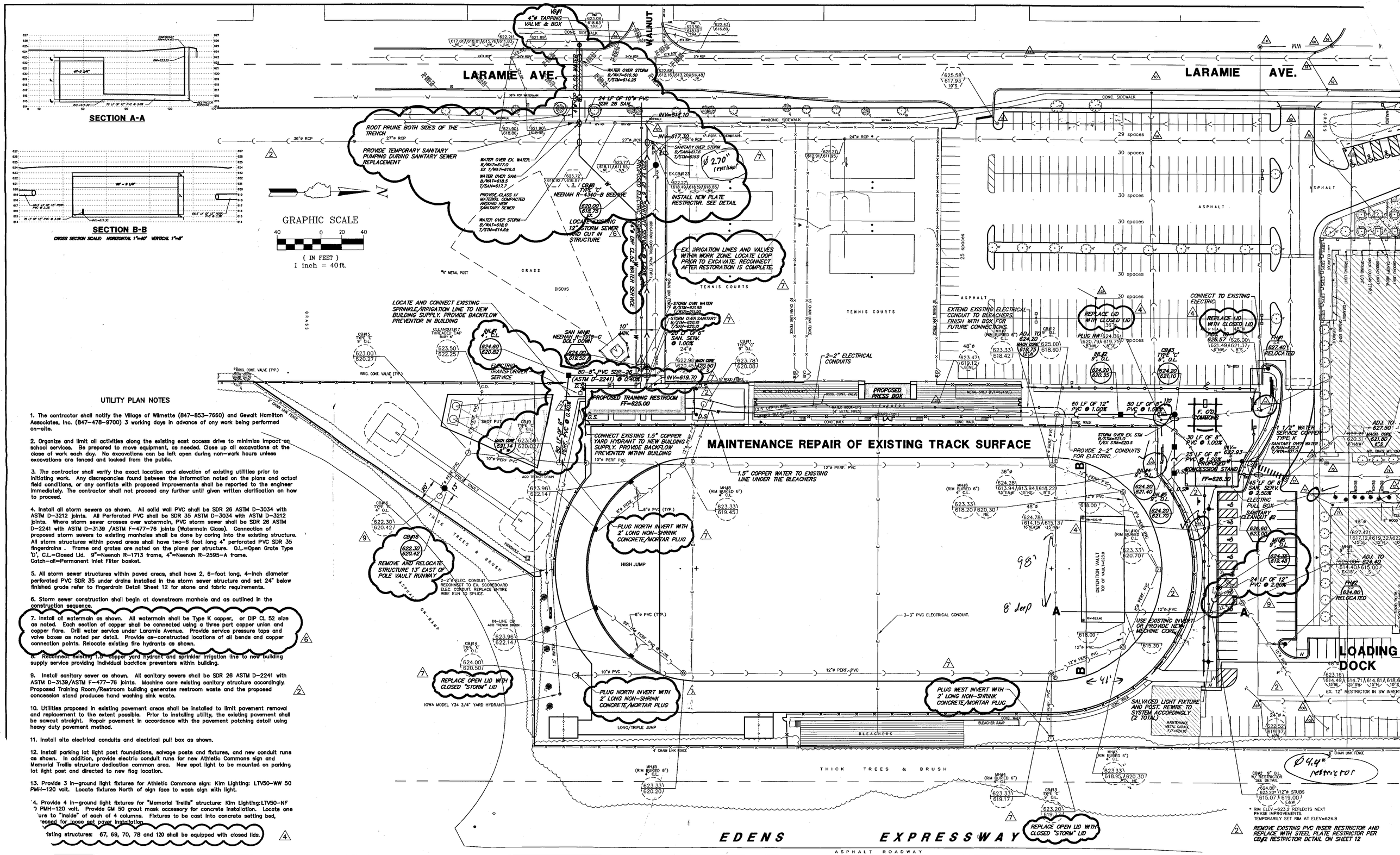
UTILITY PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS				
6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW				
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS	11	WEG	7-20-11	RECORD DRAWING UPDATE STORM / SANITARY
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS	10	MAG	11-12-10	RECORD DRAWING MWRD #09-141
1	WEG	6-24-09	SITE PATIO GRADING	9	WEG	3-29-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270-ASB.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'
SHEET NUMBER: 6 OF 17 SHEETS



UTILITY PLAN NOTES

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13. Provide 3 in-ground light fixtures for Athletic Commons sign: Kim Lighting: LTV50-WW 50 PMH-120 volt. Locate fixtures North of sign face to wash sign with light.

14. Provide 4 in-ground light fixtures for "Memorial Trellis" structure: Kim Lighting: LTV50-NF 50 PMH-120 volt. Provide GM 50 grout mask accessory for concrete installation. Locate one fixture to "inside" of each of 4 columns. Fixtures to be cast into concrete setting bed, recessed for loose set paver installation.

15. Existing structures: 67, 69, 70, 78 and 120 shall be equipped with closed lids.

GEWALT HAMILTON
ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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UTILITY PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS
1	WEG	6-24-09	SITE PATIO GRADING
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'

SHEET NUMBER: 6 OF 17 SHEET

PLAT OF SURVEY

THAT PART OF THE WEST HALF OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, BOUNDED AND DESCRIBED AS FOLLOWS:
BEGINNING ON THE NORTH LINE OF THE WEST HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 30 AT A POINT 33 FEET WEST OF AND MEASURED AT RIGHT ANGLES TO THE EAST LINE OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE SOUTH PARALLEL WITH SAID EAST LINE TO A POINT 570 FEET (AS MEASURED ALONG SAID PARALLEL LINE) NORTH OF THE SOUTH LINE OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE WEST PARALLEL WITH SAID SOUTH LINE A DISTANCE OF 335 FEET; THENCE SOUTH PARALLEL WITH SAID EAST LINE A DISTANCE OF 510 FEET; THENCE WEST PARALLEL WITH SAID SOUTH LINE TO A POINT 40 FEET EAST OF AND MEASURED AT RIGHT ANGLES TO THE WEST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE NORTH PARALLEL WITH SAID WEST LINE TO THE NORTH LINE OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE WEST ALONG SAID NORTH LINE TO A POINT 33 FEET EAST OF AND MEASURED AT RIGHT ANGLES TO THE WEST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE NORTH PARALLEL WITH SAID WEST LINE TO A POINT 33 FEET SOUTH OF AND MEASURED AT RIGHT ANGLES TO THE NORTH LINE OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE EAST PARALLEL WITH THE NORTH LINE OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION TO THE NORTHEAST CORNER OF LOT 4 IN BLOCK 2 IN THE SUBDIVISION OF THE WEST 3/4 OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 30, ACCORDING TO THE PLAT OF SAID SUBDIVISION RECORDED DECEMBER 12, 1892 AS DOCUMENT 1783909; THENCE SOUTH ALONG THE EAST LINE OF SAID LOT 4 AND THE SAID EAST LINE EXTENDED SOUTH TO THE CENTER LINE OF AN ALLEY (NOW VACATED) WHICH LIES SOUTH OF AND ADJOINING LOTS 1 TO 10 OF BLOCK 2 OF SAID SUBDIVISION AFORESAID; THENCE EAST ALONG THE CENTER LINE OF SAID ALLEY TO A POINT 33 FEET WEST OF AND MEASURED AT RIGHT ANGLES TO THE EAST LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 30; THENCE SOUTH TO THE POINT OF BEGINNING;

ALSO

THAT PART OF THE EAST 388 FEET OF THE SOUTH 570 FEET OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13, LYING NORTHWESTERLY OF THE FOLLOWING DESCRIBED LINE:
BEGINNING IN THE WEST LINE OF SAID TRACT 260 FEET SOUTH OF THE NORTHWEST CORNER THEREOF; AND EXTENDING NORTHEASTERLY TO THE NORTH LINE OF SAID TRACT 180 FEET EAST OF THE SAID NORTHWEST CORNER.

ALSO

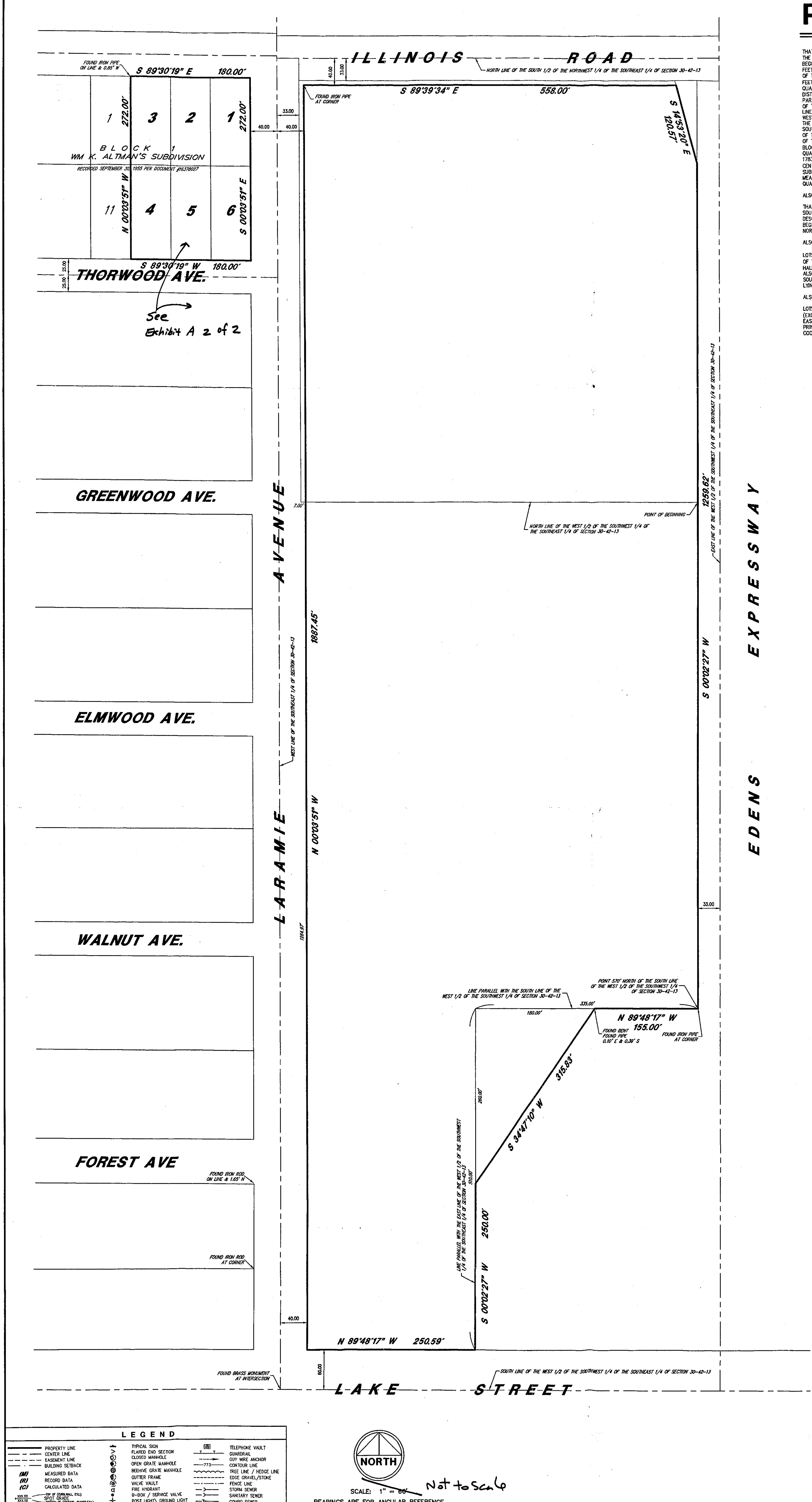
LOTS 2 AND 3 IN BLOCK 2 IN THE SUBDIVISION OF THE WEST 3/4 OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH RANGE 13, (EXCEPT THE SOUTH HALF OF THE EAST HALF OF THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER), ALSO THAT PART OF LOT 1 IN BLOCK 2 OF SAID SUBDIVISION LYING SOUTHWEST OF A STRAIGHT LINE DRAWN FROM THE SOUTHEAST TO THE NORTHWEST CORNER OF SAID LOT 1, AND THAT PART OF THE NORTH HALF OF VACATED ALLEY LYING SOUTH OF AND ADJOINING SAID LOTS 1, 2 AND 3 IN BLOCK 2 AFORESAID, IN COOK COUNTY, ILLINOIS.

ALSO

LOTS 1 THROUGH 6 IN BLOCK 1 OF WM K. ALTMANS SUBDIVISION OF THE EAST 10 ACRES OF THE SOUTH 60 ACRES (EXCEPT THE EAST 40 FEET THEREOF TAKEN FOR STREET AND EXCEPT THE SOUTH 837.02 FEET THEREOF) OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MEDIAN, ACCORDING TO THE PLAT THEREOF RECORDED SEPTEMBER 30, 1955 AS DOCUMENT #16378027, IN COOK COUNTY, ILLINOIS.

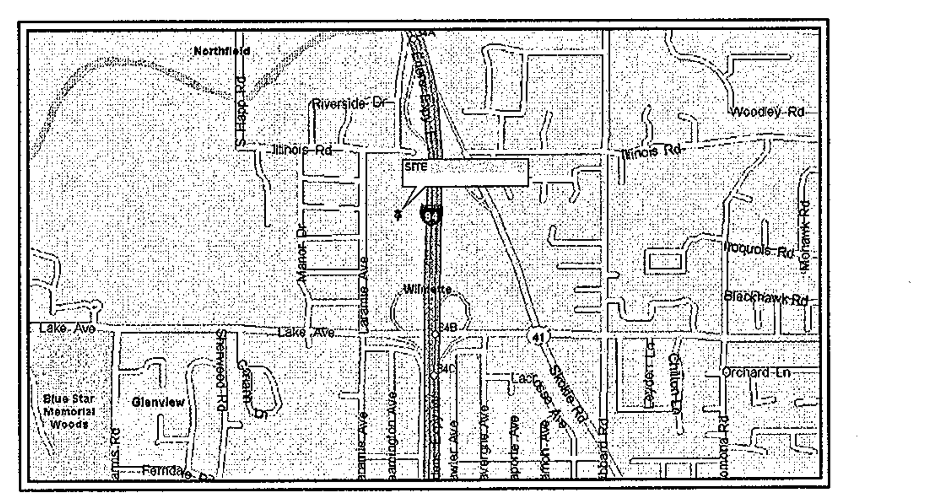
EXHIBIT A

09-141 OFFICE COPY



NOTES:

1. BENCHMARK #1 – "X" CUT ON ARROW BOLT OF HYDRANT AS SHOWN. ELEVATION=625.25'
2. PERMANENT INDEX NUMBER: 05-30-402-035, 05-30-402-038, 05-30-403-048, 05-30-403-051, 05-30-405-006, 05-30-405-016
3. THE LOCATION OF UNDERGROUND UTILITIES WAS DETERMINED BY FIELD OBSERVATION AND VISIBLE MARKINGS ONLY.
4. PROPERTY AREA: 22.012 ACRES
5. FIELD WORK COMPLETED: 9/17/07
6. SURVEY PREPARED WITHOUT THE AID OF A TITLE REPORT, REFER TO A CURRENT TITLE REPORT, DEED AND LOCAL CODES FOR ANY EASEMENT, BUILDING SETBACKS AND OTHER LOCAL RESTRICTIONS NOT SHOWN HERON.



LOCATION MAP

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

WE W-T LAND SURVEYING, INC. DO HEREBY DECLARE THAT WE HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY AND THAT THIS PLAT IS A CORRECT REPRESENTATION OF SAID SURVEY.

GIVEN UNDER OUR HAND AND SEAL THIS 16th DAY OF JANUARY A.D. 2008 AT HOFFMAN ESTATES, ILLINOIS.

W-T LAND SURVEYING, INC. ILLINOIS

FRANJO I. MATICIC – PLS #035-003556 EXPIRES 11/30/2008

DATE :	9/26/07
SCALE :	1"=30'
DRAWN :	MWO
CHECK :	FIM
JOB :	S07144
SHEET S-3 OF THREE SHEETS	REVISION

PLAT OF SURVEY

LOYOLA ACADEMY
1100 LARAMIE AVENUE
WILMETTE, ILLINOIS

W-T
W-T LAND SURVEYING, INC.
LAND AND CONSTRUCTION SURVEYORS
2675 Pratum Avenue
Hoffman Estates, Illinois 60192
PH: (224) 293-6333 FAX: (224) 293-6444
www.wtengineering.com
IL. License No.: 184-004387 Exp: 04/30/09

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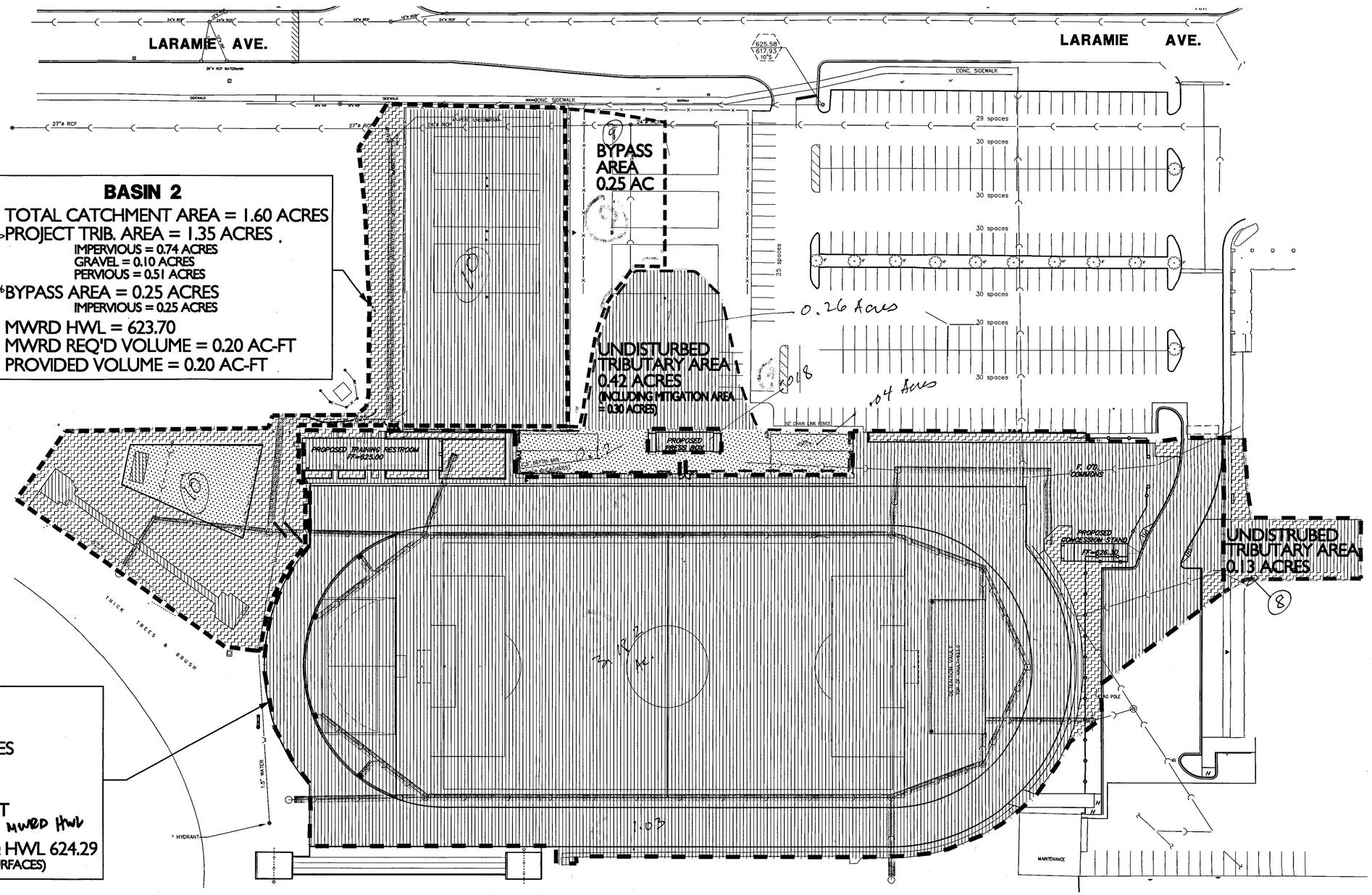
REVISIONS	DATE	BY
ADDED THIRD SHEET TO SHOW FOOTBALL TOPOGRAPHY	11/28/07	MO
ADDED ELEVATION FOR SITE BENCHMARK	3/20/08	MO

EXHIBIT A 1 OF 2

LEGEND

- IMPERVIOUS AREA (INCL. SYNTHETIC FIELD)
- GRAVEL AREA
- PERVIOUS AREA
- BASIN 1 PROJECT BOUNDARY
- BASIN 1 TRIBUTARY BOUNDARY
- BASIN 2 PROJECT BOUNDARY
- BASIN 2 BYPASS TRIBUTARY BOUNDARY
- STORM PIPE AND STRUCTURE USED FOR UNDERGROUND DETENTION STORAGE



BASIN 2

TOTAL CATCHMENT AREA = 1.60 ACRES
PROJECT TRIB. AREA = 1.35 ACRES
IMPERVIOUS = 0.74 ACRES
GRAVEL = 0.10 ACRES
PERVIOUS = 0.51 ACRES
BYPASS AREA = 0.25 ACRES
IMPERVIOUS = 0.25 ACRES
MWRD HWL = 623.70
MWRD REQ'D VOLUME = 0.20 AC-FT
PROVIDED VOLUME = 0.20 AC-FT

BASIN 1

PROJECT AREA = 4.53 ACRES
TOTAL TRIBUTAR AREA = 4.78 ACRES
IMPERVIOUS = 4.43 ACRES
GRAVEL = 0.16 ACRES
PERVIOUS = 0.19 ACRES
MWRD REQ'D VOLUME = 0.92 AC-FT
(VOLUME MET AT DESIGN HWL = 624.24) MWRD HWL
PROVIDED VOLUME = 1.01 AC-FT @ HWL 624.29
(VOLUME PROVIDED IN VAULT, PIPES & SURFACES)

STADIUM RENOVATIONS - PHASE I 9207.360

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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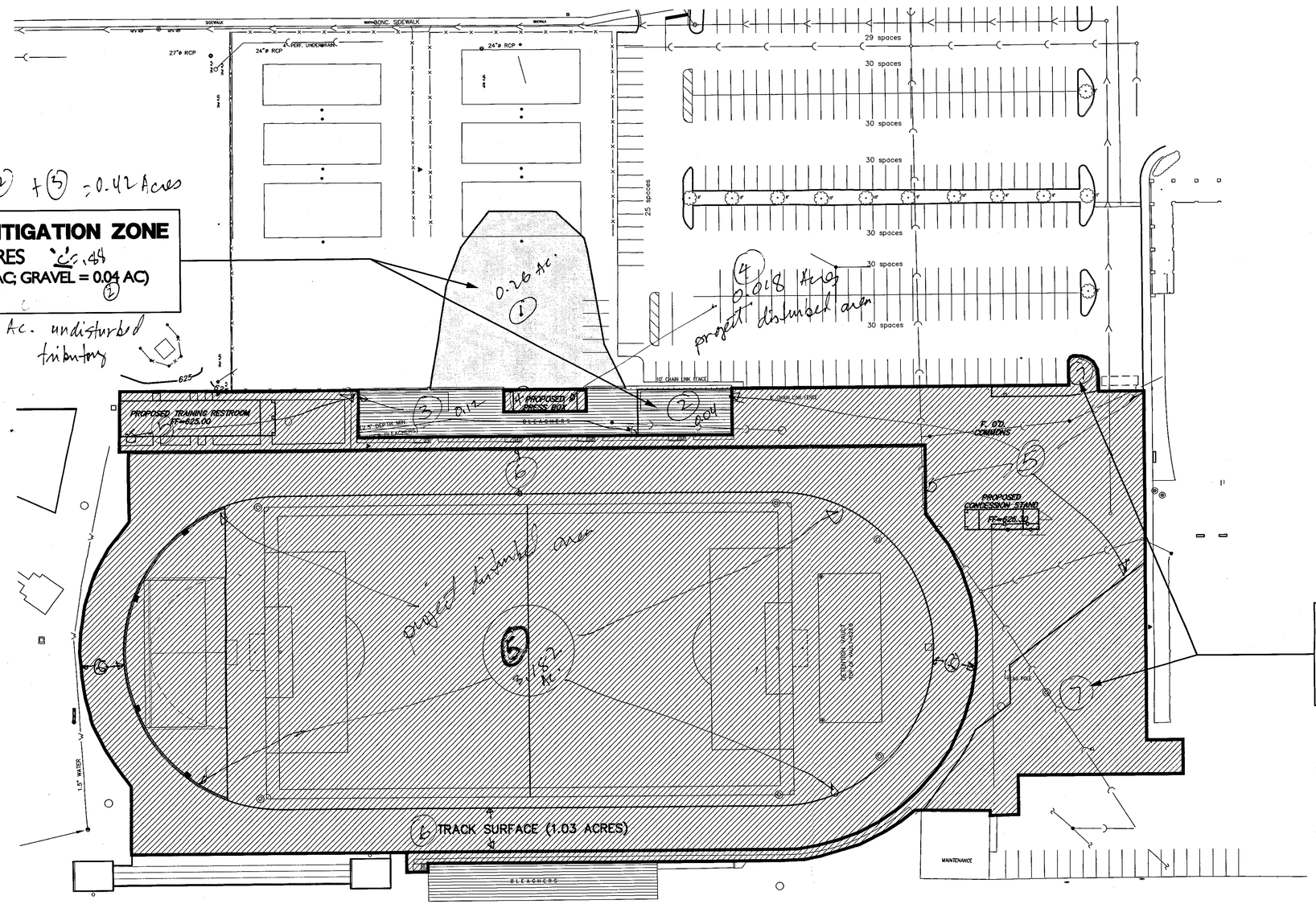
MWRD DRAINAGE EXHIBIT

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
7	MZ	1-18-10	PER MWRD REVIEW COMMENTS
5	MZ	9-16-09	PER MWRD REVIEW COMMENTS
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS
3	WEG	7-21-09	PER MWRD REVIEW COMMENTS
2	MZ	6-26-09	PER MWED REVIEW COMMENTS

NO.	BY	DATE	REVISION
10	MZ	4-9-10	PER MWRD REVIEW COMMENTS
9	MZ	3-29-10	PER MWRD REVIEW COMMENTS
8	WEG	3-4-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270 MWRD 4-09-10.dwg
DRAWN BY: MZ DATE: 6-26-09
GHA PROJECT # 9207.270
CHECKED BY: WEG DATE: 6-26-09
SCALE: AS NOTED
SHEET NUMBER: EX-C
OF 17 SHEETS



① + ② + ③ = 0.42 Acres

PROPOSED MITIGATION ZONE
AREA = 0.30 ACRES c=.48
(IMPERVIOUS = 0.26 AC; GRAVEL = 0.04 AC)
CA = 0.26

③ = 0.12 Ac. undisturbed tributary

PROJECT AREA TO BE MITIGATED
AREA = 0.30 ACRES ⑦
(IMPERVIOUS 0.24 AC; PERVIOUS 0.06 AC)
CA = 0.24 c=.81

BASIN 1 PROJECT AREA = 4.53 ACRES = ④ + ⑤ + ⑥ + ⑦ = 4.53 Ac.
(IMPERVIOUS = 4.38 ACRES; PERVIOUS = 0.15 ACRES)
PROJECT AREA TO BE MITIGATED = 0.30 ACRES (CA = 0.24)
PROPOSED MITIGATION AREA = 0.30 ACRES (CA = 0.26)
BASIN 1 TRIBUTARY AREA = 4.78 ACRES = ① + ② + ③ + ④ + ⑤ + ⑥ + ⑧ (see EX-C) = 4.78 Ac.
(IMPERVIOUS = 4.43 ACRES; PERVIOUS = 0.19 ACRES; GRAVEL = 0.16 ACRES)
REQUIRED DETENTION = 0.92 AC-FT
(VOLUME MET @ DESIGN HWL = 624.24) MWRD HWL
PROVIDED VOLUME = 1.01 AC-FT
HWL = 624.29

LEGEND

DISTURBED PROJECT AREA

MITIGATION AREA

STADIUM RENOVATIONS - PHASE I 9207.360

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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BASIN 1 PROJECT /MITIGATION AREA EXHIBIT

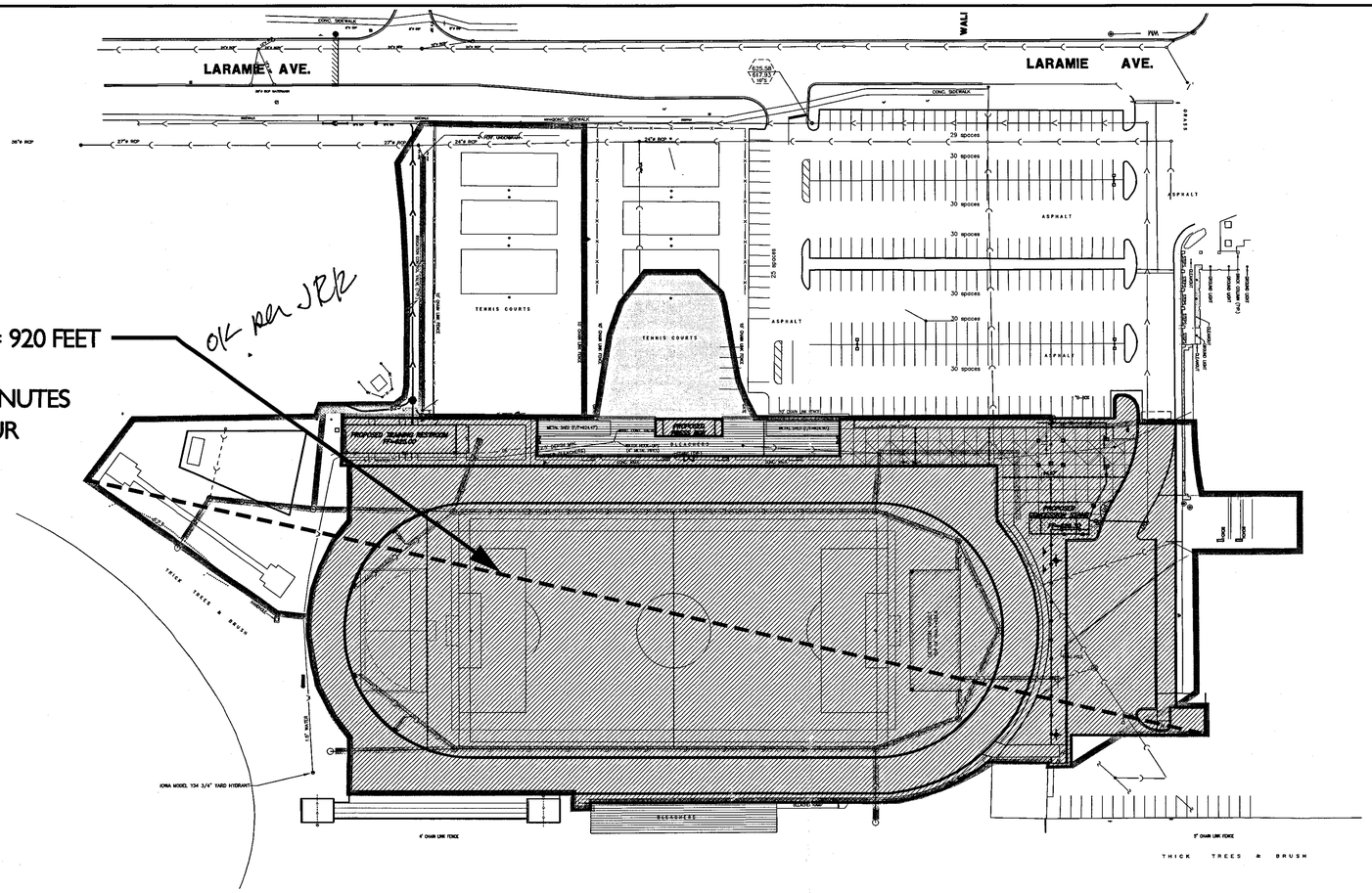
STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
7	MZ	1-18-10	PER MWRD REVIEW COMMENTS
5	MZ	9-16-09	PER MWRD REVIEW COMMENTS
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS
3	WEG	7-21-09	PER MWRD REVIEW COMMENTS
2	MZ	6-26-09	PER MWED REVIEW COMMENTS
10	MZ	4-9-10	PER MWRD REVIEW COMMENTS
9	MZ	3-29-10	PER MWRD REVIEW COMMENTS
8	WEG	3-4-10	PER MWRD REVIEW COMMENTS

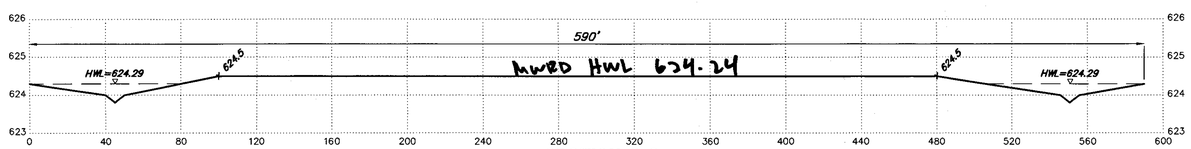
FILE: 9207.270 MWRD 4-09-10.dwg
DRAWN BY: MZ DATE 6-26-09
GHA PROJECT # 9207.270
CHECKED BY: WEG DATE 6-26-09
SCALE: AS NOTED
SHEET NUMBER: EX-B OF 17 SHEETS

TIME OF CONCENTRATION PATH = 920 FEET
AVERAGE GROUND SLOPE = 1%
TIME OF CONCENTRATION = 38 MINUTES
3 YEAR INTENSITY = 2.20 INCH/HOUR

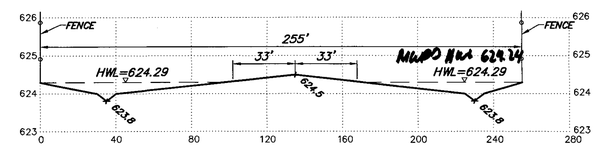
OK per JRR



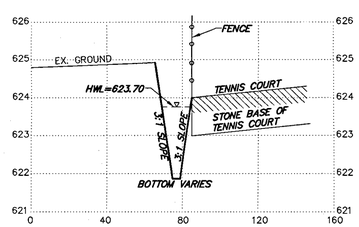
STADIUM RENOVATIONS - PHASE 2 9207.270



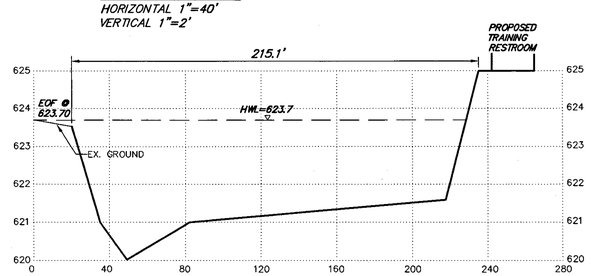
SECTION C-C
CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'



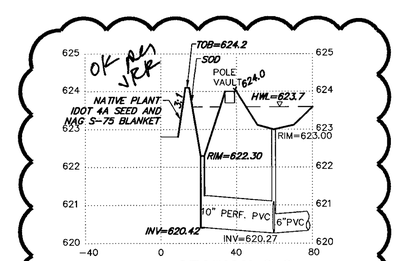
SECTION D-D
CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'



SECTION E-E
CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'



SECTION F-F
CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'



SECTION G-G
CROSS SECTION SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=2'

9

GEWALT HAMILTON
ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
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TIME OF CONCENTRATION EXHIBIT

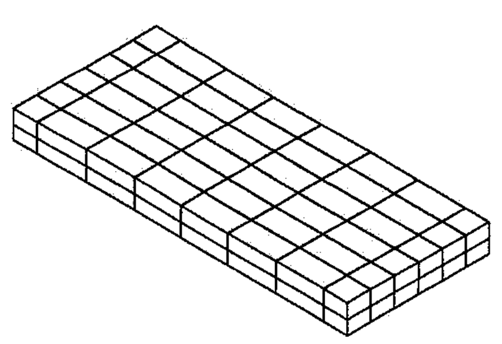
STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
9	MZ	3-29-10	PER MWRD REVIEW COMMENTS
7	MZ	1-18-10	PER MWRD REVIEW COMMENTS
2	MZ	6-29-09	PER MWRD REVIEW COMMENTS

NO.	BY	DATE	REVISION

FILE: 9207.270 MWRD 4-09-10.dwg
DRAWN BY: MZ DATE 6-29-09
GHA PROJECT # 9207.270
CHECKED BY: WEG DATE 6-29-09
SCALE: 1"=60'
SHEET NUMBER: EX-A
OF 17 SHEETS

STORMTRAP® PATENTED
PRECAST CONCRETE MODULAR STORM WATER DETENTION



LOYOLA ACADEMY

WILMETTE, IL

SHEET INDEX

PAGE	DESCRIPTION		REV.
1	COVER SHEET		1
2	DOUBLETRAP INSTALLATION SPECIFICATIONS		1
2.1	DOUBLETRAP INSTALLATION SPECIFICATIONS		1
2.2	DOUBLETRAP INSTALLATION SPECIFICATIONS		1
3	LAYOUT DETAIL		1
4	STANDARD - 7'-0" DOUBLETRAP	TYPE I	1
5	STANDARD - 7'-0" DOUBLETRAP	TYPE II	1
6	STANDARD - 7'-0" DOUBLETRAP	TYPE III	1
7	STANDARD - 7'-0" DOUBLETRAP	TYPE IV	1
8	STANDARD - 7'-0" DOUBLETRAP	TYPE V	1

JOB SITE INFORMATION

DESCRIPTION	
JOB NAME:	LOYOLA ACADEMY
JOB ADDRESS:	WILMETTE, IL
ENGINEERING CO:	GEWALT HAMILTON ASSOCIATES
CONTACT NAME:	WALTER GRAFT
CONTACT PHONE:	847-478-9700
CONTACT FAX:	847-478-9701
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	JEREMY SHERWOOD
CONTACT PHONE:	815-941-4663
CONTACT FAX:	815-416-1100
WATER STORAGE REQ'D:	26,136.00 CUBIC FEET
WATER STORAGE PROV:	26,879.50 CUBIC FEET
UNIT HEADROOM:	7'-0" DOUBLETRAP
UNIT QUANTITY:	58 UNITS - 116 TOTAL PIECES

STORMTRAP — P.O. BOX 782, MORRIS, IL 60450, 1-87-STORMTRAP, 1-877-867-6872
ENGINEER INFORMATION: GEWALT HAMILTON ASSOCIATES, 850 FOREST EDGE DRIVE, VERNON HILLS, IL 60061, Phone: 847-478-9700, Fax: 847-478-9701
PROJECT INFORMATION: LOYOLA ACADEMY, WILMETTE, IL
CURRENT ISSUE DATE: 03/06/08
APPROVED BY:
ISSUED FOR: PRELIMINARY
REV. DATE DESC. BY: 03/06/08 ISSUED FOR PRELIMINARY JS
SCALE: NTS
SHEET TITLE: COVER SHEET
SHEET NUMBER: 01

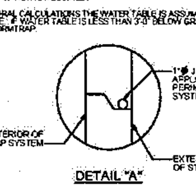
STORMTRAP INSTALLATION SPECIFICATION

1. STORMTRAP MODULES SHALL BE MANUFACTURED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/OUTLET PIPE OPENINGS.
2. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891-90, STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES. THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:
   - A. SPECIFICATIONS ON THE ENGINEER'S DRAWINGS SHALL TAKE PRECEDENCE.
   - B. STORMTRAP MODULES SHALL BE PLACED ON A LEVEL, 6" PAD OF COURSE AGGREGATE, GRADATION CA-7, THAT EXTENDS 2'-0" PAST THE OUTSIDE OF THE SYSTEM, PER ASTM C891-90, STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES.
   - C. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3/4". IF THE SPACE EXCEEDS 3/4", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
   - D. THE PERIMETER HORIZONTAL JOINT OF THE STORMTRAP MODULES SHALL BE SEALED WITH PREFORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891-90, 8.8 AND 8.12.
   - E. ALL EXTERIOR JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 1'-0" PRE-FORMED, COLD APPLIED, SELF ADHERING ELASTOMERIC RESIN BONDED TO A WOVEN HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891-90 AND SHALL BE 1'-0" INTEGRATED PRIMER SEALANT AS APPROVED BY STORMTRAP. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
     1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.
     2. A RELEASE PAPER PROTECTS THE ADHESIVE SEALANT SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
   - F. THE FILL PLACED AROUND THE STORMTRAP UNITS MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROTOR DENSITY OR OTHERWISE SPECIFIED BY ENGINEER. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES BOUNDING OR WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGE ACTION (REFERENCE ARTICLE 502.10 I.D.O.T. S.S.R.B.C.). CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MATERIAL NOT TO EXCEED 120 PCF SOIL DENSITY OR 60 LBS PER FOOT OF LATERAL SATURATED PRESSURE. RECOMMENDED BACKFILL TO CONSIST OF 3/4" AGGREGATE STONE (CA-7) OR APPROVED EQUAL AND SHALL CONFORM TO THE ABOVE DENSITY/LATERAL SATURATED PRESSURE REQUIREMENTS.

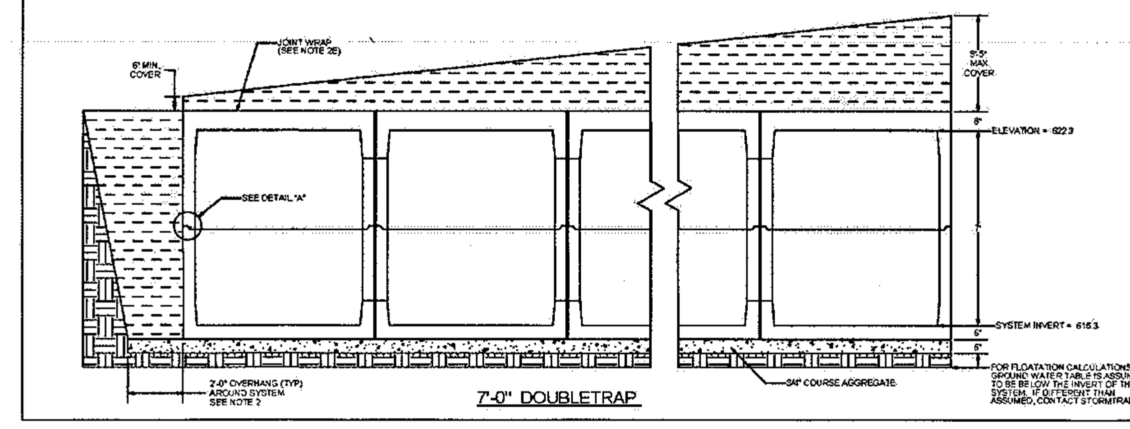
STORMTRAP SPECIFICATION

TOTAL COVER: MIN. 6" MAX. 3'-5"

1. CONCRETE CHAMBER DESIGNED FOR AASHTO HS-20 WHEEL LOAD & APPLICABLE IMPACT. MIN. SOIL PRESSURE 2,000 PSF
2. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE SOIL DENSITY IS ASSUMED TO BE 120 PCF.
5. STORMTRAP IS NOT WATER TIGHT. PLEASE ADVISE STORMTRAP IF A WATER TIGHT OPTION IS REQUIRED.
6. FOR STRUCTURAL CALCULATIONS THE WATER TABLE IS ASSUMED TO BE 3'-0" BELOW GRADE. IF WATER TABLE IS LESS THAN 3'-0" BELOW GRADE, CONTACT STORMTRAP.



DETAIL "A"



7'-0" DOUBLETRAP

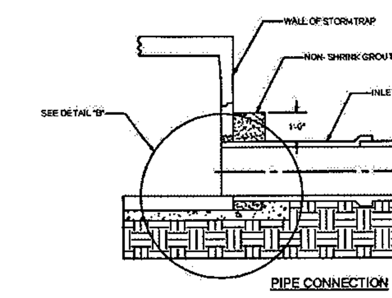
SHEET TITLE: DOUBLETRAP INSTALLATION SPECIFICATIONS
SHEET NUMBER: 02

RECOMMENDED PIPE/RISER SPECIFICATION

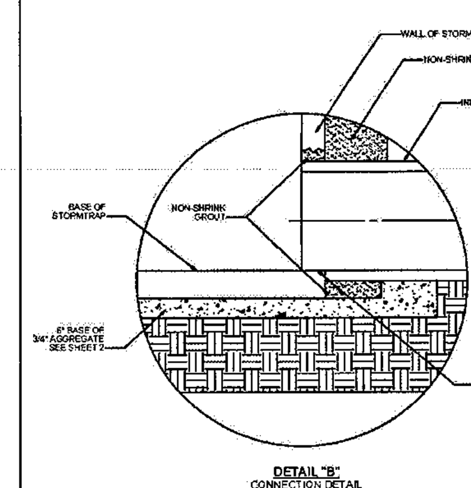
1. CONNECTING PIPES SHALL BE INSTALLED BY PLACING CONNECTING PIPE SO AS TO BREAK THE PLANE OF THE STORMTRAP WALL. A QUICK SETTING STRUCTURAL GRADE CONCRETE OR GROUT TO BE USED IN THE ANNULAR SPACE BETWEEN THE PIPE AND THE STORMTRAP. QUICK SETTING STRUCTURAL GRADE CONCRETE OR GROUT TO BE A MINIMUM OF 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. (ENGINEER'S TYPICAL PIPE CONNECTION DETAIL SHALL TAKE PRECEDENCE)
2. ALL OPENINGS ARE PROVIDED BY STORMTRAP.

RECOMMENDED INSTALLATION INSTRUCTIONS

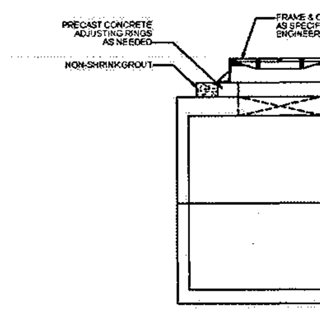
1. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO PREVENT SHARP EDGES. BEVEL, CLEAN AND LIGHTLY LUBRICATE LEAD END OF PIPE TO BE INSERTED INTO STORMTRAP.
2. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING. GROUT MAY BE REQUIRED TO BRING PIPE TO CORRECT ELEVATION.



PIPE CONNECTION



DETAIL "B"
CONNECTION DETAIL
(NOT TO SCALE)



RISER DETAIL

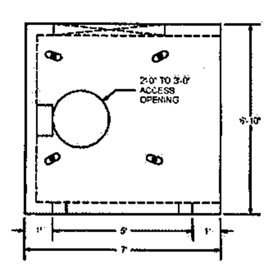
SHEET TITLE: RECOMMENDED DOUBLETRAP INSTALLATION SPECIFICATIONS
SHEET NUMBER: 2.1

RECOMMENDED ACCESS OPENING SPECIFICATION

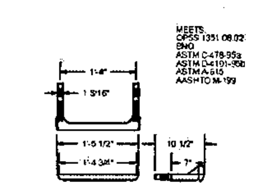
1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM RANGES FROM 2'-0" TO 3'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP.
2. PLASTIC COATED STEEL STEPS PROVIDED BY STORMTRAP, ARE PRODUCED BY M.A. INDUSTRIES PART #PS2-PFC (SEE DETAIL TO THE RIGHT) ARE TO BE PLACED INSIDE ANY UNIT WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE UNIT IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP UNITS. ALL ENSUING STEPS SHALL BE PLACED WITH A MINIMUM DISTANCE OF 1'-4" BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE UNIT.
3. STORMTRAP LIFTING INSERTS, PROVIDED WITHIN UNITS, MAY BE RELOCATED TO COINCIDE WITH THE ACCESS OPENING OR THE CENTER OF GRAVITY OF THE UNIT AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY NOT INTERFERE WITH INLET AND/OR OUTLET OPENINGS.
5. STORMTRAP ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO SATISFY THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST 1 ACCESS OPENING IN THE SYSTEM FOR MAINTENANCE.

RECOMMENDED PIPE OPENING SPECIFICATION

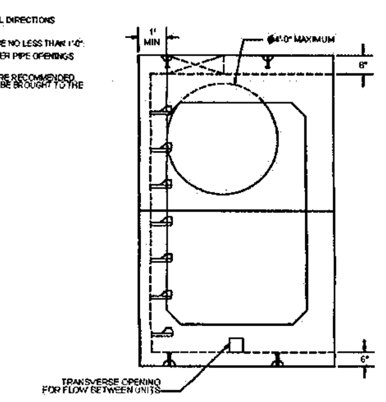
1. ALL OPENINGS MUST RETAIN AT LEAST 1'-0" OF CLEARANCE IN ALL DIRECTIONS FROM THE EDGE OF THE STORMTRAP UNITS.
2. MINIMUM DISTANCE FROM THE BASE OF THE ROOF SLAB SHALL BE NO LESS THAN 1'-0".
3. PIPE OPENING SIZE SHALL NOT EXCEED 4'-0" IN DIAMETER. LARGER PIPE OPENINGS MUST BE APPROVED BY STORMTRAP.
4. OPENINGS ARE NOT LIMITED TO THE ABOVE PARAMETERS BUT ARE RECOMMENDED. ANY OPENING NEEDED THAT DOES NOT FIT THE CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.



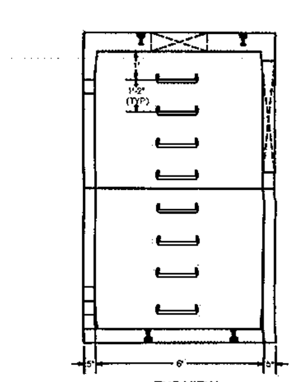
PLAN VIEW



STAIR DETAIL



ELEVATION VIEW

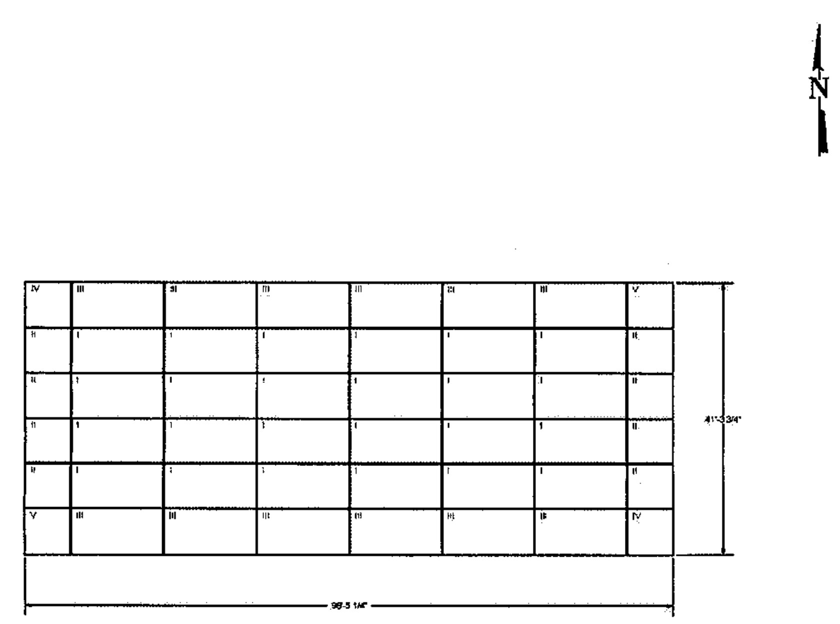


END VIEW

SHEET TITLE: RECOMMENDED DOUBLETRAP INSTALLATION SPECIFICATIONS
SHEET NUMBER: 2.2

BILL OF MATERIALS

QTY.	PART NO.	DESCRIPTION
24	TYPE I	7'-0" DOUBLETRAP TYPE I
22	TYPE II	7'-0" DOUBLETRAP TYPE II
6	TYPE III	7'-0" DOUBLETRAP TYPE III
3	TYPE IV	7'-0" DOUBLETRAP TYPE IV
2	TYPE V	7'-0" DOUBLETRAP TYPE V
24	JOINT TAPE	JOINT TAPE - 14.5' PER ROLL
10	JOINT WRAP	JOINT WRAP - 150' PER ROLL

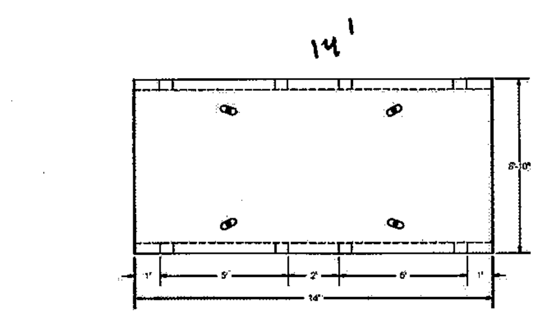


LAYOUT DETAIL

NOTES:
1. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH UNIT.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 2 FOR INSTALLATION SPECIFICATIONS.

DESIGN CRITERIA
ELEVATION = 622.3
ALLOWABLE MIN GRADE =
ALLOWABLE MAX GRADE =
SYSTEM INVERT = 615.3
STORMTRAP VOLUME = 26,879.50 C.F./0.62 A.F.

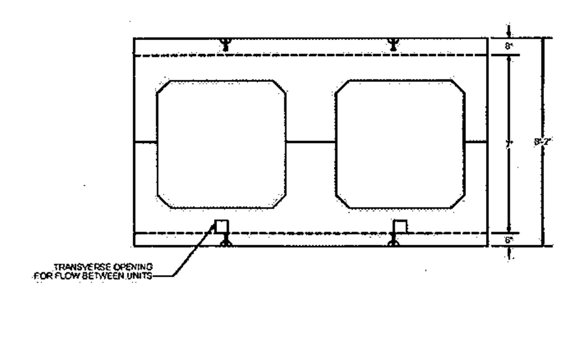
SHEET TITLE: LAYOUT DETAIL
SHEET NUMBER: 03



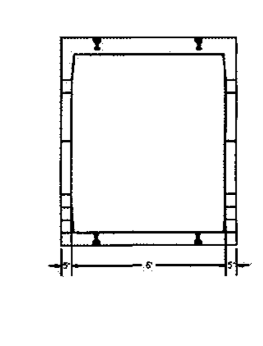
PLAN VIEW

TYPE I UNITS

UNIT HEIGHT (in.)	CUBIC STORAGE (C.F.)	WEIGHT TOP (lbs.)	WEIGHT BASE (lbs.)
84	826.5	12805	10415

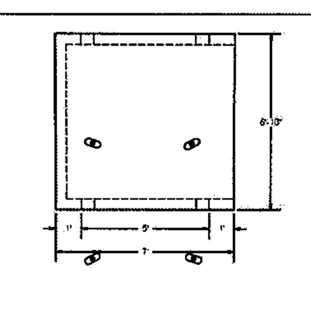


ELEVATION VIEW



SIDE VIEW

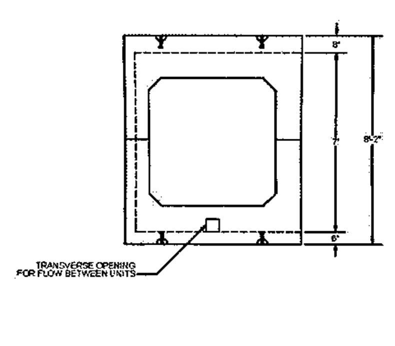
SHEET TITLE: STANDARD 7'-0" DOUBLETRAP TYPE I
SHEET NUMBER: 04



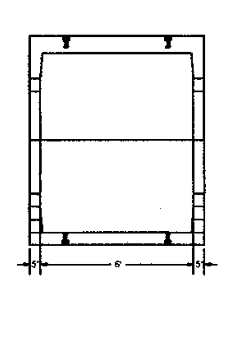
PLAN VIEW

TYPE II UNITS

UNIT HEIGHT (in.)	CUBIC STORAGE (C.F.)	WEIGHT TOP (lbs.)	WEIGHT BASE (lbs.)
84	295	7750	6555

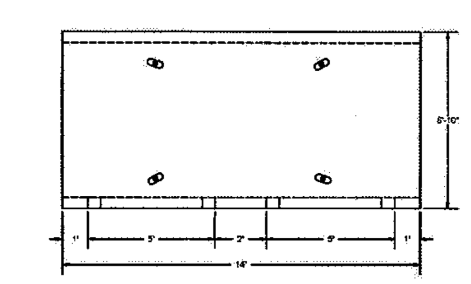


ELEVATION VIEW



SIDE VIEW

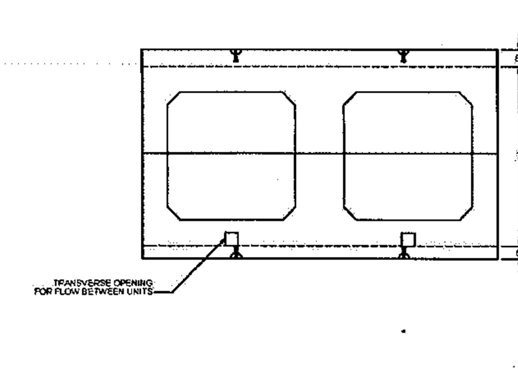
SHEET TITLE: STANDARD 7'-0" DOUBLETRAP TYPE II
SHEET NUMBER: 05



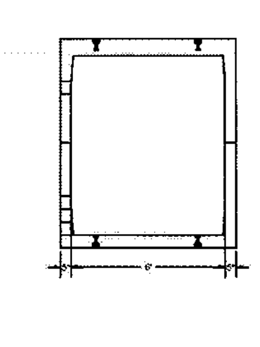
PLAN VIEW

TYPE III UNITS

UNIT HEIGHT (in.)	CUBIC STORAGE (C.F.)	WEIGHT TOP (lbs.)	WEIGHT BASE (lbs.)
84	606	14340	11945

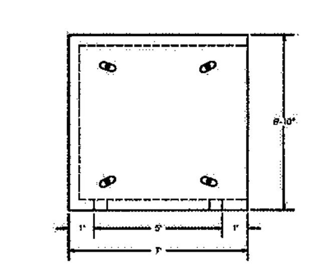


ELEVATION VIEW



SIDE VIEW

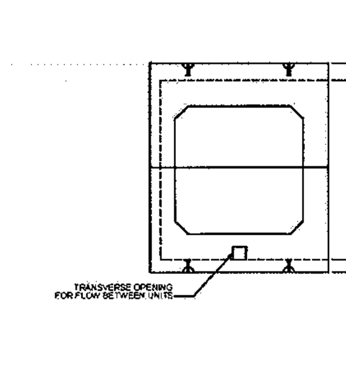
SHEET TITLE: STANDARD 7'-0" DOUBLETRAP TYPE III
SHEET NUMBER: 06



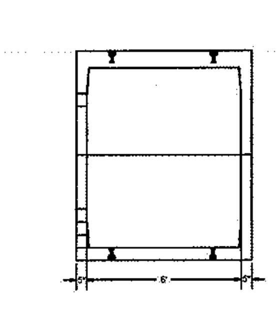
PLAN VIEW

TYPE IV UNITS

UNIT HEIGHT (in.)	CUBIC STORAGE (C.F.)	WEIGHT TOP (lbs.)	WEIGHT BASE (lbs.)
84	284.5	8515	7320

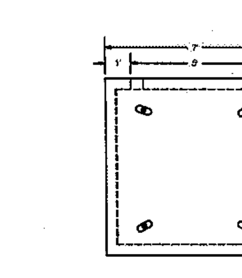


ELEVATION VIEW



SIDE VIEW

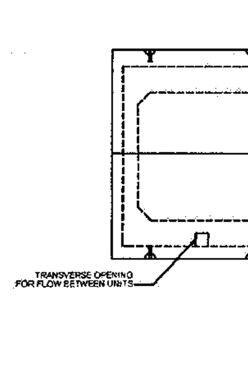
SHEET TITLE: STANDARD 7'-0" DOUBLETRAP TYPE IV
SHEET NUMBER: 07



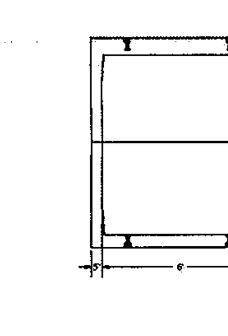
PLAN VIEW

TYPE V UNITS

UNIT HEIGHT (in.)	CUBIC STORAGE (C.F.)	WEIGHT TOP (lbs.)	WEIGHT BASE (lbs.)
84	284.5	8515	7320



ELEVATION VIEW



SIDE VIEW

SHEET TITLE: STANDARD 7'-0" DOUBLETRAP TYPE V
SHEET NUMBER: 08

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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STORM TRAP DETAILS

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS

FILE: 9207-Stadium-DT1.dwg
DRAWN BY: WEG DATE: 3-21-08
GHA PROJECT # 9207.260
CHECKED BY: DATE:
SCALE: NONE

PROPOSED SEWER LINE WITH 18"MINIMUM VERTICAL SEPARATION ABOVE EXISTING WATER MAIN.

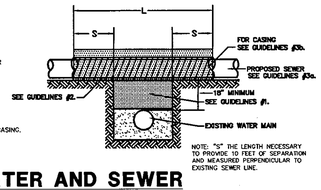
NOTE: COMPACTION REQUIREMENTS REFER TO 20-2.20B

GUIDELINES

1. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF PROPOSED SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
2. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L" FEET.

3a. CONSTRUCT "L" FEET OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR;

b. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.



NOTE: "S" THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AND MEASURED PERPENDICULAR TO EXISTING SEWER LINE.

WATER AND SEWER SEPARATION REQUIREMENTS

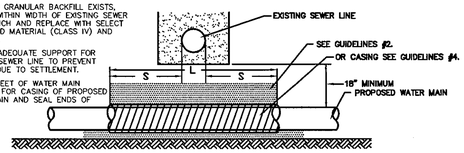
PROPOSED WATER MAIN BELOW EXISTING SEWER LINE WITH 18" MINIMUM VERTICAL SEPARATION.

GUIDELINES

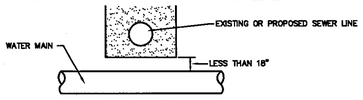
1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L".
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF EXISTING SEWER LINE TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. PROVIDE ADEQUATE SUPPORT FOR EXISTING SEWER LINE TO PREVENT DAMAGE DUE TO SETTLEMENT.
4. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED WATER MAIN AND SEAL ENDS OF CASING.

NOTE: COMPACTION REQUIREMENTS REFER TO 20-2.20B

NOTE: "S" THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AND MEASURED PERPENDICULAR TO EXISTING SEWER LINE.



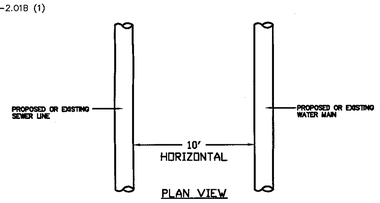
PLACEMENT OF WATER MAIN **BELOW EXISTING** OR PROPOSED SEWER LINE **WITH LESS** THAN 18" MINIMUM VERTICAL SEPARATION. **NOT ALLOWED***



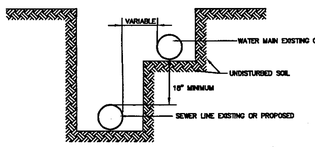
NOT ALLOWED*
MUST MAINTAIN 18" VERTICAL SEPARATION

WATER AND SEWER SEPARATION REQUIREMENTS

WHEN PROPOSED SEWER (OR WATER) IS LOCATED 10 FEET OR MORE FROM EXISTING WATER (OR SEWER), NO SPECIAL CONSTRUCTION REQUIRED.
SEE SECTION 41-2.01B (1)



WHEN PROPOSED SEWER (OR WATER) IS LOCATED LESS THAN 10 FEET FROM EXISTING WATER (OR SEWER), DETAILS BELOW SHALL APPLY.
SEE SECTION 41-2.01B (2)



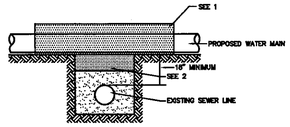
WATER AND SEWER SEPARATION REQUIREMENTS

PROPOSED WATER MAIN ABOVE EXISTING SEWER LINE WITH 18" MINIMUM SEPARATION.

NOTE: CLASS IV MATERIAL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DENSITY.

GUIDELINES

1. OMIT SELECT GRANULAR CRADLE AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF PIPE AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT FOR 10 FEET ON EITHER SIDE OF SEWER LINE.
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF EXISTING SEWER LINE TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.

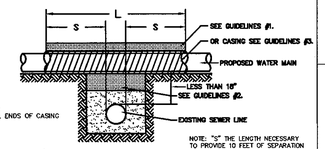


PROPOSED WATER MAIN ABOVE EXISTING SEWER LINE WITH LESS THAN 18" VERTICAL SEPARATION.

NOTE: COMPACTION REQUIREMENTS REFER TO 20-2.20B

GUIDELINES

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L".
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF EXISTING SEWER LINE TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED WATER MAIN AND SEAL ENDS OF CASING
4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN WATER MAIN CASING AND SEWER.



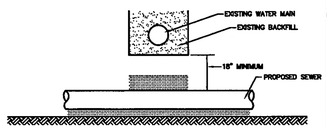
NOTE: "S" THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AND MEASURED PERPENDICULAR TO EXISTING SEWER LINE.

WATER AND SEWER SEPARATION REQUIREMENTS

PROPOSED SEWER LINE BELOW EXISTING WATER MAIN WITH 18" MINIMUM VERTICAL SEPARATION.

GUIDELINES

1. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.



PROPOSED SEWER LINE BELOW EXISTING WATER MAIN WITH LESS THAN 18" VERTICAL SEPARATION.

NOTE: COMPACTION REQUIREMENTS REFER TO 20-2.20B 2

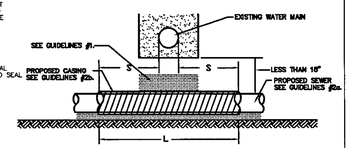
GUIDELINES

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT FOR "S" FEET ON EACH SIDE OF WATER MAIN.

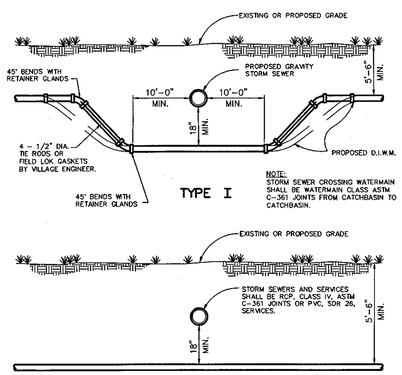
2a. CONSTRUCT "L" FEET OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR;

b. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.

3. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.



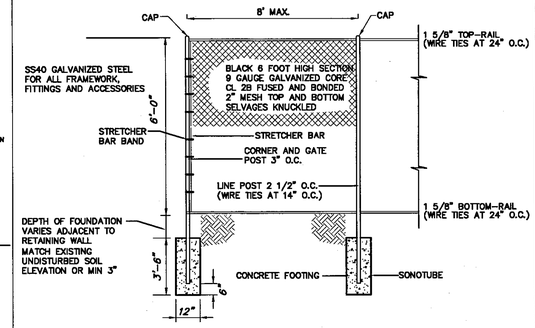
WATER AND SEWER SEPARATION REQUIREMENTS



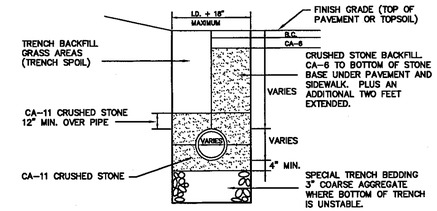
NOTE:
STORM SEWER CROSSING WATERMAIN SHALL BE WATERMAIN CLASS ASTM C-361 JOINTS FROM CATCHBASIN TO CATCHBASIN.

TYPE II

WATERMAIN CROSSING



6' HIGH BLACK CHAIN LINK FENCE DETAIL

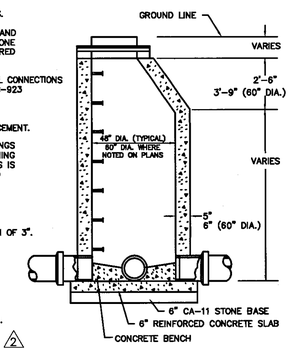


NOTE: ALL STONE TO BE CRUSHED GRAVEL OR LIMESTONE, CA-11 UNLESS OTHERWISE SPECIFIED.

SANITARY TRENCH DETAIL

NOTES:

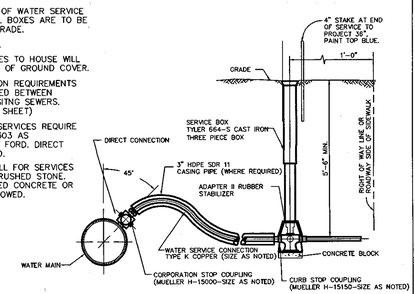
1. EXTERIOR NEOPRENE CHIMNEY SEAL REQUIRED ON ALL SANITARY MANHOLE RIMS.
2. PIPE OPENINGS TO BE PRECAST INTO WALLS.
3. PRECAST REINFORCED CONCRETE SECTIONS AND INTERGRAL PRECAST BOTTOMS WITH BUTYL ONE INCH JOINT SEALANT, IN ROPE FORM, REQUIRED BETWEEN MANHOLE SECTIONS.
4. RESILIENT WATERTIGHT BOOT REQUIRED ON ALL CONNECTIONS BETWEEN MANHOLE AND PIPE AS PER ASTM C-923
5. FRAME TO BE LAID IN 3/4" MASTIC BED.
6. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT.
7. A MAXIMUM OF TWO PRECAST CONCRETE RINGS SET IN A BED OF PREFORMED NON-HARDENING MASTIC TO A MAXIMUM HEIGHT OF 8 INCHES IS PERMITTED. NO MORTAR SHALL BE USED TO DRESS UP INSIDE ADJUSTING RINGS.
8. STEPS TO BE STEEL REINFORCED PLASTIC OR APPROVED EQUAL.
9. STEPS TO BE IMBEDDED INTO WALL A MINIMUM OF 3".
10. STEPS TO BE AT 16" CENTERS. FIRST STEP TO BE 8" BELOW FRAME.
11. INVERT TO BE FORMED WITH HALF-PIPE POUR PCC BENCH TO TROUGH.
12. PCC BENCH SHALL EXTEND TO CROWN AND SLOPE 3" TO OUTSIDE WALL SMOOTH FINISH.
13. FRAME TO BE NEENAH R-1713 LID TO BE SELF-SEALING WITH "SANITARY" IMPRINTED ON COVER AND BLIND PICK HOLE. 2



SANITARY MANHOLE

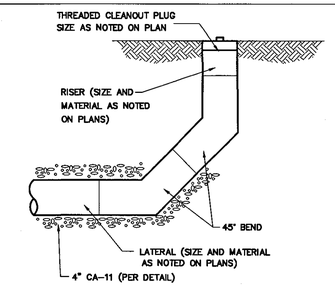
NOTES:

1. SERVICE PIPE TO BE WEAVED IN TRENCH TO ALLOW AT LEAST ONE (1) FOOT EXTRA LENGTH IN ITS LENGTH.
2. UPON COMPLETION OF WATER SERVICE CONSTRUCTION, ALL BOXES ARE TO BE SET AT FINISHED GRADE.
3. JET ALL TRENCHES.
4. ALL WATER SERVICES TO HOUSE WILL HAVE MINIMUM 5.5' OF GROUND COVER.
5. MINIMUM SEPARATION REQUIREMENTS MUST BE MAINTAINED BETWEEN SERVICES AND EXISTING SEWERS. (SEE DETAILS THIS SHEET)
6. 1.25" OR LARGER SERVICES REQUIRE SADDLE MODEL FS303 AS MANUFACTURED BY FORD. DIRECT TAPS NOT ALLOWED.
7. BEDDING & BACKFILL FOR SERVICES SHALL BE CA-6 CRUSHED STONE. LIMESTONE, CRUSHED CONCRETE OR SLAG ARE **NOT** ALLOWED.



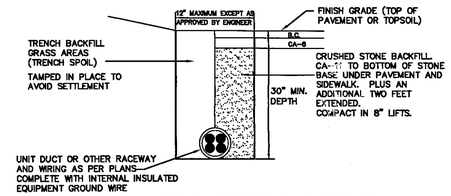
WATER SERVICE DETAIL

7 9



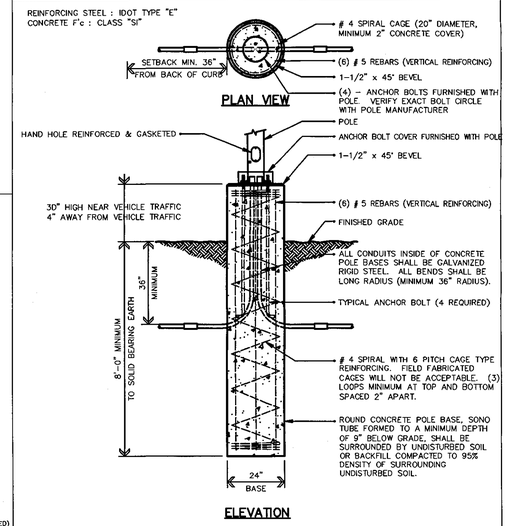
2

SANITARY/STORM SEWER CLEAN-OUT RISER



UNIT DUCT LIGHTING CONDUIT

REINFORCING STEEL : IDOT TYPE "E"
CONCRETE F'c : CLASS "SI"



CONCRETE POLE BASE DETAIL
WITHOUT GROUND ROD

GEWALT HAMILTON
ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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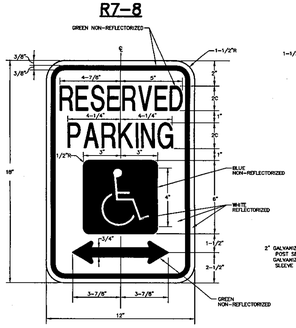
DETAIL SHEET

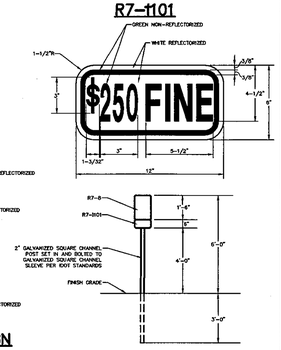
STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
8	MZ	3-29-10	PER MWRD REVIEW COMMENTS
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS

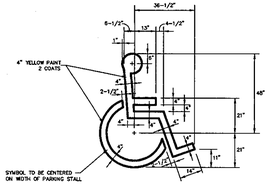
NO.	BY	DATE	REVISION

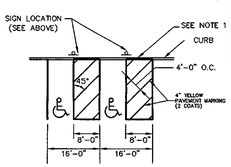
FILE: 9207-Stadium-phase 2-DT1-copy.dwg
DRAWN BY: WEG DATE 4-8-09
GHA PROJECT # 9207.270
CHECKED BY: DATE:
SCALE: NONE
SHEET NUMBER: 13 OF 17 SHEETS





HANDICAPPED PARKING SIGN





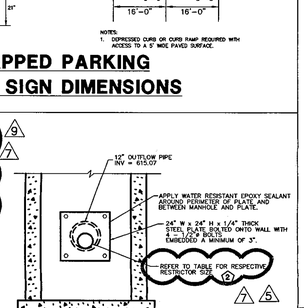
NOTES:
1. DEPRESSED CURB OR CURB RAMP REQUIRED WITH ACCESS TO A 5' WIDE PAVED SURFACE.

HANDICAPPED PARKING STALL AND SIGN DIMENSIONS

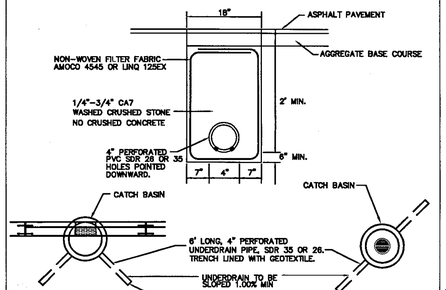
STRUCTURE #	CB#2	EX STR#123
RIM ELEVATION ①	624.80	623.29
RESTRICTOR - DIAMETER - INVERT ELEV. ②	4.40"ø 615.07	2.70"ø 618.49
RESTRICTOR - CAT VALUE - STYLE ③	0.61 SHARP EDGE	0.61 SHARP EDGE

NOTES:
1. REFER TO STORM CATCHBASIN DETAIL FOR STRUCTURE GENERAL NOTES.

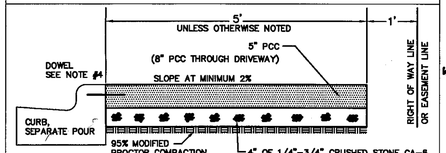
NOTE:
1. THE RESTRICTOR PLATE AND FASTENERS SHALL BE FABRICATED IN STAINLESS STEEL OR DUCTILE IRON.
2. THE PLATE SHALL BE CURVED TO MATCH THE INSIDE RADIUS OF THE MANHOLE/CATCH BASIN.
3. THE DEPTH OF THE ANCHOR BOLTS SHALL BE EMBEDDED AT LEAST 3 INCHES INTO STRUCTURE WALL.



CATCHBASIN #2 & EX STR #123 RESTRICTOR DETAIL

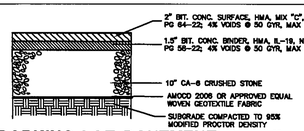


FINGERDRAIN DETAIL

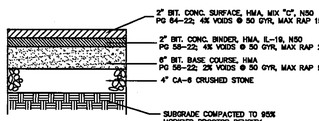


NOTE:
1. SET 3/4" EXPANSION JOINTS AT POINTS ABUTTING CURB OR PAVEMENT AND AT 60' MAX. INTERVALS.
2. CONTROL JOINTS SHALL BE 1/8" TO 1/4" WIDE AND 1/4 OF THE SIDEWALK THICKNESS DEEP. THE EDGE OF THE CONTROL JOINTS SHALL BE GIVEN A 1/4" RADIUS. JOINTS TO BE LOCATED AT 5' MAX. INTERVALS.
3. THREE #4 DEFORMED STEEL BARS SHALL BE INSTALLED IN THE SIDEWALK CENTERED OVER ALL TRENCH CROSSINGS. THEY SHALL EXTEND 10 FEET BEYOND THE EDGES OF THE TRENCH.
4. SIDEWALK ADJACENT TO NEW OR EXISTING CURB, OR EXISTING SIDEWALK SHALL BE DOWELED TO CURB OR EXISTING SIDEWALK WITH SMOOTH 12" EPOXY COATED #5 BARS AT 30" O.C.
5. SIDEWALK CONTRACTION AND EXPANSION JOINTS SHALL ALIGN WITH WITH NEW CURB JOINTS RESPECTIVELY.

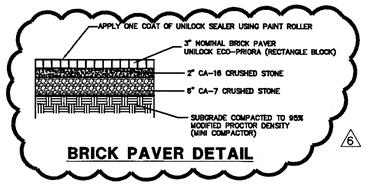
PCC SIDEWALK DETAIL



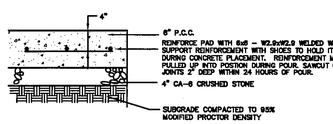
PARKING LOT PAVEMENT DETAIL



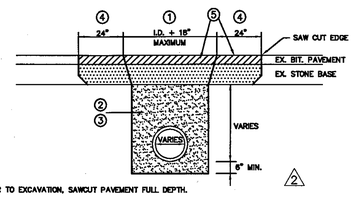
HEAVY DUTY PAVEMENT DETAIL



BRICK PAVER DETAIL



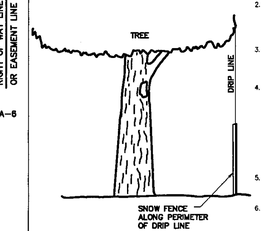
P.C.C. PAVEMENT DETAIL



NOTE:
1. PRIOR TO EXCAVATION, SAWCUT PAVEMENT FULL DEPTH.
2. EXCAVATE THE STONE BASE AND SUBBASE.
3. INSTALL THE UTILITY PIPE PER SPECIFIC UTILITY TRENCH DETAIL AND BACKFILL. COMPACT MECHANICALLY TO 95% STANDARD PROCTOR DENSITY.
4. SAWCUT STRAIGHT AND PARALLEL AND REMOVE AN ADDITIONAL 24" OF PAVEMENT ON BOTH SIDES OF TRENCH.
5. FOR PARKING LOTS – INSTALL TEN INCHES (10") OF CA-6 CRUSHED STONE BASE AND COMPACT WITH A VIBRATORY COMPACTOR TO 95% MODIFIED PROCTOR DENSITY. INSTALL FOUR INCHES (4") BITUMINOUS CONCRETE SURFACE COURSE. MATCH EXISTING PAVEMENT THICKNESS OR A MINIMUM OF 4" WHICHEVER IS GREATER AND COMPACT TO 93% DENSITY.

FOR HEAVY DUTY PAVEMENT – INSTALL FOUR INCHES (4") OF CA-6 CRUSHED STONE BASE AND COMPACT WITH A VIBRATORY COMPACTOR TO 95% MODIFIED PROCTOR DENSITY. INSTALL SIX INCHES (6") OF BAM. INSTALL FOUR INCHES (4") BITUMINOUS CONCRETE SURFACE COURSE. MATCH EXISTING SURFACE COURSE THICKNESS OR A MINIMUM OF 4" WHICHEVER IS GREATER AND COMPACT TO 93% DENSITY.

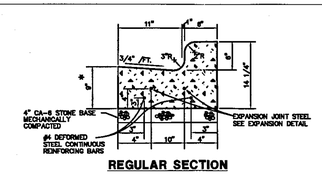
UTILITY TRENCH PAVEMENT REPAIR DETAIL



ELEVATION

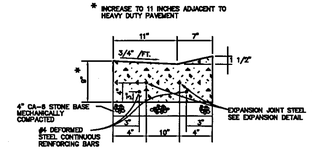
TREE PROTECTION DETAIL

NOTES:
1. EXISTING VEGETATION WHICH IS TO REMAIN IN PLACE SHALL BE PROTECTED AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING AND BRUISING OF BARK, SMOTHERING BY STOCKPILING OF CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN THE DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC OR PARKING OF VEHICLES WITHIN THE DRIP LINE.
2. ALL TREES TO REMAIN SHALL BE PROTECTED WITH A SNOW FENCE INSTALLED AROUND THE PERIMETER OF THE TREES DRIP LINE. ANY CONSTRUCTION INSIDE THE DRIP LINE OF THE TREE REQUIRES ROOT PRUNING PRIOR TO THE EXCAVATION.
3. EXISTING VEGETATION WHICH IS TO REMAIN IN PLACE SHALL BE WATERED AS REQUIRED TO MAINTAIN ITS HEALTH DURING THE COURSE OF CONSTRUCTION OPERATIONS.
4. PROTECTION SHALL BE PROVIDED FOR ROOTS OVER 1 1/2" IN DIAMETER WHICH ARE CUT DURING CONSTRUCTION OPERATIONS. WHENEVER SUCH A ROOT IS CUT, THE CUT FACES SHALL BE COATED WITH AN EMULSIFIED ASPHALT OR OTHER ACCEPTABLE COATING SPECIALLY FORMULATED FOR HORTICULTURAL USE ON DAMAGED OR CUT PLANT TISSUES. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH WET BURLAP TO PREVENT THE ROOTS FROM DRYING OUT. EXPOSED ROOTS SHALL BE PROVIDED WITH EARTH COVER AS SOON AS POSSIBLE.
5. VEGETATION THAT BECOMES DAMAGED BY CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED IN A MANNER ACCEPTABLE TO THE VILLAGE.
6. DAMAGED TREES SHALL BE REPAIRED BY A QUALIFIED TREE SURGEON. DAMAGED TREES WHICH CANNOT BE REPAIRED AND RESTORED TO FULL GROWTH STATUS, AS DETERMINED BY THE TREE SURGEON, SHALL BE REPLACED.



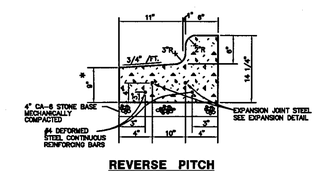
REGULAR SECTION

* INCREASE TO 11 INCHES ADJACENT TO HEAVY DUTY PAVEMENT



DEPRESSED SECTION

* INCREASE TO 11 INCHES ADJACENT TO HEAVY DUTY PAVEMENT

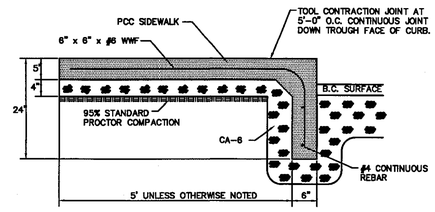


REVERSE PITCH

* INCREASE TO 11 INCHES ADJACENT TO HEAVY DUTY PAVEMENT

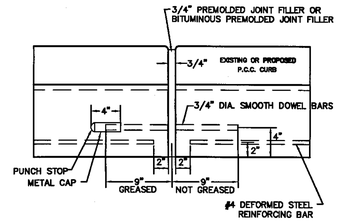
NOTE:
1. SET EXPANSION JOINTS AT ALL PC'S, PT'S, FIVE FEET ON EITHER SIDE OF ANY FRAMES, AND AT 60' MAX. INTERVALS.
2. SAW CUT CONTRACTION JOINTS FULL FACE AND TOP, AT LEAST 2 INCHES IN DEPTH AND AT 20' MAXIMUM INTERVALS WITHIN 24 HOURS OF POURING.
3. TWO COATS CURING COMPOUND REQUIRED.

B6.12 CURB & GUTTER

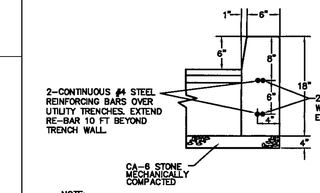


MONOLITHIC VERTICAL CURB

(INSTALL WHERE SIDEWALK PARALLELS CURB LINE)

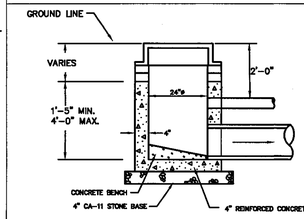


EXPANSION JOINT DETAIL



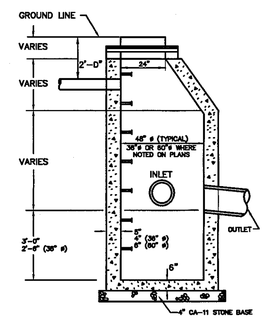
NOTE:
1. SET EXPANSION JOINTS AT ALL PC'S, PT'S, FIVE FEET ON EITHER SIDE OF ANY FRAMES, AND AT 60' MAX. INTERVALS.
2. SAW CUT CONTRACTION JOINTS FULL FACE AND TOP, AT LEAST 2 INCHES IN DEPTH AND AT 15' MAXIMUM INTERVALS WITHIN 24 HOURS OF POURING.
3. CURING COMPOUND REQUIRED.

VERTICAL CURB



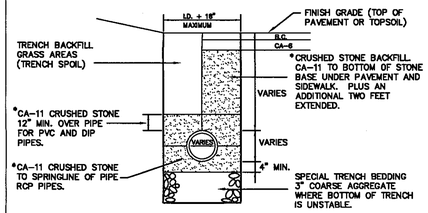
NOTES:
1. PIPE OPENINGS TO BE PRECAST INTO WALLS.
2. PRECAST REINFORCED CONCRETE SECTIONS WITH PREFORMED BITUMINOUS JOINTS AND INTEGRAL PRECAST BOTTOMS.
3. FRAME TO BE LAID IN 3/4" MASTIC BED.
4. ADJUSTING RINGS NOT TO EXCEED 8".
5. FRAME AND GRATE AS SPECIFIED.
6. ALL STORM SEWER STRUCTURES WITH OPEN GRATES SHALL BE FITTED WITH A CATCH-ALL FILTER BASKET. REFER TO DETAIL
7. TWO 6" LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. SEE FINGERDRAIN DETAIL.

INLET



NOTES:
1. PIPE OPENINGS TO BE PRECAST INTO WALLS.
2. PRECAST REINFORCED CONCRETE SECTIONS WITH PREFORMED BITUMINOUS JOINTS AND INTEGRAL PRECAST BOTTOMS.
3. FRAME TO BE LAID IN 3/4" MASTIC BED.
4. ADJUSTING RINGS NOT TO EXCEED 8".
5. STEPS TO BE STEEL REINFORCED PLASTIC OR APPROVED EQUAL.
6. STEPS TO BE IMBEDDED INTO WALL A MINIMUM OF 3".
7. STEPS TO BE AT 16" CENTERS. FIRST STEP TO BE 8" BELOW FRAME.
8. FRAME AND GRATE AS SPECIFIED.
9. ALL STORM SEWER STRUCTURES WITH OPEN GRATES SHALL BE FITTED WITH A CATCH-ALL FILTER BASKET. REFER TO DETAIL
10. TWO 8' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. SEE FINGERDRAIN DETAIL.

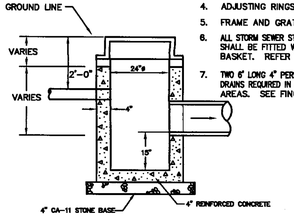
CATCHBASIN



STORM TRENCH DETAIL

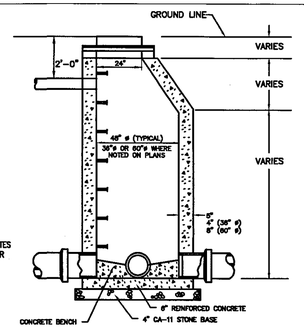
* OMIT AGGREGATE BEDDING AND BACKFILL 15 FEET UP AND DOWN STREAM OF SEWER DRAINING TO OR FROM PONDS AND LAKES. REPLACE AGGREGATE WITH SILTY CLAY SOIL MECHANICALLY COMPACTED TO 90% MODIFIED PROCTOR DENSITY.

NOTES:
1. PIPE OPENINGS TO BE PRECAST INTO WALLS.
2. PRECAST REINFORCED CONCRETE SECTIONS WITH PREFORMED BITUMINOUS JOINTS AND INTEGRAL PRECAST BOTTOMS.
3. FRAME TO BE LAID IN 3/4" MASTIC BED.
4. ADJUSTING RINGS NOT TO EXCEED 8".
5. FRAME AND GRATE AS SPECIFIED.
6. ALL STORM SEWER STRUCTURES WITH OPEN GRATES SHALL BE FITTED WITH A CATCH-ALL FILTER BASKET. REFER TO DETAIL
7. TWO 6' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. SEE FINGERDRAIN DETAIL.



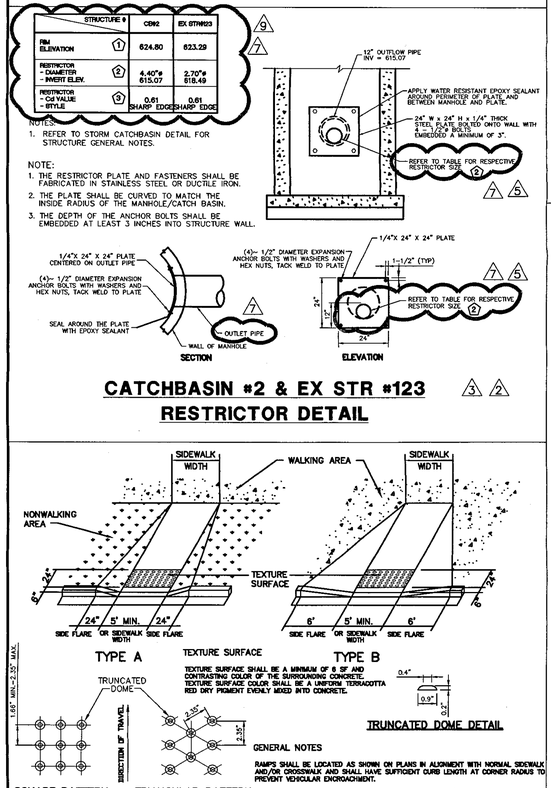
CATCHBASIN TYPE 'C'

(24"ø)

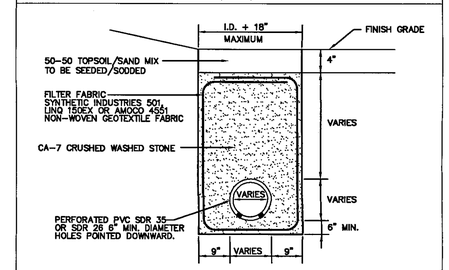


NOTES:
1. PIPE OPENINGS TO BE PRECAST INTO WALLS.
2. PRECAST REINFORCED CONCRETE SECTIONS WITH PREFORMED BITUMINOUS JOINTS AND INTEGRAL PRECAST BOTTOMS.
3. FRAME TO BE LAID IN 3/4" MASTIC BED.
4. ADJUSTING RINGS NOT TO EXCEED 8".
5. STEPS TO BE STEEL REINFORCED PLASTIC OR APPROVED EQUAL.
6. STEPS TO BE IMBEDDED INTO WALL A MINIMUM OF 3".
7. STEPS TO BE AT 16" CENTERS. FIRST STEP TO BE 8" BELOW FRAME.
8. FRAME AND LID AS SPECIFIED.
9. ALL STORM SEWER STRUCTURES WITH OPEN GRATES SHALL BE FITTED WITH A CATCH-ALL FILTER BASKET. REFER TO DETAIL
10. TWO 6' LONG 4" PERF. PVC SDR 35 FINGER DRAINS REQUIRED IN ALL PROPOSED PAVEMENT AREAS. SEE FINGERDRAIN DETAIL.

STORM MANHOLE



SIDEWALK RAMPS FOR THE HANDICAPPED



UNDERDRAIN DETAIL

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DETAIL SHEET

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS				
6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW				
5	WEG	9-16-09	PER MWRD REVIEW COMMENTS				
3	WEG	7-21-09	PER MWRD REVIEW COMMENTS				
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS	9	WEG	3-29-10	PER MWRD REVIEW COMMENTS

FILE: 9207-Stadium-phase 2-DT1-copy.dwg
DRAWN BY: WEG
DATE: 4-8-09
GHA PROJECT # 9207.270
CHECKED BY:
DATE:
SCALE: NONE
SHEET NUMBER: 12 OF 17 SHEETS

GENERAL NOTES

A-1. THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION, THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" LATEST EDITION, PROJECT SPECIFICATIONS, ALL APPLICABLE REQUIREMENTS OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, THE VILLAGE OF WILMETTE, ALL APPLICABLE REQUIREMENTS OF THE ORDINANCES OF AUTHORITIES HAVING JURISDICTION AND ALL ADDENDA THERETO SHALL GOVERN THIS WORK.

A-2. THE STANDARD SPECIFICATIONS, PROJECT SPECIFICATIONS, CONSTRUCTION PLANS AND SUBSEQUENT DETAILS ARE ALL TO BE CONSIDERED AS PART OF THE CONTRACT. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THIS WORK MAY NOT BE SPECIFICALLY NOTED BUT ARE TO BE CONSIDERED A PART OF THE CONTRACT.

A-3. NO CONSTRUCTION PLANS SHALL BE USED FOR CONSTRUCTION UNLESS SPECIFICALLY MARKED 'FOR CONSTRUCTION'. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AFFECTING THEIR WORK WITH THE ACTUAL CONDITIONS AT THE JOB SITE. IN ADDITION, THE CONTRACTOR MUST VERIFY THE ENGINEER'S LINE AND GRADES. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY OMISSION OR DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS OWN RISK AND EXPENSE. IN THE EVENT OF ANY DOUBT OR QUESTION ARISING WITH RESPECT TO THE TRUE MEANING OF THE CONSTRUCTION PLANS OR SPECIFICATIONS, THE DECISION OF THE ENGINEER SHALL BE FINAL AND CONCLUSIVE.

A-4. BEFORE ACCEPTANCE BY THE OWNER AND FINAL PAYMENT, ALL WORK SHALL BE INSPECTED AND APPROVED BY THE OWNER OR HIS REPRESENTATIVES. FINAL PAYMENT WILL BE MADE AFTER ALL OF THE CONTRACTOR'S WORK HAS BEEN APPROVED AND ACCEPTED.

A-5. WHENEVER, DURING CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THE LOOSE MATERIAL WILL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF.

A-6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES, AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION.

A-7. WHENEVER THE PERFORMANCE OF WORK IS INDICATED ON THE PLANS AND NO ITEM IS INCLUDED IN THE CONTRACT FOR PAYMENT, THE WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

A-8. DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHALL ENSURE POSITIVE SITE DRAINAGE AT THE CONCLUSION OF EACH DAY. SITE DRAINAGE MAY BE ACHIEVED BY DITCHING, PUMPING OR ANY OTHER METHOD ACCEPTABLE TO THE ENGINEER AND THE VILLAGE. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF.

A-9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY ROAD OF MATERIAL THAT IS FROM THE PROJECT. THIS WILL BE DONE AT THE CLOSE OF EACH DAY OF WORK OR MORE FREQUENTLY AS MAY BE REQUIRED DUE TO FIELD CONDITIONS.

A-10. ALL CONSTRUCTION WILL BE INSPECTED BY THE OWNER'S ENGINEER. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MUNICIPALITY AS WELL AS THE STANDARD SPECIFICATIONS.

A-11. PAVEMENT SUBBASE, BASE, AND SURFACE MUST EACH BE INSPECTED BY THE ENGINEER AND THE VILLAGE PRIOR TO THE NEXT PHASE OF WORK. PROOF ROLLING AND NUCLEAR DENSITY TESTING WILL BE UTILIZED.

A-12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE FROM THE SITE ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM HIS CONSTRUCTION OPERATIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.

A-13. WHEN A CONFLICT BETWEEN PLANS AND SPECIFICATIONS OR NOTES OCCURS, THE ENGINEER SHALL DECIDE WHICH GOVERNS. GENERALLY, THE MORE RESTRICTIVE, MORE SPECIFIC, OR STRICTER PROVISION SHALL GOVERN.

A-14. CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL AREAS AFFECTED BY EQUIPMENT OR LABORERS TO EXISTING CONDITIONS. CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING ALL NEW WORK UNTIL COMPLETION OF THIS CONTRACT.

A-15. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, THE ARCHITECT, THE ENGINEER, THE VILLAGE OF WILMETTE AND THEIR AGENTS, FROM ALL LIABILITY INVOLVED IN THE CONSTRUCTION, INSTALLATION AND TESTING OF THE WORK ON THIS PROJECT.

A-16. THE CONTRACTOR MUST CARRY INSURANCE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND MUST PRESENT A JOB-SPECIFIC CERTIFICATE OF INSURANCE NAMING ALL OFFICIALS AND EMPLOYEES OF THE VILLAGE, THE ARCHITECT, AND THE ENGINEER, AS ADDITIONAL INSURED.

A-17. ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

A-18. EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES, J.U.L.I.E., THE VILLAGE OF WILMETTE, DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

A-19. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR AND HIS SURETY FOR A PERIOD OF 12 MONTHS FROM THE DATE OF INITIAL ACCEPTANCE OF THE WORK BY THE OWNER AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE.

A-20. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHTS-OF-WAY ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.

A-21. REMOVED PAVEMENT, SIDEWALK, CURB AND GUTTER, ETC. SHALL BE DISPOSED OF OFFSITE AT LOCATIONS PROVIDED BY THE CONTRACTOR AT HIS EXPENSE.

SOIL EROSION NOTES

B-1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SOIL EROSION CONTROL DEVICES IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL CONSTRUCTION WILL ADHERE TO THE REQUIREMENTS SET FORTH IN THE IEPA'S NEW CONSTRUCTION SITE ACTIVITIES NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER PERMIT.

B-2. THE CONTRACTOR IS RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES AND SHALL PROVIDE QUALIFIED PERSONNEL TO INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM THAT IS OF 0.5 INCHES OR GREATER OR EQUIVALENT SNOW FALL.

B-3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY ROAD OF MATERIAL THAT IS FROM THE PROJECT. THIS WILL BE DONE AT THE CLOSE OF EACH DAY OF WORK OR MORE FREQUENTLY AS MAY BE REQUIRED DUE TO FIELD CONDITIONS.

B-4. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.

B-5. ALL STORM WATER YARD INLETS, C.B., AND MANHOLES SHALL BE PROTECTED WITH FILTER BASKETS AND COIR ROLLS. DURING CONSTRUCTION ALL SEDIMENT SHALL BE REMOVED. ALL FILTER BASKETS AND COIR ROLLS SHALL BE REPAIRED OR REPLACED AS NEEDED.

B-6. ALL PROPOSED GREEN AREAS SHALL BE VEGETATED WITHIN 2 MONTHS OF BEING DISTURBED WITH CRITICAL DRAINAGE AREAS REQUIRING IMMEDIATE ATTENTION. ALL GREEN AREAS SHALL RECEIVE A MINIMUM OF 6" OF TOPSOIL AND BE SEEDED OR SODDED IMMEDIATELY.

B-7. AFTER ACHIEVING PERMANENT VEGETATION, ALL FILTER BASKETS AND COIR ROLLS SHALL BE REMOVED AND ALL DRAINAGE STRUCTURES CLEANED.

B-8. SILT FENCE SHALL BE INSTALLED AT THE TOE OF ALL BERMS AT PERIMETER OF THE PROPERTY, AROUND PERIMETER OF THE POND AND AT OTHER LOCATIONS NOTED ON THE PLANS AND AS DIRECTED BY THE ENGINEER OR THE VILLAGE IN THE FIELD. THE CONTRACTOR SHALL MAINTAIN SILT FENCE THROUGHOUT THE LIFE OF THE PROJECT AND REMOVE AND DISPOSE OF ALL SOIL EROSION CONTROL DEVICES AT THE CONCLUSION OF THE PROJECT.

B-9. TEMPORARY SEEDING, MULCHING, AND INSTALLATION OF EROSION CONTROL BLANKETS WILL BE REQUIRED. THE CONTRACTOR SHALL HAVE SUFFICIENT QUANTITIES OF EROSION CONTROL BLANKET ON SITE AT ALL TIMES TO IMMEDIATELY COVER DISTURBED AREAS.

B-10. TEMPORARY EROSION CONTROL BLANKET SHALL BE "NORTH AMERICAN GREEN" S75.

B-11. THE CONTRACTOR IS EXPRESSLY ADVISED NOT TO DISTURB AREAS WHICH ARE OUTSIDE THOSE NECESSARY TO PROVIDE THE IMPROVEMENTS AS CALLED FOR IN THE PLANS. IN PARTICULAR, SPECIFIC TREES WILL BE TARGETED FOR PRESERVATION AND ROOT ZONE PROTECTION.

B-12. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT. FILTER BASKETS, COIR ROLLS, SILT FENCE, ROCK FILTERS, SLOTTED RISERS, AND OTHER EROSION CONTROL METHODS SHALL BE REPLACED WHEN DAMAGED OR FILLED THROUGHOUT THE LIFE OF THE PROJECT.

B-13. ALL BYPASS CHANNELS, MUST BE CONSTRUCTED SO THAT CHANNEL FLOWS WILL NOT CAUSE EROSION OF EXCAVATED MATERIAL. IN EACH CASE A SEDIMENTATION BASIN MUST BE CONSTRUCTED SO AS TO ALLOW SOME OF THE SEDIMENT TO SETTLE PRIOR TO THE DOWNSTREAM OUTLET OF THE PROJECT AREA.

B-14. PUMPS MAY BE USED AS BYPASS DEVICES BUT IN NO CASE WILL THE WATER BE DIVERTED OUTSIDE THE PROJECT LIMIT.

UTILITY/ IEPA / MWRD NOTES

C-1. SEWER AND WATER CONTRACTOR SHALL BE LISCENSED AND BONDED WITH THE VILLAGE OF WILMETTE BEFORE THE JOB IS STARTED.

C-2. ALL CONSTRUCTION SHALL CONFORM TO THE ILLINOIS RECOMMENDED STANDARDS FOR SEWAGE WORKS, LATEST EDITION, PUBLISHED BY THE IEPA.

C-3. THE CONTRACTOR SHALL PROVIDE A LIST OF SEWER AND WATER SERVICE MEASUREMENTS TO THE VILLAGE AND TO THE PROJECT ENGINEER AT THE CONCLUSION OF THE JOB.

C-4. THE CONTRACTOR SHALL NOTIFY THE VILLAGE OF WILMETTE (847-853-7660), THE MWRD LOCAL SEWER PERMIT SECTION (708-588-4055), AND THE PROJECT ENGINEER (847-478-9700) AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.

C-5. UNDERGROUND WORK SHALL INCLUDE TRENCHING, DEWATERING, INSTALLATION OF PIPE, CASTINGS, STRUCTURES, BACKFILLING OF TRENCHES AND COMPACTION, AND TESTING AS SHOWN ON THE CONSTRUCTION PLANS. FITTINGS AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. ALL SEWER SHALL BE INSTALLED USING A LASER. CONTRACTOR SHALL PROVIDE "AS BUILT" DRAWINGS OF ALL SEWER AND WATERMAIN INSTALLATIONS.

C-6. 'BAND-SEAL' OR SIMILAR FLEXIBLE TYPE COUPLINGS SHALL BE USED WHEN CONNECTING SEWER PIPES OF DISSIMILAR MATERIALS.

C-7. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE ONE OF THE FOLLOWING METHODS SHALL BE USED:

(1) CIRCULAR, SAW-CUT OF SEWER MAIN WITH PROPER TOOLS ("SHEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB – WYE SADDLE OR HUB – TEE SADDLE, IN ACCORDANCE WITH MANUFACTUREROS RECOMMENDATIONS.

(2) USING PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF PROPER FITTING. USE "BAND-SEAL" COUPLINGS OR SIMILAR COUPLINGS, AND SHEAR RINGS AND CLAMPS TO FASTEN THE INSERTED FITTING AND HOLD IT FIRMLY IN PLACE. MISSION COUPLINGS SHALL HAVE THE LENGTH OF BOOT APPROXIMATELY EQUAL TO THE PIPE DIAMETER. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR THE INSTALLATION.

NO CUT-IN CONNECTION, MADE BY BREAKING OR CUTTING A HOLE IN THE MAIN AND INSERTING THE SPIGOT END OF AN ORDINARY SEWER PIPE SHALL BE PERMITTED.

C-8. MAIN LINE STORM SEWERS SHALL BE CONSTRUCTED OF ONE OF THE FOLLOWING AS NOTED ON THE PLANS.

(1) REINFORCED CONCRETE PIPE, CLASS IV, CONFORMING TO ASTM C-76 WITH O-RING JOINTS CONFORMING TO ASTM C-443.

(2) DUCTILE IRON PIPE CLASS 52 CONFORMING TO ANSI A21.51 OR AWWA C-151. GASKETS AND CAST IRON FITTINGS SHALL CONFORM TO ANSI A21.11 OR AWWA C-110 OR C-111.

(3) PVC SDR 26 PIPE CONFORMING TO ASTM D-3034 WITH RUBBER GASKET JOINTS CONFORMING TO ASTM D3212.

C-9. STORM SEWER STRUCTURES ARE TO BE PRECAST REINFORCED CONCRETE ECCENTRIC TYPE WITH A MINIMUM 48 INCH INSIDE DIAMETER BARREL SECTION. STEPS SHALL BE MADE OF STEEL REINFORCED PLASTIC, USING AN APPROVED PLASTIC MEETING ASTM D4101, TYPE II, GRADE 49108 OVER A #3 GRADE 60, ASTM A615, REINFORCING BAR. A MAXIMUM OF 8 INCHES OF ADJUSTING RINGS SHALL BE USED.

C-10. UNLESS OTHERWISE NOTED ON THE PLANS, ALL INLETS AND CATCHBASINS LOCATED IN PAVEMENT AREAS SHALL HAVE NEENAH R-1713 FRAMES WITH TYPE D OPEN GRATES. INLETS, CATCHBASINS AND TYPE 'C' CATCHBASINS IN OFF-ROAD AREAS SHALL HAVE NEENAH R-2437 FRAMES WITH TYPE 'D' OPEN GRATES. MANHOLES SHALL HAVE NEENAH R-1713 FRAMES WITH CLOSED LIDS WITH THE WORD "STORM" IMPRINTED ON THE COVER .

C-11. STORM MANHOLES, INLETS AND CATCH BASINS PLACED WITHIN THE ROADWAY SURFACE SHALL HAVE AN UNDERDRAIN SYSTEM OF PERFORATED RIGID PVC SDR35 PIPE AS DETAILED.

C-12. ALL STORM, SANITARY, AND WATERMAIN TRENCHES BENEATH PROPOSED OR EXISTING UTILITIES, PROPOSED OR EXISTING PAVEMENT, DRIVEWAYS, OR SIDEWALKS FOR A DISTANCE OF TWO FEET ON EITHER SIDE OF SAME, AND/OR WHEREVER ELSE SHOWN ON THE CONSTRUCTION PLAN SHALL BE BACKFILLED WITH CA-6 CRUSHED STONE BACKFILL AND THOROUGHLY COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS. ALL WATER USED FOR JETTING SHALL BE METERED. THERE SHALL BE A 3 WEEK WAITING PERIOD BETWEEN THE TIME THAT THE JETTING OF THE TRENCHES IS COMPLETED AND THE INSTALLATION OF THE PAVEMENT. STORM SEWER TRENCHES SHALL BE BACKFILLED WITH CA-11 CRUSHED STONE.

C-13. ALL STRUCTURE SECTIONS AND ADJUSTING RINGS SHALL BE SECURELY SEALED TO EACH OTHER OR TO THE FRAME, CONE SECTION OF THE STRUCTURE USING RESILIENT, FLEXIBLE, NON-HARDENING, PREFORMED, BITUMINOUS MASTIC (RAM-NEK, OR APPROVED EQUAL.) THIS MASTIC SHALL BE APPLIED IN SUCH A MANNER THAT NO SURFACE WATER OR GROUND WATER INFLOW CAN ENTER THE STRUCTURE THROUGH GAPS BETWEEN BARREL SECTIONS OR CONE SECTIONS AND ADJUSTING RINGS.

C-14. THE CONTRACTOR SHALL NOTIFY COMMONWEALTH EDISON CO., ILLINOIS BELL TELEPHONE CO., NORTHERN ILLINOIS GAS COMPANY, LOCAL CABLE COMPANIES, THE VILLAGE OF WILMETTE AND THE OWNER, THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

C-15. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING JULIE AS WELL AS LOCAL CABLE TV COMPANIES AND THE VILLAGE OF WILMETTE. THE FACILITIES SHALL BE LOCATED PRIOR TO ANY WORK WITHIN ANY EASEMENT, R.O.W, OR SUSPECTED UTILITY LOCATION.

C-16. MACHINE CORE ALL CONNECTIONS TO EXISTING STRUCTURES. PIPE PENETRATIONS INTO EXISTING SANITARY MANHOLES SHALL BE PROPERLY SIZED AND CORED AND SEALED WITH FLEXIBLE WATER TIGHT CONNECTIONS.

C-17. ALL EXISTING STRUCTURES SHALL BE ADJUSTED AS NECESSARY TO MATCH PROPOSED GRADES & LANDSCAPING.

C-18. ALL SEWERS AND WATER MAINS SHALL BE INSTALLED ON CRUSHED STONE BEDDING (CA-11) WITH A MINIMUM THICKNESS OF 6 INCHES AND A MAXIMUM THICKNESS OF 8 INCHES. THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED TO SPRING LINE OF THE REINFORCED CONCRETE PIPE. BLOCKING OF ANY KIND FOR GRADE IS NOT PERMITTED. ALL PVC PIPE AND DUCTILE IRON PIPE SHALL BE INSTALLED ON CRUSHED STONE BEDDING (CA-11) WITH A MINIMUM THICKNESS OF 6 INCHES AND A MAXIMUM THICKNESS OF 8 INCHES. PROPERLY COMPACT AND EXTEND THE BEDDING TO 12 INCHES OVER THE TOP OF THE PIPE.

C-19. ALL SANITARY SEWER PIPE AND SERVICES SHALL BE CONSTRUCTED OF PVC SDR26 CONFORMING TO ASTM D-2241 WITH ASTM F-477-76 RUBBER GASKET JOINTS. WHERE SPECIFIED SANITARY SEWER AND SERVICES SHALL BE DIP CLASS 52 CONFORMING TO ANSI A21.51 OR AWWA C-151 WITH JOINTS CONFORMING TO ANSI 21.11 OR AWWA C-110 OR C-111.

C-20. ALL SANITARY SEWER AND SERVICES SHALL BE INSTALLED ON CRUSHED STONE BEDDING (CA-11) WITH A MINIMUM THICKNESS OF 6 INCHES AND A MAXIMUM THICKNESS OF 8 INCHES. PROPERLY COMPACT AND EXTEND THE BEDDING TO 12 INCHES OVER THE TOP OF THE PIPE.

C-21. SANITARY SEWER MANHOLES ARE TO BE PRECAST REINFORCED CONCRETE ECCENTRIC TYPE WITH A MINIMUM 48 INCH INSIDE DIAMETER BARREL SECTION; PIPE PENETRATIONS ARE TO BE SEALED VIA THE USE OF A CAST IN PLACE FLEXIBLE SYNTHETIC RUBBER PIPE SLEEVE WHICH IS TO BE FASTENED TO THE PIPE WITH STAINLESS STEEL BANDS. BARREL SECTIONS SHALL BE SEALED USING A BUTYL RUBBER MATERIAL STRIP AND/OR RUBBER GASKET. FRAMES ARE TO BE SEALED TO THE BARREL SECTIONS OF THE MANHOLE MECHANICALLY USING SYNTHETIC RUBBER SEALS WITH STAINLESS STEEL BANDS AND "COR-TEN" BOLTS. CHIMNEY SEALS ARE TO BE EXTERNAL, MANUFACTURED BY "CRETEX" OR APPROVED EQUAL. STEPS SHALL BE MADE OF STEEL REINFORCED PLASTIC, USING AN APPROVED PLASTIC MEETING ASTM D4101, TYPE II, GRADE 49108, OVER A #3 GRADE 60, ASTM A615 REINFORCING BAR. A MAXIMUM OF 8 INCHES OF ADJUSTING RINGS SHALL BE USED.

C-22. SANITARY MANHOLE FRAMES AND COVERS ARE TO BE NEENAH FOUNDRY R-1713, OR APPROVED EQUAL, WITH CONCEALED PICK HOLES AND SEALED COVER. MANHOLE COVERS MUST HAVE "SANITARY" CAST INTO THE TOP OF THE COVER.

C-23. BUILDING STORM SEWER SERVICE PIPE SHALL NOT BE LESS THAN THE DIAMETER OF THE PLUMBING PIPE FROM THE BUILDING, BUT NOT LESS THAN 6 INCHES. THE PIPE SHALL HAVE A MINIMUM SLOPE OF 1/8-INCH PER FOOT, BUT NOT MORE THAN 1/2-INCH PER FOOT. CHANGES OF DIRECTION OF SERVICE PIPE SHALL BE MADE WITH COMBINATIONS OF 22-1/2 DEGREE BENDS WHEREVER PRACTICABLE, WITH NOT LESS THAN 2 FEET OF STRAIGHT PIPE BETWEEN SUCH BENDS. RIGHT ANGLE (90 DEGREE) BENDS WILL NOT BE ALLOWED. WHEN A SERVICE LINE EXCEEDS 100 FEET IN LENGTH, A CLEANOUT SHALL BE PROVIDED AT A LOCATION DESIGNATED BY THE ENGINEER. THE CLEANOUT SHALL BE PROPERLY SEALED, WITH THE TOP OF THE PLUGGED RISER ENDING 6 INCHES BELOW FINISHED GRADE.

C-24. SERVICE CONNECTIONS TO NEW SEWERS SHALL BE MADE WITH WYE BRANCHES. WYE BRANCHES SHALL BE FACTORY MANUFACTURED PERMANENTLY AFFIXED TO THE MAIN SEWER. TEE BRANCHES ARE NOT ALLOWED.

C-25. CONNECTION TO THE EXISTING WATERMAIN SHALL BE MADE WITHOUT INTERRUPTION OF EXISTING WATERMAIN FLOW, UNLESS APPROVED BY THE VILLAGE. THE CONTRACTOR MAY TEST AGAINST THE EXISTING VALVE OR MAY UTILIZE A TEMPORARY PLUG, TO BE REMOVED.

C-26. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER. ALL DOWNSPOUTS, SIDEYARD DRAINS, FOOTING DRAINS AND OUTSIDE DRAINS SHALL DISCHARGE TO THE STORM SEWER OR OVER GROUND.

C-27. OVERHEAD PLUMBING IS REQUIRED FOR ALL NEW BUILDINGS HAVING FLOOR SLABS BELOW GROUND LEVEL. ALL SEWERS MUST BE INSTALLED WITH LASER BEAM.

C-28. SANITARY SEWERS, HOUSE SEWERS OR STORM DRAINS THAT ARE LAID IN THE VICINITY OF PIPE LINES DESIGNATED TO CARRY POTABLE WATER SHALL MEET THE CONDITIONS SET FORTH IN SECTION 41-2.01 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATERMAIN CONSTRUCTION.

C-29. THE MAXIMUM ALLOWABLE RATE OF INFILTRATION OR EXFILTRATION SHALL NOT EXCEED 100 GALLONS PER TWENTY FOUR (24) HOURS PER MILE PER INCH – DIAMETER OF THE SANITARY SEWER PIPE. ALL SANITARY SEWER SHALL BE AIR TESTED.

C-30. ALL PVC SANITARY SEWERS SHALL BE TESTED FOR DEFLECTION USING A GO-NO GO RIGID BALL OR MANDREL HAVING A DIAMETER EQUAL TO 95% OF THE INSIDE OR BASE DIAMETER OF THE PIPE AS ESTABLISHED IN THE ASTM STANDARD TO WHICH THE PIPE IS MANUFACTURED. THE TEST SHALL BE PERFORMED WITHOUT THE USE OF MECHANICAL PULLING DEVICES. TESTING SHALL BE DONE WHERE DEFLECTION IS FOUND TO BE IN EXCESS OF 5% OF THE ORIGINAL PIPE DIAMETER. THE CONTRACTOR SHALL EXCAVATE TO THE POINT OF EXCESS DEFLECTION AND CAREFULLY COMPACT AROUND THAT POINT. IF DEFLECTION STILL EXCEEDS THE ALLOWABLE DEFLECTION, THE THE FAILING SECTION(S) SHALL BE REPLACED.

C-31. ALL SANITARY SEWER SHALL BE TELEVISED NO SOONER THAN 12 MONTHS AFTER INSTALLATION, AND PRIOR TO FINAL ACCEPTANCE. CONTRACTOR SHALL PROVIDE COLOR VIDEOTAPE AND WRITTEN LOG TO THE VILLAGE.

C-32. SANITARY SEWER MANHOLES SHALL BE TESTED FOR LEAKAGE AND WATERTIGHTNESS IN ACCORDANCE WITH ASTM C1244-93 "STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY THE NEGATIVE PRESSURE (VACUUM) TEST."

C-33. HORIZONTAL SEPARATION – WATER MAINS AND SEWERS:

(1) WATER MAINS SHALL BE LOCATED AT LEAST TEN FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED DRAIN, STORM SEWER, SANITARY SEWER, COMBINED SEWER OR SEWER SERVICE CONNECTION.

(2) WATER MAINS MAY BE LOCATED CLOSER THAN TEN FEET TO A SEWER LINE WHEN

(A) LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF TEN FEET; AND

(B) THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE CROWN OF THE SEWER; AND

(C) THE WATER MAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON AN UNDISTURBED EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER.

(3) WHEN IT IS IMPOSSIBLE TO MEET (1) OR (2) ABOVE, BOTH THE WATER MAIN AND DRAIN OR SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, PRESTRESSED CONCRETE PIPE, OR PVC PIPE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION. THE DRAIN OR SEWER SHALL BE PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACKFILLING.

C-34. VERTICAL SEPARATION – WATER MAINS AND SEWERS:

(1) A WATER MAIN SHALL BE SEPARATED FROM A SEWER SO THE BOTTOM OF THE WATER MAIN IS A MINIMUM OF 18 INCHES ABOVE THE CROWN OF THE DRAIN OR SEWER WHENEVER WATER MAINS CROSS STORM SEWERS, SANITARY SEWERS OR SEWER SERVICE CONNECTIONS. THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATED WITHIN TEN FEET HORIZONTALLY OF ANY SEWER OR DRAIN CROSSED. A LENGTH OF WATER MAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN.

(2) BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, PRESTRESSED CONCRETE PIPE, OR PVC PIPE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION WHEN:

(A) IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED IN (1) ABOVE; OR

(B) THE WATER MAIN PASSES UNDER A SEWER OR DRAIN.

(3) A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE SEWER OR DRAIN AND THE CROWN OF THE WATER MAIN SHALL BE MAINTAINED WHERE A WATER MAIN CROSSES UNDER A SEWER. SUPPORT THE SEWER OR DRAIN LINES TO PREVENT SETTLING AND BREAKING THE WATER MAIN, AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER. THIS MAY BE AS FOLLOWS:

(A) THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE, AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.

(B) EITHER THE WATER MAIN OR THE SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE WHICH EXTENDS TEN FEET ON BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATERMAIN. THE CARRIER PIPE SHALL BE OF MATERIALS APPROVED FOR USE IN WATER MAIN CONSTRUCTION.

(4) CONSTRUCTION SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE PERPENDICULAR DISTANCE FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN FEET.

C-35. WATERMAIN SHALL BE DUCTILE IRON PIPE, CLASS 52, CONFORMING TO ANSI A21.51 OR AWWA C-151. WATERMAIN SHALL BE CEMENT LINED IN ACCORDANCE WITH AWWA C-104. GASKETS AND CAST IRON FITTINGS SHALL CONFORM TO ANSI A21.11 OR AWWA C-110 OR C-111. WATERMAIN COVER FROM FINISHED GRADE TO TOP OF WATERMAIN SHALL BE 5.5 FEET. WATERMAIN SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C-600 AND C-601. ALL BOLTS FOR MECHANICAL FITTINGS SHALL BE STAINLESS STEEL. ALL WATERMAIN SHALL BE ENCASED IN A POLYETHYLENE SLEEVE (8 MIL.). WHERE NOTED CLASS 55 DIP SHALL BE USED.

C-36. WATER MAIN TRENCHES SHALL BE EXCAVATED SO THE INSTALLED DEPTH OF THE WATER MAIN SHALL NOT BE LESS THAN 5.5 FEET FROM EXISTING /PROPOSED GROUND ELEVATION TO THE TOP OF THE PIPE, EXCEPT WHERE SHOWN DIFFERENTLY OR AS DIRECTED BY THE ENGINEER. IF THE EXCAVATION HAS BEEN MADE DEEPER THAN NECESSARY, OR IS REQUIRED DEEPER FOR ADJUSTMENTS FOR FIRE HYDRANTS, VALVE VAULTS, AND SERVICES OR FOR SEPARATION FROM SEWERS AND OTHER UTILITIES, THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WATERMAIN AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED. DEPRESSIONS OF SUFFICIENT DEPTH SHALL BE PROVIDED IN THE STONE BEDDING TO ACCOMMODATE THE BELL OF THE PIPE AND TO ENSURE UNIFORM SUPPORT FOR THE PIPE. WHERE ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, WATER MAIN TRENCHES SHALL BE STABILIZED IN THE MANNER DIRECTED BY THE ENGINEER.

C-37. WHERE SPECIFIED VALVE BOXES SHALL BE TYLER 664-S CAST IRON, THREE PIECE BOX WITH ADAPTER II RUBBER STABILIZER.

C-38. THRUST BLOCKING SHALL BE PROVIDED ON WATER MAIN AT ALL BENDS OF 22 1/2 DEGREES AND ABOVE, TEES, ELBOWS, HYDRANTS, ETC. INDIVIDUAL INSPECTION FOR ALL THRUST BLOCKING IS REQUIRED. THRUST BLOCKING SHALL BE POURED IN PLACE CONCRETE. ALL BENDS GREATER THAN 10 DEGREES, HYDRANTS, TEES, AND FITTINGS SHALL BE M.J. WITH "MEGALUG" RETAINING GLANDS OR FIELD LOK GASKET IN CASINGS, BETWEEN FITTINGS AND AT GRADE CHANGE.

C-39. ALL WATERMAIN SHALL BE THOROUGHLY FLUSHED AND THEN SUBJECTED TO A 2 HOUR PRESSURE AND LEAKAGE TEST AT 150 PSI FOR DISTRIBUTION MAINS AND 200 PSI FOR SERVICE LATERALS BY THE CONTRACTOR AND SHALL BE CHLORINATED IN ACCORDANCE WITH VILLAGE STANDARDS AND THE STANDARD SPECIFICATIONS. MAKE-UP WATER SHALL BE SUPPLIED FROM AN OPEN DRUM, AND THE VOLUME OF WATER USED SHALL NOT EXCEED THAT ALLOWED BY THE STANDARD SPECIFICATIONS. THIS TEST SHALL BE WITNESSED BY A REPRESENTATIVE OF THE VILLAGE.

C-40. ALL WATERMAIN PLACED IN CASING PIPE SHALL UTILIZE "PSI CASING SPACERS AND END SEALS".

C-41. ALL BUILDINGS SUPPLIED WITH FIRE AND DOMESTIC WATER SERVICES SHALL HAVE THE SERVICES SEPARATED OUTSIDE OF THE BUILDING WITH THE PROPER SECTIONALIZING VALVES.

C-42. ALL WATER SERVICES SHALL BE SHELVED A MINIMUM OF 18" ABOVE SEWER SERVICES. COPPER SHALL BE TYPE K, 100 FOOT LENGTHS. ALL WATER AND STORM SERVICES SHALL BE MARKED AT THE END WITH A 4x4 POST. POST SHALL BE PAINTED GREEN FOR STORM AND BLUE FOR WATER.

C-43. RECONNECT ALL EXISTING TILE LINES FOUND IN THE EXCAVATION TO THE NEW STORM LINES USING WYE OR TEE IN ACCORDANCE WITH UTILITY NOTES. NOTE THE LOCATION ON THE "AS-CONSTRUCTED" DRAWINGS. THIS IS CONSIDERED INCIDENTAL TO THE CONTRACT.

C-44. CEMENT BRICKS AND NON-SHRINK MORTAR SHALL BE USED IN ALL STORM STRUCTURES.

C-45. METAL TRASH GRATES SHALL BE INSTALLED ON ALL FLARED END SECTIONS 15" AND LARGER.

PAVING AND GRADING NOTES

D-1. ALL PAVEMENT DIMENSIONS ARE TO THE EDGE OF PAVEMENT, UNLESS OTHERWISE INDICATED.

D-2. PAVING WORK SHALL INCLUDE FINAL SUB-GRADE SHAPING AND PREPARATION, FORMING, PLACEMENT OF BASE COURSE MATERIALS, PATCHING, PETROMAT, AND SUBSEQUENT BINDER AND/OR SURFACE COURSES, FINISHING AND CURING OF CONCRETE, FINAL CLEAN-UP AND ALL RELATED WORK.

D-3. THE PROPOSED PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION', LATEST EDITION.

D-4. PAVEMENT DESIGN SHALL BE AS DETAILED. PRIOR TO THE PLACEMENT OF ANY STONE BASE ALL SUBBASE SHALL BE COMPACTED WITH A SELF-PROPELLED SHEEPSFOOT COMPACTOR (CAT 815 OR LARGER) TO A MINIMUM DENSITY OF 95% MODIFIED PROCTOR FOR ALL PAVEMENT. TESTING SHALL BE BY NUCLEAR DENSITY TEST AND PROOF ROLLING. THE CONTRACTOR SHALL PROOF ROLL THE SUBGRADE BEFORE PAVEMENT CONSTRUCTION PROCEEDS. THE PROOF ROLL MUST BE WITNESSED BY THE ENGINEER AND A REPRESENTATIVE OF THE VILLAGE. THE SUBGRADE WILL NOT BE APPROVED AND ACCEPTED WITHOUT PROOF ROLLING. THE PROOF ROLLING SHALL BE DONE BY A FULLY LOADED THREE-AXLE DUMP TRUCK TOGETHER WITH LOAD WEIGHING AT LEAST TWENTY-FIVE (25) TONS. IF THE SUBGRADE OR BASE HAS FAILURE OR PUMPING AS INDICATED BY PROOF ROLLING, THE AREA OF FAILURE OR PUMPING SHALL BE SCARIFIED AND RECOMPACTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, SUBSEQUENT PROOF ROLL WILL BE CONDUCTED UNTILL THE SUBGRADE IS FOUND TO BE ACCEPTABLE TO THE ENGINEER.

D-5. A MODIFIED PROCTOR DENSITY OF 95% IS REQUIRED FOR SUBBASE AND STONE BASE. A DENSITY OF 93% IS REQUIRED FOR ASPHALT. ALL OFF-ROAD ZONES SHALL BE COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR. FILL CANNOT INCLUDE DEBRIS. (REMOVE ALL DEBRIS, TREES, ETC. FROM SITE).

D-6. ALL DISTURBED NON-PAVEMENT AREAS SHALL BE ROUGH GRADED. THE CONTRACTOR IS RESPONSIBLE FOR ALL EROSION PREVENTION AND REPAIR.

D-7. CURB AND GUTTER SHALL BE M3.12, B6.12, VERTICAL CURB OR MATCH EXISTING FOR SHORT SECTIONS. THE CURB SHALL CONSIST OF PORTLAND CEMENT CONCRETE, 4" SLUMP, 6.1 BAG MIX, AND AIR ENTRAINMENT OF NOT LESS FIVE (5%) OR MORE THAN EIGHT (8%). CONCRETE SHALL BE A MINIMUM COMPRESSIVE STRENGTH (3500 PSI) AT FOURTEEN (14) DAYS. ALL CURB AND GUTTER SHALL BE BROOM FINISHED. SAW CONTRACTION JOINTS AT LEAST 2" IN DEPTH 15' O.C. AND AT ALL PC'S & PT'S WITHIN 24 HOURS. CURB AND GUTTER SHALL BE BACKFILLED AFTER PAVEMENT IS INSTALLED. IT SHALL BE BACKFILLED AND COMPACTED FOR A DISTANCE OF 5 FEET AT A 2% GRADE.

D-8. 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINTS WITH 3/4" x 18" PLAIN ROUND, STEEL DOWEL BARS SHALL BE INSTALLED IN ALL CURBS, 1/2" x 12" PLAIN ROUND STEEL DOWEL BARS IN SIDEWALK AT (60') SIXTY FOOT INTERVALS AND AT ALL P.C.'S, P.T.'S, CURB RETURNS. ALTERNATE ENDS OF THE DOWEL BARS SHALL BE GREASED AND FITTED WITH METAL EXPANSION TUBES. ALL EXPANSION JOINTS MUST BE FREE OF CONCRETE FOR FULL DEPTH. CONTRACTION JOINTS SHALL BE TOOLED AT 5' INTERVALS IN THE SIDEWALK. THE COST OF THESE JOINTS SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. CONTRACTION JOINTS SHALL ALSO BE TOOLED DOWN THE CENTER OF ALL SIDEWALKS GREATER THAN 6' WIDE. (FIVE FOOT SPACING MAXIMUM).

D-9. ALL PORTLAND CEMENT CONCRETE SHALL BE CURED AND PROTECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. TWO COATS OF WHITE CURING COMPOUND SHALL BE APPLIED TO ALL CONCRETE WORK AS SOON AS THE FINISH IS COMPLETE, WITHIN ONE (1) HOUR OF FINAL STRIKING.

D-10. A VIBRATORY ROLLER IS REQUIRED FOR THE BREAKDOWN PASSES, AND A STATIC ROLLER FOR THE FINISH COURSE. WEIGHTS AS PER IDOT SPECS.

D-11. CONCRETE SURFACE (SIDEWALKS, DRIVEWAYS, AND PAVEMENTS)
A) FINISH WITH A LIGHT BROOM FINISH.
B) 6.1 BAG MIX, 4" SLUMP MAX, 5%-8% AIR-ENTRAINED, READY-MIX CONCRETE.
C) 3500 PSI AT 14 DAYS, TWO CYLINDERS/25 CY. (TO BE PROVIDED AND TAKEN BY CONTRACTOR).
D) SLOPE AT MINIMUM 1% AS NOTED ON PLANS.

D-12. CONCRETE SIDEWALKS SHALL BE 5" THICK (8" THICK THROUGH DRIVEWAYS), SET ON THE 4" CA-6 CRUSHED STONE COMPACTED SUBBASE AND SHALL BE 1/4" /FOOT ABOVE THE ADJACENT CURB. SPECIFICATIONS FOR CONCRETE AND CURB AND GUTTER SHALL HAVE A 14 DAY COMPRESSIVE STRENGTH OF 3500 PSI WITH A 5-8% ENTRAINED AIR, WITH 6.1 BAG MIX AND 2-4 INCHES OF SLUMP. FINISH WITH A LIGHT BROOM SURFACE. MEET PAVEMENT GRADE WITH A DEPRESSED CURB. CURING COMPOUND APPLIED WHEN FINISHED. MINIMUM CROSS SLOPE SHALL BE 1/4" PER FOOT TOWARD STREET.

D-13. WHENEVER NEW CONCRETE ABUTS EXISTING CONCRETE, SET A 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINT AND DOWEL WITH SMOOTH 12" #4 BARS AT 24" O.C. EXCEPT AT BUILDING ENTRANCES WHERE THEY SHALL BE AT 12" O.C. THIS INCLUDES CONCRETE POURED ADJACENT TO EXISTING SIDEWALKS, CURBS AND BUILDING, EXCEPT AT EXPANSION JOINTS. THE DOWEL BARS SHOULD BE 4" INTO EXISTING CONCRETE WITH 8" EXTENDING INTO NEW CONCRETE.

D-14. PRIME COAT FOR THE SURFACE COURSE SHALL BE APPLIED TO THE BINDER AT A RATE OF 0.07 GAL/SY (SS-1). PRIME COAT FOR THE BINDER COURSE SHALL BE APPLIED TO THE SUBBASE AT A RATE OF 0.25 GAL/SY (P.E.P.).

D-15. WHEREVER A PAVEMENT OVERLAY OCCURS ADJACENT TO A CONCRETE SURFACE OR EXISTING PAVEMENT, THE CONTRACTOR SHALL GRIND DOWN (OR REMOVE) ASPHALT 3' WIDE BY 2" DEPTH UNLESS OTHERWISE NOTED ON THE PLANS. THIS IS CONSIDERED INCIDENTAL TO THE CONTRACT.

D-16. ALL CURB AND SIDEWALK SHALL BE REINFORCED WITH TWO #4 REBARS (THREE EQUALLY SPACED REBAR FOR SIDEWALK) WHENEVER THE CURB OR SIDEWALK CROSSES A UTILITY TRENCH. EXTEND THE REBAR TEN FEET BEYOND THE TRENCH ON BOTH SIDES.

D-17. ALL GEOTEXTILE FABRIC SHALL BE AMOCO 2006 OR APPROVED EQUAL. OVERLAP ALL EDGES BY AT LEAST 18". USE OF SMALL PIECES SHALL NOT BE PERMITTED. ALTERNATE MATERIAL MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO ORDERING.

RESTORATION

E-1. STOCKPILES AND SWALES SHALL BE SEEDED OR MULCHED IN ACCORDANCE WITH THE IDOT SEEDING AND MULCHING SCHEDULE.

E-2. SPREAD A MINIMUM OF 4" OF PULVERIZED TOPSOIL ON ALL DISTURBED TURF AREAS AND PROPOSED GREEN AREAS. TOPSOIL MUST BE FREE OF ROCKS AND EARTH CLODS OF GREATER THAN 3 INCHES IN ANY DIMENSION. FINE GRADE FOR MINIMUM 1% SLOPE FOR DRAINAGE. ALL DISTURBED AREAS SHALL BE SODDED.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
MWRD TYPICAL GENERAL NOTES

1. THE MWRD LOCAL SEWER SYSTEMS SECTION FIELD OFFICE MUST BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK (CALL 708-588-4055).

2. ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

3. ~~ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER SYSTEM.~~ (NOT APPLICABLE)

4. ALL DOWNSPOUTS ~~AND FOOTING DRAINS~~ SHALL DISCHARGE TO THE STORM SEWER SYSTEM.

5. ALL SANITARY SEWER PIPE SHALL BE PVC SDR 26 PIPE CONFORMING TO ASTM D-2241 WITH JOINTS CONFORMING TO ASTM D-3139 AND ASTM F-477-76 RUBBER GASKET JOINTS.

6. ALL SANITARY SEWER CONSTRUCTION, REQUIRES STONE BEDDING ¼" TO 1" IN SIZE, WITH A MINIMUM THICKNESS EQUAL TO ¼ OF THE OUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN 4" NOR MORE THAN 8". MATERIAL SHALL BE CA-11 OR CA-13 AND SHALL BE EXTENDED AT LEAST 12" ABOVE THE TOP OF THE PIPE WHEN USING PVC.

7. 'BAND-SEAL' OR SIMILAR FLEXIBLE TYPE COUPLINGS SHALL BE USED WHEN CONNECTING SEWER PIPES OF DISSIMILAR MATERIALS.

8. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE, ONE OF THE FOLLOWING SHALL BE USED:

A. CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS ("SHEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB-WYE OR HUB-TEE SADDLE.

9 WHEREVER A SANITARY/COMBINED SEWER CROSS UNDER A WATERMAIN, THE MINIMUM VERTICAL DISTANCE FROM THE TOP OF THE SEWER TO THE BOTTOM OF THE WATERMAIN SHALL BE 18 INCHES. FURTHERMORE, A MINIMUM HORIZONTAL DISTANCE OF 10 FEET BETWEEN SANITARY/COMBINED SEWERS AND WATERMAINS SHALL BE MAINTAINED UNLESS: THE SEWER IS LAID IN A SEPARATE TRENCH, KEEPING A MINIMUM 18 INCHES VERTICAL SEPARATION, OR THE SEWER IS LAID IN THE SAME TRENCH WITH THE WATERMAIN LOCATED AT THE OPPOSITE SIDE ON A BENCH OF UNDISTURBED EARTH, KEEPING A MINIMUM 18 INCHES VERTICAL SEPARATION. IF EITHER THE VERTICAL OR HORIZONTAL DISTANCES DESCRIBED ABOVE CANNOT BE MAINTAINED, OR THE SEWER CROSSES ABOVE THE WATERMAIN, THE SEWER SHALL BE CONSTRUCTED TO WATERMAIN STANDARDS.

10. ALL EXISTING SEPTIC SYSTEMS SHALL BE ABANDONED. ABANDONED TANKS SHALL BE FILLED WITH GRANULAR MATERIAL OR REMOVED.

11. ALL SANITARY MANHOLES, SHALL HAVE A MINIMUM INSIDE DIAMETER OF 48" AND SHALL BE PRE-CAST REINFORCED CONCRETE. IN ADDITION, ALL PIPE STRUCTURE CONNECTIONS REQUIRE A WATERTIGHT BOOT, CONFORMING TO ASTM C-923.

GEWALT HAMILTON
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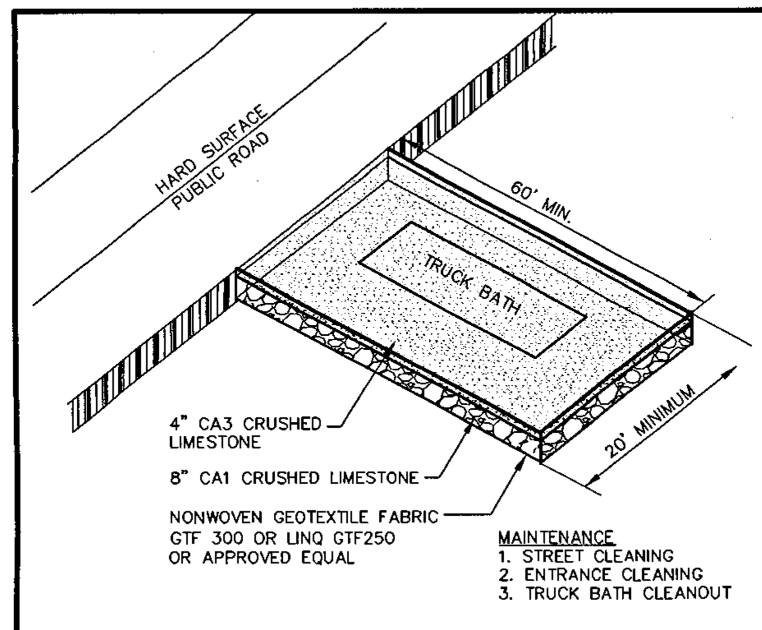
GENERAL NOTES

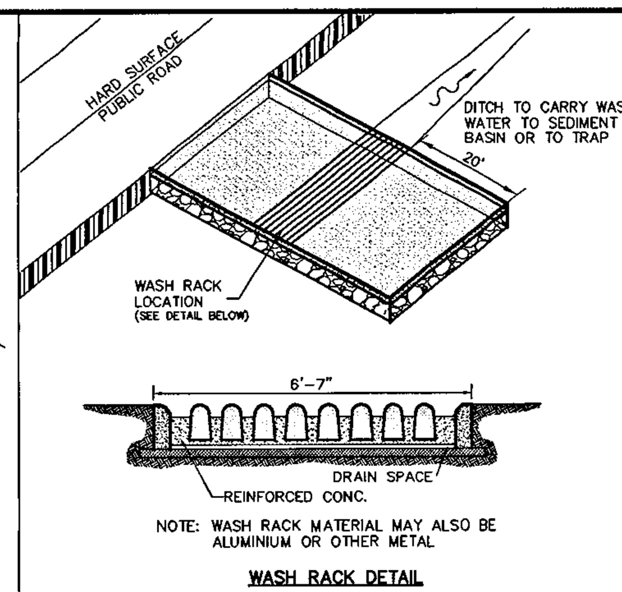
STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS

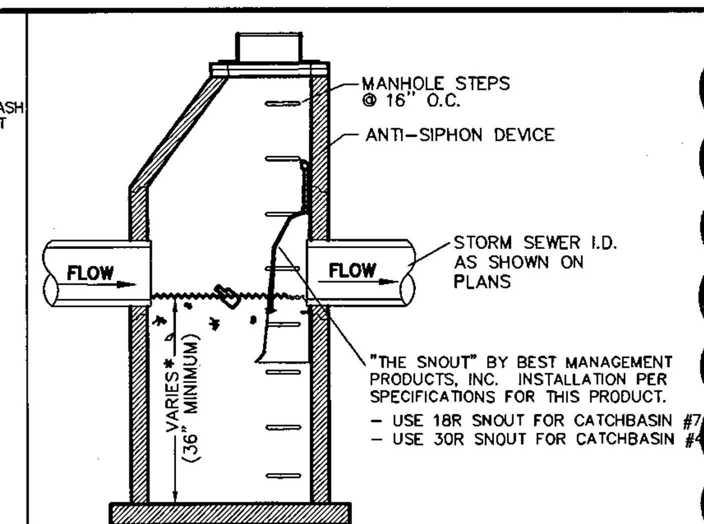
FILE: 9207-Stadium-phase 2-DT1-copy.dwg	
DRAWN BY: WEG DATE 4-8-09	GHA PROJECT # 9207.270
CHECKED BY: DATE	SCALE: NONE



TEMPORARY CONSTRUCTION ENTRANCE

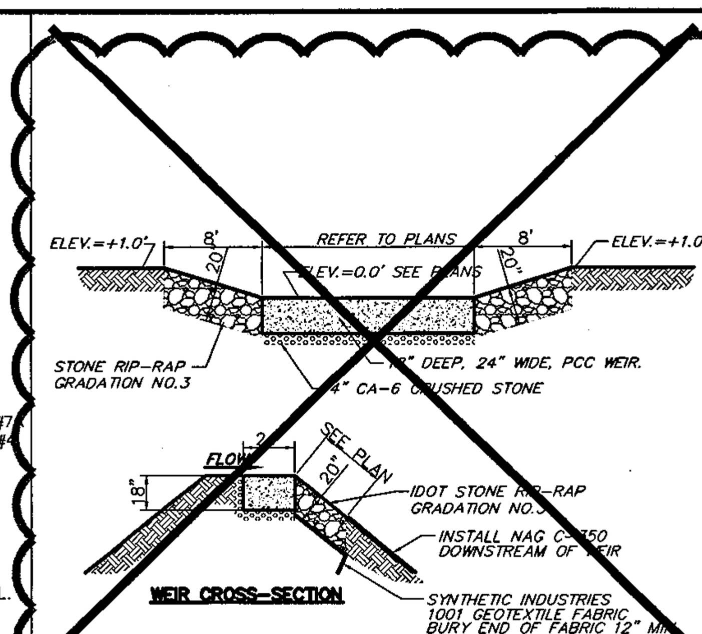


CONSTRUCTION ENTRANCE SUPPLEMENTAL WASH RACK

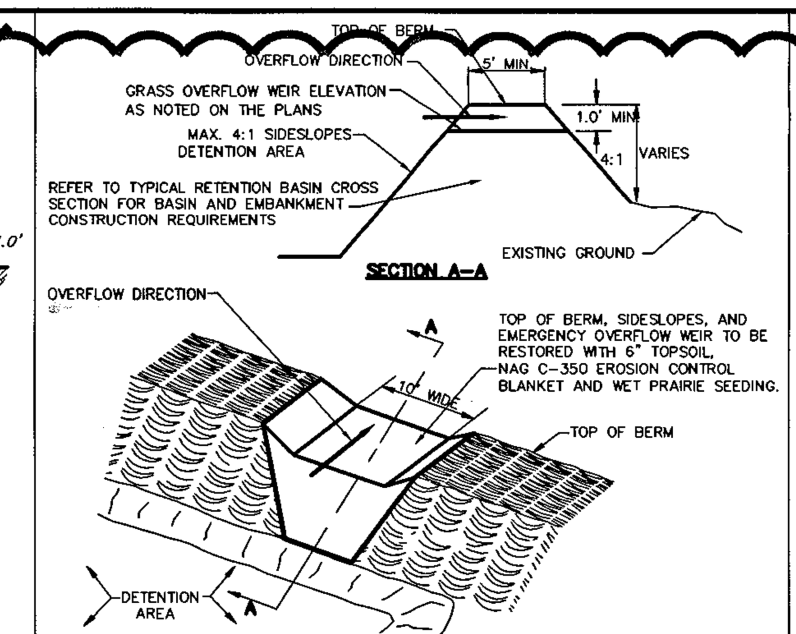


* SUMP DEPTH SHALL BE 2.5 X PIPE I.D. (36" MIN. DEPTH).
NOTE: CONSTRUCT STRUCTURE ACCORDING TO CATCHBASIN DETAIL.

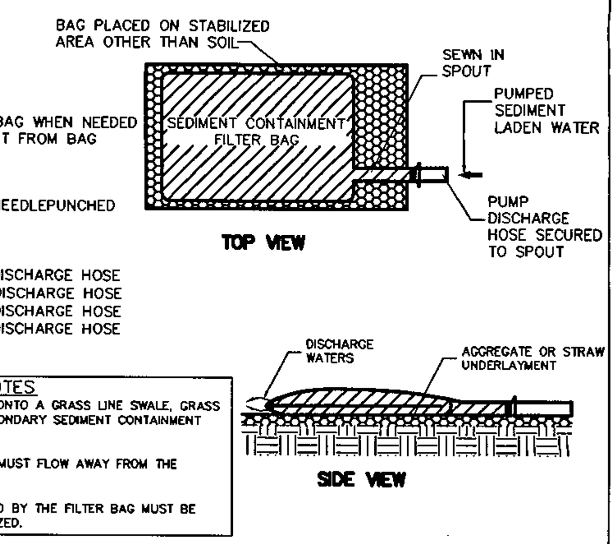
CATCH BASIN-GRIT OIL STOPS



CONCRETE OVERFLOW WEIR DETAIL



GRASS EMERGENCY OVERFLOW WEIR



MAINTENANCE
1. CHANGE FILTER BAG WHEN NEEDED
2. REMOVE SEDIMENT FROM BAG

SPECIFICATIONS
FABRIC = 225EX (NEEDLEPUNCHED NONWOVEN)

SIZES
- 10' x 15' FOR 2" DISCHARGE HOSE
- 20' x 15' FOR 3" DISCHARGE HOSE
- 25' x 15' FOR 4" DISCHARGE HOSE
- 30' x 15' FOR 6" DISCHARGE HOSE

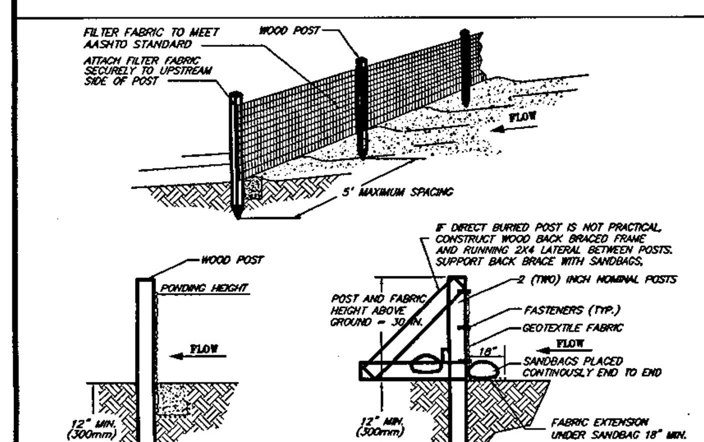
NOTES
1. DISCHARGE WATER ONTO A GRASS LINE SWALE, GRASS FIELD, OR INTO A SECONDARY SEDIMENT CONTAINMENT SYSTEM.
2. DISCHARGE WATER MUST FLOW AWAY FROM THE CONSTRUCTION AREA.
3. SEDIMENT CAPTURED BY THE FILTER BAG MUST BE REMOVED AND STABILIZED.

SEDIMENT CONTAINMENT FILTER BAG

Stabilization Type:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Permanent Seeding			A▬▬	▬▬	▬▬	XXX	XXX	X▬	▬			
Dormant Seeding	B▬	▬										
Temporary Seeding			C▬▬	▬▬	▬▬	XXX	XXX	X▬	▬			
Sodding			EXX	X▬	▬▬	▬▬	▬▬	▬▬	▬▬			
Mulching	F▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬

A = Kentucky Bluegrass @ 90 lbs/ac. Mixed with Perennial Ryegrass @ 30 lbs/ac.
B = Kentucky Bluegrass @ 135 lbs/ac. Mixed with Perennial Ryegrass @ 45 lbs/ac.
C = Spring Oats @ 100 lbs/ac.
D = Wheat or Cereal rye @ 150 lbs/ac.
E = Sod
F = Straw Mulch (Hydromulch or use Straw Blanket) @ 2 tons/ac.
XXX = Irrigation needed
Irrigation should be provided as necessary to thoroughly establish intended growth.

TYPICAL SOIL PROTECTION CHART



1. SET POSTS AND EXCAVATE OR SLIT-TRENCH A 6-INCH DEEP TRENCH UPSLOPE ALONG THE LINE OF THE POST
2. ATTACH GEOTEXTILE FILTER FABRIC TO EACH POST WITH A MINIMUM OF 3(THREE) FASTENERS PER POST AND EXTEND TO THE BOTTOM OF THE TRENCH. ACCEPTABLE FASTENERS INCLUDE STAPLES, ZIP-TIES, OR WIRE TIES.
3. BACKFILL AND COMPACT THE EXCAVATED SPOIL MATERIALS

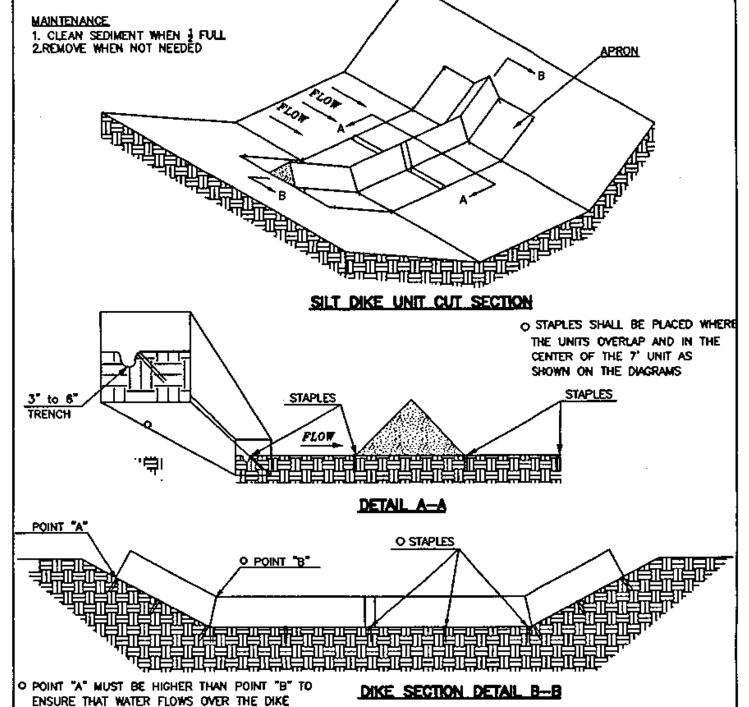
Geotextile Requirement	Test Method	MARV
Grab Strength -Machine direction -X-machine direction	ASTM D 4632	 550 N 450 N
Permittivity	ASTM D 4491	0.05 sec-1
Apparent opening size*	ASTM D 4751	0.60 mm
Ultraviolet stability (retained strength)	ASTM D 4355	70% after 500 hours

Note: Value for apparent opening size represents maximum average roll value.

NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
4. FABRIC AND INSTALLATION SHALL MEET THE REQUIREMENTS OF ASSHTO STANDARD SPECIFICATION M-288-00.

SILT FENCE INSTALLATION DETAIL

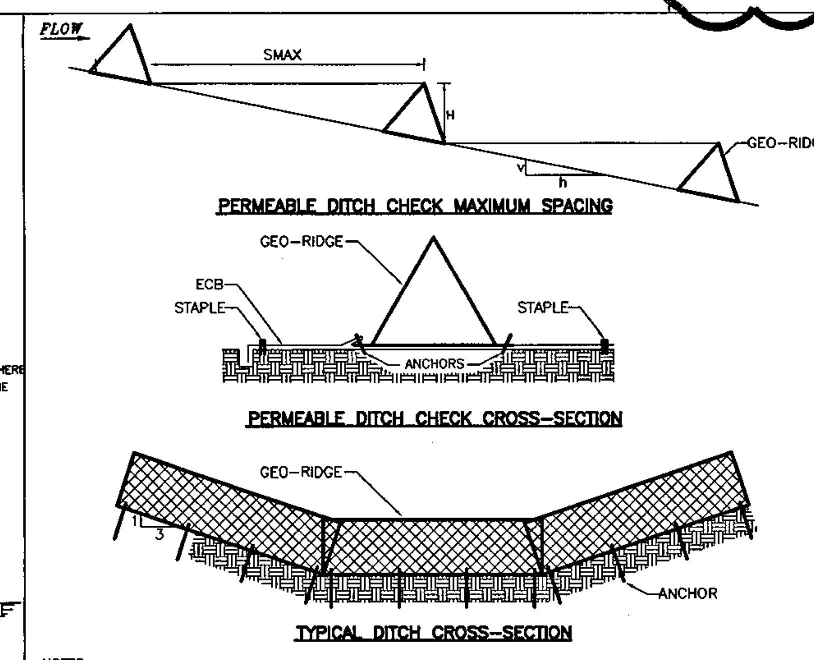
MAINTENANCE
1. CLEAN SEDIMENT WHEN ½ FULL
2. REMOVE WHEN NOT NEEDED



O STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7' UNIT AS SHOWN ON THE DIAGRAMS

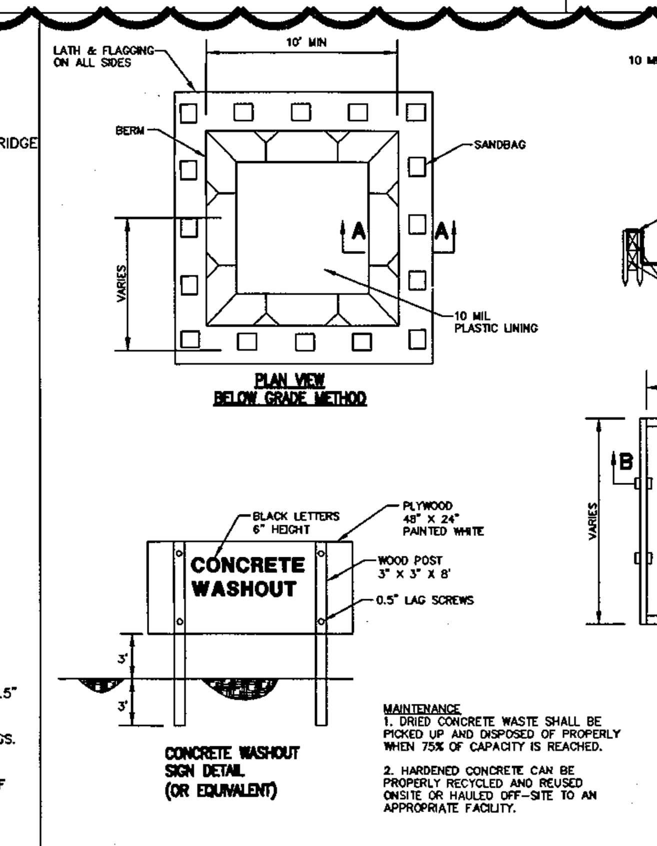
O POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUNT THE ENDS.

TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH



NOTES:
1. THE PERMEABLE DITCH CHECK SHALL BE GEO-RIDGE, AS MANUFACTURED BY NILEX GROUP.
2. THE PERMEABLE DITCH CHECK SHALL BE ANCHORED WITH 10" GALVANIZED ARDOX SPIKES WITH A 3/8" X 1.5" GALVANIZED WASHER.
3. THE EROSION CONTROL BLANKET (ECB) SHALL BE A MACHINE-PRODUCED MAT OF 100% COCONUT FIBER MATRIX STITCH BONDED WITH UV STABILIZED THREAD BETWEEN TWO UV STABILIZED POLYPROPYLENE NETTINGS. THE ECB SHALL BE C125 AS MANUFACTURED BY NORTH AMERICAN GREEN (NAG), OR EQUIVALENT.
4. THE PERMEABLE DITCH CHECK SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
5. THE PERMEABLE DITCH CHECK SHALL BE CLEANED WHEN SEDIMENT HAS ACCUMULATED HALF THE HEIGHT OF THE DITCH CHECK.
6. THE PERMEABLE DITCH CHECK SHALL BE REMOVED ONLY AFTER SITE HAS ACHIEVED FULL STABILIZATION.

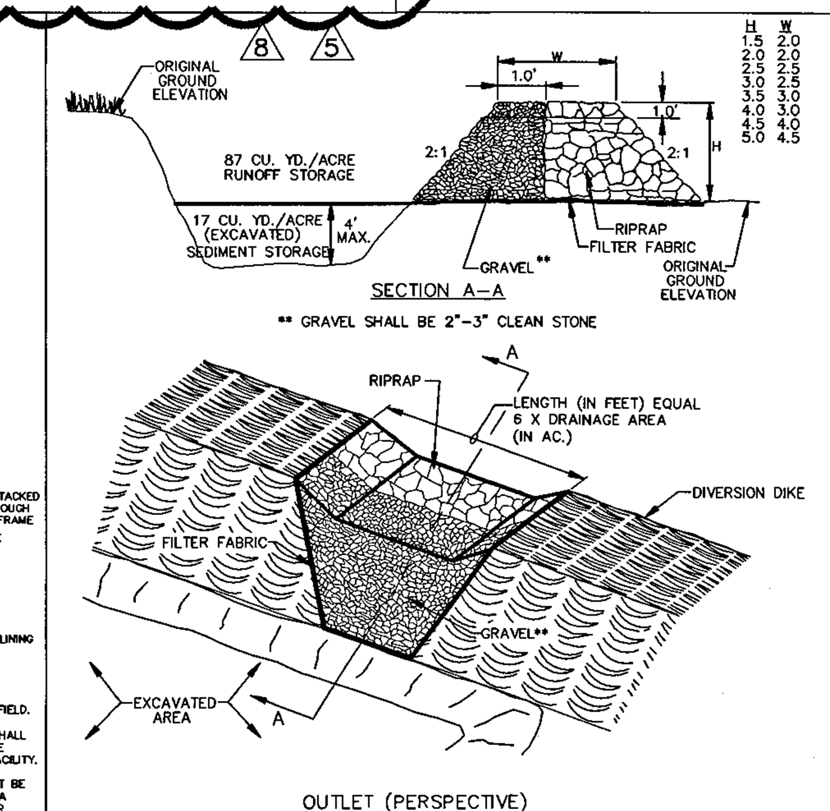
GEO-RIDGE PERMEABLE DITCH CHECK



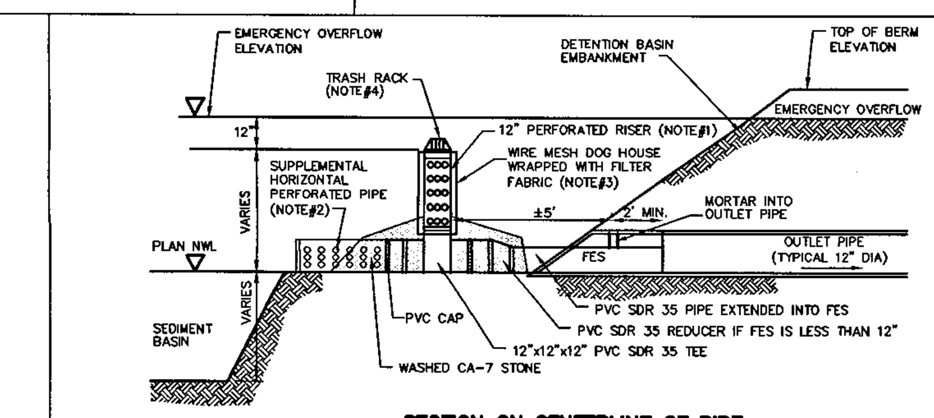
MAINTENANCE
1. DRIED CONCRETE WASTE SHALL BE PICKED UP AND DISPOSED OF PROPERLY WHEN 75% OF CAPACITY IS REACHED.
2. HARDENED CONCRETE CAN BE PROPERLY RECYCLED AND REUSED ONSITE OR HAULED OFF-SITE TO AN APPROPRIATE FACILITY.

NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. CONCRETE WASHOUT SHOULD NOT BE ALLOWED IN STREET OR TO REACH A STORM WATER DRAINAGE SYSTEM OR WATERCOURSE.
4. CONCRETE WASHOUT AREA TO BE LOCATED AT LEAST 10' BEHIND CURB IF ADJACENT TO A PAVED ROAD.

CONCRETE WASHOUT



TEMPORARY SEDIMENT TRAP GRAVEL OUTLET



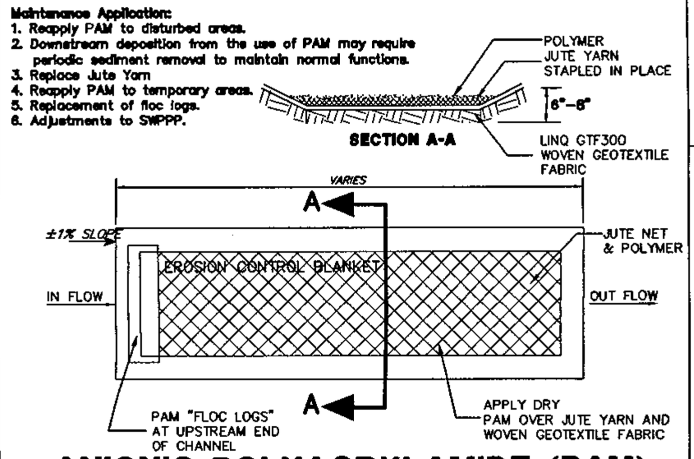
NOTES
1. 12" DIAMETER PERFORATED RISER SHALL CONSIST OF THIRTY 1" DIAMETER HOLES (± 24 SQ INCHES) PER LINEAR FOOT OF PIPE. USE OF 1"x4" SLOTS ARE PERMITTED. TOP OF PERFORATED RISER TO BE SET 12" BELOW EMERGENCY OVERFLOW ELEVATION. ADS HICKENBOTTOM 1"/SLOTTED HOLE MODEL OR APPROVED EQUAL.
2. IF PROPOSED PERFORATED RISER WILL BE 3 LINEAR FEET OR LESS, PROVIDE 4 LINEAR FEET OF HORIZONTAL PERFORATED PIPE. CHICKEN COOP WIRE SHALL BE WRAPPED DIRECTLY AROUND HORIZONTAL PERFORATED PIPE A MINIMUM OF THREE TIMES AND FASTENED WITH WIRE OR PLASTIC TIES. THEN CHICKEN COOP WIRE SHALL BE WRAPPED A MINIMUM OF TWO TIMES WITH AMOCO 4553 NON-WOVEN FABRIC OR APPROVED EQUAL. FABRIC SHALL BE FASTENED TO EACH END OF PVC PIPE AND AT 12" SPACING USING PLASTIC TIES.
3. 15"-18" DIAMETER WIRE MESH CAGE WRAPPED A MINIMUM OF TWO TIMES WITH AMOCO 4553 NON-WOVEN FABRIC OR APPROVED EQUAL. FABRIC SHALL BE FASTENED TO WIRE MESH CAGE ONLY WITH WIRE OR PLASTIC TIES. WIRE CAGE TO BE SET INTO WASHED CA-7 STONE AND SIZED TO MATCH TOP OF PERFORATED RISER. WIRE CAGE MAY BE CONSTRUCTED USING FOUR LAYERS OF CHICKEN COOP WIRE FASTENED TO ITSELF OR AN 18" DIAMETER REBAR LIGHT STANDARD CAGE WRAPPED TWICE WITH CHICKEN COOP WIRE.
4. METAL TRASH RACK SHALL FIT FIRMLY AND CONSIST OF 12" ADS BAR GUARD, NEENAH R-4351-B, OR APPROVED EQUAL.
5. ALL PIPE AND FITTINGS MAYBE CONSTRUCTED OF STANDARD PVC SDR 35 PIPE, OR ORDERED THROUGH ADVANCED DRAINAGE SYSTEMS, INC (ADS), MOJO RISER BY EROSION CONTROL CONSULTING, OR APPROVED EQUALS.

SEDIMENT BASIN PERFORATED RISER

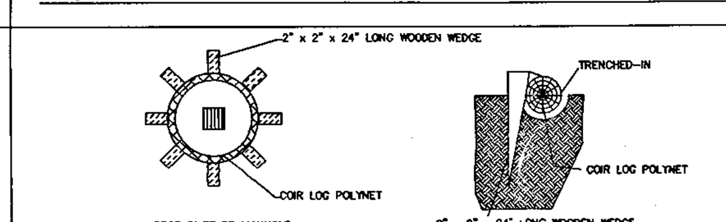
APS Polymers
The polymer shall be water soluble anionic polyacrylamide (PAM) used to minimize soil erosion, bind soil particles, remove suspended particles, and act as a construction aide.

PAM Applications
PAM shall be mixed and/or applied in accordance with all Occupational Safety and Health Administration (OSHA) material safety data sheet (MSDS) requirements and the manufacturer's recommendations for specified use. All vendors and suppliers of PAM, PAM mix or blends shall present or supply a written toxicity report which verifies that the PAM, PAM mix or blend exhibits acceptable toxicity parameters which meet or exceed the requirements for the State or Federal Water Quality Standards. Cationic forms of PAM are not allowed for use under this specification. All vendors and suppliers of PAM, PAM mix or blends shall supply written "site specific" testing results demonstrating that a performance of 95% or greater of NTU or TSS from samples taken. Length and width of swale is based on bench scale test of soil done by CPESC before swale construction.

Maintenance Application:
1. Reapply PAM to disturbed areas.
2. Downstream deposition from the use of PAM may require periodic sediment removal to maintain normal functions.
3. Replace Jute Yarn
4. Reapply PAM to temporary areas.
5. Replacement of floc logs.
6. Adjustments to SWPPP.



ANIONIC POLYACRYLAMIDE (PAM) SEDIMENT REMOVAL CHANNEL



* USE 9LB DENSITY 12" DIAMETER, 20' LONG COIR LOG POLYNET FOR STANDARD CIRCULAR DRAINAGE STRUCTURES. PLACE THE COIR WATTLE AROUND THE STRUCTURE AND JOIN THE ENDS TOGETHER WITH COIR TWINE. USE 2"x2"x24" WOODEN WEDGES SPACED 3' APART TO HOLD DOWN LOG POLYNET.

NOTES:
1. DO NOT SCALE DRAWING.
2. REFER TO MANUFACTURER'S PRODUCT SPECIFICATIONS TO ENSURE QUALITY OF THE PRODUCTS

MAINTENANCE
1. CLEAN OUT SEDIMENT BEHIND LOG WHEN ½ FULL
2. RESECURE LOOSE LOGS
3. REPLACE LOGS AS NEEDED
4. REMOVE WHEN NOT NEEDED

COIR ROLL DETAIL INLET PROTECTION

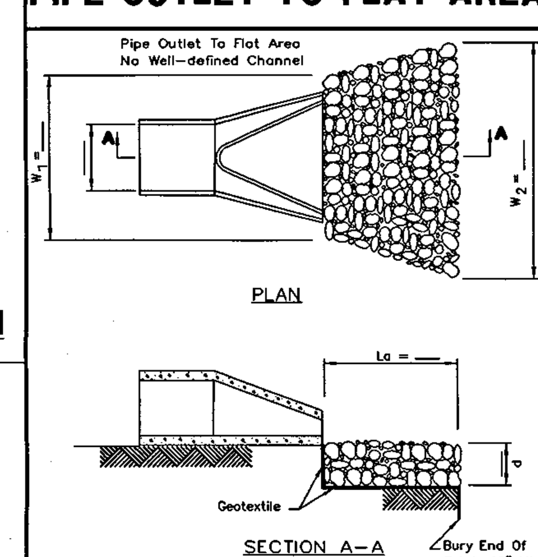
Type 1 Inlet Filter Assembly

ACCEPTABLE MANUFACTURER'S AS LISTED BELOW
1. INLET & PIPE PROTECTION, INC. Naperville, IL 60564 847 722-0690
2. MARATHON MATERIALS, INC. Plainfield, IL 60544 800-983-9493

MAINTENANCE
1. CLEAN OUT AFTER EVERY RAIN EVENT

INLET FILTER BASKET DETAIL

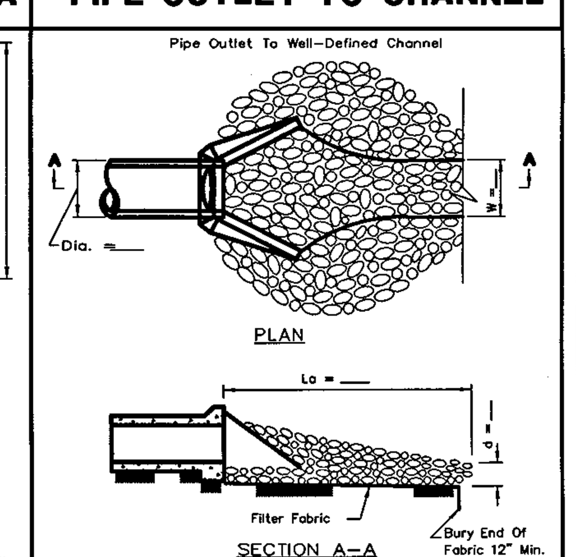
PIPE OUTLET TO FLAT AREA



NOTES:
1. The filter fabric shall meet the requirements in material specifications 592 GEOTEXTILE Table 1 or 2, class I, II or III.
2. The rock riprap shall shall meet the IDOT requirements for the following gradation: RR______, Quality______.
3. The riprap shall be placed according to construction specification 61 LOOSE ROCK RIPRAP. The rock may be equipment placed.

NRCS — STANDARD DWG. NO. IL-610, SHEET 1 OF 1, DATE 9-16-03

PIPE OUTLET TO CHANNEL



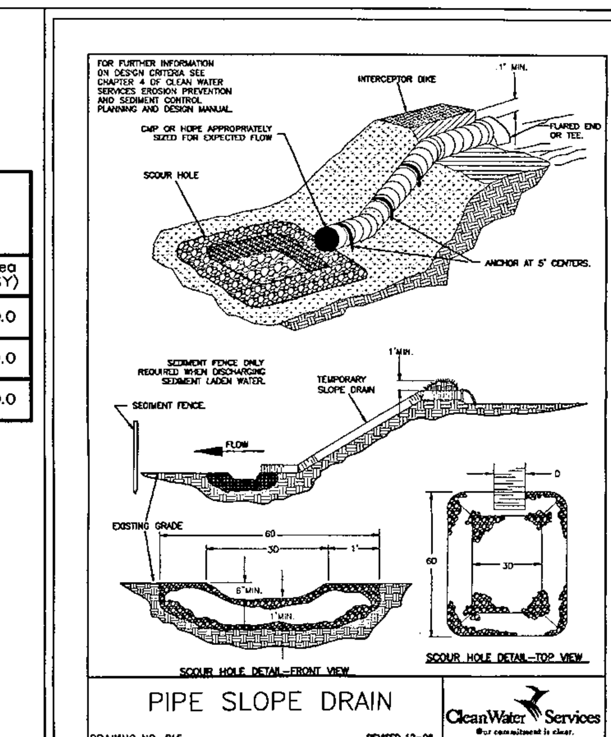
NOTES:
1. The filter fabric shall meet the requirements in material specification 592 GEOTEXTILE Table 1 or 2, Class I, II or III.
2. The rock riprap shall meet the IDOT requirements for the following gradation ______
3. The riprap shall be placed according to construction specification 61 LOOSE ROCK RIPRAP. The rock may be equipment placed.

NRCS — STANDARD DWG. NO. IL-611, SHEET 1 OF 1, DATE 9-16-04

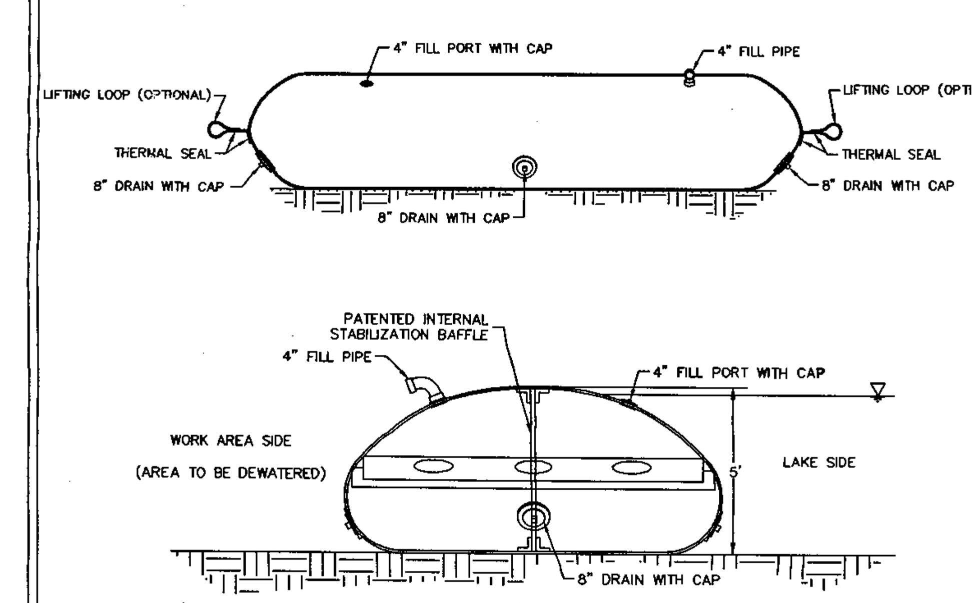
RIP-RAP SIZING REQUIREMENTS

Structure #	FES size	Rock Size	Rock Thickness (d)	Top Width W_1	Bottom Width W_2	Length Lo	Area (SY)
FES #	0" Dia	RR-3	0"	0'	0'	0'	0.0
FES #	0" Dia	RR-4	0"	0'	0'	0'	0.0
FES #	0" Dia	RR-3	0"	0'	0'	0'	0.0

All Geotextile shall be Non-woven Table 1 Class 2 material
Stone RIP-RAP shall conform to Quality and Gradation as noted in SEC 1005 of IDOT SSRB

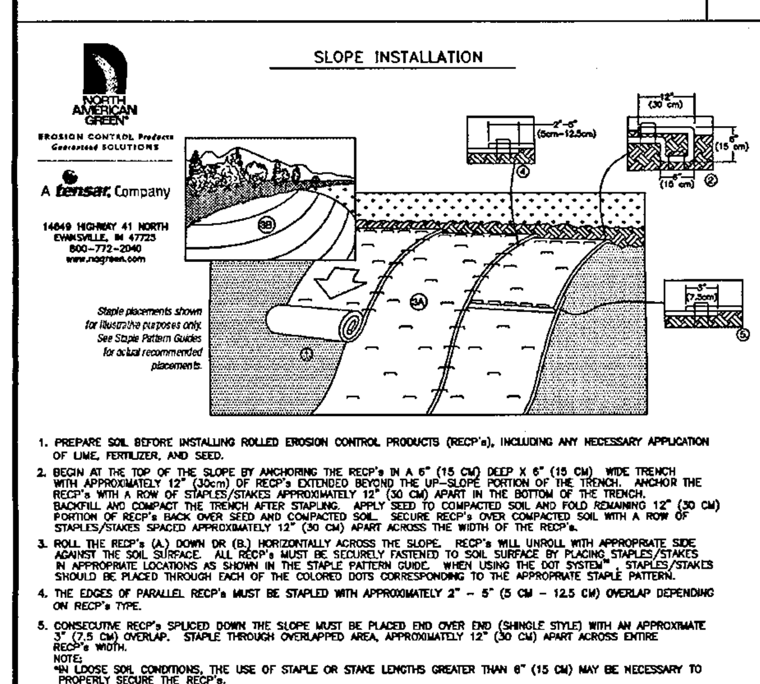


TEMPORARY PIPE SLOPE DRAIN DETAIL

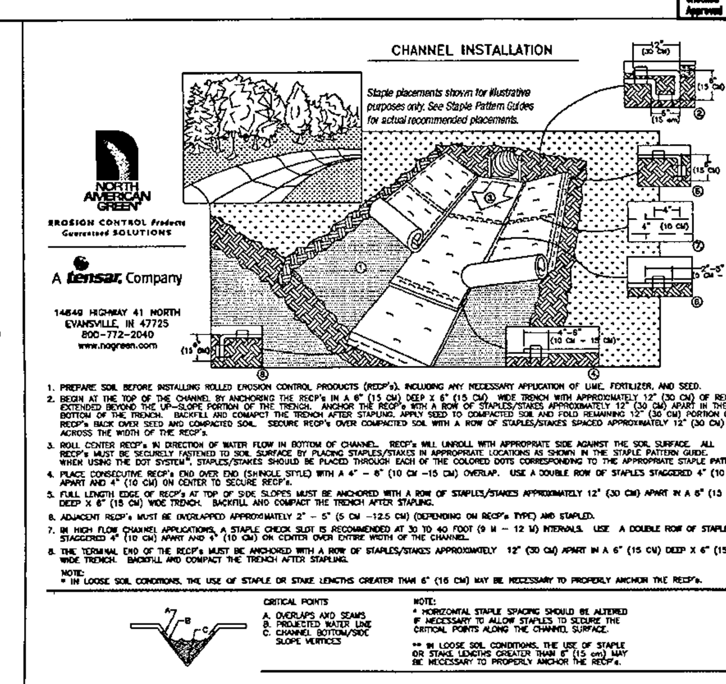


NOTES:
1. AQUA-BARRIER WATER INFLATED DAM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR SHALL DETERMINE ACTUAL AQUA-BARRIER SIZES BASED ON FIELD CONDITIONS TO ALLOW FOR SUITABLE DEWATERING OPERATIONS.

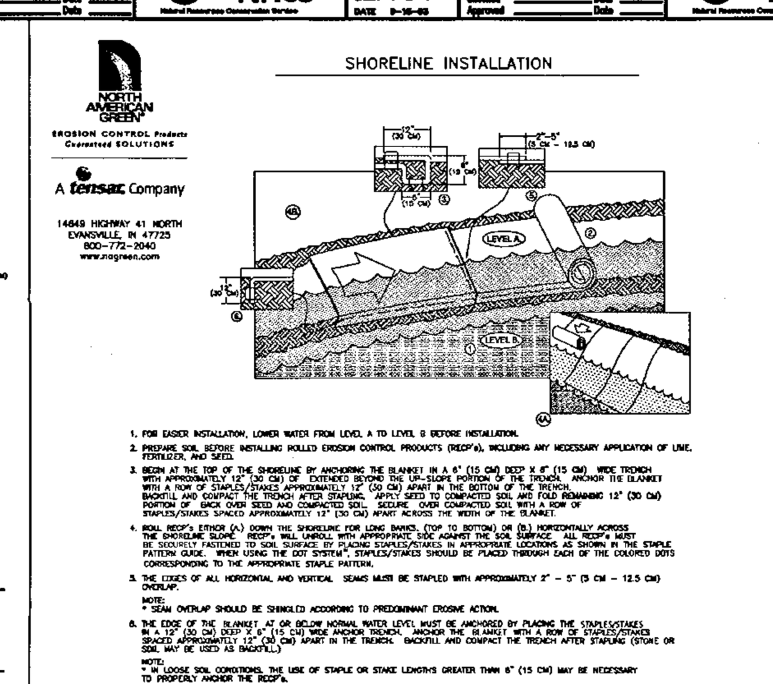
INFLATABLE BLADDER COFFERDAM DETAIL



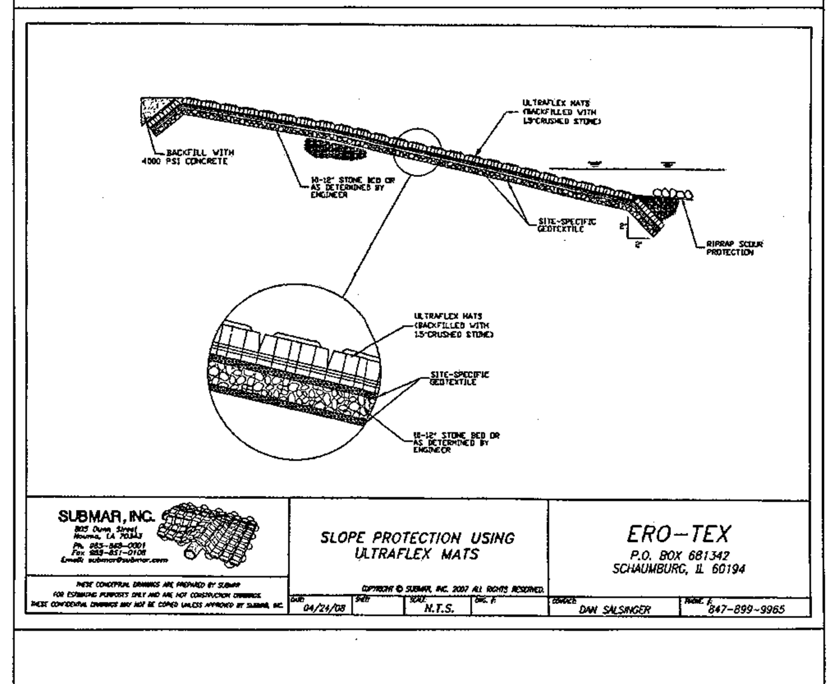
EROSION CONTROL BLANKET SLOPE INSTALLATION



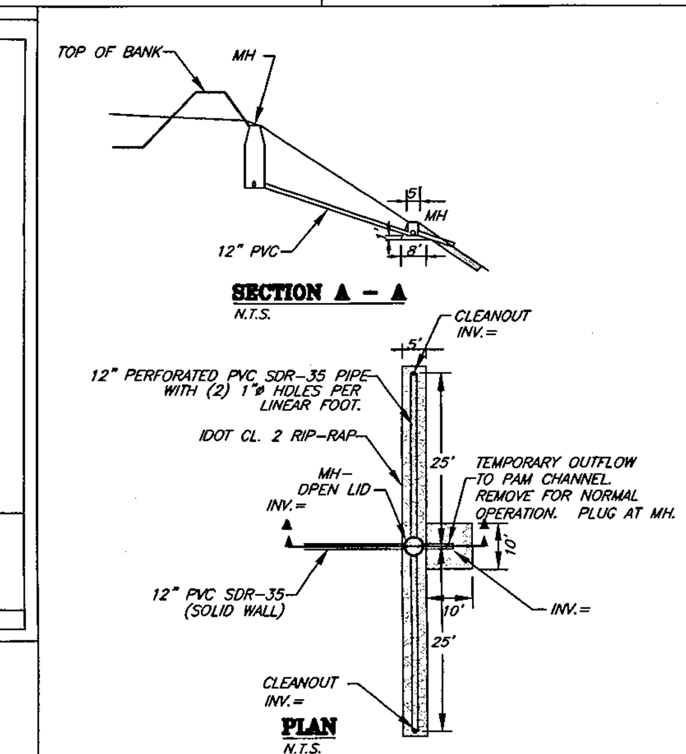
EROSION CONTROL BLANKET CHANNEL INSTALLATION



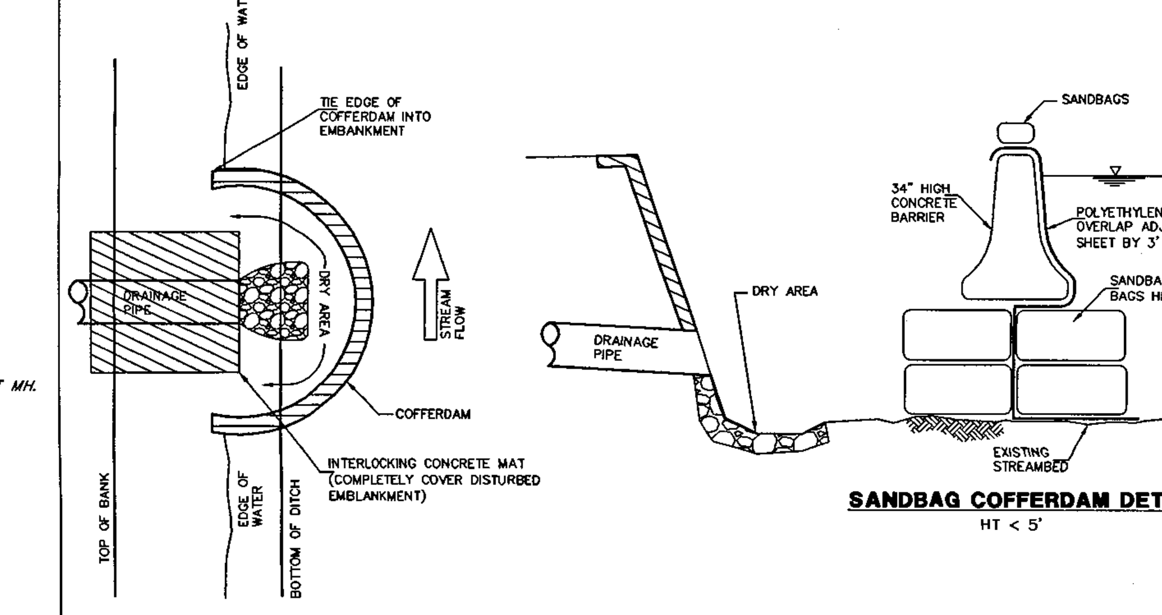
EROSION CONTROL BLANKET SHORELINE INSTALLATION



ULTRAFLEX MAT SLOPE PROTECTION



LEVEL SPREADER DETAIL



COFFERDAM DETAIL

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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SWPPP GENERAL DETAILS

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
8	WEG	3-4-10	PER MWRD REVIEW COMMENTS
5	WEG	09-16-09	PER MWRD REVIEW COMMENTS

FILE: 9207.270 SE-SC details.dwg
DRAWN BY: WEG
DATE: 4-8-09
GHA PROJECT # 9207.270
CHECKED BY:
DATE:
SCALE: NONE
SHEET NUMBER: 10 OF 17 SHEETS

General Soil Erosion & Sediment Control Notes

The management practices, controls and other provisions contained in this storm water pollution prevention plan are at least as protective as the requirements contained in the Illinois Environmental Protection IEPA's Illinois Urban Manual, 2002. Requirements specified in plans or permits for this project approved by local officials that are applicable to protecting surface water resources are, upon submittal of a NOI to be authorized to discharge under ILR10 permit, incorporated by reference and are enforceable under the ILR 10 permit even if they are not specifically included in the storm water pollution prevention plan. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for this project.

Control Implementation Schedule

Perimeter controls of the site and stabilized construction entrance shall be installed prior to demolition, clearing and grubbing. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Existing storm sewer inlets that will function during the construction process should have the sediment control measures installed as indicated prior to land - disturbing activities, including demolition and site clearing. In addition, sediment control measures shall be installed in newly constructed inlets immediately after their installation is complete. Erosion control blanket may be used to stabilize the construction areas where the final grade has been reached but cannot be permanently stabilized due to planting season restrictions. Permanent controls, such as riprap, shall be installed at each storm sewer outfall structures prior to any storm water discharge. Temporary perimeter controls shall only be removed after final stabilization of those portions of the site upward of the perimeter control. Temporary drop in Catch-All sediment bags will be utilized on all inlets to prevent infiltration of sediment-laden ground water into existing and proposed structures. Catch-All bags shall remain in place until placement of base course in paved areas or until vegetation has taken hold. Care shall be taken when removing sediment bags to avoid entry of sediment into the storm sewer.

Erosion and Sediment Controls

The appropriate soil erosion and sediment controls shall be implemented onsite and shall be modified to reflect the current phase of construction. All damaged or defective temporary sediment and erosion control measures must be repaired or replaced as soon as possible to maintain NPDES compliance.

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be installed according to the Standard Practice. The contractor shall be responsible for the installation of any additional erosion and sediment control measures necessary to prevent erosion and sedimentation as determined by the engineer, owner, or permitting authority.

1. Stabilization Practices
   Areas that will not be paved or covered with non-erosive material shall be stabilized as indicated on the erosion control plan using procedures in substantial conformance with the Illinois Urban Manual. Except as provided in paragraphs (a) and (b) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased as follows:

   a. Where the initiation of stabilization measures by the 7th day after construction activity temporarily or permanently ceases on a portion of the site is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

   b. Where construction activity will resume on a portion of the site within 14 days from when activities ceased (i.e. the total time period that construction activity is temporarily ceased is less than 14 days) then stabilization measures do not have to be initiated on that portion of the site by the 7th day after construction activity temporarily ceased.

2. Structural Practices
   Structural practices will be utilized to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include drainage swales, earth dikes, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins, storm water detention basins, concrete washout areas, silt fence, rirprap, cyir logs and other measures. Structural practices should be placed on upland soils to the degree practicable. Installation of these structural practices should follow Standard Practice as outlined in the Illinois Urban Manual.

Storm Water Management

Storm water management devices installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed may include storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). Velocity dissipation devices (i.e. riprap) at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to the water course so that the natural physical and biological characteristics and functions are maintained and protected. Structural measures should be placed on upland soils to the degree attainable. The contractor is responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site.

Off-Site Vehicle Tracking

A stabilized pad of aggregate underlain with filter fabric shall be located at any point where traffic will be entering or leaving the construction site to or from a public right-of-way, street, alley, sidewalk, or parking area to help reduce vehicle tracking of sediments. Roads shall be swept as needed to reduce excess sediment, dirt or stone tracked from the site. Accumulated sediment and stone shall be removed from the stabilized construction entrance as needed. Water runoff from such washing area shall be periodically inspected and repaired as necessary throughout the life of the project. Vehicles hauling erodible material to and from the construction site should be covered with a tarp. The stabilized construction entrance shall be installed prior to any soil disturbance (including demolition) and removed prior to any paving.

Dust Control

As requested a water truck will be used to limit the amount of dust leaving the site. The following list of control measures may also be implemented on-site to limit the generation of dust as needed:

- Sprinkling/irrigation
- Vegetative cover
- Mulch
- Spray-on soil treatments
- Tillage
- Stone

De-Watering Operations

During de-watering/pumping operations, only uncontaminated water should be allowed to discharge to protected natural areas, Waters of the State or to a storm sewer system. Inlet hoses should be placed in a stabilized sump pit or floated at the surface of the water with a screen in order to limit the amount of sediment intake. Pumping operations may be discharged to a stabilized area that consists of an energy dissipating device (i.e. stone) on a stabilized surface, sediment filter bag on a stabilized surface or a sediment removal channel. Adequate erosion controls should be used during de-watering operations as necessary. Stabilized conveyance channels should be installed to direct water to the desired location as applicable. Additional erosion control measures may be installed at the outlet area at the discretion of the Primary Contact or Engineer.

Waste Management

No solid materials, including building materials, shall be discharged to protected natural areas, a storm sewer system or Waters of the State (except as authorized by a Section 404 permit). All waste materials shall be collected and stored in approved receptacles. No wastes shall be placed in any location other than in the approved containers appropriate for the materials being discarded. There shall be no liquid wastes deposited into dumpsters or other containers which may leak. Receptacles with deficiencies shall be replaced as soon as possible and the appropriate clean-up procedure shall take place, if necessary. Construction waste material is not to be buried on site. Waste disposal should comply with all local, State and Federal regulations. Hazardous material shall not be stored on site. Any hazardous waste should be disposed of in the manner specified by local or State regulation or by the manufacturer.

Concrete Waste Management

Concrete mixer trucks shall only perform washouts in designated areas. Concrete waste or washout is not allowed in the street or allowed to reach a storm water drainage system or watercourse. A sign shall be posted at each location to identify the washout. Concrete washout areas should be located at least 50 feet from a storm water drainage inlets or watercourse. Concrete washout areas shall be located at least 10 feet behind the curb, if the washout area is adjacent to a paved road. A stabilized entrance as detailed on the erosion control plan shall be installed at each washout area. The washout areas shall be of sufficient volume to completely contain all liquid and concrete waste materials including enough capacity for anticipated levels of rainwater. The dried concrete waste material shall be picked up and disposed of properly when 75% of the capacity is reached. Hardened concrete can be properly recycled and reused on-site or hauled off-site to an appropriate facility.

Concrete Cutting

Concrete waste management should be implemented to contain and dispose of saw-cutting slurries. Concrete cutting shall not take place during or immediately after a rainfall event. Waste generated from concrete cutting should be cleaned up and disposed into the concrete washout facility described above.

Vehicle Storage and Maintenance

When not in use, vehicles utilized in the development operations of the site shall be stored in a designated upland area away from any natural or created watercourse, pond, drainage-way or storm drain. Whenever possible, vehicle maintenance, fueling, and washing will occur off-site. If allowed on-site, vehicle maintenance (including both routine maintenance as well as on-site repairs) shall be made within the designated area to prevent the migration of mechanical fluids (oil, antifreeze, etc.) into watercourses, wetlands or storm drains. Drip pans or absorbent pads shall be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents or other vehicle fluids. Construction vehicles shall be inspected frequently to identify any leaks. Leaks shall be repaired immediately or the vehicle should be removed from the site. Dispose o" all used oil, antifreeze, solvents and other automotive-related chemicals according to manufacturer MSDS instructions. Contractors shall immediately report spills to the Primary Contact.

Material Storage

Materials and or contaminants shall be stored in a manner that minimizes the potential to discharge into storm drains or watercourses. An on-site area shall be designated for material delivery and storage. All materials kept on-site shall be stored in their original containers with legible labels, and if possible, under a roof or other enclosure. Labels should be replaced if damaged or difficult to read. Bermed-off storage areas are an acceptable control measure to prevent contamination of storm water. MSD sheets shall be available for referencing cleanup procedures. Any release of chemicals/contaminants shall be immediately cleaned up and disposed of properly. Contractors shall immediately report all spills to the Primary Contact, who shall notify the appropriate agencies, if needed. To reduce the risks associated with hazardous materials on-site, hazardous products shall be kept in original containers unless they are not re-sealable. The original labels and MSD data shall be retained on-site at all times. Hazardous materials and all other materials on-site shall be stored in accordance with manufacturer's MSDS specifications. When disposing of hazardous materials, follow manufacturers' or local and State recommended methods on Local, State and Federal regulations.

Sanitary Facilities

To the extent practicable, sanitary facilities shall be located at a minimum 8 feet behind the curb and gutter of the internal roads and be located in an area that does not drain to any protected natural area, Waters of the State or storm water structures. Sanitary facilities shall be anchored to the ground to prevent tipping over. Sanitary facilities located on impervious surfaces shall be placed on top of a secondary containment device, or be surrounded by a control device (i.e. gravel-bag berm).

Spill Preventions

Discharges of hazardous substances or oil caused by a spill are not authorized by the ILR10 permit. If a spill occurs, notify the Primary Contact immediately. The construction site shall have the capacity to control, contain and remove spills if they occur. Spills shall be cleaned up immediately in accordance with MSD sheets and shall not be buried on-site or washed into storm sewer drainage inlets, drainageways or Waters of the State.

Spills in excess of Federal Reportable Quantities (as established under 40 CFR Parts 110, 117 or 302) shall be reported to the National Response Center by calling (800) 424-8802. MSDS often include information on federal Reportable Quantities for materials. Spills of toxic or hazardous materials shall be reported to the appropriate State or local government IEPA, regardless of size. When cleaning up a spill, the area shall be kept well ventilated and appropriate personal protective equipment shall be used to minimize injury from contact with a hazardous substance.

In addition to proper Waste Management, Concrete Waste Management, Concrete Cutting, Vehicle Storage and Maintenance, Material Storage and Sanitary Station protection, the following minimum practices shall be followed to reduce the risk of spills:

- Petroleum products shall be stored in tightly sealed and clearly labeled containers.
- All paint containers shall be tightly sealed and stored when not required for use. Excess paint shall be disposed of according to the manufacturer's instructions or State and local regulations, and shall not be discharged to the storm sewer.
- Contractors shall follow manufacturers' recommendations for proper use and disposal of materials.

Allowable Non-Storm Water Discharge Management

Except for flows from fire fighting activities, sources of non-storm water that may be combined with storm water discharges associated with the activity addressed in this SWPPP are as follows:

- Water main flushing
- Fire hydrant flushing
- Watering for Dust Control
- Irrigation drainage for vegetative growth for seeding, etc.
- Uncontaminated groundwater

The pollution prevention measures described below will be implemented for non-storm water components of the discharge:

- The fire hydrant and water main should not be flushed directly on the exposed area or subgrade of the pavement. Hoses should be used to direct the flow onto a stabilized area.
- Erosion due to irrigation of seeding shall be minimized.

Inspections

Qualified personnel (provided by the contractor) shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days, and within 24 hours of the end of a rainfall event that is 0.5 inches or greater, or equivalent snowfall.

- Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.
- Based on the results of the inspection, necessary pollution prevention measures identified in the plan shall be undertaken as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the plan with 7 calendar days following the inspection.
- The contractor shall notify the appropriate Agency Field Operations Section office by email at epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of any incidence of noncompliance for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit.
- The contractor shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the SWPPP observed during an inspection conducted, including those not required by the SWPPP. Submission shall be on forms provided by the IEPA and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact, which may have resulted from the noncompliance.
- All inspection repots shall be retained at the construction site.
- All reports of noncompliance shall be mailed to the IEPA at the following address:

  Illinois Environmental Protection Agency
  Division of Water Pollution Control
  Compliance Assurance Section
  1021 North Grand Avenue East
  Post Office Box 19276
  Springfield, Illinois 62794-9276

Recordkeeping

The owner shall retain copies of the SWPPP and all reports and notices required by the ILR10 permit, and records of all data used to complete the Notice of Intent to be covered by the ILR10 permit, for a period of at least three years from the date that the permit coverage expires or is terminated unless extended by request of the IEPA. In addition, the contractor shall retain a copy of the SWPPP required by the ILR10 permit at the construction site from the date of project initiation to the date of final stabilization.

Log of Changes to the SWPPP

The contractor or owner shall amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for discharge of pollutants to Waters of the State and which has not otherwise been addressed in the SWPPP or if the SWPPP proves to be ineffective in eliminating or significantly minimizing pollutants, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity. In addition, the SWPPP shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the SWPPP.

Log of Major Grading and Construction Activities

A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in this SWPPP

FINAL STABILIZATION

Final Stabilization has occurred when all soil disturbing activities at the site have been completed, and either of the two following conditions have been met:

(i) A uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
(ii) Equivalent permanent stabilization measures (such as the use of riprap, gabions or geotextiles) have been employed.

For individual lots in residential construction, final stabilization has occurred when either:
(i) The homebuilder has completed final stabilization as specified above, or
(ii) The homebuilder has established temporary stabilization including perimeter controls for individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need to, and the benefits of, final stabilization.

When the site has been finally stabilized and all storm water discharges from construction sites that are authorized by the ILR10 Permit are eliminated, the permittee of the facility must submit a completed Notice of Termination that is signed in accordance with Part VI.G (Signatory Requirements) of the permit. Elimination of storm water discharges associated with industrial activity means that all disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated.

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SWPPP GENERAL NOTES

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION

FILE: 9207.270 SE-SC details.dwg
DRAWN BY: WEG
DATE: 4-8-09
GHA PROJECT # 9207.270
CHECKED BY:
DATE:
SCALE: NONE

GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.

SEDIMENTATION AND EROSION CONTROL NOTES

A. THE STORMWATER POLLUTION PREVENTION PLAN (SWP3) IS COMPRISED OF THIS DRAWING ("SITE MAP"), THE STANDARD DETAILS, THE PLAN NARRATIVE, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.

B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE ILLINOIS PERMIT (ILRID) AND BECOME FAMILIAR WITH THEIR CONTENTS.

C. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.

D. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.

E. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.

F. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.

G. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

H. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

I. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

J. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE SWP3, SHALL BE INITIATED AS SOON AS PRACTICABLE.

K. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT, IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

L. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED BY THE END OF THE DAY.

M. ON-SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

N. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

O. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

P. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL BE CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES

Q. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

R. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 7 CALENDAR DAYS OF THE END OF ACTIVE HYDROLOGIC DISTURBANCE, REDISTURBANCE.

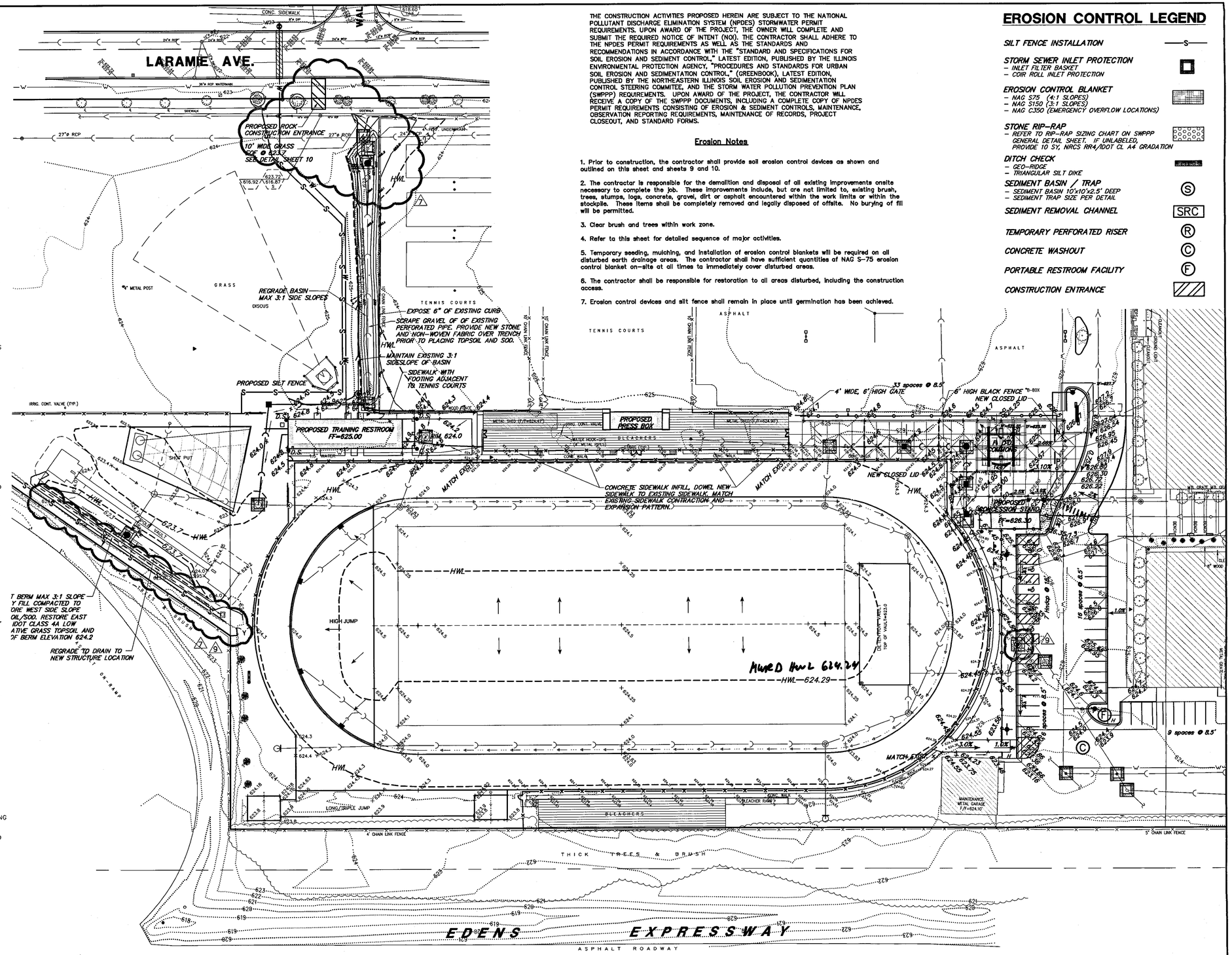
S. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL ULTIMATELY RESPONSIBLE FOR MAINTAINENCE AND REPAIR.

T. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (e.g. SEDIMENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURE.

U. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

SEQUENCE OF MAJOR ACTIVITIES

1. OWNER FILES NOTICE OF INTENT (NOI) AT LEAST 30 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION OPERATIONS.
2. INSTALLATION OF SOIL EROSION AND SEDIMENT CONTROL MEASURES.
   - ORANGE CONSTRUCTION FENCING AND/OR SILT FENCE AROUND WETLANDS AND OTHER AREAS NOT TO BE DISTURBED.
   - PERIMETER SILT FENCE.
   - STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK.
   - INLET PROTECTION ON EXISTING STRUCTURES CLOSE TO THE DISTURBED AREA.
3. CONTRACTOR PERFORMS WEEKLY AND "AFTER RAIN EVENT" INSPECTIONS STARTING UPON DISTURBANCE OF THE SITE (DEMOLITION OR INSTALLATION OF SOIL EROSION AND SEDIMENT CONTROL MEASURES).
4. DEMOLITION
5. TREE REMOVAL WHERE NECESSARY (CLEAR & GRUB).
6. CONSTRUCT SEDIMENT TRAPPING DEVICES (SEDIMENT TRAPS, BASINS AND SEDIMENT REMOVAL CHANNELS).
7. DEWATER INTO SEDIMENT REMOVAL CHANNEL, WHICH DISCHARGES TO AN UPLAND AREA. THE HOSE IN THE AREA BEING DEWATERED MUST BE ATTACHED TO A FLOATING DEVICE WITH A SCREEN.
8. CONSTRUCT DETENTION FACILITIES AND OUTLET CONTROL STRUCTURE WITH RESTRICTOR AND TEMPORARY PERFORATED RISER. PERMANENTLY STABILIZE THE AREA WITH TOPSOIL, SEED AND EROSION CONTROL BLANKET.
9. ABANDON THE EXISTING SITE STORM DRAINAGE; PROTECTION OF POINTS OF ENTRY INTO EXISTING STORM DRAINAGE SYSTEM.
10. STRIP TOPSOIL, STOCK TOPSOIL AND GRADE SITE.
11. TEMPORARY CONTAINMENT OF SOIL/AGGREGATE STOCKPILES (SEED AND SILT FENCE AROUND TOE OF SLOPE).
12. INSTALL UTILITIES AND ASSOCIATED INLET & OUTLET PROTECTION.
13. CONSTRUCTION OF BUILDING AND PAVEMENT.
14. FINE GRADING.
15. INSTALLATION OF TOPSOIL, SEED, AND PERMANENT EROSION CONTROL.
16. REMOVAL OF TEMPORARY EROSION CONTROL MEASURE - ONLY - WHEN SITE HAS ACHIEVED FULL STABILIZATION.
17. OWNER FILES NOTICE OF TERMINATION (NOT).



THE CONSTRUCTION ACTIVITIES PROPOSED HEREIN ARE SUBJECT TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT REQUIREMENTS. UPON AWARD OF THE PROJECT, THE OWNER WILL COMPLETE AND SUBMIT THE REQUIRED NOTICE OF INTENT (NOI). THE CONTRACTOR SHALL ADHERE TO THE NPDES PERMIT REQUIREMENTS AS WELL AS THE STANDARDS AND RECOMMENDATIONS IN ACCORDANCE WITH THE "STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL," LATEST EDITION, PUBLISHED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, "PROCEDURES AND STANDARDS FOR URBAN SOIL EROSION AND SEDIMENTATION CONTROL." (GREENBOOK), LATEST EDITION, PUBLISHED BY THE NORTHEASTERN ILLINOIS SOIL EROSION AND SEDIMENTATION CONTROL STEERING COMMITEE, AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS. UPON AWARD OF THE PROJECT, THE CONTRACTOR WILL RECEIVE A COPY OF THE SWPPP DOCUMENTS, INCLUDING A COMPLETE COPY OF NPDES PERMIT REQUIREMENTS CONSISTING OF EROSION & SEDIMENT CONTROLS, MAINTENANCE, OBSERVATION REPORTING REQUIREMENTS, MAINTENANCE OF RECORDS, PROJECT CLOSEOUT, AND STANDARD FORMS.

Erosion Notes

1. Prior to construction, the contractor shall provide soil erosion control devices as shown and outlined on this sheet and sheets 9 and 10.
2. The contractor is responsible for the demolition and disposal of all existing improvements onsite necessary to complete the job. These improvements include, but are not limited to, existing brush, trees, stumps, logs, concrete, gravel, dirt or asphalt encountered within the work limits or within the stockpile. These items shall be completely removed and legally disposed of offsite. No burying of fill will be permitted.
3. Clear brush and trees within work zone.
4. Refer to this sheet for detailed sequence of major activities.
5. Temporary seeding, mulching, and installation of erosion control blankets will be required on all disturbed earth drainage areas. The contractor shall have sufficient quantities of NAG S-75 erosion control blanket on-site at all times to immediately cover disturbed areas.
6. The contractor shall be responsible for restoration to all areas disturbed, including the construction access.
7. Erosion control devices and silt fence shall remain in place until germination has been achieved.

EROSION CONTROL LEGEND

SILT FENCE INSTALLATION	—S—
STORM SEWER INLET PROTECTION - INLET FILTER BASKET - COIR ROLL INLET PROTECTION	
EROSION CONTROL BLANKET - NAG S75 (4:1 SLOPES) - NAG S150 (3:1 SLOPES) - NAG C350 (EMERGENCY OVERFLOW LOCATIONS)	
STONE RIP-RAP - REFER TO RIP-RAP SIZING CHART ON SWPPP GENERAL DETAIL SHEET. IF UNLABELED, PROVIDE 10 SY, NRCS RR4/IDOT CL A4 GRADATION	
DITCH CHECK - GEO-RIDGE - TRIANGULAR SILT DIKE	
SEDIMENT BASIN / TRAP - SEDIMENT BASIN 10'x10'x2.5' DEEP - SEDIMENT TRAP SIZE PER DETAIL	S
SEDIMENT REMOVAL CHANNEL	SRC
TEMPORARY PERFORATED RISER	R
CONCRETE WASHOUT	C
PORTABLE RESTROOM FACILITY	F
CONSTRUCTION ENTRANCE	

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SWPPP PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS

NO.	BY	DATE	REVISION

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG DATE:
SCALE: 1"=40'

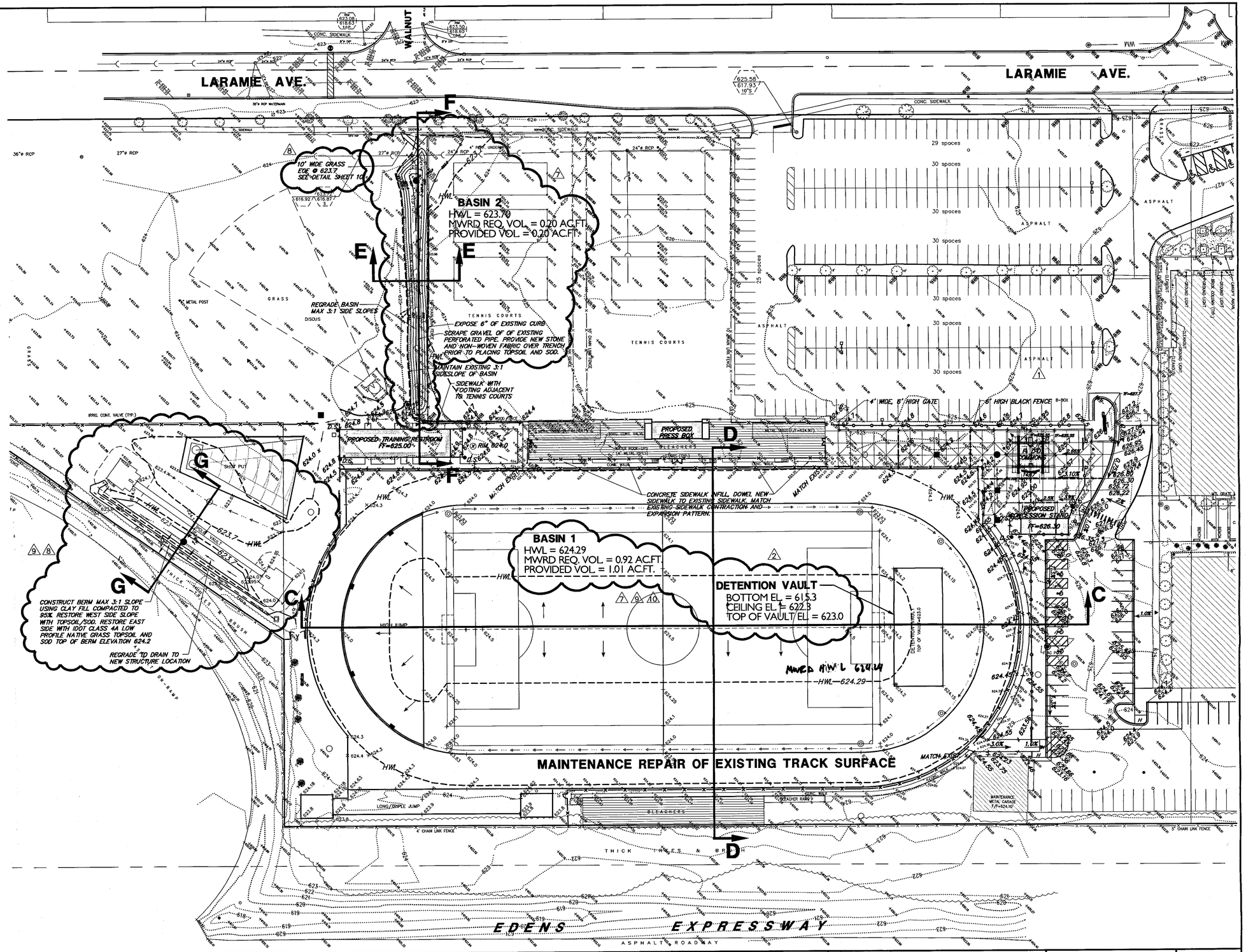
SHEET NUMBER: 8 OF 17 SHEETS

GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.

FOR CROSS SECTIONS SEE SHEET EX-A



GRADING PLAN NOTES

1. Prior to any excavation work, provide erosion control and rock construction entrance as shown on the SWPPP Plan Sheets 8, 9 and 10.

2. Refer to SWPPP Plan Sheets 8 and 9 for sequence of construction. Note mass grading work zone areas shall be minimized to prevent erosion. Once a work zone has been rough graded, stabilize area with erosion fabric and proceed to next work area until site is completed.

3. In proposed pavement areas, excavate to sub-base, compact soil to 95% Modified Proctor density (ASTM D-1557) and install pavement section as noted on the plans. Prior to approval of the sub-base, all pavement areas will be proof rolled. Any areas found to deflect shall be scarified and recompacted as directed by the engineer, until this standard is achieved. Note, portions of existing parking lot stone base may remain if proposed stone base grade lies above existing grade. If new grade is below existing grade, the entire existing stone base will need to be removed.

4. Subgrade soils shall be compacted to 95% Modified Proctor density unless otherwise noted. Base course stone and trench backfill shall be compacted to 95% Modified Proctor density unless otherwise noted.

5. The contractor shall import or export soil as necessary to construct the site to specified plan grades. Such work is considered incidental to the contract and no additional compensation shall be allowed for such work.

6. Crushed concrete shall not be allowed for pavement base course or trench backfill.

7. All proposed green areas are to have all debris removed and replaced with six inches of topsoil and sodded. Topsoil shall be furnished and placed by the contractor. All topsoil shall be free of clods, stones, sticks and debris. All slopes that are 4:1 or steeper shall be protected with North American Green S-75 erosion control blanket. Install blanket in accordance with manufacturer's recommendations particularly with respect to stapling fabric in place.

8. After establishment of vegetation, or placement of base course in paved areas, remove and dispose of all temporary erosion control devices.

9. Campus and public roadways shall be kept clean of all debris and soil at all times. It is the contractor's responsibility to sweep and wash the road on a daily basis or more frequently as may be needed.

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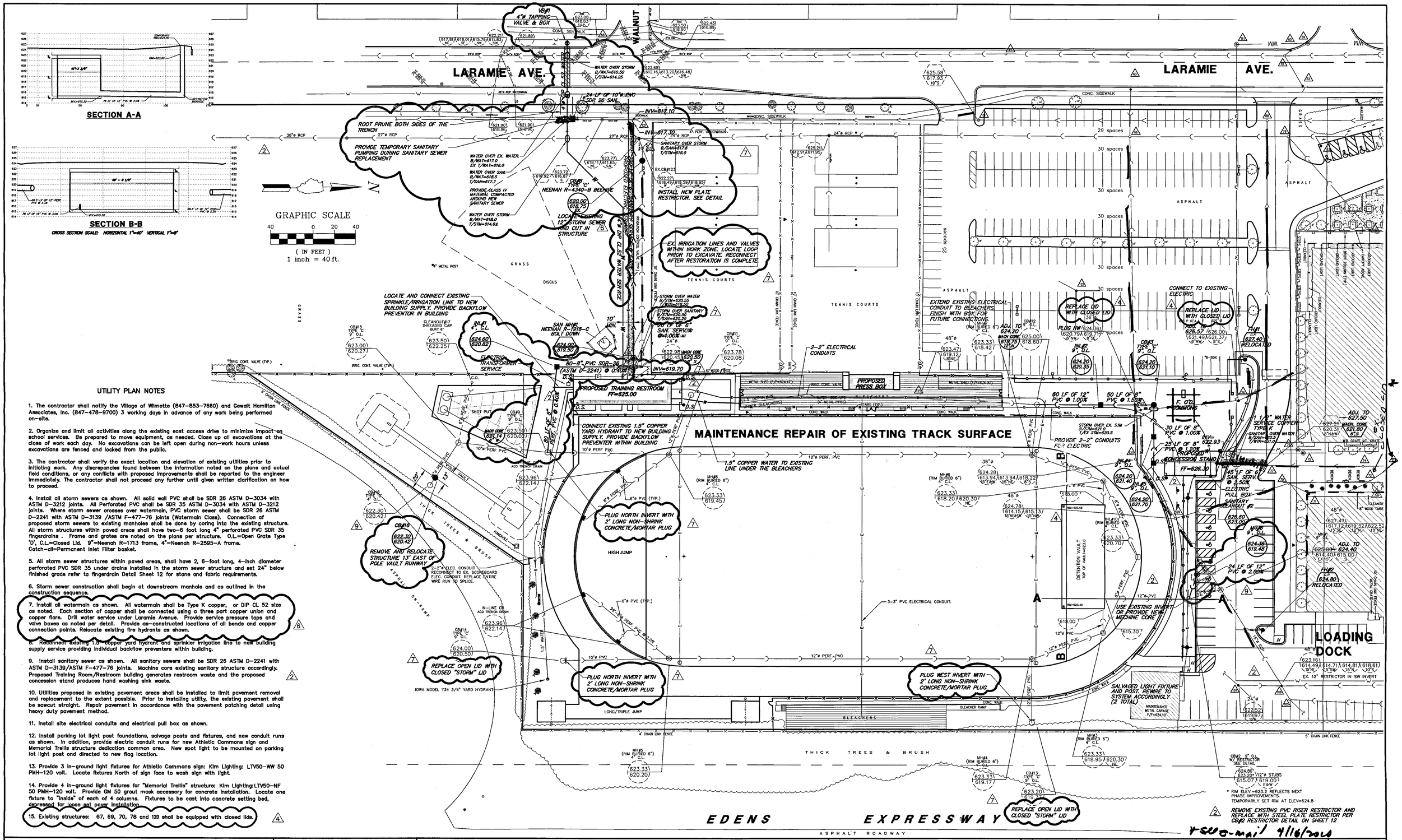
GRADING PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS				
8	WEG	3-4-10	PER MWRD REVIEW COMMENTS				
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS				
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS				
1	WEG	6-24-09	SITE PATIO GRADING	10	MZ	4-9-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'

SHEET NUMBER: 7 OF 16 SHEETS



UTILITY PLAN NOTES

1. The contractor shall notify the Village of Wilmette (847-853-7660) and Gewalt Hamilton Associates, Inc. (847-478-9700) 3 working days in advance of any work being performed on-site.

2. Organize and limit all activities along the existing east access drive to minimize impact on school services. Be prepared to move equipment, as needed. Close up all excavations at the close of work each day. No excavations can be left open during non-work hours unless excavations are fenced and locked from the public.

3. The contractor shall verify the exact location and elevation of existing utilities prior to initiating work. Any discrepancies found between the information noted on the plans and actual field conditions, or any conflicts with proposed improvements shall be reported to the engineer immediately. The contractor shall not proceed any further until given written clarification on how to proceed.

4. Install all storm sewers as shown. All solid wall PVC shall be SDR 26 ASTM D-3034 with ASTM D-3212 joints. All Perforated PVC shall be SDR 35 ASTM D-3034 with ASTM D-3212 joints. Where storm sewer crosses over watermain, PVC storm sewer shall be SDR 26 ASTM D-2241 with ASTM D-3139 /ASTM F-477-76 joints (Watermain Class). Connection of proposed storm sewers to existing manholes shall be done by coring into the existing structure. All storm structures within paved areas shall have two-6 foot long 4" perforated PVC SDR 35 fingerdrains . Frame and grates are noted on the plans per structure. O.L.=Open Grate Type 'D', C.L.=Closed Lid. 9"=Neenah R-1713 frame, 4"=Neenah R-2595-A frame. Catch-all=Permanent Inlet Filter basket.

5. All storm sewer structures within paved areas, shall have 2, 6-foot long, 4-inch diameter perforated PVC SDR 35 under drains installed in the storm sewer structure and set 24" below finished grade refer to fingerdrain Detail Sheet 12 for stone and fabric requirements.

6. Storm sewer construction shall begin at downstream manhole and as outlined in the construction sequence.

7. Install all watermain as shown. All watermain shall be Type K copper, or DIP CL 52 size as noted. Each section of copper shall be connected using a three part copper union and copper flare. Drill water service under Laramie Avenue. Provide service pressure taps and valve boxes as noted per detail. Provide as-constructed locations of all bends and copper connection points. Relocate existing fire hydrants as shown.

8. Reconnect existing 1.5" copper yard hydrant and sprinkler irrigation line to new building supply service providing individual backflow preventers within building.

9. Install sanitary sewer as shown. All sanitary sewers shall be SDR 26 ASTM D-2241 with ASTM D-3139/ASTM F-477-76 joints. Machine core existing sanitary structure accordingly. Proposed Training Room/Restroom building generates restroom waste and the proposed concession stand produces hand washing sink waste.

10. Utilities proposed in existing pavement areas shall be installed to limit pavement removal and replacement to the extent possible. Prior to installing utility, the existing pavement shall be sawcut straight. Repair pavement in accordance with the pavement patching detail using heavy duty pavement method.

11. Install site electrical conduits and electrical pull box as shown.

12. Install parking lot light post foundations, salvage posts and fixtures, and new conduit runs as shown. In addition, provide electric conduit runs for new Athletic Commons sign and Memorial Trellis structure dedication common area. New spot light to be mounted on parking lot light post and directed to new flag location.

13. Provide 3 in-ground light fixtures for Athletic Commons sign: Kim Lighting: LTV50-WW 50 PMH-120 volt. Locate fixtures North of sign face to wash sign with light.

14. Provide 4 in-ground light fixtures for "Memorial Trellis" structure: Kim Lighting:LTV50-NF 50 PMH-120 volt. Provide GM 50 grout mask accessory for concrete installation. Locate one fixture to "inside" of each of 4 columns. Fixtures to be cast into concrete setting bed, depressed for loose set paver installation.

15. Existing structures: 67, 69, 70, 78 and 120 shall be equipped with closed lids.

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UTILITY PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS
1	WEG	6-24-09	SITE PATIO GRADING
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'

SHEET NUMBER: 6 OF 17 SHEETS

LEGEND

- NORMAL DUTY PAVEMENT
- CONCRETE SIDEWALK
- LARAMIE AVENUE PAVEMENT PATCH
- SOD AREA
- IDOT CLASS 4A NATIVE SEED (9)
- BRICK PAVERS
- LANDSCAPE AREA
- B6.12 CURB & GUTTER
- PROPOSED FENCE – DECORATIVE FENCE
- PROPOSED FENCE – CHAINLINK

GRAPHIC SCALE

40 0 20 40

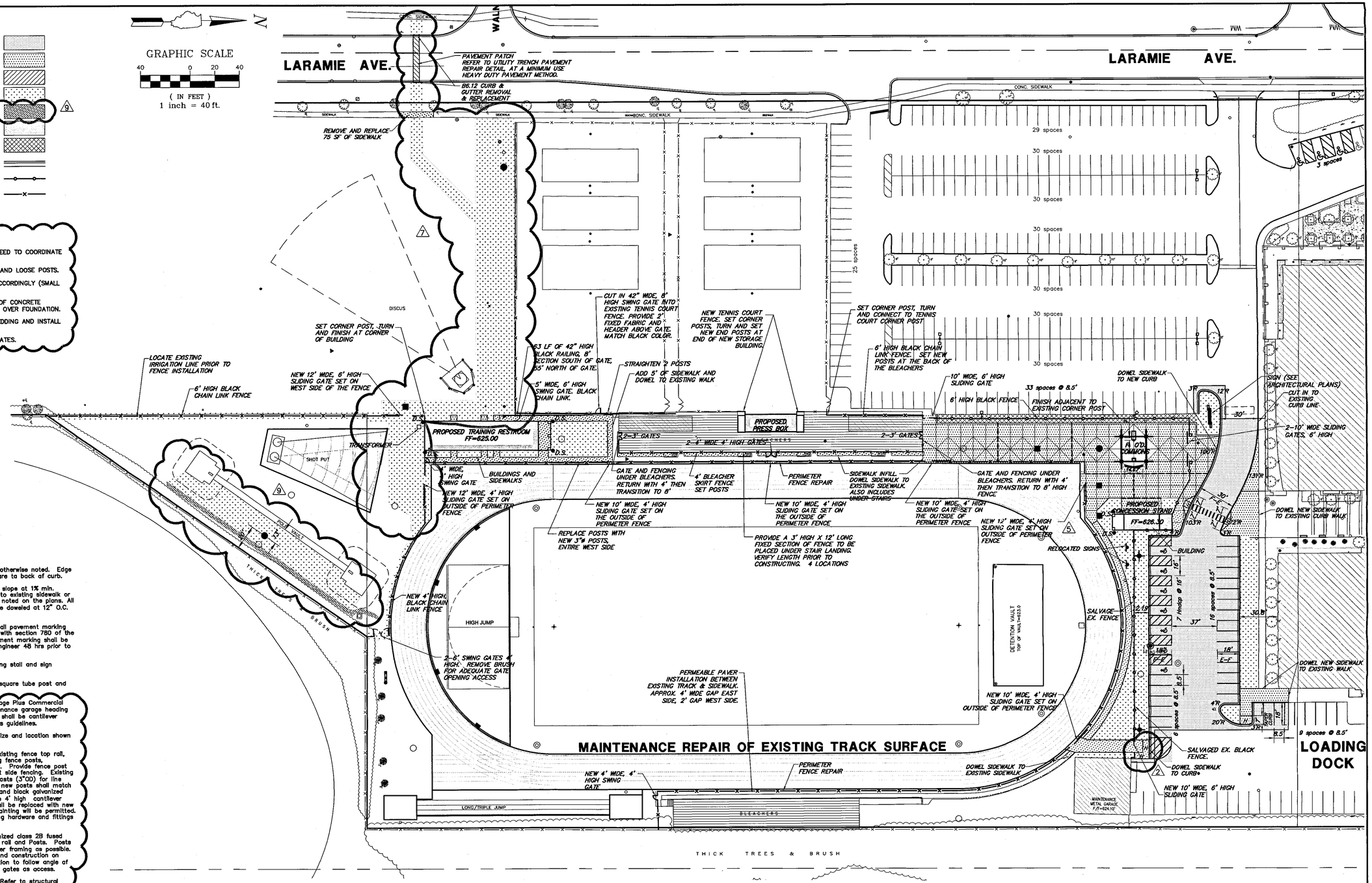
(IN FEET)
1 inch = 40 ft.

CONSTRUCTION COORDINATION

FENCE CONTRACTOR, EXCAVATOR AND BRICK CONTRACTOR WILL NEED TO COORDINATE THEIR WORK ALONG PERIMETER FENCE INSTALLATION.

1. FENCE CONTRACTOR SHALL REMOVE ALL FENCE RAILS, FABRIC AND LOOSE POSTS.
2. EXCAVATOR SHALL EXCAVATE AND CONSTRUCT STONE BASE ACCORDINGLY (SMALL EQUIPMENT REQUIRED).
3. FENCE CONTRACTOR TO INSTALL NEW FENCE POSTS. SET TOP OF CONCRETE FOUNDATION 5" BELOW FINISHED GRADE SO THAT BRICK MAY LAY OVER FOUNDATION.
4. BRICK CONTRACTOR SHALL PLACE REMAINING CA-16 STONE BEDDING AND INSTALL BRICK.
5. FENCE CONTRACTOR TO INSTALL PFENCE RAILS, FABRIC AND GATES.

(6)



GEOMETRIC AND PAVING PLAN

1. All pavement dimensions are to edge of pavement, unless otherwise noted. Edge of pavement, Back of curb, Face of curb. Radii dimensions are to back of curb.

2. Install all curb and sidewalk as shown. New sidewalk shall slope at 1% min. matching existing sidewalk cross slopes. Dowel new sidewalk to existing sidewalk or new curb. No expansion felt required adjacent to curb unless noted on the plans. All sidewalk, curb, PCC pavement adjacent to foundations shall be doweled at 12" O.C. and requires expansion felt.

3. All parking lot stall markings shall be 4" yellow paint and all pavement marking on cross walks shall be paint, color as noted, in accordance with section 780 of the IDOT standard specifications. (two coats required). site pavement marking shall be coordinated with site engineer. Contractor shall notify site engineer 48 hrs prior to installing pavement marking.

4. For handicapped stall markings, refer to handicapped parking stall and sign dimensioning detail on sheet 12.

5. Install new handicapped parking signs using 2" galvanized square tube post and telescoping post sleeve per IDOT standard.

6. Install new 6' high black decorative fence (Ameristar Montage Plus Commercial Majestic 3-Rail style) and sliding gate starting at the maintenance garage heading north. Provide 3"x12ga posts & 8' fence sections. All gates shall be cantilever sliding gates with locking hardware. Install per manufacturer's guidelines.

7. Install new sliding gate within field perimeter fencing per size and location shown on the plans.

8. Track perimeter fence repair shall consist of removal of existing fence top rail, fence fabric, existing gates and hardware. Straighten existing fence posts, installation of new posts for new gate locations and openings. Provide fence post replacements for 10% of existing length and along entire west side fencing. Existing posts shall be sleeved with new black vinyl galvanized steel posts (3"OD) for line posts and respective end and corner posts encountered. All new posts shall match size of sleeved posts. Provide new top rail and bottom rail and black galvanized class 2B fused and bonded vinyl fence fabric. Gates shall be 4' high cantilever sliding gates with matching fence fabric. All swing gates shall be replaced with new fused and bonded vinyl framing and hardware. NO on site Painting will be permitted. All existing posts to be salvaged shall be sleeved. All existing hardware and fittings to be replaced with black vinyl. (6)

9. Bleacher skirting. Front skirt shall be 4' high black galvanized class 2B fused and bonded vinyl fence fabric with matching top rail, bottom rail and Posts. Posts shall be set at maximum 10' spacing and as close to bleacher framing as possible. North and South side skirt shall match Front skirt material and construction on outside face of Bleacher. Wrap corner at 4' high and transition to follow angle of bottom side of bleachers 8' high. Provide two 3' wide swing gates as access.

10. Install 2 existing championship signs at location shown. Refer to structural foundation detail for additional coordination.

11. Install permeable pavers between existing track edge and sidewalk. Approximately 4' wide gap on East and North side and 2' wide gap on West side. Permeable pavement work area to be excavated carefully to avoid damage to existing Posts and track surface to remain. Mini excavator or hand digging is recommended. Refer to Paver detail for brick paver pavement section. (5)

(6) NOTE: NO CONSTRUCTION EQUIPMENT PERMITTED ON RUBBER SURFACE. RUBBER TRACK SURFACE SHALL BE COVERED AND PROTECTED DURING CONSTRUCTION.

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
850 Forest Edge Drive Vernon Hills, IL 60061 Tel. 847.478.9700 Fax 847.478.9701

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GEOMETRIC PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW
5	WEG	9-15-09	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS

NO.	BY	DATE	REVISION

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=40'

SHEET NUMBER: 5 OF 17 SHEETS

GRAPHIC SCALE

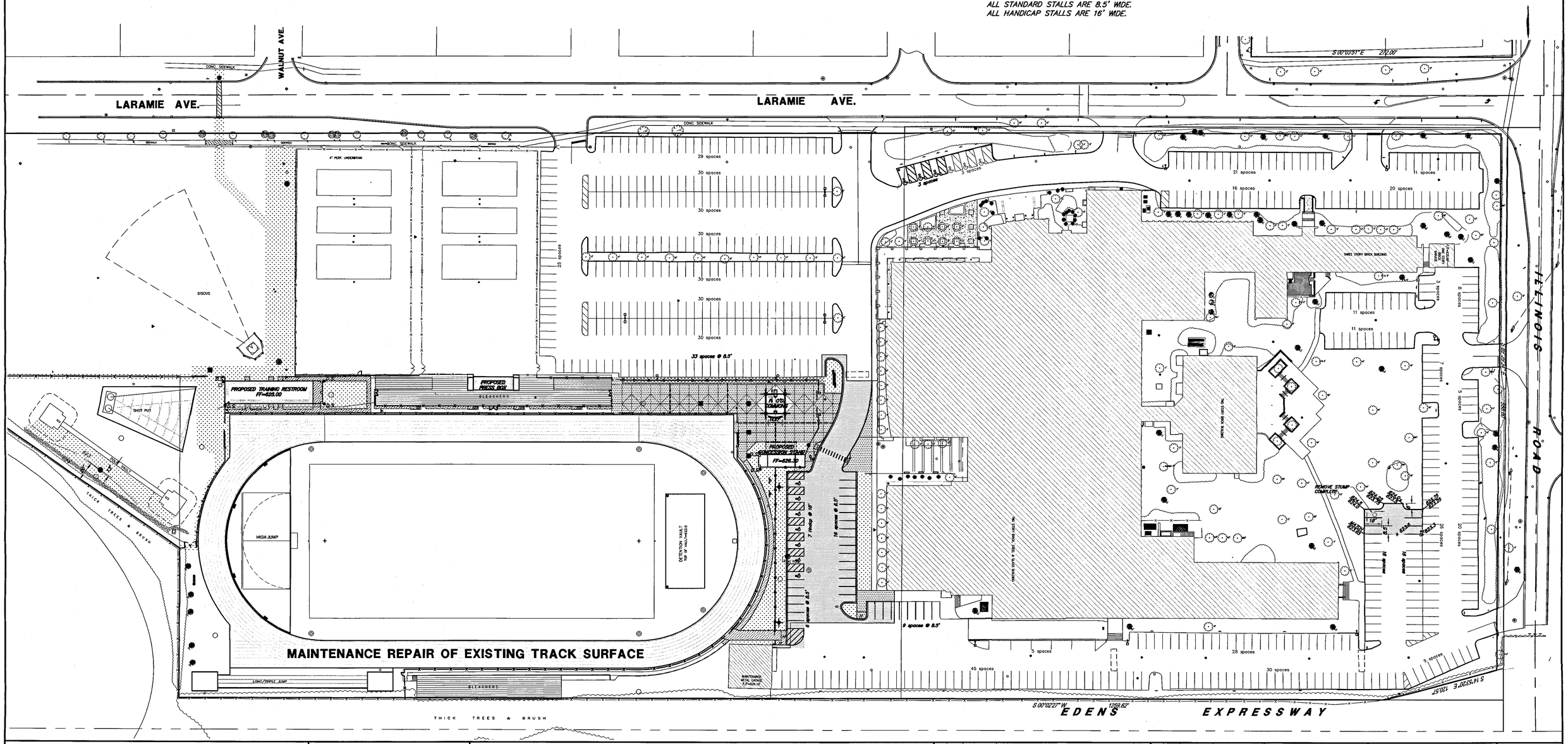
50 0 25 50

(IN FEET)
1 inch = 50 ft.

PROPOSED PARKING DATA:

STANDARD STALLS	606
HANDICAP STALLS	13
TOTAL	619

NOTE:
ALL STANDARD STALLS ARE 8.5' WIDE.
ALL HANDICAP STALLS ARE 16' WIDE.



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SITE LAYOUT

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION

FILE: 9207.270–pr4–copy.dwg
DRAWN BY: LLM
DATE 04–08–09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: 1"=50'

SHEET NUMBER: 4 OF 17 SHEETS

EXISTING CONDITIONS AND DEMOLITION NOTES

1. Prior to construction, the contractor shall construct rock construction entrance, provide silt fence and erosion control devices as shown on Sheet 8, 9 and 10 as required per National Pollutant Discharge Elimination System (NPDES).

2. Prior to demolition install tree protection fence as outlined in the tree preservation notes on this page and on the detail on Sheet 12. Root pruning adjacent to utility trenches will be required.

3. The contractor shall be responsible for fencing the active work zone from the public and protecting the public from any construction related hazards. At a minimum, all excavation, demolition areas and other areas potentially hazardous to pedestrians and vehicles must be protected.

4. At all times the east rear acces drive shall remain open and unobstructed. Construction traffic shall use east access drive entrance. Shut down of access drive within work zone will be permitted and shall be coordinated with School staff. Short term closings shall be completed within the work day and restored to unobstructed access by the close of the work day. Temporary signage shall be provided, installed and maintained by the contractor, subject to review and approval by the Owner.

5. Temporary stone or asphalt pathways shall be provided as needed throughout the course of construction to facilitate safe pedestrian and vehicular movement. The longitudinal slope of such paths shall not exceed 5%. Provide 6" CA-6 base and 2" surface asphalt.

6. The contractor is responsible for the demolition and disposal of all existing improvements onsite necessary to complete the job. These improvements include, but are not limited to, existing pavements, curbs, sidewalks, utilities, lighting, light bases, manholes, fences, and other structures within the work area. Excate and grade to proposed pavement and building subbase grades. These items shall be completely removed and legally disposed of offsite.

7. Remove or abandon existing utilities as shown. Utilities that are removed shall be backfilled with CA-6 crushed stone in lifts of 8" or less and compacted to 95% Modified Proctor density. Utilities to be abandoned shall be plugged at both ends with a minimum of 2 feet long non-shrink concrete/mortar plugs. Manhole structures to be abandoned shall have the top section removed, sewers bulkheaded with concrete and backfilled with CA-6 crushed stone.

8. Remove trees and stumps and other vegetation as designated on the plans. Any vegetation not shown remaining on the landscape plans is to be assumed to be removed and disposed of offsite.

9. Coordinate with mechanical, electrical and architectural plans with respect to demolition, transition, and continuity of service.

10. Coordinate with utility companies to ensure continuous service, particularly natural gas, electric power and telephone.

11. Contractor shall carefully disassemble existing parking lot light fixture and posts, temporarily store on site, and reinstall with new concrete foundation. (2 total)

12. Contractor shall carefully remove dedication plaques, temporarily store on site, and reinstall as noted.

13. Contractor shall carefully disassemble existing black decorative fence and gates, temporarily store on site, and reinstall with new concrete foundations.

14. Contractor shall remove existing chainlink fence, fence fabric, posts, and concrete foundation complete.

5 ~~15. Contractor shall carefully disassemble existing flag pole and sleeve, temporarily store on site, and reinstall at new location as noted.~~

16. Contractor shall carefully disassemble two existing championship signs, temporarily store on site, and reinstall at new location with new concrete foundation.

17. There are existing water sprinkler irrigation heads within the proposed southern most building work zone. Contractor shall coordinate with School staff to locate, and reroute lateral to complete water system loop if necessary. Disconnect existing lines north of new building. Existing water sprinkler irrigation system south of building to remain, and be reconnected to service line provided within new building.

18. Existing structures: 67, 69, 70, 78 and 120 shall be equipped with closed lids. 4

Tree Preservation Notes

1. Prior to construction and with the coordination of the Village Arborist, the contractor shall install tree protection fencing. In conjunction with the installation of the fence, root pruning will be done adjacent to the fence. Root pruning shall be done with a "Ditch Witch" or other mechanical device approved by the Village Arborist which cleanly cuts the roots to a minimum depth of two feet.

2. Existing vegetation which is to remain, shall be protected against un- neccessary cutting, breaking, or skinning of roots, skinning and brushing of bark, smothering by stockpiling of construction materials or excavated materials within the drip line, excessive foot or vehicular traffic, or parking of vehicles within the drip line.

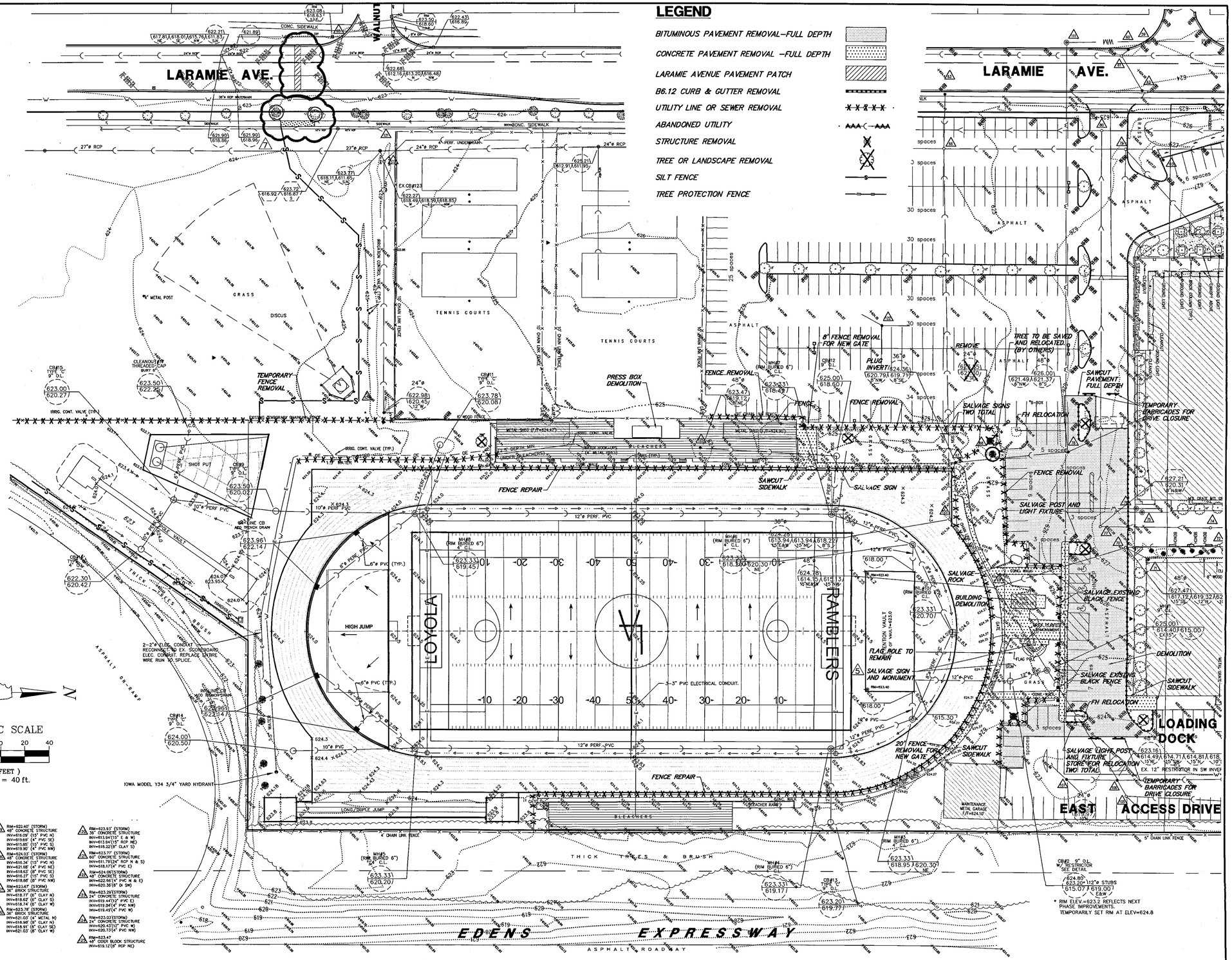
3. Existing vegetation which is to remain, shall be watered as required to maintain its health during the course of the construction operations and is the contractor's responsibility. Soil moisture shall be monitored weekly. Any necessary watering shall be coordinated with the Village Arborist.

4. Vegetation that becomes damaged by construction operations shall be repaired/replaced, in a manner acceptable to the Village Arborist.

5. All fence shall be bright orange plastic mesh with metal posts driven into the ground at a minimum of 8 foot on centers. At the discretion of the contractor, chain link fence may be substituted in lieu of the plastic mesh fence and used in conjunction with the project perimeter fencing. The contractor shall maintain the fence and immediately repair damaged sections.

LEGEND

- BITUMINOUS PAVEMENT REMOVAL–FULL DEPTH
- CONCRETE PAVEMENT REMOVAL –FULL DEPTH
- LARAMIE AVENUE PAVEMENT PATCH
- B6.12 CURB & GUTTER REMOVAL
- UTILITY LINE OR SEWER REMOVAL
- ABANDONED UTILITY
- STRUCTURE REMOVAL
- TREE OR LANDSCAPE REMOVAL
- SILT FENCE
- TREE PROTECTION FENCE



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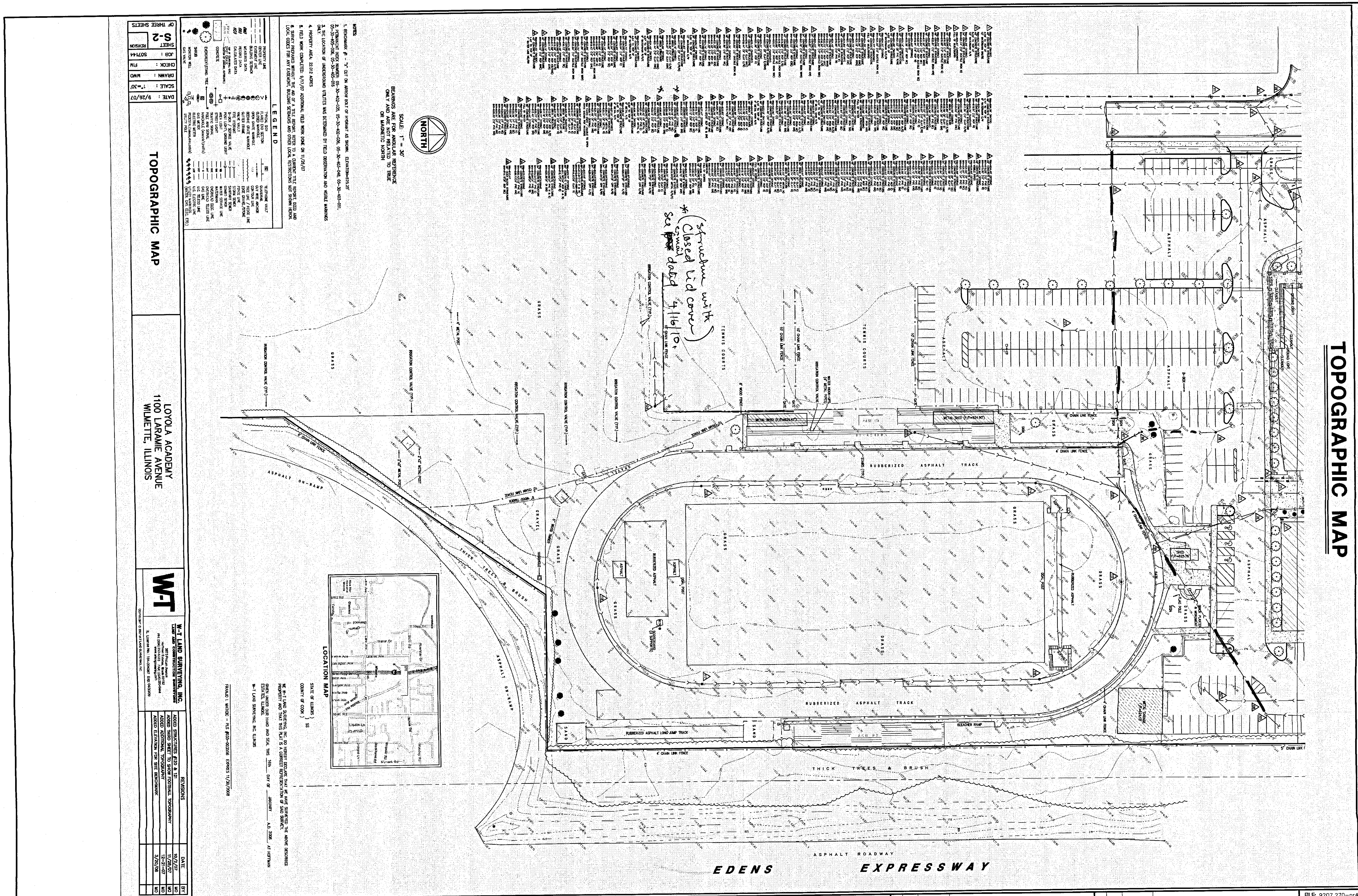
DEMOLITION PLAN

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION
9	WEG	3-29-10	PER MWRD REVIEW COMMENTS
7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
5	WEG	9-9-09	PER MWRD REVIEW COMMENTS
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS

NO.	BY	DATE	REVISION

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM DATE 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG DATE:
SCALE: 1"=40'
SHEET NUMBER: 3 OF 17 SHEETS



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EXISTING CONDITIONS

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION

NO.	BY	DATE	REVISION

FILE: 9207.270-pr4-copy.dwg
DRAWN BY: LLM
DATE: 04-08-09
GHA PROJECT # 9207.270
CHECKED BY: WEG
DATE:
SCALE: NOT TO SCALE
SHEET NUMBER: 2 OF 17 SHEETS

STADIUM RENOVATIONS

LOYOLA ACADEMY

VILLAGE OF WILMETTE, ILLINOIS

STADIUM RENOVATIONS 9207.270

STANDARD SYMBOLS

EXISTING	FEATURE	PROPOSED
	BENCHMARK	BM/TBM
	CONCRETE R.O.W. MONUMENT	
	R.O.W. LINE	
	STORM SEWER	
	STORM SEWER MANHOLE	
	CATCH BASIN	
	INLET	
	CLEAN OUT	C.O.
	SANITARY SEWER	
	SANITARY FORCEMAIN	
	SANITARY SEWER MANHOLE	
	WATER VAULT	
	VALVE BOX	
	WATERMAIN	W
	FIRE HYDRANT	
	GAS MANHOLE	GAS
	GAS VALVE	GAS
	GAS MAIN	G
	TELEPHONE LINES	T
	IBT BOX	IBT
	IBT MANHOLE	IBT
	ELECTRIC LINES	E
	ELECTRIC MANHOLE	ELEC.
	UTILITY POLE	
	SIGN	
	LIGHT STANDARD	
	FENCE	
	TREE	
	SHRUB	
	CONTOUR LINE	857
	SPOT GRADE	x 857.4
	HEADWALL	
	FLARED END SECTION	
	CULVERT	
	SWALE	
	PROPERTY PIN	
RIM / INV.	STORM SEWER STRUCTURE ELEVATION	RIM / INV.
RIM / INV.	SANITARY SEWER STRUCTURE ELEVATION	RIM / INV.
RIM / RIM / T.O.P. / T.O.P.	WATER MAIN STRUCTURE ELEVATION	RIM / RIM / TOP / T.O.P.

EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES, DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

CONTRACTOR IS RESPONSIBLE FOR CONTACTING J.U.L.I.E. AT 1-800-892-0123 AND MUST ACQUIRE A DIG NUMBER A MINIMUM OF 72 HOURS PRIOR TO ANY WORK BEING DONE.

SANITARY SEWER CONNECTION AND ROUTING TO EXISTING MWRD SEWER

1. THE PROPOSED SANITARY SERVICE CONNECTION WILL CONNECT TO THE EXISTING VILLAGE OF WILMETTE 10" SANITARY SEWER ALONG LARAMIE AVENUE.

2. EXISTING VILLAGE OF WILMETTE 10" DIAMETER SANITARY SEWER FLOWS SOUTH ALONG LARAMIE AVENUE TO EXISTING VILLAGE OF WILMETTE 36" DIAMETER SANITARY SEWER ON LAKE AVENUE AND LARAMIE AVENUE.

3. EXISTING VILLAGE OF WILMETTE 36" DIAMETER SANITARY SEWER FLOWS WEST DISCHARGING INTO EXISTING MWRD 4'-6"x 5'-0" INTERCEPTOR SEWER.

STORM SEWER CONNECTION AND ROUTING TO EXISTING WATERWAY

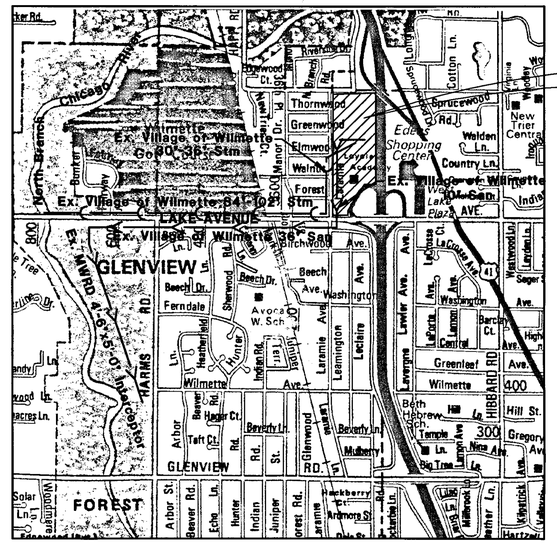
1. PROPOSED STORM SEWER DISCHARGE FROM THE SITE IS TRIBUTARY TO EXISTING VILLAGE OF WILMETTE 30"-36" STORM SEWER DISCHARGING SOUTH ALONG LARAMIE AVENUE.

2. EXISTING VILLAGE OF WILMETTE 30"-36" STORM SEWER ON LARAMIE DISCHARGES SOUTH TO EXISTING VILLAGE OF WILMETTE 84" STORM SEWER ON LAKE AVENUE AND LARAMIE AVENUE.

3. EXISTING VILLAGE OF WILMETTE 84"-102" STORM SEWER DICHARGES WEST ALONG LAKE AVENUE TO NORTH BRANCH OF THE CHICAGO RIVER.

NOTE: CONSTRUCTION MEANS, METHODS AND JOB SITE SAFETY IS THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR.

LOCATION MAP



BENCHMARK:

NOTE: ELEVATIONS ARE ON USGS DATUM.

BM#1 – 'X' CUT ON ARROW BOLT OF HYDRANT LOCATED ALONG EAST PROPERTY LINE IN LANDSCAPE ISLAND NORTH OF LOADING DOCK AND NORTH OF STRUCTURE #101.
ELEVATION = 625.25.

CONTROL POINTS:

DESC.	NORTHING	EASTING	ELEVATION
CP#1-SPK	4969.854	4997.976	623.25
CP#2-SPK	4950.999	4792.930	626.81
CP#16-SPK	4887.266	4904.135	624.57
CP#33-SIP	4298.652	5016.481	624.07
CP#34-SIP	4328.962	4724.159	625.14

FOR CONSTRUCTION
MWRD PERMIT # 09-0141

SHEET INDEX

1. TITLE SHEET
2. EXISTING CONDITIONS
3. DEMOLITION PLAN
4. SITE LAYOUT
5. GEOMETRIC PLAN
6. UTILITY PLAN
7. GRADING PLAN
8. SWPPP PLAN
9. SWPPP GENERAL NOTES
10. SWPPP GENERAL DETAILS
11. GENERAL NOTES
12. DETAIL SHEET
13. DETAIL SHEET
14. STORM TRAP DETAILS

EX-A TIME OF CONCENTRATION EXHIBIT
EX-B BASIN 1 PROJECT/MITIGATION AREA EXHIBIT
EX-C MWRD DRAINAGE EXHIBIT

PLAT OF SURVEY BY:
W-T LAND SURVEYING, INC.
2675 Pratum Avenue
Hoffman Estates, Illinois 60192
Telephone: 224-293-6333
Fax: 224-293-6444

TOPOGRAPHIC SURVEY BY:
W-T LAND SURVEYING, INC.
2675 Pratum Avenue
Hoffman Estates, Illinois 60192
Telephone: 224-293-6333
Fax: 224-293-6444

SUBSURRACE EXPLORATION/ GEOTECHNICAL ENGINEERING REPORT BY:
STS Consultants, LTD
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061-3153
Telephone: 847-279-2487

COORDINATING/PERMITTING AGENCIES:

Village of Wilmette	
Community Development	847-853-7550
Engineering Department	847-853-7660
Illinois Environmental Protection Agency (IEPA)	217-782-9470
Metropolitan Water Reclamation District of Greater Chicagoland (MWRDGC)	312-751-5600
MWRDGC Field Office	708-588-4055

OFFICE COPY

CONTRACTOR TO NOTIFY MWRDGC FIELD OFFICE AT (708) 588-4055 A MINIMUM OF 2 WORKING DAYS BEFORE CONSTRUCTION.

True copy of plans on file with Metropolitan Water Reclamation District of Greater Chicago Sewerage Permit 09-141

WALTER E. GRAFF 62-048837 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Call all Appropriate Departments to obtain inspections. All inspection requests shall be made 48 hours prior to actual inspection.

Construction hours are from
7:00am to 7:00pm Monday through Friday
9:00am to 7:00pm on Saturday.
No work on Sunday.

GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS & SURVEYORS
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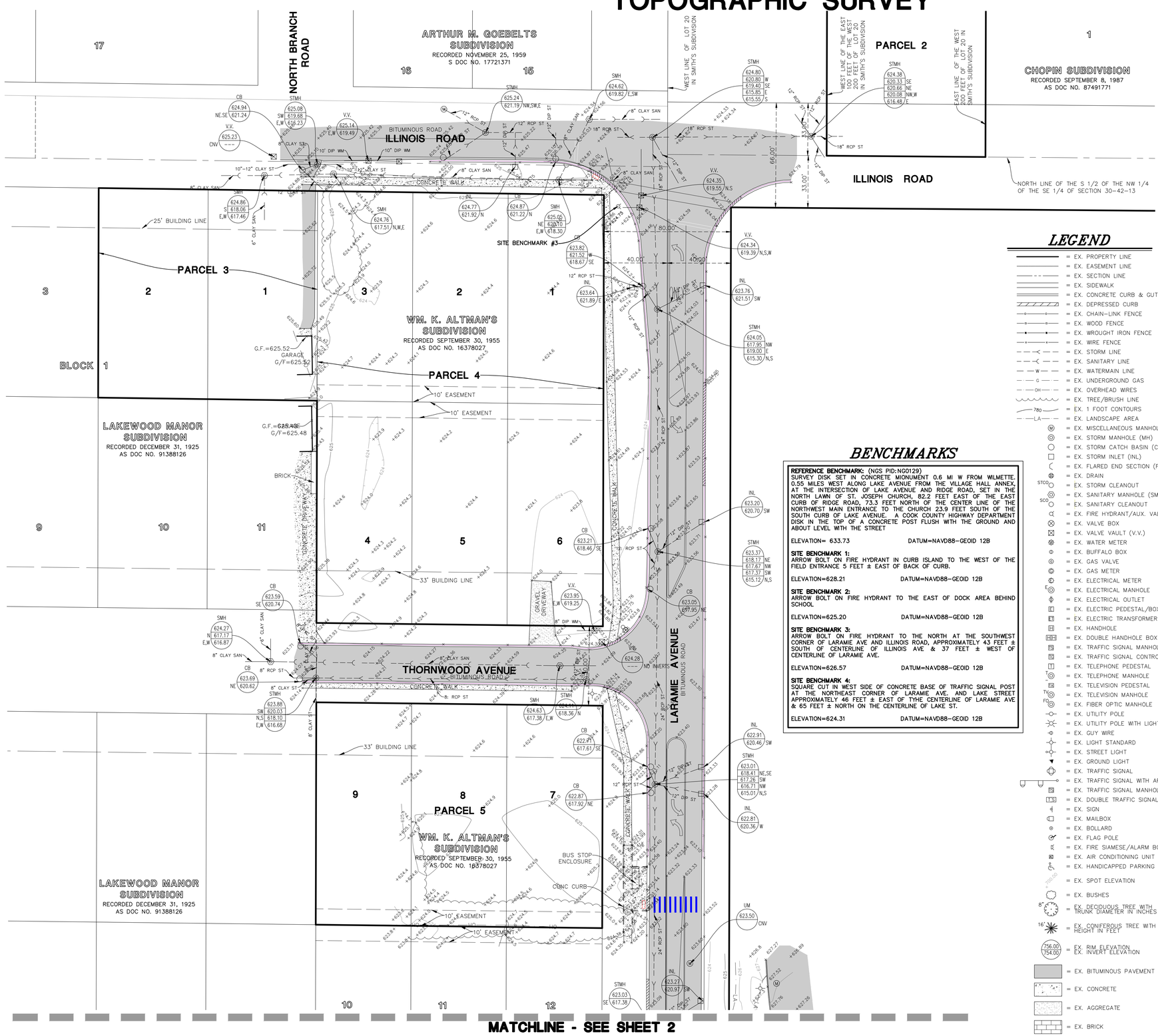
TITLE SHEET

STADIUM RENOVATIONS
LOYOLA ACADEMY
VILLAGE OF WILMETTE, ILLINOIS

NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION
5	WEG	9-16-09	PER MWRD REVIEW COMMENTS				
4	WEG	8-7-09	PER MWRD REVIEW COMMENTS	9	WEG	3-29-10	PER MWRD REVIEW COMMENTS
3	WEG	7-21-09	PER MWRD REVIEW COMMENTS	8	WEG	3-4-10	PER MWRD REVIEW COMMENTS
2	WEG	6-29-09	PER MWRD REVIEW COMMENTS	7	WEG	1-18-10	PER MWRD REVIEW COMMENTS
1	WEG	6-24-09	SITE PATIO GRADING	6	WEG	10-28-09	SITE UPDATES PER CLIENT REVIEW

FILE: 9207-Stadium-phase 2-DT1-copy.dwg
DRAWN BY: WEG DATE: 4-8-09
GHA PROJECT # 9207.270
CHECKED BY: DATE:
SCALE: NONE
SHEET NUMBER: 1 OF 17 SHEETS

TOPOGRAPHIC SURVEY



LEGEND

- = EX. PROPERTY LINE
- = EX. EASEMENT LINE
- = EX. SECTION LINE
- = EX. SIDEWALK
- = EX. CONCRETE CURB & GUTTER
- = EX. DEPRESSED CURB
- = EX. CHAIN-LINK FENCE
- = EX. WOOD FENCE
- = EX. WROUGHT IRON FENCE
- = EX. WIRE FENCE
- = EX. STORM LINE
- = EX. SANITARY LINE
- = EX. WATERMAIN LINE
- = EX. UNDERGROUND GAS
- = EX. OVERHEAD WIRES
- = EX. TREE/BRUSH LINE
- = EX. 1 FOOT CONTOURS
- = EX. LANDSCAPE AREA
- = EX. MISCELLANEOUS MANHOLE (MH)
- = EX. STORM MANHOLE (MH)
- = EX. STORM CATCH BASIN (CB)
- = EX. STORM INLET (INL)
- = EX. FLARED END SECTION (FES)
- = EX. DRAIN
- = EX. STORM CLEANOUT
- = EX. SANITARY MANHOLE (SMH)
- = EX. SANITARY CLEANOUT
- = EX. FIRE HYDRANT/AUX. VALVE
- = EX. VALVE BOX
- = EX. VALVE VAULT (V.V.)
- = EX. WATER METER
- = EX. BUFFALO BOX
- = EX. GAS VALVE
- = EX. GAS METER
- = EX. ELECTRICAL METER
- = EX. ELECTRICAL MANHOLE
- = EX. ELECTRICAL OUTLET
- = EX. ELECTRIC PEDESTAL/BOX
- = EX. ELECTRIC TRANSFORMER
- = EX. HANDHOLE
- = EX. DOUBLE HANDHOLE BOX
- = EX. TRAFFIC SIGNAL MANHOLE
- = EX. TRAFFIC SIGNAL CONTROL BOX
- = EX. TELEPHONE PEDESTAL
- = EX. TELEPHONE MANHOLE
- = EX. TELEVISION PEDESTAL
- = EX. TELEVISION MANHOLE
- = EX. FIBER OPTIC MANHOLE
- = EX. UTILITY POLE
- = EX. UTILITY POLE WITH LIGHT
- = EX. GUY WIRE
- = EX. LIGHT STANDARD
- = EX. STREET LIGHT
- = EX. GROUND LIGHT
- = EX. TRAFFIC SIGNAL
- = EX. TRAFFIC SIGNAL WITH ARM
- = EX. TRAFFIC SIGNAL MANHOLE
- = EX. DOUBLE TRAFFIC SIGNAL MANHOLE
- = EX. SIGN
- = EX. MAILBOX
- = EX. BOLLARD
- = EX. FLAG POLE
- = EX. FIRE SIAMESE/ALARM BOX
- = EX. AIR CONDITIONING UNIT
- = EX. HANDICAPPED PARKING
- = EX. SPOT ELEVATION
- = EX. BUSHES
- = EX. DECIDUOUS TREE WITH TRUNK DIAMETER IN INCHES
- = EX. CONIFEROUS TREE WITH HEIGHT IN FEET
- (756.00) (754.00) = EX. RIM ELEVATION / EX. INVERT ELEVATION
- = EX. BITUMINOUS PAVEMENT
- = EX. CONCRETE
- = EX. AGGREGATE
- = EX. BRICK

BENCHMARKS

REFERENCE BENCHMARK: (NGS PID:NG0129)
SURVEY DISK SET IN CONCRETE MIONUMENT 0.6 MI W FROM WILMETTE. 0.55 MILES WEST ALONG LAKE AVENUE FROM THE VILLAGE HALL ANNEX, AT THE INTERSECTION OF LAKE AVENUE AND RIDGE ROAD, SET IN THE NORTH LAWN OF ST. JOSEPH CHURCH, 82.2 FEET EAST OF THE EAST CURB OF RIDGE ROAD, 73.3 FEET NORTH OF THE CENTER LINE OF THE NORTHWEST MAIN ENTRANCE TO THE CHURCH 23.9 FEET SOUTH OF THE SOUTH CURB OF LAKE AVENUE. A COOK COUNTY HIGHWAY DEPARTMENT DISK IN THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND AND ABOUT LEVEL WITH THE STREET

ELEVATION= 633.73 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 1:
ARROW BOLT ON FIRE HYDRANT IN CURB ISLAND TO THE WEST OF THE FIELD ENTRANCE 5 FEET ± EAST OF BACK OF CURB.

ELEVATION=628.21 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 2:
ARROW BOLT ON FIRE HYDRANT TO THE EAST OF DOCK AREA BEHIND SCHOOL

ELEVATION=625.20 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 3:
ARROW BOLT ON FIRE HYDRANT TO THE NORTH AT THE SOUTHWEST CORNER OF LARAMIE AVE AND ILLINOIS ROAD, APPROXIMATELY 43 FEET ± SOUTH OF CENTERLINE OF ILLINOIS AVE & 37 FEET ± WEST OF CENTERLINE OF LARAMIE AVE.

ELEVATION=626.57 DATUM=NAVD88-GEOID 12B

SITE BENCHMARK 4:
SQUARE CUT IN WEST SIDE OF CONCRETE BASE OF TRAFFIC SIGNAL POST AT THE NORTHEAST CORNER OF LARAMIE AVE. AND LAKE STREET APPROXIMATELY 46 FEET ± EAST OF TYHE CENTERLINE OF LARAMIE AVE & 65 FEET ± NORTH ON THE CENTERLINE OF LAKE ST.

ELEVATION=624.31 DATUM=NAVD88-GEOID 12B

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

LEGAL DESCRIPTION

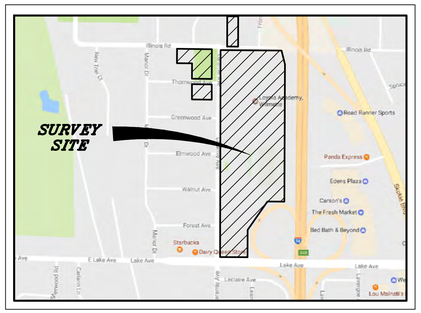
PARCEL 1:
LOT 1 IN LOYOLA ACADEMY CONSOLIDATION, BEING A CONSOLIDATION OF PART OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED MAY 28, 2015 AS DOCUMENT 1514834005, IN COOK COUNTY, ILLINOIS.

PARCEL 2:
THE EAST 100 FEET OF THE WEST 200 FEET OF THE SOUTH 276.5 FEET OF THE WEST HALF OF LOT 20 IN SMITH'S SUBDIVISION, A SUBDIVISION OF THE NORTHEAST QUARTER AND THE NORTH QUARTER OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 3:
LOTS 1 AND 2 IN BLOCK 1 IN LAKEWOOD MANOR, BEING A SUBDIVISION OF THE WEST 30 ACRES OF THE EAST 40 ACRES OF THE SOUTH 60 ACRES OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 4:
LOTS 1 THRU 6 IN WILLIAM K. ALTMAN'S SUBDIVISION, OF THE EAST 10 ACRES OF SOUTH 60 ACRES (EXCEPT THE EAST 40 ACRES THEREON AND EXCEPT THE SOUTH 837.02 FEET THEREOF) OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 5:
LOTS 7, 8 AND 9 IN WILLIAM K. ALTMAN'S SUBDIVISION, OF THE EAST 10 ACRES OF SOUTH 60 ACRES (EXCEPT THE EAST 40 ACRES THEREON AND EXCEPT THE SOUTH 837.02 FEET THEREOF) OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.



LOCATION MAP

NOT TO SCALE

SURVEY PREPARED FOR

LOYOLA ACADEMY
1100 LARAMIE AVENUE
WILMETTE, ILLINOIS 60091

PROPERTY ADDRESS

1100 LARAMIE AVENUE, WILMETTE, ILLINOIS

JAMES D. BAKER
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3646
VERNON HILLS, ILLINOIS

DATE: MAY, 01 2017

EXPIRES: 11/30/18

DATE	REVISIONS	DRAWN BY

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LOYOLA ACADEMY
1100 LARAMIE AVENUE, WILMETTE, ILLINOIS
TOPOGRAPHIC SURVEY

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 05/01/17
SCALE: 1"=30'

SHEET 1 OF 4

LACWNIL

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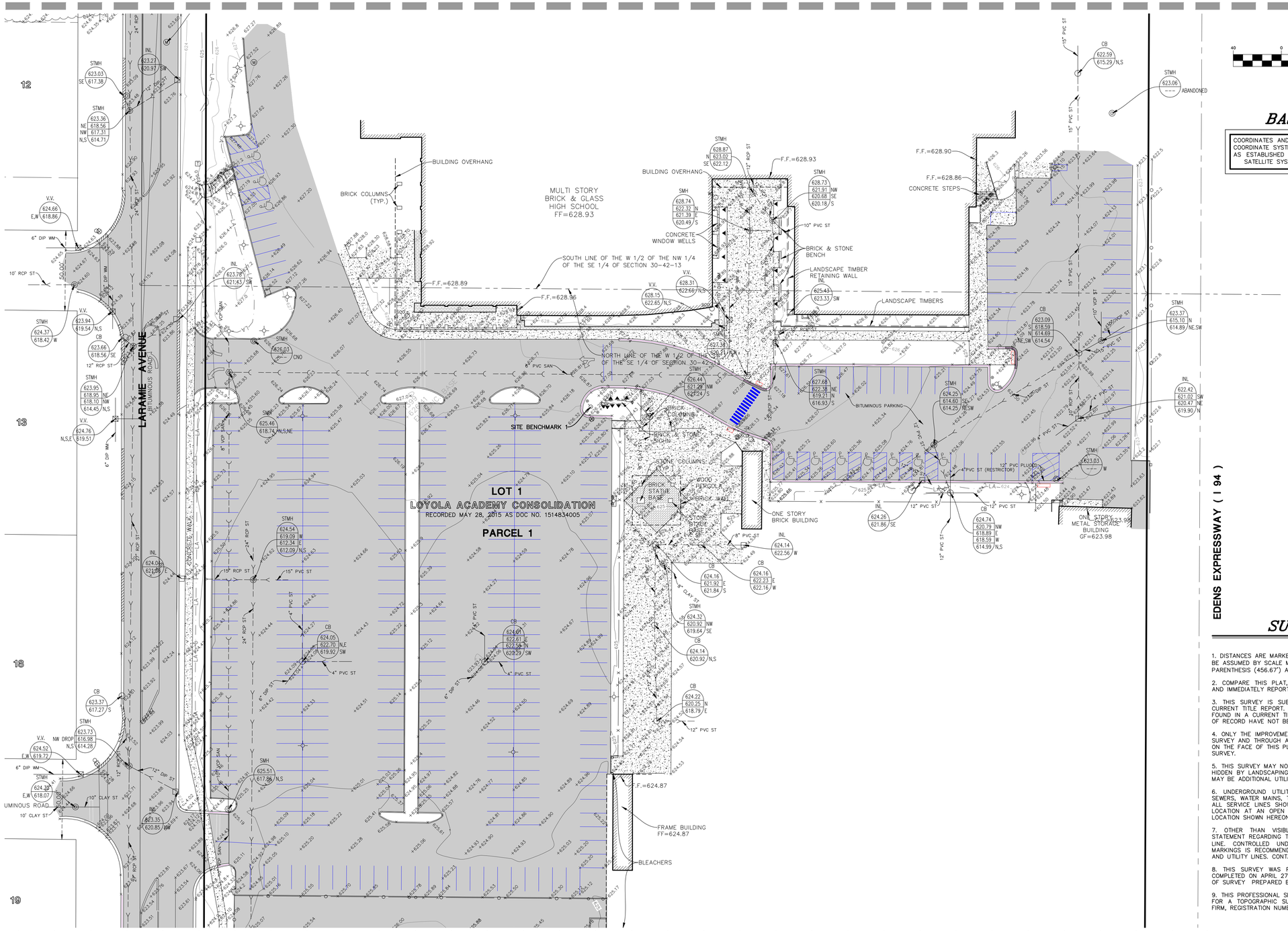
May 3, 2017 - 15:59 Dwg Name: P:\Locem\01\dwg\Surv\Final Drawings\Topography\LACWM-T.dwg Updated By: PDeSalvo

TOPOGRAPHIC SURVEY

MATCHLINE - SEE SHEET 1



MATCHLINE - SEE SHEET 3

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

SURVEYOR'S NOTES

1. DISTANCES ARE MARKED IN FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS ('456.67') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.

2. COMPARE THIS PLAT, BENCHMARKS AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.

3. THIS SURVEY IS SUBJECT TO MATTERS OF TITLE, WHICH MAY BE REVEALED BY A CURRENT TITLE REPORT. EASEMENTS, SETBACKS AND OTHER RESTRICTIONS WHICH MAY BE FOUND IN A CURRENT TITLE REPORT, LOCAL ORDINANCES, DEEDS OR OTHER INSTRUMENTS OF RECORD HAVE NOT BEEN SHOWN.

4. ONLY THE IMPROVEMENTS WHICH WERE VISIBLE FROM ABOVE GROUND AT THE TIME OF SURVEY AND THROUGH A NORMAL SEARCH AND WALK THROUGH OF THE SITE ARE SHOWN ON THE FACE OF THIS PLAT. LAWN SPRINKLER SYSTEMS, IF ANY, ARE NOT SHOWN ON THIS SURVEY.

5. THIS SURVEY MAY NOT REFLECT ALL UTILITIES, OR IMPROVEMENTS, IF SUCH ITEMS ARE HIDDEN BY LANDSCAPING OR ARE COVERED BY LEAVES OR OTHER OBSTRUCTIONS. THERE MAY BE ADDITIONAL UTILITIES OR IMPROVEMENTS THAT HAVE NOT BEEN SHOWN.

6. UNDERGROUND UTILITIES INCLUDING, BUT NOT LIMITED TO, STORM AND SANITARY SEWERS, WATER MAINS, TELEPHONE AND ELECTRIC CABLES OR CONDUITS, GAS MAINS AND ALL SERVICE LINES SHOWN HEREON ARE BASED ON THE FOLLOWING: ACTUAL OBSERVED LOCATION AT AN OPEN MANHOLE; THE EXACT LOCATION MAY BE DIFFERENT FROM THE LOCATION SHOWN HEREON.

7. OTHER THAN VISIBLE OBSERVATIONS NOTED HEREON, THIS SURVEY MAKES NO STATEMENT REGARDING THE ACTUAL PRESENCE OR ABSENCE OF ANY SERVICE OR UTILITY LINE. CONTROLLED UNDERGROUND EXPLORATORY EFFORT TOGETHER WITH "J.U.L.I.E." MARKINGS IS RECOMMENDED TO DETERMINE THE FULL EXTENT OF UNDERGROUND SERVICE AND UTILITY LINES. CONTACT J.U.L.I.E. AT 1-800-892-0123.

8. THIS SURVEY WAS PREPARED FOR LOYOLA ACADEMY BASED ON A FIELD SURVEY COMPLETED ON APRIL 27, 2017. BOUNDARY LINES SHOWN HEREON ARE BASED ON A PLAT OF SURVEY PREPARED BY MANHARD CONSULTING LTD. DATED APRIL 27, 2017.

9. THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A TOPOGRAPHIC SURVEY. MANHARD CONSULTING, LTD. IS A PROFESSIONAL DESIGN FIRM, REGISTRATION NUMBER 184003350, EXPIRES APRIL 30, 2019.

DRAWN BY | REVISIONS | DATE

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Construction Managers • Environmental Scientists • Landscape Architects • Planners

LOYOLA ACADEMY
1100 LARAMIE AVENUE, WILMETTE, ILLINOIS
TOPOGRAPHIC SURVEY

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 05/01/17
SCALE: 1"=30'

SHEET 2 OF 4
LACWNIL

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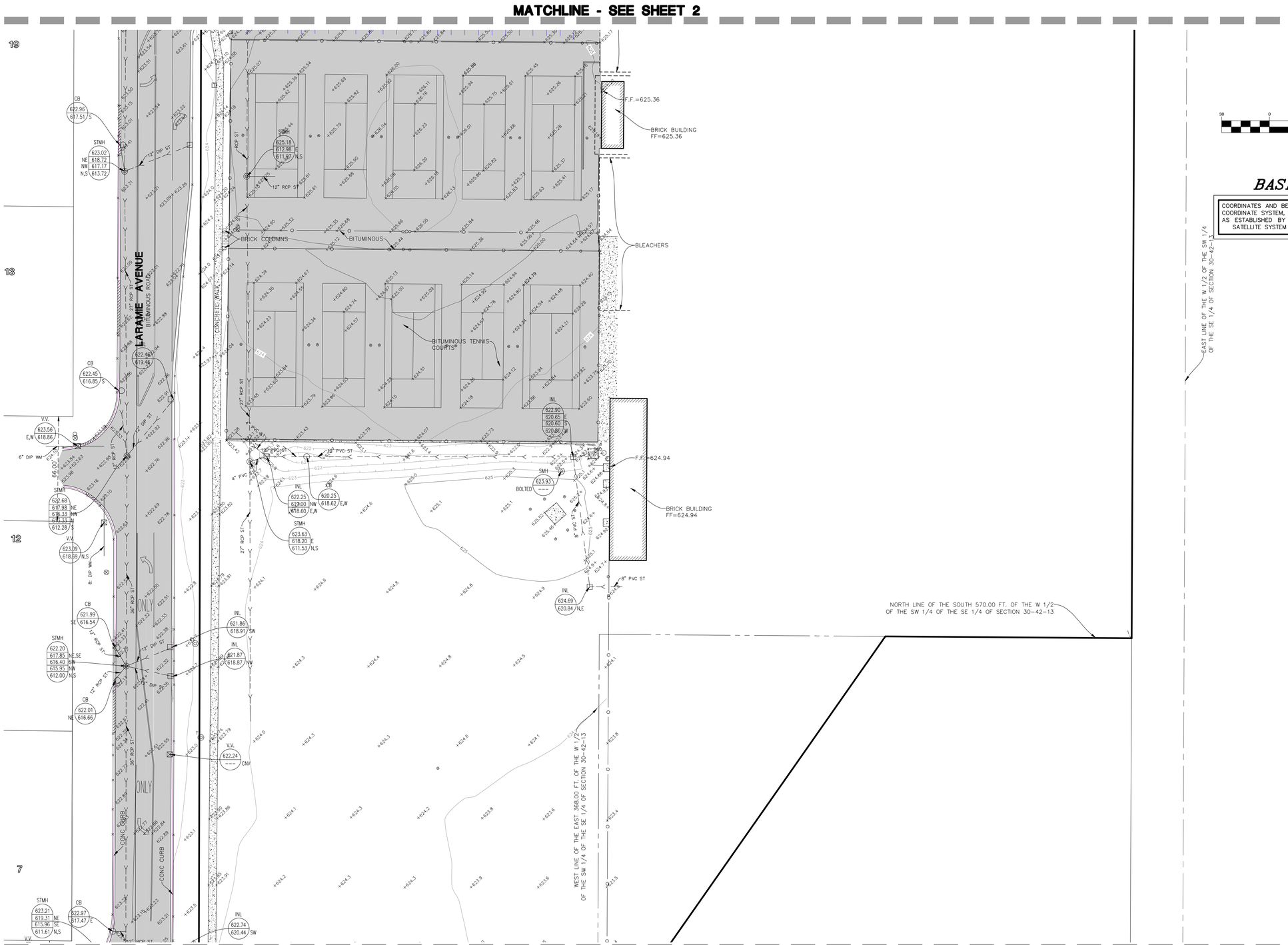
May 3, 2017 – 15:59 Dwg Name: P:\lacwnil01\dwg\Sur\Final Drawings\Topography\LACWN-T.dwg Updated By: PDeSalvo

TOPOGRAPHIC SURVEY



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

DATE	REVISIONS	DRAWN BY

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LOYOLA ACADEMY

1100 LARAMIE AVENUE, WILMETTE, ILLINOIS

TOPOGRAPHIC SURVEY

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 05/01/17
SCALE: 1"=30'

SHEET 3 OF 4

LACWNIL

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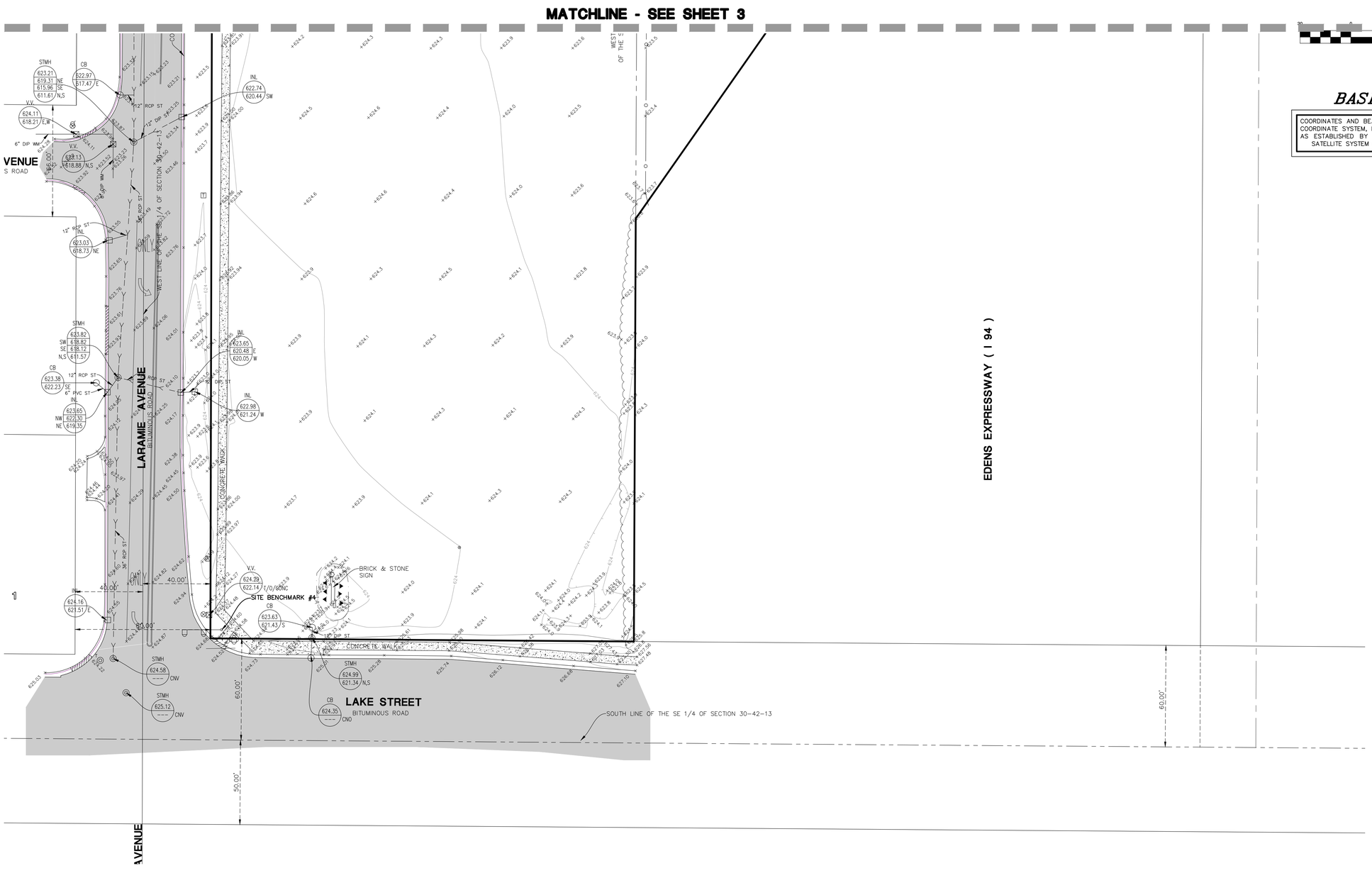
May 3, 2017 – 15:59 Dwg Name: P:\Lacwnil01\dwg\Surv\Final Drawings\Topography\LACWN-T.dwg Updated By: PDeSalvo

TOPOGRAPHIC SURVEY



N

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

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LOYOLA ACADEMY
1100 LARAMIE AVENUE, WILMETTE, ILLINOIS
TOPOGRAPHIC SURVEY

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 05/01/17
SCALE: 1"=30'

SHEET 4 OF 4

LACWNIL

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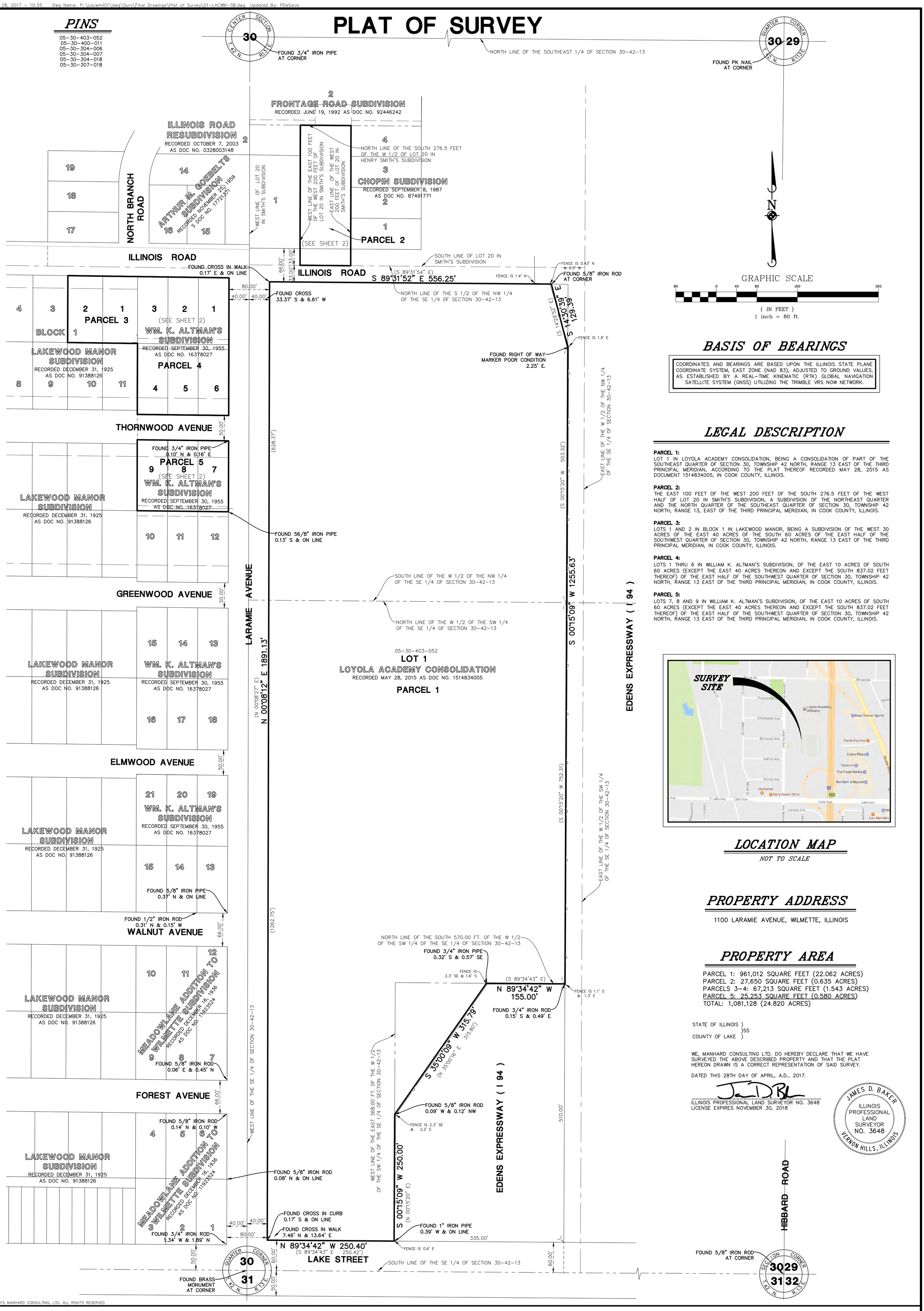
May 3, 2017 – 15:59 Dwg Name: P:\Locwnil01\dwg\Surv\Final Drawings\Topography\LACWM-T.dwg Updated By: PDeSolvo

PLAT OF SURVEY

PINS

05-30-403-052
05-30-400-011
05-30-304-006
05-30-304-007
05-30-304-018
05-30-307-018



GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

LEGAL DESCRIPTION

PARCEL 1:
LOT 1 IN LOYOLA ACADEMY CONSOLIDATION, BEING A CONSOLIDATION OF PART OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED MAY 28, 2015 AS DOCUMENT 1514834005, IN COOK COUNTY, ILLINOIS.

PARCEL 2:
THE EAST 100 FEET OF THE WEST 200 FEET OF THE SOUTH 276.5 FEET OF THE WEST HALF OF LOT 20 IN SMITH'S SUBDIVISION, A SUBDIVISION OF THE NORTHEAST QUARTER AND THE NORTH QUARTER OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 3:
LOTS 1 AND 2 IN BLOCK 1 IN LAKEWOOD MANOR, BEING A SUBDIVISION OF THE WEST 30 ACRES OF THE EAST 40 ACRES OF THE SOUTH 60 ACRES OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 4:
LOTS 1 THRU 6 IN WILLIAM K. ALTMAN'S SUBDIVISION, OF THE EAST 10 ACRES OF SOUTH 60 ACRES (EXCEPT THE EAST 40 ACRES THEREON AND EXCEPT THE SOUTH 837.02 FEET THEREOF) OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

PARCEL 5:
LOTS 7, 8 AND 9 IN WILLIAM K. ALTMAN'S SUBDIVISION, OF THE EAST 10 ACRES OF SOUTH 60 ACRES (EXCEPT THE EAST 40 ACRES THEREON AND EXCEPT THE SOUTH 837.02 FEET THEREOF) OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 42 NORTH, RANGE 13 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

LOCATION MAP

NOT TO SCALE

PROPERTY ADDRESS

1100 LARAMIE AVENUE, WILMETTE, ILLINOIS

PROPERTY AREA

PARCEL 1: 961,012 SQUARE FEET (22.062 ACRES)
PARCEL 2: 27,650 SQUARE FEET (0.635 ACRES)
PARCELS 3-4: 67,213 SQUARE FEET (1.543 ACRES)
PARCEL 5: 25,253 SQUARE FEET (0.580 ACRES)
TOTAL: 1,081,128 (24.820 ACRES)

STATE OF ILLINOIS)
)SS
COUNTY OF LAKE)

WE, MANHARD CONSULTING LTD. DO HEREBY DECLARE THAT WE HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY AND THAT THE PLAT HEREON DRAWN IS A CORRECT REPRESENTATION OF SAID SURVEY.

DATED THIS 28TH DAY OF APRIL, A.D., 2017.

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3648
LICENSE EXPIRES NOVEMBER 30, 2018

JAMES D. BAKER
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 3648
VERNON HILLS, ILLINOIS

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SHEET 1 OF 2
LACWNIL.01

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 04/27/17
SCALE: 1"=80'

LOYOLA ACADEMY
1100 LARAMIE AVENUE, WILMETTE, ILLINOIS
PLAT OF SURVEY

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Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

####

PLAT OF SURVEY

SURVEYOR'S NOTES

1. DISTANCES ARE MARKED IN FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (456.67') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.
2. COMPARE THIS PLAT, LEGAL DESCRIPTION AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.
3. BUILDING DIMENSIONS AND TIES ARE SHOWN TO THE CONCRETE FOUNDATION. EXCEPT FOR THE CONCRETE FOUNDATION, VISIBLE IMPROVEMENTS (HAVE NOT BEEN SHOWN) UNDERGROUND (AND SURFACE VISIBLE) UTILITIES HAVE NOT BEEN SHOWN.
4. THIS SURVEY IS SUBJECT TO MATTERS OF TITLE, WHICH MAY BE REVEALED BY A CURRENT TITLE REPORT. EASEMENTS, SETBACKS AND OTHER RESTRICTIONS WHICH MAY BE FOUND IN A CURRENT TITLE REPORT, LOCAL ORDINANCES, DEEDS OR OTHER INSTRUMENTS OF RECORD HAVE NOT BEEN SHOWN.
5. THIS SURVEY WAS PREPARED FOR LOYOLA ACADEMY BASED ON A FIELD BOUNDARY SURVEY COMPLETED ON APRIL 27, 2017.
6. AT THE CLIENTS REQUEST, (CORNERS HAVE NOT BEEN MONUMENTED) (AND IMPROVEMENTS ON THE SURVEYED PROPERTY, IF ANY, INCLUDING UNDERGROUND AND SURFACE VISIBLE UTILITIES, HAVE NOT BEEN SHOWN).
7. THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY. MANHARD CONSULTING, LTD. IS A PROFESSIONAL DESIGN FIRM, REGISTRATION NUMBER 184003350, EXPIRES APRIL 30, 2017.

N

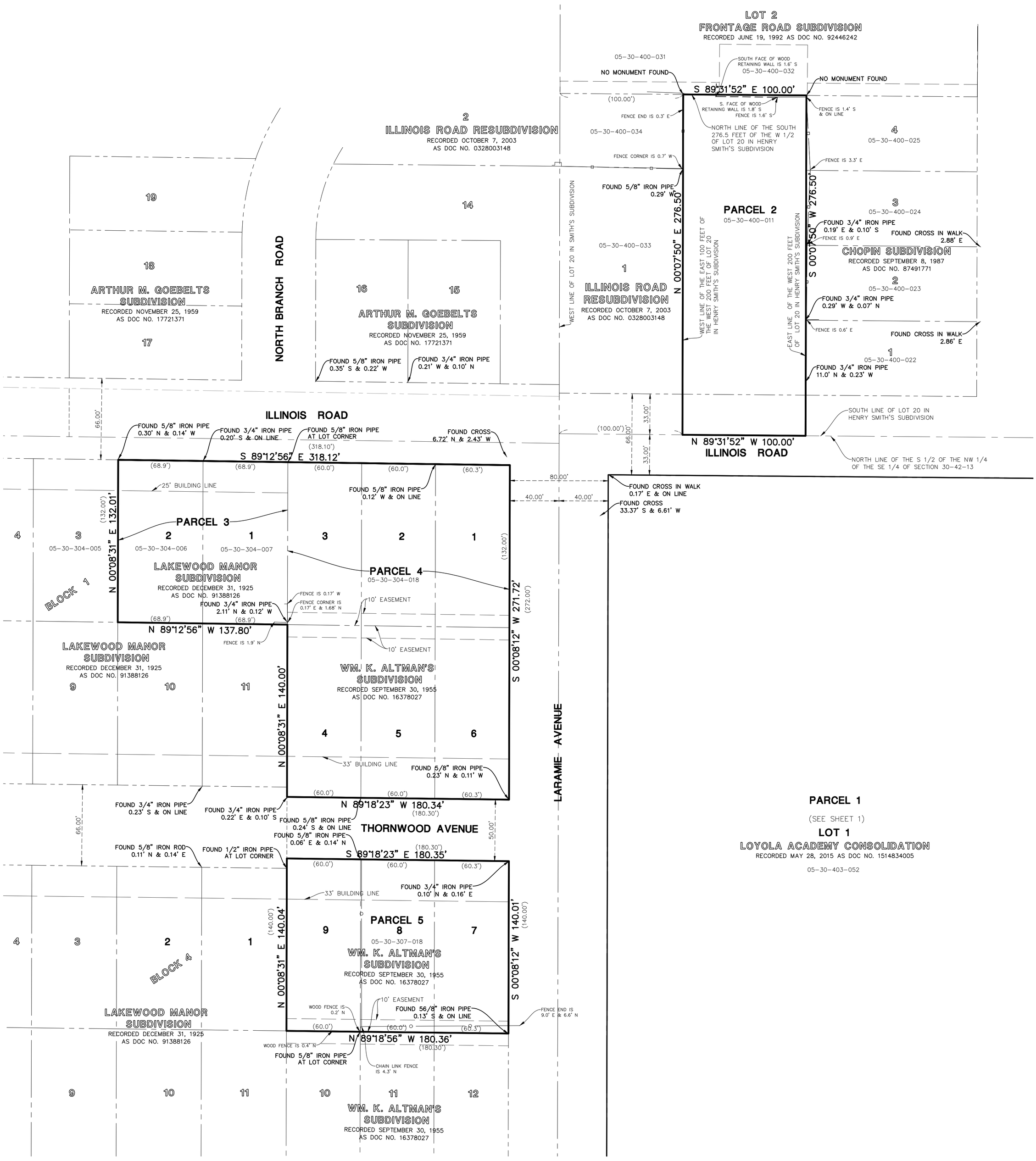
GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.



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SHEET 2 OF 2

LACWNIL.01

PROJ. MGR.: JDB
PROJ. ASSOC.: JDB
DRAWN BY: PJD
DATE: 04/27/17
SCALE: 1"=40'

LOYOLA ACADEMY

1100 LARAMIE AVENUE, WILMETTE, ILLINOIS

PLAT OF SURVEY

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Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

Worksheet 2: Runoff curve number (PHASE 1 - EAST OF LARAMIE)

Project	By	Date
Location	Checked	Date

Check one: Present **X** Developed **WATERSHED 1**

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/ connected impervious area ratio)	CN Table 2-2	CN Figure 2-3	CN Figure 2-4	Area acres	Area X	Product of CN x area
					mi^2		
					%		
	Open space (Good Condition)	80					0.0
	Open space (Good Condition)	74			2.90		214.6
	Impervious Area	98			6.45		632.1
							0.0
				Totals	9.4		846.7

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{846.7}{9.35} = 90.56$$

Use CN **90.6**

* Runoff Curve Numbers determined by TR-55

Worksheet 2: Runoff curve number (FUTURE)

Project	By	Date
Location	Checked	Date

Check one: Present **X** Developed **WATERSHED 1**

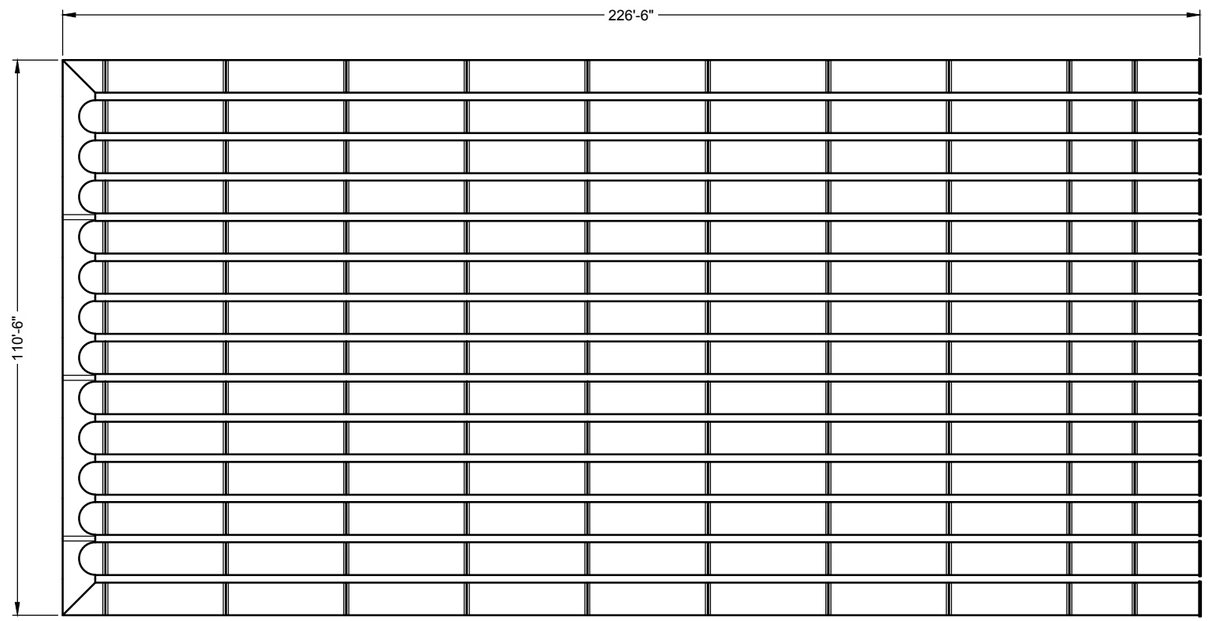
1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/ connected impervious area ratio)	CN Table 2-2	CN Figure 2-3	CN Figure 2-4	Area acres / mi^2 / %	X	Product of CN x area
	Open space (Good Condition)	80					0.0
	Open space (Good Condition)	74			1.74		128.8
	Impervious Area	98			4.00		392.0
							0.0
				Totals	5.7		520.8

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{520.76}{5.74} = 90.72$$

Use CN **90.7**

* Runoff Curve Numbers determined by TR-55



ASSEMBLY
SCALE: 1" = 30'

PROJECT SUMMARY

CALCULATION DETAILS
- LENGTH PER BARREL = 220 FT
- LENGTH PER HEADER = 110.50 FT
- LOADING = H20 & H25
- APPROX. CMP FOOTAGE = 3,191 FT

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED 130,680 CF
- PIPE STORAGE = 105,870 CF
- STRUCTURAL BACKFILL STORAGE = 25,123 CF
- TOTAL STORAGE PROVIDED = 130,994 CF

PIPE DETAILS
- DIAMETER = 78 IN
- CORRUGATION = 5" X 1" OR 3" X 1"
- GAGE = 16
- COATING = ALUMINIZED STEEL TYPE 2 (ALT2)
- WALL TYPE = ~~PERFORATED~~ SOLID WALL WITH EXFILTRATION JOINTS
- BARREL SPACING = 18 IN

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN
- ABOVE PIPE = 0 IN
- WIDTH AT SIDES = 12 IN
- BELOW PIPE = 4 IN

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 ⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

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MARK	DATE	REVISION DESCRIPTION	BY

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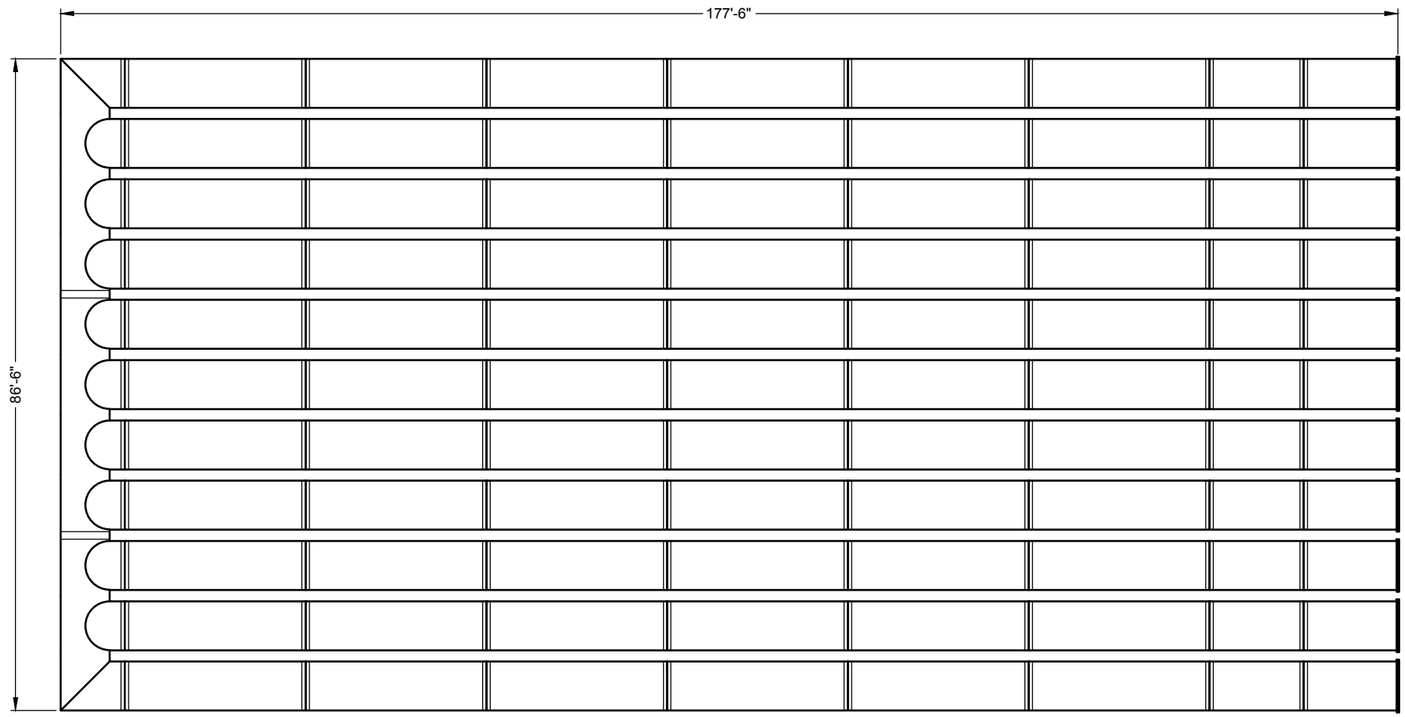
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

DYODS - 4135-1-0
PROJECT NAME: Loyola Academy
Wilmette, IL
DESCRIPTION: PHASE 1

PROJECT No.:	SEQ. No.:	DATE:
4135-1	0	6/15/2017
DESIGNED: DYODS	DRAWN: DYODS	
CHECKED:	APPROVED:	
SHEET NO.: D1		



ASSEMBLY
SCALE: 1" = 20'

PROJECT SUMMARY

CALCULATION DETAILS
- LENGTH PER BARREL = 171 FT
- LENGTH PER HEADER = 86.50 FT
- LOADING = H20 & H25
- APPROX. CMP FOOTAGE = 1,968 FT

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED 80,586 CF
- PIPE STORAGE = 65,287 CF
- STRUCTURAL BACKFILL STORAGE = 15,575 CF
- TOTAL STORAGE PROVIDED = 80,863 CF

PIPE DETAILS
- DIAMETER = 78 IN
- CORRUGATION = 5" X 1" OR 3" X 1"
- GAGE = 16
- COATING = ALUMINIZED STEEL TYPE 2 (ALT2)
- WALL TYPE = ~~PERFORATED~~ SOLID WALL WITH EXFILTRATION JOINTS
- BARREL SPACING = 18 IN

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN
- ABOVE PIPE = 0 IN
- WIDTH AT SIDES = 12 IN
- BELOW PIPE = 4 IN

NOTES
- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 ⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

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www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH **DYODS** DRAWING

DYODS - 4136-1-0
PROJECT NAME: Loyola Academy
Wilmette, IL
DESCRIPTION: PHASE 2

PROJECT No.:	SEQ. No.:	DATE:
4136-1	0	6/15/2017
DESIGNED: DYODS		DRAWN: DYODS
CHECKED:		APPROVED:
SHEET NO.: D1		

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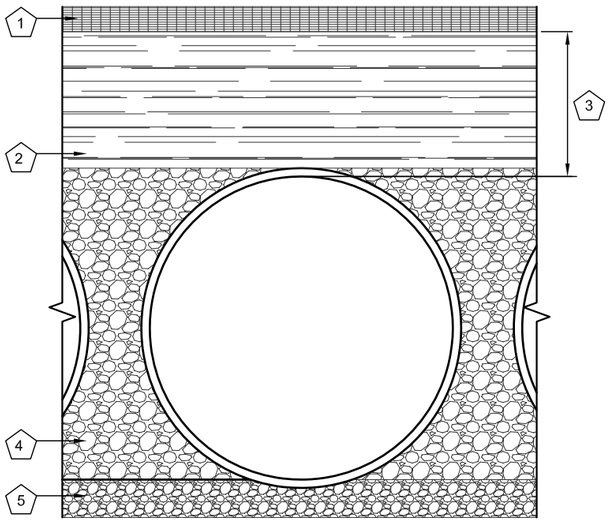


1.) RIGID OR FLEXIBLE PAVEMENT

2.) GRANULAR ROAD BASE (CA-6).

3.) 12" MIN. FOR DIAMETERS THROUGH 96"
18" MIN. FOR DIAMETERS FROM 102"
AND LARGER MEASURED TO TOP OF
RIGID OR BOTTOM OF FLEXIBLE
PAVEMENT.

4.) FREE DRAINING ANGULAR WASHED
STONE 3/8" MIN. PARTICLE SIZE.
COMPACT TO MIN. 90% STANDARD
DENSITY PER AASHTO T-99. (CA-7).

5.) RELATIVELY LOOSE GRANULAR
BEDDING, ROUGHLY SHAPED TO
FIT BOTTOM OF PIPE, 3" TO 4" IN
DEPTH. (CA-7).

FOUNDATION/BEDDING PREPARATION

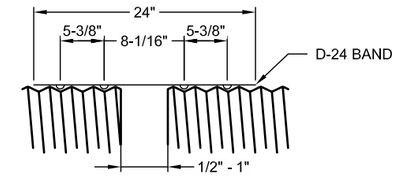
PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE 4 INCHES OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

BACKFILL

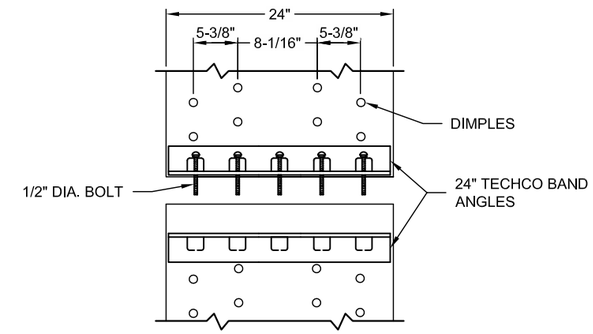
THE BACKFILL SHALL BE AN A1, A2 OR A3 GRANULAR FILL PER AASHTO M-145 OR A WELL-GRADED GRANULAR FILL AS APPROVED BY THE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIAL SHALL BE PLACED IN 8-INCH LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

1 / P2 BACKFILL DETAIL
SCALE: N.T.S.



SECTION



CONNECTION DETAIL

CORRUGATIONS	PIPE PRODUCTS
2-2/3"X1/2"	GALVANIZED
3" X 1"	ALUMINIZED
5" X 1"	BITUMINOUS COATED
	ALUMINUM

GENERAL NOTES:

1. REFER TO CONTECH BAND SELECTION GUIDE FOR BAND WIDTH, GAGE, AND FASTENER TYPES.
2. BANDS FOR PIPE-ARCH ARE THE SAME AS FOR EQUIVALENT DIAMETER ROUND PIPE.
3. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48" 1-PIECE
   54" THRU 96" 2-PIECE
   102" THRU 144" 3-PIECES.
4. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS. ALL ALUMINUM BANDS, BOTH SINGLE AND DOUBLE BB&S, ARE FURNISHED WITH A 14 GAGE ALUMINUM BACK-UP PLATE WELDED TO THE BAND AND THE STRAP.
5. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2-2/3" X 1/2".
6. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

2 / P2 EXFILTRATION JOINT (D-24) BAND DETAIL
N.T.S.

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CONTECH CMP DETENTION SYSTEMS

CONTECH PROPOSAL DRAWING

UNDERGROUND DETENTION SYSTEM

PROJECT No.:	SEQ. No.: 010	DATE: 7/18/2016
DESIGNED: MEA	DRAWN: MEA	
CHECKED:	APPROVED:	
SHEET NO.: P2 OF 3		

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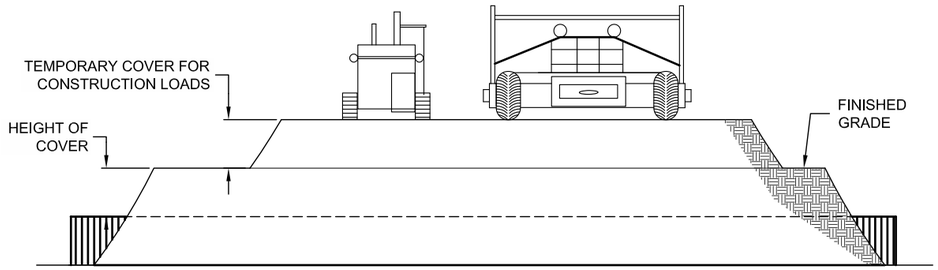


CONSTRUCTION LOADS

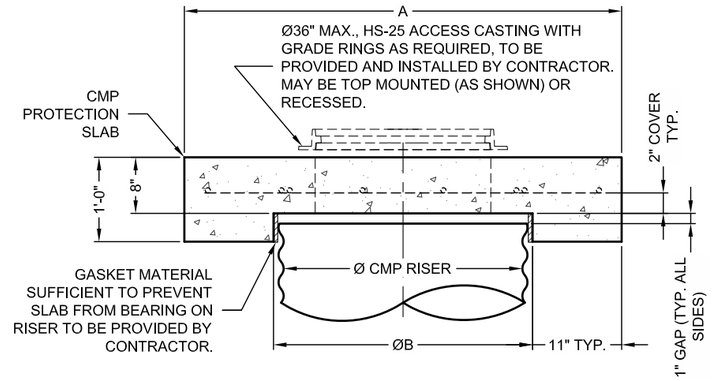
FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

3 / P3 CONSTRUCTION LOADING DIAGRAM

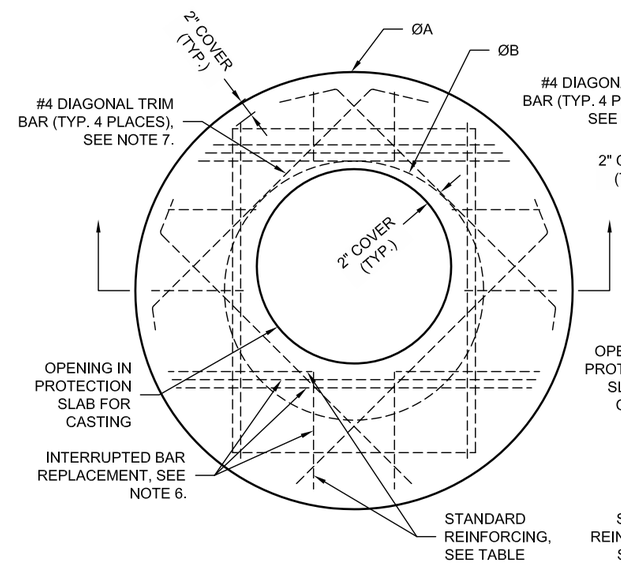
N.T.S.



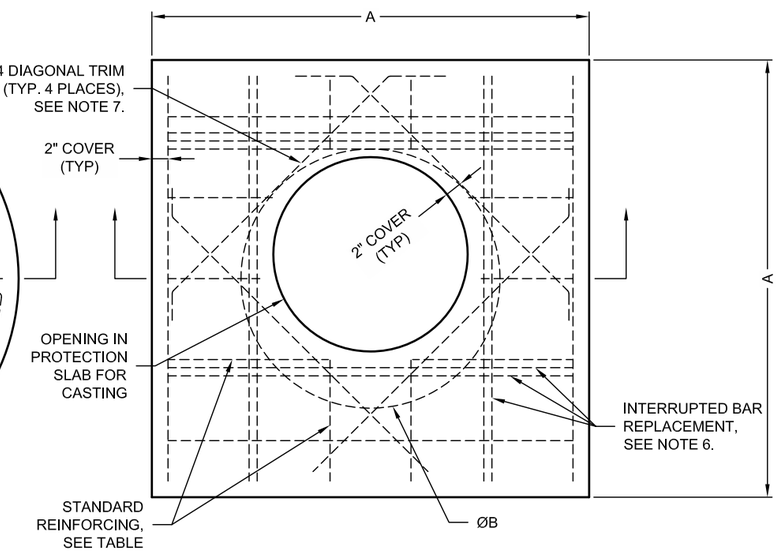
SECTION VIEW

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'x4'	26"	#5 @ 10" OCEW #5 @ 10" OCEW	2,540 1,900
30"	Ø 4'-6" 4'-6" x 4'-6"	32"	#5 @ 10" OCEW #5 @ 9" OCEW	2,260 1,670
36"	Ø 5' 5' x 5'	38"	#5 @ 9" OCEW #5 @ 8" OCEW	2,060 1,500
42"	Ø 5'-6" 5'-6" x 5'-6"	44"	#5 @ 8" OCEW #5 @ 8" OCEW	1,490 1,370
48"	Ø 6' 6' x 6'	50"	#5 @ 7" OCEW #5 @ 7" OCEW	1,210 1,270

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

4 / P3 MATERIAL SPECIFICATION

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION AND ACI 350.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,000 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERS, ARCHITECTS AND LAND SURVEYORS, ENDWELL, NY.

5 / P3 MANHOLE CAP DETAIL

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CONTECH PROPOSAL DRAWING

UNDERGROUND DETENTION SYSTEM

PROJECT No.:	SEQ. No.: 010	DATE: 7/18/2016
DESIGNED: MEA	DRAWN: MEA	
CHECKED:	APPROVED:	
SHEET NO.: P3 OF 3		

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CONTECH®
ENGINEERED SOLUTIONS

Job No. _____ Sh. _____ Of _____
Project _____
By _____ Date _____

Subject LOYOLA ACADEMY

VOLUME CALCS:

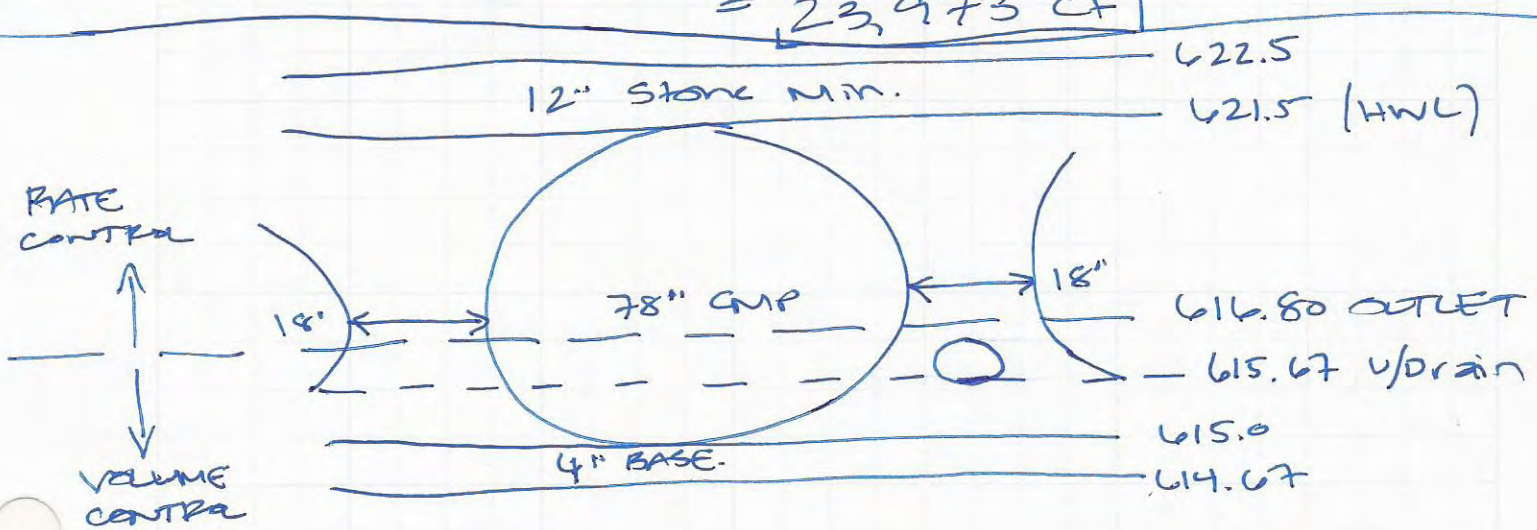
- PHASE 1

Bottom 12" = 12,941 CF

23,958 - 12,941 = 11,017 CF
× 2
22,034
+ 12,941
34,975 CF

@ 616.80, Vd. = 35,006 CF
− 12,941 CF
22,065 CF / 2 = 11,032 CF

Total V.C. = 12,941 + 11,032
= 23,973 CF



CONTECH®
ENGINEERED SOLUTIONS

Job No. _____ Sh. _____ Of _____
Project _____
By _____ Date _____
Subject _____

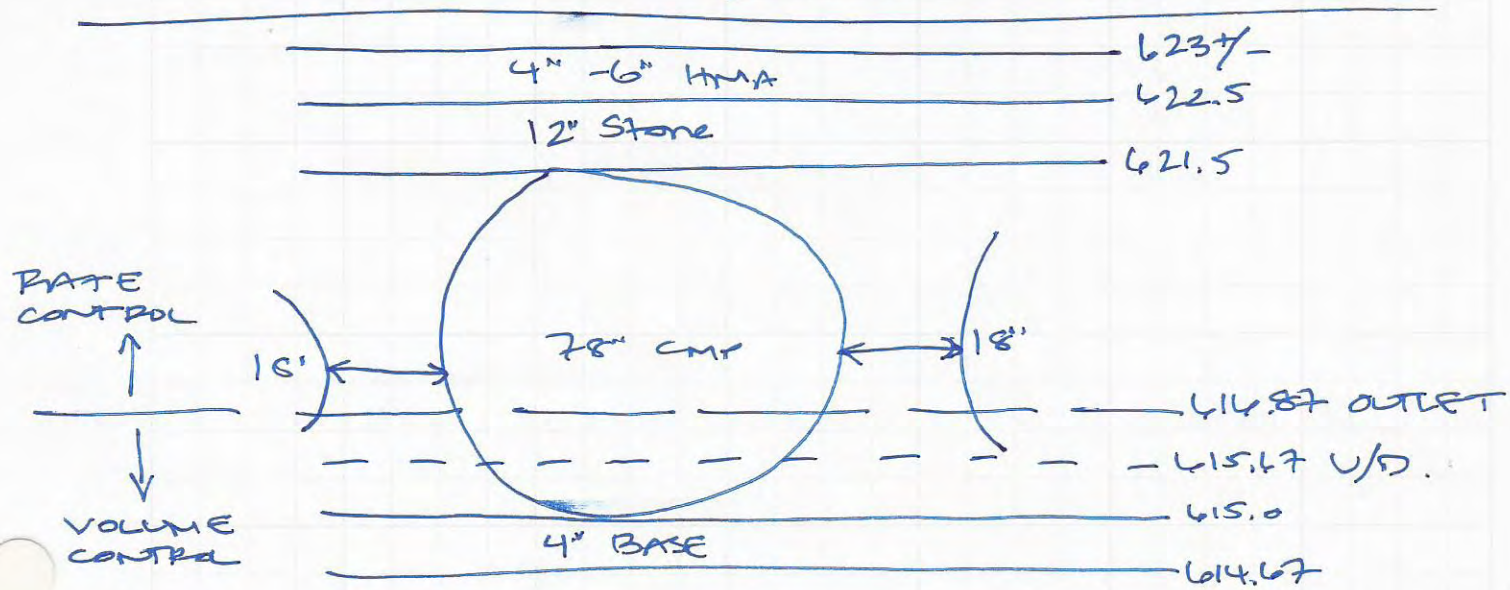
- Phase 2

Bottom 12" = 7,993 CF

15,246 - 7,993 = 7,253 CF
× 2
14,506 CF
+ 7,993 CF
22,499 CF

@ 614.87, Volume = 22,530 CF
- 7,993 CF
14,537 CF/2 = 7,269 CF

Total V.C. = 7,993 + 7,269
= 15,262 CF



SECTION 10:

Project Application

VILLAGE OF WILMETTE
ZONING BOARD OF APPEALS
Application for Public Hearing

1. PETITIONER AND OWNER INFORMATION

Petitioner's Name: Loyola Academy

Property Address: 1100 Laramie Avenue, Wilmette, Illinois 60091

Mailing Address (if different): _____

Petitioner's Daytime Phone: 847-256-1100

Petitioner's Email: dstonequist@loy.org

PETITIONER:

LOYOLA ACADEMY

By: Dennis Stonequist
Its: Executive Vice President
Date: 7/6/2017

Are you the legal owner of the property? YES **X** NO o

If not, state the owner's name, address and phone number and submit his/her signature here or in a letter of authorization.

Owner's Name: _____

Owner's Address: _____

Owner's Daytime Phone: _____

Owner's Email: _____

Owner's Signature _____ Date _____

o Letter of Authorization Attached

2. PROPERTY DESCRIPTION

Legal Description of the property (if different than what is on the Plat of Survey):

As set forth on Plat of Survey.

Present Use: Institutional/Educational

3. DESCRIPTION OF REQUEST

Application for: **X** Variation **X** Special Use

Briefly describe the request: Please see attached.

X Please attach a separate letter addressed to the Zoning Board of Appeals stating how this request conforms to the standards of review for a variation and/or a special use as set forth in the Village of Wilmette Zoning Ordinance.

4. CHECKLIST OF COMPLETE SUBMITTALS

Please check off those attachments being submitted with this application. *Please note: applications are scheduled in order of filing date, with complete applications being scheduled first.*

Required Submittals

- ☒ Filing Fee (see the current fee schedule)
- ☒ Evidence of Ownership
- ☒ Plans
  - o Site Plan, showing lot dimensions, existing and proposed structures, existing and proposed setbacks, distances to structures on adjoining lots, and a north arrow.
  - o Floor plans to accurate scale with all dimensions indicated.
  - o Elevations drawn to accurate scale with all dimensions indicated.
- ☒ Plat of Survey
- ☐ Floor Area Worksheets (if applicable; consult Village staff if unsure)
- ☒ Letter to the Zoning Board of Appeals, containing Standards of Review
- ☒ Traffic Study (if applicable; consult Village staff if unsure)

All correspondence should be addressed to:
Community Development Department
Village of Wilmette
1200 Wilmette Avenue
Wilmette, IL 60091

VILLAGE OF WILMETTE ZONING BOARD OF APPEALS
APPLICATION FOR PUBLIC HEARING

DESCRIPTION OF REQUEST FOR
AMENDMENT TO SPECIAL USE PERMIT AND VARIATIONS

(LOYOLA ACADEMY, WILMETTE, ILLINOIS)

1. Petitioner seeks to amend Ordinance No. 93-O-36, an Ordinance Granting a Special Use Permit to Loyola Academy (the "Special Use Permit"), to approve the following: (A) the construction of a new natatorium, new parking lot improvements, new tennis courts, and new stormwater management improvements, and the addition of enhancements to the landscape buffers and campus edges, on the Loyola Academy property; (B) modified language for the student enrollment condition set forth in Paragraph (1) on Exhibit C to the Special Use Permit; and (C) a new traffic management plan for the Loyola Academy property in lieu of the previously established traffic management conditions set forth in Paragraphs (12) through (19) on Exhibit C to the Special Use Permit.

2. Petitioner seeks to obtain approval of the following variations in connection with proposed improvements to the Loyola Academy campus:

a. A variation from Zoning Ordinance Section 8.3 to permit the encroachment of the relocated tennis courts into the 20-foot side yard setback along the east side of the relocated tennis courts.

b. A variation from Zoning Ordinance Section 8.3 to permit the encroachment of the relocated tennis courts into the 20-foot side yard setback along the west side of the relocated tennis courts.

c. A variation from Zoning Ordinance Section 13.4(H)(2)(i) to permit the tennis court fence height to be in excess of the six-foot maximum fence height otherwise permitted.

d. A variation from Zoning Ordinance Section 13.4(H)(2)(iii) to permit the use of chain link fencing for the relocated tennis courts.

e. A variation from Zoning Ordinance Section 16.10(D)(2)(b) to modify the maximum size of identity or monument signs otherwise permitted.

f. A variation from Zoning Ordinance Section 16.10(D)(1) to permit a number of identity or monument signs that is greater than otherwise permitted.

MPSLAW
MELTZER, PURTILL & STELLE LLC

ATTORNEYS AT LAW

1515 EAST WOODFIELD ROAD
SECOND FLOOR
SCHAUMBURG, ILLINOIS 60173-5431
TELEPHONE (847) 330-2400
FAX (847) 330-1231

300 SOUTH WACKER DRIVE
SUITE 2300
CHICAGO, ILLINOIS 60606-6704
TELEPHONE (312) 987-9900
FAX (312) 987-9854

File Number: 35038/001-A
Direct Dial: 312-461-4323
E-mail: jworkman@mpslaw.com

July 14, 2017

Chairman Patrick Duffy and Members of the Zoning Board of Appeals
Village of Wilmette
1200 Wilmette Avenue
Wilmette, Illinois 60091

RE: **Loyola Academy/Application for an Amendment to a Special Use Permit and for Variations**

Dear Chairman Duffy and Members of the Zoning Board of Appeals:

We represent Loyola Academy, an Illinois not-for-profit corporation ("**Loyola**"), the legal or beneficial owner of the Loyola Academy campus properties situated on Laramie Avenue at its intersection with Lake Avenue on the south and Illinois Road on the north and on Illinois Road situated east and west of Laramie Avenue (collectively, the "**Property**"). The campus portion of the Property situated east of Laramie Avenue is governed by a Special Use Permit the Wilmette Board of Trustees approved on May 11, 1993 by the adoption of Ordinance No. 93-O-36 (the "**Special Use Permit**").

On behalf of our client, we have submitted to the Village an application requesting an amendment to the Special Use Permit to facilitate the construction of a new natatorium, a new parking lot, new relocated tennis courts, and new stormwater management improvements, and the addition of enhancements to the landscape buffers and campus edges, on the portion of the Property situated east of Laramie Avenue. The foregoing improvements constitute Phase 1 of the Loyola Academy Master Plan for the Property and are collectively referred to in this letter as the **"Phase 1 Improvements"**. The application also seeks approval of zoning variations for the encroachment of the new tennis courts into the required side yard setbacks, the height and type of fence surrounding the tennis courts, and the number and size of signs on the portion of the Property situated east of Laramie and it seeks to modify the language of certain operational conditions in the Special Use Permit related to student enrollment and traffic management. Loyola is not seeking authorization to construct any of the improvements identified on the Master Plan as Phase 2 improvements at this time.

The proposed amendment to the Special Use Permit and the requested variations comply with the applicable criteria relative to approval of Special Uses and Variations, as set forth in Section 5.3 and Section 5.4 of the Zoning Ordinance, as described below:

I. Standards of Review: Special Uses

Pursuant to Section 5.3 of the Village's Zoning Ordinance, any application to establish or amend a Special Use must present evidence to support each of the following standards:

a. The proposed use in the specific location will be consistent with the goals and policies of the Comprehensive Plan.

   Response: The proposed amendment to the Special Use Permit to allow the construction of the Phase 1 Improvements is consistent with the goals and policies of the Comprehensive Plan and with Loyola's institutional use as set forth in such Plan. Such improvements are compatible with the

existing residential neighborhood and Loyola's presence in the neighborhood for many years. No alternative locations are available within the existing campus for these improvements. The natatorium and other improvements will further the interests of Loyola's students and benefit their high school experience. The modifications to the campus resulting from the Phase 1 Improvements will satisfy the public need for improved parking and traffic management and improve the pedestrian safety in the neighborhood. The construction of the Phase 1 Improvements will not have an adverse effect on adjacent properties and instead will benefit the neighborhood through beautification and improved management of school-generated traffic. The proposed stormwater management improvements will comply with Village and regional stormwater management regulations so that there will be no adverse drainage effects on surrounding properties. Loyola will be unable to modernize its campus and fulfill its mission of providing its students the Jesuit education they seek if it is not permitted to proceed with the construction of the Phase 1 Improvements. Such improvements will advance that mission and that will benefit the Village as a whole, both as a significant Village employer and as an educational institution which many Wilmette youth attend.

b. The establishment, maintenance, or operation of the proposed use in the specific location will not be detrimental to or endanger the public health, safety and welfare.

   Response: The construction of the new natatorium will not be detrimental to or endanger the public health, safety, comfort, or general welfare as it will simply replace an existing facility which has outlived its functional life. The new parking lot and traffic management plan will reduce traffic congestion in neighborhood streets, provide for more efficient drop-off and pick-up of students, and enhance pedestrian safety. Stormwater detention on campus will be increased by nearly 150% as a result of the construction of the stormwater management improvements included as part of the Phase 1 Improvements bringing Loyola into compliance with current stormwater management regulations and reducing the risks of flooding in the neighborhood.

c. The proposed use in the specific location will not be injurious to the use or enjoyment of other property in the neighborhood for the purposes permitted in the district.

   Response: As noted above, the new natatorium, which will replace Loyola's existing aquatic center which has outlived its functional life, will not be injurious to the use or enjoyment of other properties in the neighborhood. The Phase 1 Improvements include the construction of stormwater management improvements and new landscaping improvements on the Property which will ensure that the building and site improvements Loyola is constructing will not be injurious to the use and enjoyment of neighborhood properties.

d. The establishment of the special use in the specific location will not impede the normal and orderly development and improvement of surrounding properties for uses permitted in the zoning district.

   Response: This standard is not applicable as all surrounding properties are already developed and improved.

e. The proposed use in the specific location will not substantially diminish property values in the neighborhood.

   Response: The proposed special use amendment contemplates minor and typical modifications to an existing educational campus. The Phase 1 Improvements will not substantially diminish property values in the neighborhood, as explained more fully in the Market Study Report prepared by George M. Baker, MAI, of Vestor Realty Consultants, Inc. which will be submitted to the Village under separate cover.

f. Adequate utilities, road access, drainage, and other necessary facilities already exist or will be provided to serve the proposed use.

   Response: Adequate utilities, road access and drainage for the Loyola campus either already exist or will be provided as and when the Phase 1 Improvements are constructed by Loyola. Such improvements are described in detail in Loyola's Entitlements Package.

g. Adequate measures already exist or will be taken to provide ingress and egress to the proposed use in a manner that minimizes traffic congestion in the public streets.

   Response: Ingress and egress to the Loyola campus already exists. Loyola is undertaking an extraordinary effort to improve that ingress and egress and to reduce congestion in neighborhood streets by constructing new parking lot improvements and a new main entrance between Forest Avenue and Walnut Avenue (which will bring northbound traffic on Laramie Avenue onto campus more quickly) and by implementing a new traffic management plan. Collectively, these improvements and the implementation of this plan will increase the capacity for on-site automobile stacking, improve on-site traffic flow, improve traffic flow along Laramie Avenue and reduce congestion on streets in the neighborhood.

h. The proposed use in the specific location will be consistent with the community character of the neighborhood of the parcel proposed for the special use.

   Response: Loyola Academy has been located within this neighborhood for many decades and is part of the fabric of the community. None of the improvements Loyola will be undertaking will be inconsistent with the character of the surrounding neighborhood.

i. Development of the proposed use will not substantially adversely affect a known archaeological, historical, or cultural resource located on or off of the proposed site.

   Response: There are no designated landmarks on the site or in the vicinity of the Loyola Academy campus where construction will occur.

j. The applicant has made adequate legal provision to guarantee the provision and development of any buffers, landscaping, public open space and other improvements associated with the proposed use.

   Response: Loyola will be installing new buffer improvements and enhancing landscaping along Laramie Avenue, as set forth on the plans and renderings included with its Entitlements Package.

k. The proposed use will meet any and all additional use standards specified in Article 12 of the Zoning Ordinance for such a use:

   Article 12(J): Educational Facility, Primary, Secondary, College and Vocational:

   1. Educational facilities must be designed so that the location of entrances and exits, exterior lighting, outdoor recreation areas, service areas, and parking and loading facilities will minimize traffic congestion, pedestrian hazards and adverse impacts on adjoining properties.

      Response: The natatorium, the new parking lot and the new tennis courts have been purposefully designed to actively and effectively reduce traffic congestion, pedestrian hazards and adverse impacts on adjoining properties. Specifically, Loyola has worked consistently with its neighbors to hear their concerns regarding traffic congestion and has designed a traffic management plan that will help reduce traffic stacking and traffic congestion on adjacent streets during peak student drop-off and pick-up hours.

As explained more fully in the Project Narrative and Traffic Impact Study accompanying Loyola's application, the modification of the language of the enrollment cap condition in Exhibit C(1) of the Special Use Permit will not have an adverse effect on traffic conditions in the neighborhood. Additionally, the replacement of the existing traffic management plan with a new, updated traffic management plan evidences Loyola's desire to evolve and address current concerns regarding traffic congestion and stacking for student drop-off and pick-up. Implementation of that plan will serve to improve the health, safety and welfare of the residents of the surrounding neighborhood.

II. Standards of Review: Variations

Pursuant to Section 5.4 of the Village of Wilmette Zoning Ordinance, any application for variations must include evidence that each of the following standards is satisfied:

a. The particular physical conditions, shape, or surroundings of the property would impose upon the owner a practical difficulty or particular hardship, as opposed to a mere inconvenience, if the requirements of the Zoning Ordinance were strictly enforced.

   Response:

   (i) The large size and the densely developed surroundings of Loyola's main campus, as well as the proposed location of the improved parking lots and the enhanced natatorium, compel the redesign of the Loyola campus and the location of the facilities, including the relocated tennis courts, as shown on the Master Plan. The only reasonable location for the relocated tennis courts is as shown on the Master Plan and this location allows for improved circulation and parking on campus. Locating the tennis courts on this part of the Property will result in a slight encroachment into the required east and west side yard setbacks. These encroachments, however, because of where they are located, will not have an adverse effect on surrounding properties.

   (ii) Chain link fencing is common within the tennis industry for visibility and permeability, and the height of the chain link walls being greater than the permitted six feet is needed to prevent tennis balls from constantly escaping the courts. Strict enforcement of the fence height restriction and the prohibition on chain link fencing would prevent Loyola from being able to operate its tennis facilities.

   (iii) Without the requested variations, Loyola would be unable to improve its swimming and tennis facilities, which would impose upon Loyola a significant hardship due to the potential cessation of its aquatic and tennis programs.

   (iv) The location and traffic patterns around Loyola's campus inform the need for prominent identification signs for the campus in multiple locations. Strict enforcement of the Zoning Ordinance, which would prohibit these conspicuous signs, would cause significant difficulty to students, employees and visitors arriving at, departing from and navigating the campus.

b. The plight of the property owner was not created by the owner and is due to unique circumstances.

   Response: The location of the tennis courts within the side yard setbacks is not the result of Loyola's actions but rather is due to the location of the school within a land-locked area and the dearth of options for the placement of the tennis courts within the campus. The need to use chain link fencing of a height in excess of six feet is a tennis industry standard and is not a problem created by Loyola. Similarly, the need for multiple conspicuous signs is due to the location of the campus and not due to a desire for obtrusive or particularly numerous or bold signs.

c. The difficulty or hardship is peculiar to the property in question and is not generally shared by other properties classified in the same zoning district and/or used for the same purposes. This includes the need to accommodate desirable existing site landscape or reflect unique conditions created by the age and character of the property.

   Response: The requested variations are peculiar to the Loyola Academy campus as a large institutional/educational facility located in a fully developed residential district. Residences within the zoning district do not share the need to install such improvements within their borders.

d. The difficulty or hardship resulting from the application of the Zoning Ordinance would prevent the owner from making a reasonable use of the property. However, the fact the property could be utilized more profitably with the variation than without the variation is not considered as grounds for granting the variation.

   Response: Loyola's requests do not stem from a desire to increase profitability. Rather, the difficulty and hardship faced by Loyola stem from its need to fulfill its mission and provide an environment of

academic excellence and rigor. Loyola has engaged in a thoughtful and deliberate process by which it has determined that the proposed layout of the Property, with the proposed tennis court fences and signage as shown on the Master Plan, is the most reasonable and effective means to modernize the campus in order to further and sustain its mission.

e. The proposed variations will not impair an adequate supply of light and air to adjacent property or otherwise injure other property or its use, will not substantially increase the danger of fire or otherwise endanger the public health, safety and welfare, and will not substantially diminish or impair property values within the neighborhood.

Response: The new tennis courts will have no impact on the supply of light and air to adjacent property because they will be across a street from the nearest homes, and neither the location of the courts nor the proposed signage will affect the supply of light or air to adjacent property. These improvements will also not injure other property or its use and will not increase the danger of fire or otherwise endanger public health, safety and welfare. The improvements are all comparable in nature to similar improvements already located on the campus. The improvements for which the variations are sought will not substantially diminish or impair property values within the neighborhood, as explained more fully in the Market Study Report prepared by George M. Baker, MAI, of Vestor Realty Consultants, Inc., which will be submitted under separate cover.

f. The variation, if granted, will not alter the essential character of the neighborhood and will be consistent with the goals, objectives and policies set forth in the Comprehensive Plan.

Response: The variations requested will not alter the essential character of the neighborhood and will be consistent with the Comprehensive Plan (see discussion below under Response to Standards for Special Uses). Tennis courts with chain link fences already exist on the Property and are simply being relocated pursuant to the Master Plan, and the proposed signage will be beneficial to students, guests, visitors and neighbors for wayfinding within and around the campus.

In addition to a. through f. above, the follow standards apply to fence variation requests:

h. Where an application is a request for a fence, the following approval standards apply, in addition to those of the variation. However, no one of these factors shall be conclusive in determining whether a practical difficult or particular hardship exists.

i. The type of street to which the fence will be oriented (e.g., major, collector, or residential), and the volume and speed of traffic regularly using such street.

Response: The tennis court fencing will be oriented to Laramie Avenue, as it is currently, but in a location slightly further south than currently located. The volume and speed of traffic along Laramie Avenue are irrelevant to the type and size of fencing in use.

ii. The extent to which fences of the same type sought by the applicant already exist in the immediate area and have been granted variations.

Response: Loyola Academy currently has a chain link fence in excess of six feet in height surrounding its existing tennis courts.

iii. The orientation and proximity of neighboring dwelling units and other structures to the proposed fence.

Response: The fence will not be in close proximity to any dwelling units or structures. A higher fence will help to address the safety concern of keeping tennis balls inside the courts.

iv. The extent to which the proposed fence will utilize landscaping to minimize the visual impact of the fence.

Response: The western boundary of the portion of the Property situated east of Laramie Avenue will be landscaped to help shield the western side of the fence from view. The

northern, southern and eastern sides of the fence face Loyola property and do not have a visual impact on adjacent properties.

v. The size of the zoning lots in the neighborhood, such that the larger the lots and the greater the open space, the less impact the fence can be expected to have on neighboring properties.

   Response: See (iv) above. The zoning lot on which the fence will be located is very large and the fence is relatively small in comparison.

vi. The extent to which a fence of the same type sought by the applicant is for the replacement or repair of a previously or presently existing fence or portion thereof.

   Response: The proposed tennis court fence will replace a similar existing fence, but in a modified location.

vii. The length of time that a non-conforming fence has existed on the property prior to the application.

   Response: Not applicable. The existing tennis court fence has existed on the Property since the existing tennis courts were approved for construction in 2003.

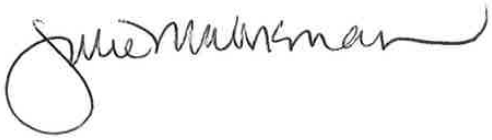
viii. W hether a fence permit was issued at the time the fence was constructed and if the fence being replaced was required to obtain such a permit.

   Response: Not applicable. The existing tennis court fence has existed on the Property since the existing tennis courts were approved for construction in 2003.

Please do not hesitate to contact us should you have any questions regarding the foregoing.

Very truly yours,

MELTZER, PURTILL & STELLE LLC



Julie Workman

RAMBLERS