#2021-203
Clover Senior Residential – 731 E. Terra Cotta Avenue – Preliminary PUD
Project Review for Planning and Zoning Commission

Meeting Date:	January 19, 2022
Request:	1. Comprehensive Land Use Plan Map Amendment from Commerce to High Density Residential 2. Rezoning from B-2 PUD General Commercial to R-3B PUD Multi-Family Residential 3. Preliminary Planned Unit Development for 124 apartment units
Location:	731 E. Terra Cotta Avenue
Acreage:	Approximately 9 acres
Zoning:	B-2 PUD General Commercial
Surrounding Properties:	North: B-2 PUD General Commercial South: R-3B PUD Multi-Family Residential East: R-3A PUD Two Family Residential West: B-2 General Commercial
Staff Contact:	Katie Rivard (815-356-3612)

Background:

- Existing Use: The site is a vacant wooded area. Sunrise Assisted Living is to the east and the Mistwood residential development is to the south.
- The proposed development presented a conceptual review to the Planning and Zoning Commission in September 2021. The PZC was supportive the request, and noted there was a need for this type of housing. The PZC requested additional traffic information.

Request:

- Rezoning from B-2 PUD General Commercial to R-3B PUD Multi-Family Residential
- Preliminary Planned Unit Development for 124 apartment units, and

- Variations to allow:
    - A density of 13.9 unit to the acre,
    - A lot area of 388,932 square feet,
    - A lot width of 420.12 feet, and
    - A total of 145 parking spaces.

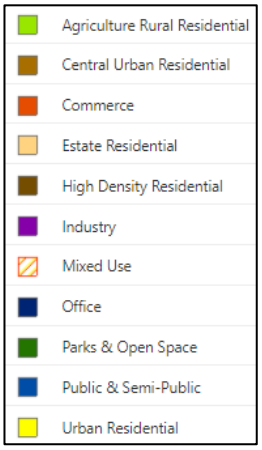
Following the Preliminary PUD review the request would come back to the Planning & Zoning Commission and City Council for Final PUD approval. The Preliminary PUD approval provides the opportunity for a project to receive zoning entitlements and have the ability to address conditions of approval and make edits to the PUD plan for Final PUD approval.

Development Analysis:

LAND USE/ZONING

- The site is currently zoned B-2 PUD General Commercial. It would need to be rezoned to R-3B Multi-Family Residential.
- The current Comprehensive Plan land use designation is Commerce, and this proposal will require an amendment to the land use plan to change from Commerce to High Density Residential, which fits the character of the surrounding area.





- The petitioner is requesting variations in conjunction with the Planned Unit Development. Based on the plans submitted, the following variations are required:
    - Density: The proposed density is 13.9 units to the acre. R-3B allows a maximum of 9 units to the acre. This is a variation of 4.9 units.
    - Lot Area: The lot is an existing vacant lot at 388,932 square feet. Lot area for multi-family is calculated based on the total number of units, and the number of units proposed requires a lot area of 497,400 square feet. This is a variation of 108,468 square feet. Since this is an existing lot surrounded by development, there is not an

opportunity to acquire additional property to increase the lot size. At 9 units to the acres (81 units), a variation would not be required, as the lot area would be 325,400 square feet.

- Lot Width: The existing lot width is 420.12 feet. The front lot line is defined as the narrowest boundary of a lot which is along a public right-of-way. Therefore, the property's front lot line is along Terra Cotta Road despite the proposed building facing Route 176. Lot width for multi-family is calculated based on the total number of units, and the number of units proposed requires a minimum lot width of 1,290 feet. This is a variation of 869.88 feet. In order to meet the lot width requirements, the development would need to be reduced to 37 units.
- Parking: The proposal provides 124 parking spaces, with 21 deferred parking spaces, for a total of 145 parking spaces. The proposal requires 277 parking spaces, a variation of 132 parking spaces. The required number of parking spaces is calculated based on the multi-family parking requirements of 1.5 space per 1-bedroom unit, 2 space per 2-bedroom unit, and 0.25 guest stalls per unit.

SITE

- The proposed development is age restricted (55 or older), market-rate, multi-family residential senior living complex. There would be 124 units total with 120 two-bedroom units and 4 one-bedroom units.
- The proposed development complies with the setback requirements of the R-3B zoning district.

	R-3B Requirement	**Lot – Proposal**
Front Yard Setback	30 feet	357.4 feet
Side Yard Setback	8 feet (interior) 30 feet (abutting a street)	60.6 (interior) 98.7 feet (abutting a street)
Combined Side Yard Setback	38 feet	159.3 feet
Rear Yard Setback	50 feet (abutting residential districts)	115.4 feet

- The proposed impervious surface is surface coverage is 27.6%, which meets the UDO requirements of 65%.

PARKING

- The proposed development is providing 124 spaces, which includes 84 surface spaces and 40 garage spaces. Based on the submitted plans, 277 parking spaces is required (1.5 space per 1-bedroom unit, 2 spaces per 2-bedroom unit, 0.25 guest stalls per unit). This is 153 spaces

less than the UDO requires. However, the petitioner is providing an additional 21 deferred spaces, for a total of 145 parking spaces.

- The petitioner has indicated the project has the potential to bring 244 residents based on full capacity and double occupancy of all units. However, they have indicated that approximately 79 percent of residents will be single-occupants. Therefore, the expected population is 147 residents at full occupancy.

- The petitioner provided an alternate site plan that would allow for 141 deferred parking space for a total of 265 parking spaces. The deferred parking spaces allow for parking to be added in the future, if sufficient parking is no longer provided.

- Listed below are the parking ratios for other age-restricted apartment developments. Staff has not received any parking complaints regarding these developments.

    - DKI (355 Station Drive): 1.12 parking spaces per unit
    - LSSI (401 Commonwealth Drive): 1.3 parking spaces per unit

SITE LAYOUT - ACCESS

- Access into the site would be provided off Terra Cotta Road and Route 176. The access on Terra Cotta Road would be a right-out/left-out and right-in only. There would be no left turns into the development from Terra Cotta Road.
- The access on Route 176 is a full access, and it lines up with office complex access across the street.
- A new sidewalk is provided along Route 176, and there is an existing sidewalk on Terra Cotta Road. A new sidewalk should be provided along the east-west driveway so residents can walk to the sidewalk along Terra Cotta Road.

TRAFFIC STUDY

- A traffic study was completed by Gewalt Hamilton Associates, Inc. The study found that the proposed development will have little to no effect on peak hour operations of the area's roadway network with the recommendations as follows:
    - Construct a new full access to Route 176 as has been discussed aligned opposite the existing access for the office complex.
    - Westbound left turns into the site from Route 176 will be made from a newly created westbound left turn lane within the existing painted median on Route 176.
    - Eastbound right turns into the site from Route 176 will be made from the existing through lane. An increased curb radius is recommended, but a right turn lane is not warranted.
    - Exiting traffic onto Route 176 should have separate right and left turn lanes under Stop Sign control.

- As previously noted, a 3/4 access (left turns in prohibited) to Terra Cotta Road has been discussed offset south of the existing Casey's access drive.
- Exiting traffic onto Terra Cotta Road should have separate right and left turn lanes under Stop Sign control.
- On-site parking should be increased by approximately 11 spaces to provide a supply sufficient to meet the Clover Group's internal data's suggested demand of 0.84 spaces per unit plus the City's required 0.25 spaces per unit guest parking requirements.
- Preserve additional space for future Right of Way along Route 176 and Terra Cotta Road (not dedicate) to minimize development impacts should IDOT ultimately improve the intersection to the geometrics recommended in the 2010 SRA report.

BUILDING ELEVATIONS

- The building is very residential in character with various gable roofs, decorative trim around windows and doors, balconies and soft colors.
- The building would be brick on the bottom level and a mix of vertical and horizontal vinyl siding on the top two floors and under the gable roof peaks. The mix of materials, colors and trim helps break up the façade.
- The UDO Design Standards requires that no more than 50% of the front façade is vinyl. The petitioner will confirm the percentage; and if necessary, the petitioner has agreed to replace the vinyl siding with Hardi Board siding in order to meet the UDO requirements.
- The various gable roof peaks and dormer windows help break up the roof expanse. Additional details were added to the end/side elevations, such as a gable roof peak and a mix of building materials and colors, such as brick that extends to the second level on the end unit elevations facing north (front) and south (rear).
- The UDO requires a minimum of three design features (out of a list of 12) on the front façade. The façade includes the following design features:
    1. One or more dormer windows or cupola
    2. A recessed entrance
    3. A covered porch
    4. Pillars, posts or pilasters
    5. Eaves with a minimum six-inch projection from the facade plane
    6. Multiple windows with a minimum four-inch-wide trim.
    7. All side and rear facades shall have a minimum of 10% facade glazing area.

LANDSCAPING

- The proposed landscape plan includes foundation landscaping on all perimeters of the buildings, perimeter parking lot landscaping and overall site landscaping.
- The petitioner is providing trees along the north property line (Route 176), and several existing trees near the western property line (Terra Cotta Road) will be maintained.

- The petitioner is providing a 20-foot landscape buffer (combination of trees and evergreens) along the south property line to provide screening between the development and the existing single-family residences (Mistwood) to the south.

Findings of Fact:

REZONING

- The property is currently zoned B-2 PUD General Commercial.
- Upon Preliminary Planned Unit Development approval, the property would be rezoned to R-3B Planned Unit Development. The Multi-Family Residential zoning criteria are:
  - ✓ General: This district allows the highest density of residential development. It encourages a wide range of housing types, especially multifamily development, even though single-family detached and two-family dwellings are also allowed, to meet the diverse housing needs of City residents. The intent is to provide higher density housing in areas immediately around the historic downtown, areas near commercial zoning or areas near transit stops where increased density and in-fill development are desirable.
  - ✓ Character: This district is characterized by residential buildings that cover a large percentage of the lot, are taller and spaced closely enough to create a sense of vertical enclosure.
  - ✓ Uses: This district is for higher density residential neighborhoods that meet the community's housing needs, particularly for higher density and in-fill housing development. Single-family and two-family dwellings are also permitted. Complementary uses such as certain civic and recreational uses are permitted, but are subject to restrictions set forth in this Ordinance.

Criteria for Rezoning:

(a) The existing uses and zoning of nearby property.
☐ *Meets* ☐ *Does not meet*

(b) The extent to which property values are diminished by a particular zoning classification or restriction.
☐ *Meets* ☐ *Does not meet*

(c) The extent to which the destruction of property value of a petitioner property owner promotes the health, safety, morals or general welfare of the public.
☐ *Meets* ☐ *Does not meet*

(d) The relative gain to the public as opposed to the hardship imposed on a petitioning property owner.
☐ *Meets* ☐ *Does not meet*

(e) The suitability of the subject property for its zoned purposes.
☐ *Meets* ☐ *Does not meet*

(f) The length of time the property has been vacant as zoned, considered in the context of land development in the area.
☐ *Meets* ☐ *Does not meet*

(g) The Comprehensive Plan designation and the current applicability of that designation.
☐ *Meets* ☐ *Does not meet*

(h) The evidence or lack of evidence, of community need for the use proposed.
☐ *Meets* ☐ *Does not meet*

PRELIMINARY PLANNED UNIT DEVELOPMENT

The petitioner is requesting approval of a Preliminary Planned Unit Development to allow the development of a 124-unit age restricted independent living apartment development with variations. A Planned Unit Development is a Special Use and Special Uses require separate review because of their potential to impact surrounding properties and the orderly development of the City.

Section 2-400 B General Standards for all special uses in the Unified Ordinance establishes standards for all special uses in Crystal Lake. Briefly, the criteria are as follows:

1. The use is necessary or desirable, at the proposed location, to provide a service or facility which will further the public convenience and general welfare.
   ☐ *Meets* ☐ *Does not meet*

2. The use will not be detrimental to area property values.
   ☐ *Meets* ☐ *Does not meet*

3. The use will comply with the zoning districts regulations.
   ☐ *Meets* ☐ *Does not meet*

4. The use will not negatively impact traffic circulation.
   ☐ *Meets* ☐ *Does not meet*

5. The use will not negatively impact public utilities or municipal service delivery systems. If required, the use will contribute financially to the upgrading of public utilities and municipal service delivery systems.
   ☐ *Meets* ☐ *Does not meet*

6. The use will not negatively impact the environment or be unsightly.
   ☐ *Meets* ☐ *Does not meet*

7. The use, where possible will preserve existing mature vegetation, and provide landscaping and architecture, which is aesthetically pleasing, compatible or complementary to surrounding properties and acceptable by community standards.

☐ *Meets* ☐ *Does not meet*

8. The use will meet requirements of all regulating governmental agencies.
   ☐ *Meets* ☐ *Does not meet*

9. The use will conform to any conditions approved as part of the issued Special Use Permit.
   ☐ *Meets* ☐ *Does not meet*

10. The use will conform to the regulations established for specific special uses, where applicable.
    ☐ *Meets* ☐ *Does not meet*

In addition PUDs must also meet the standards in Section 4-500 C. Development Standards and 4-500 D. 1 Additional standards for Planned Unit Developments Residential PUDs.

a. Location: A residential PUD can be located anywhere in the City, including any land proposed for annexation.
   ☐ *Meets* ☐ *Does not meet*

b. Permissible uses: A mix of different residential dwelling types in proximity to each other is encouraged. Neighborhood commercial uses serving the development may be approved as part of a residential PUD where appropriate.
   ☐ *Meets* ☐ *Does not meet*

c. Nonresidential uses: Any nonresidential use permitted in a residential PUD shall be compatible with the residential nature of the development. Parking areas which are intended to serve nonresidential uses shall be separated from those designed to serve residential areas. Unless commercial and residential uses are combined within a single structure, commercial uses shall be separated from dwelling units by a heavily landscaped buffer zone that meets the requirements of Section 4-400, Landscaping and screening standards.
   ☐ *Meets* ☐ *Does not meet*

d. Pedestrian paths: Pedestrian paths shall connect residential uses and nonresidential uses within a residential PUD.
   ☐ *Meets* ☐ *Does not meet*

e. Growth management: A growth management schedule shall be provided to and approved by the City Council, which indicates the number and type of residential units to be constructed in each calendar year. The maximum number of units to be constructed shall be 25 residential units or 15% of the total number of residential units (including all phases of the proposal), whichever is greater, in any calendar year. The City Council with recommendations from the Planning and Zoning Commission, at final PUD approval can approve, deny or adjust the percentage of an increase in the number of units that can be built in one calendar year. The City Council and the Planning and Zoning Commission shall consider the following criteria in approving an increase in the number of units that can be built annually:

i. Advance dedication of school and park sites and advance payment of school, park and other impact fees;
☐ *Meets* ☐ *Does not meet*

ii. Payment for installation of road impact improvements or fees applicable by law;
☐ *Meets* ☐ *Does not meet*

iii. Smaller subdivisions which encourage in-filling within an established part of the community;
☐ *Meets* ☐ *Does not meet*

iv. Completion of major and collector road networks and critical linkages in the street systems;
☐ *Meets* ☐ *Does not meet*

v. Fulfill a need for various unit types and income levels such as low and moderate-income housing;
☐ *Meets* ☐ *Does not meet*

vi. Provisions which satisfy needed public facilities;
☐ *Meets* ☐ *Does not meet*

vii. Innovative architectural design, quality of exterior materials and creative use of landscaping;
☐ *Meets* ☐ *Does not meet*

viii. Other criteria or extraordinary amenities, not listed above, which may meet the development goals of the City.
☐ *Meets* ☐ *Does not meet*

PLANNED UNIT DEVELOPMENT VARIATIONS

The petitioner is requesting approval of a Preliminary Planned Unit Development to allow variations for density, lot area, lot width, and number of parking spaces. The purpose of Planned Unit Developments is to encourage and allow more creative and imaginative design of land developments than is possible under district zoning regulations. Planned Unit Developments are, therefore, intended to allow substantial flexibility in planning and designing a proposal. This flexibility is often in the form of relief from compliance with conventional zoning ordinance site and design requirements which may otherwise require individual requests and applications for zoning variations.

Ideally, this flexibility results in a development that is better planned, contains more amenities, and is ultimately more desirable than one that would have been produced through compliance with typical zoning ordinance and subdivision controls.

Therefore, more lenient site requirements may be granted where the Planned Unit Development

contains features not normally required of traditional developments. Although a formal variation request is not required to be made in conjunction with a Planned Unit Development, staff identifies those aspects of the Planned Unit Development which effectively result in variations from UDO requirements. If the evidence is not found to justify these variations from the UDO that fact shall be reported to the City Council with a recommendation that the variations from the UDO which are proposed as part of the Planned Development be lessened or denied.

The Planned Unit Development Amendment proposed by the Petitioner includes the following variations from the UDO:

1. Article 3-200(A)(6) Maximum net density of 9 dwelling units per acres to allow 13.9 dwelling units per acre.

2. Article 3-200(A)(6) Minimum lot area of 497,445 square feet to allow 388,932 square feet.

3. Article 3-200(A)(6) Minimum lot width of 1,290 feet to allow 420.12 feet.

4. Article 4-200 Table 4-200D Minimum parking spaces of 277 to allow 145.

5. Article 4-500(D)(1)(e) Growth management requirement of 25 residential units or 15% of the total number of residential units in a calendar year.

6. Article 5-200(F)(1) Deferral of the burial of overhead utilities along Route 176 and Terra Cotta Road until an area wide program is established.

7. Article 5-200(F)(3) Requirement for the installation of street trees along Terra Cotta Road.

The UDO's requirements for lot density, area and width are geared more towards a townhome style development. At 13.9 dwelling units per acre, this is in the average density of the DKI and LSSI developments with 8 dwelling units per acre and 20 dwelling units per acre, respectively. With three 3-story buildings, this allows adequate space within the lot for outdoor amenities, in addition to the required components such as parking, sidewalks and drive aisles.

The number of parking spaces provides 1.169 spaces per unit. While this ratio of parking spaces per unit is less than the required 2.2 spaces per unit, the ratio is consistent with other age-restricted apartment developments (DKI and LSSI) that have ratios of 1.12 and 1.3. It also exceeds the traffic study's recommended ratio of 1.09 spaces per unit. The petitioner has noted that based on the typical market trends and experience with their other developments that 79% of residents are single occupants. Based on this analysis, the petitioner expects approximately 147 occupants at full capacity, which is 97 occupants less than the potential for 244 residents at full capacity and double occupancy of all units.

The growth management section of the residential planned unit development section of the UDO is geared towards single-family detached housing developments. Multi-family apartments and townhome developments require a waiver of this requirement.

The project will maintain a significant number of existing, mature trees that extend to the west property line along Terra Cotta Road. There are also overhead utility lines within the public right-of-way along Terra Cotta Road. These existing conditions do not provide adequate room for the installation of additional trees.

Comprehensive Land Use Plan 2030 Vision Summary Review:

Land Use: Residential
The proposed use will require an amendment to the Comprehensive Plan from a Commerce designation to Residential. The goal of a Residential designation is as follows:

Encourage a diversity of high quality housing in appropriate locations throughout the city that supports a variety of lifestyles and invigorates community character.

The Comprehensive Plan indicates this can be accomplished with the following supporting action:

Supporting Action: Encourage a diversity of housing types throughout the city, which satisfy wide-range needs for all persons regardless of age, race, religion, national origin, physical ability and economic level for existing and future city residents.

Recommended Conditions:

If a motion to recommend approval of the petitioner's request is made, the following conditions are recommended:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
   A. Application (Terra Cotta Development, dated 07/11/2021, received 11/02/2021)
   B. Site Plan (Midwestern Consulting, dated 11/02/2021, last revised 12/23/2021, received 12/21/2021)
   C. Landscape Plan (Midwestern Consulting, dated 11/02/21, last revised 12/23/21, received 12/21/2021)
   D. Elevations (Sebree Architects, received 11/19/2021)
   E. Engineering Plans (Midwestern Consulting, dated 11/02/2021, last revised 12/23/2021, received 12/21/2021)
   F. Project Narrative (Clover Communities Crystal Lake LLC, dated 11/19/2021, received 11/19/2021)
   G. Traffic Impact Study (Gewalt Hamilton Associates, Inc., dated 09/29/2021, received 09/30/2021)

2. Final elevations must comply with the requirements of the UDO Design Standards of Section 4-900. Work with staff to include two of the suggested design elements listed below:
   A. Rafter tails under the projections in the gables
   B. Thicker window trim
   C. Extension of the brick vertically on a portion of the front elevation

3. Final Engineering Plans must be submitted with Final Planned Unit Development in compliance with the City's Code and Stormwater ordinance.

4. The Final Landscape Plan must comply with the landscape requirements of the UDO of Section 4-400.

5. A Final Photometric and Lighting Plan must comply with the lighting requirements of the UDO of Section 4-800.

6. If the City finds the parking to be insufficient for its residents and staff, the petitioner shall work with staff to provide additional parking on the site to meet the demand.

7. Traffic Study:
   A. Construct a new full access to IL Route 176 has been discussed aligned opposite the existing access for the office complex.
   B. Westbound left turns into the site from IL Route 176 will be made from a newly created westbound left turn lane within the existing painted median on IL Route 176.
   C. Eastbound right turns into the site from IL Route 176 will be made from the existing through lane. An increased curb radius is recommended, but a right turn lane is not warranted.
   D. Exiting traffic onto IL Route 176 should have separate right and left turn lanes under Stop Sign control.
   E. As previously noted, a 3/4 access (left turns in prohibited) to Terra Cotta Road has been discussed offset south of the existing Casey's access drive.
   F. Exiting traffic onto Terra Cotta Road should have separate right and left turn lanes under Stop Sign control.
   G. On-site parking should be increased by approximately 11 spaces to provide a supply sufficient to meet the Clover Group's internal data's suggested demand of 0.84 spaces per unit plus the City's required 0.25 spaces per unit guest parking requirements.
   H. Preserve additional space for future Right of Way along IL Route 176 and Terra Cotta Road (not dedicate) to minimize development impacts should IDOT ultimately improve the intersection to the geometrics recommended in the 2010 SRA report.

8. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works, Police and Fire Rescue Departments, as well as the City's traffic consultant, Gewalt Hamilton Associates, Inc. and stormwater consultant, Christopher B. Burke Engineering, Ltd.

PIQ Map

731 E. Terra Cotta Avenue



City of Crystal Lake
Development Application
Ownership Sign-off Acknowledgement Form

The following information is related to a development application. As the owner of the property in question, I (we) acknowledge that the information provided in the submittal was reviewed and approved.

Owner Information

Name: Terra Cotta Development, LLC

Address: 2081 C Glengarry Cir.
Deer Park, IL 60010

Phone: 847-276-6579

E-mail: terracottacorners@att.net

Project Name & Description: Clover Communities Crystal Lake - 119 units of senior independent living to be constructed.

Project Address/Location: SEC of Terra Cotta and Rt 176

Signature	Lane R Moyer

Lane R. Moyer, President of Terra Cotta Development, LLC

Owner: Print and Sign name

Date 7/11/21

NOTE: If the property is held in a trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

Certificate of the Publisher

Northwest Herald

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A notice, a true copy of which is attached, was published 1 time(s) in the Northwest Herald, namely one time per week for one successive week(s). Publication of the notice was made in the newspaper, dated and published on
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This notice was also placed on a statewide public notice website as required by 5 ILCS 5/2.1.
In witness, Shaw Media has signed this certificate by John Rung, its publisher, at Crystal Lake, Illinois, on
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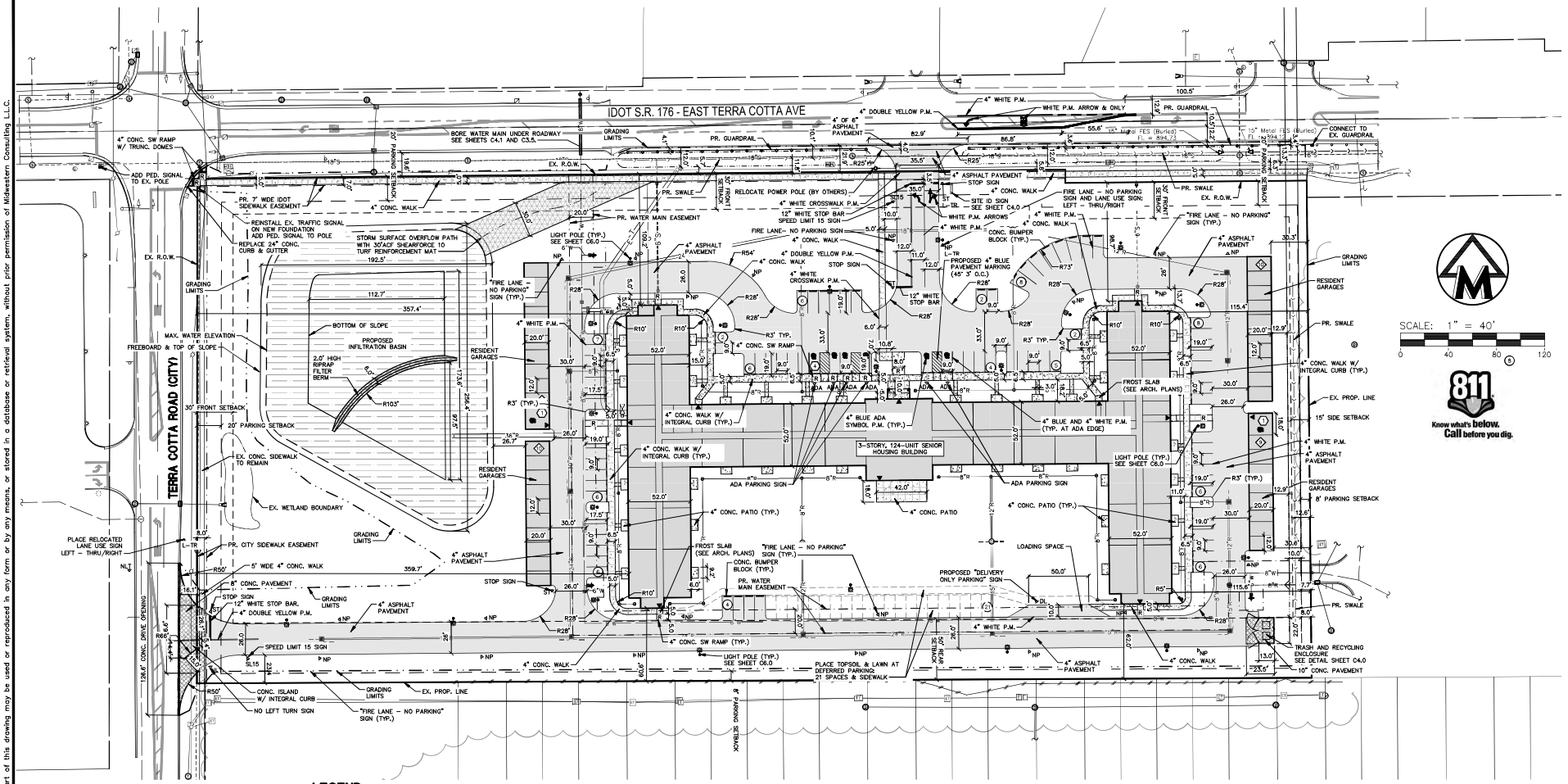
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PUBLIC NOTICE
BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS
IN THE MATTER OF THE APPLICATION OF
Clover Communities Crystal Lake LLC
LEGAL NOTICE
Notice is hereby given in compliance with the Unified Development Ordinance (UDO) of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission upon the application by Beth Ernat, on behalf of Clover Communities Crystal Lake LLC, for approval of a Rezoning, Preliminary and Final Planned Unit Development and Variations at the following real estate known as 731 E. Terra Cotta Avenue, Crystal Lake, Illinois 60014, **PIN:** 14-34-301-048.
This application is filed for the purposes of seeking a Rezoning from B-2 PUD General Commercial to R-3B PUD Multi-Family Residential, and a Preliminary and Final Planned Unit Development for a 124-unit age restricted independent living apartment development with variations to allow for a lot area of 388,932 square feet, a variation of 108,468 square feet, a lot width of 924 feet, a variation of 366 feet, a density of 13.9 units to the acres, a variation of 4.9 units to the acre, a total of 145 parking spaces, a variation of 132 parking spaces, and any other variations as necessary to approve the plans as presented pursuant to Article 3, Article 4 and Article 9. Plans for this project can be viewed at the City of Crystal Lake Planning and Economic Development Department at City Hall.
A public hearing before the Planning and Zoning Commission on the request will be held at 7:00 p.m. on Wednesday, January 19, 2022, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person determining to be heard may be present.
Jeff Greenman, Chairperson
Planning and Zoning Commission
City of Crystal Lake

(Published in the Northwest Herald on December 31, 2021)1948147



NOTES

1. WORK IN STATE ROUTE 172 RIGHT-OF-WAY, AND AT THE INTERSECTION OF S.R. 172 AND TERRA COTTA ROAD, SHALL BE PERMITTED AND APPROVED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
2. WORK IN THE TERRA COTTA ROAD RIGHT-OF-WAY SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE.
3. ALL PAVEMENT MARKINGS AND SIGNS SHALL COMPLY WITH THE 2009 MUTCD AND 2016 IDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. PAVEMENT MARKINGS SHALL BE WATERBORNE UNLESS REQUESTED OTHERWISE BY THE CITY OF CRYSTAL LAKE OR IDOT.

LEGEND

- ASPHALT ROADWAY
- CONCRETE SIDEWALK
- CONCRETE PATIO
- CONCRETE PAVEMENT
- BUILDING
- RESIDENT GARAGES

EXIST. UTILITY POLE; PROP. TRANSFORMER; EXIST. OVERHEAD UTILITY LINE; PROP. LIGHT POLE; EXIST. TELEPHONE LINE; PROP. TELEPHONE LINE; EXIST. ELECTRIC LINE; PROP. ELECTRIC LINE; EXIST. GAS LINE; PROP. GAS LINE; EXIST. FIBER OPTIC LINE; PROP. FIBER OPTIC LINE; EXIST. WATER MAIN; PROP. WATER MAIN; EXIST. HYDRANT; PROP. HYDRANT; EXIST. GATE VALVE IN BOX; PROP. GATE VALVE IN BOX; EXIST. GATE VALVE IN WELL; PROP. GATE VALVE IN WELL; EXIST. STORM SEWER; PROP. STORM SEWER; EXIST. CATCH BASIN OR INLET; PROP. CATCH BASIN OR INLET; PROP. BEEHIVE INLET; END SECTION; EXIST. SANITARY SEWER; PROP. SANITARY SEWER

SIDEWALK RAMP; SIGN; FIRE LANE – NO PARKING SIGN; STOP SIGN; ADA PARKING SIGN; NO LEFT TURN SIGN; DELIVERY ONLY PARKING SIGN; SPEED LIMIT 15 SIGN; PEDESTRIAN CROSSING SIGNAL; WELL; FENCE; TREE OR BRUSH LIMIT; PROP. C/L OF SWALE; PROP. GUARDRAIL; PROP. SIDEWALK EASEMENT; PROP. PARKING SETBACK; PROP. SETBACK; PROP. WATER MAIN EASEMENT; PROP. BUMPER BLOCK GRADING LIMITS; WETLAND LIMITS; NUMBER OF PARKING SACES; NUMBER OF HANDICAP PARKING SPACES; NUMBER OF GARAGE PARKING SPACES; SECTION CORNER

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

DEVELOPMENT SUMMARY AND COMPARISON CHART

Zoning Classification	**B-2-PUD (General Commercial)---Proposed Rezoning to R-3B-PUD (Multi-Family Residential)**
Number of Units	124 Units Total: 4 1-bedroom + 119 2-bedroom

SITE INFORMATION	Requirement	Calculated Requirement	Provided	Variance Requested
Minimum Lot Area	1,400 + 4,000/unit	1,400 + 4,000 x 124 = 497,400 sft = 11.42 ac	388,932 sft = 8.93 ac	108,468 sft = 2.49 ac
Minimum Lot Width	50 + 10/unit	50 + 10 x 124 = 1,290 ft	924 ft	366 ft
Dwelling Unit Density	9.0 units/acre	9.0 units/acre	124 units / 8.93 ac = 13.9 units/ac	4.9 unit/ac
Front Setback	30 ft	30 ft	98.7 ft	---
Side Setback	15 ft	15 ft	30.3 ft	---
Rear Setback	50 ft (abutting 1-family homes)	50 ft	60.6 ft	---
Maximum Building Lot Coverage	30% of site	30%	44,515 sft + 9,840 sft garages = 54,355 sft total / 388,932 = 14.0%	---
Maximum Impervious Lot Coverage	65% of site	65%	54,355 sft roof + 95,221 pvmt + 6,566 deferred parking = 107,222 sft / 388932 = 27.6%	---
Maximum Building Height	36 ft	36 ft	35 ft	---
Maximum Stories	N/A	N/A	3 stories	---
Total Building Floor Area	N/A		133,545 sft + 9,840 sft garages = 143,385 sft total	---
Floor Area Ratio (FAR)	0.6 maximum	0.6	143,385 / 388,932 = 0.37	---
Minimum Apartment Area	N/A	N/A	678 sft (1 BR), 778-910 (2 BR)	---
Vehicle Parking (Multi-Family Residential)	1.5/ 1BR unit, 2.25 / 2BR unit	1.5 x 4 1BR + 2.25 x 119 2BR = 274	124 total (84 surface + 40 garage) Add'l 21 deferred spaces (145 total)	129 spaces
ADA Parking Spaces Required	ADA Chart	5 ADA spaces for 101-150 (1 tc be van space)	8 van spaces provided (6 surface + 2 garage)	---
Loading Space	1 space	1 space	1 provided	---

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CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-345-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SITE LAYOUT AND PAVING PLAN

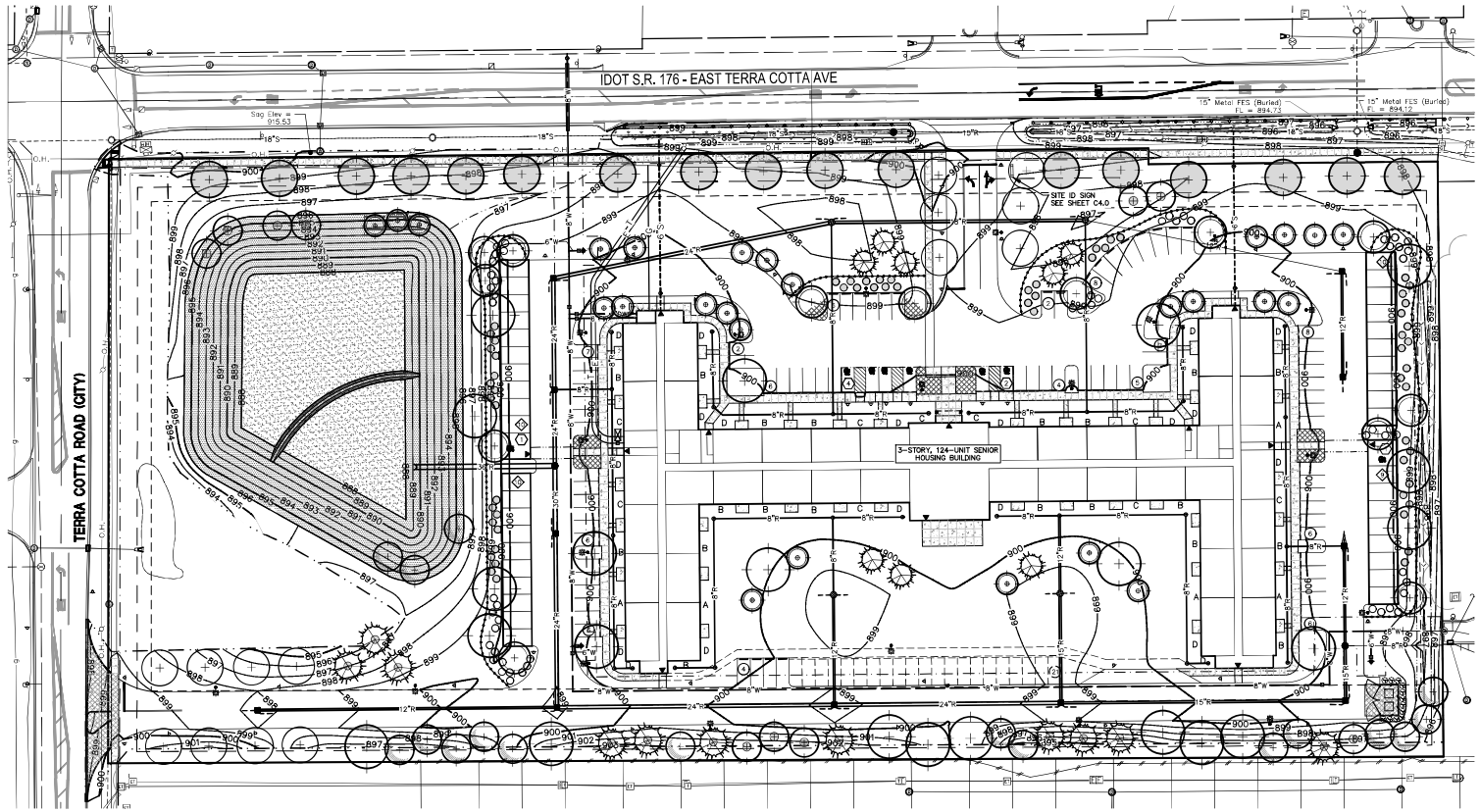
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JOB No. 21216
DATE: 12/27/2021
SHEET 6 OF 37

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/09/21
SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	

DES. JBR
CHKD. JW
ENG. JW
PIC. RCW
21216SP1.DWG

M:\Civil\3d_Proj\21216\Site Plan\21216SP1.dwg, 12/23/2021 10:49 AM, Jeremy A. Nettles, C2.0 SITE LAYOUT AND PAVING PLAN, MCALC PDF.pc3
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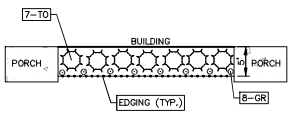


SCALE: 1" = 40'

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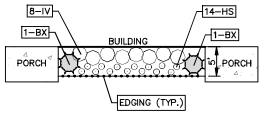
LANDSCAPE LEGEND

- AUTUMN BLAZE RED MAPLE
- REDSPIRE PEAR
- BLACK HILLS SPRUCE
- SERVICEBERRY
- JAPANESE LILAC
- GREEN COLUMN BLACK MAPLE
- NORWAY SPRUCE
- REDMOND LINDEN
- REDBUD
- ARROWWOOD VIBURNUM
- GRAY DOGWOOD
- GLOBE ARBORVITAE
- GREEN MOUNTAIN BOXWOOD
- EMERALD GREEN ARBORVITAE
- AUTUMN JOY SEDUM
- LITTLE HENRY SWEETSPIRE
- ROZANNE GERANIUM
- STELLA D'ORO DAYLILY
- PERENNIAL BED
- BASIN BOTTOM SEED MIX
- SIDE SLOPE SEED MIX
- SWALE SEED MIX
- PROPOSED EDGING
- A/B/C/D FOUNDATION PLANTINGS – SEE TYPICAL DETAILS



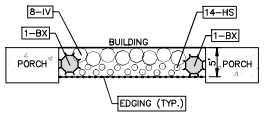
FOUNDATION PLANTING TYPE A

SCALE: 1" = 10FT



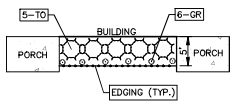
FOUNDATION PLANTING TYPE B

SCALE: 1" = 10FT



FOUNDATION PLANTING TYPE C

SCALE: 1" = 10FT



FOUNDATION PLANTING TYPE D

SCALE: 1" = 10FT

PLANT SCHEDULE

Symbol	Tree Mitigation	Foundation	Parking	Other	Botanical Name	Common Name	Spp Group	Size	Cont	Notes
AC	18				Amelanchier canadensis	Serviceberry	B	2.5 " cal	B&B	
PG	3		2		Picea glauca 'Densata'	Black Hills Spruce	B	6' hgt	B&B	
TA	17		4		Tilia americana 'Redmond'	Redmond Linden	A	2.5 " cal	B&B	
SR			13		Syringa reticulata	Japanese Tree Lilac	B	2.5 " cal	B&B	
AR	10		7		Acer rubrum 'Autumn Blaze'	Autumn Blaze Red Maple	B	2.5 " cal	B&B	
CC	27				Cercis canadensis	Redbud	B	2.5" cal	B&B	
AS	9				Acer saccharum nigrum 'Green Coumn'	Green Column Black Maple	A	2.5" cal	B&B	
PC	14				Pyrus calliyana 'Redspire'	Redspire Pear	A	2.5" cal	B&B	
PA	11				Picea abies	Norway Spruce	B	6' hgt	B&B	
SUBTOTAL			26							
IV		274			Itea virginica	Little Henry Sweetspire		36" hgt	B&B	
VD			54		Viburnum dentatum	Arrowwood Viburnum		36" hgt	B&B	
CR			61		Cornus racemosa	Gray Dogwood		36" hgt	B&B	
BX		40			Buxus x 'Green Mountain'	Green Mountain Boxwood		No. 3	Cont.	
TO		80			Thuja occidentalis 'Little Giant'	Little Giant Globi Arborvitae		36" hgt	B&B	
TS				12	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	A	4' hgt	B&B	
SUBTOTAL			115							
HS		280			Hemerocalis stella d'oro	Stel D'Oro Daylily		No. 3	Cont.	
SS		171			Sedum spectabile	Autumn Joy Secum		No. 3	Cont.	
GR		94			Geranium 'Rozanne'	Rozanne Geranum		No. 3	Cont.	
TOTAL	109	939	141	12						

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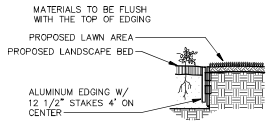
CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
LANDSCAPE PLAN

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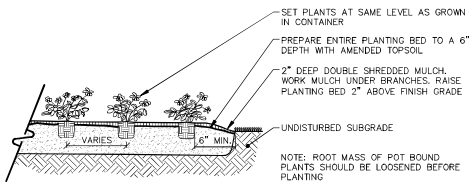
JOB No. 21216
DATE: 12/23/2021
SHEET 36 OF 37
DRN: JM
CHKD: JMB
PM: RCW
FOLDER: LDWG

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/22/21
SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	12/23/21



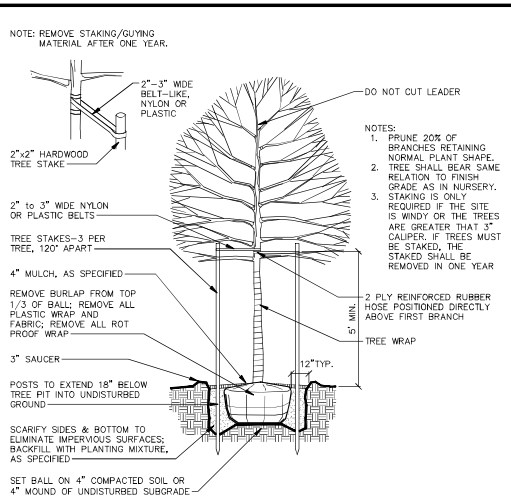
ALUMINUM EDGING DETAIL

SCALE : NTS



ANNUAL AND PERENNIAL PLANTING

SCALE : NTS



DECIDUOUS TREE PLANTING DETAIL

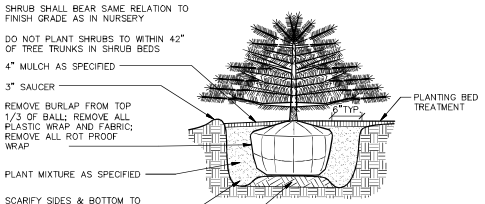
2-1/2" CAL. OR SMALLER
SCALE: NTS

NOTE:
PRUNE 20% OF BRANCHES AND FOLIAGE RETAINING NORMAL PLANT

SHAPE DO NOT TRIM EVERGREENS

SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IN NURSERY

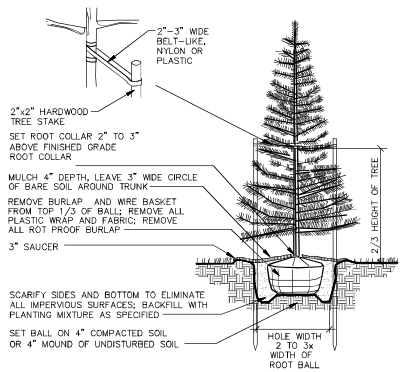
DO NOT PLANT SHRUBS TO WITHIN 42" OF TREE TRUNKS IN SHRUB BEDS



NOTE:
SPECIAL PLANTING MIX REQUIRED FOR ERICACEOUS PLANTINGS AS SPECIFIED.

EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE



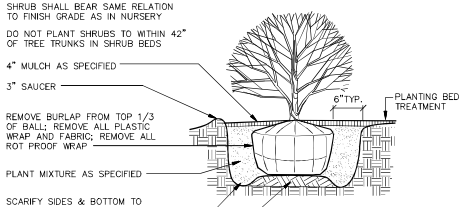
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

DO NOT TRIM EVERGREENS

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DO NOT PLANT SHRUBS TO WITHIN 42" OF TREE TRUNKS IN SHRUB BEDS



NOTE:
SPECIAL PLANTING MIX REQUIRED FOR ERICACEOUS PLANTINGS AS SPECIFIED.

SHRUB PLANTING DETAIL

NOT TO SCALE

BasinBottom - Stormwater SeedMix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges/Rushes:		
Bolboschoenus fluviatilis	River Bulrush	1.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Bottlebrush Sedge	3.00
Carex vulpinoidea	Brown Fox Sedge	2.00
Elymus virginicus	Virginia Wild Rye	24.00
Glyceria striata	Fowl Manna Grass	1.00
Juncus effusus	Common Rush	1.00
Leersia oryzoides	Rice Cut Grass	1.00
Panicum virgatum	Switch Grass	2.00
Schoenoplectus tabernaemontani	Great Bulrush	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperinus	Wool Grass	1.00
	Total	41.50
Temprary Cover:		
Avena sativa	Common Oat	512.00
	Total	512.00
Forbs & Shrubs:		
Alisma subcordatum	Common Water Plantain	2.50
Asclepias incarnata	Swamp Milkweed	2.00
Bidens spp.	Bidens Species	2.00
Eupatorium perfoliatum	Common Boneset	1.00
Helenium autumnale	Sneezeweed	2.00
Iris virginica v. shrevei	Blue Flag	4.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	1.00
Penthorum sedoides	Ditch Stonecrop	0.50
Persicaria spp.	Pinkweed Species	2.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	1.00
Rudbeckia triloba	Brown-Eyed Susan	1.50
Sagittaria latifolia	Common Arrowhead	1.00
Senna hebecarpa	Wild Senna	2.00
Symphyotrichum lanceolatum	Panicled Aster	0.50
Symphyotrichum novae-angliae	New England Aster	0.50
Thalictum dasycarpum	Purple Meadow Rue	2.00
	Total	26.00

Basin Side Slope - Economy Prairie Seed Mix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses:		
Andropogon gerardii	BigBluestem	12.00
Bouteloua curtipendula	Sids-Oats Grama	16.00
Carex spp.	Prairie SedgeSpecies	3.00
Elymus canadensis	Canada Wild Rye	24.00
Panicum virgatum	Switch Grass	2.50
Schizachyrium scoparium	Litte Bluestem	32.00
Sorghastrum nutans	Indian Grass	12.00
	Total	101.50
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	460.00
Forbs:		
Asclepias syriaca	Common Milkweed	1.00
Asclepias tuberosa	Butterfly Weed	1.00
Chamaecrista fasciculata	Patridge Pea	10.00
Coreopsis lanceolata	Said Coreopsis	6.00
Echinacea purpurea	Broad-LeavedPurple Coneflower	8.00
Heliopsis helianthoides	False Sunflower	0.25
Monarda fistulosa	Wild Bergamot	0.50
Penstemon digitalis	Foxglove Beard Tongue	1.00
Ratibida pinnata	Yelow Coneflower	4.00
Rudbeckia hirta	Black-Eyed Susan	8.00
Solidago speciosa	Showy Goldenrod	0.50
Symphyotrichum laeve	Smooth Blue Aster	1.00
Symphyotrichum novae-angliae	New England Aster	0.50
	Total	41.75

Swale Seed Mix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges:		
Andropogon gerardii	Big Bluestem	4.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Bottlebrush Sedge	3.00
Carex spp.	Prairie Sedge Species	8.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus canadensis	Canada Wild Rye	16.00
Elymus virginicus	Virginia Wild Rye	16.00
Juncus canadensis	Canadian Rush	1.00
Panicum virgatum	Switch Grass	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperinus	WoolGrass	0.50
Spartina pectinata	Prairie Cord Grass	3.00
	Total	60.00
Temporary Cover:		
Avena sativa	Common Oat	512.00
	Total	512.00
Forbs:		
Alisma subcordatum	Common Water Plantain	1.00
Asclepias incarnata	Swamp Milkweed	2.00
Coreopsis tripteris	Tall Coreopsis	1.00
Euthamia graminifolia	Common Grass-Leaved Goldenrod	0.50
Eutrochium maculatum	Spotted Joe-Pye Weed	1.00
Iris virginica v. shrevei	Blue Flag	4.00
Liatris spicata	Marsh Blazing Star	1.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	0.50
Penthorum sedoides	Ditch Stonecrop	1.00
Pycnanthemum virginianum	Common Mountain Mint	0.50
Rudbeckia triloba	Brown-Eyed Susan	1.00
Senna hebecarpa	Wild Senna	1.00
Silphium terebinthinaceum	Prairie Dock	1.00
Symphyotrichum novae-angliae	New England Aster	0.50
Verbena hastata	Blue Vervain	1.50
Zizia aurea	Golden Alexanders	2.00
	Total	20.00

LANDSCAPE NOTES

1. For any plant quantity discrepancies between the plan view and the plant schedules, the plant schedule shall take precedence.
2. Plant materials shall be selected and installed in accordance with standards established by the City of Crystal Lake.
3. Landscape contractor shall provide irrigation/water source for proposed plant material for two years from time of planting or for period specified in contract.
4. All diseased, damaged or dead material shown on the site plan as proposed plantings shall be replaced by the end of the following growing season.
5. Restore all disturbed areas with a minimum of four (4) inches of topsoil and then seed/ fertilize/mulch unless otherwise noted on landscape plan.
6. All disturbed areas not to be seeded with native seed mixes identified on the Landscape Plan shall be lawn areas. Lawn seed mix shall meet species composition requirements of IDOT Class 1 Lawn Mixture. Seed shall be installed and stabilized per IDOT standard specifications most current issue. Mulch within 24 hours with two (2) tons of straw per acre, or 71 bales of excelsior mulch per acre. Anchor straw mulch with spray coatine of adhesive material applied at the rate of 150 aslb. / acre.
7. Fertilizer for the initial installation of lawns shall provide not less than one (1) pound of actual nitrogen per 1,000 sq ft of lawn area and shall contain not less than two percent (2%) potassium and four percent (4%) phosphoric acid.
8. After the first growing season, only fertilizers that contain NO phosphorus shall be used on the site in lawn areas only.
9. Areas identified on the Landscape Plan with seed mixes shall be seeded with specified seed mixes from Michigan Wildflower Farm, or equivalent as approved by landscape architect. Temporary cover crop shall be included with all seed mixes. Seeding rates and installation techniques shall be confirmed with supplier.
10. All seeded areas with slopes less than 1:5 (one vertical foot for every 3 horizontal feet) shall be mulched with straw mulch at the rate of two (2) bales per 1,000 square feet. All seeded areas with slopes greater than 1:5 shall be seeded and provided with a biodegradable erosion control blanket such as North American Green S150, 100% biodegradable, jute netted or approved substitution, and shall be secured with biodegradable stakes.
11. Deciduous plants shall be planted between March 1 and May 15 and from October 1 until the prepared soil becomes frozen. Evergreen plants shall be planted between March 1 and June 1 and from August 15 to September 15.
12. All compacted subgrade soils in proposed planting areas shall be tilled to a minimum 12-inch depth prior to placement of a minimum of 6" topsoil, geotextile fabric, or other planting media as specified.
13. All landscape beds on planting plan where identified as being lined with edging contractor shall install a commercial grade steel edging. Edging shall be fabricated in 10' - 20' sections with anchor stake loops stamped in face of section at a minimum of 32" on center. Use minimum 15" tapered steel anchoring stakes (3/16" thick) provided by manufacturer. Edging and stakes shall be finished with black enamel saint.
14. All trees to be located a minimum of 10 feet from public utilities.
15. All single trunk, deciduous trees shall have straight and a symmetrical crown with a central leader. One sided trees or those with thin or open crowns shall not be accepted.
16. All evergreen trees, where applicable, shallbe branched fully to the ground, symmetrical in shape and have not been sheared in the last three (3) growing seasons.
17. Proposed trees will be planted a minimum of 15 feet apart.
18. Topsoil and compost shall meet most recent issue of IDOT standard specifications for Topsoil and Compost.
19. Planting Soil: Existing, in-place or stockpiled topsoil. Supplement with imported topsoil as needed. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mix surface soil with the following soil amendments to produce planting soil:
    a. Ratio of Loose Compost to Topsoil by Volume: 1:4.
    b. Weight of Lime per 1000 Sq. Ft.: Amend with lime only on recommendation of soil test to adjust soil pH.
    c. Weight of Sulfur or Aluminum Sulfate per 1,000 Sq. Ft.: Amend with sulfur or aluminum sulfate only on recommendation of soil test to adjust soil pH.
    d. Volume of Sand: Amend with sand only on recommendation of Landscape Architect to adjust soil texture.
    e. Weight of Slow-Release Fertilizer per 1,000 Sq. Ft.: Amend with fertilizer only on recommendation of soil test to adjust soil fertility.

Maintenance and Warranty:

1. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
2. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
3. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
4. Contractor shall warranty all plant materia and trees to remain alive and be in healthy, vigorous and like new condition for the specified period from installation to Substantial Completion. The entire Landscaping Project, including but not limited to: plants, shrubs, mulches, etc. are to be under Warranty for One Year after Substantial Completion date of the Project. Trees (including street trees as specified on the landscape plan and mitigation trees based on trees recommended to be saved) are to be under Warranty for Two Years after Substantial completion date of the Project. At the end of the specified Warranty period the Owner's Representative will inspect plant material for compliance. Contractor shall replace, in accordance with the drawings and specifications, all plants, trees, shrubs, etc or as determined by the Owner's Representative, are in an unhealthy or unsightly condition. Warranty shall not include damage or loss of plants, trees, and shrubs caused by fires, floods, freezing rains, lightning storms, or winds over 75 miles per hour, acts of vandalism or negligence on the part of the owner, or any other incident beyond landscape contractor's control.
5. During the warranty period for the installedshrubsno mitigation trees
    a. The trunk of young trees shall be wrapped in late autumn and wrap shall be removed in early spring
    b. Burlap screening or wrapping shal be installed on the southwest and windward sides from late autumn to early spring.
    c. Trees shall be watered in spring ard autumn and during dry conditions at a frequency determined by certified arborist.
    d. Mulching around trees shall be maintained at a depth of 2 to 3 inches

Native Seeding/Installation/ and 2-year Maintenance:

1. Seeding installation shall be performed by aqualified contractor with documented experience of successful established seeding and as approved by theCity and client. Seed shall be installed per manufacturer's specification.
2. No chemicals are allowed in the stormwater features with the following exception: invasive species may be treated with chemicals by a certified applicator.
3. Upon completion of construction in year 1, native seeding areas and stormwater areas shall be weavily seeded with cover crop and straw mulch or erosion control blanket.
4. In Year 2 installation season, three herbicide applications shall be performed in order to eradicate weedy species in native seed installation areas. Contractor is responsible for obtaining any necessary permits for herbicide applications. All herbicide applied to native areas shall be suitable for aquatic environments.
5. In year 1, native seeding and stormwater planting areas shall be seeded after October 1, but before November 30 (or prior to ground freezing) or as approved by Landscape Architect or guaranteed by the supplier. Contractor shall perform regularly scheduled watering for installed seed and as needed based on weather conditions to ensure germination and establishment of seed.
6. Native seeding areas shall be maintained by contractor for two years after installation season to promote establishment of native vegetation and reduce weeds and invasive species. Contractor is responsible for obtaining any necessary permits for herbicide applications. All herbicide applied to native areas shall be suitable for aquatic environments.
7. During the first maintenance season, the seeded areas shall be mowed monthly to a height of 4 to 6 inches when vegetation reaches 10 to 12 inches in height through September. Annual invasive weeds such as crabgrass, purple knapweed, purple loosestrife, yellow or white sweet clover, black medic or other invasive plants shall be spot controlled with herbicide. Do not hand pull invasive weeds during first maintenance season.
8. During the second growing season, the seeded areas shall be mowed approximately every month to a height of 8 inches when vegetation reaches 12 to 18 inches. Annual invasive weeds noted above shall be spot controlled with or hand pulled as appropriate.
9. Long-term maintenance of the native seeded areas and detention basin shall be performed by the Owner. Maintenance shall include mowing to 4 inches in height during early spring (between February and April) and raking to remove clippings. Spot treatment/removal of invasive weeds may be necessary if localized areas become dominated by invasive weeds. Mowing is only allowed twice per year.

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

M:\Civil\Sd_Proj\21216\Site Plan\21216Site Plan_Dwg, 12/23/2021 11:01 AM, Jeremy A. Nathe, L1.1 LANDSCAPE DETAILS, MCLC PDF.pc3
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Water Resource Systems • Transportation • Landfill Services

CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH EPNAT
734-345-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
LANDSCAPE DETAILS

L1.1

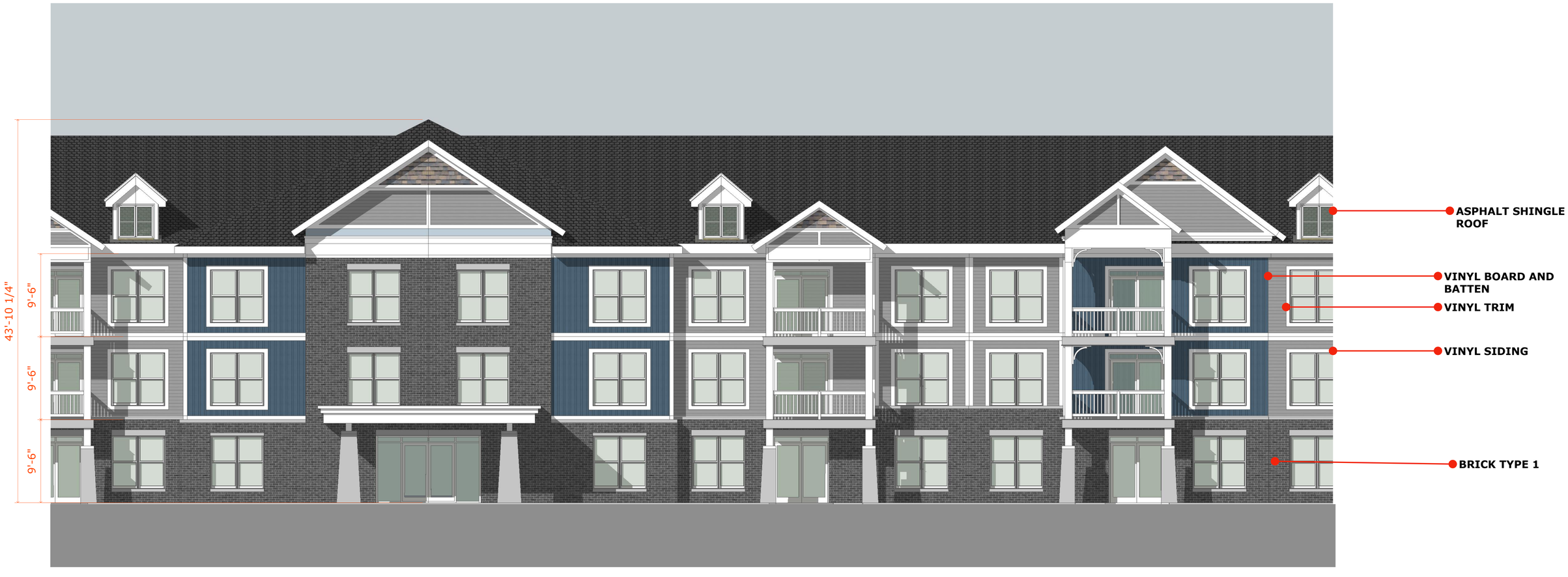
JOB No. 21216
DATE: 12/22/2021
SHEET 37 OF 37

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/29/21
SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	

DES. JAV
DWG. JAV
CHKD. JRB
PIC. RCW
21216LP-DWG



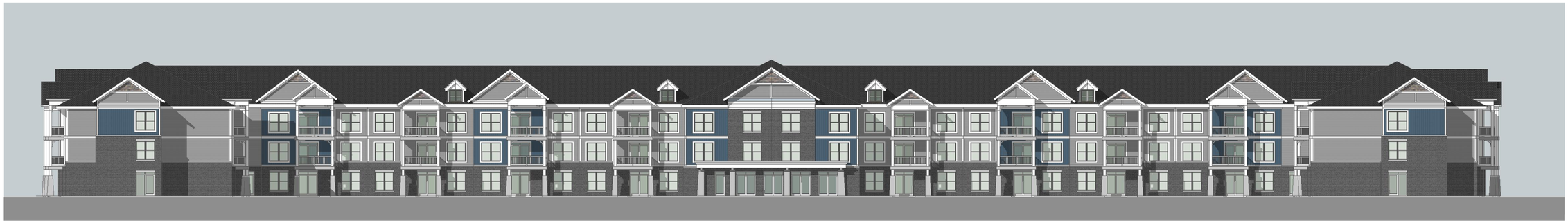
NORTH/ FRONT ELEVATION
SCALE 1/16"=1"



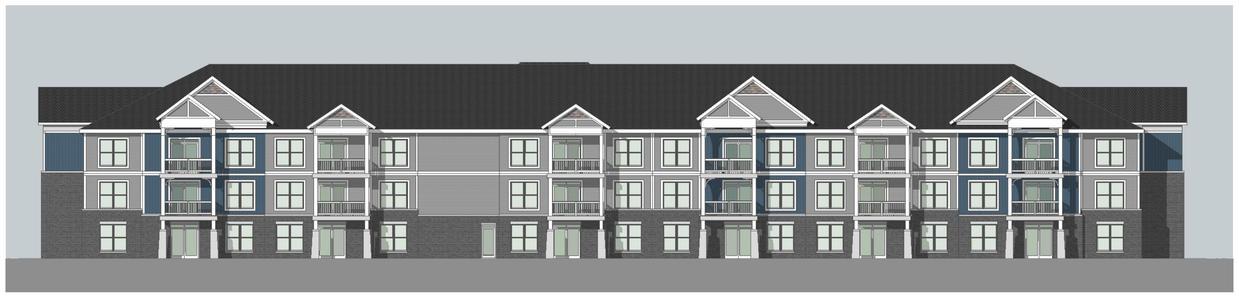
ENLARGED PART FRONT ELEVATION
SCALE 3/16"=1"

CLOVER SENIOR LIVING, CRYSTAL LAKE IL

SEBREE ARCHITECTS



SOUTH/ REAR ELEVATION
SCALE 1/16"=1"



WEST ELEVATION
SCALE 1/16"=1"



EAST ELEVATION
SCALE 1/16"=1"

CLOVER SENIOR LIVING, CRYSTAL LAKE IL

SEBREE ARCHITECTS

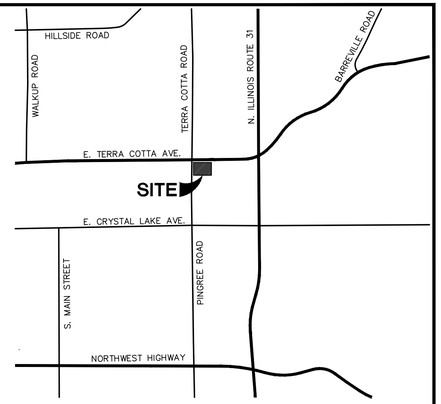
CLOVER COMMUNITIES CRYSTAL LAKE LLC

SE CORNER OF ILLINOIS STATE ROUTE 176 & TERRA COTTA RD.

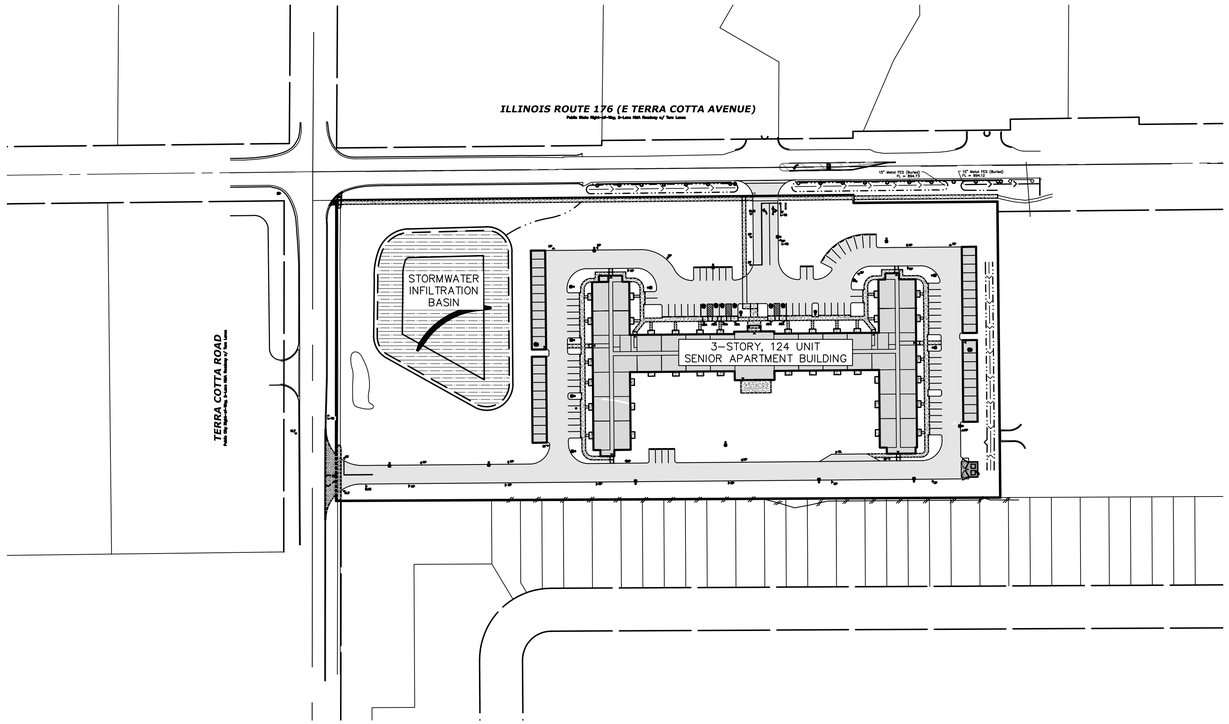
(PARCEL ID: 14-34-301-048)

CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS 60014

SITE PLAN SUBMITTAL 2 - 12/23/2021



VICINITY MAP
SCALE : NTS



SITE MAP
SCALE : NTS

OWNER/APPLICANT

CLOVER CONSTRUCTION
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY, 14221
CONTACT: BETH ERNAT
734-346-0246

ENGINEER/SURVEYOR/LANDSCAPE ARCH.

MIDWESTERN CONSULTING, LLC
3815 PLAZA DR.
ANN ARBOR, MI 48108
CONTACT: JEREMY MATTHEI
734-332-5317

ARCHITECT

SEBREE ARCHITECTS
97 DOVER ST., SUITE 400
AVON, IN 46123
CONTACT: RALPH PITMAN JR.
317-272-7800

PROJECT NARRATIVE

THIS CLOVER DEVELOPMENT PROJECT CONSISTS OF THE PROPERTY LOCATED AT THE SOUTHEASTERN CORNER OF ILLINOIS STATE ROUTE 176 AND TERRA COTTA ROAD, IN THE CITY OF CRYSTAL LAKE, ILLINOIS.

THE 8.93 ACRE SITE IS CURRENTLY ZONED B-2-PUD (GENERAL COMMERCIAL), AND IS PROPOSED TO BE REZONED TO R-3-PUD (MULTIFAMILY RESIDENTIAL) WITH DENSITY AND MINIMUM PARKING WAIVERS, TO ALLOW FOR THE CONSTRUCTION OF A 3-STORY, 124-UNIT SENIOR INDEPENDENT LIVING APARTMENT FACILITY. PLEASE SEE SHEET C2.0 FOR A FULL SITE DATA CHART OUTLINING THE MORE DETAILED SITE COMPLIANCE INFORMATION.

THE PROJECT WILL CONSTRUCT 40 ENCLOSED GARAGE PARKING SPACES, AND 84 SURFACE PARKING SPACES FOR A TOTAL OF 124 SPACES, WHICH CLOVER HOUSING HAS FOUND TO BE ADEQUATE FOR THEIR DEVELOPMENTS IN OTHER COMMUNITIES. AN ADDITIONAL 21 DEFERRED SPACES HAVE BEEN LAID OUT ON THE SOUTH SIDE OF THE SITE AND INCLUDED IN STORMWATER MANAGEMENT CALCULATIONS TO BE CONSTRUCTED IF NECESSARY.

ADDITIONALLY A SITE ALTERNATE ALTERNATE IS SHOWN ON C2.1 TO INDICATE THAT A TOTAL OF 265 PARKING SPACES COULD BE CONSTRUCTED ON THE SITE IF NECESSARY IN THE FUTURE, SHOULD THIS EVER BE REQUIRED. ADDITIONAL STORMWATER AND LANDSCAPING WOULD BE REQUIRED WITH A SITE PLAN AMENDMENT IF THAT OCCASION WERE TO OCCUR.

SITE ACCESS WILL BE BY A FULL DRIVEWAY CONNECTION TO STATE ROUTE 176, AND A PARTIAL DRIVEWAY CONNECTION TO TERRA COTTA ROAD, IN WHICH LEFT TURNS WILL NOT BE ALLOWED FROM SOUTHBOUND TERRA COTTA ROAD INTO THE SITE, BUT ALL OTHER MOVEMENTS WILL BE ALLOWED.

AS ADEQUATELY DEEP STORM SEWERS ARE NOT AVAILABLE IN EITHER ADJACENT ROADWAY, THE STORMWATER BASIN IS BEING OVERSIZED AND DESIGNED TO INFILTRATE THE 100-YEAR STORM INTO THE EXISTING SITE SOILS. A SURFACE OVERFLOW PATH FROM THE BASIN TO THE ROADWAY, AVOIDING THE BUILDING, IS INDICATED ON THE SITE GRADING AND STORMWATER PLANS. A NEW SWALE WITH PROTECTIVE GUARDRAIL WILL BE CONSTRUCTED ON THE SOUTH SIDE OF STATE ROUTE 176 TO DIVERT ROADWAY WATER FROM THE SITE (EXTENDING THE EXISTING SWALE CONSTRUCTED AT SUNRISE SENIOR LIVING). SEE THE STORMWATER CALCULATION SHEETS IN THE SET FOR FURTHER INFORMATION.

THE PROJECT WILL BE SERVED BY SANITARY SEWER LEADS CONNECTING TO THE PUBLIC SEWER IN STATE ROUTE 176, AND BY A NEW PUBLIC LOOPING WATER MAIN TO BE CONSTRUCTED AROUND THE SOUTH AND WEST SIDES OF THE BUILDING, CONNECTING TO THE STUB IN SUNRISE SENIOR LIVING AND TO THE LOOPED MAIN IN STATE ROUTE 176.

ALTHOUGH SIDEWALK ALREADY EXISTS ON TERRA COTTA ROAD, A NEW SIDEWALK WILL BE INSTALLED ALONG STATE ROUTE 176, AND A CONNECTOR SIDEWALK WILL BE PLACED BETWEEN THE FRONT DOOR AND THE WALK ON STATE ROUTE 176. ADDITIONALLY, NEW SIDEWALK RAMPS WILL BE INSTALLED AT THE SOUTHEAST CORNER OF TERRA COTTER/S.R. 176, AND NEW PEDESTRIAN SIGNALS WILL BE INSTALLED ACROSS THE SOUTH LEG OF THE INTERSECTION.

PERMITS/APPROVALS REQUIRED

AGENCY:	PERMIT:	APPLIED:	APPROVED:
CITY OF CRYSTAL LAKE	SITE PLAN APPROVAL*	11/02/21, REV. 12/23/21	
CITY OF CRYSTAL LAKE	STORMWATER PERMIT		
CITY OF CRYSTAL LAKE	RIGHT-OF-WAY PERMIT		
CITY OF CRYSTAL LAKE	BUILDING PERMIT*		
ILLINOIS DEPARTMENT OF TRANSPORTATION (IDOT)	HIGHWAY PERMIT	11/17/21	
MCHENRY COUNTY SOIL & WATER CONS. DIST.	SOIL EROSION & SED. CONROL		

* CRYSTAL LAKE SITE PLAN APPROVAL TO INCLUDE REVIEW OF WATER MAINS, SANITARY SEWERS, SITE GRADING, AND SITE PAVING. CONSTRUCTION TO BE PERMITTED UNDER BUILDING PERMIT.

Sheet List Table

SHEET NUMBER	SHEET TITLE
C1.0	COVER SHEET
V1.0	TOPOGRAPHIC SURVEY
V1.1	BOUNDARY & LAND TITLE SURVEY
C1.1	SITE DEMOLITION PLAN
C1.2	TREE DATA TABLE
C2.0	SITE LAYOUT AND PAVING PLAN
C2.1	ALTERNATE SITE 265 PARKING SPACES
C2.2	SITE FIRE PROTECTION PLAN
C3.0	GRADING PLAN
C3.1	UTILITY PLAN
C3.2	STORM BASIN AND STORM PROFILES 1
C3.3	STORM SEWER PROFILES 2
C3.4	ROOF LEADER & SANITARY LEAD PROFILES
C3.5	WATER MAIN PROFILE
C4.0	SITE DETAILS
C4.1	UTILITY DETAILS
C4.2	CRYSTAL LAKE SITE DETAILS
C4.3	CRYSTAL LAKE UTILITY DETAILS
C4.4	CONSTRUCTION SPECIFICATIONS
C4.5	CURB RAMP DETAILS
C4.6	IDOT GUARDRAIL DETAILS
C4.7	IDOT MISC. DETAILS
C5.0	EXISTING DEPRESSION PLAN
C5.1	PROPOSED DEPRESSION PLAN
C5.2	SURFACE FLOW SECTIONS & CALCULATIONS
C5.3	SITE DRAINAGE PLAN
C5.4	STORM WATER NARRATIVE & CALCULATIONS
C5.5	SOIL EROSION AND SEDIMENTATION CONTROL PLAN
C5.6	SOIL EROSION CONTROL DETAILS
C6.0	PHOTOMETRIC AND SITE LIGHTING PLAN
C7.0	TRAFFIC CONTROL PLAN
C7.1	ROADWAY CROSS-SECTIONS
C7.2	EXISTING DRAINAGE PLAN
C7.3	EXISTING DRAINAGE CALCULATIONS
C7.4	PROPOSED ROADWAY DRAINAGE PLAN AND CALCULATIONS
L1.0	LANDSCAPE PLAN
L1.1	LANDSCAPE DETAILS

CLOVER COMMUNITIES CRYSTAL LAKE LLC

JOB No. **21216**

DATE: 12/23/2021
SHEET 1 OF 37

REVISIONS:	REV. DATE
SITE PLAN SUBMITTAL 1	11/02/21
IDOT SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216CV1.DWG

C1.0

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(734) 995-0200 • www.midwesternconsulting.com
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Wireless Communications • Transportation • Landfill Services

RELEASED FOR:	DATE

LICENSED PROFESSIONAL ENGINEER
JEREMY A. MATTHEI
062-073442
OF ILLINOIS

JEREMY A. MATTHEI
IL P.E. #062.073442

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

M:\Civil\34_Proj\21216\Site Plan\21216CV1.dwg, 12/23/2021 11:01 AM, Jeremy A. Matthei, C1.0 COVER SHEET, MCLLC PDF.pc3
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ALTA/NSPS LAND TITLE SURVEY

OF

PART OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, MCHENRY COUNTY, ILLINOIS

ILLINOIS ROUTE 176 (E TERRA COTTA AVENUE)

Public Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

ARC DESIGN RESOURCES INC.

5291 ZENITH PARKWAY
LOVES PARK, IL 61111
VOICE: (815) 484-4300
FAX: (815) 484-4303

www.arcdesign.com
Design Firm License No. 184-001334

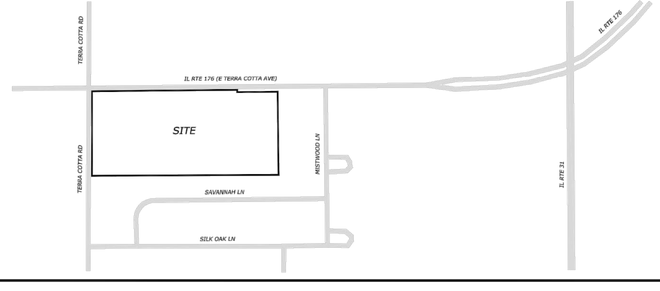
TERRA COTTA ROAD
Public Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

Notes:
1. All Storm and Sanitary Main are Gravity Main unless otherwise noted on the survey.

SYMBOL LEGEND

- PROPERTY LINE ℄
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- CENTER LINE ℄
- CURB AND GUTTER
- O/U — OVERHEAD UTILITIES
- G — GAS LINE
- T — TELEPHONE LINE
- E — ELECTRIC LINE
- W — WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- X — X — FENCE
- 750 — CONTOUR LINE
- SANITARY MANHOLE
- STORM MANHOLE | AREA INLET
- CURB CATCHBASIN | INLET
- CONCRETE FLARED END SECTION
- METAL OR PLASTIC FLARED END SECTION
- VALVE VAULT
- VALVE BOX
- FIRE HYDRANT ASSEMBLY
- WELL
- UTILITY POLE
- GUY WIRE AND ANCHOR
- ELECTRIC TRANSFORMER AND PAD
- ELECTRIC PEDESTAL
- CABLE PEDESTAL
- TELEPHONE JUNCTION VAULT
- TELEPHONE PEDESTAL
- GAS METER
- GAS VALVE
- LUMINAIRE AND POST
- SIGN AND POST
- BENCHMARK LOCATION
- DECIDUOUS TREE
- TRAFFIC SIGNAL
- SIGNAL CONTROL CABINET
- HANDHOLE

VICINITY MAP (Not to Scale)



Existing Zoning/ Land Use
1. *Current Site Zoning: B-2 PUD (General Commercial/Planned Unit Development)*
2. *Current Site Use: Vacant Lot*
3. *Surrounding Land Use and Zoning:*
   a. *North: B2-PUD (General Commercial/Planned Unit Development), Crystal Lake Historical Society*
   b. *East: R-3A (Two-Family Residential), Sunrise of Crystal Lake Assistant Senior Living Center*
   c. *South: R-3B PUD (Residential/Planned Unit Development)*
   d. *West: B-2 (General Commercial), Casey's Gas Station*
4. *Zoning Site Restrictions/Requirements:*
   a. *Minimum Lot Area: 20,000 sq. ft.*
   b. *Maximum Building Height: 28 feet*
   c. *Minimum Building Setbacks*
      i. *Front: 30'*
      ii. *Side (Street): 30'*
      iii. *Side: 0'*
      iiii. *Rear: 20'*
   d. *Minimum Canopy Setbacks*
      i. *Front: 15' from Property Line*
      ii. *Side (Street): 15' from Property Line*
      iii. *Side: 15' from Property Line*
      iiii. *Rear: 15' from Property Line*
   e. *Where does each setback apply:*
      i. *Front: 30'*
      ii. *Side (Street): 30'*
      iii. *Side: 0'*
      iiii. *Rear: 20'*
   f. *Minimum Frontage: Not Specified*
   g. *Maximum Lot Coverage: Maximum Building Coverage 50%*
   h. *Maximum Floor Area Ratio (FAR): 1.5*

N O R T H
0 40' 60' 80'

SHEET 1 of 2
ARC 20016
Rev: 08/24/2020

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ALTA/NSPS LAND TITLE SURVEY

OF

PART OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 34,
TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN,
MCHENRY COUNTY, ILLINOIS

ARC DESIGN RESOURCES INC.
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Design Firm License No. 184-001334

SCHEDULE B, PART II
EXCEPTIONS

1. Rights or claims of parties in possession not shown by the public records. **(Not a survey matter.)**
2. Easements or claims of easements, not shown by Public Records. **(No parole evidence was collected as a part of this survey. Therefore we have no knowledge of any any such easements or claims thereof.)**
3. Any encroachments, encumbrance, violation, variation, or adverse circumstance affecting Title that would be disclosed by an accurate survey of the Land pursuant to the "Minimum Standards of Practice," 68 Ill. Admin Code, Sec. 1270.56(b)(6)(P) for residential property or the ALTA/NSPS land title survey standards for commercial/industrial property. **(Please refer to the survey.)**
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records. **(Not a survey matter.)**
5. Taxes, or special assessments, if any, not shown as existing liens by the Public Records. **(Not a survey matter.)**
6. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I-Requirements are met. **(Not a survey matter.)**
7. General taxes and assessments for the year 2020 2nd Installment, 2021 and subsequent years which are not yet due and payable. **(Not a survey matter.)**

   Tax identification no.: 14-34-301-048

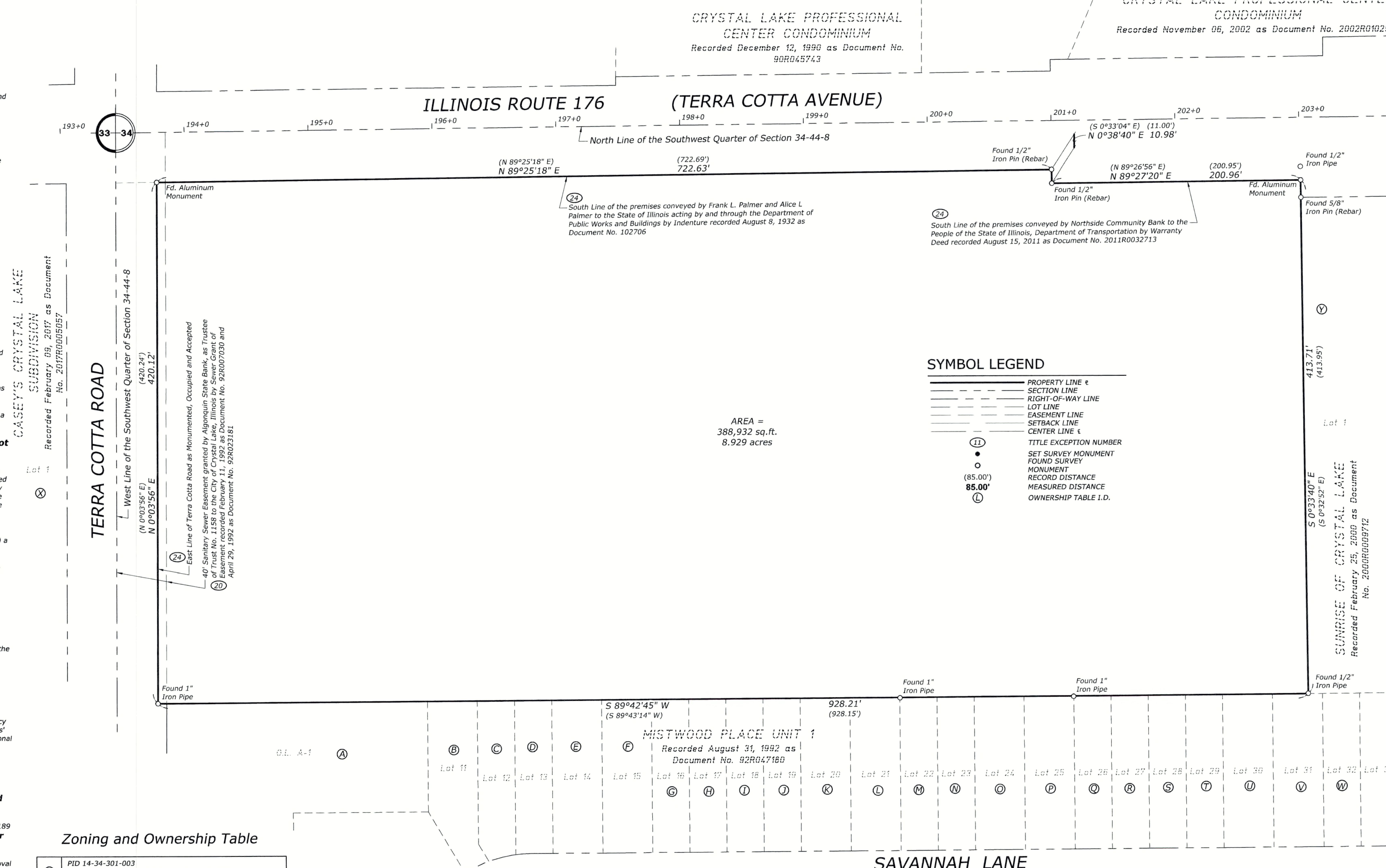
   Note for informational purposes 2020 taxes:

   1st Installment in the amount of $8,991.42 with a status of PAID. (Due Date 06/07/2021)
   2nd Installment in the amount of $8,991.42 with a status of DUE. (Due Date 09/07/2021)

   Note: If applicable, an original tax bill must be presented if taxes are to be paid at time of closing.
8. We find no outstanding voluntary liens of record affecting subject property. An inquiry should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any security interest in the subject property. **(Not a survey matter.)**
9. Terms, powers, provisions and limitations of the Limited Liability Company Operating Agreement under which title to the land is held. **(Not a survey matter.)**
10. Evidence that Articles of Organization have been filed with the Secretary of State of Illinois should be furnished for the following Limited Liability Company: Terra Cotta Development, LLC **(Not a survey matter.)**
11. The Operating Agreement for Terra Cotta Development, LLC, a Limited Liability Company, together with all amendments thereto, should be furnished and this commitment is subject to such further exceptions, if any, as may then be deemed necessary. **(Not a survey matter.)**
12. We should be furnished evidence that no event of dissolution has occurred for Terra Cotta Development, LLC, a Limited Liability Company. **(Not a survey matter.)**
13. Rights of the partners comprising the firm of Lancaster Land L.P., and of all persons claiming thereunder. **(Not a survey matter.)**
14. The partnership agreement establishing the partnership of Lancaster Land L.P., together with all amendments thereto, properly identified in writing by all the partners of the agreement under which the partnership acquired and holds title, should be furnished; and this commitment is subject to such further exceptions, if any, as may then be deemed necessary. Note: this commitment is subject to such further exceptions, if any, which may be disclosed after a name search has been made for judgments and other matters against all the members of the partnership of Lancaster Land L.P. **(Not a survey matter.)**
15. Any lien, or right to a lien in favor of a property manager employed to manage the land. Note: we should be furnished either (a) an affidavit from the owner indicating that there is no property manager employed; or (b) a final lien waiver from the property manager acting on behalf of the owner. **(Not a survey matter.)**
16. Existing unrecorded leases, if any, and rights of parties in possession under such unrecorded leases. **(Not a survey matter.)**
17. Note: If any contemplated deed of conveyance of the land is exempt from the operation of the provisions of paragraph 1(a) of 765 ILCS 205/1, the plat act, such deed should be accompanied by a proper affidavit establishing to the satisfaction of the recorder of deeds of McHenry County, Illinois, that the conveyance is so exempt. If said conveyance is not so exempt, compliance should be had with the provisions of said paragraph 1(a). **(Not a survey matter.)**
18. It appears that the land described herein lies within the municipal boundaries of Crystal Lake, please contact the municipality for any requirements which must be complied with prior to closing. The municipal phone number may be found at www.firstam.com/title/il under Products and Resources, then Forms and Documents, then Municipal Transfer Stamp Requirements. **(Not a survey matter.)**
19. Relative to the deletion of Standard Exceptions 1 through 6, we should be furnished the following: **(This survey is provided to satisfy exception 19 a.)**
    a) A current survey of the land, properly certified to the Company, made in accordance with (i) the accuracy requirements of a survey pursuant to the 'Minimum Standard Detail Requirements for Land Title Surveys' Jointly Established and Adopted by the American Land Title Association and National Society of Professional Surveyors (NSPS) February 23, 2021; and (ii) the Laws of the State of Illinois.
    b) A properly executed ALTA 2006 Loan and Extended Coverage Statement.
20. Grant of Easement for sanitary sewage facilities recorded as document no. 92R007030, and also recorded as document 92R023181, and the terms and conditions contained therein.

    (Affects the Westerly 40 feet) **(Please refer to the survey for the easement location and to said Document for more particular information.)**
21. Declaration regarding certain responsibilities for landscaping recorded August 31, 1992 as document 92R047189 and the terms and provisions contained therein. **(Affects the property and more, please refer to said Document for more particular information.)**
22. Easement in favor of Northern Illinois Gas Company for the installation, maintenance, repair, relocation, removal and renewal of gas mains granted by document 98R00044501 on July 13, 1998, and the terms and conditions thereof.

    (Affects a 20 foot wide by 650 foot long strip of land South of and adjacent to the Northern property line, as well as a 20 foot wide by 60 foot long strip of land East of and adjacent to the Western property line.) **(We are unable to depict the easement locations on the survey due to a lack of information in the document provided. The North property line of the description is 1359 feet and the West line of the description is 1024.84 feet. It is not stated in the Document where on the property lines the easements are located, only that they are adjacent to the North and West property lines.)**
23. Rights of way for drainage tiles, ditches, feeders and laterals, if any. **(No Drainage Ditches, Tiles, Feeders or Laterals were observed on the property at the time of the survey and we were not provided with any Documentation regarding any such matters.)**
24. Rights of the Public, the State of Illinois and the Municipality in and to that part of the land, if any, taken or used for road purposes. **(Please refer to the survey.)**
25. Rights of the interested parties to the free and unobstructed flow of the waters of the stream which may flow on or through the land. **(There was no stream observed on the property at the time of the survey.)**
26. Note: The Extended Coverage Endorsement, deleting Standard Exceptions 1 through 6, will be considered for approval upon receipt and review of the requirements referenced herein. **(Not a survey matter.)**



Legal Description contained in Commitment for Title Insurance issued by First American Title Insurance Company File No. 3102992 dated July 2, 2021

The Land referred to herein below is situated in the County of McHenry, State of IL, and is described as follows:

Part of the North half of the Southwest quarter of Section 34, Township 44 North, Range 8 East of the Third Principal Meridian, described as follows:

Beginning at the Northwest corner of the Southwest quarter of said Section 34, thence North 89 degrees, 24 minutes, 10 seconds East along the North line of said Southwest quarter, a distance of 1278.38 feet, thence South 00 degrees, 37 minutes, 07 seconds East, a distance of 465.88 feet; thence South 89 degrees, 39 minutes, 16 seconds West, a distance of 1283.35 feet to the West line of the Southwest quarter of said Section 34, thence North 00 degrees, 00 minutes, 00 seconds East along said West line, a distance of 460.27 feet to the point of beginning.

Except that part described as follows:

Lot 1 in the final plat of subdivision of Sunrise of Crystal Lake, being a subdivision of part of the North half of the Southwest quarter of Section 34, Township 44 North, Range 8, East of the Third Principal Meridian, according to the plat thereof recorded February 25, 2000 as document number 2000R009712.

ALSO EXCEPT that portion granted for road purposes in document 2011R0032713 and corrected by document 2012R0010940, described as follows:

That part of the North half of the Southwest quarter of Section 34, Township 44 North, Range 8 East of the Third Principal Meridian, described as follows:

Beginning at the Northwest corner of the Southwest quarter of said Section 34; thence on an assumed bearing of North 89 degrees 28 minutes 09 seconds East along the North line of the Southwest quarter of said Section 34, a distance of 1278.57 feet (1278.38 feet, recorded) to a point of intersection with the Northerly extension of the East line of Lot 1 in Sunrise of Crystal Lake recorded February 25, 2000 as document number 2000R0009712; thence South 0 degrees 32 minutes 51 seconds East along the Northerly extension of the East line of Lot 1 in said Sunrise of Crystal Lake, a distance of 40.00 feet to the Northeast corner of Lot 1 in Sunrise of Crystal Lake; thence South 89 degrees 28 minutes 09 seconds West along the North line of Lot 1 in said Sunrise of Crystal Lake, a distance of 322.35 feet to the Northwest corner of Lot 1 in Sunrise of Crystal Lake; thence South 0 degrees 32 minutes 52 seconds East along the West line of Lot 1 in said Sunrise of Crystal Lake, a distance of 10.51 feet; thence South 89 degrees 26 minutes 56 seconds West, a distance of 200.95 feet; thence North 0 degrees 33 minutes 04 seconds West, a distance of 11.00 feet to the South right of way line of Illinois Route 176 recorded August 8, 1932 as document number 102706; thence South 89 degrees 25 minutes 18 seconds West along the said South right of way line of Illinois Route 176 and the Westerly extension thereof, a distance of 755.70 feet to the West line of the Southwest quarter of said Section 34; thence North 0 degrees 03 minutes 56 seconds East along the West line of the Southwest quarter of said Section 34, a distance of 40.20 feet to the point of beginning, all in McHenry County, Illinois.

Zoning and Ownership Table

ID	Parcel
Ⓐ	PID 14-34-301-003 Owner: Mistwood Place Homeowners Association Zoned R-3B PUD
Ⓑ	PID 14-34-301-004 Owner: Pamela J. Sault Zoned R-3B PUD
Ⓒ	PID 14-34-301-005 Owner: Aneta Stankiewicz Zoned R-3B PUD
Ⓓ	PID 14-34-301-006 Owner: Gregory A. & Jody L. Latowicz Zoned R-3B PUD
Ⓔ	PID 14-34-301-007 Owner: Tyler P. Meier & Kerrie E. Kurth Zoned R-3B PUD
Ⓕ	PID 14-34-301-008 Owner: Baibsunova G. & Asanbekov B. Zoned R-3B PUD
Ⓖ	PID 14-34-301-009 Owner: Glasgow Group LLC Zoned R-3B PUD
Ⓗ	PID 14-34-301-010 Owner: L. M. Propety LLC Zoned R-3B PUD
Ⓘ	PID 14-34-301-011 Owner: Kabir Pramukh Realty, Inc. Zoned R-3B PUD
Ⓙ	PID 14-34-301-012 Owner: Evan R. Breyley Zoned R-3B PUD
Ⓚ	PID 14-34-301-013 Owner: B3D Living LLC Zoned R-3B PUD
Ⓛ	PID 14-34-301-014 Owner: Joy G. Mangold Zoned R-3B PUD
Ⓜ	PID 14-34-301-015 Owner: Caliendo T Gonzalez Palomar O. Zoned R-3B PUD
Ⓝ	PID 14-34-301-016 Owner: Home State Bank N/A Trust 5339 Zoned R-3B PUD
Ⓞ	PID 14-34-301-017 Owner: Brenda L. Othick Zoned R-3B PUD
Ⓟ	PID 14-34-301-018 Owner: Pamela A. (Rev Tr Lego) Zoned R-3B PUD
Ⓠ	PID 14-34-301-019 Owner: GJ SJ Family Revisionary Trust Zoned R-3B PUD
Ⓡ	PID 14-34-301-020 Owner: Jennifer Koranek Zoned R-3B PUD
Ⓢ	PID 14-34-301-021 Owner: Kimberley Greenough Zoned R-3B PUD
Ⓣ	PID 14-34-301-022 Owner: Kristen O'Brien Glover Zoned R-3B PUD
Ⓤ	PID 14-34-301-023 Owner: John Handschiegel Zoned R-3B PUD
Ⓥ	PID 14-34-301-024 Owner: Kevin M. & Jennifer K. Engstrom Zoned R-3B PUD
Ⓦ	PID 14-34-301-025 Owner: Home State Bank Trust No. 6021 Zoned R-3B PUD
Ⓧ	PID 14-33-426-025 Owner: Casey's Retail Company Zoned B-2
Ⓨ	PID 14-34-301-047 Owner: Sunrise Third Crystal Lake Senior Living Zoned R-3A PUD

SURVEYOR'S NOTES

1. Survey is based on field work performed by Arc Design Resources on July 27, 2021.
2. No investigation concerning environmental and subsurface conditions, or for the existence of underground or overhead containers or facilities which may affect the use or development of this property was made as part of this survey.
3. The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although the surveyor does certify that they are located as accurately as possible from information available. The surveyor has not physically located the underground utilities.
4. The above described property is not located within any regulated flood zones according to the Flood Insurance Rate Map (17111C0335J) for McHenry County, Illinois revised November 16, 2006.
5. Surveyed property is based upon the legal description contained in Commitment for Title Insurance, Commitment No. 3102992 issued by First American Title Insurance Company - Metro Commercial Title dated July 02, 2021.
6. Bearings are based upon G.P.S observations and referenced to the Illinois State Plane Coordinate System - East Zone.
   Vertical Datum - NAD83
7. There was no evidence of any recent earth moving activity at the time of survey.
8. Utility Company Contacts.
   AT&T/DISTRIBUTION: 1-800-288-2020
   COMCAST: 1-866-594-1234
   COMED: 1-800-334-7661
   NICOR GAS: 1-888-642-6748
   CITY OF CRYSTAL LAKE: 1-815-356-3738

SURVEYOR'S CERTIFICATION:

To First American Title Insurance Company-Metro Commercial Title, Lancaster Land L.P. and Terra Cotta Development, LLC:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 3, 4, 6a, 8, 11a, 13 and 16 of Table A thereof. The fieldwork was completed on July 27, 2021.

Dated this 28th day of July, 2021.

Lee S. Sprecher
Illinois Professional Land Surveyor No. 3436
Arc Design Resources, Inc.
5291 Zenith Parkway
Loves Park, IL 61111
(815)484-4300

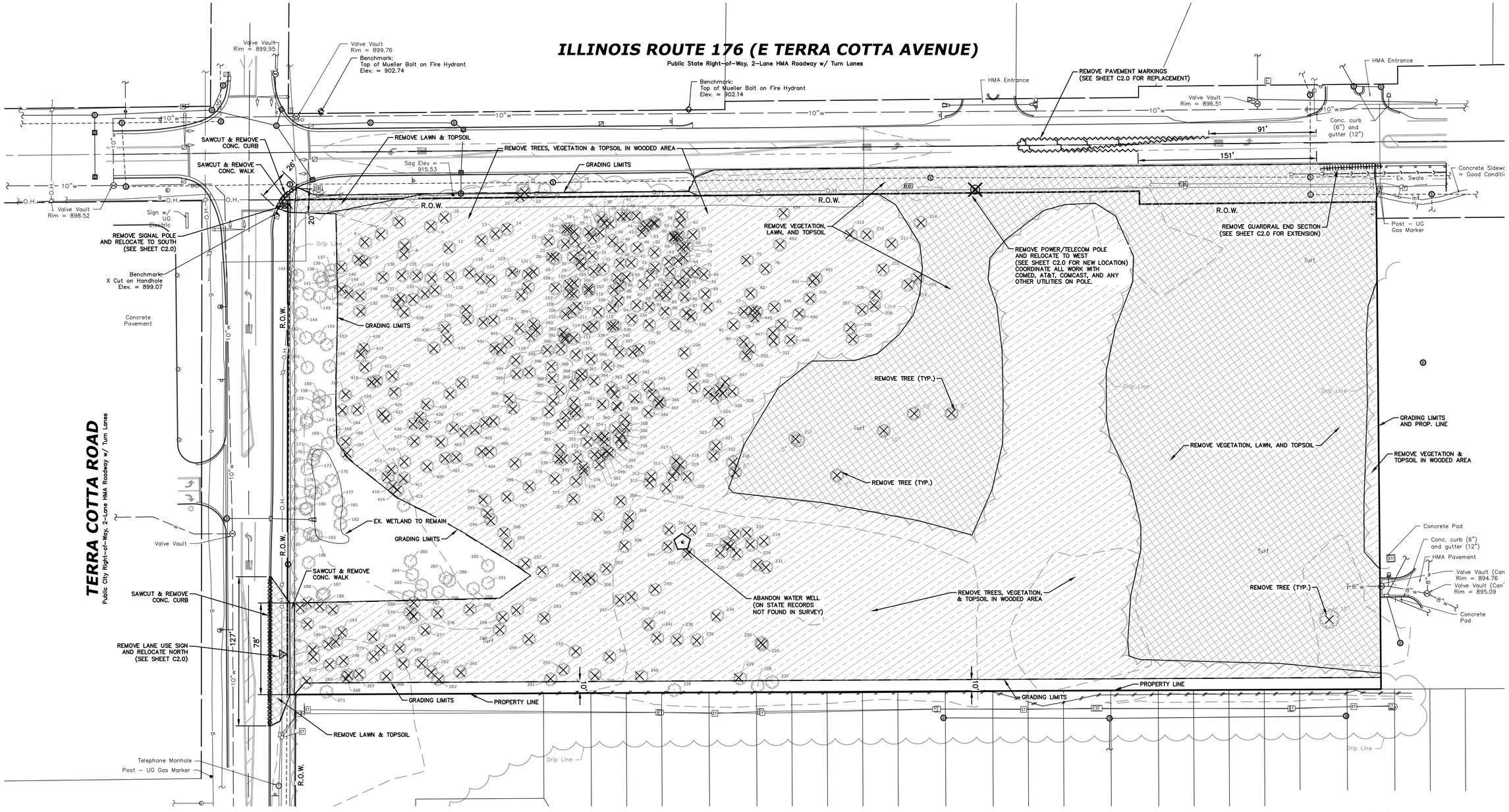
STATE OF ILLINOIS PROFESSIONAL LAND SURVEYOR — LEE S. SPRECHER 035-3436 LOVES PARK IL

My current license expires 11/30/2022.

SHEET 2 of 2
ARC 21145
Rev: 07/28/2021

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M:\Civil3d_Proj\21216\Site Plan\21216EX1.dwg, 12/23/2021 10:48 AM, Jeremy A. Mothiel, C1.1 SITE DEMOLITION PLAN, MCLLC PDF.pc3
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NOTES

1. WORK IN STATE ROUTE 172 RIGHT–OF–WAY, AND AT THE INTERSECTION OF S.R. 172 AND TERRA COTTA ROAD, SHALL BE PERMITTED AND APPROVED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
2. WORK IN THE TERRA COTTA ROAD RIGHT–OF–WAY SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE.
3. REMOVE ALL VEGETATION AND STOCKPILE TOPSOIL WITHIN GRADING LIMITS.
4. ALL REMOVALS WORK IN CITY OR STATE ROADWAY R.O.W. SHALL BE COORDINATED WITH REPLACEMENT WORK, TO REDUCE THE IMPACT TO THE PUBLIC TO THE GREATEST EXTENT POSSIBLE.
5. POWER POLE RELOCATION SHALL BE COORDINATED WITH COMED AND ALL TELECOM UTILITIES.

LEGEND

- REMOVE VEGETATION LAWN AND TOPSOIL
- REMOVE TREES, VEGETATION, & TOPSOIL IN WOODED AREA
- EXIST. OVERHEAD UTILITY LINE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. FIBER OPTIC LINE
- EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- CULVERT
- EXIST. SANITARY SEWER
- SIGN
- WELL
- FENCE
- GUARDRAIL REMOVAL
- TREE OR BRUSH LIMIT

SCALE: 1" = 40'

0 40 80 120

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CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SITE DEMOLITION PLAN

C1.1

JOB No. 21216

DATE: 12/9/2021
SHEET 4 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
21216EX1.DWG

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
ENG SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

PROTECT	Tree ID	Common Name	Condition	Genus Species	dbh1	dbh2	dbh3	dbh4
	1	Boxelder	Good	Acer negundo	15	0	0	0
	2	Boxelder	Good	Acer negundo	14	0	0	0
	3	Boxelder	Fair	Acer negundo	18	0	0	0
	4	Boxelder	Fair	Acer negundo	21	15	0	0
	5	Boxelder	Fair	Acer negundo	15	15	0	0
	6	Buckthorn-European	Fair	Rhamnus cathartica	6	0	0	0
	7	Mulberry-White	Fair	Morus alba	17	0	0	0
	8	Boxelder	Dead	Acer negundo	11	0	0	0
	9	Boxelder	Fair	Acer negundo	13	0	0	0
	10	Boxelder	Good	Acer negundo	17	0	0	0
	11	Boxelder	Fair	Acer negundo	24	0	0	0
	12	Locust-Black	Fair	Robinia pseudoacacia	31	0	0	0
	13	Locust-Black	Fair	Robinia pseudoacacia	39	0	0	0
	14	Mulberry-White	Fair	Morus alba	21	0	0	0
	15	Locust-Black	Fair	Robinia pseudoacacia	14	0	0	0
	16	Boxelder	Good	Acer negundo	6	0	0	0
	17	Boxelder	Good	Acer negundo	6	0	0	0
	18	Boxelder	Fair	Acer negundo	7	0	0	0
PROTECT	19	Locust-Black	Poor	Robinia pseudoacacia	12	0	0	0
PROTECT	20	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
PROTECT	21	Elm-Siberian	Fair	Ulmus pumila	7	0	0	0
	22	Elm-Siberian	Fair	Ulmus pumila	6	0	0	0
	23	Elm-Siberian	Good	Ulmus pumila	5	0	0	0
	24	Locust-Black	Good	Robinia pseudoacacia	9	0	0	0
	25	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	26	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	27	Locust-Black	Good	Robinia pseudoacacia	8	0	0	0
	28	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	29	Locust-Black	Good	Robinia pseudoacacia	9	0	0	0
	30	Locust-Black	Good	Robinia pseudoacacia	8	0	0	0
	31	Locust-Black	Good	Robinia pseudoacacia	7	0	0	0
	32	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	33	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	34	Locust-Black	Good	Robinia pseudoacacia	8	0	0	0
	35	Locust-Black	Good	Robinia pseudoacacia	9	0	0	0
	36	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	37	Locust-Black	Good	Robinia pseudoacacia	8	0	0	0
	38	Locust-Black	Good	Robinia pseudoacacia	7	0	0	0
	39	Locust-Black	Good	Robinia pseudoacacia	14	0	0	0
	40	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	41	Boxelder	Fair	Acer negundo	8	0	0	0
	42	Locust-Black	Good	Robinia pseudoacacia	15	0	0	0
	43	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	44	Locust-Black	Fair	Robinia pseudoacacia	15	10	0	0
	45	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	46	Locust-Black	Fair	Robinia pseudoacacia	8	5	0	0
	47	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	48	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	49	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	50	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	51	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	52	Locust-Black	Good	Robinia pseudoacacia	6	5	0	0
	53	Locust-Black	Good	Robinia pseudoacacia	9	0	0	0
	54	Boxelder	Fair	Acer negundo	7	0	0	0
	55	Locust-Black	Good	Robinia pseudoacacia	12	0	0	0
	56	Boxelder	Fair	Acer negundo	7	0	0	0
	57	Boxelder	Poor	Acer negundo	7	0	0	0
	58	Locust-Black	Fair	Robinia pseudoacacia	17	0	0	0
	59	Locust-Black	Fair	Robinia pseudoacacia	21	0	0	0
	60	Locust-Black	Fair	Robinia pseudoacacia	9	0	0	0
	61	Maple-Silver	Good	Acer saccharinum	4	0	0	0
	62	Locust-Black	Fair	Robinia pseudoacacia	10	7	0	0
	63	Locust-Black	Fair	Robinia pseudoacacia	13	0	0	0
	64	Locust-Black	Fair	Robinia pseudoacacia	15	0	0	0
	65	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	66	Locust-Black	Good	Robinia pseudoacacia	15	0	0	0
	67	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	68	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	69	Locust-Black	Fair	Robinia pseudoacacia	25	0	0	0
	70	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	71	Boxelder	Fair	Acer negundo	6	0	0	0
	72	Boxelder	Fair	Acer negundo	10	0	0	0
	73	Boxelder	Fair	Acer negundo	11	0	0	0
	74	Boxelder	Poor	Acer negundo	16	0	0	0
	75	Boxelder	Good	Acer negundo	9	0	0	0
	76	Locust-Black	Fair	Robinia pseudoacacia	26	0	0	0
	77	Locust-Black	Good	Robinia pseudoacacia	8	0	0	0
	78	Locust-Black	Good	Robinia pseudoacacia	7	0	0	0
	79	Elm-Siberian	Fair	Ulmus pumila	6	0	0	0
	80	Elm-Siberian	Poor	Ulmus pumila	8	0	0	0
	81	Walnut-Black	Fair	Juglans nigra	6	0	0	0
	82	Walnut-Black	Good	Juglans nigra	5	0	0	0
	83	Boxelder	Poor	Acer negundo	7	0	0	0
	84	Boxelder	Fair	Acer negundo	6	0	0	0
	85	Boxelder	Poor	Acer negundo	8	0	0	0
	86	Boxelder	Dead	Acer negundo	7	0	0	0
	87	Locust-Black	Poor	Robinia pseudoacacia	16	0	0	0
	88	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	89	Boxelder	Good	Acer negundo	6	0	0	0
	90	Boxelder	Good	Acer negundo	8	0	0	0
	91	Boxelder	Good	Acer negundo	8	0	0	0
	92	Boxelder	Fair	Acer negundo	8	0	0	0
	93	Boxelder	Fair	Acer negundo	8	0	0	0
	94	Boxelder	Fair	Acer negundo	8	0	0	0
	95	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	96	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	97	Locust-Black	Good	Robinia pseudoacacia	13	0	0	0
	98	Locust-Black	Poor	Robinia pseudoacacia	8	0	0	0
	99	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	100	Locust-Black	Good	Robinia pseudoacacia	7	0	0	0
	101	Locust-Black	Good	Robinia pseudoacacia	12	0	0	0
	102	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	103	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	104	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	105	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	106	Locust-Black	Poor	Robinia pseudoacacia	10	0	0	0
	107	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	108	Locust-Black	Good	Robinia pseudoacacia	14	0	0	0
	109	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	110	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	111	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	112	Locust-Black	Fair	Robinia pseudoacacia	10	6	0	0
	113	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	114	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	115	Locust-Black	Fair	Robinia pseudoacacia	8	6	0	0
	116	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	117	Locust-Black	Fair	Robinia pseudoacacia	9	0	0	0
	118	Elm-Siberian	Fair	Ulmus pumila	10	0	0	0
	119	Mulberry-White	Good	Morus alba	6	0	0	0
	120	Boxelder	Fair	Acer negundo	6	0	0	0
	121	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	122	Boxelder	Fair	Acer negundo	6	0	0	0
	123	Boxelder	Fair	Acer negundo	10	0	0	0
	124	Boxelder	Fair	Acer negundo	13	0	0	0
	125	Mulberry-White	Poor	Morus alba	7	0	0	0
	126	Locust-Black	Poor	Robinia pseudoacacia	43	0	0	0
	127	Locust-Black	Fair	Robinia pseudoacacia	38	0	0	0
	128	Boxelder	Fair	Acer negundo	12	0	0	0
	129	Boxelder	Dead	Acer negundo	12	0	0	0
	130	Mulberry-White	Poor	Morus alba	6	0	0	0
	131	Boxelder	Poor	Acer negundo	16	0	0	0
	132	Boxelder	Poor	Acer negundo	16	0	0	0
	133	Boxelder	Dead	Acer negundo	15	0	0	0
	134	Mulberry-White	Fair	Morus alba	16	0	0	0
	135	Mulberry-White	Fair	Morus alba	10	0	0	0
	136	Mulberry-White	Fair	Morus alba	18	0	0	0
PROTECT	137	Boxelder	Fair	Acer negundo	15	0	0	0
PROTECT	138	Buckthorn-European	Poor	Rhamnus cathartica	6	4	0	0
PROTECT	139	Buckthorn-European	Poor	Rhamnus cathartica	6	0	0	0
PROTECT	140	Boxelder	Poor	Acer negundo	7	0	0	0
PROTECT	141	Boxelder	Fair	Acer negundo	10	0	0	0
PROTECT	142	Boxelder	Poor	Acer negundo	8	0	0	0
PROTECT	143	Mulberry-White	Fair	Morus alba	6	0	0	0
PROTECT	144	Oak-Bur	Fair	Quercus macrocarpa	37	0	0	0
PROTECT	145	Boxelder	Poor	Acer negundo	12	0	0	0
PROTECT	146	Boxelder	Poor	Acer negundo	7	0	0	0
	147	Boxelder	Fair	Acer negundo	15	0	0	0
	148	Boxelder	Fair	Acer negundo	8	0	0	0
	149	Mulberry-White	Fair	Morus alba	13	0	0	0
	150	Mulberry-White	Poor	Morus alba	11	0	0	0
	151	Locust-Black	Fair	Robinia pseudoacacia	16	0	0	0
PROTECT	152	Boxelder	Fair	Acer negundo	10	0	0	0
PROTECT	153	Boxelder	Good	Acer negundo	15	0	0	0
PROTECT	154	Boxelder	Fair	Acer negundo	15	0	0	0
PROTECT	155	Elm-American	Fair	Ulmus americana	35	0	0	0
PROTECT	156	Walnut-Black	Good	Juglans nigra	26	0	0	0
	157	Boxelder	Poor	Acer negundo	10	0	0	0
PROTECT	158	Locust-Black	Good	Robinia pseudoacacia	16.5	0.08	0	0
PROTECT	159	Locust-Black	Good	Robinia pseudoacacia	16.6	0.08	0	0
PROTECT	160	Locust-Black	Poor	Robinia pseudoacacia	16.8	0.07	0	0
PROTECT	161	Locust-Black	Fair	Robinia pseudoacacia	16.9	0.07	0	0
PROTECT	162	Locust-Black	Good	Robinia pseudoacacia	17	0.06	0	0
PROTECT	163	Locust-Black	Good	Robinia pseudoacacia	17.2	0.06	0	0
	164	Locust-Black	Fair	Robinia pseudoacacia	17.3	0.05	0	0
	165	Boxelder	Poor	Acer negundo	6	0	0	0
	166	Mulberry-White	Fair	Morus alba	17	0	0	0
	167	Buckthorn-European	Fair	Rhamnus cathartica	6	0	0	0
PROTECT	168	Mulberry-White	Good	Morus alba	9	0	0	0
PROTECT	169	Boxelder	Fair	Acer negundo	12	0	0	0
PROTECT	170	Boxelder	Fair	Acer negundo	14	0	0	0
PROTECT	171	Boxelder	Fair	Acer negundo	17	0	0	0
PROTECT	172	Mulberry-White	Fair	Morus alba	6	0	0	0
PROTECT	173	Mulberry-White	Good	Morus alba	11	0	0	0
PROTECT	174	Mulberry-White	Fair	Morus alba	11	0	0	0
PROTECT	175	Mulberry-White	Fair	Morus alba	6	0	0	0
PROTECT	176	Mulberry-White	Good	Morus alba	10	0	0	0
PROTECT	177	Mulberry-White	Fair	Morus alba	12	0	0	0
PROTECT	178	Boxelder	Fair	Acer negundo	19	0	0	0
PROTECT	179	Boxelder	Fair	Acer negundo	20	0	0	0
PROTECT	180	Maple-Silver	Fair	Acer saccharinum	10	5	0	0
PROTECT	181	Boxelder	Fair	Acer negundo	8	0	0	0
PROTECT	182	Mulberry-White	Poor	Morus alba	11	0	0	0
PROTECT	183	Boxelder	Fair	Acer negundo	10	0	0	0
PROTECT	184	Boxelder	Fair	Acer negundo	7	0	0	0
PROTECT	185	Boxelder	Fair	Acer negundo	14	0	0	0
PROTECT	186	Boxelder	Fair	Acer negundo	7	0	0	0
PROTECT	187	Mulberry-White	Poor	Morus alba	10	0	0	0
PROTECT	188	Boxelder	Poor	Acer negundo	10	0	0	0
	189	Boxelder	Poor	Acer negundo	12	0	0	0
	190	Boxelder	Poor	Acer negundo	8	0	0	0
	191	Mulberry-White	Fair	Morus alba	6	0	0	0
	192	Boxelder	Fair	Acer negundo	9	0	0	0
	193	Boxelder	Fair	Acer negundo	13	0	0	0
	194	Boxelder	Poor	`	15	0	0	0
	195	Mulberry-White	Fair	Morus alba	10	8	0	0
	196	Boxelder	Fair	Acer negundo	6	0	0	0
	197	Mulberry-White	Poor	`	15	13	0	0
	198	Mulberry-White	Fair	Morus alba	7	0	0	0
	199	Cherry-Black	Fair	Prunus serotina	15	0	0	0
	200	Mulberry-White	Good	Morus alba	17	0	0	0
	201	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	202	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	203	Locust-Black	Poor	Robinia pseudoacacia	7	0	0	0
	204	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	205	Boxelder	Fair	Acer negundo	8	6	0	0
	206	Boxelder	Fair	Acer negundo	7	6	0	0
	207	Boxelder	Fair	Acer negundo	6	4	0	0
	208	Boxelder	Fair	Acer negundo	6	4	0	0
	209	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	210	Locust-Black	Poor	Robinia pseudoacacia	13	0	0	0
	211	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	212	Locust-Black	Fair	Robinia pseudoacacia	25	0	0	0
	213	Locust-Black	Fair	Robinia pseudoacacia	30	0	0	0
	214	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	215	Locust-Black	Fair	Robinia pseudoacacia	13	0	0	0
	216	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	217	Elm-Siberian	Fair	Ulmus pumila	7	0	0	0
	218	Locust-Black	Fair	Robinia pseudoacacia	6	5	5	0
	219	Boxelder	Fair	Acer negundo	6	0	0	0
	220	Boxelder	Fair	Acer negundo	6	6	5	0
	221	Boxelder	Fair	Acer negundo	6	5	0	0
	222	Boxelder	Fair	Acer negundo	6	4	0	0
	223	Elm-Siberian	Fair	Ulmus pumila	7	0	0	0
	224	Elm-Siberian	Poor	Ulmus pumila	6	0	0	0
	225	Boxelder	Fair	Acer negundo	6	0	0	0
	226	Boxelder	Fair	Acer negundo	6	0	0	0
PROTECT	227	Boxelder	Fair	Acer negundo	8	0	0	0
PROTECT	228	Boxelder	Fair	Acer negundo	16	8	8	0
	229	Walnut-Black	Fair	Juglans nigra	6	0	0	0
	230	Boxelder	Fair	Acer negundo	6	4	4	0
	231	Boxelder	Fair	Acer negundo	6	0	0	0
	232	Boxelder	Fair	Acer negundo	6	5	5	5
	233	Boxelder	Fair	Acer negundo	6	0	0	0
	234	Elm-Siberian	Fair	Ulmus pumila	6	6	0	0
	235	Elm-Siberian	Fair	Ulmus pumila	6	6	5	0
	236	Boxelder	Fair	Acer negundo	6	0	0	0
	237	Boxelder	Fair	Acer negundo	6	0	0	0
	238	Boxelder	Poor	Acer negundo	6	5	0	0
PROTECT	239	Walnut-Black	Good	Juglans nigra	6	0	0	0
	240	Elm-American	Fair	Ulmus americana	6	0	0	0
	241	Elm-Siberian	Fair	Ulmus pumila	7	0	0	0
	242	Elm-Siberian	Fair	Ulmus pumila	6	6	0	0
	243	Boxelder	Fair	Acer negundo	7	4	4	3
	244	Boxelder	Fair	Acer negundo	6	0	0	0
	245	Boxelder	Fair	Acer negundo	6	0	0	0
	246	Elm-Siberian	Fair	Ulmus pumila	6	0	0	0
	247	Walnut-Black	Fair	Juglans nigra	6	0	0	0
	248	Walnut-Black	Fair	Juglans nigra	6	0	0	0
	249	Walnut-Black	Good	Juglans nigra	6	0	0	0
	250	Elm-American	Fair	Ulmus americana	9	0	0	0
	251	Mulberry-White	Fair	Morus alba	35	0	0	0
	252	Poplar-Eastern	Fair	Populus deltoides	17	0	0	0
	253	Mulberry-White	Fair	Morus alba	6	0	0	0
	254	Mulberry-White	Fair	Morus alba	16	0	0	0
	255	Mulberry-White	Fair	Morus alba	7	0	0	0
	256	Cherry-Black	Poor	Prunus serotina	14	0	0	0
	257	Cherry-Black	Poor	Prunus serotina	6	0	0	0
	258	Oak-Bur	Poor	Quercus macrocarpa	45	0	0	0
	259	Boxelder	Fair	Acer negundo	9	0	0	0
	260	Boxelder	Poor	Acer negundo	9	0	0	0
	261	Oak-Bur	Poor	Quercus macrocarpa	21	0	0	0
	262	Oak-Bur	Fair	Quercus macrocarpa	30	0	0	0
	263	Oak-Bur	Fair	Quercus macrocarpa	36	0	0	0
	264	Boxelder	Fair	Acer negundo	7	0	0	0
	265	Boxelder	Fair	Acer negundo	6	0	0	0
	266	Oak-Bur	Fair	Quercus macrocarpa	35	0	0	0
	267	Boxelder	Poor	Acer negundo	10	0	0	0
	268	Boxelder	Poor	Acer negundo	15	0	0	0
	269	Cherry-Black	Fair	Prunus serotina	14	14	0	0
	270	Boxelder	Fair	Acer negundo	15	0	0	0
PROTECT	271	Boxelder	Poor	Acer negundo	9	0	0	0
	272	Mulberry-White	Fair	Morus alba	6	0	0	0
	273	Mulberry-White	Good	Morus alba	6	0	0	0
	274	Boxelder	Fair	Acer negundo	8	0	0	0
	275	Boxelder	Fair	Acer negundo	17	0	0	0
	276	Boxelder	Good	Acer negundo	7	0	0	0
	277	Boxelder	Fair	Acer negundo	12	0	0	0
	278	Boxelder	Poor	Acer negundo	8	0	0	0
	279	Boxelder	Good	Acer negundo	19	0	0	0
	280	Cherry-Black	Good	Prunus serotina	3	0	0	0
PROTECT	281	Boxelder	Poor	Acer negundo	19	0	0	0
PROTECT	282	Boxelder	Poor	Acer negundo	15	0	0	0
PROTECT	283	Cherry-Black	Good	Prunus serotina	5	0	0	0
PROTECT	284	Cherry-Black	Fair	Prunus serotina	7	0	0	0
PROTECT	285	Boxelder	Dead	Acer negundo	10	0	0	0
	286	Boxelder	Poor	Acer negundo	6	0	0	0
	287	Boxelder	Fair	Acer negundo	7	0	0	0
	288	Boxelder	Poor	Acer negundo	6	0	0	0
	289	Boxelder	Fair	Acer negundo	7	0	0	0
	290	Oak-Bur	Fair	Quercus macrocarpa	33	0	0	0
	291	Boxelder	Poor	Acer negundo	7	0	0	0
	292	Boxelder	Poor	Acer negundo	8	0	0	0
	293	Mulberry-White	Fair	Morus alba	6	0	0	0
	294	Boxelder	Fair	Acer negundo	22	0	0	0
	295	Mulberry-White	Fair	Morus alba	20	0	0	0
	296	Mulberry-White	Poor	Morus alba	20	0	0	0
	297	Mulberry-White	Poor	Morus alba	6	0	0	0
	298	Boxelder	Poor	Acer negundo	19	0	0	0
	299	Mulberry-White	Fair	Morus alba	8	0	0	0
	300	Mulberry-White	Poor	Morus alba	30	0	0	0
	301	Locust-Black	Fair	Robinia pseudoacacia	16	15	6	0
	302	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	303	Walnut-Black	Good	Juglans nigra	6	0	0	0
	304	Elm-Siberian	Poor	Ulmus pumila	6	0	0	0
	305	Locust-Black	Poor	Robinia pseudoacacia	7	0	0	0
	306	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	307	Locust-Black	Good	Robinia pseudoacacia	10	0	0	0
	308	Boxelder	Fair	Acer negundo	6	5	0	0
	309	Boxelder	Fair	Acer negundo	6	0	0	0
	310	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	311	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	312	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	313	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	314	Locust-Black	Fair	Robinia pseudoacacia	25	0	0	0
	315	Locust-Black	Fair	Robinia pseudoacacia	15	0	0	0
	316	Boxelder	Poor	Acer negundo	9	0	0	0
	317	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	318	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	319	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	320	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	321	Locust-Black	Fair	Robinia pseudoacacia	9	0	0	0
	322	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	323	Locust-Black	Fair	Robinia pseudoacacia	8	7	6	0
	324	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	325	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	326	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	327	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	328	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	329	Locust-Black	Fair	Robinia pseudoacacia	8	7	0	0
	330	Pear-Callery	Good	Pyrus calleryana	7	0	0	0
	331	Elm-Siberian	Good	Ulmus pumila	8	0	0	0
	332	Locust-Black	Poor	Robinia pseudoacacia	20	0	0	0
	333	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	334	Locust-Black	Poor	Robinia pseudoacacia	13	0	0	0
	335	Locust-Black	Fair	Robinia pseudoacacia	26	0	0	0
	336	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	337	Locust-Black	Fair	Robinia pseudoacacia	9	0	0	0
	338	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	339	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	340	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	341	Locust-Black	Fair	Robinia pseudoacacia	14	0	0	0
	342	Locust-Black	Fair	Robinia pseudoacacia	11	0	0	0
	343	Boxelder	Fair	Acer negundo	8	0	0	0
	344	Locust-Black	Fair	Robinia pseudoacacia	17	0	0	0
	345	Locust-Black	Fair	Robinia pseudoacacia	20	0	0	0
	346	Locust-Black	Fair	Robinia pseudoacacia	30	0	0	0
	347	Boxelder	Poor	Acer negundo	10	0	0	0
	348	Boxelder	Poor	Acer negundo	10	7	0	0
	349	Locust-Black	Fair	Robinia pseudoacacia	13	0	0	0
	350	Locust-Black	Fair	Robinia pseudoacacia	13	0	0	0
	351	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	352	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	353	Locust-Black	Fair	Robinia pseudoacacia	12	0	0	0
	354	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	355	Locust-Black	Dead	Robinia pseudoacacia	8	0	0	0
	356	Boxelder	Fair	Acer negundo	6	0	0	0
	357	Boxelder	Poor	Acer negundo	8	0	0	0
	358	Boxelder	Fair	Acer negundo	6	0	0	0
	359	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	360	Locust-Black	Fair	Robinia pseudoacacia	12	8	0	0
	361	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	362	Locust-Black	Good	Robinia pseudoacacia	10	0	0	0
	363	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	364	Locust-Black	Fair	Robinia pseudoacacia	7	0	0	0
	365	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	366	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	367	Locust-Black	Good	Robinia pseudoacacia	11	0	0	0
	368	Locust-Black	Poor	Robinia pseudoacacia	6	0	0	0
	369	Locust-Black	Fair	Robinia pseudoacacia	9	6	0	0
	370	Locust-Black	Fair	Robinia pseudoacacia	10	6	0	0
	371	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	372	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	373	Locust-Black	Good	Robinia pseudoacacia	13	7	0	0
	374	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	375	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	376	Locust-Black	Good	Robinia pseudoacacia	16	0	0	0
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	378	Locust-Black	Fair	Robinia pseudoacacia	15	14	6	0
	379	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
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	383	Locust-Black	Fair	Robinia pseudoacacia	8	5	5	0
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	387	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	388	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	389	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	390	Locust-Black	Fair	Robinia pseudoacacia	8	0	0	0
	391	Locust-Black	Fair	Robinia pseudoacacia	10	0	0	0
	392	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	393	Elm-American	Fair	Ulmus americana	12	0	0	0
	394	Mulberry-White	Good	Morus alba	6	0	0	0
	395	Boxelder	Poor	Acer negundo	8	0	0	0
	396	Boxelder	Fair	Acer negundo	10	8	0	0
	397	Mulberry-White	Poor	Morus alba	21	0	0	0
	398	Boxelder	Fair	Acer negundo	13	0	0	0
	399	Locust-Black	Fair	Robinia pseudoacacia	38	0	0	0
	400	Locust-Black	Good	Robinia pseudoacacia	30	0	0	0
	401	Cherry-Black	Good	Prunus serotina	10	0	0	0
	402	Maple-Sugar	Good	Acer saccharum	7	0	0	0
	403	Boxelder	Poor	Acer negundo	15	0	0	0
	404	Boxelder	Fair	Acer negundo	14	0	0	0
	405	Boxelder	Fair	Acer negundo	7	0	0	0
	406	Locust-Black	Fair	Robinia pseudoacacia	27	0	0	0
	407	Boxelder	Fair	Acer negundo	6	0	0	0
	408	Locust-Black	Fair	Robinia pseudoacacia	21	0	0	0
	409	Mulberry-White	Poor	Morus alba	15	15	0	0
	410	Buckthorn-European	Good	Rhamnus cathartica	6	0	0	0
	411	Buckthorn-European	Good	Rhamnus cathartica	6	0	0	0
	412	Buckthorn-European	Good	Rhamnus cathartica	6	0	0	0
	413	Buckthorn-European	Good	Rhamnus cathartica	6	0	0	0
	414	Boxelder	Good	Acer negundo	6	0	0	0
PROTECT	415	Boxelder	Good	Acer negundo	34	0	0	0
	416	Mulberry-White	Fair	Morus alba	6	0	0	0
	417	Boxelder	Good	Acer negundo	6	0	0	0
	418	Mulberry-White	Fair	Morus alba	11	0	0	0
	419	Mulberry-White	Fair	Morus alba	10	0	0	0
	420	Mulberry-White	Poor	Morus alba	10	0	0	0
	421	Mulberry-White	Poor	Morus alba	14	0	0	0
	422	Mulberry-White	Fair	Morus alba	9	0	0	0
	423	Mulberry-White	Poor	Morus alba	15	0	0	0
	424	Boxelder	Fair	Acer negundo	17	0	0	0
	425	Locust-Black	Fair	Robinia pseudoacacia	28	0	0	0
	426	Locust-Black	Fair	Robinia pseudoacacia	20	0	0	0
	427	Mulberry-White	Poor	Morus alba	16	14	0	0
	428	Mulberry-White	Poor	Morus alba	8	0	0	0
	429	Mulberry-White	Dead	Morus alba	8	0	0	0
	430	Mulberry-White	Fair	Morus alba	8	0	0	0
	431	Locust-Black	Fair	Robinia pseudoacacia	27	0	0	0
	432	Boxelder	Poor	Acer negundo	9	0	0	0
	433	Boxelder	Fair	Acer negundo	15	0	0	0
	434	Boxelder	Fair	Acer negundo	15	0	0	0
	435	Buckthorn-European	Fair	Rhamnus cathartica	6	0	0	0
	436	Boxelder	Poor	Acer negundo	10	0	0	0
	437	Mulberry-White	Fair	Morus alba	7	0	0	0
	438	Mulberry-White	Poor	Morus alba	17	0	0	0
	439	Mulberry-White	Fair	Morus alba	10	0	0	0
	440	Locust-Black	Fair	Robinia pseudoacacia	30	0	0	0
	441	Locust-Black	Fair	Robinia pseudoacacia	23	0	0	0
	442	Mulberry-White	Good	Morus alba	6	0	0	0
	443	Mulberry-White	Good	Morus alba	14	0	0	0
	444	Locust-Black	Fair	Robinia pseudoacacia	33	0	0	0
	445	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	446	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	447	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	448	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	449	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	450	Locust-Black	Fair	Robinia pseudoacacia	6	0	0	0
	451	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	452	Locust-Black	Good	Robinia pseudoacacia	6	0	0	0
	453	Locust-Black	Good	Robinia pseudoacacia	23	19	0	0
	454	Walnut-Black	Good	Juglans nigra	6	0	0	0
	455	Pear-Callery	Good	Pyrus calleryana	6	0	0	0

ALL TREES SHALL BE REMOVED ON SITE, EXCEPT FOR BOXED TREES WHICH SHALL BE PROTECTED AND REMAIN ON SITE.

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ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
TREE DATA TABLE

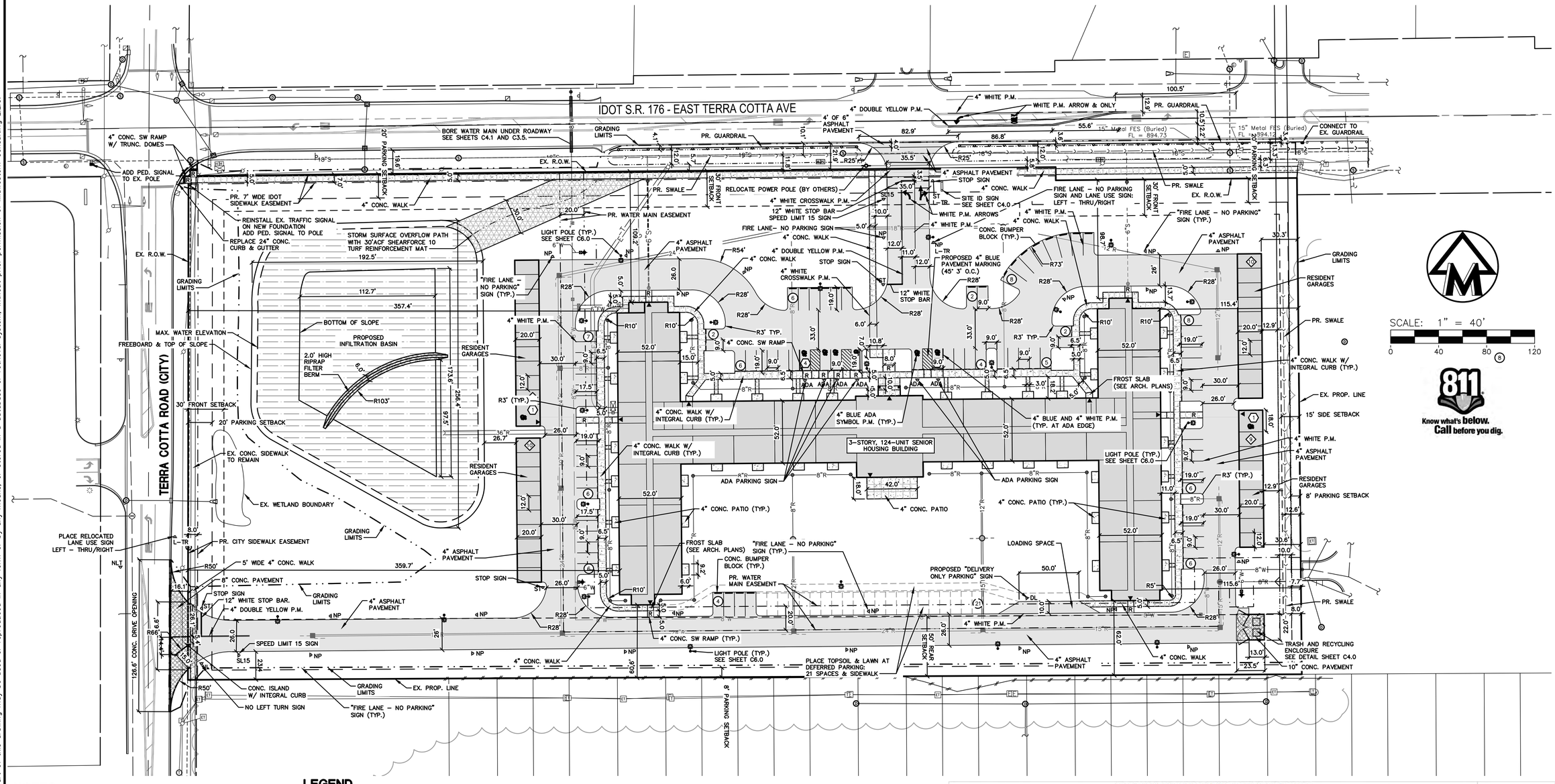
C1.2

DATE: 12/9/2021
SHEET 5 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216EX1.DWG

JOB No. 21216

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/02/21
IDOT SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

M:\Civil3d_Proj\21216\Site Plan\21216EX1.dwg, 12/23/2021 10:48 AM, Jeremy A. Matthei, C1.2 TREE DATA TABLE, MCLLC PDF.pc3
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NOTES

1. WORK IN STATE ROUTE 172 RIGHT–OF–WAY, AND AT THE INTERSECTION OF S.R. 172 AND TERRA COTTA ROAD, SHALL BE PERMITTED AND APPROVED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
2. WORK IN THE TERRA COTTA ROAD RIGHT–OF–WAY SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE.
3. ALL PAVEMENT MARKINGS AND SIGNS SHALL COMPLY WITH THE 2009 MUTCD AND 2016 IDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. PAVEMENT MARKINGS SHALL BE WATERBORNE UNLESS REQUESTED OTHERWISE BY THE CITY OF CRYSTAL LAKE OR IDOT.

LEGEND

	ASPHALT ROADWAY	U.P.	EXIST. UTILITY POLE
	CONCRETE SIDEWALK	PROP. TRANSFORMER	
	CONCRETE PATIO	OH	EXIST. OVERHEAD UTILITY LINE
	CONCRETE PAVEMENT	PROP. LIGHT POLE	
	BUILDING	t	EXIST. TELEPHONE LINE
	RESIDENT GARAGES	T	PROP. TELEPHONE LINE
		e	EXIST. ELECTRIC LINE
		E	PROP. ELECTRIC LINE
		g	EXIST. GAS LINE
		G	PROP. GAS LINE
		f.o.	EXIST. FIBER OPTIC LINE
		F.O.	PROP. FIBER OPTIC LINE
		w	EXIST. WATER MAIN
		W	PROP. WATER MAIN
			EXIST. HYDRANT
			PROP. HYDRANT
			EXIST. GATE VALVE IN BOX
			PROP. GATE VALVE IN BOX
			EXIST. GATE VALVE IN WELL
			PROP. GATE VALVE IN WELL
		r	EXIST. STORM SEWER
		R	PROP. STORM SEWER
			EXIST. CATCH BASIN OR INLET
			PROP. CATCH BASIN OR INLET
			PROP. BEEHIVE INLET
			END SECTION
		s	EXIST. SANITARY SEWER
		S	PROP. SANITARY SEWER

R	SIDEWALK RAMP
P	SIGN
NP	FIRE LANE – NO PARKING SIGN
ST	STOP SIGN
ADA	ADA PARKING SIGN
NLT	NO LEFT TURN SIGN
DL	DELIVERY ONLY PARKING SIGN
SL15	SPEED LIMIT 15 SIGN
ped	PEDESTRIAN CROSSING SIGNAL
W	WELL
	FENCE
	TREE OR BRUSH LIMIT
	PROP. C/L OF SWALE
	PROP. GUARDRAIL
	PROP. SIDEWALK EASEMENT
	PROP. PARKING SETBACK
	PROP. SETBACK
	PROP. WATER MAIN EASEMENT
	PROP. BUMPER BLOCK
	GRADING LIMITS
	WETLAND LIMITS
0	NUMBER OF PARKING SACES
0	NUMBER OF HANDICAP PARKING SPACES
0	NUMBER OF GARAGE PARKING SPACES
	SECTION CORNER

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in–service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

DEVELOPMENT SUMMARY AND COMPARISON CHART

Zoning Classification	**B-2-PUD (General Commercial)---Proposed Rezoning to R-3B-PUD (Multi-Family Residential)**
Number of Units	124 Units Total: 4 1-bedroom + 119 2-bedroom

SITE INFORMATION	Requirement	Calculated Requirement	Provided	Variance Requested
Minimum Lot Area	1,400 + 4,000/unit	1,400 + 4,000 x 124 = 497,400 sft = 11.42 ac	388,932 sft = 8.93 ac	108,468 sft = 2.49 ac
Minimum Lot Width	50 + 10/unit	50 + 10 x 124 = 1,290 ft	924 ft	366 ft
Dwelling Unit Density	9.0 units/acre	9.0 units/acre	124 units / 8.93 ac = 13.9 units/ac	4.9 unit/ac
Front Setback	30 ft	30 ft	98.7 ft	---
Side Setback	15 ft	15 ft	30.3 ft	---
Rear Setback	50 ft (abutting 1-family homes)	50 ft	60.6 ft	---
Maximum Building Lot Coverage	30% of site	30%	44,515 sft + 9,840 sft garages = 54,355 sft total / 388,932 = 14.0%	---
Maximum Impervious Lot Coverage	65% of site	65%	54,355 sft roof + 95,221 pvmt + 6,566 deferred parking = 107,222 sft / 388932 = 27.6%	---
Maximum Building Height	36 ft	36 ft	35 ft	---
Maximum Stories	N/A	N/A	3 stories	---
Total Building Floor Area	N/A		133,545 sft + 9,840 sft garages = 143,385 sft total	---
Floor Area Ratio (FAR)	0.6 maximum	0.6	143,385 / 388,932 = 0.37	---
Minimum Apartment Area	N/A	N/A	678 sft (1 BR), 778-910 (2 BR)	---
Vehicle Parking (Multi-Family Residential)	1.5/ 1BR unit, 2.25 / 2BR unit	1.5 x 4 1BR + 2.25 x 119 2BR = 274	124 total (84 surface + 40 garage) Add'l 21 deferred spaces (145 total)	129 spaces
ADA Parking Spaces Required	ADA Chart	5 ADA spaces for 101-150 (1 to be van space)	8 van spaces provided (6 surface + 2 garage)	---
Loading Space	1 space	1 space	1 provided	---

M:\Civil3d_Proj\21216\Site Plan\21216SP1.dwg, 12/23/2021 10:49 AM, Jeremy A. Mathiel, C2.0 SITE LAYOUT AND PAVING PLAN, MCLLC PDF.pc3
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ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC
SITE PLAN FOR PLANNING COMMISSION
SITE LAYOUT AND PAVING PLAN

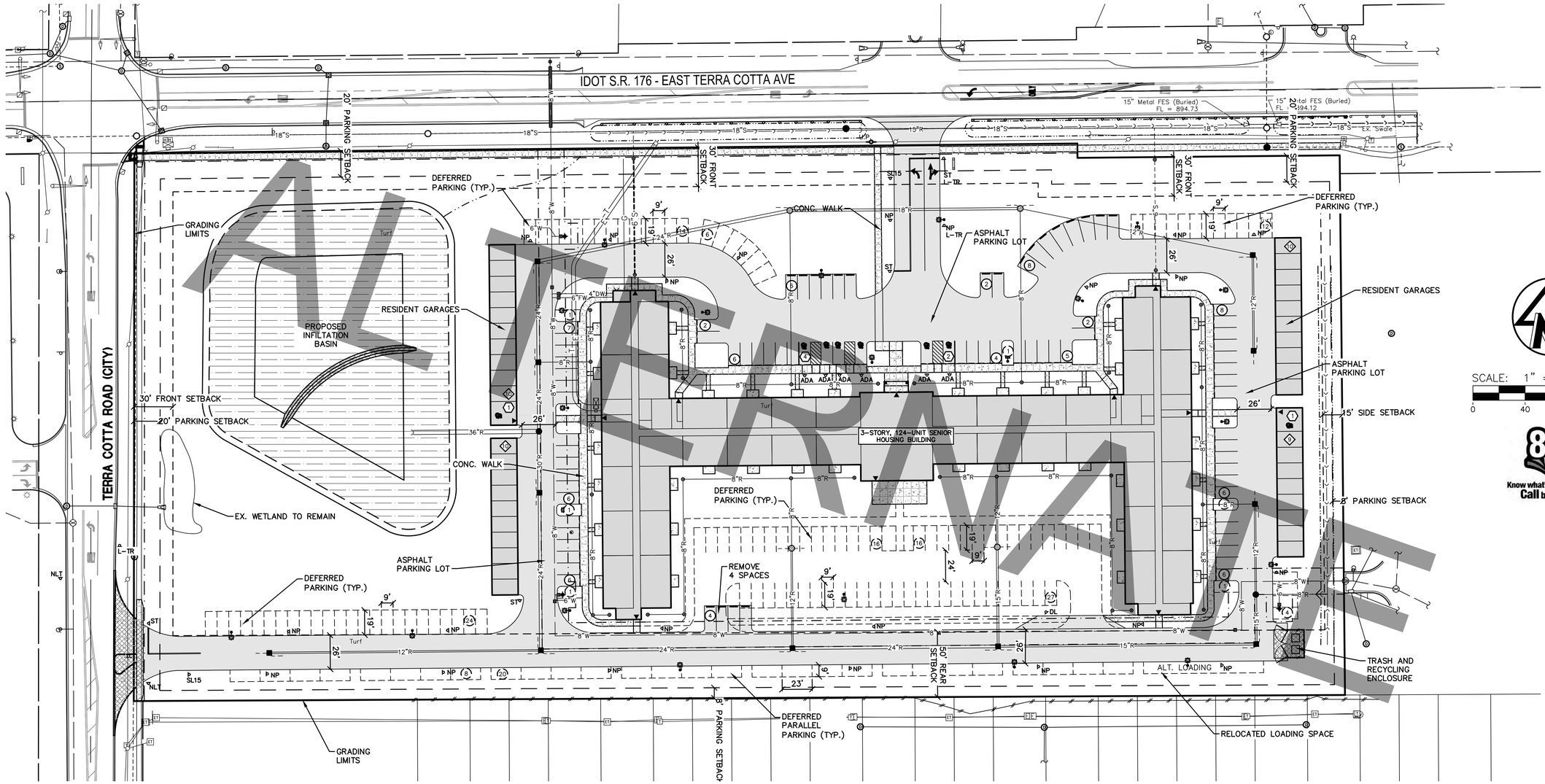
C2.0

JOB No. 21216

ISSUED:	DATE: 12/22/2021
SITE PLAN SUBMITTAL 1	SHEET 6 OF 37
SITE SUBMITTAL 1	CADD: JRB
SITE PLAN SUBMITTAL 2	ENG: JAM
	PM: RCW
	TECH:

REV.	DATE
1	11/17/21
2	12/23/21

21216SP1.DWG



SCALE: 1" = 40'

0 40 80 120

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NOTES

1. THIS PLAN SHOWS AN ALTERNATE SET OF DEFERRED PARKING AREAS THAT REACHES AN INCREASED NUMBER OF 265 SPACES. CLOVER CONSTRUCTION WISHES TO INDICATE THAT IT IS PHYSICALLY POSSIBLE TO PLACE 265 PARKING SPACES ON THE SITE, BUT THAT THEY ARE CONFIDENT FROM PREVIOUS EXPERIENCE THAT 120 SPACES ARE ADEQUATE. IN ORDER TO REASSURE THE CITY OF CRYSTAL LAKE THAT ADDITIONAL PARKING WILL BE ADDED IF REQUIRED, THEY ARE PROPOSING THE 21' DEFERRED SPACES SHOWN ON SHEET C2.0 TO BE INSTALLED IF DEMAND REQUIRES IT, AS A MORE PRACTICAL ALTERNATIVE TO THE FULL PARKING LOT SHOWN IN THE COURTYARD IN THIS EXHIBIT.

2. THE ONLY DIFFERENCES BETWEEN THE LAYOUT ON THIS SHEET AND IN THE MAIN LAYOUT SHEET C2.0 ARE THE DEFERRED PARKING SPACES --ALL OTHER PAVED AREAS, BUILDING AREAS, DIMENSIONS, AND NOTES ARE EQUIVALENT.

LEGEND

- ASPHALT ROADWAY
- CONCRETE SIDEWALK
- CONCRETE PAVEMENT
- BUILDING
- U.P. — EXIST. UTILITY POLE
- OHE — EXIST. OVERHEAD UTILITY LINE
- T — EXIST. TELEPHONE LINE
- E — EXIST. ELECTRIC LINE
- G — EXIST. GAS LINE
- FO — EXIST. FIBER OPTIC LINE
- W — EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- r — EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- s — EXIST. SANITARY SEWER
- PEDESTRIAN CROSSING SIGNAL
- FIRE LANE – NO PARKING SIGN
- SECTION CORNER
- GRADING LIMITS
- WETLAND LIMITS
- W — PROP. WATER MAIN
- PROP. HYDRANT
- PROP. GATE VALVE IN BOX
- R — PROP. STORM SEWER
- PROP. CATCH BASIN OR INLET
- PROP. BEEHIVE INLET
- S — PROP. SANITARY SEWER

DEVELOPMENT SUMMARY AND COMPARISON CHART (ALTERNATE)

Zoning Classification	**B-2-PUD (General Commercial)---Proposed Rezoning to R-3B-PUD (Multi-Family Residential)**			
Number of Units	124 Units Total: 4 1-bedroom + 119 2-bedroom			
SITE INFORMATION	**Requirement**	**Calculated Requirement**	**Provided**	**Variance Requested**
Minimum Lot Area	1,400 + 4,000/unit	1,400 + 4,000 x 124 = 497,400 sft = 11.42 ac	388,932 sft = 8.93 ac	108,468 sft = 2.49 ac
Minimum Lot Width	50 + 10/unit	50 + 10 x 124 = 1,290 ft	924 ft	366 ft
Dwelling Unit Density	9.0 units/acre	9.0 units/acre	124 units / 8.93 ac = 13.9 units/ac	4.9 unit/ac
Front Setback	30 ft	30 ft	98.7 ft	---
Side Setback	15 ft	15 ft	30.3 ft	---
Rear Setback	50 ft (abutting 1-family homes)	50 ft	60.6 ft	---
Maximum Building Lot Coverage	30% of site	30%	44,515 sft + 9,840 sft garages =	---
			54,355 sft total / 388,932 = 14.0%	
Maximum Impervious Lot Coverage	65% of site	65%	54,355 sft roof + 95,221 pvmt	---
			+ 39,950 deferred parking =	
			189,526 sft / 388,932 = 48.7%	
Maximum Building Height	36 ft	36 ft	35 ft	---
Maximum Stories	N/A	N/A	3 stories	---
Total Building Floor Area	N/A		133,545 sft + 9,840 sft garages =	---
			143,385 sft total	---
Floor Area Ratio (FAR)	0.6 maximum	0.6	143,385 / 388,932 = 0.37	---
Minimum Apartment Area	N/A	N/A	678 sft (1 BR), 778-910 (2 BR)	---
Vehicle Parking (Multi-Family Residential)	1.5/ 1BR unit, 2.25 / 2BR unit	1.5 x 4 1BR + 2.25 x 119 2BR = 274	124 total (84 surface + 40 garage)	9 spaces
			Add'l 141 deferred spaces (265 total)	
ADA Parking Spaces Required	ADA Chart	7 ADA spaces for 201-300 (2 to be van space)	8 van spaces provided	---
			(6 surface + 2 garage)	
Loading Space	1 space	1 space	1 provided	---

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M:\Civil3d_Proj\21216\Site Plan\21216SP1A.dwg, 12/23/2021 10:49 AM, Jeremy A. Mattheï, C2.1 ALTERNATE SITE 265 PARKING SPACES, MCULC PDF.pc3
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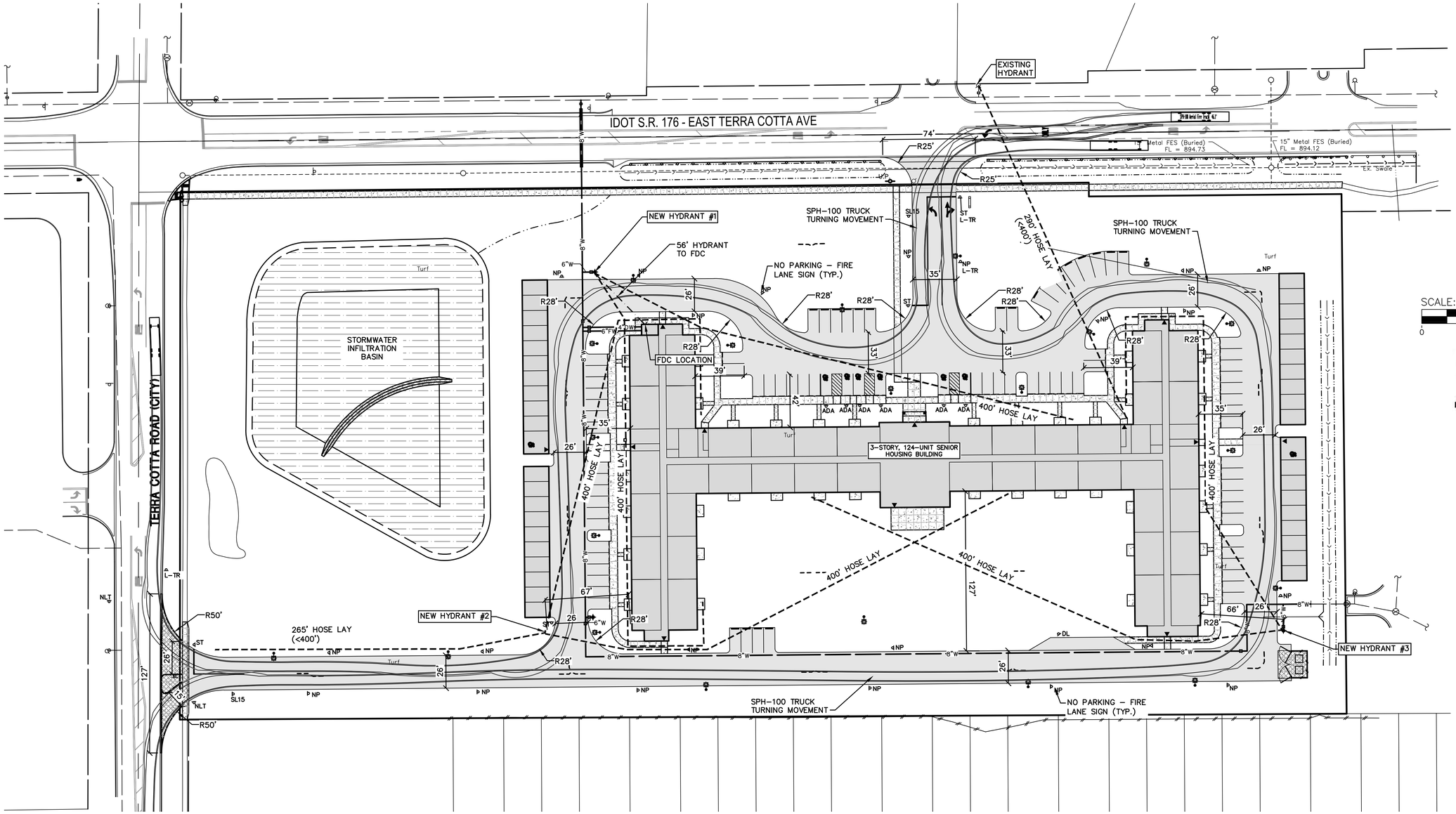
SITE PLAN FOR PLANNING COMMISSION
ALTERNATE SITE 265 PARKING SPACES

C2.1

DATE: 12/21/2021
SHEET 7 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216SP1A.DWG

JOB No. 21216

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	



NOTES

PROJECT MEETS 2021 INTERNATIONAL FIRE CODE

ALL EXTERIOR WALLS OF BUILDING ARE WITHIN 150' OF PAVED PARKING LOT DRIVES DESIGNED TO HANDLE THE WEIGHT OF A FIRE TRUCK. THIS LOOPED PARKING LOT CONNECTS ON THE NORTH SIDE OF THE SITE TO ILLINOIS STATE ROUTE 76, AND ON THE WEST SIDE OF THE SITE TO TERRA COTTA ROAD.

THE BUILDING IS LESS THAN 30 FEET TO THE EAVES OF THE ROOF (CEILING OF THE TOP FLOOR) AND THUS IS NOT REQUIRED TO MEET THE REQUIREMENTS FOR AERIAL FIRE ROADS. HOWEVER, IT MEETS THESE FIRE ROAD REQUIREMENTS ANYWAY AS THE PARKING LOT DRIVE IS 26' WIDE, AND THE WEST AND EAST SIDES OF THE BUILDING ARE ALL BETWEEN 15' AND 30' FROM THE PARKING LOT DRIVE AISLE. THE NORTH AND SOUTH SIDES ARE WITHIN 150' AS MENTIONED ABOVE.

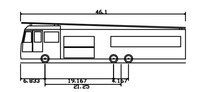
THIS PROJECT SITE HAS NO DEAD-END DRIVES.

ALL EXTERIOR WALLS OF THE BUILDING FALL WITHIN A 400' HOSE LAY OF A FIRE HYDRANT.

THE BUILDING IS FULLY SPRINKLED, AND THE FDC IS LESS THAN 100' FROM THE NEAREST FIRE HYDRANT. ALL HYDRANTS ARE ALSO LOCATED GREATER THAN 45' AWAY (1.5 X BUILDING HEIGHT) FROM THE BUILDING WALL

ALL HYDRANTS MAY BE ISOLATED FROM EACHOTHER, AND FROM THE BUILDING'S FIRE LEAD CONNECTION, THROUGH VALVES.

WITH PROPER ISOLATION AND CLOSING OF VALVES, NO MORE THAN ONE HYDRANT WOULD BE REMOVED FROM SERVICE.



SPH-100 Aerial Fire Truck 46.1'

Overall Length	46.100ft
Overall Width	7.800ft
Overall Body Height	11.692ft
Min Body Ground Clearance	1.083ft
Max Track Width	6.583ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	36.30°

FIRE TRUCK TURNING MOVEMENT TEMPLATE TRUCK

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M:\Civil\3d_Proj\21216\Site Plan\21216P1.dwg, 12/23/2021 10:50 AM, Jeremy A. Mettler, C2.2 SITE FIRE PROTECTION PLAN, MCLLC PDF.pc3
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SITE PLAN FOR PLANNING COMMISSION
SITE FIRE PROTECTION PLAN

C2.2

DATE: 12/21/2021
SHEET 8 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216P1.DWG

JOB No. 21216

ISSUED:	REV. DATE
SUBMITTAL 1	11/17/21
SUBMITTAL 1	12/23/21
SITE PLAN SUBMITTAL 2	

LEGEND

ASPHALT ROADWAY	EXIST. CONTOUR
CONCRETE SIDEWALK	PROP. CONTOUR
CONCRETE PATIO	EXIST. UTILITY POLE
CONCRETE PAVEMENT	PROP. TRANSFORMER
BUILDING	EXIST. OVERHEAD UTILITY LINE
RESIDENT GARAGES	PROP. LIGHT POLE
	EXIST. TELEPHONE LINE
	PROP. TELEPHONE LINE
	EXIST. ELECTRIC LINE
	PROP. ELECTRIC LINE
	EXIST. GAS LINE
	PROP. GAS LINE
	EXIST. FIBER OPTIC LINE
	PROP. FIBER OPTIC LINE
	EXIST. WATER MAIN
	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. STORM SEWER
	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
	PROP. BEEHIVE INLET
	CULVERT
	EXIST. SANITARY SEWER
	PROP. SANITARY SEWER
	FENCE
	TREE OR BRUSH LIMIT
	PROP. C/L OF SWALE
	PROP. GUARDRAIL
	PROP. BUMPER BLOCK
	GRADING LIMITS

APPROXIMATE EARTHWORK QUANTITIES:
372,554 SFT (8.55 AC) DISTURBED
15,450 CYD CUT
x 1.1 EXPANSION FACTOR = 16,995 CYD CUT
28,405 CYD FILL
11,410 CYD NET FILL
[APPROXIMATE 0.8' AVERAGE FILL OVER SITE]

CALCULATIONS HERE ARE SURFACE-TO-SURFACE
ALSO ASSUME ON SITE:
1.0' AVERAGE FILL FOR PAVEMENTS, BASES, TRENCH BACKFILL
[13,800 CYD]

811 Know what's below. Call before you dig.

SCALE: 1" = 30'
0 30 60 90

IDOT S.R. 176 - EAST TERRA COTTA AVE

TERRA COTTA ROAD (CITY)

CONSTRUCT SWALE ALONG S.R. 176

CONSTRUCT SWALE ALONG S.R. 176 CONNECT TO EX. SWALE

15" Metal FES (Buried) FL = 894.73

15" Metal FES (Buried) FL = 894.12

EMERGENCY STORMWATER SURFACE OVERFLOW PATH

100-YEAR STORM VOLUME 185,900 CFT ELEV. 895.04 FT

2-YEAR STORM VOLUME 50,171 CFT ELEV. 890.57 FT

Sag Elev = 915.53

3 STORY 124 UNITS

STORAGE

ELEC/ MECH

STOR.

STAIR

CORR

STO

TR

GRADING LIMITS

R.O.W.

TOP OF BANK EL: 896.00

TOP OF BERM EL: 890.00

BOTTOM OF BASIN EL: 888.00

BOTTOM OF FOREBAY EL: 888.00

PROP. LINE

Drip Line

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M:\Civil\3d_Pro\21216\Site Plan\21216GP1.dwg, 12/23/2021 10:50 AM, Jeremy A. Walthel, C3.0 GRADING PLAN, MCLLC PDF.pc3
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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
GRADING PLAN

C3.0

JOB No. 21216

ISSUED:	DATE: 12/22/2021
SITE PLAN SUBMITTAL 1	SHEET 9 OF 37
SITE PLAN SUBMITTAL 2	REV. DATE
SITE PLAN SUBMITTAL 2	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216GP1.DWG

LEGEND

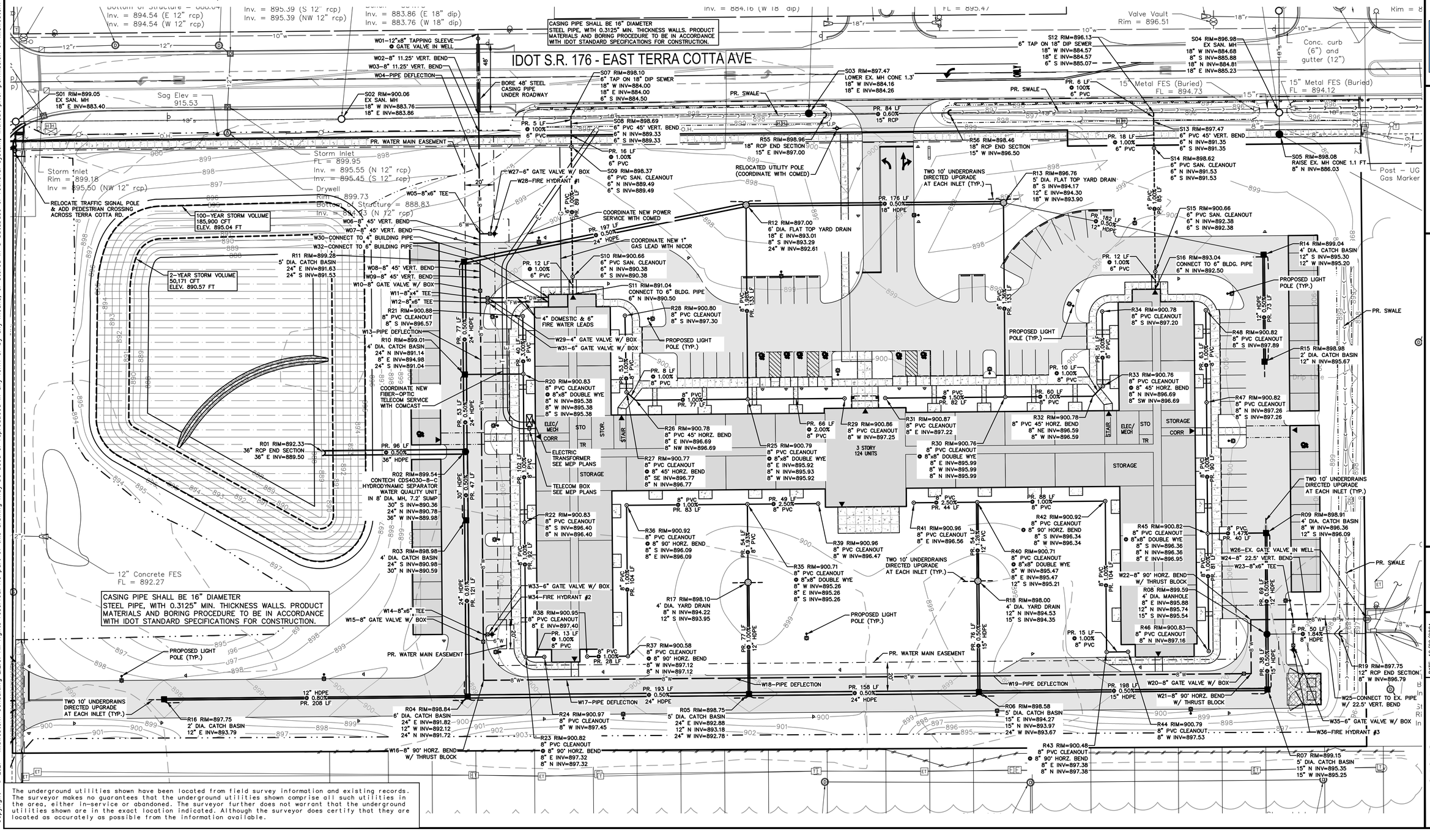
ASPHALT ROADWAY	EXIST. UTILITY POLE	EXIST. GATE VALVE IN BOX	NLT	NO LEFT TURN SIGN
CONCRETE SIDEWALK	PROP. TRANSFORMER	PROP. GATE VALVE IN BOX	DL	DELIVERY ONLY PARKING SIGN
CONCRETE PATIO	EXIST. OVERHEAD UTILITY LINE	EXIST. GATE VALVE IN WELL	SL15	SPEED LIMIT 15 SIGN
CONCRETE PAVEMENT	PROP. LIGHT POLE	PROP. GATE VALVE IN WELL	PED	PEDESTRIAN CROSSING SIGNAL
BUILDING	EXIST. TELEPHONE LINE	EXIST. STORM SEWER		WELL
RESIDENT GARAGES	PROP. TELEPHONE LINE	PROP. STORM SEWER		FENCE
	EXIST. ELECTRIC LINE	EXIST. CATCH BASIN OR INLET		
	PROP. ELECTRIC LINE	PROP. CATCH BASIN OR INLET		TREE OR BRUSH LIMIT
	EXIST. GAS LINE	PROP. BEEHIVE INLET		
	PROP. GAS LINE	CULVERT		PROP. C/L OF SWALE
	EXIST. FIBER OPTIC LINE	EXIST. SANITARY SEWER		PROP. GUARDRAIL
	PROP. FIBER OPTIC LINE	PROP. SANITARY SEWER		PROP. SIDEWALK EASEMENT
	EXIST. WATER MAIN	SIGN		PROP. WATER MAIN EASEMENT
	PROP. WATER MAIN	FIRE LANE – NO PARKING SIGN		PROP. BUMPER BLOCK
	EXIST. HYDRANT	STOP SIGN		
	PROP. HYDRANT	ADA PARKING SIGN		PROP. 10' UNDERDRAIN AT STORM INLETS

NOTES

1. WORK IN STATE ROUTE 172 RIGHT–OF–WAY, AND AT THE INTERSECTION OF S.R. 172 AND TERRA COTTA ROAD, SHALL BE PERMITTED AND APPROVED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
2. WORK IN THE TERRA COTTA ROAD RIGHT–OF–WAY SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE.
3. ALL WATER MAIN CONSTRUCTION AND SANITARY SEWER CONNECTIONS SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE. THE STORM SEWER TIE–IN SHALL BE PERMITTED AND APPROVED THROUGH THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

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SCALE: 1" = 30'
0 30 60 90



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M:\Civil\36_Proj\21216\Site Plan\21216UP1.dwg, 12/23/2021 10:51 AM, Jeremy A. Mathiesen, C3.1 UTILITY PLAN, MCLC PDF.pc3
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SITE PLAN FOR PLANNING COMMISSION
UTILITY PLAN

C3.1

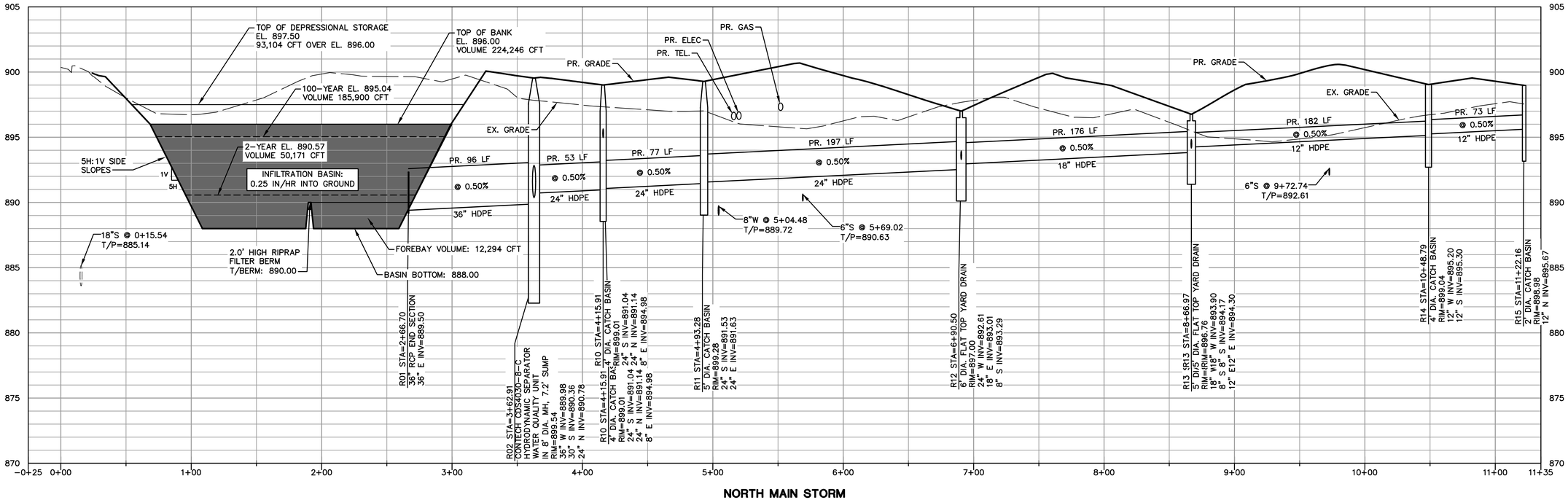
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ISSUED:
SITE PLAN SUBMITTAL 1
SITE PLAN SUBMITTAL 2
PLAN SUBMITTAL

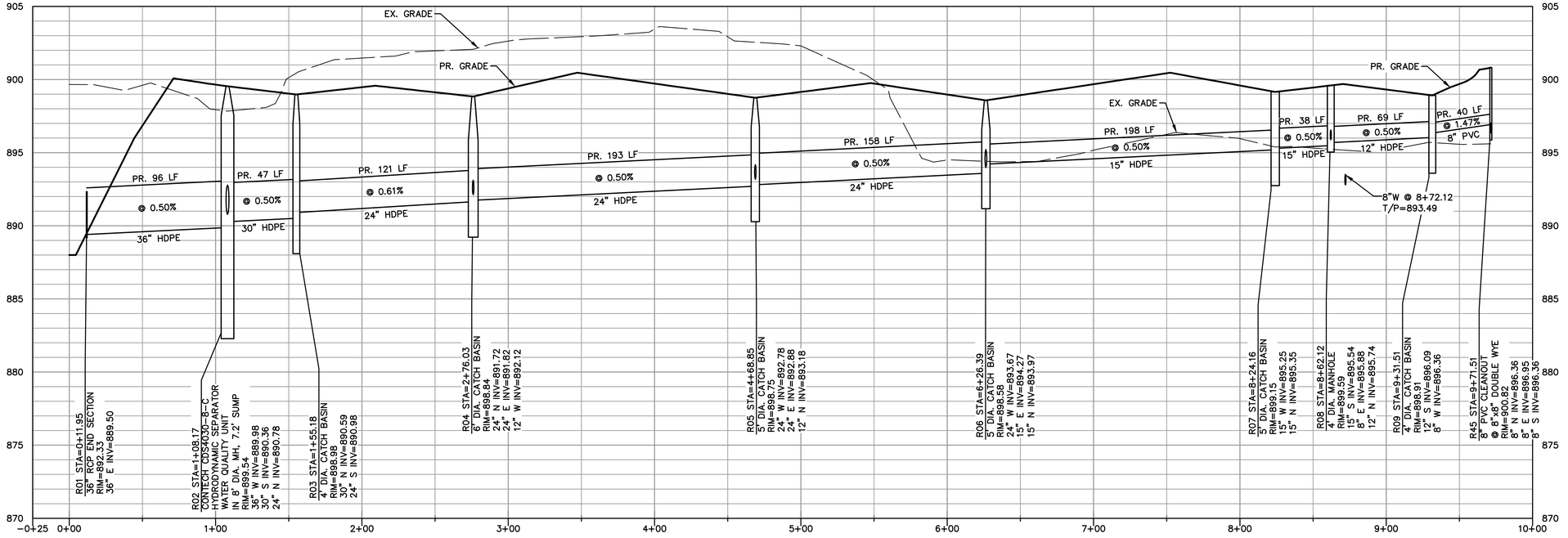
REV.	DATE
1	11/17/21
2	12/23/21

DATE: 12/22/2021
SHEET 10 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216UP1.DWG

M:\Civil\3d_Pro\21216\Site Plan\21216P2.dwg, 12/23/2021 11:29 AM, Jeremy A. Mothel, C3.2 STORM BASIN AND STORM PROFILES 1, MCLLC PDF.pc3
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NORTH MAIN STORM



SCALE: 1" = 40'

0 40 80 120

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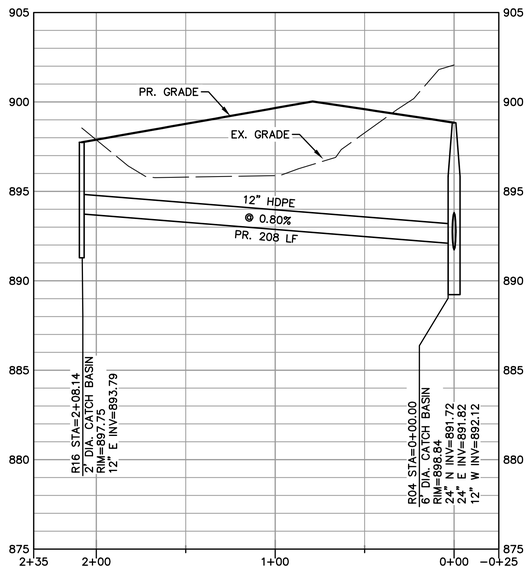
SITE PLAN FOR PLANNING COMMISSION
STORM BASIN AND STORM PROFILES 1

C3.2

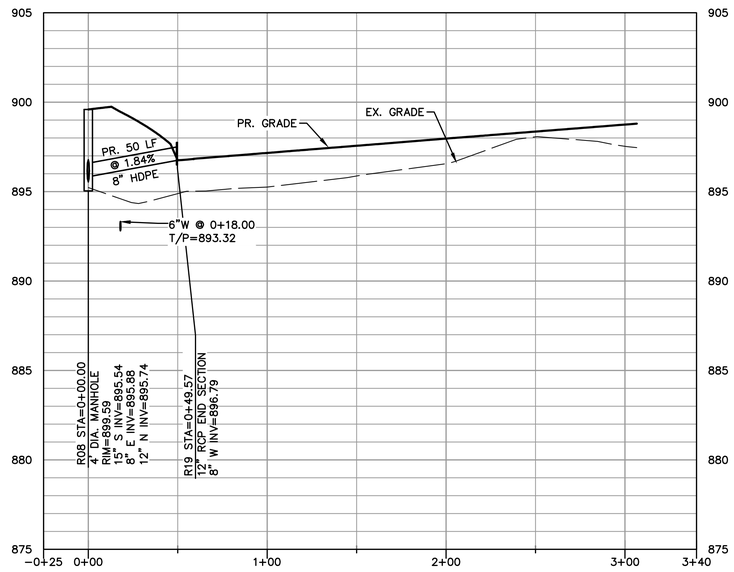
JOB No. 21216

DATE: 12/23/2021
SHEET 11 OF 37
CADD: JBB
ENG: JAM
PM: ROW
TECH:
21216UP2.DWG

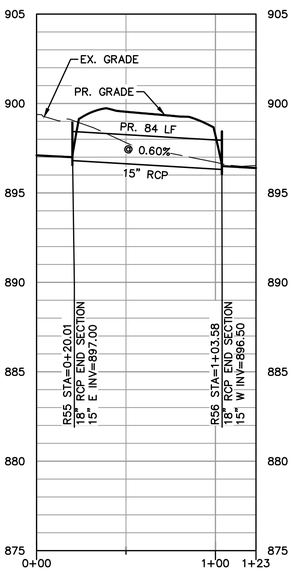
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SITE PLAN SUBMITTAL 1	12/23/21
SITE PLAN SUBMITTAL 2	



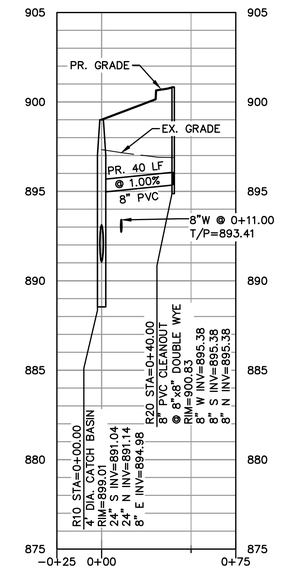
SOUTHWEST INLET



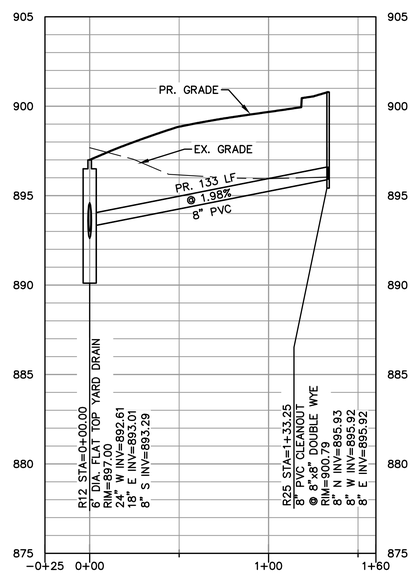
EAST SWALE



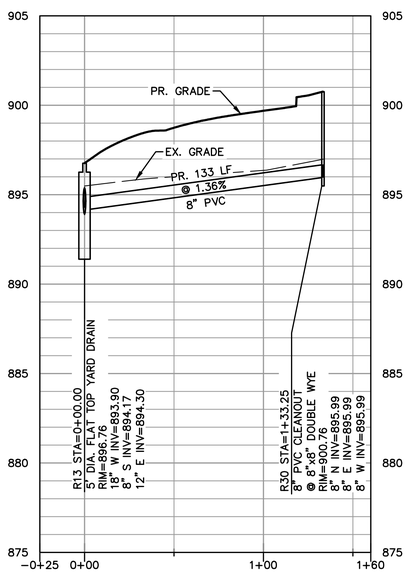
DRIVE CULVERT



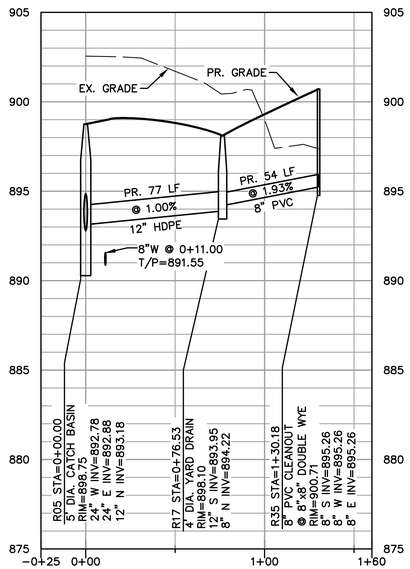
WEST ROOF LEADER CONNECTION



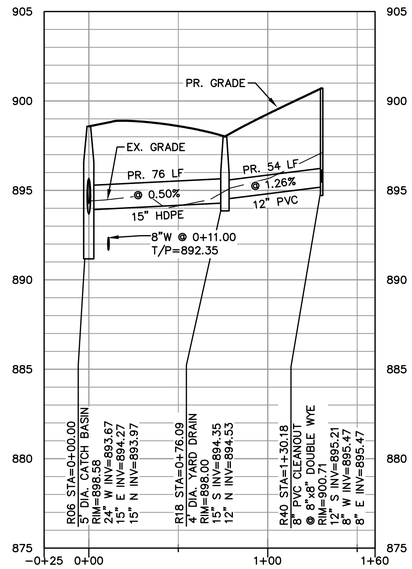
NORTHWEST ROOF LEADER CONNECTION



NORTHEAST ROOF LEADER CONNECTION



SOUTHWEST ROOF LEADER CONNECTION



SOUTHEAST ROOF LEADER CONNECTION

SCALE: 1" = 40'

0 40 80 120

Know what's below. Call before you dig.

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M:\Civil3d_Proj\21216\Site Plan\21216UP2.dwg, 12/23/2021 10:51 AM, Jeremy A. Mettler, C3.3 STORM SEWER PROFILES 2, MCLLC PDF.pc3
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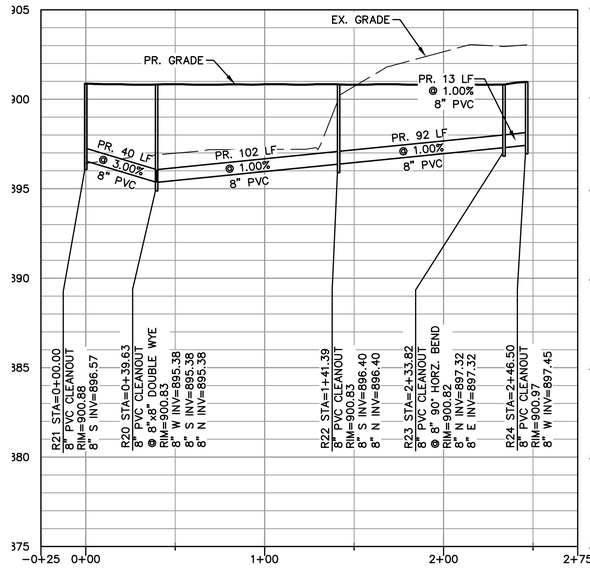
SITE PLAN FOR PLANNING COMMISSION
STORM SEWER PROFILES 2

C3.3

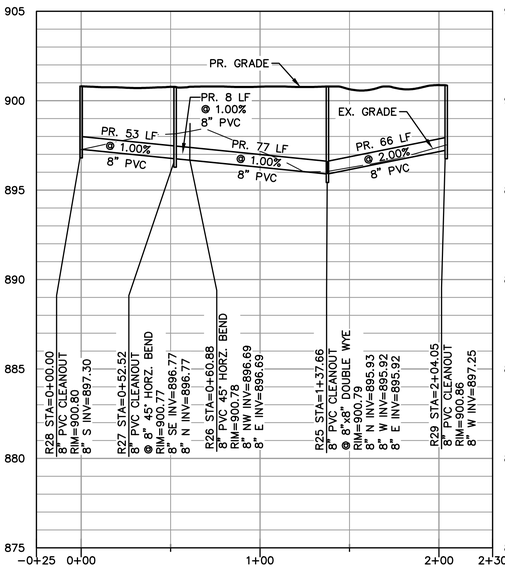
JOB No. 21216

DATE: 12/23/2021
SHEET 12 OF 37
CADD: JBB
ENG: JAM
PM: ROW
TECH:
21216UP2.DWG

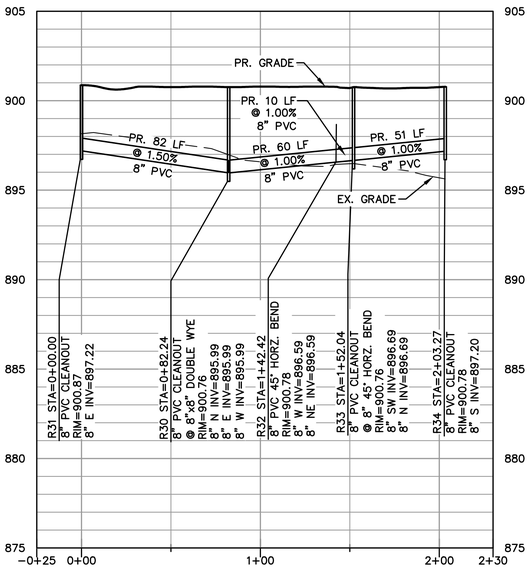
ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21



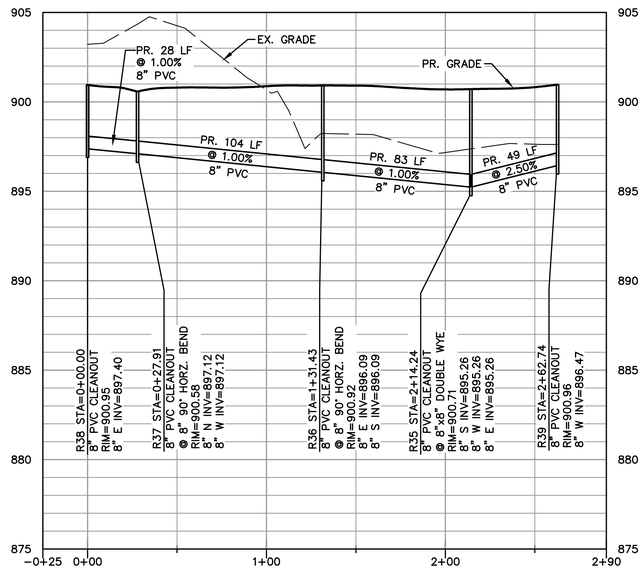
WEST ROOF LEADER



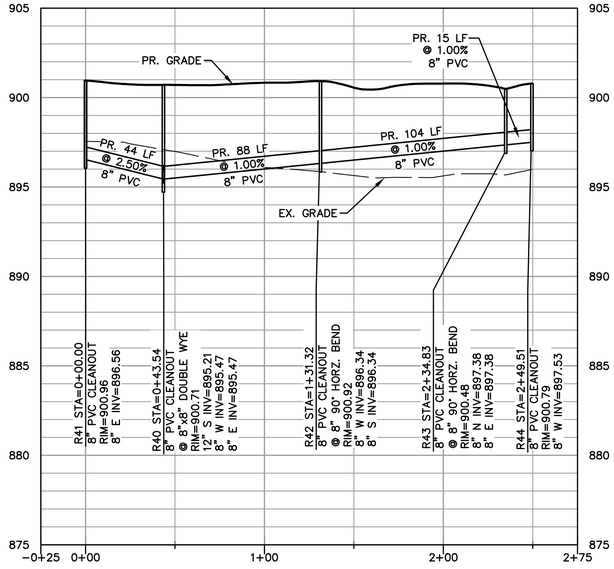
NORTHWEST ROOF LEADER



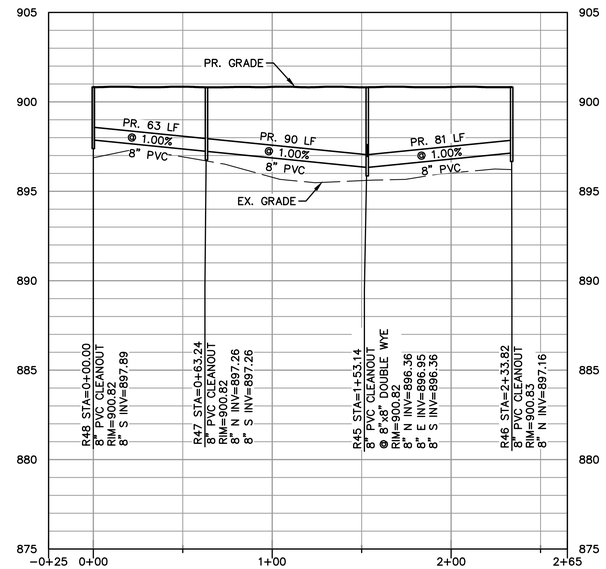
NORTHEAST ROOF LEADER



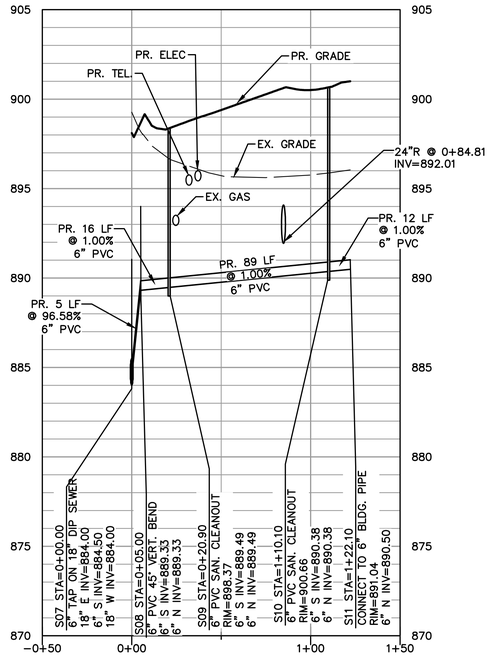
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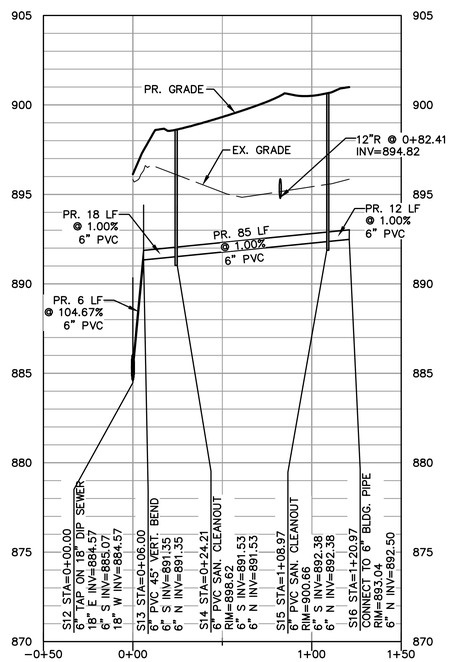
SOUTHEAST ROOF LEADER



EAST ROOF LEADER



SAN LEAD WEST



SAN LEAD EAST

SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

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M:\Civil\34_Pro\21216\Site Plan\21216P2.dwg, 12/23/2021 10:52 AM, Jeremy A. Mothel, C3.4 ROOF LEADER & SANITARY LEAD PROFILES, MCLLC PDF.pc3
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734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

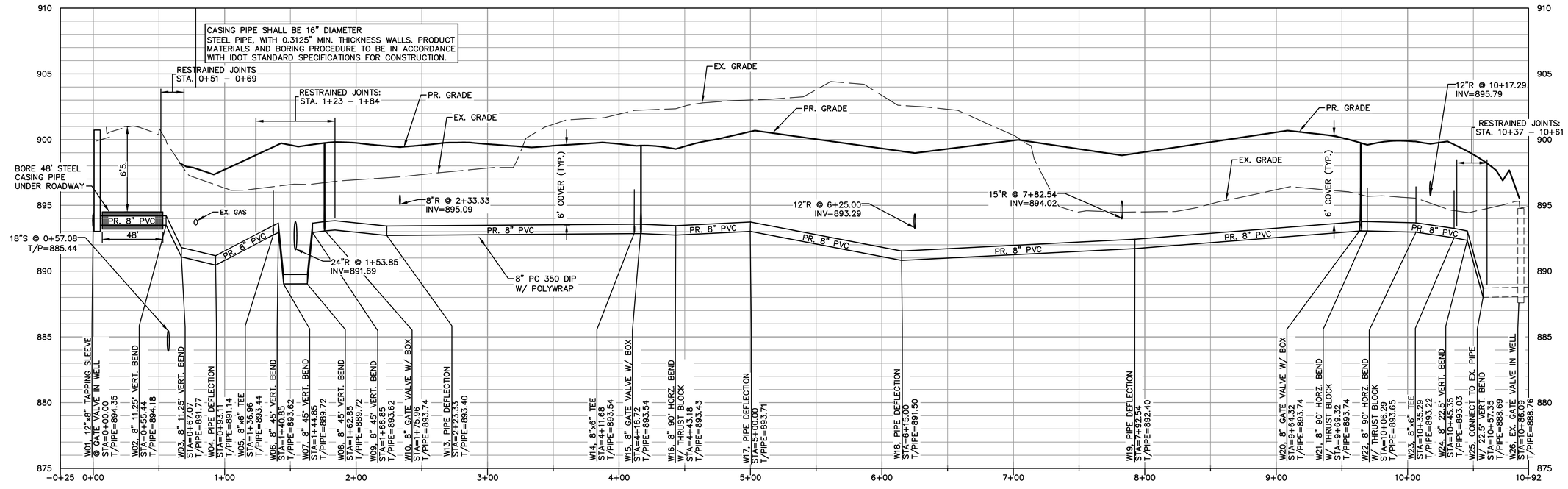
SITE PLAN FOR PLANNING COMMISSION
ROOF LEADER & SANITARY LEAD PROFILES

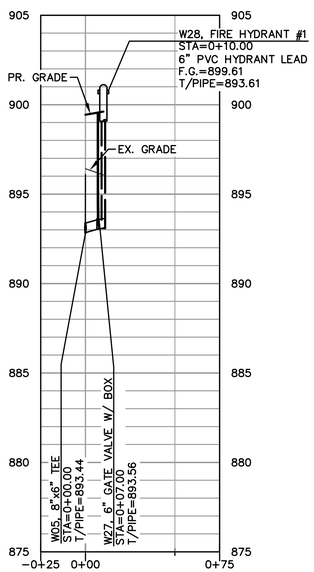
C3.4

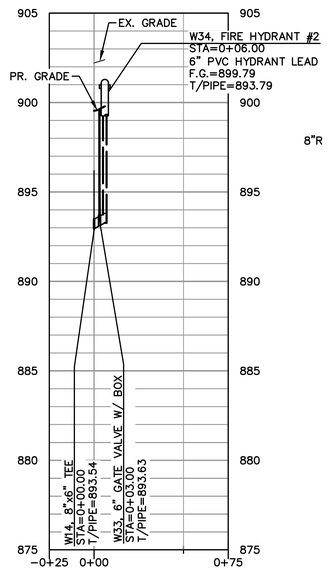
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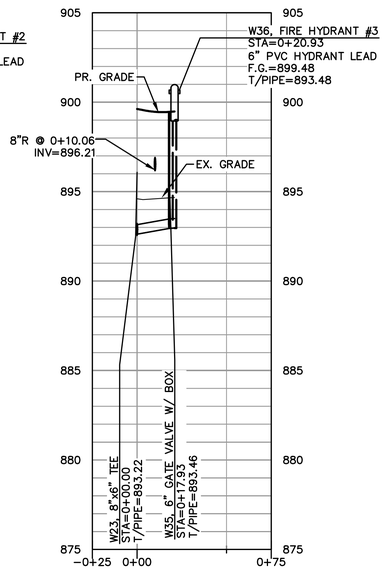
DATE: 12/23/2021
SHEET 13 OF 37
CADD: JBB
ENG: JAM
PM: ROW
TECH:
21216UP2.DWG

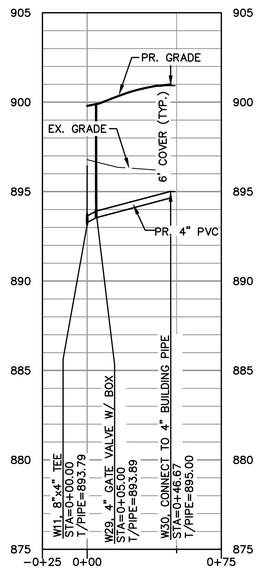
ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

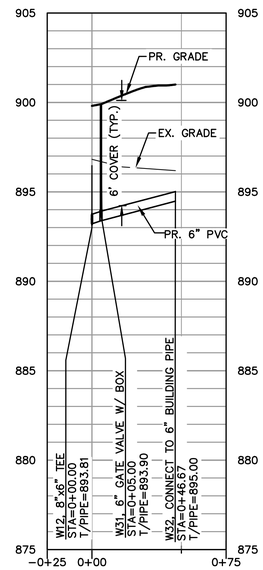












SCALE: 1" = 40'

0 40 80 120

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M:\Civil3d_Proj\21216\Site Plan\21216WM1.dwg, 12/23/2021 10:52 AM, Jeremy A. Mathei, C3.5 WATER MAIN PROFILE, MCLLC PDF.pc3
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ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
WATER MAIN PROFILE

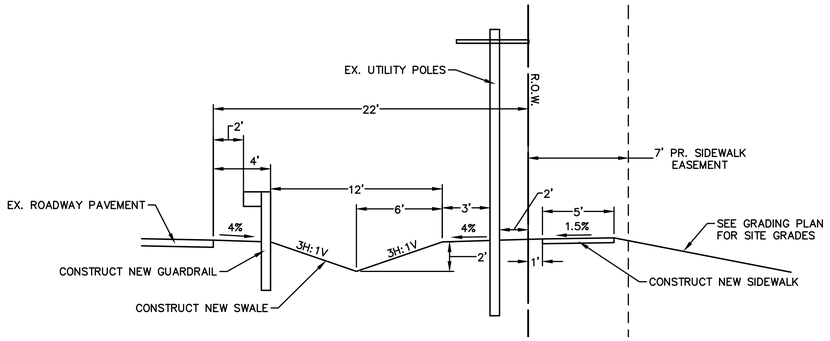
C3.5

JOB No. 21216

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/12/21
SITE PLAN SUBMITTAL 2	12/23/21

DATE: 10/29/2021
SHEET 14 OF 37
CADD: JBB
ENG: JAM
PM: ROW
TECH:
21216WM1.DWG

M:\Civil3d_Proj\21216\Site Plan\21216T1.dwg, 12/23/2021 10:52 AM, Jeremy A. Mattheï, C4.0 SITE DETAILS, MCLLC PDF pc3
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PROPOSED ROADSIDE SWALE SECTION ON S.R. 176

1"=5'

R7-5 (12"x18")
[GREEN BORDER AND TEXT]
1.50 SFT TYPE IIIB SIGN
1-3 LB POST (13 LF)
R7-5

R3-2 (36")
9.0 SFT TYPE IIIB SIGN
2-3 LB POSTS (26 LF)
R3-2

R7-2 (12" x 18")
1.5 SFT TYPE IIIA SIGN
1-3 LB POST (13 LF)
R7-2

R2-1 (24" x 30")
5.0 SFT TYPE IIIB SIGN
1-3 LB POST (13 LF)
R2-1

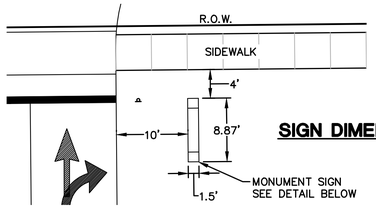
R1-1 (30")
6.0 SFT TYPE IIIA SIGN
1-3 LB POST (13 LF)
R1-1

R3-7d (36"x30")
7.5 SFT TYPE IIIB SIGN
1-3 LB POST (13 LF)
R3-7d

SEE SHEET C4.2 FOR SIGN POST DETAIL

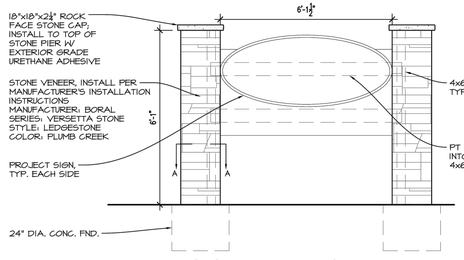
TRAFFIC SIGN LEGENDS

NOT TO SCALE



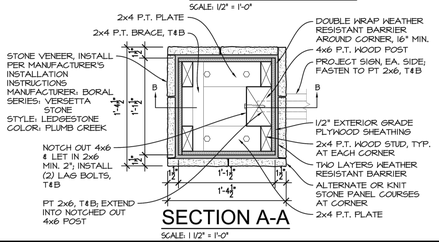
SIGN DIMENSIONS AND LOCATION

SCALE: 1"=5'



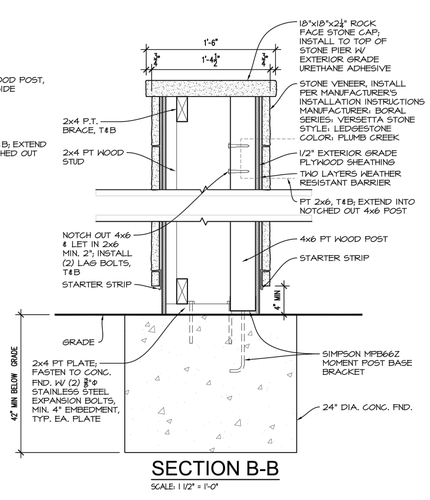
SIGN ELEVATION

SCALE: 1/2" = 1'-0"



SECTION A-A

SCALE: 1 1/2" = 1'-0"



SECTION B-B

SCALE: 1 1/2" = 1'-0"

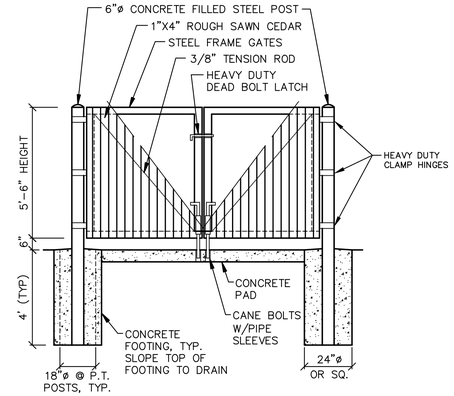
ITEM: MONUMENT SIGN	SCALE: AS NOTED	DATE: 1/20/21	SHEET NO.
CLOVER MONUMENT SIGN ADDRESS			SK-01

MUSSACHIO ARCHITECTS P.C.
30 NORTH FOREST ROAD WILLIAMSVILLE, NEW YORK 14221 TEL: (716) 631-9949 FAX: (716) 631-0521
www.MussachioArchitects.com

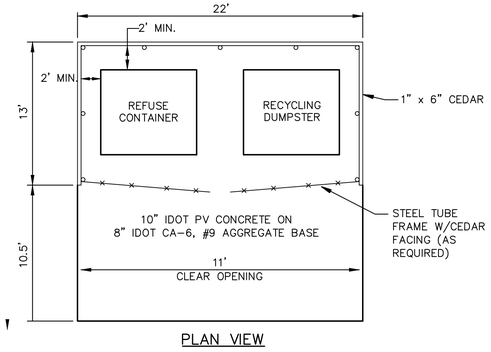
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SITE IDENTIFICATION SIGN

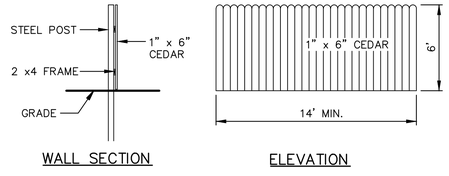
SCALE: 1"=1'



GATE DETAIL



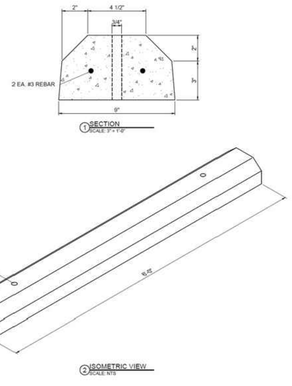
PLAN VIEW



WALL SECTION ELEVATION

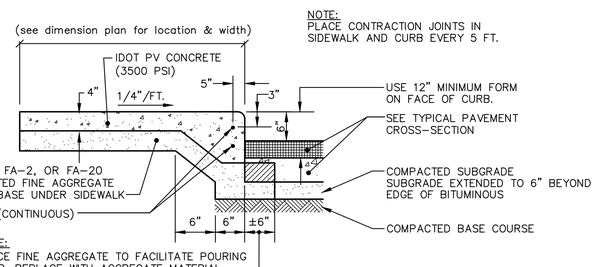
DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE



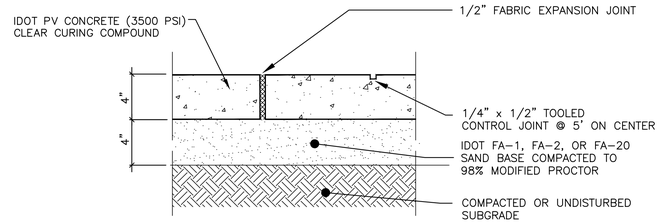
CONCRETE BUMPER BLOCK

SCALE: 1"=1'



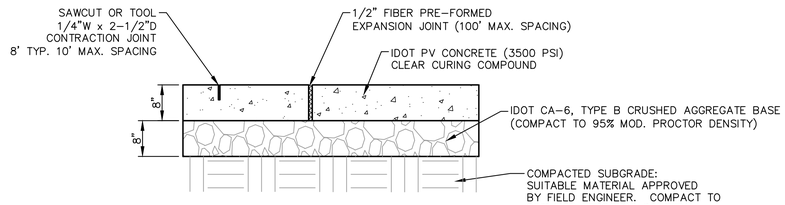
TYPICAL INTEGRAL WALK AND CURB

NOT TO SCALE



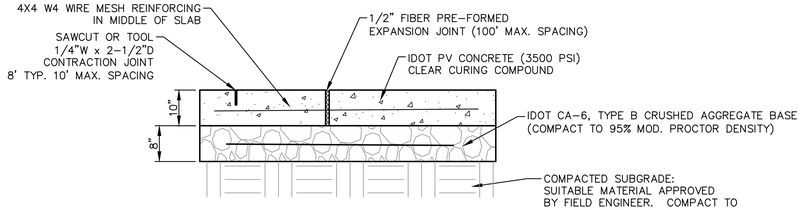
CONCRETE SIDEWALK DETAIL

NOT TO SCALE



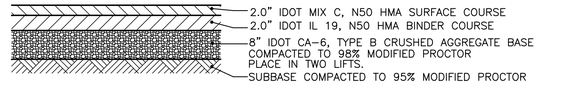
8" CONCRETE PAVEMENT DETAIL

NOT TO SCALE



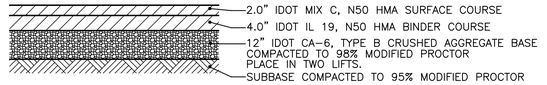
10" HEAVY DUTY CONCRETE PAVEMENT DETAIL

SCALE: 1"=1'



4" ASPHALT PAVEMENT DETAIL (PARKING LOT)

NOT TO SCALE



6" ASPHALT PAVEMENT DETAIL (S.R. 176)

NOT TO SCALE

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734-346-0246

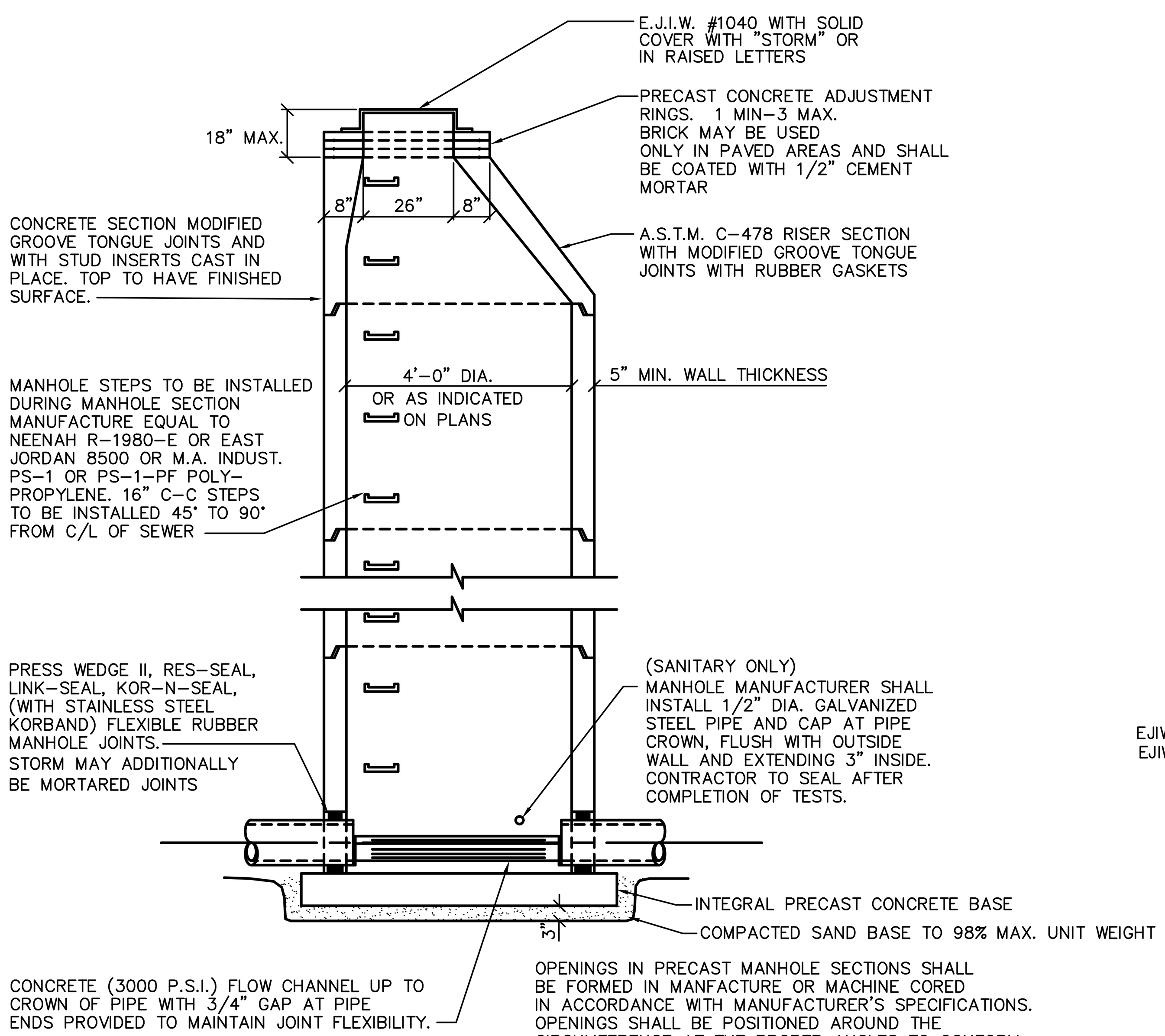
CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SITE DETAILS

C4.0

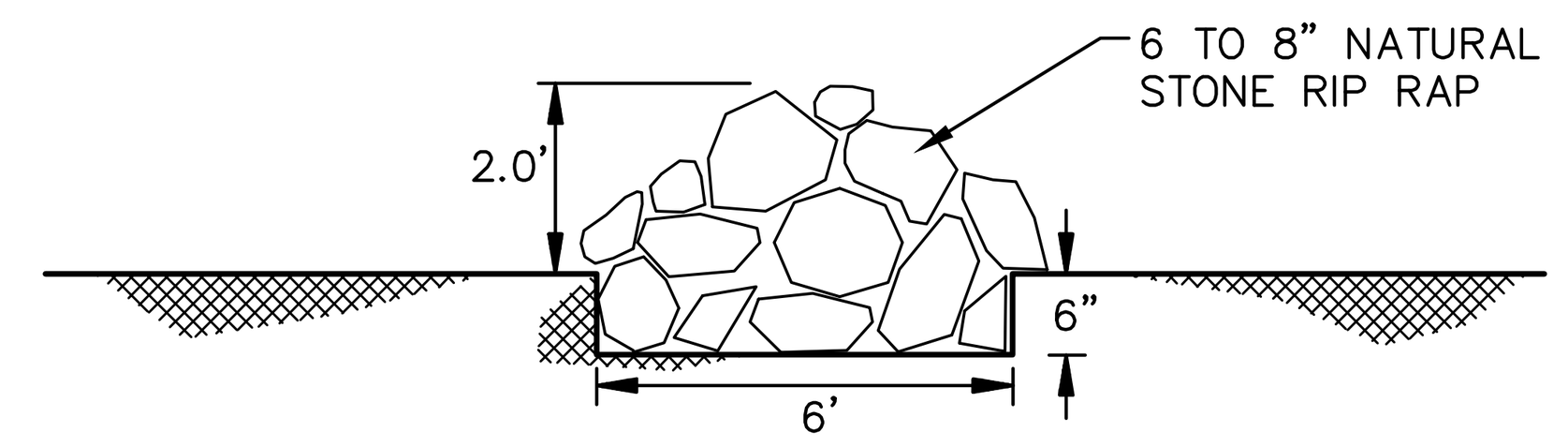
JOB No. 21216

ISSUED:	REV. DATE	DATE: 12/22/2021
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SITE PLAN SUBMITTAL 2	12/23/21	CADD: JBB
SITE PLAN SUBMITTAL 2	12/23/21	ENG: JAM
SITE PLAN SUBMITTAL 2	12/23/21	PM: ROW
SITE PLAN SUBMITTAL 2	12/23/21	TECH:
SITE PLAN SUBMITTAL 2	12/23/21	21216T01.DWG



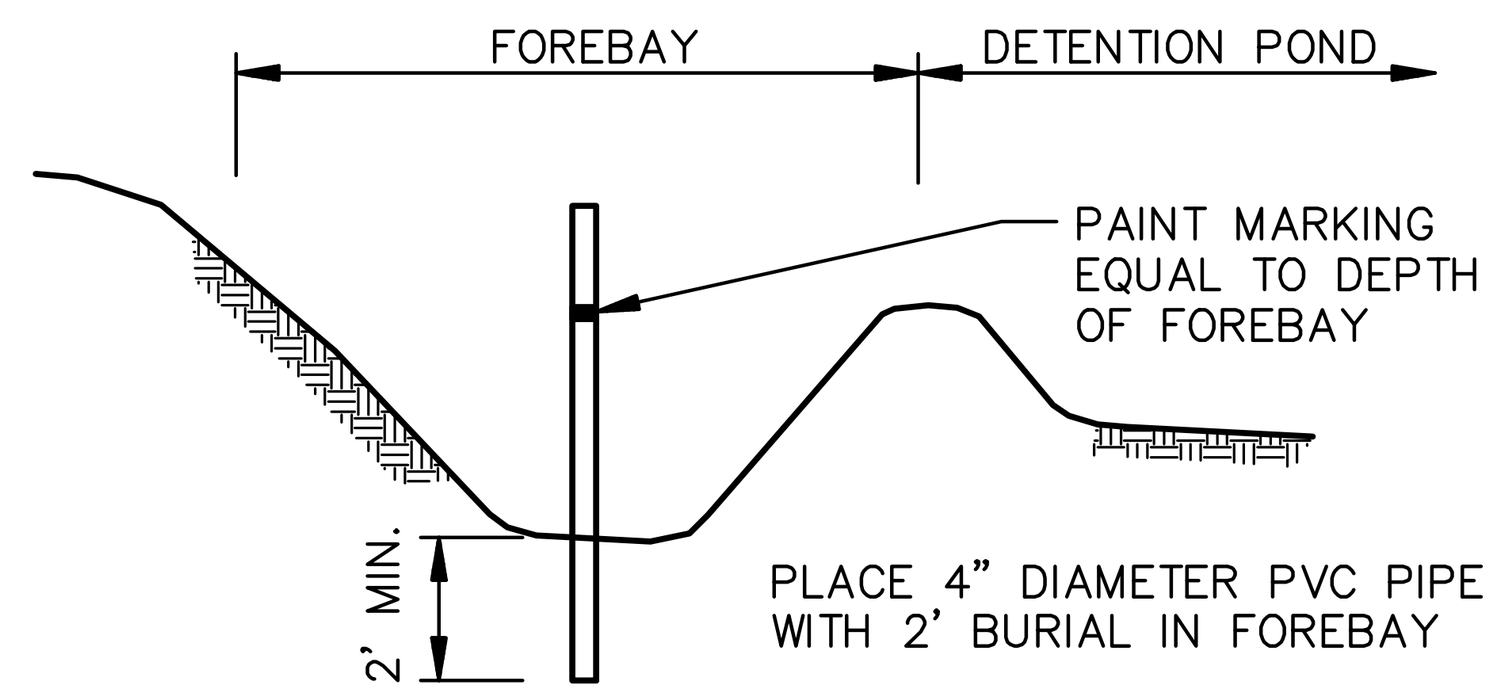
PRECAST STORM MANHOLE

NO SCALE



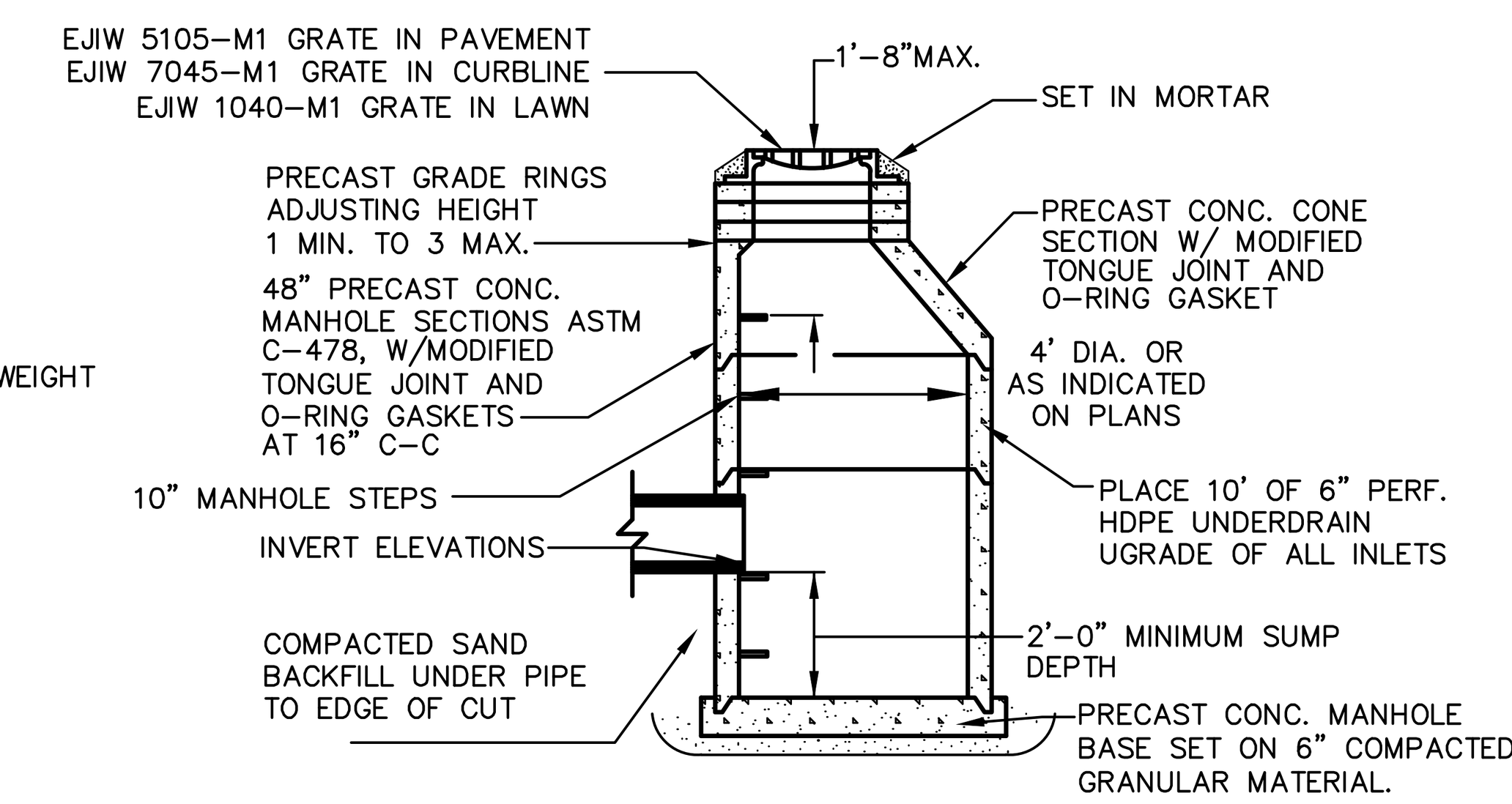
SEDIMENT FOREBAY RIP–RAP BARRIER DETAIL

NOT TO SCALE



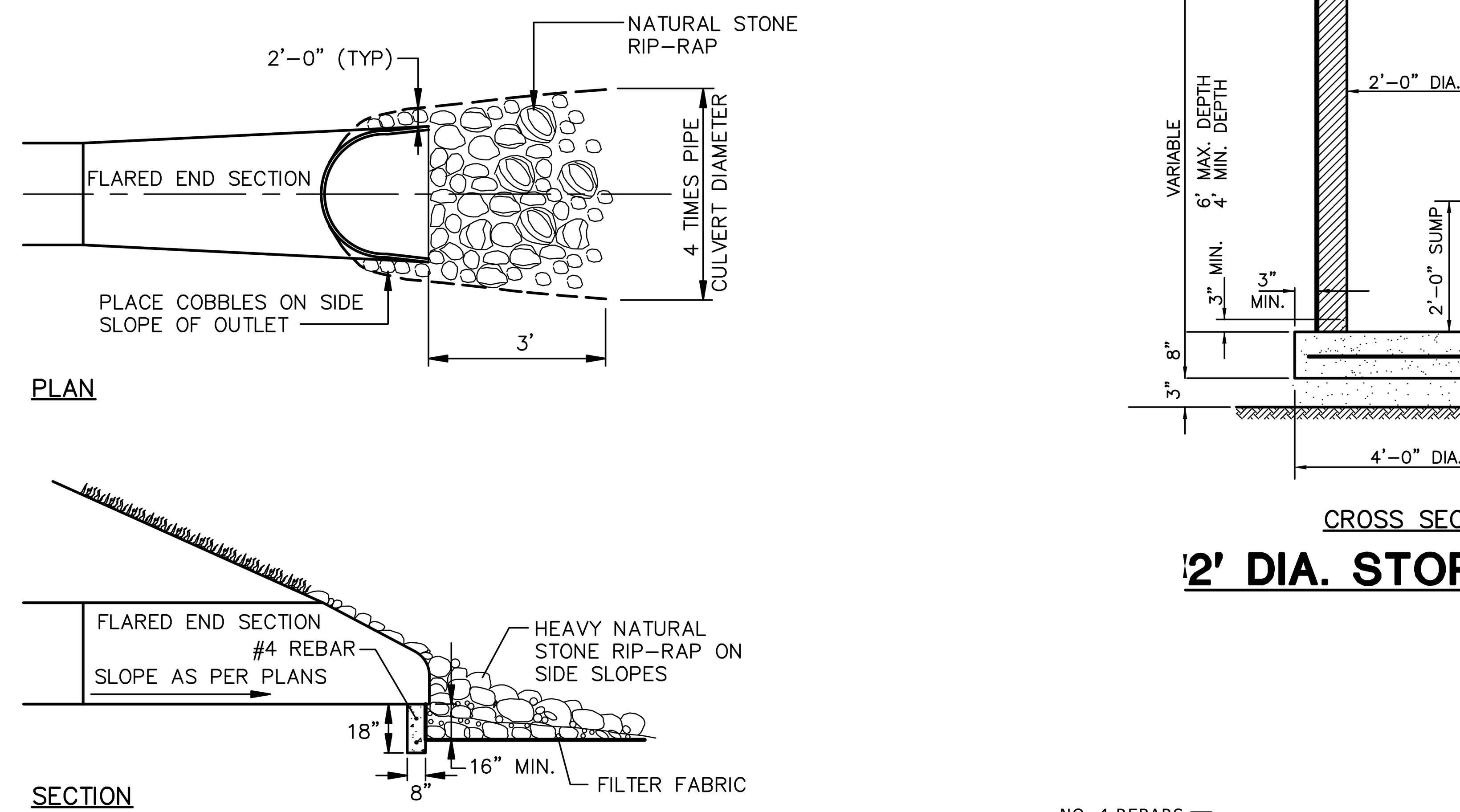
SEDIMENT FOREBAY MARKER DETAIL

NOT TO SCALE



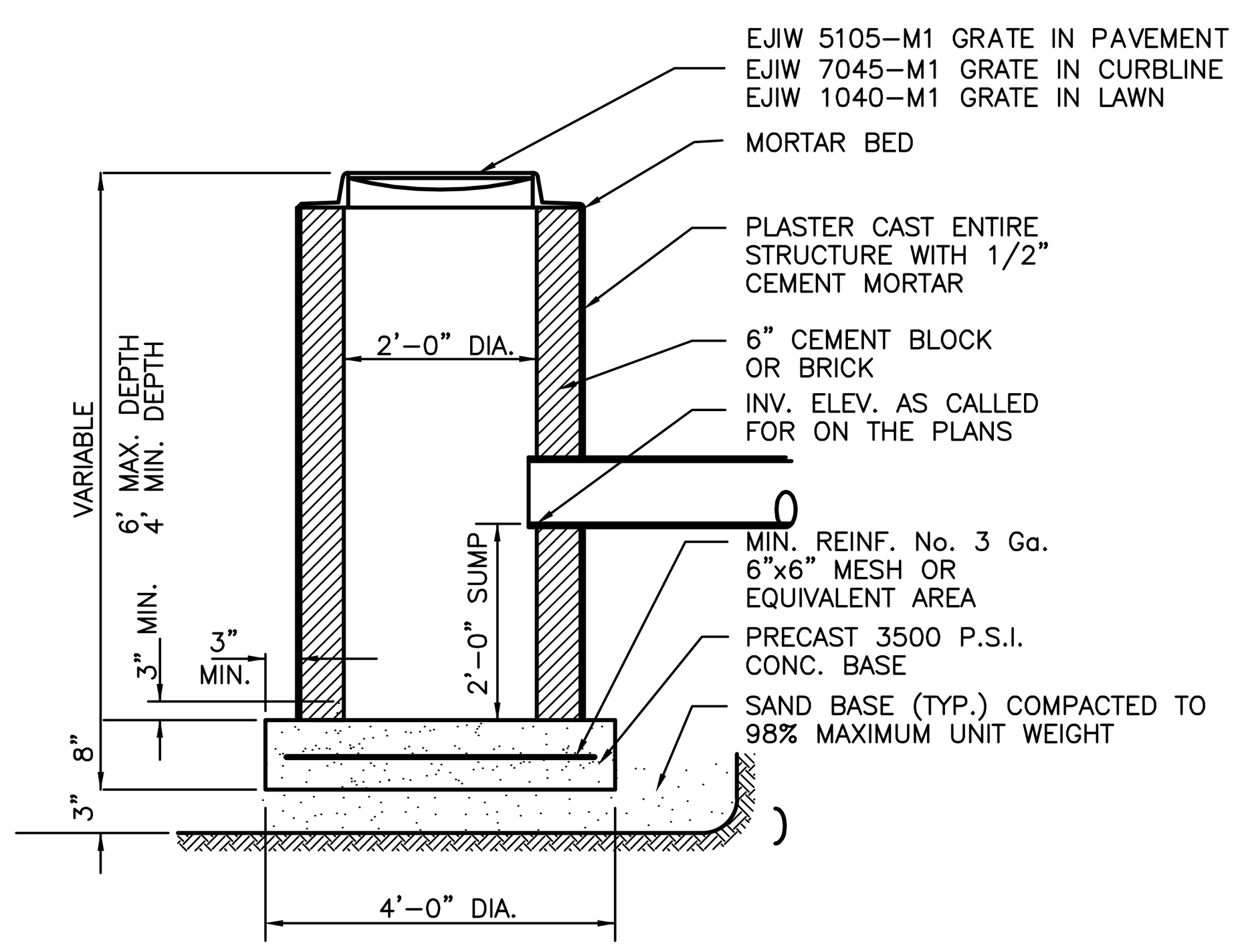
4' DIA. STORM INLET

NO SCALE

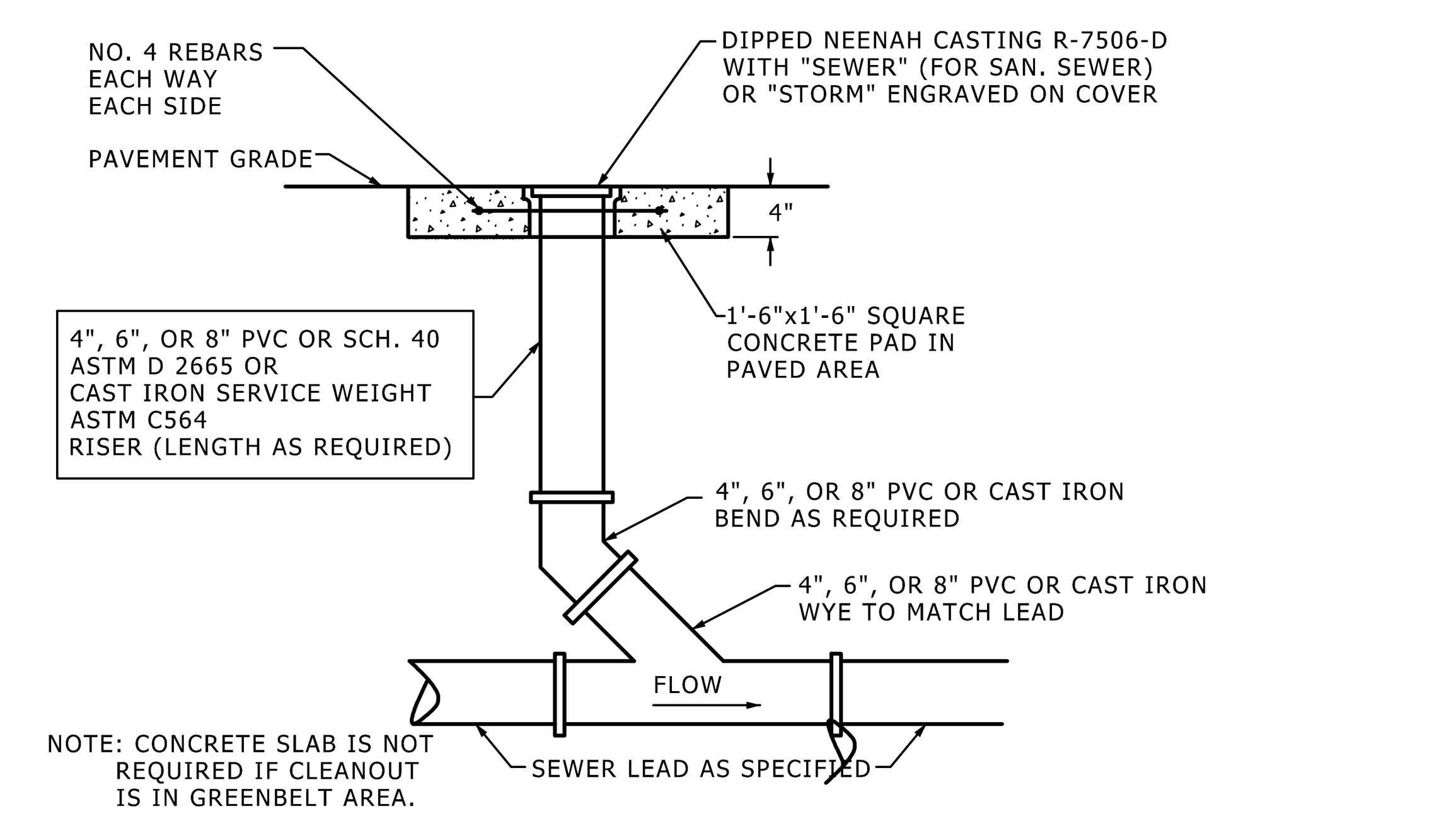


END SECTIONS AND RIP–RAP TREATMENT

SECTION AND PLAN NOT TO SCALE

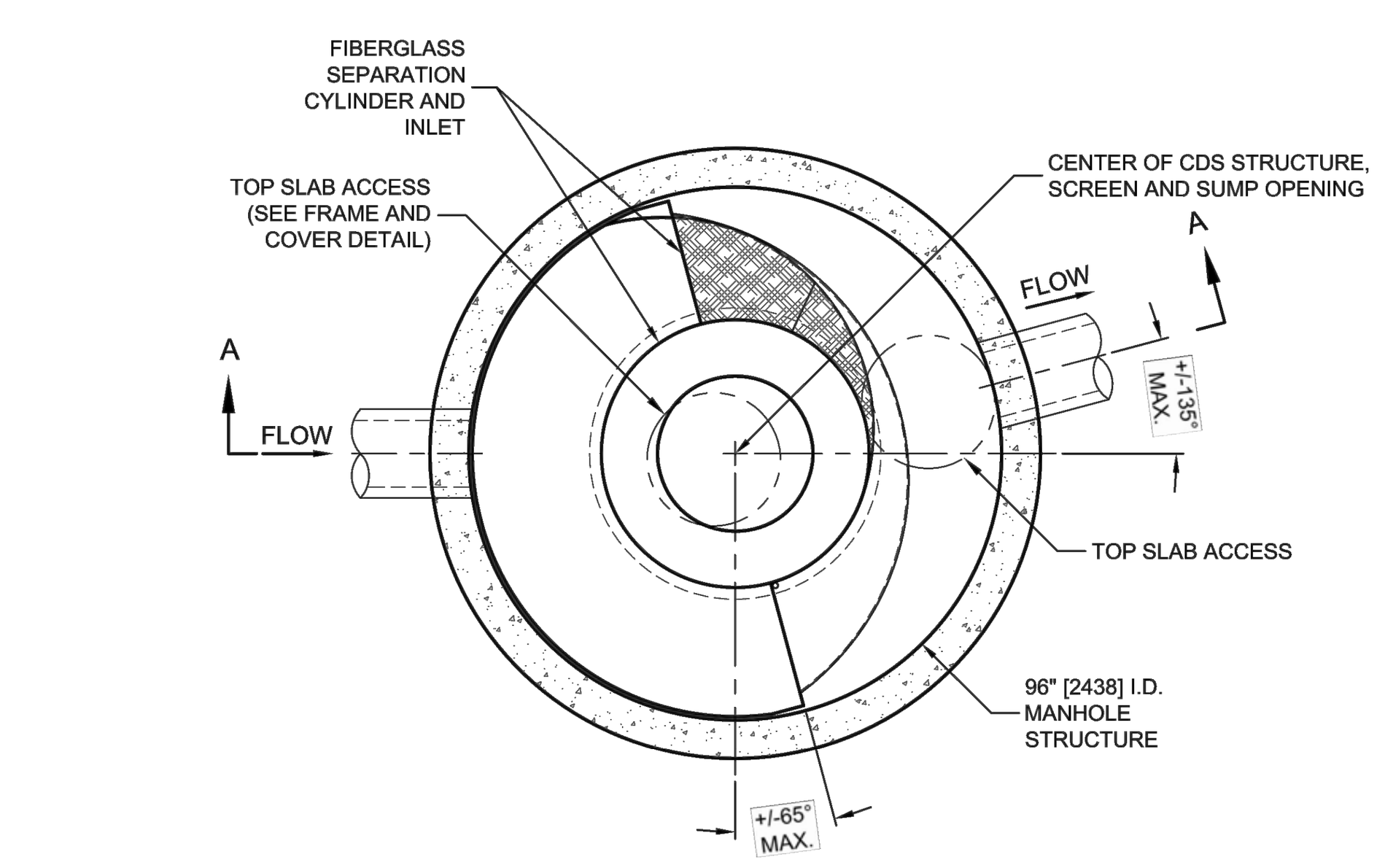


2' DIA. STORM INLET



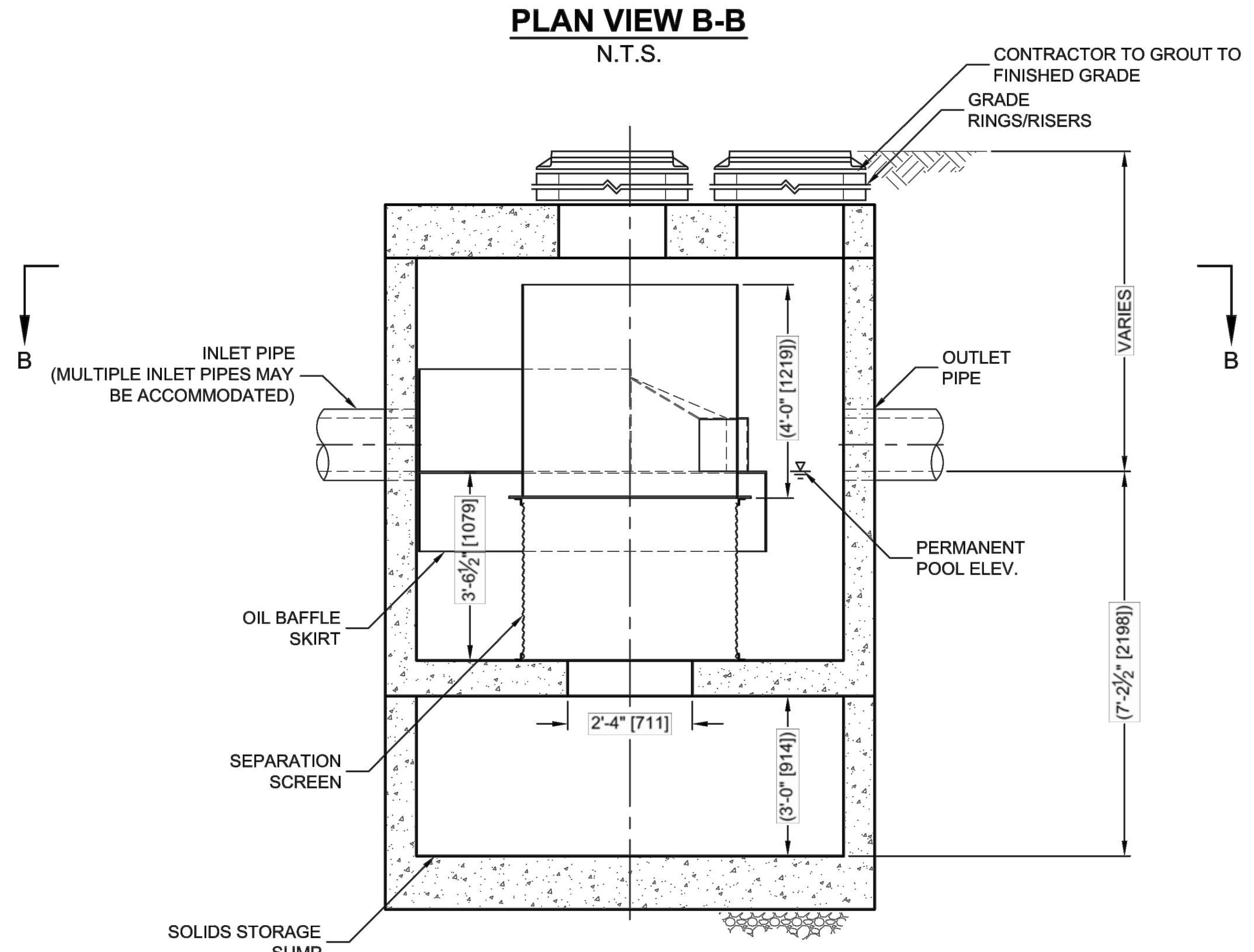
SANITARY & STORM SEWER CLEANOUT

NO SCALE



PLAN VIEW B-B

N.T.S.



ELEVATION A-A

N.T.S.

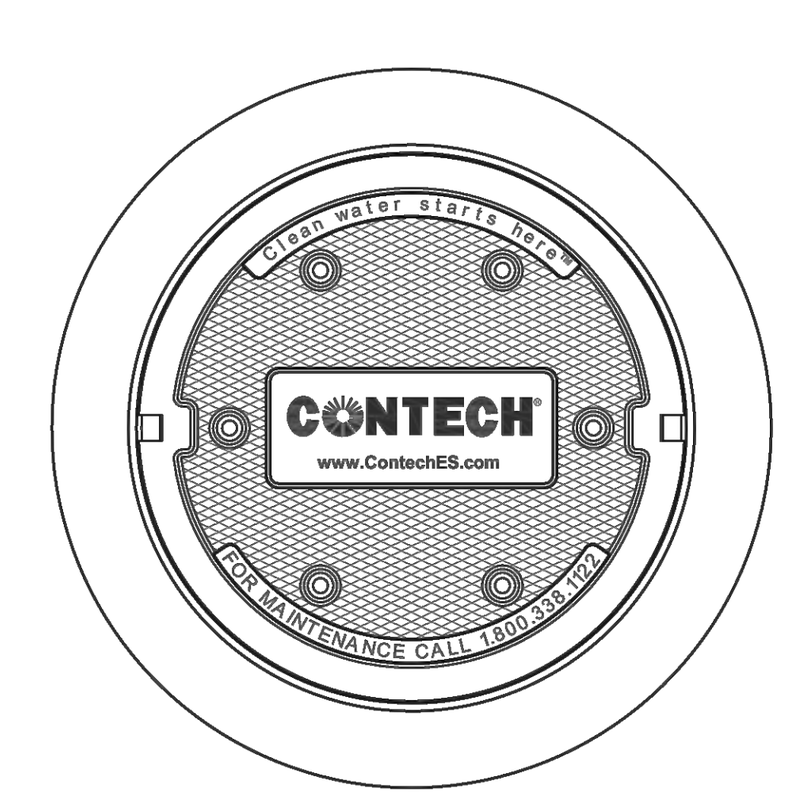
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS4030-8-C DESIGN NOTES

CDS4030-8-C RATED TREATMENT CAPACITY IS 4.5 CFS [127.4 L/s], OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 30.0 CFS [850 L/s]. IF THE SITE CONDITIONS EXCEED 30.0 CFS [850 L/s], AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS4030-8-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER

(DIAMETER VARIES)

N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECHENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

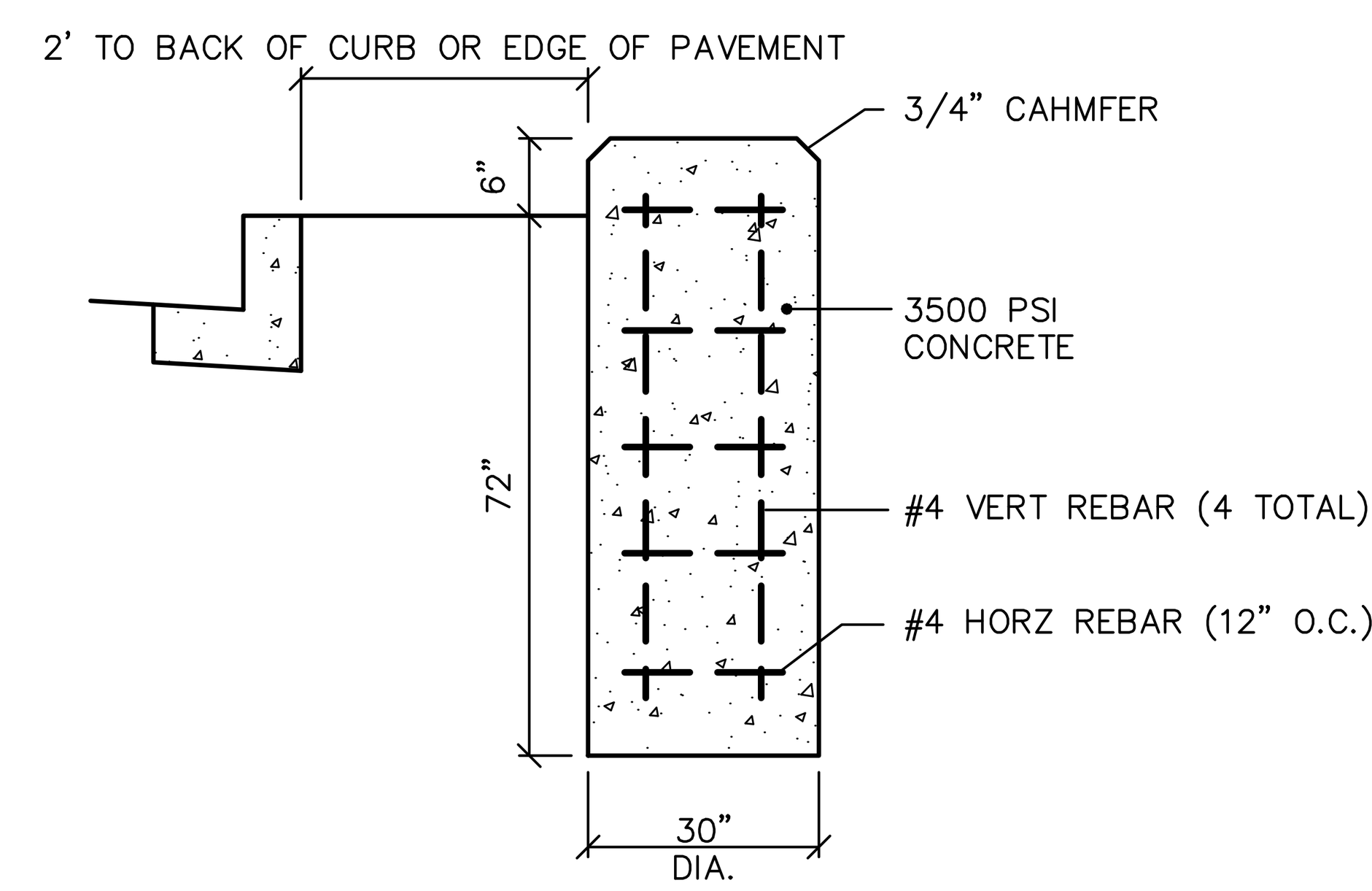
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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

CDS4030-8-C
INLINE CDS
STANDARD DETAIL

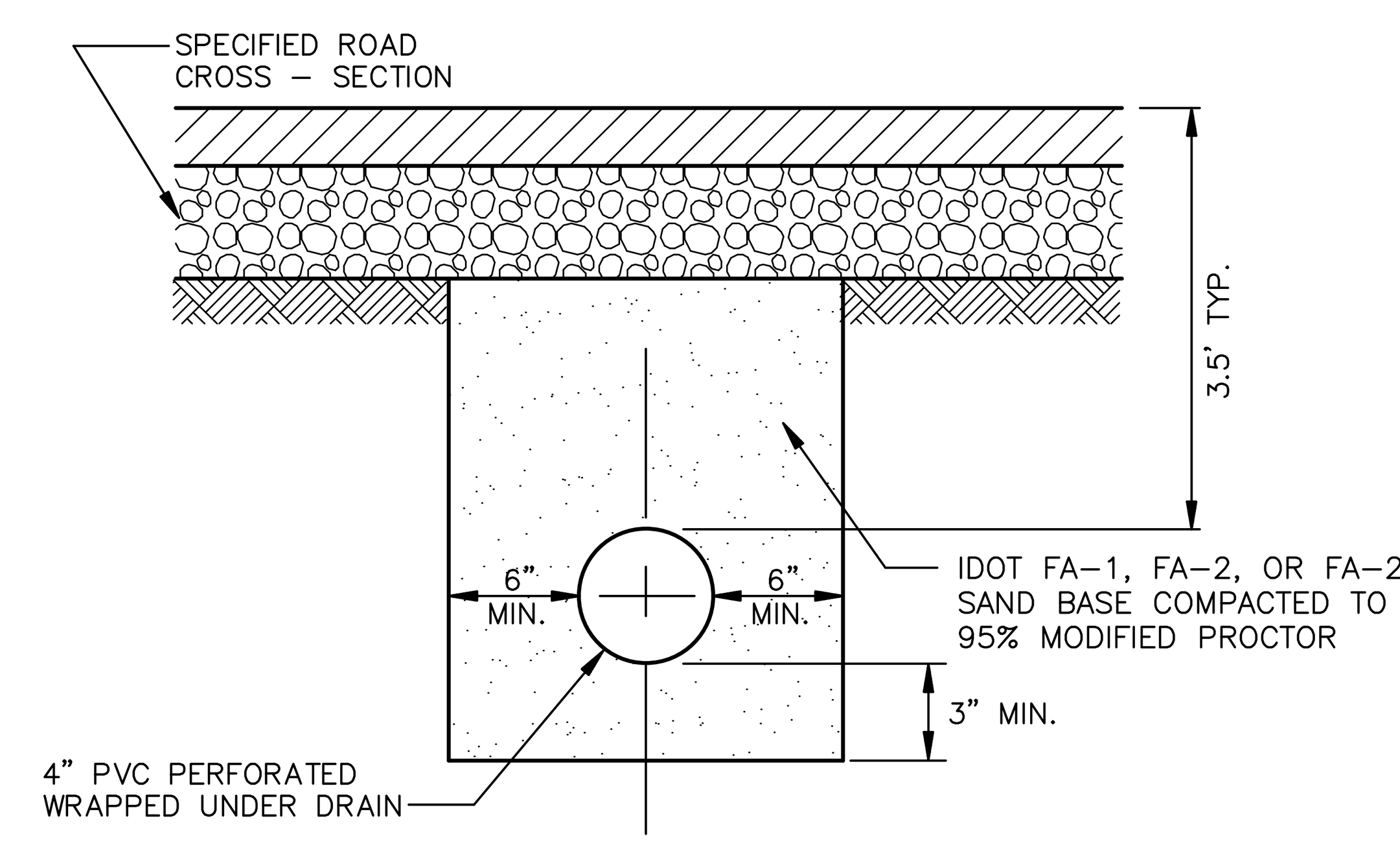
HYDRODYNAMIC SEPARATOR - WATER QUALITY UNIT

NO SCALE



PARKING LOT LIGHT POLE BASE DETAIL

NOT TO SCALE



NOTE: FOR PAVEMENT BASE AND SUBBASE THICKNESS, SEE TYPICAL PAVEMENT CROSS–SECTION.

UNDERDRAIN DETAIL

NOT TO SCALE

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3815 Plaza Drive Ann Arbor, Michigan 48108
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CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734–346–0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
UTILITY DETAILS

C4.1

DATE: 12/22/2021
SHEET 16 OF 37

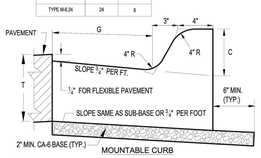
JOB No. 21216

ISSUED:	REV. DATE	
SITE PLAN SUBMITTAL 1	11/02/21	CADD: JBB
IDOT SUBMITTAL 1	11/17/21	ENG: JAM
SITE PLAN SUBMITTAL 2	12/23/21	PM: RCW
		TECH:
		21216DT1.DWG

M:\Civil3d_Proj\21216\Site Plan\21216DT1.dwg, 12/23/2021 10:52 AM, Jeremy A. Matthei, C4.1 UTILITY DETAILS, MCLLC PDF.pc3
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M:\Civil3d_Proj\21216\Site Plan\21216RD2.dwg, 12/23/2021 10:53 AM, Jeremy A. Mothel, C4.2 CRYSTAL LAKE SITE DETAILS, MCLLC PDF.pc3
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MOUNTABLE CURB DIMENSIONS FOR "G" AND "C"		
CURB TYPE	"G" (INCHES)	"C" (INCHES)
TYPE B-6.24	24	3
TYPE M-4.12	12	4
TYPE M-6.06	6	6
TYPE M-6.12	12	6
TYPE M-6.18	18	6
TYPE M-6.24	24	6



MOUNTABLE CURB

NOTES:

THICKNESS - T - THICKNESS OF PAVEMENT WHEN CURB AND GUTTER IS CONSTRUCTED ADJACENT TO FLEXIBLE OR RIGID PAVEMENT, THE VERTICAL THICKNESS OF THE GUTTER FLAG SHALL BE 9". ALSO, TIE BARS SHALL BE OMITTED.

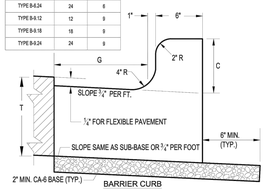
DRAINAGE OPENINGS - AT ALL LOCATIONS WHERE METAL CASTINGS ARE TO BE INCORPORATED IN THE CURB AND GUTTER, A 1" THICK PRE FORMED EXPANSION JOINT FILLER, CONFORMING TO THE CROSS SECTIONS OF THE CURB AND GUTTER, SHALL BE INSTALLED IN THE CURB AND GUTTER A DISTANCE OF 5 FT. FROM EACH SIDE OF THE METAL CASTING, WHEN THE WIDTH OF THE METAL CASTING IS LESS THAN THE WIDTH OF THE CURB AND GUTTER, 2 - NO. 4 REBARS (L = 12' + CASTING LENGTH + 12") SHALL BE INCORPORATED IN THE CONTINUOUS OF CONCRETE GUTTER IN FRONT OF THE CASTING.

TRANSITIONS - THE TRANSITION FROM FULL HEIGHT CURB TO DEPRESSED CURB SHALL BE MADE AT THE RATE OF 3" PER FOOT OF LENGTH OR FLATTER.

(2) - NO. 4 STEEL REINFORCING BARS SHALL BE INCORPORATED OVER TRENCH CROSSINGS IF REQUIRED BY THE CITY ENGINEER.

JOINTS - IN ADDITION TO THE REQUIREMENTS OF ARTICLE 606.06 OF THE STANDARD SPECIFICATIONS, JOINTS SHALL BE CONSTRUCTED AS FOLLOWS:

BARRIER CURB DIMENSIONS FOR "G" AND "C"		
CURB TYPE	"G" (INCHES)	"C" (INCHES)
TYPE B-6.12	12	6
TYPE B-6.18	18	6
TYPE B-6.24	24	6
TYPE B-9.12	12	9
TYPE B-9.18	18	9
TYPE B-9.24	24	9



BARRIER CURB

CONTRACTION JOINTS AND EXPANSION JOINTS SHALL BE INSTALLED IN THE CURB OR CURB AND GUTTER IN PROLONGATION WITH JOINTS IN ADJACENT P.C.C. PAVEMENT OR BASE COURSE.

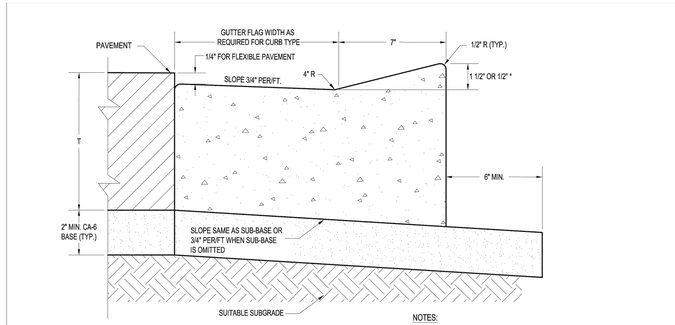
WHEN CURB AND GUTTER IS CONSTRUCTED ADJACENT TO FLEXIBLE PAVEMENT, A 1" THICK PRE FORMED EXPANSION JOINT FILLER, CONFORMING TO THE CROSS SECTION OF THE CURB AND GUTTER, SHALL BE INSTALLED AT POINTS OF CURVATURE FOR SHORT RADIUS CURVES AND AT CONSTRUCTION JOINTS. CONTRACTION JOINTS SHALL BE PLACED BETWEEN EXPANSION JOINTS AT DISTANCES NOT TO EXCEED 15 FEET.

ALL EXPANSION JOINTS SHALL BE PROVIDED WITH A 1 ¼" DIA. X 18" COATED SMOOTH DOWEL BAR CONFORMING TO ARTICLE 1006.10 OF THE STANDARD SPECIFICATIONS. THE DOWEL BAR SHALL BE FITTED WITH A CAP HAVING A PINCHED STOP THAT WILL PROVIDE 1" OF EXPANSION.

ALL CONSTRUCTION JOINTS SHALL BE PROVIDED WITH ½" DIA. DEFORMED STEEL TIE BARS 30" LONG CONFORMING TO AASHTO M-31 OR M-53. TIE BARS SHALL BE PLACED ON 9" CENTERS (MINIMUM 2 PER JOINT).

EXPANSION JOINTS SHALL BE PLACED AT INTERVALS NOT TO EXCEED 100 FEET.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	CURB: CONCRETE CURB AND GUTTER	RD-05a
2. KL 1/25/2021 M-4.12 ADDED		Date: 08/21/2018
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

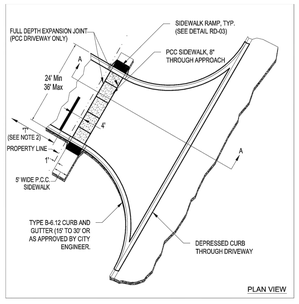


* ADJACENT TO CURB RAMP ACCESSIBLE TO THE DISABLED

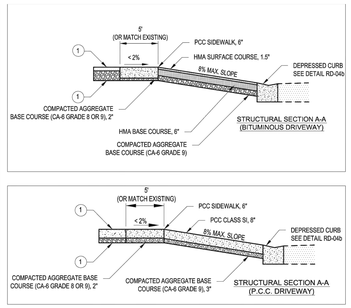
NOTES:

1. THE TOP OF CURB SHALL BE DEPRESSED WHERE THE CURB AND GUTTER IS CONSTRUCTED ACROSS ALLEYS AND FOR PRIVATE DRIVES OR WHERE DIRECTED BY THE ENGINEER.
2. THICKNESS OF PAVEMENT "T" . WHEN CURB AND GUTTER IS CONSTRUCTED ADJACENT TO FLEXIBLE PAVEMENT, THE VERTICAL THICKNESS OF THE GUTTER FLAG SHALL BE 9 INCHES. FOR BAM PAVEMENT SECTIONS THE FLAG SHALL BE THE SAME THICKNESS AS THE PAVEMENT.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	DEPRESSED CURB: DETAIL	RD-04b
2.		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois



PLAN VIEW



NOTES:

1. MAX. APPROACH GRADE = 8%
2. FOR THICKNESS OF PAVEMENT "T", VERTICAL THICKNESS OF THE GUTTER FLAG SHALL BE A MINIMUM OF 9 INCHES. FOR HMA BASE COURSE PAVEMENT SECTIONS THE GUTTER FLAG SHALL BE SAME THICKNESS AS PAVEMENT STRUCTURE.
3. TRANSITION FROM FULL CURB TO DEPRESSED CURB IN 1 TO 1.5 LINEAL FEET.

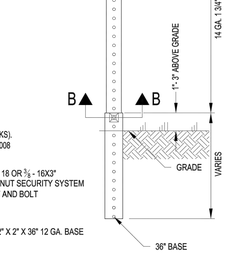
LEGEND:

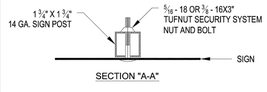
(1) FOR PARKING LOT SEE UNIFIED DEVELOPMENT ORDINANCE, APPENDIX SECTION A-700.

ed:	Drawing Name	Drawing Number
12/2015	DRIVEWAY: COMMERCIAL APPROACH	RD-01a
		Date: 01/30/15
		Drawn DD / Checked AW
		City of Crystal Lake Illinois

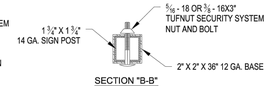
SPECIFICATIONS

1. ALL TRAFFIC CONTROL SIGNS AND POSTS SHALL BE INSTALLED PRIOR TO OCCUPANCY AND SHALL BE INSTALLED ACCORDING TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 728 (LATEST EDITION), AND IDOT POLICY ON ESTABLISHING AND POSTING SPEED LIMITS ON THE STATE HIGHWAY SYSTEM, MAY 2002 EDITION (SPEED LIMIT SIGNS SPACING, PAGE 5).
2. POSTS SHALL BE TELESCOPING SIGNS POSTS, 14 GAUGE 1 ¾" x 1 ¾" x 10' (OR 11' OR 12') WITH A 12 GAUGE 2" x 2" x 36" BASE. TELESCOPING SIGN SUPPORTS SHALL CONFORM TO SECTION 728 OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
3. MOUNTING HOLES SHALL BE 7/16" IN DIAMETER +/- 1/16" AND WILL BE SPACED 1" ON CENTER ON ALL SIDES FOR THE ENTIRE LENGTH OF THE POSTS. HOLES SHALL BE ON THE CENTERLINE OF EACH SIDE IN TRUE ALIGNMENT AND OPPOSITE EACH OTHER TO ACCEPT A 3/8" BOLT THROUGH THE POST AT ANY LOCATION. THE POST SHALL HAVE A SMOOTH GALVANIZED FINISH APPLIED EITHER BEFORE OR AFTER FORMING.
4. ALL SIGN PANELS SHALL BE IDOT STANDARD 0.080" ALUMINUM BLANKS WITH 1 1/2" RADIUS ON ALL CORNERS. SIGN FACE MATERIAL SHALL BE 3M DG3 REFLECTORIZED SHEETING (ASTM PROPOSED TYPE 11, ILLINOIS TYPE ZZ).
   - STANDARD STOP SIGN (R1-1), YIELD SIGN (R1-2), AND DO NOT ENTER (R5-1) SHALL BE 30" x 30"
   - STANDARD WARNING SIGNS SHALL BE 30" x 30"
   - NO PARKING SIGNS SHALL BE 12" x 18" (R7-2a)
   - SCHOOL ZONE AND PEDESTRIAN CROSSING SIGNS SHALL BE 30" x 30" WITH SUPPLEMENTAL PLATES 24" x 12"
   - SPEED LIMIT SIGNS SHALL BE 24" x 30" (R2-1)
     SPEED LIMIT SIGNS FOR 30-MPH OR LESS IN URBAN AREAS SHALL BE SPACED 600 FEET TO 1,320 FEET (2-4 BLOCKS). REFER TO IDOT POLICY ON ESTABLISHING AND POSTING SPEED LIMITS ON THE STATE HIGHWAY SYSTEM, MAY 2008 EDITION (SPEED LIMIT SIGNS SPACING, PAGE 5).





SECTION "A-A"



SECTION "B-B"

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	TRAFFIC CONTROL SIGN AND POST	TR-03
2.		Date: 04/15/2007
3.		Drawn EM / Checked AW
4.		City of Crystal Lake Illinois

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348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC
SITE PLAN FOR PLANNING COMMISSION
CRYSTAL LAKE SITE DETAILS

C4.2

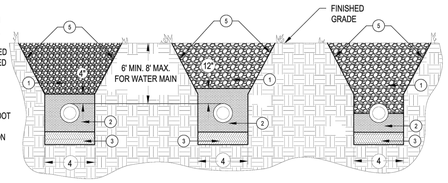
JOB No. 21216
DATE: 10/29/2021
SHEET 17 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
21216DT2.DWG

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

M:\Civil\34_Proj\21216DT1.dwg, 12/23/2021 10:53 AM, Jeremy A. Mothersell, C4.3 CRYSTAL LAKE UTILITY DETAILS, MCLLC PDF.pc3
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LEGEND:

1. TRENCH BACKFILL TO SUBGRADE AND WITHIN 2 FEET OF PROPOSED PAVEMENT, DRIVEWAY, CURB AND GUTTER OR SIDEWALK. TRENCH BACKFILL MATERIALS SHALL BE IDOT APPROVED GRADATION CA-6, GRADE 7, 8, OR 9 COMPACTED TO 90% OF MODIFIED PROCTOR DENSITY. IN NON-STRUCTURAL AREAS BACKFILL WITH APPROVED EXCAVATED MATERIALS.
2. PIPE BEDDING SHALL BE WASHED MATERIAL IDOT GRADATION CA-7 OR CA-11 FROM 4 INCHES BELOW BOTTOM OF PIPE TO HEIGHT SHOWN ON EACH SECTION
3. UNSUITABLE MATERIAL TO BE REMOVED WHERE DIRECTED BY THE ENGINEER AND REPLACED WITH COMPACTED SUITABLE MATERIAL.
4. TRENCH WIDTH:
   PIPE O.D. + 12 INCHES MINIMUM
   PIPE I.D. + 18 INCHES MAXIMUM
5. CONTRACTORS SHALL COMPLY WITH ALL CURRENT OSHA STANDARDS.



SECTION A:
WATER MAIN DIP
FORCE MAIN DIP
SANITARY SEWER MAIN & SERVICES DIP

SECTION B:
SANITARY SEWER MAIN & SERVICES (PVC)
STORM SEWER (PVC)
WATER MAIN, C909 FORCE MAIN (PVC) (HDPE)

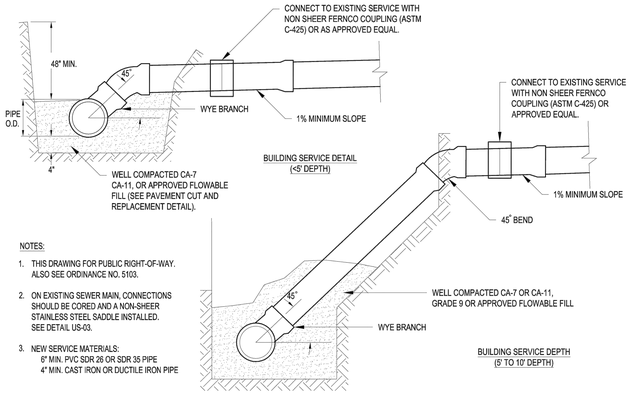
SECTION C:
STORM SEWER (RCP)

* NOTE: ALL DUCTILE IRON SHALL BE WRAPPED WITH APPROVED POLYETHYLENE PIPE WRAP

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 02/04/2021 KL CA-7 WASHED STONE 3. 4.	TYPICAL TRENCH CROSS SECTION	UG-03 Date: 05/29/2015	Drawn JH, Checked AW

City of Crystal Lake Illinois

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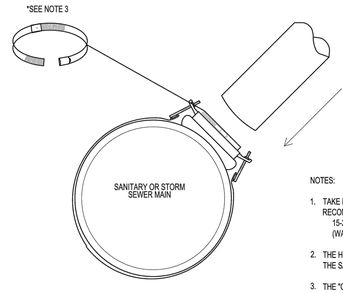
NOTES:

1. THIS DRAWING FOR PUBLIC RIGHT-OF-WAY. ALSO SEE ORDINANCE NO. 5103.
2. ON EXISTING SEWER MAIN, CONNECTIONS SHOULD BE CORED AND A NON-SHEER STAINLESS STEEL SADDLE INSTALLED. SEE DETAIL US-03.
3. NEW SERVICE MATERIALS:
   6" MIN. PVC SDR 26 OR SDR 35 PIPE
   4" MIN. CAST IRON OR DUCTILE IRON PIPE

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 3. 4.	SANITARY SERVICE RISER (DEPTH <10')	US-01 Date: 06/10/2015	Drawn JH, Checked VR

City of Crystal Lake Illinois

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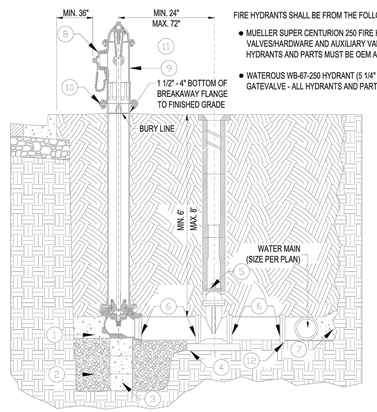
STYLE "CB" SEWER SADDLE

NOTES:

1. TAKE EXTRA CARE TO FOLLOW PROPER TIGHTENING PROCEDURES AND TORQUE RECOMMENDATIONS:
   15-20 FT./LB FOR 6" - 12" MAINS AND 20-30 FT./LB FOR 14" -48" MAINS
   (WAIT 10 MINUTES AND RETORQUE).
2. THE HOLE CUT IN THE MAIN SHOULD BE NO LARGER THAN THE INSIDE DIAMETER OF THE SADDLE GASKET.
3. THE "CB" "UN" SADDLES ARE PROVIDED WITH A BAND CLAMP (HOSE CLAMP) WHICH ALLOWS IT TO HAVE A RANGE. THE BAND CLAMP COMES WITH TWO ADJUSTING SCREWS WHICH PROVIDE MUCH GREATER CLAMPING FORCE THAN BAND CLAMPS WITH ONLY ONE ADJUSTMENT SCREW. THE BAND CLAMP NEEDS TO BE ASSEMBLED AROUND THE OUTLET AND BOTH ADJUSTING SCREWS TIGHTENED EVENLY.
4. ALL METAL HARDWARE MATERIAL SHALL BE STAINLESS STEEL.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 02/04/2021 KL ADDED STORM SEWER CONNECTIONS 3. 4.	SANITARY OR STORM SEWER SADDLE CONNECTION	US-03 Date: 04/15/2007	Drawn EM, Checked VR

City of Crystal Lake Illinois



FIRE HYDRANTS SHALL BE FROM THE FOLLOWING LIST, AS APPROVED BY THE CITY:

- MUELLER SUPER CENTURION 250 FIRE HYDRANT, A423 (5 1/4" BARREL) WITH MUELLER VALVES/HARDWARE AND AUXILIARY VALVE 8" GATE VALVE NO. 2361RESILIENT WEDGE - ALL HYDRANTS AND PARTS MUST BE OEM AND COMPLY WITH NO LEAD REQUIREMENTS.
- WATEROUS WB-67-250 HYDRANT (5 1/4" PACER) WITH SERIES 2500-1 RESILIENT WEDGE GATEVALVE - ALL HYDRANTS AND PARTS MUST COMPLY WITH NO LEAD REQUIREMENTS

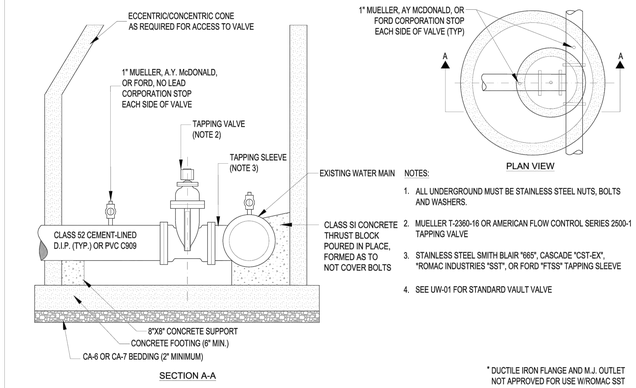
LEGEND:

1. PROVIDE CLASS SI CONCRETE BASE AND BLOCKING AGAINST UNDISTURBED EARTH
2. DRAIN SUMP TO BE 3/4 CUBIC YARD OF 3/4" WASHED STONE
3. CONCRETE SUPPORT
4. CONCRETE BLOCK OR BRICK SUPPORT
5. RUBBER VALVE BOX STABILIZER
6. USE MEGALUG RESTRAINTS WITH GRADE 304 STAINLESS STEEL NUTS AND BOLTS AT ALL MECHANICAL JOINTS.
7. CONCRETE BLOCKING
8. 4 1/2" PORT TO FACE PAVEMENT OR AS DIRECTED BY CITY ENGINEER
9. ALL NEWLY INSTALLED HYDRANTS MUST HAVE 2.4 MILS AMERICO AT PRIMER OR EQUAL AND FINISH COAT SHERWIN WILLIAMS POLANE B MIN 4.1 MILS = 6.5 MILS TOTAL DRY FILM THICKNESS. COLOR (SAFETY RED)
10. MIN. 48" BETWEEN HYDRANT AND ANY VERTICAL OBSTRUCTIONS.
11. MIN. 72" BETWEEN HYDRANT AND ANY LANDSCAPING WITH A MATURE HEIGHT GREATER THAN 12".
12. ALL UNDERGROUND HARDWARE MUST BE STAINLESS STEEL INCLUDING NUTS, BOLTS, AND WASHERS.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 01/25/2021 KL Mueller Super Centurion 250 FH Specification 3. 4.	FIRE HYDRANT	UW-06 Date: 06/01/2015	Drawn JH, Checked VR

City of Crystal Lake Illinois

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SECTION A-A

NOTES:

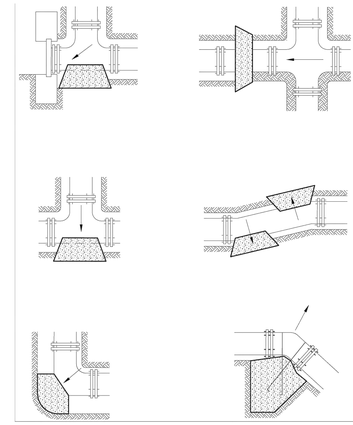
1. ALL UNDERGROUND MUST BE STAINLESS STEEL NUTS, BOLTS AND WASHERS.
2. MUELLER T-2360-16 OR AMERICAN FLOW CONTROL SERIES 2500-1 TAPPING VALVE
3. STAINLESS STEEL SMITH BLAIR "665", CASCADE "CST-EX", "ROMAC INDUSTRIES "SST", OR FORD "FTSS" TAPPING SLEEVE
4. SEE UW-01 FOR STANDARD VAULT VALVE

* DUCTILE IRON FLANGE AND M.J. OUTLET NOT APPROVED FOR USE W/ROMAC SST

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. KL 1-25-2021 1" CORPORATION STOPS 3. 4.	WATER MAIN PRESSURE CONNECTION	UW-02 Date: 05/29/2015	Drawn JH, Checked VR

City of Crystal Lake Illinois

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BEARING AREA (SQ. FT.)

PIPE SIZE	TEE/PLUG	90°	45°	21 1/2°	11 1/4°
6	4	2	1	1	1
8	6	4	3	1	1
10	7	5	3	1	1
12	8	6	4	2	2
14	12	9	6	3	3
16	15	12	7	3	3
18	18	15	9	4	4
24	40	30	15	5	5

NOTES:

ALL BLOCKING SHALL BE POURED CLASS SI CONCRETE AGAINST UNDISTURBED EARTH.

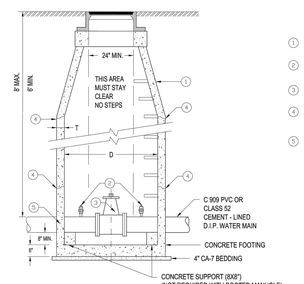
ALL BENDS OR ELBOWS GREATER THAN OR EQUAL TO 11 1/4° SHALL HAVE THRUST BLOCKING. FORM AS TO NOT COVER BOLTS.

IN LIEU OF THRUST BLOCKING, "MEGA LUG" (EBAA) JOINT RESTRAINTS OR APPROVED EQUAL CAN BE USED AS APPROVED BY THE ENGINEER.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 3. 4.	THRUST BLOCK INSTALLATION	UW-03 Date: 05/29/2015	Drawn JH, Checked VR

City of Crystal Lake Illinois

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DIAMETER OF WATER MAIN	VAULT SIZE DIAMETER	VAULT SIZE WALL THICKNESS
4" AND 6"	4 FT.	4"
UP TO 12"	5 FT.	5"
16" AND OVER	6 FT.	6"



LEGEND:

1. CONCENTRIC CONES REQUIRED
2. 3/4" (MIN) MUELLER, A.Y. McDONALD, OR FORD NO LEAD CORPORATION STOP EACH SIDE OF VALVE MUST BE A COMPRESSION FITTING.
3. MUELLER 2361 OR AMERICAN FLOW CONTROL 2500-1 RESILIENT SEAT GATE VALVE
4. WATERTIGHT JOINTS USING EZ-STIK PREMIUM BUTYL SEALANT ASTM C990 OR EQUAL FOR FRAMES ADJUSTING RINGS AND BARREL SECTIONS.
5. GASKET-TYPE WATERSTOP COLLAR FOR ALL WATER MAIN CONNECTIONS

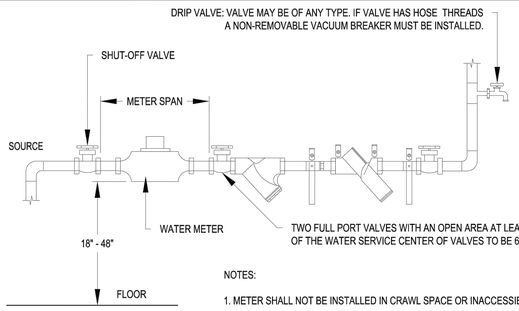
NOTES:

1. ALL MANHOLES MUST BE DAMP PROOF PER IDOT SPECIFICATIONS 1060.
2. DRAIN FOR VALVE VAULT SHALL BE CONSTRUCTED ONLY WHEN SHOWN ON THE PLANS.
3. CAST IRON MANHOLE FRAME & COVER SIMILAR TO NEENAH R-1712, OR EQUAL WITH STANDARD DUTY, NON-ROCKING TYPE LIDS WITH "CITY OF CRYSTAL LAKE WATER" CAST INTO LID. (NEENAH R-2535, OR EQUAL MAY BE USED IN GRASSY AREAS)
4. HDPE PLASTIC MANHOLE ADJUSTING RINGS CONFORMING TO THE REQUIREMENTS OF HS26 OF THE AASHTO STANDARD SPECIFICATIONS AND ASTM D1248-84. ALL ADJUSTING RINGS SHALL BE STABALIZED AGAINST ULTRA VIOLET LIGHT. ADJUSTING RING HEIGHT NOT TO EXCEED 8" WITH A MAXIMUM OF THREE (3) ADJUSTMENT RINGS. THE ANNULAR SPACE BETWEEN RINGS AND CONE BASIN, THE RINGS AND THE RINGS COVER FRAME SHALL BE SEALED UTILIZING AND APPROVED BUTYL SEALANT. ALL ADJUSTMENT FOR MATCHING ROAD GRADE SHALL BE MADE UTILIZING A MOLDED AND INDEXED SLOPE RING.
5. ALL UNDERGROUND NUTS, BOLTS & WASHERS MUST BE STAINLESS STEEL.
6. VALVE VAULT REQUIRED FOR WATER SERVICES GREATER THAN OR EQUAL TO 4". SEE VAULT SIZE TABLE.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 02/25/2020 3. 4.	STANDARD VALVE VAULT	UW-01 Date: 05/29/2015	Drawn JH, Checked VR

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NOTES:

1. METER SHALL NOT BE INSTALLED IN CRAWL SPACE OR INACCESSIBLE AREA.
2. BACKFLOW DEVICE PER ILLINOIS STATE PLUMBING CODE REQUIREMENTS.
3. MINIMUM 12" OF CLEARANCE ABOVE THE METER.
4. METER TO MEET MANUFACTURERS SPECIFICATIONS FOR UPSTREAM PIPE REQUIREMENTS.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015 2. 3. 4.	WATER METER INSTALLATION WITH BACKFLOW PREVENTOR	UW-11 Date: 06/10/2015	Drawn JH, Checked VR

City of Crystal Lake Illinois

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MIDWESTERN CONSULTING
385 Plaza Drive, Ann Arbor, Michigan 48108
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Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
CRYSTAL LAKE UTILITY DETAILS

C4.3

JOB No. 21216

DATE: 12/22/2021
SHEET 18 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
21216DT1.DWG

ISSUED:	REV. DATE:
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

GENERAL SITE-WORK:

1. Pre-Construction meeting shall be conducted with City Staff and all Contractors prior to commencing any grading or underground utility construction activities (schedule meeting with the Community Development Department at 815-356-3605).
2. 24-hour Emergency contact numbers shall be provided to City Staff at the Pre-Construction meeting.
3. Working hours shall be limited to the hours of 7:00 a.m. and 7:00 p.m. on weekdays only (except in cases of emergency). Non-emergency work on weekends or holidays is not permitted per City Code except under written permission from the City Engineer. The owner is responsible for the City Inspector cost of overtime inspection beyond the normal eight (8) hour day, including weekends and holidays.
4. Public/private streets shall be kept free of dirt and debris with regular cleaning, sweeping, and scraping conducted by the Contractor. Junk and debris shall not be allowed to accumulate, blow, or scatter onto streets or adjacent properties.
5. J.U.L.I.E. shall be contacted for utility locations on-site and in the adjacent rights-of-way.
6. Contractor shall provide and maintain fencing, barricades, traffic control signs, and other safeguarding measures during the course of all work to protect the public from the construction operations.
7. Maintain access to adjacent streets during construction. No closing of streets unless approval is first obtained from the agency with jurisdiction (City of Crystal Lake, McHenry County Department of Transportation, Illinois Department of Transportation, etc).
8. Any damage to public right-of-way, public utilities, streets, curb, etc. shall be repaired/replaced as soon as possible and as directed by the City Engineer.
9. The contractor shall give the City of Crystal Lake, Illinois Department of Transportation, and any other governmental agency having jurisdiction, at least two (2) working days notice excluding Saturday and Sunday prior to the initiation of any phase of construction. Contractor shall immediately notify if construction has ceased and renew the two (2) working day notification thereafter.
10. The Contractor shall be responsible for obtaining all required permits for construction prior to commencement along or across existing streets or highways. The Contractor shall make arrangements for the proper bracing, shoring and other protection of all roadways before construction begins.

GRADING:

1. The grading and construction of the site improvements shall not cause ponding of storm sewer water. All areas adjacent to these improvements shall be graded to allow positive drainage.
2. The proposed grading elevations shown on the plans are finished grade. A minimum of six (6) inches of topsoil is to be placed before finished grade elevations are achieved.
3. Embankment material within parkway and open space areas shall be compacted to a minimum of ninety percent (90%) of maximum density in accordance with ASTM Specification D-1557 (modified proctor method), or to such other density as may be determined appropriate by the soils engineer.
4. All subgrade material shall have a minimum CBR (California Bearing Ratio) of 3.0 as determined by the soils engineer, or base replacement and pavement design revisions shall be provided which are adequate to obtain equivalent pavement strength.
5. Proposed pavement areas, building pads, driveways and sidewalks and yard/open space areas shall be excavated or filled to plus or minus 0.1 foot of design subgrade elevations by the Contractor.
6. Any borrow pit locations shall be identified by the Contractor on a copy of the approved site plans and forwarded to the Engineering Division at least 24-hours prior to excavation. Provide backfill compaction reports from a geotechnical engineer and as-built plans to the Engineering Division for any borrow pit area.
7. Backfill shall be monitored by a geotechnical engineer on-site with compaction reports forwarded to the Engineering Division for review.
8. Water truck shall be on-site at all times during mass-grading operations and be available as needed for the purposes of dust control or at the request of City Staff.
9. Use of City fire hydrants is not allowed unless approved (separate from this permit) by the Public Works Department and a hydrant meter and RPZ is obtained from the City of Crystal Lake Water Division (815-356-3614). Only the City of Crystal Lake Water Division may operate valves and hydrants.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	STANDARD NOTES AND SPECIFICATIONS	GE-02a
2.		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

GENERAL SITE-WORK:

1. Pre-Construction meeting shall be conducted with City Staff and all Contractors prior to commencing any grading or underground utility construction activities (schedule meeting with the Community Development Department at 815-356-3605).
2. 24-hour Emergency contact numbers shall be provided to City Staff at the Pre-Construction meeting.
3. Working hours shall be limited to the hours of 7:00 a.m. and 7:00 p.m. on weekdays only (except in cases of emergency). Non-emergency work on weekends or holidays is not permitted per City Code except under written permission from the City Engineer. The owner is responsible for the City Inspector cost of overtime inspection beyond the normal eight (8) hour day, including weekends and holidays.
4. Public/private streets shall be kept free of dirt and debris with regular cleaning, sweeping, and scraping conducted by the Contractor. Junk and debris shall not be allowed to accumulate, blow, or scatter onto streets or adjacent properties.
5. J.U.L.I.E. shall be contacted for utility locations on-site and in the adjacent rights-of-way.
6. Contractor shall provide and maintain fencing, barricades, traffic control signs, and other safeguarding measures during the course of all work to protect the public from the construction operations.
7. Maintain access to adjacent streets during construction. No closing of streets unless approval is first obtained from the agency with jurisdiction (City of Crystal Lake, McHenry County Department of Transportation, Illinois Department of Transportation, etc).
8. Any damage to public right-of-way, public utilities, streets, curb, etc. shall be repaired/replaced as soon as possible and as directed by the City Engineer.
9. The contractor shall give the City of Crystal Lake, Illinois Department of Transportation, and any other governmental agency having jurisdiction, at least two (2) working days notice excluding Saturday and Sunday prior to the initiation of any phase of construction. Contractor shall immediately notify if construction has ceased and renew the two (2) working day notification thereafter.
10. The Contractor shall be responsible for obtaining all required permits for construction prior to commencement along or across existing streets or highways. The Contractor shall make arrangements for the proper bracing, shoring and other protection of all roadways before construction begins.

GRADING:

1. The grading and construction of the site improvements shall not cause ponding of storm sewer water. All areas adjacent to these improvements shall be graded to allow positive drainage.
2. The proposed grading elevations shown on the plans are finished grade. A minimum of six (6) inches of topsoil is to be placed before finished grade elevations are achieved.
3. Embankment material within parkway and open space areas shall be compacted to a minimum of ninety percent (90%) of maximum density in accordance with ASTM Specification D-1557 (modified proctor method), or to such other density as may be determined appropriate by the soils engineer.
4. All subgrade material shall have a minimum CBR (California Bearing Ratio) of 3.0 as determined by the soils engineer, or base replacement and pavement design revisions shall be provided which are adequate to obtain equivalent pavement strength.
5. Proposed pavement areas, building pads, driveways and sidewalks and yard/open space areas shall be excavated or filled to plus or minus 0.1 foot of design subgrade elevations by the Contractor.
6. Any borrow pit locations shall be identified by the Contractor on a copy of the approved site plans and forwarded to the Engineering Division at least 24-hours prior to excavation. Provide backfill compaction reports from a geotechnical engineer and as-built plans to the Engineering Division for any borrow pit area.
7. Backfill shall be monitored by a geotechnical engineer on-site with compaction reports forwarded to the Engineering Division for review.
8. Water truck shall be on-site at all times during mass-grading operations and be available as needed for the purposes of dust control or at the request of City Staff.
9. Use of City fire hydrants is not allowed unless approved (separate from this permit) by the Public Works Department and a hydrant meter and RPZ is obtained from the City of Crystal Lake Water Division (815-356-3614). Only the City of Crystal Lake Water Division may operate valves and hydrants.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	STANDARD NOTES AND SPECIFICATIONS	GE-02a
2.		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

TOPSOIL STOCKPILING:

1. **Location of any on-site topsoil stockpiles shall be identified on the approved plans with silt fence installed around the perimeter of the stockpile.**
2. **Topsoil stockpiled for future use shall be relatively free from large roots, sticks, weeds, brush, stones larger than one (1) inch diameter, or other litter and waste products including other extraneous materials not conducive to plant growth.**
3. **Topsoil shall be stockpiled in sequence to eliminate any re-handling or double movements by the Contractor. Failure to properly sequence the stockpiling operations shall not constitute a claim for additional compensation. No material shall be stockpiled in front yards, in utility easements, or in the right-of-way lines.**
4. **If a stockpile is to remain in place for more than (14) calendar days, it is required that the stockpile meet the requirements as outlined in section 595 of the City Code.**

UNDERGROUND UTILITY:

1. **The Contractor shall coordinate water main, water service, sanitary and storm sewer inspections and testing with the Community Development at least 24 hours in advance.**
2. **All main line sanitary shall be cleaned and televised (provide DVD to the City's Engineering Division).**
3. **All manhole or valve covers shall be imprinted "City of Crystal Lake Sanitary", or "City of Crystal Lake Storm", or "City of Crystal Lake Water" as directed by the City.**
4. **Reference the latest edition of the Standard Specifications for Water and Sewer Main Construction in Illinois.**
5. **Existing manholes to be circular cored and booted.**

EROSION CONTROL:

1. **All specified erosion control measures shall be installed and maintained per the requirements of the Crystal Lake Stormwater Ordinance in accordance with the active NPDES permit.**
2. **All slopes 4:1 or steeper shall be sodded or blanketed immediately after mass earthwork.**
3. **All overland flow routes to be stabilized by sod or blanket.**
4. **Erosion control measures to be inspected and approved by City Engineering Division prior to additional work on site.**
5. **Continuous monitoring of erosion control measures is required. Maintain records of weekly reports per the City of Crystal Lake Stormwater Ordinance.**
6. **The Contractor shall implement any additional erosion control measures deemed necessary by the City per the standards of the City Of Crystal Lake Stormwater Ordinance.**
7. **All storm sewer catch basins, sumps and/or retention basins provided are to be cleaned at the end of construction of the project prior to final acceptance. Cleaning may also be required during the course of the construction of the project if it is determined that the silt and debris traps are not properly functioning and their performance is impaired.**
8. **Rip-rap material RR 2 (6") - RR4 (16") shall be in accordance with Article 281**
9. **Projects of 1 Acre or greater must obtain an NPDES permit prior to commencement of any construction activity.**

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	STANDARD NOTES AND SPECIFICATIONS	GE-02b
2. 02/25/2020		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

SANITARY SEWER:

1. Non-shear stainless steel couplings shall be used when connecting sewer pipes of dissimilar materials and pipes with no hub joints. When connecting to an existing sanitary sewer by means other than an existing wye or manhole, contractor shall use a Sewer-Tap and hub-wye or hub-tee saddle.
2. Unless an alternate method is approved, water stop gaskets shall be provided at all sanitary sewer manhole connections. Type and manufacturer to be approved by the City.
3. PVC plastic sewer pipe and fittings of sizes 4-inch through 15-inch shall conform to the latest revised specification requirements of ASTM D3034 for type PSM polyvinyl chloride (PVC) sewer pipe and fittings of minimum wall thickness SDR 26.
4. Joints shall be either the solvent weld type conforming to the latest revised specification requirements of ASTM D2564 and ASTM D2855, or elastomeric gasket type conforming to the latest revised specification requirements of ASTM D1869 and ASTM D3212.
5. A thicker walled pipe such as SDR 18 may be specified by the engineer depending on design and/or field conditions.
6. PVC plastic sewer pipe and fittings of sizes 18-inch through 36-inch shall conform to the latest revised specification requirements of ASTM F679 or polyvinyl chloride (PVC) large diameter ribbed gravity sewer pipe and fittings, with integral bell gasketed joints and elastomeric gaskets to form a watertight seal conforming to the latest revised specification requirements of ASTM F477 or ASTM D3212.
7. Pipe and fittings shall be the products of one approved manufacturer only, and there shall not be any mixing of pipe and fittings of different manufacturers between manholes.
8. The handling and installation of pipe, assembly or joints, and manhole connections shall be in accordance with the manufacturer's recommendations.
9. Gasket-type waterstop collars consist of a neoprene collar and a stainless steel band or other approved manhole waterstop shall be installed wherever the pipe passes through the manhole walls to provide a watertight joint to prohibit infiltration into the sewer system.
10. PVC pipe shall be installed in accordance with the latest revised specification requirements of ASTM D2321 using either compacted class I or class II granular embedment materials for bedding, haunching and initial backfill of 12 inches over the top of pipe to provide the necessary support for the pipe so that the maximum deflection does not exceed five percent of the pipe's original internal diameter.
11. The Contractor shall provide the necessary tools and equipment and perform the work necessary to test the deflection in the initial 1,200 feet of installed sewer and not less than ten percent (10%) of the remainder of the sewer project at random locations selected by the engineers no sooner than 30 days after backfilling has been completed. In the event that deflection exceeds the maximum limit of five percent (5%), the Contractor shall test all other new flexible pipe for deflection. Deflection shall be tested by use of either a mandrel or rigid ball having a diameter equal to ninety-five percent (95%) of the inside diameter of the pipe, and the test shall be performed without using mechanical pulling devices. Wherever the deflection limitation is exceeded, the contractor shall uncover the pipe, carefully replace compacted embedment and backfill material, and retest for deflection.
12. The Contractor shall subject all sanitary sewers, including service lines, to an air test. Air testing shall be performed in accordance with the latest Standard Specifications for Water and Sewer.
13. The Contractor shall subject all newly constructed sanitary manholes to the Negative Pressure (Vacuum) Test in accordance with ASTM C 1244.The Contractor shall also televise all public sanitary sewers. Televising of sanitary sewer cost for televising, and testing shall be the responsibility of the Contractor.
14. Cast Iron Soil Pipe: service weight cast iron soil pipe and fittings conforming C.I.S.P.I. Specification HS-67 with compression type rubber gasket joints conforming to ASTM specification C564, or other suitable materials approved by the City Engineer.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	STANDARD NOTES AND SPECIFICATIONS	GE-02c
2. 01/25/2021 KL Vacuum Test Note 13		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

WATER MAIN:

1. Water main shall be Ductile Iron or Molecularly Oriented Polyvinyl Chloride (PVCO).
   a) Ductile Iron water main shall be Class 52 conforming to ANSI/AWWA C151/A21.51-09.
   b) Ductile iron fittings shall conform to ANSI/AWA C153/A21.53 with mechanical joint gaskets.
   c) PVCO - See City Detail UW-12 and UW-13.
2. All bolted connections shall be torqued to the manufacturer's specification. The Contractor shall verify the manufacturer's specification with an approved torque wrench.
3. Thrust blocking or Mega-Lugs with Mega-Bond coating or pre-approved equal shall be installed on water mains at all bends, tees, elbows, etc. except as noted below.
4. Thrust blocks not permitted with 45 degree vertical bends in water main (these shall be restrained with Mega-Lug or pre-approved equal.
5. When specified, ductile iron pipe shall be encased in polyethylene and shall conform with ANSI/AWWA C105/A21.10 - 10 and ASTM A674-10.
6. Minimum cover from finished grade to top of water main shall be six (6) feet; Maximum cover shall be eight (8) feet.
7. Water Main Taps: An Illinois licensed plumber is required for any water main tap.
8. All water mains shall be subjected to a pressure test and a separate leakage test at system pressure for 24 hours by the Contractor. Hydrostatic pressure test and leakage test shall be based on 125 PSI for two (2) hours. Water mains shall be chlorinated in accordance with the Standard Specifications.
9. The Underground Contractor shall consider incidental to the contract any chlorination and testing of existing water main where connections to and conclusion of such mains is indicated on the drawing.

PAVING:

1. All subgrades and bases shall be proof-rolled and approved by the Engineering Division prior to base or binder installation.
2. Subgrade and proposed pavements shall be finished by the Excavation Contractor to within 0.1 foot plus or minus, of plan elevation.
3. The Paving Contractor shall ensure that the subgrade has been properly prepared and that the finished top of subgrade elevation has been graded within the tolerances allowed in these specifications. Unless the Paving Contractor advises the owner and engineer in writing prior to fine grading for base course construction, it is understood that the Contractor has approved and accepts responsibility for the subgrade.
4. For the purpose of providing handicap accessibility and complying with the American Disability Act and City Standards, curbs shall be depressed at locations where public walks or pedestrian paths intersect curb lines at street intersections and other locations as directed.
5. ½ inch thick premolded fiber expansion joints with two (2) No. 4 plain round steel dowel bars shall be installed at designated intervals and at all P.C., P.T., curb returns and at the end of each pour. Alternate ends of the dowel bars shall be greased and fitted with metal expansion tubes.
6. ¾ inch thick fiber expansion joints shall be used in every case where the sidewalk coincides with the curb and gutter. Contraction joints shall be saw cut at designated intervals in the curb. The cost of these joints shall be considered as incidental to the cost of the contract.
7. All poured in place concrete curb and gutter shall incorporate two (2) No. 4 reinforcing bars installed wherever the curb and gutter crosses utility service lines, the cost of which shall be considered incidental to the cost of concrete curb and gutter.
8. Sidewalks (where required) shall be of the thickness and dimensions as shown in the construction plans. All sidewalk concrete shall be a minimum of 6.1 bag mix (or IDOT class SI concrete) and shall develop a minimum of 3,500 psi compressive strength at fourteen (14) days. Contraction joints shall be set at five (5) foot centers, and one-half inch (½ inch) premolded fiber expansion joints at fifty (50) foot centers and where the sidewalk meets the curb or another sidewalk, or at the end of each pour. All sidewalks constructed over utility trenches and/or abutting driveway aprons shall be reinforced with three (3) No. 4 reinforcing bars (10' foot minimum length).

TRACER WIRE

Reinforced tracer wire shall be required on all new PVCO water mains installed within the City.

- Tracer wire for open cut installation shall be a #12 AWG HS-CCS high-strength copper clad steel conductor (HS-CCS), insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts. HS-CCS conductor must be at 21% conductivity for locating purposes, break load 380 lbs. minimum. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Insulation color shall blue. Tracer wire shall be Copperhead™ HS-CCS HDPE 30 mil or pre-approved equal.
- Tracer wire for directional drilling/boring shall be SoloShot™ (12 AWG) extra-high strength copper-clad steel conductor (EHS-CCS), insulated with a 45 mil, high density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts. EHS-CCS conductor must be at 21% conductivity for locating purposes; break load will be 1150 lbs. minimum. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Tracer wire shall be Copperhead™ SoloShot™ EHS-CCS HDPE 45 mil or pre-approved equal.
- Two separate conductors shall be run along the side (at the nine or three o'clock position) of all new mains and hydrant leads, taped to the pipe a minimum of every 5 feet.
- The wire shall be brought to grade in a tracer box at each hydrant.
  - A magnetized tracer box shall be installed at each new fire hydrant.
  - Locate the magnetized tracer box adjacent to the auxiliary valve, with two feet of the hydrant barrel.
  - The box shall be tamper-proof, with cast or ductile iron blue lid with a brass wire harness and external brass connection screw, (Copperhead Industries, LDXL36BTP in unpaved areas, CD14BTP for concrete applications and RB14BTP in roadways or approved equal.
  - Magnetized tracer boxes maybe required at locations to be determined by the City Engineer.
- The wire shall also be secured to the top (inside) of each valve vault leaving enough slack in the wire so that it may be pulled out of the valve vault with an excess of 6 foot.
- All splices in the wire to connect main line tracer wire shall use Copperhead SnakeBite Part #SCB_01-SR or approved equal.
  - For lateral runs or hydrant leads, connections shall be made with a 3 - way enclosed lug direct buny connector with internal silicone sealant, Copperhead Industries "DryConn" Direct Bury Lug, # 3WB-01 or approved equal.
  - In directional bore operations; splices shall be at valve and fitting locations where excavation is required. If a splice must be done in an unexcavated location, use a wire nut twist connector with restraining cap and internal silicone sealant Copperhead Industries #SCB - 01SR or approved equal. Connections should be wrapped with heavy-duty electrical tape (minimum three (3) inches each side of connection).
  - The contractor is responsible for testing and ensuring the continuity of the tracer wire during installation, the City will test the integrity of the tracing wire at the end of construction.
- Grounding the tracer wire system at all dead end points completed the needed electrical circuit for accurate locates.
  - Contractor to include a CopperheadTM Anode Part #(Ano-1005), 1# x 1.315"D x 18.5"L, Magnesium Drive in Anode which includes an HDPE cap and 10' of density high molecular weight polyethylene (HDPE) insulation.
  - Installation of one Copperhead Snake BiteTM connector, part # SCB-01-SR, shall be installed at a location to be determined by the Engineer.
  - The connector is provided to splice the factory installed anode tracer wire to the mainline tracer wire. The CopperheadTM Anode described above must be used or a pre-approved equal

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	STANDARD NOTES AND SPECIFICATIONS	GE-02d
2. KL 01/25/2021 Torque Specification		Date: 01/30/15
3.		Drawn DD / Checked AW
4.		City of Crystal Lake Illinois

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	PVCO WATER MAIN TRACER WIRE GENERAL SPECIFICATIONS	UW-13
2.		Date: 06/10/2015
3.		Drawn JH / Checked VR
4.		City of Crystal Lake Illinois

MOLECULARLY ORIENTED POLYVINYL CHLORIDE WATER MAIN (PVCO)

- Molecularly oriented polyvinyl chloride (PVCO) Class 305 water main shall have push-on joints, conform to the latest ANSI/AWWA C909-09 and ASTM F1483 and shall be constructed in accordance with the City of Crystal Lake Ordinances and the applicable portions of the Standard Specifications for Water and Sewer Main Construction in Illinois.
- Wherever water is encountered in the trench, it shall be removed during pipe laying and jointing operations. Provisions shall be made to prevent floating of the pipe. Any dewatering of the trenches shall be considered incidental. At no time shall trench water be allowed to enter the water main.
- All types of pipe shall be handled in such a manner as to prevent damage to the pipe. Damage to the pipe, as determined by the city, shall be removed from the job, and the methods of handling shall be corrected to prevent further damage.
- When requested by the City, the pipe shall be inspected by the City for defects while suspended above grade.
- All cutting of existing water main pipe for the insertion of valves, tees or other fittings shall be performed without damage to the pipe and so as to leave a smooth end at right angles to the axis of the pipe.
- A canvas strap shall be used to lower the PVCO water main into the trench to avoid damaging the pipe.
- A utility line marking tape shall be installed along the centerline of the entire pipeline. The tape shall be four to six inches below the base course in roadway areas, and shall be 18 to 24 inches below existing or proposed ground surface in other areas. The six-inch wide tape shall be aluminum foil encased in an impervious mylar plastic coating on both sides, resistant to acid, alkali and corrosion and detectable with radio-type locators to a buried depth of three feet. The words, "Caution - Water Main Buried Below" shall be continuously, reverse printed on the Safety Precaution blue tape with striping. The tape shall be Lineguard, Inc., Type III SUPER TUFF, CAUTION STRIPED, Linetec, Inc. or an equal approved by the City Engineer.
- The first two joints beyond any valve, bend, cross, or tee shall be restrained with retainer glands. Also, any joint where the proposed PVCO water main ties into the existing water main shall be restrained with retainer glands. Retainer glands shall be C909 PVC Pipe Restraints Series 19MJOO or Series 2016PV or similar restrained harness as required for the PVCO water main diameter manufactured by EBAA Iron, or an equal approved by the ENGINEER. Also all bends, crosses, and tees shall be additionally restrained with thrust blocks as shown on the details in the plans.
- All taps shall require a saddle suitable for AWWA C909 PVCO water main (no direct taps are allowed). See Detail UW-04a for PVCO C909 water service tapping information. Valve Vaults require saddled taps on both sides of the valve (See Detail UW-01) and shall use Cascade CS12 or Approved Equal.
- All bolted connections shall be torqued to the manufacturer's specification. The contractor shall verify the manufacturer's specification with an approved torque wrench. Do not over torque bolts. Over torqued connections shall be removed and pipe checked for deformity. If the Engineer determines the pipe to be compromised, the pipe shall be removed and replaced at no additional cost to the City.
- Only products specifically identified for use on PVCO should be used on PVCO.

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	PVCO WATER MAIN GENERAL SPECIFICATIONS	UW-12
2. KL 01/25/2021 Torque Specification. Pressure Class 305 PVC		Date: 06/10/2015
3.		Drawn JH / Checked VR
4.		City of Crystal Lake Illinois

CITY OF CRYSTAL LAKE WATER MAIN CHLORINATION SPECIFICATIONS:

1. DISINFECTION OF WATER MAINS SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION, CURRENT EDITION
2. THE CITY ENGINEERING DIVISION AND WATER DIVISION SHALL BE NOTIFIED 48 HOURS IN ADVANCE FOR SCHEDULING OF ANY TESTING, CHLORINATING, FLUSHING, OR SAMPLING.
3. ONLY CITY WATER DIVISION PERSONNEL MAY OPERATE WATER VALVES ON LIVE MAINS.
4. A WATER VALVE JUMPER IS REQUIRED TO MAINTAIN PRESSURE ON THE CHLORINATED LINES DURING THE SAMPLING PROCEDURE. FOR PROPER INSTALLATION AND REQUIREMENTS SEE THE STANDARD WATER VALVE JUMPER DETAIL UW-05.
5. WATER MAINS SHALL BE FLUSHED WITH A MINIMUM VELOCITY OF 2.5 FPS.
6. THE INITIAL CHLORINE CONCENTRATION SHALL BE 50 mg/L WITH A MINIMUM 24 HOUR RESIDUAL OF 25 mg/L.
7. THE METHOD OF CHLORINE APPLICATION SHALL BE APPROVED BY THE CITY:
   a. LIQUID CHLORINE W/CHLORINATING DEVICE WITH BACKFLOW PREVENTER.
   b. CHLORINE BEARING COMPOUNDS IN WATER.
   c. TABLET DISINFECTION.
8. ALL NEW VALVES AND HYDRANTS SHALL BE OPERATED WHILE LINE IS BEING CHLORINATED.
9. THE CITY ENGINEERING DIVISION SHALL DETERMINE LOCATION AND QUANTITY OF CORPORATION STOPS FOR FLUSHING AND CHLORINATING. MAXIMUM SPACING BETWEEN SAMPLES SHALL BE 1,200 FEET. THE CHLORINE SOURCE AND ALL DEAD ENDS SHALL BE SAMPLED.
10. THE FINAL FLUSHING RESIDUAL IN THE NEW CHLORINATED LINES SHALL BE BETWEEN 0.2 AND 2.0 mg/L.
11. ALL WATER SAMPLES SHALL BE COLLECTED ON TWO (2) CONSECUTIVE DAYS AND PASS BACTERIOLOGICAL TEST RESULTS. IN THE EVENT THAT THE FIRST SET OF SAMPLES TAKEN TWO (2) CONSECUTIVE DAYS APART FAIL TO PASS, ANOTHER SET OF SAMPLES MAY BE TAKEN TWO (2) DAYS APART (PER STATE SPECS). IF THE SECOND SET FAILS TO PASS TESTING, THEN THE PROCEDURE MUST BE REPEATED WITH THE MAIN BEING RECHLORINATED, REFLUSHED, AND RESAMPLED.
12. IF THE WATER MAIN FALLS BELOW 20 PSI AFTER CHLORINATION, THE LINE SHALL BE RESAMPLED ON TWO (2) CONSECUTIVE DAYS AND PASS BACTERIOLOGICAL TEST RESULTS.
13. STATE CERTIFIED LAB MUST BE USED FOR SAMPLES.

CHLORINE REQUIREMENTS TO PRODUCE 50 mg/L CONCENTRATION IN 100 FEET OF PIPE-BY DIAMETER

PIPE SIZE IN INCHES	100% CHLORINE, LB	12% CHLORINE SOLUTION, GALS.
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

NUMBER OF 5-GRAIN HYPOCHLORITE TABLETS REQUIRED FOR A DOSAGE OF 50mg/L PER LENGTH OF PIPE SECTION

LENGTH OF PIPE SECTION IN FEET

PIPE SIZE IN INCHES	UP TO 13	18	20	30	40
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	3	4
8	2	3	5	5	6
10	3	5	7	7	9
12	5	6	10	10	14

Revised:	Drawing Name	Drawing Number
1. 06/12/2015	CHLORINATION SPECIFICATIONS	UW-08
2. 4/30/2021 KL 20 PSI RESAMPLE, SAMPLING FREQUENCY		Date: 09/20/2012
3.		Drawn DD / Checked VR
4.		City of Crystal Lake Illinois

ALL SITE WORK PERFORMED THAT IS NOT COVERED BY THE ABOVE SPECIFICATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2022 ILLINOIS DEPARTMENT OF TRANSPORTATION (IDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

MIDWESTERN CONSULTING
385 Plaza Drive, Ann Arbor, Michigan 48108
(734) 995-0200 • www.midwesternconsulting.com
Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
CONSTRUCTION SPECIFICATIONS

C4.4

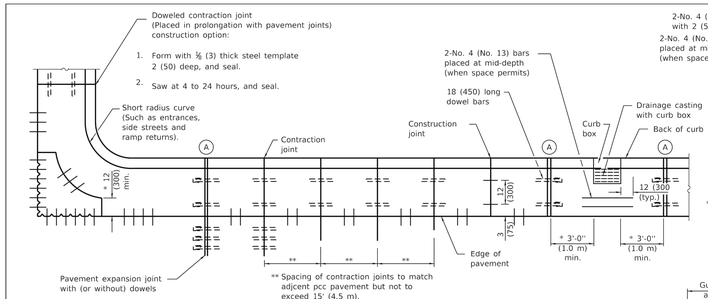
JOB No. 21216

DATE: 10/29/2021
SHEET 19 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216DI3.DWG

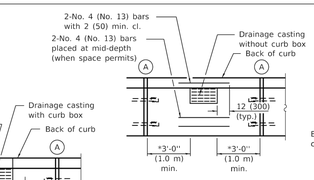
ISSUED:	REV. DATE
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SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	

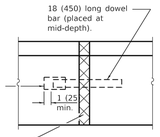
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M:\Civil\34_Pro\21216\Site Plan\21216DT2.dwg, 12/23/2021 10:54 AM, Jeremy A. Walthel, C4.5 CURB RAMP DETAILS, MCLLC PDF.pc3
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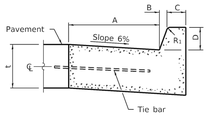


PLAN
ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE





DETAIL Ⓐ
EXPANSION JOINT

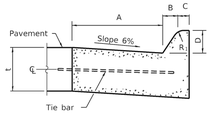


BARRIER CURB

TABLE OF DIMENSIONS BARRIER CURB

TYPE	A	B	C	D	R1
B-6.06 ●	6 (150)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.12 (B-15.3)	12 (300)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.18 (B-15.45)	18 (450)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.24 (B-15.60)	24 (600)	1 (25)	6 (150)	6 (150)	1 (25)
B-9.12 (B-22.30)	12 (300)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.18 (B-22.45)	18 (450)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.24 (B-22.60)	24 (600)	2 (50)	5 (125)	9 (225)	1 (25)

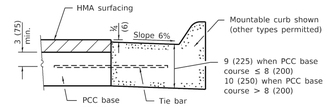
● For corner islands only.



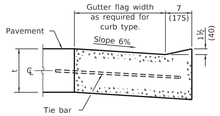
MOUNTABLE CURB

TABLE OF DIMENSIONS MOUNTABLE CURB

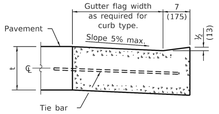
TYPE	A	B	C	D	R1	R2
M-2.06 (M-5.15)	6 (150)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-2.12 (M-5.30)	12 (300)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-4.06 (M-10.15)	6 (150)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.12 (M-10.30)	12 (300)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.18 (M-10.45)	18 (450)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.24 (M-10.60)	24 (600)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-6.06 (M-15.15)	6 (150)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.12 (M-15.30)	12 (300)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.18 (M-15.45)	18 (450)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.24 (M-15.60)	24 (600)	6 (150)	2 (50)	6 (150)	2 (50)	NA



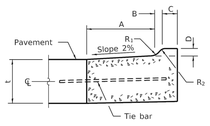
ADJACENT TO PCC BASE COURSE WITH HMA SURFACING



DEPRESSED CURB (TYPICAL)



DEPRESSED CURB ADJACENT TO CURB RAMP ACCESSIBLE TO THE DISABLED



M-2.06 (M-5.15) and M-2.12 (M-5.30)

GENERAL NOTES

The bottom slope of combination curb and gutter constructed adjacent to pcc pavement shall be the same slope as the subbase or 6% when subbase is omitted.

t = Thickness of pavement.

Longitudinal joint tie bars shall be No. 6 (No. 19) at 36 (900) centers in accordance with details for longitudinal construction joint shown on Standard 420001.

A minimum clearance of 2 (50) between the end of the tie bar and the back of the curb shall be maintained.

The dowel bars shown in contraction joints will only be required for monolithic construction.

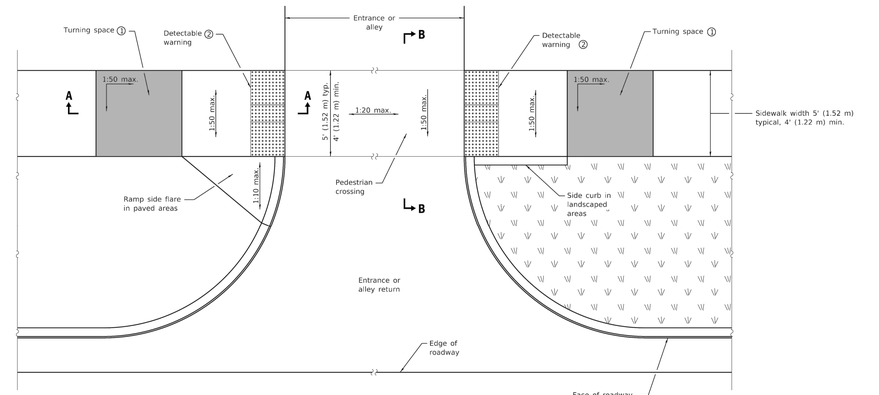
See Standard 606301 for details of corner islands.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation
PASSED January 1, 2019 — ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2019 — ENGINEER OF DESIGN AND ENVIRONMENT
BSDDS 1-1-22

DATE	REVISIONS
1-1-22	Revised contraction joint spacing adjacent to pcc pavement.
1-1-18	Revised General Note for tie bar spacing to 36 (900) cts.

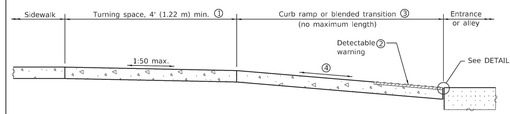
CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
(Sheet 1 of 2)
STANDARD 606001-08



② Detectable warning shall only be installed at entrances/alleys with permanent traffic control devices (i.e. stop signs, signals).

③ Where possible, maintain the grade of the sidewalk across the entrance/alley to avoid the need for ramps and turning spaces.

ENTRANCE / ALLEY PEDESTRIAN CROSSING

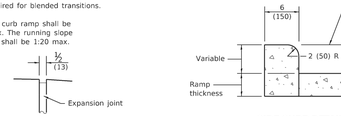


SECTION A-A

① Turning space not required for blended transitions.

④ The running slope of a curb ramp shall be 1:20 min and 1:12 max. The running slope of a blended transition shall be 1:20 max.

SECTION B-B



SIDE CURB DETAIL



DETAIL A

Illinois Department of Transportation
PASSED January 1, 2019 — ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2019 — ENGINEER OF DESIGN AND ENVIRONMENT
BSDDS 1-1-22

DATE	REVISIONS
1-1-19	Added blended transitions and placement tolerances for detectable warnings.
1-1-18	Omitted diagonal slope at upper landings.

ENTRANCE / ALLEY PEDESTRIAN CROSSINGS
STANDARD 424026-03

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

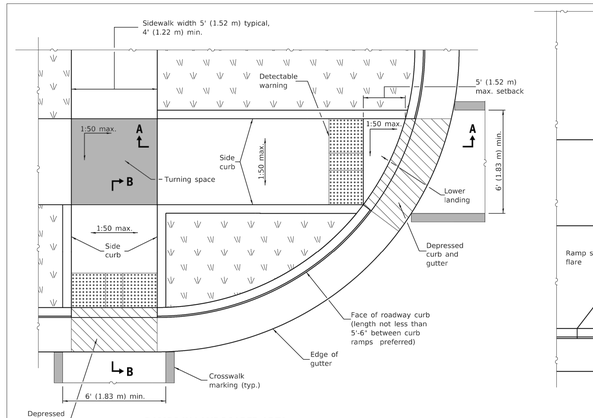
Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

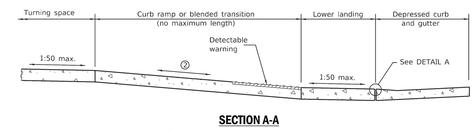
Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

All dimensions are in inches (millimeters) unless otherwise shown.

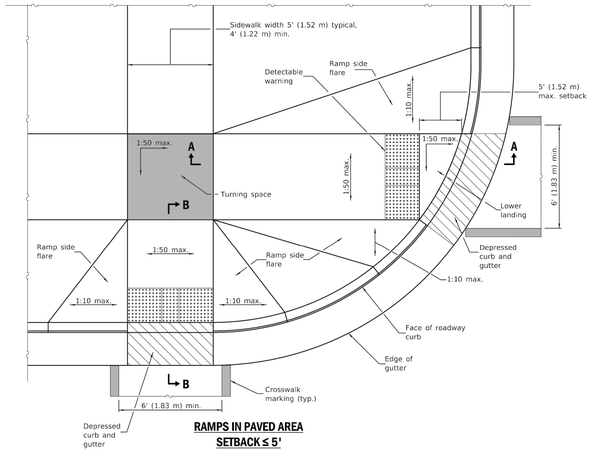


RAMPS IN LANDSCAPED AREA SETBACK ≤ 5'

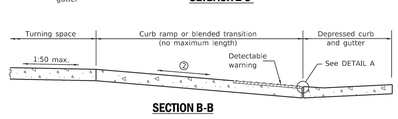


SECTION A-A

② The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

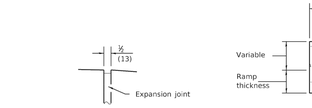


RAMPS IN PAVED AREA SETBACK ≤ 5'



SECTION B-B

② The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



SIDE CURB DETAIL

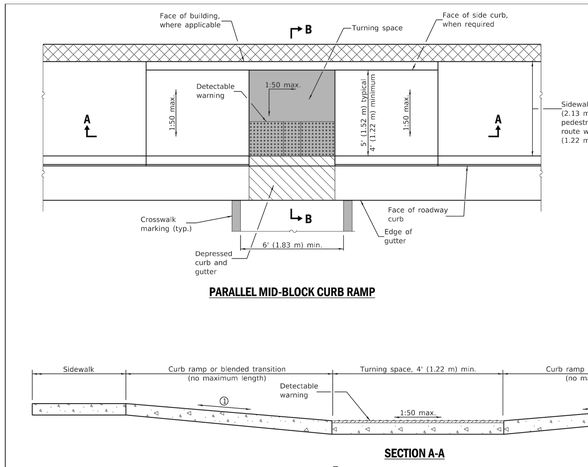
DETAIL A

See Sheet 2 for GENERAL NOTES.

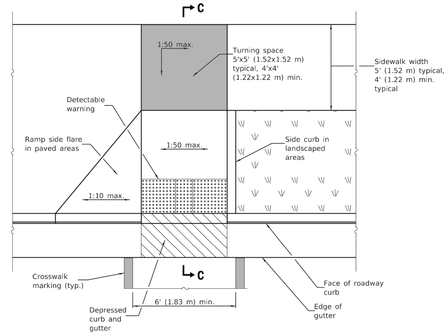
Illinois Department of Transportation
PASSED January 1, 2019 — ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2019 — ENGINEER OF DESIGN AND ENVIRONMENT
BSDDS 1-1-22

DATE	REVISIONS
1-1-19	Removed "15-foot rule", added "Blended transitions" and placement tolerances for detectable warnings.
1-1-18	Omitted diagonal slope at turning spaces and lower landings.

PERPENDICULAR CURB RAMPS FOR SIDEWALKS
(Sheet 1 of 2)
STANDARD 424001-11



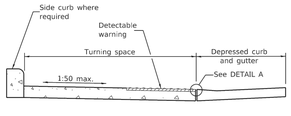
PARALLEL MID-BLOCK CURB RAMP



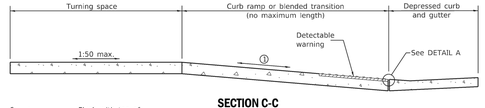
PERPENDICULAR MID-BLOCK CURB RAMP

SECTION A-A

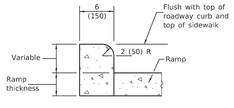
① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



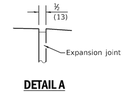
SECTION B-B



SECTION C-C



SIDE CURB DETAIL



DETAIL A

Illinois Department of Transportation
PASSED January 1, 2019 — ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2019 — ENGINEER OF DESIGN AND ENVIRONMENT
BSDDS 1-1-22

DATE	REVISIONS
1-1-19	Removed upper landing, added blended transitions and detectable warning tolerances.
1-1-18	Omitted diagonal slope at turning spaces and upper landings.

MID-BLOCK CURB RAMPS FOR SIDEWALKS
STANDARD 424016-05

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in. width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

All dimensions are in inches (millimeters) unless otherwise shown.

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348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC
SITE PLAN FOR PLANNING COMMISSION
CURB RAMP DETAILS

C4.5

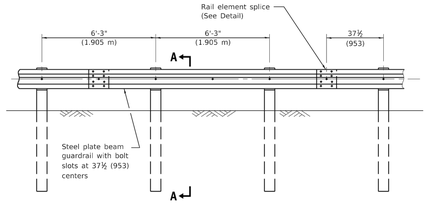
DATE: 10/29/2021
SHEET 20 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216DT2.DWG

JOB No. 21216

ISSUED:	REV.	DATE
SITE PLAN SUBMITTAL 1	1	11/17/21
SITE PLAN SUBMITTAL 2	2	12/23/21
SITE PLAN SUBMITTAL 2		

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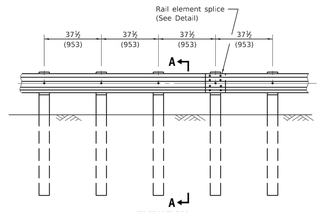
M:\Civil\34_Pro\21216\Site Plan\21216DT2.dwg, 12/23/2021 10:54 AM, Jeremy A. Walthel, C4.6 IDOT GUARDRAIL DETAILS, MCLLC PDF.pc3



ELEVATION

TYPE A

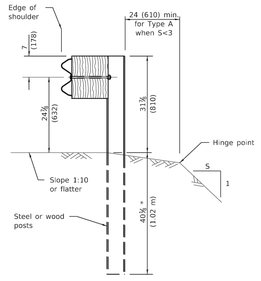
6'-3" (1.905 m) Typical post spacing



ELEVATION

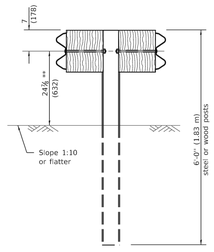
TYPE B

37½ (953) Closed post spacing



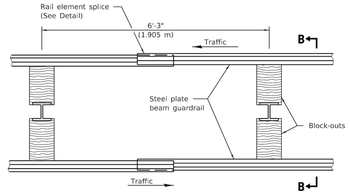
SECTION A-A

* When "S" is less than 3 and the distance from the back of post is less than 24 (610), the post shall be steel and the embedment shall be 76⅛ (1.93 m) and the minimum top of rail height shall be 31 (787).



SECTION B-B

** When connecting Type D guardrail to an impact attenuator, adjust this dimension to match over a distance of 25'-0" (7.62 m) from point of connection if necessary.



PLAN

TYPE D

Double steel plate beam guardrail
6'-3" (1.905 m) typical post spacing

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

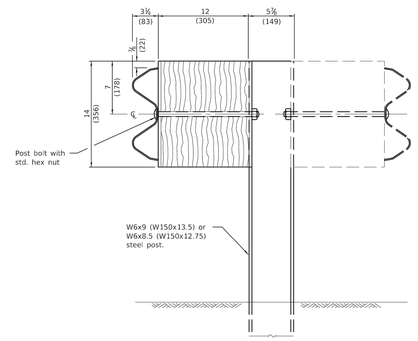
DATE	REVISIONS
1-1-18	Revised steel post to have
	four holes in each flange.
1-1-17	Added detail for leave-out.
	Rev. 'D' to less than 6 (150)
	for guardrail behind curb.

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SHEETS 1 OF 4

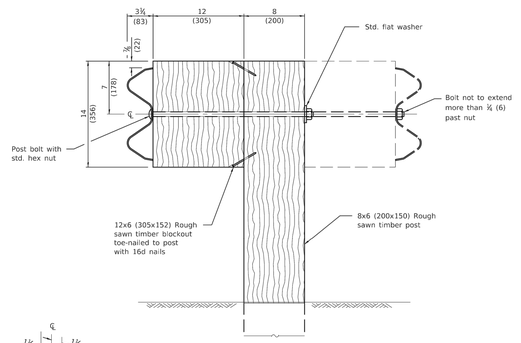
STEEL PLATE BEAM GUARDRAIL

(Sheet 1 of 4)

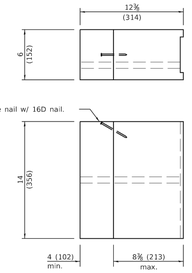
STANDARD 630001-12



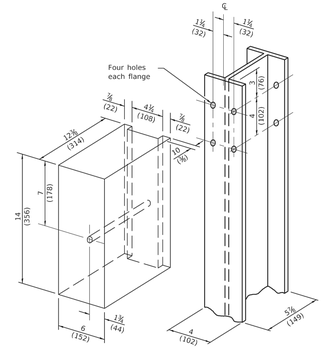
STEEL POST CONSTRUCTION



WOOD POST CONSTRUCTION

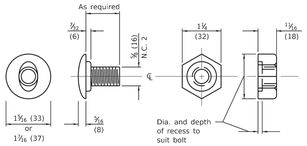


TWO-PIECE WOOD BLOCKOUT OPTION



Note:
All holes ¾ (20) dia.

WOOD BLOCK-OUT AND STEEL POST DETAILS



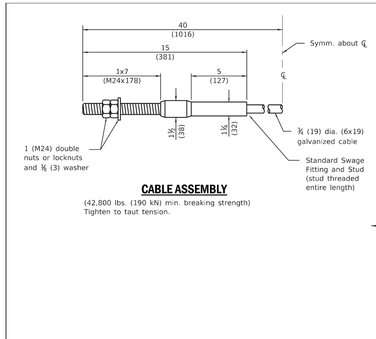
POST OR SPLICE BOLT & NUT

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SHEETS 1 OF 4

STEEL PLATE BEAM GUARDRAIL

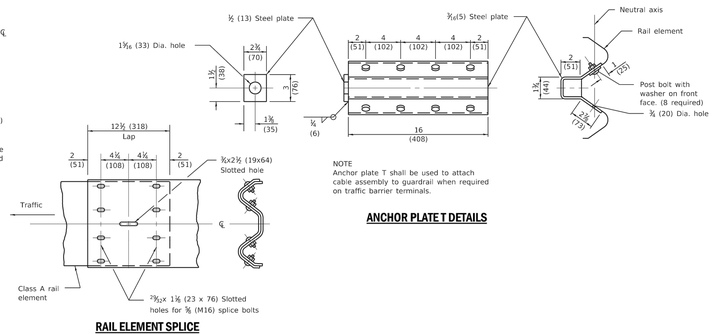
(Sheet 2 of 4)

STANDARD 630001-12



CABLE ASSEMBLY

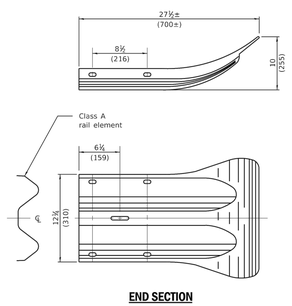
(42,800 lbs. (190 kN) min. breaking strength)
Tighten to taut tension.



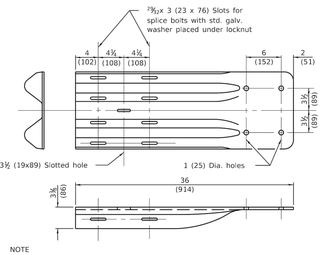
NOTE
Anchor plate T shall be used to attach cable assembly to guardrail when required on traffic barrier terminals.

ANCHOR PLATE T DETAILS

RAIL ELEMENT SPLICE



END SECTION

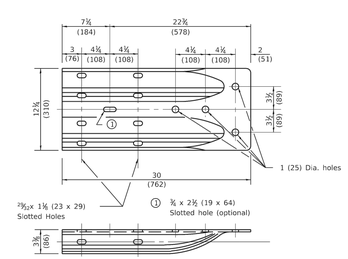


NOTE
When end shoe is attached to a bridge parapet which has an expansion joint, the bolts shall be provided with a locknut or double nut and shall be tightened only to a point that will allow guardrail movement.

The standard end shoe shall be attached to the concrete with pre-drilled or self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete.

Externally threaded studs protruding from the surface of the concrete will not be permitted.

END SHOE



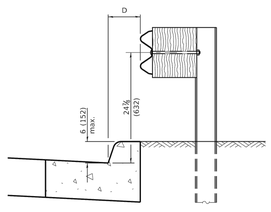
ALTERNATE END SHOE

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SHEETS 1 OF 4

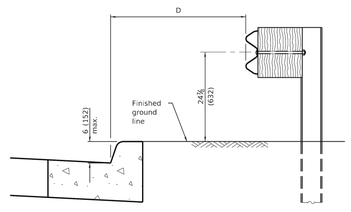
STEEL PLATE BEAM GUARDRAIL

(Sheet 3 of 4)

STANDARD 630001-12



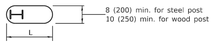
0 ≤ D < 6 (150 m)



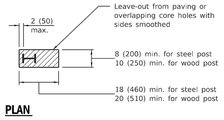
4'-0" (1.2 m) ≤ D ≤ 12'-0" (3.7 m)

GUARDRAIL PLACED BEHIND CURB

Note: 'D' shall not exceed 6 (152) for design speeds greater than 45 mph.

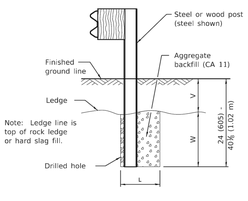


PLAN



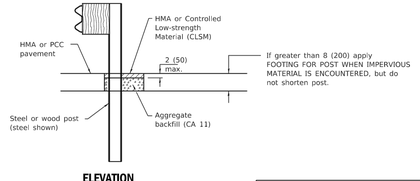
PLAN

V	W	L	
		Steel Post	Wood Post
0 - 6 (0 - 152)	24 (610)	21 (530)	23 (580)
> 6 - 18 (> 152 - 458)	18 (458)	14½ (368)	16½ (419)
> 18 - 31 (> 458 - 787)	12 (305)	8 (203)	10 (250)
> 31 - 40½ (> 787 - 1.02 m)	12 - 0 (305 - 0)	8 (203)	10 (250)



ELEVATION

FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED



ELEVATION

LEAVE-OUT FOR POST WHEN PAVED MATERIAL IS ENCOUNTERED

STEEL PLATE BEAM GUARDRAIL

(Sheet 4 of 4)

STANDARD 630001-12

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CLOVER COMMUNITIES CRYSTAL LAKE LLC

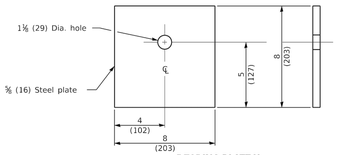
SITE PLAN FOR PLANNING COMMISSION
IDOT GUARDRAIL DETAILS

C4.6

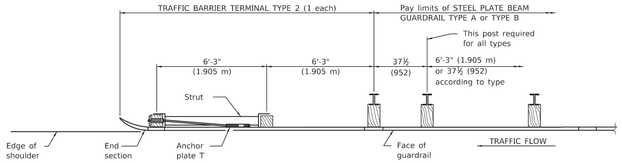
DATE: 10/29/2021
SHEET 21 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216DT2.DWG

JOB No. **21216**

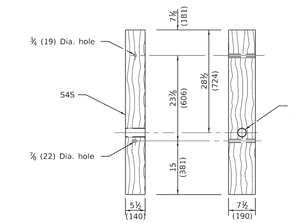
ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE SUBMITTAL 1	12/23/21
SITE PLAN SUBMITTAL 2	



BEARING PLATE K

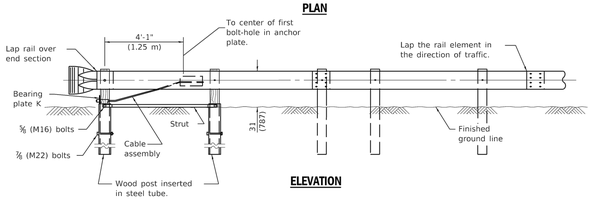


PLAN

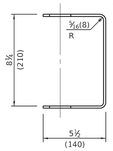


FRONT **SIDE**

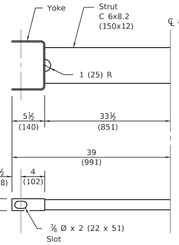
WOOD POST



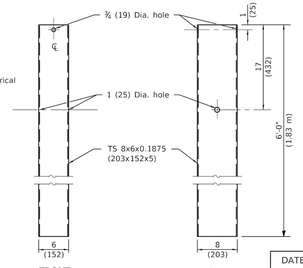
ELEVATION



YOKE
⅜ (5) thick steel



CABLE STRUT



FRONT **SIDE**

STEEL TUBE

GENERAL NOTES

See Standard 630001 for details of guardrail not shown.

The bearing plate K shall be held in position by two eight penny nails driven into the post and bent over the top of the plate.

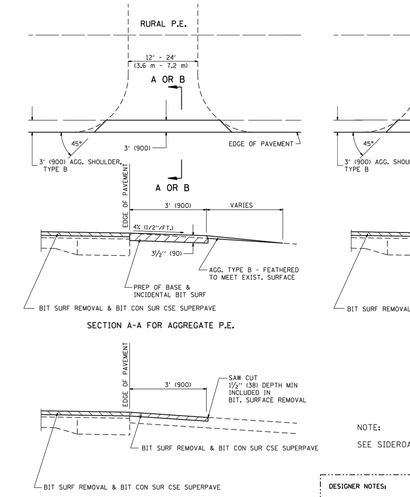
All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-17	Revised wood post length
	and hole spacing.
1-1-13	Corrected metric dimension
	for BEARING PLATE K. Changed
	pipe dia. in wood post.

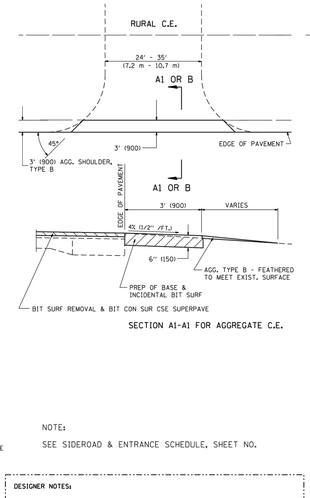
TRAFFIC BARRIER TERMINAL, TYPE 2

STANDARD 631011-10

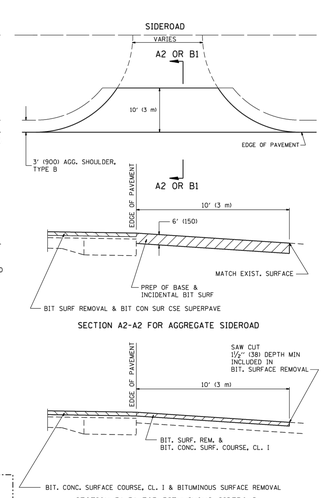
Illinois Department of Transportation
PASSED January 1, 2017 — ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2017 — ENGINEER OF DESIGN AND ENVIRONMENT
STANDARD 631011-10



SECTION A-A FOR AGGREGATE P.E.



SECTION A1-A1 FOR AGGREGATE C.E.



SECTION A2-A2 FOR AGGREGATE SIDEROAD

SECTION B-B FOR BITUMINOUS P.E. & C.E.

NOTE:
SEE SIDEROAD & ENTRANCE SCHEDULE, SHEET NO.

DESIGNER NOTES:

1 THIS IS A BASE SHEET WHICH CAN BE MODIFIED TO SHOW FINAL ENTRANCE TREATMENT DETAIL TO BE INCLUDED IN THE PLANS. SHOW ONLY THE PLAN AND SECTION VIEWS APPLICABLE TO THE PROJECT.

2 BITUMINOUS CONCRETE THICKNESS ON AGGREGATE SIDEROADS AND COMMERCIAL ENTRANCES MAY BE INCREASED WHEN WARRANTED.

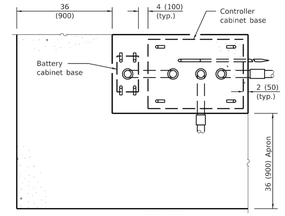
3 IF EXISTING BITUMINOUS SURFACE IS NEW AND/OR IN VERY GOOD CONDITION - RESURFACING MAY BE OMITTED. IF EXISTING SURFACE IS SIGNIFICANTLY DEGRADED - CORE OUT AND REPLACE AS SHOWN IN SECTION A1-A1 OR A2-A2 WHICHEVER IS APPLICABLE.

SECTION B1-B1 FOR BITUMINOUS SIDEROAD

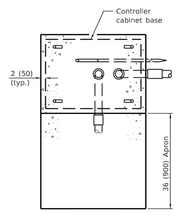
ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

FILE NAME = pw:\\SMARKERPRINTS\Documents\SMART96.DGN	USER NAME = Yeramakfa	DESIGNED - WJR	REVISED - OPS 28AUG97	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ENTRANCE AND SIDEROAD DETAILS FOR PROJECTS WITH MILLING
	PLOT SCALE = 40.000 ' / in.	CHECKED - WJR	REVISED - OPS 5DEC02		
Default	PLOT DATE = 5/18/2016	DATE - 10/1/96	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.

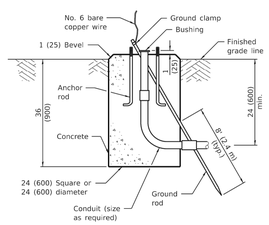
F.A. RTE.	SECTION	COUNTY	TOTAL SHEET NO.	SHEET NO.
			CONTRACT NO.	
		ILLINOIS FED. AID PROJECT		



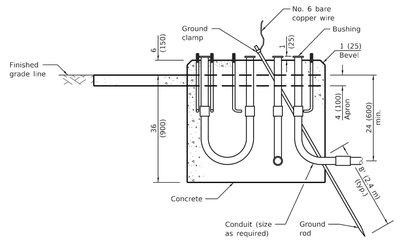
TOP VIEW



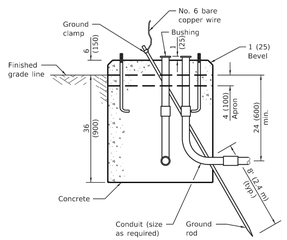
TOP VIEW



TYPE A



TYPE C
FOR GROUND MOUNTED CONTROLLER CABINET AND UPS BATTERY CABINET



TYPE D
FOR GROUND MOUNTED CONTROLLER CABINET

All dimensions are in inches (millimeters) unless otherwise shown.

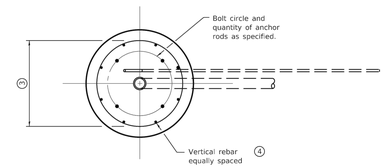
DATE	REVISIONS
1-1-21	Revised anchor rod end in
	Type E detail.
1-1-15	Revised TYPE E detail.

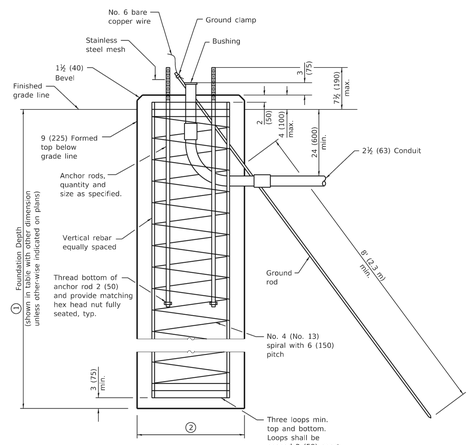
CONCRETE FOUNDATION DETAILS

(Sheet 1 of 2)

STANDARD 878001-11

Illinois Department of Transportation
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STANDARD 878001-11





TYPE E

Mast Arm Length	① Foundation Depth *	② Foundation Diameter	③ Spiral Diameter	④ Quantity of Rebars	Size of Rebars
Less than 30' (9.1 m)	10'-0" (3.0 m)	30 (750)	24 (600)	8	6 (19)
Greater than or equal to 30' (9.1 m) and less than 40' (12.2 m)	13'-6" (4.1 m)	30 (750)	24 (600)	8	6 (19)
	11'-0" (3.4 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	13'-0" (4.0 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	15'-0" (4.6 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 56' (16.8 m) and less than 65' (19.8 m)	21'-0" (6.4 m)	42 (1060)	36 (900)	16	8 (25)
Greater than or equal to 65' (19.8 m) and up to 75' (22.9 m)	25'-0" (7.6 m)	42 (1060)	36 (900)	16	8 (25)

* For standard and combination mast arm assemblies. Foundation depths for standard dual mast arms with the longest arm length upto and including 55' (16.8 m) shall be increased by 1' (0.3 m) of that shown in the table, based on the longer of the two arms.

These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Qu) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

CONCRETE FOUNDATION DETAILS

(Sheet 2 of 2)

STANDARD 878001-11

M:\Civil3d_Proj\21216\Site Plan\21216DT2.dwg, 12/23/2021 10:54 AM, Jeremy A. Mothei, C4.7 IDOT MISC. DETAILS, MCLLC PDF.pc3
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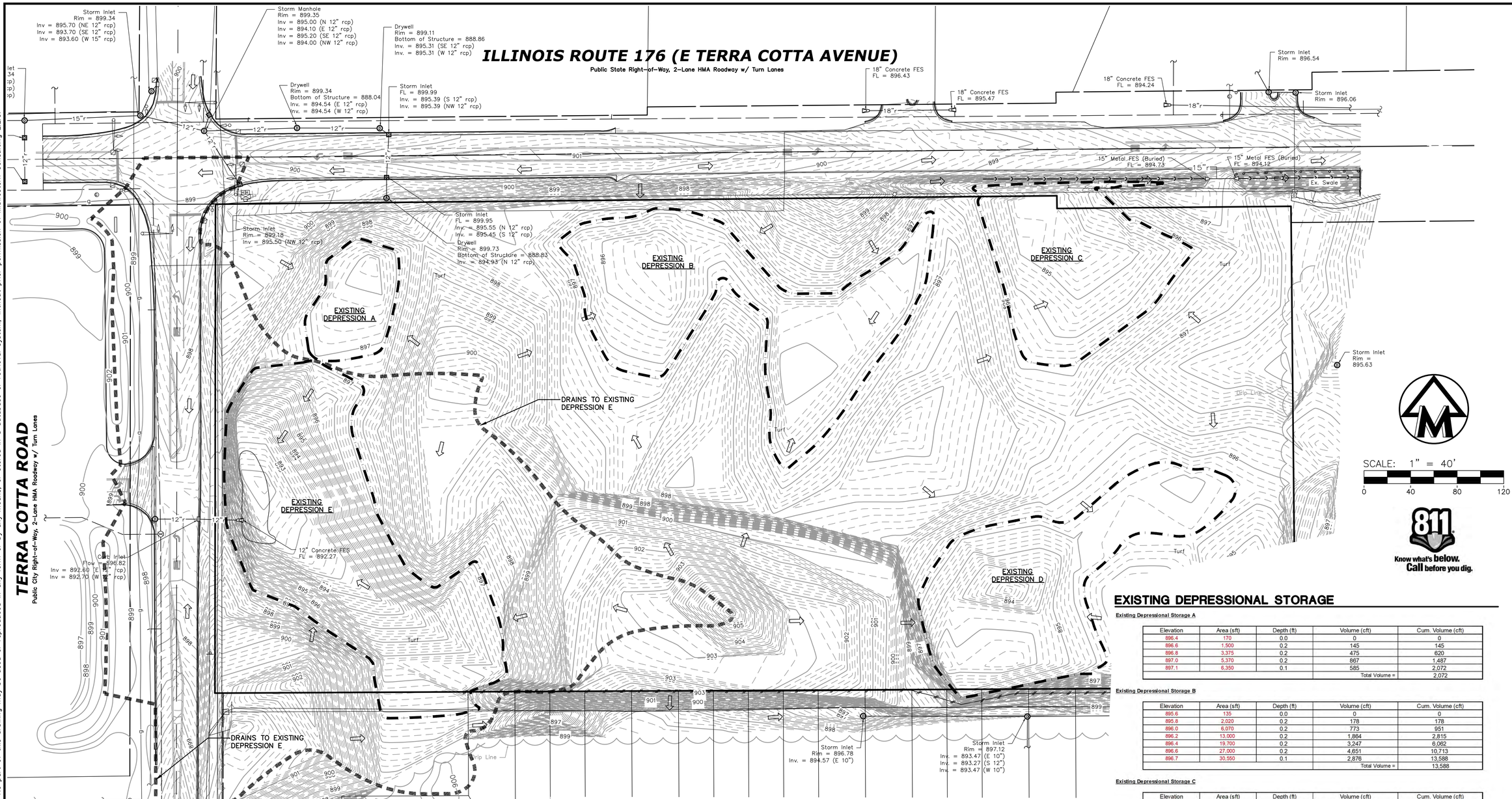
CLOVER COMMUNITIES CRYSTAL LAKE LLC
PLANNING COMMISSION
SITE PLAN FOR IDOT MISC. DETAILS

C4.7

JOB No. 21216

DATE: 10/29/2021
SHEET 22 OF 37
CADD: dBB
ENG: JAM
PM: RCW
TECH:
21216DT2.DWG

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21



EXISTING TERRA COTTA ROAD DRAINAGE TO DEPRESSION E

	Area (sft)	Impervious Area (sft) C=0.95	Pervious Area (sft) C=0.35*	CxA (sft)	C	HydroCAD TR-20 100-year (8.57-inch) Runoff (cft)
Area to Depression E	155,000	27,500	127,500	70750	0.46	76,873

*Soil Type C

EXISTING DEPRESSIONAL STORAGE

Existing Depressional Storage A

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
896.4	170	0.0	0	0
896.6	1,500	0.2	145	145
896.8	3,375	0.2	475	620
897.0	5,370	0.2	867	1,487
897.1	6,350	0.1	585	2,072
			Total Volume =	2,072

Existing Depressional Storage B

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
895.6	135	0.0	0	0
895.8	2,020	0.2	178	178
896.0	6,070	0.2	773	951
896.2	13,000	0.2	1,884	2,815
896.4	19,700	0.2	3,247	6,062
896.6	27,000	0.2	4,651	10,713
896.7	30,550	0.1	2,876	13,588
			Total Volume =	13,588

Existing Depressional Storage C

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
894.6	300	0.0	0	0
894.8	2,800	0.2	268	268
895.0	5,500	0.2	815	1,083
895.2	8,050	0.2	1,347	2,430
895.4	10,900	0.2	1,888	4,317
895.6	14,000	0.2	2,484	6,801
895.8	17,300	0.2	3,124	9,925
895.9	19,000	0.1	1,814	11,740
			Total Volume =	11,740

Existing Depressional Storage D

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
893.6	20	0.0	0	0
894.0	550	0.4	90	90
894.4	1,600	0.4	412	502
894.8	9,050	0.4	1,927	2,429
895.2	13,000	0.4	4,386	6,815
895.7	25,700	0.5	9,496	16,312
			Total Volume =	16,312

Existing Depressional Storage E

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
892.4	120	0.0	0	0
893.0	3,400	0.6	832	832
894.0	9,200	1.0	6,064	6,896
895.0	15,100	1.0	12,029	18,925
896.0	22,600	1.0	18,724	37,649
897.0	36,400	1.0	29,227	66,876
897.1	38,000	0.1	3,720	70,596
			Total Volume =	70,596

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M:\Civil\JobFolder\21216\Site Plan\21216DA3.dwg, 12/23/2021 10:55 AM, Jeremy A. Walther, C5.0 EXISTING DEPRESSION PLAN, MCLLC PDF pc3
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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
EXISTING DEPRESSION PLAN

C5.0

JOB No. 21216

ISSUED:	REV. DATE	DATE: 12/23/2021
SITE PLAN SUBMITTAL 1	11/17/21	SHEET 23 OF 37
SITE SUBMITTAL 1	12/23/21	CADD: JBB
SITE PLAN SUBMITTAL 2		ENG: JAM
		PM: RCW
		TECH:
		21216DA3.DWG

M:\Civil3d_Pro\21216\Site Plan\21216DA3.dwg, 12/23/2021 10:55 AM, Jeremy A. Matthei, C5.1 PROPOSED DEPRESSION PLAN, MCLLC PDF.pc3
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ILLINOIS ROUTE 176 (E TERRA COTTA AVENUE)

Public State Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

IDOT S.R. 176 - EAST TERRA COTTA AVE

TERRA COTTA ROAD

Public City Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

TERRA COTTA ROAD (CITY)

Storm Inlet
Rim = 899.34
Inv = 895.70 (NE 12" rcp)
Inv = 893.70 (SE 12" rcp)
Inv = 893.60 (W 15" rcp)

Storm Manhole
Rim = 899.35
Inv = 895.00 (N 12" rcp)
Inv = 894.10 (E 12" rcp)
Inv = 895.20 (SE 12" rcp)
Inv = 894.00 (NW 12" rcp)

Drywell
Rim = 899.11
Bottom of Structure = 888.86
Inv. = 895.31 (SE 12" rcp)
Inv. = 895.31 (W 12" rcp)

Drywell
Rim = 899.34
Bottom of Structure = 888.04
Inv. = 894.54 (E 12" rcp)
Inv. = 894.54 (W 12" rcp)

Storm Inlet
FL = 899.99
Inv. = 895.39 (S 12" rcp)
Inv. = 895.39 (NW 12" rcp)

18" Concrete FES
FL = 896.43

18" Concrete FES
FL = 895.47

18" Concrete FES
FL = 894.24

Storm Inlet
Rim = 896.54

Storm Inlet
Rim = 896.06

15" Metal FES (Buried)
FL = 894.73

15" Metal FES (Buried)
FL = 894.12

Ex. Swale

Storm Inlet
Rim = 899.95
Inv. = 896.95 (N 12" rcp)
Inv. = 896.45 (S 12" rcp)

Drywell
Rim = 899.73
Bottom of Structure = 888.83
Inv. = 896.23 (W 12" rcp)

SURFACE FLOW SECTION
SEE SHEET C5.2

EL. 897.5 TOP OF DEPRESSIONAL STORAGE OVER BASIN/AREA E

PROPOSED DEPRESSION E

12" Concrete FES
FL = 892.27

Curb Inlet
Flow = 896.82
Inv = 892.60 (E 12" rcp)
Inv = 892.70 (W 12" rcp)

DRAINS TO PROPOSED DEPRESSION E

SURFACE FLOW SECTION
SEE SHEET C5.2

SURFACE FLOW SECTION
SEE SHEET C5.2

SURFACE FLOW SECTION
SEE SHEET C5.2

SURFACE FLOW SECTION
SEE SHEET C5.2

F.F.=901.00

Storm Inlet
Rim = 895.63

Curb Inlet
FL = 894.65
Bottom of Structure = 889.45
Inv. = 890.65 (SE 12" rcp)

Storm Inlet
Rim = 894.40
Inv. = 890.96 (NW 12" rcp)

Storm Inlet
Rim = 896.78
Inv. = 894.57 (E 10")

Storm Inlet
Rim = 897.12
Inv. = 893.47 (E 10")
Inv. = 893.27 (S 12")
Inv. = 893.47 (W 10")

Storm Inlet
Rim = 897.99
Inv. = 894.28 (W 10")

Curb Inlet
FL = 899.87
Inv. = 895.02 (E 12" rcp)
Inv = 894.91 (W 12" rcp)

Drip Line

Turf

SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

PROPOSED TERRA COTTA ROAD DRAINAGE TO DEPRESSION E

	Area (sft)	Impervious Area (sft) C=0.95	Pervious Area (sft) C=0.35*	CxA (sft)	C	HydroCAD TR-20 100-year (8.57-inch) Runoff (cft)
Area to Depression E	78,700	27,500	51,200	44045	0.56	42,293

*Soil Type C

PROPOSED DEPRESSIONAL STORAGE

Proposed Depressional Storage E

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
892.4	120	0.0	0	0
893.0	3,400	0.6	832	832
894.0	8,400	1.0	5,715	6,546
895.0	12,200	1.0	10,241	16,788
895.9	16,200	0.9	12,738	29,525
			Total Volume =	29,525

Depressional Storage Above Basin & Wetland Area E

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Vol. (cft)
896.1	59,389	0.0	0	0
897.0	68,292	0.9	57,410	57,410
897.5	74,531	0.5	35,694	93,104
			Total Volume =	93,104

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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
PROPOSED DEPRESSION PLAN

C5.1

JOB No. 21216

DATE: 12/23/2021
SHEET 24 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216DA3.DWG

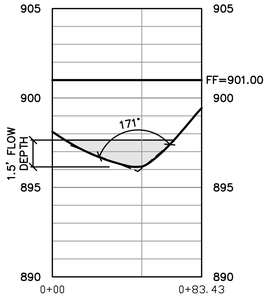
ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL	12/23/21
SITE PLAN SUBMITTAL 2	

SURFACE FLOW CALCULATIONS ARE DESIGNED TO ENSURE THE SITE CAN HANDLE THE 100-YEAR STORM FLOW RATES OF 6.96 CFS.

SECTIONS A-C: APPROXIMATED AS TRIANGULAR WEIRS, TO HANDLE OVERFLOWS FROM THE STORM BASIN TOWARD THE S.R. 176 ROADSIDE SWALE

SECTIONS D-F: APPROXIMATED AS RECTANGULAR WEIRS, TO HANDLE OVERFLOWS TO THE BASIN AND AROUND THE BUILDING, IN CASE OF FULL INLET CLOGGING.

ALL FLOWS ARE MEASURED TO ENSURE THE WATER DOES NOT BACKUP TO THE FINISH FLOOR ELEVATION OF THE BUILDING OF 901.00



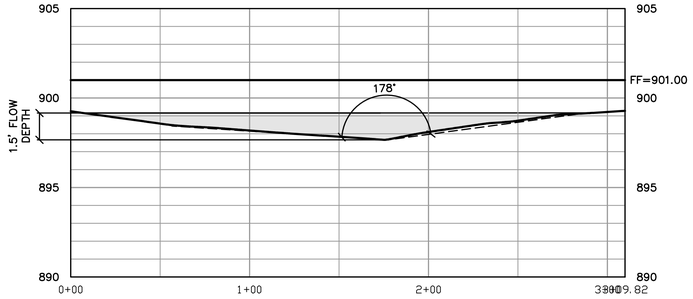
SECTION A-A

Q = 0.593 * 8/15 * tan (D/2) * sqrt (2g) * H^2.5

= 0.316 * tan (D/2) * 8.02 * H^2.5

= 0.316 * tan (171°/2) * 8.02 * 1.5^2.5

Q = 88.7 cfs (>6.96 cfs)



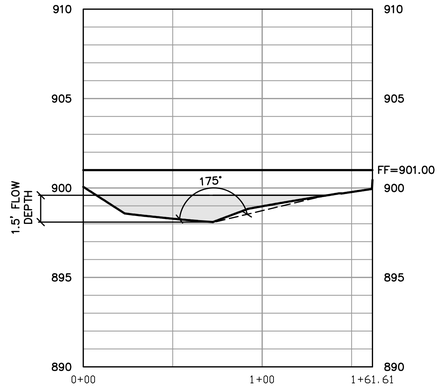
SECTION B-B

Q = 0.593 * 8/15 * tan (D/2) * sqrt (2g) * H^2.5

= 0.316 * tan (D/2) * 8.02 * H^2.5

= 0.316 * tan (178°/2) * 8.02 * 1.5^2.5

Q = 400.0 cfs (>6.96 cfs)



SECTION C-C

Q = 0.593 * 8/15 * tan (D/2) * sqrt (2g) * H^2.5

= 0.316 * tan (D/2) * 8.02 * H^2.5

= 0.316 * tan (175°/2) * 8.02 * 1.5^2.5

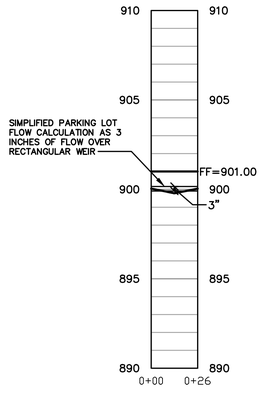
Q = 159.9 cfs (>6.96 cfs)

TRIANGULAR WEIR EQUATION VARIABLES
Q = Flow (cfs)
H = Height (ft)
D = Angle between ground slopes (°)

SCALE: 1" = 40'

0 40 80 120

Know what's below. Call before you dig.

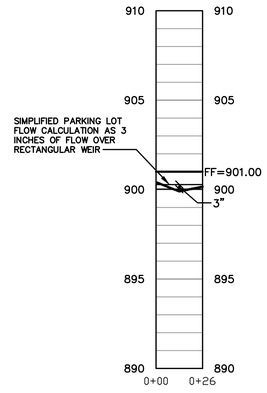


SECTION D-D

Q = 3.33 * (B-0.2H) * $H^{1.5}$

Q = 3.33 * (26-0.2(0.25)) * $0.25^{1.5}$

Q = 10.8 cfs (>6.96 cfs)

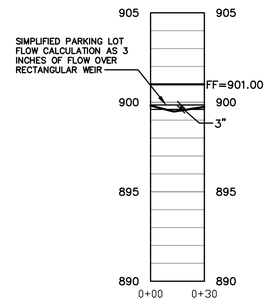


SECTION E-E

Q = 3.33 * (B-0.2H) * $H^{1.5}$

Q = 3.33 * (26-0.2(0.25)) * $0.25^{1.5}$

Q = 10.8 cfs (>6.96 cfs)



SECTION F-F

Q = 3.33 * (B-0.2H) * $H^{1.5}$

Q = 3.33 * (30-0.2(0.25)) * $0.25^{1.5}$

Q = 12.5 cfs (>6.96 cfs)

RECTANGULAR WEIR EQUATION VARIABLES
Q = Flow (cfs)
B = Length (ft)
H = Head (ft)

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M:\Civil3d_Pro\21216\Site Plan\21216DA3.dwg, 12/23/2021 10:56 AM, Jeremy A. Mathiel, C5.2 SURFACE FLOW SECTIONS & CALCULATIONS, MCLLC PDF.pc3
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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SURFACE FLOW SECTIONS & CALCULATIONS

C5.2

JOB No. 21216

ISSUED:	DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 1	12/23/21
SITE PLAN SUBMITTAL 2	

DATE: 12/23/2021
SHEET 25 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
21216DA3.DWG

M:\Civil\JAL_Pro\21216\Site Plan\21216DA1.dwg, 12/23/2021 10:56 AM, Jeremy A. Walthel, C5.3 SITE DRAINAGE PLAN, MCLLC PDF.pc3
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ILLINOIS ROUTE 176 (E TERRA COTTA AVENUE)

Public State Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

IDOT S.R. 176 - EAST TERRA COTTA AVE

TERRA COTTA ROAD

Public City Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

TERRA COTTA ROAD (CITY)

Inv = 895.70 (NE 12" rcp)
Inv = 893.70 (SE 12" rcp)
Inv = 893.60 (W 15" rcp)

Inv = 895.00 (N 12" rcp)
Inv = 894.10 (E 12" rcp)
Inv = 895.20 (SE 12" rcp)
Inv = 894.00 (NW 12" rcp)

Drywell
Rim = 899.11
Bottom of Structure = 888.86
Inv. = 895.31 (SE 12" rcp)
Inv. = 895.31 (W 12" rcp)

Drywell
Rim = 899.34
Bottom of Structure = 888.04
Inv. = 894.54 (E 12" rcp)
Inv. = 894.54 (W 12" rcp)

Storm Inlet
FL = 899.99
Inv. = 895.39 (S 12" rcp)
Inv. = 895.39 (NW 12" rcp)

18" Concrete FES
FL = 896.43

18" Concrete FES
FL = 895.47

18" Concrete FES
FL = 894.24

Storm Inlet
Rim = 896.54

Storm Inlet
Rim = 896.06

15" Metal FES (Buried)
FL = 894.73

15" Metal FES (Buried)
FL = 894.12

Ex. Swale

EMERGENCY SURFACE OVERFLOW ARROW (TYP.)

CONSTRUCT NEW ROADSIDE SWALE

CONNECT NEW SWALE TO EXISTING ROADSIDE SWALE AT EXISTING CULVERT

100-YEAR STORM VOLUME
185,900 CFT
ELEV. 895.04 FT

2-YEAR STORM VOLUME
50,171 CFT
ELEV. 890.57 FT

BASIN TO INFILTRATE 100-YEAR STORM VOLUME

RIPRAP FILTER BERM

86,667 SFT DIRECT TO INFILTRATION BASIN

BASIN FOREBAY

EX. WETLAND TO REMAIN

Storm Inlet
Rim = 899.36
Inv = 895.50 (NW 12" rcp)

Storm Inlet
FL = 899.95
Inv. = 895.55 (N 12" rcp)
Inv. = 895.45 (S 12" rcp)

Drywell
Rim = 899.73
Bottom of Structure = 888.83
Inv. = 895.23 (N 12" rcp)

EMERGENCY SURFACE OVERFLOW PATH TO ROADSIDE SWALE

34,869 SF

37,678 SF

4,276 SF

4,552 SF

7,166 SF

6,984 SF

7,731 SF ROOF DRAIN TO R25

7,695 SF ROOF DRAIN TO R30

8,868 SF ROOF DRAIN TO R35

8,994 SF ROOF DRAIN TO R40

5,496 SF ROOF DRAIN TO R20

5,472 SF ROOF DRAIN TO R45

9,225 SF

14,382 SF

8,051 SF

17,641 SF

18,171 SF

11,295 SF

11,975 SF

14,470 SF

16,306 SF

8,720 SF

DEFERRED PARKING IS CONSIDERED PAVED FOR STORMWATER CALCULATIONS

Storm Inlet
Rim = 895.63

PR. SWALE

Curb Inlet
Flow = 896.82
Inv = 892.60 (E 12" rcp)
Inv = 892.70 (W 12" rcp)

12" Concrete FES
FL = 892.27

Curb Inlet
FL = 899.87
Inv = 895.02 (E 12" rcp)
Inv = 894.91 (W 12" rcp)

Curb Inlet
FL = 894.65
Bottom of Structure = 889.45
Inv. = 890.65 (SE 12" rcp)

Storm Inlet
Rim = 894.40
Inv. = 890.96 (NW 12" rcp)

Storm Inlet
Rim = 896.78
Inv. = 894.57 (E 10")

Storm Inlet
Rim = 897.12
Inv. = 893.47 (E 10")
Inv. = 893.27 (S 12")
Inv. = 893.47 (W 10")

Storm Inlet
Rim = 897.99
Inv. = 894.28 (W 10")

Drip Line

SCALE: 1" = 40'

0 40 80 120

Know what's below. Call before you dig.

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CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SITE DRAINAGE PLAN

C5.3

JOB No. 21216

DATE: 12/23/2021
SHEET 26 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216DA1.DWG

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

STORMWATER NARRATIVE

CLOVER COMMUNITIES – CRYSTAL LAKE - STORMWATER NARRATIVE:

The Clover Communities project in Crystal Lake has been designed to meet the stormwater requirements for the City of Crystal Lake, with storm sewers designed to handle the 10-year storm flowing full (5-minute time of concentration, 0.62 inches in 5 minutes = 7.44 in/hour), and a stormwater basin designed to handle the 100-year 24-hour (8.57 inch) storm, based on Illinois Stormwater Bulletin #75, for the Northeast Region of the state.

Presently drainage from Illinois State Route 176 drains onto the project property, and we are proposing a swale system matching that in front of the Sunrise Housing development to keep the IDOT water on IDOT property. We are matching existing culvert and swale sizes and shapes, as well as matching the existing guardrail location. Given that this portion of the swale will be upstream of the already constructed swale, we will be maintaining existing flow capacity with a smaller drainage area leading to it, ensuring that the swale in front of the Clover Development will not serve as a bottleneck for flow. Swale and culvert calculations are also included in the set, and have been submitted to IDOT for review and approval.

There are no available storm sewers on Terra Cotta Road or State Route 176 available at a depth sufficient to serve the project development and storm basin with gravity flow—in fact, part of Terra Cotta Road drains onto an unnamed wetland on the project site. Given the nature of the site and the 0.25 inch/hour infiltration rates found in a 10/22/2021 investigation by G2, the project will be designed with an infiltration basin that will infiltrate the full 100-year storm volume into the ground.

The stormwater basin is designed to contain the full 100-year site runoff, without any reduction for infiltration or outflow. Additionally, depressional storage on the site is being maintained on the site above the top of bank of the formal detention basin. Calculations ensuring this storage volume are maintained are included in this set. Depressional storage calculations can be found on Sheets C5.0 and C5.1.

If the infiltration basin were to overtop, it would flow northeastward toward the new swale on S.R. 176. We have provided sections of this path with weir flow calculations to prove that it can handle the 100-year storm runoff flow of the site, without flooding the building or adjacent properties. We have also provided similar sections through pinch points of the parking lot to show that these areas can also pass the full site flow to the basin, in case the storm sewers were to fail. These sections can be seen on Sheet C5.2

The overall site drainage plan can be found on Sheet C5.3, with the calculations found on Sheet C5.4. IDOT-specific drainage plans and calculations (being reviewed separately by IDOT) can be found on Sheets C7.1-C7.4.

Stormwater calculations and HydroCAD data reports also follow this narrative in the separate Stormwater Report, submitted with the Plans. The Report and Plans shall be taken together to represent the project design and intent.

WATER QUALITY UNIT - TSS CALCULATIONS

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION
BASED ON THE RATIONAL RAINFALL METHOD
BASED ON AN AVERAGE PARTICLE SIZE OF 110 MICRONS
Clover Communities Crystal Lake
Crystal Lake, IL

Area	7.71	acres	Rainfall Station #	54	
Weighted C	0.62		(select from Rainfall Data column D)		
Tc	15	minutes	Particle size	110	microns
CDS Model	3020	(select from pulldown)	CDS Treatment Capacity	2.0	cfs
Diameter			CDS Hydraulic Capacity	20.0	cfs

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Cumulative Rainfall Volume	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.02	10.6%	10.6%	0.10	0.10	4.78	100.0	10.6
0.04	9.1%	19.7%	0.19	0.19	9.56	99.1	9.0
0.06	8.9%	28.6%	0.29	0.29	14.34	98.0	8.7
0.08	7.6%	36.2%	0.38	0.38	19.12	96.8	7.4
0.10	6.8%	43.0%	0.48	0.48	23.90	95.7	6.6
0.12	3.7%	46.7%	0.57	0.57	28.68	94.6	3.5
0.14	3.9%	50.6%	0.67	0.67	33.46	93.4	3.7
0.16	4.3%	54.9%	0.76	0.76	38.24	92.3	3.9
0.18	2.9%	57.8%	0.86	0.86	43.02	91.2	2.6
0.20	2.8%	60.6%	0.96	0.96	47.80	90.0	2.5
0.25	6.5%	67.0%	1.20	1.20	59.75	87.2	5.6
0.30	4.1%	71.2%	1.43	1.43	71.70	84.3	3.5
0.35	4.4%	75.5%	1.67	1.67	83.65	81.5	3.6
0.40	1.8%	77.3%	1.91	1.91	95.60	78.7	1.4
0.45	2.9%	80.2%	2.15	2.00	100.00	77.6	2.1
0.50	1.9%	82.1%	2.39	2.00	100.00	77.6	1.2
0.75	5.9%	88.0%	3.59	2.00	100.00	77.6	2.6
1.00	3.6%	91.6%	4.78	2.00	100.00	77.6	1.2
1.50	5.6%	97.2%	7.17	2.00	100.00	77.6	1.2
2.00	2.8%	100.0%	9.56	2.00	100.00	77.6	0.5
						Predicted % Annual Rainfall Treated =	81.2
						Predicted Net Annual Load Removal Efficiency =	88.5%
							81.2%

1 - Based on 10 years of hourly precipitation data from NCDC Station 1549, Chicago O'Hare WSO Airport, Cook County, IL

CDS 3020-6-C WOULD BE ADEQUATE FOR THE PROJECT, HOWEVER THE SIZE OF THE PIPES (SEE MANHOLE CALCULATIONS) WILL REQUIRE AN 8' DIA. STRUCTURE, SO WE WILL BE UPGRADING THE STRUCTURE TO A CDS 4030-8-C UNIT.

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

DETENTION BASIN CALCULATIONS

Clover Crystal Lake Storm Basin Calculations
Midwestern Project #21216 -12/22/2021

Site Surface Area Summary:

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff.	C x Area (sft)
Building/Garage		52,978	1.22	0.95	1.16
Pavement		98,843	2.27	0.95	2.16
Vegetated	C	204,865	4.70	0.35	1.65
Total Disturbed Area		**356,686**	**8.19**	**0.61**	**4.96**
Undisturbed Area	C	32,246	0.74	0.35	0.26
Total Site Area		388,932	8.93	0.58	5.22

91.7% Site Disturbed
39.0% Site Impervious
13.6% Site Building Coverage

Design Storm: Illinois Bulletin #75, Huff 3Q Distribution for 0-10 sq. mi., Northeast Region
2-year, 24-hour storm: 3.34 inches
100-year, 24-hour storm: 8.57 inches

Storm is modeled using TR-20 Methodology, using HydroCAD Software
Storm infiltration has no feasibly gravity oulet, and infiltrates into the ground at 0.25 inches/hour

Basin is sized for the full 100-year runoff (not reduced for infiltration)
Depressional storage is stacked on top of basin, kept to no less than current storage volumes.

HydroCAD 2-year Storage Volume:	**50,171 cft**
HydroCAD 100-year Storage Volume:	**185,900 cft**
HydroCAD 2-year Elevation:	**890.57**
HydroCAD 100-year Elevation:	**895.04**

Total 100-year Volume Runoff (Excluding all infiltration):	**198,234 cft**
Total 100-year Volume Provided below Top of Bank (El. 896)	**224,246 cft**
Extra Volume below Top of Bank for Depressional Storage*:	**26,012 cft**

* Total Volume provided below 896.00 - Total 100-year Volume Runoff

Required Forebay Volume = 5% of 100-year runoff =	**9,912 cft**
Forebay Volume Provided =	**12,294 cft**

Detention Volumes Provided

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Vol. (cft)
888.0	15,842	0.0	0	0
889.0	18,537	1.0	17,172	17,172
890.0	21,405	1.0	19,954	37,126
891.0	24,431	1.0	22,901	60,027
892.0	27,614	1.0	26,006	86,033
893.0	30,954	1.0	29,268	115,301
894.0	34,451	1.0	32,687	147,988
895.0	38,105	1.0	36,263	184,251
896.0	41,916	1.0	39,995	224,246
			Total Volume =	224,246

Forebay Volumes Provided

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Vol. (cft)
888.0	5,000	0.0	0	0
889.0	6,134	1.0	5,557	5,557
890.0	7,358	1.0	6,737	12,294
			Total Volume =	12,294

Depressional Storage Above Basin & Wetland Area E

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Vol. (cft)
896.1	59,389	0.0	0	0
897.0	68,292	0.9	57,410	57,410
897.5	74,531	0.5	35,694	93,104
			Total Volume =	93,104

Depressional Storage - Pre-Construction

Area A	Area B	Area C	Area D	Area E	Total
2,072	13,588	11,740	16,312	70,596	114,308 cft

Depressional Storage - Post Construction

Area E	Above Basin & Area E	Extra Pond Volume	Total
29,525	93,104	26,012	148,641 cft

Depressional Storage Comparison

Pre-Construction	Post-Construction	Difference
114,308 cft	148,641 cft	34,333 cft increase

MANHOLE CALCULATIONS

Manhole Size Calculator

Allowable pipe sizes: 12, 15, 18, 24, 30, 36, 42, 48, 54, 60 * (Use 12" for all pipes smaller than 12")
Allowable structure sizes: 48, 60, 72, 84, 96, 120

Structure #	Structure dia.	Pipe 1 dia.	Pipe 2 dia.	Angle bet. Pipe	Pipe 1 Ang	Pipe 2 Ang	Leg Angle	Min. L Angle	Spare L
	(in)	(in)	(in)	Center (deg)	(deg)	(deg)	(deg)	for dia. (deg)	Angle (deg)
R02	96	36	30	90	62	52	33	24	9
R03	48	30	24	180	122	94	72	32	40
R04	72	24	24	90	59	59	31	24	7
R05	60	24	12	90	72	41	33.5	29	4.5
R06	60	24	15	90	72	47	30.5	29	1.5
R07	60	15	15	90	47	47	43	29	14
R08	48	15	12	90	60	52	34	32	2
R09	48	12	12	90	52	52	38	32	6
R10	48	24	24	180	94	94	86	32	54
R11	60	24	24	101	72	72	29	29	0
R12	72	24	12	79	59	34	32.5	24	8.5
R13	60	12	12	78	41	41	37	29	8
R14	48	12	12	102	52	52	50	32	18
R17	48	12	12	180	52	52	128	32	96
R18	48	12	12	180	52	52	128	32	96

STORM PIPE CALCULATIONS

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
12/22/2021

Rational C Values:

Soil Type	Roof/Pvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
R01 (Outlet)	0	0	0	0	0	C	0.35	0	0.000	0.000	0.00
R02 (Manhole)	0	0	0	0	0	C	0.35	0	0.000	0.000	0.00
R03	8,051	960	5,567	6,527	1,524	C	0.35	6,734	0.155	0.185	0.84
R04	11,975	240	6,922	7,162	4,813	C	0.35	8,488	0.195	0.275	0.71
R05	14,470	0	9,155	9,155	5,315	C	0.35	10,558	0.242	0.332	0.73
R06	16,306	0	8,897	8,897	7,409	C	0.35	11,045	0.254	0.374	0.68
R07	8,720	0	4,146	4,146	4,574	C	0.35	5,540	0.127	0.200	0.64
R08 (Manhole)	0	0	0	0	0	C	0.35	0	0.000	0.000	0.00
R09	9,225	1,140	6,671	7,811	1,414	C	0.35	7,915	0.182	0.212	0.86
R10	7,166	980	4,887	5,867	1,299	C	0.35	6,028	0.138	0.165	0.84
R11	4,276	400	3,162	3,562	714	C	0.35	3,634	0.083	0.098	0.85
R12	34,869	0	13,345	13,345	21,524	C	0.35	20,211	0.464	0.800	0.58
R13	37,678	0	18,543	18,543	19,135	C	0.35	24,313	0.558	0.865	0.65
R14	4,552	400	3,317	3,717	835	C	0.35	3,823	0.088	0.104	0.84
R15	6,984	600	4,844	5,444	1,540	C	0.35	5,711	0.131	0.160	0.82
R16	11,295	0	6,035	6,035	5,260	C	0.35	7,574	0.174	0.259	0.67
R17	17,641	0	700	700	16,941	C	0.35	6,594	0.151	0.405	0.37
R18	18,171	0	700	700	17,471	C	0.35	6,780	0.156	0.417	0.37
R19	14,382	1,950	0	1,950	12,432	C	0.35	6,204	0.142	0.330	0.43
R20 (Roof)	5,496	5,496	0	5,496	0	C	0.35	5,221	0.120	0.126	0.95
R25 (Roof)	7,731	7,731	0	7,731	0	C	0.35	7,344	0.169	0.177	0.95
R30 (Roof)	7,695	7,695	0	7,695	0	C	0.35	7,310	0.168	0.177	0.95
R35 (Roof)	8,869	8,869	0	8,869	0	C	0.35	8,426	0.193	0.204	0.95
R40 (Roof)	8,995	8,995	0	8,995	0	C	0.35	8,545	0.196	0.206	0.95
R45 (Roof)	5,472	5,472	0	5,472	0	C	0.35	5,198	0.119	0.126	0.95
Subtotal Through Pipes	270,019	50,928	96,891	147,819	122,200	C	0.35	183,198	4.206	6.199	0.68
Direct to Basin	86,667	2,050	1,952	4,002	82,665	C	0.35	32,735	0.751	1.990	0.38
Total to Basin	356,686	52,978	98,843	151,821	204,865	C	0.35	215,933	4.957	8.188	0.61

STORM PIPE CALCULATION SHEET
Clover Crystal Lake - 21216 - 12/22/2021

Runoff Formula: Q = CIA

MIDWESTERN CONSULTING, INC.
3815 Plaza Drive
Ann Arbor, MI 48108
734-995-0200

Type of Pipe = rcp
n = 0.013

Intensity: 5 minutes time of concentration for a 10-year storm in McHenry County
0.62 inches over 5 minutes = 7.44 in/hour
Min time of concentration 5.00 min

Structure No. From	To	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Q Inlet Here	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
R02	R01	0.000	0.00	0.000	1.919	4.206	8.05	7.44	31.29	**0.00**	36	96	0.50	6.69	0.24	47.29	16.00
R03	R02	0.185	0.84	0.155		2.287	7.91	7.44	17.01	**0.77**	30	47	0.50	5.92	0.13	29.08	12.07
R04	R03	0.275	0.71	0.195	0.174	2.132	7.56	7.44	15.86	**0.96**	24	121	0.61	5.64	0.36	17.72	1.85
R05	R04	0.332	0.73	0.242	0.345	1.763	6.93	7.44	13.12	**1.20**	24	193	0.50	5.11	0.63	16.04	2.92
R06	R05	0.374	0.68	0.254	0.352	1.176	6.41	7.44	8.75	**1.26**	24	158	0.50	5.11	0.52	16.04	7.29
R07	R06	0.200	0.64	0.127		0.571	5.53	7.44	4.25	**0.63**	15	198	0.50	3.73	0.88	4.58	0.33
R08	R07	0.000	0.00	0.000	0.142	0.443	5.36	7.44	3.30	**0.00**	15	38	0.50	3.73	0.17	4.58	1.28
R09	R08	0.212	0.86	0.182	0.119	0.301	5.00	7.44	2.24	**0.90**	12	69	0.50	3.22	0.36	2.53	0.29
R16	R04	0.259	0.67	0.174		0.174	5.00	7.44	1.29	**0.86**	12	208	0.80	4.07	0.85	3.20	1.90
R17	R05	0.405	0.37	0.151	0.193	0.345	5.00	7.44	2.57	**0.75**	12	77	1.00	4.55	0.28	3.57	1.01
R18	R06	0.417	0.37	0.156	0.196	0.352	5.00	7.44	2.62	**0.77**	15	76	0.50	3.73	0.34	4.58	1.96
R19	R08	0.330	0.43	0.142		0.142	5.00	7.44	1.06	**0.70**	8	50	1.84	4.71	0.18	1.64	0.58
R10	R02	0.165	0.84	0.138	0.120	1.919	7.91	7.44	14.28	**0.69**	24	53	0.50	5.11	0.17	16.04	1.76
R11	R10	0.098	0.85	0.083		1.661	7.66	7.44	12.36	**0.41**	24	77	0.50	5.11	0.25	16.04	3.68
R12	R11	0.800	0.58	0.464	0.169	1.577	7.02	7.44	11.74	**2.30**	24	197	0.50	5.11	0.64	16.04	4.30
R13	R12	0.865	0.65	0.558	0.168	0.945	6.32	7.44	7.03	**2.76**	18	176	0.50	4.21	0.70	7.45	0.42
R14	R13	0.104	0.84	0.088		0.219	5.38	7.44	1.63	**0.43**	12	182	0.50	3.22	0.94	2.53	0.90
R15	R14	0.160	0.82	0.131		0.131	5.00	7.44	0.98	**0.65**	12	73	0.50	3.22	0.38	2.53	1.55
R20	R10	0.126	0.95	0.120		0.120	5.00	7.44	0.89	**0.59**	8	40	1.00	3.47	0.19	1.21	0.32
R25	R12	0.177	0.95	0.169		0.169	5.00	7.44	1.25	**0.83**	8	133	1.98	4.88	0.45	1.70	0.45
R30	R13	0.177	0.95	0.168		0.168	5.00	7.44	1.25	**0.83**	8	133	1.36	4.05	0.55	1.41	0.16
R35	R17	0.204	0.95	0.193		0.193	5.00	7.44	1.44	**0.96**	8	54	1.93	4.82	0.19	1.68	0.24
R40	R18	0.206	0.95	0.196		0.196	5.00	7.44	1.46	**0.97**	12	54	1.26	5.11	0.18	4.01	2.55
R45	R09	0.126	0.95	0.119		0.119	5.00	7.44	0.89	**0.59**	8	40	1.47	4.21	0.16	1.47	0.58

* Maximum inlet flow is 2.76 cfs at R13
** 2.5 ft/sec minimum pipe velocity flowing full

MIDWESTERN CONSULTING
3815 Plaza Drive, Ann Arbor, Michigan 48108
(734) 995-0200 • www.midwesternconsulting.com
Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

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CLOVER COMMUNITIES CRYSTAL LAKE LLC
SITE PLAN FOR PLANNING COMMISSION
STORM WATER NARRATIVE & CALCULATIONS

C5.4

JOB No. 21216

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M:\Civil\3d_Pro\21216\Site Plan\21216SE1.dwg, 12/23/2021 10:57 AM, Jeremy A. Walthel, C5.5 SOIL EROSION AND SEDIMENTATION CONTROL PLAN, MCLLC PDF.pc3
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ILLINOIS ROUTE 176 (E TERRA COTTA AVENUE)

Public State Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

TERRA COTTA ROAD

Public City Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

SILT FENCE (TYP.)
SILT FENCE AROUND BASIN
STRAW MULCH BLANKET IN BASIN
PROPOSED INLET FILTER BAG (TYP.)
LIMIT OF DISTURBANCE (8.55 ACRES)
CONCRETE WASHOUT LOCATION
GRAVEL TRACKING ENTRANCE MAT (DO NOT REMOVE EX. SIDEWALK UNTIL READY TO PAVE NEW ENTRANCE)
STRAW MULCH BLANKET ON SLOPES >10% (TYP.)
SILT FENCE ACROSS DRIVE CONSTRUCTION ACCESS TO BE BY TERRA COTTA ROAD UNTIL PAVED DRIVE APPROACH IS PERMITTED AND BUILT TO S.R. 176.
STRAW MULCH BLANKET IN SWALE (TYP.)
STRAW MULCH BLANKET IN SWALE (TYP.)
Benchmark: Top of Mueller Bolt on Fire Hydrant Elev. = 902.74
Benchmark: Top of Mueller Bolt on Fire Hydrant Elev. = 902.14
Benchmark: X Cut on Handhole Elev. = 899.07
Storm Inlet Rim = 899.34 Inv = 895.70 (NE 12" rcp) Inv = 893.70 (SE 12" rcp) Inv = 893.60 (W 15" rcp)
Storm Manhole Rim = 899.35 Inv = 895.00 (N 12" rcp) Inv = 894.10 (E 12" rcp) Inv = 895.20 (SE 12" rcp) Inv = 894.00 (NW 12" rcp)
Drywell Rim = 899.11 Bottom of Structure = 888.86 Inv. = 895.31 (SE 12" rcp) Inv. = 895.31 (W 12" rcp)
Drywell Rim = 899.34 Bottom of Structure = 888.04 Inv. = 894.54 (E 12" rcp) Inv. = 894.54 (W 12" rcp)
Storm Inlet FL = 899.99 Inv. = 895.39 (S 12" rcp) Inv. = 895.39 (NW 12" rcp)
Sanitary Manhole Rim = 900.06 Bench = 884.78 Inv. = 883.86 (E 18" dip) Inv. = 883.76 (W 18" dip)
Sanitary Manhole Rim = 898.96 Bench = 884.96 Inv. = 884.26 (E 18" dip) Inv. = 884.16 (W 18" dip)
Sanitary Manhole Rim = 896.98 Bench = 885.73 Inv. = 884.81 (N 18" dip) Inv. = 885.23 (E 18" dip) Inv. = 885.88 (S 8" pvc) Inv. = 884.68 (W 18" dip)
Sanitary Manhole Rim = 896.48 Inv. = 885.23 (S 18" pvc)
Storm Inlet Rim = 896.54
Storm Inlet Rim = 896.06
Storm Inlet Rim = 895.63
Storm Inlet Rim = 896.78 Inv. = 894.57 (E 10")
Storm Inlet Rim = 897.12 Inv. = 893.47 (E 10") Inv. = 893.27 (S 12") Inv. = 893.47 (W 10")
Storm Inlet Rim = 897.99 Inv. = 894.28 (W 10")
Storm Inlet Rim = 894.40 Inv. = 890.96 (NW 12" rcp)
Curb Inlet Flow = 896.82 Inv = 892.60 (E 12" rcp) Inv = 892.70 (W 12" rcp)
Curb Inlet FL = 899.87 Inv = 895.02 (E 12" rcp) Inv = 894.91 (W 12" rcp)
Curb Inlet FL = 894.65 Bottom of Structure = 889.45 Inv. = 890.65 (SE 12" rcp)
Sanitary Manhole Rim = 898.49 Inv = 883.50 (E 12" dip) Inv = 882.80 (S 18" dip) Inv = 882.80 (W 18" dip)
Sanitary Manhole Rim = 898.99 Inv = 884.2 (N 12" dip) Inv = 884.2 (W 12" dip)
Sanitary Manhole Rim = 899.05 Inv = 883.40 (E 18" dip) Inv = 884.40 (S 12" pvc) Inv = 883.40 (W 18" dip)
Sanitary Manhole Rim = 898.52 Inv = 883.60 (N 12" pvc) Inv = 885.60 (S 12" pvc)
Sanitary Manhole (Approximate Location) (Unable to Field Locate, Location Based on Data from Crystal Lake IL, GIS and Highland Place ans)
Sanitary Force Main
Concrete Sidewalk = Good Condition
Post – UG Gas Marker
Telephone Manhole
Post – UG Gas Marker
Valve Vault Rim = 899.95
Valve Vault Rim = 899.76
Valve Vault Rim = 896.51
Valve Vault Rim = 898.52
Valve Vault Rim = 894.76
Valve Vault (Can't Open) Rim = 895.09
Sag Elev = 915.53
Sign w/ UG Electric
Concrete Pavement
Drip Line
Concrete Pad
Conc. curb (6") and gutter (12")
HMA Pavement
HMA Entrance
18" Concrete FES FL = 896.43
18" Concrete FES FL = 894.24
18" Concrete FES FL = 895.47
15" Metal FES (Buried) FL = 894.73
15" Metal FES (Buried) FL = 894.12
12" Concrete FES = 892.27
Conc. curb (6") and gutter (12")
Concrete Pad
Valve Vault (Can't Open) Rim = 894.76
Valve Vault (Can't Open) Rim = 895.09
Concrete Pad

LEGEND

- ASPHALT ROADWAY
- CONCRETE SIDEWALK
- CONCRETE PATIO
- CONCRETE PAVEMENT
- BUILDING
- RESIDENT GARAGES
- STRAW MULCH BLANKET IN SWALE
- PROP. STORM SEWER
- PROP. CATCH BASIN OR INLET
- PROP. BEEHIVE INLET
- CULVERT
- PROP. C/L OF SWALE
- SILT FENCE
- PROP. BUMPER BLOCK
- GRADING LIMITS
- PROP. INLET FILTER BAG

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

Know what's below. Call before you dig. 811

SCALE: 1" = 40'
0 40 80 120

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CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
SOIL EROSION AND SEDIMENTATION CONTROL PLAN

C5.5

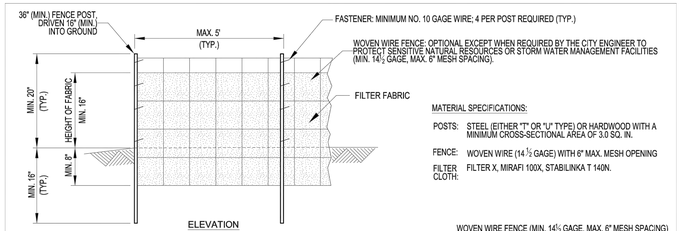
JOB No. 21216

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL	12/23/21
SITE PLAN SUBMITTAL 2	

DATE: 12/22/2021
SHEET 28 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216SE1.DWG

SOIL EROSION AND SEDIMENTATION CONSTRUCTION NOTES:

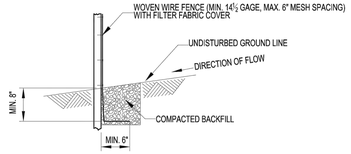
1. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL COMPLY WITH THE CITY OF CRYSTAL LAKE STANDARDS AND SPECIFICATIONS.
2. ALL SOIL EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS, AND IMMEDIATELY FOLLOWING EVERY SIGNIFICANT RAINFALL EVENT.
3. ALL EXCESS SPOILS ARE TO BE REMOVED FROM THE SITE. OTHERWISE, STOCKPILES MUST BE PROVIDED WITH TEMPORARY AND PERMANENT STABILIZATION MEASURES.
4. EXCESS DIRT IS NOT TO BE PLACED ON ANY AREAS ON OR ADJACENT TO THE SITE WHERE THE PLAN DOES NOT SHOW THE AREA BEING DISTURBED.
5. SILT FENCING IS REQUIRED ALONG ALL DOWNSTREAM EDGES OF THE GRADING LIMITS, AND MUST REMAIN IN PLACE UNTIL VEGETATION IS UNIFORMLY RE-ESTABLISHED. THE SILT FENCE MUST BE TOED IN A MINIMUM OF 6 INCHES ALONG ITS BASE.
6. ALL DISTURBED BANKS EQUAL TO OR GREATER THAN 4:1 AND THE DETENTION BASIN BANKS AND BOTTOM MUST BE COVERED WTIH TOPSOIL, SEED, AND NORTH AMERICAN GREEN S-150 (OR APPROVED EQUAL) EROSION CONTROL BLANKET. THIS BLANKET, ALONG WITH THE NECESSARY STABLES OR WOOD PEGS, SHALL BE PLACED PER MANUFACTURER'S RECOMMENDATIONS. SEAMS SHALL BE PLACED PARALLEL TO THE DIRECTION OF SURFACE RUNOFF.
7. ALL SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS, AND SHALL BE MAINTAINED UNTIL VEGETATION IS UNIFORMLY RE-ESTABLISHED AND THE SITE IS PERMANENTLY STABILIZED.
8. NO SEDIMENT SHALL BE TRACKED ONTO THE ADJACENT PUBLIC STREET, AND IF IT DOES OCCUR, IT SHALL BE CLEANED DAILY.
9. THE STORMWATER INFILTRATION BASIN IS TO BE THE FIRST ITEM OF EARTH MOVING, AND SHALL BE CONSTRUCTED IN CONJUNCTION WITH THE INSTALLATION OF THE SOIL EROSION CONTROL MEASURES.
10. THE PROJECT SHALL BE PERMITTED THROUGH AND INSPECTED BY THE MCHENRY-LAKE COUNTY SOIL AND WATER CONSERVATION DISTRICT.
11. PARKING LOTS AND ROADWAYS SHALL BE CLEANED OF ANY MUD IMMEDIATELY FOLLOWING EACH MUD TRACKING OCCURRENCE.
12. PERMANENT SOIL EROSION CONTROLS ARE REQUIRED TO BE INSTALLED WITHIN 5 DAYS AFTER FINAL GRADING OR FINAL EARTH CHANGE.
13. THIS PHASE OF THE PROJECT INVOLVES 8.55 ACRES OF DISTURBANCE. THE PROJECT INCLUDES APPROXIMATELY 15,450 CYD OF CUT, AND 28,405 CYD OF FILL.
14. THE PROJECT WORK AREA IS LOCATED, AT ITS CLOSEST POINT, 12' FROM THE NEAREST WATER OF THE STATE, THE UNNAMED SMALL WETLAND, LOCATED ON THE PROJECT PROPERTY.
15. ALL SILT FENCE SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. IF AT ANY TIME THE DEPTH OF SILT AND SEDIMENT COMES TO WITHIN 12" OF THE TOP OF ANY SILT FENCE, ALL SILT AND SEDIMENT SHALL BE REMOVED TO ORIGINAL GRADE.
16. ONLY UPON STABILIZATION OF ALL DISTURBED AREAS MAY THE SILT FENCE, AND TEMPORARY GRAVEL FILTERS BE REMOVED. ALSO, ALL STORM SEWERS MUST BE CLEANED OF ALL SEDIMENT.



ELEVATION

NOTES:

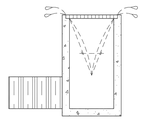
1. TEMPORARY SEDIMENT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. THEY SHALL BE MAINTAINED, AS NEEDED, THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POST WITH TIES OR STAPLES
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION
4. WHEN TWO (2) SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX (6) INCHES AND FOLDED
5. MATERIAL SHALL BE REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE
6. DOUBLE ROWS OF SILT FENCE SPACED FIVE (5) FEET APART SHALL BE PLACED AROUND EXISTING STORMWATER MANAGEMENT FACILITIES OR WETLANDS AS ADDITIONAL PROTECTION WHEN REQUIRED BY CITY ENGINEER



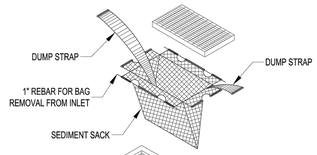
FABRIC ANCHOR DETAIL

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015	SILT FENCE	EC-01	
2.		Date: 12/4/2012	
3.		Drawn DD	Checked AW
4.			

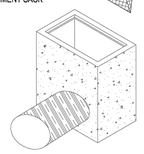
City of Crystal Lake Illinois



INSTALLATION DETAIL



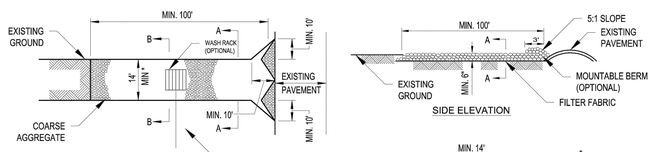
BAG DETAIL



SEDIMENT CONTROL DEVICE

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015	INLET SEDIMENT CONTROL DEVICE	EC-04	
2.		Date: 11/2/2007	
3.		Drawn EM	Checked AW
4.			

City of Crystal Lake Illinois

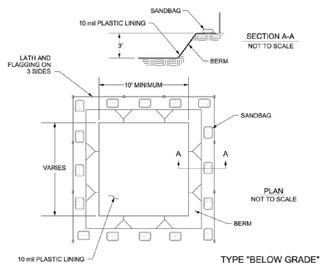


NOTES:

1. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 282 OF THE IDOT STANDARD SPECIFICATIONS AND SHALL BE PLACED OVER THE CLEARED AREA PRIOR TO THE PLACEMENT OF ROCK.
2. ROCK OR RECLAIMED CONCRETE SHALL MEET ONE OF THE FOLLOWING IDOT COARSE AGGREGATE GRADATIONS, CA-1, CA-2, CA-3 OR CA-4.
3. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHALL BE CONSTRUCTED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
4. IF WASH RACKS ARE USED, THEY SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

Revised:	Drawing Name	Drawing Number	
1. 06/12/2015	CONSTRUCTION ENTRANCE	EC-02	
2.		Date: 07/31/2012	
3.		Drawn DD	Checked AW
4.			

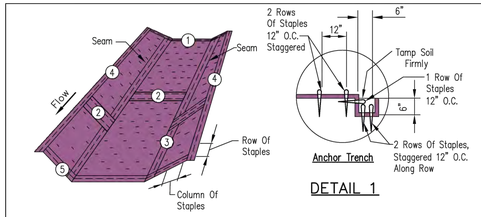
City of Crystal Lake Illinois



CONCRETE WASHOUT PIT

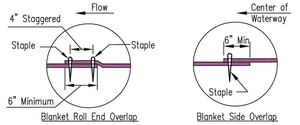
NO SCALE

CONSTRUCTION SEQUENCE	OPERATION TIME SCHEDULE – BEGINNING SEPTEMBER 2022
	SEP. 2022 · OCT. 2022 · NOV. 2022 · DEC. 2022 · JAN. 2023 · FEB. 2023 · MAR. 2023 · APR. 2023 · MAY 2023 · JUN. 2023 · JUL 2023 · AUG. 2023 · SEP. 2023 · OCT. 2023 · NOV. 2023
INSTALL AND MAINTAIN SOIL EROSION CONTROL MEASURES AS REQUIRED	
SITE CLEARING	
INSTALL DETENTION SYSTEM AND MASS GRADING	
INSTALL UTILITIES	
CONSTRUCT BUILDING AND GARAGES	
CONSTRUCT PARKING LOT	
FINE GRADE SITE	
INSTALL LANDSCAPING	
CLEANUP SITE	



Anchor Trench

DETAIL 1



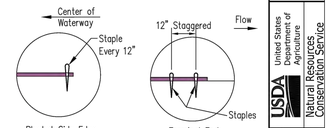
DETAIL 2 | DETAIL 3 | STAPLE DETAIL

Waterway #			
Waterway Width (ft)			
ECB Width (ft)			
Length (ft)			
Stations	____ to ____	____ to ____	____ to ____

NOTES:
1. The erosion control blanket consists of a machine produced mat of specified material. The product must meet the minimum requirements specified in Table 1, below. Ensure that the product is new and unused, and is furnished in rolls. Alternative materials may be used upon approval by the designer.
2. Prepare soil prior to installing erosion control blanket, including seeding, fertilizing, and lime application.
3. The erosion control blanket is to be placed in firm contact with the soil and not be allowed to bridge over surface irregularities. The blanket can not be stretched.
4. Install the erosion control blanket according to manufacturer's instructions. If no manufacturer's instructions are available, install the blanket as follows:
   a. Use "U" shaped staples, 0.12 in diameter wire or greater (#11 gauge). See Staple Detail for dimensions.
   b. Bury upstream end of blanket in a trench 6 inch wide by 6 inch deep and stapled in staggered rows across the width as shown in Detail 1.
   c. For joining ends of rolls, overlap end of upslope blanket a minimum of 6 inches over downslope blanket (shingle style). Use a double row of staggered staples 4 inches apart, as shown in Detail 2.
   d. Overlap blankets on side slopes a minimum 6 inches over the blanket below (shingle style). Staple overlap at 12 inch intervals. See Detail 3.
   e. Staple the outer edge along sides of the blanket every 12 inches. See Detail 4.
   f. Staples are to be placed alternately in columns (in the direction of the waterway) 2 feet apart and in rows (across the waterway) 3 feet apart, throughout the area covered by erosion blanket.
   g. Downstream (terminal) end of blanket are to be stapled with a double row of staggered staples 12 inches apart. See Detail 5.
5. Start laying the blankets by rolling center blanket in the direction of flow, centered on the centerline of waterway. No overlap of blankets at the center of the waterway.

TABLE 1. MINIMUM REQUIREMENTS FOR EROSION CONTROL BLANKET

(See Note 1)	Coconut Blanket	Wood Fiber Blanket	
Type of Fiber	100% coconut fibers	100% curled wood fibers	
Weight, lbs/sq. yd.	0.50	0.63	
Life Expectancy			
Fiber Length	N/A	80% of fibers > 6 in.	
Fiber Dimensions	N/A	0.021 in. x 0.042 in.	
Netting	Cover Top and bottom of blanket with a max. 5/8" x 5/8" opening size netting, bound to the mat on max. 1.5" centers.	Cover Top and bottom of blanket with a max. 5/8" x 5/8" opening size netting	
Netting Required ? ☐Yes ☐No			



DETAIL 4 | DETAIL 5

Not To Scale

EROSION CONTROL BLANKET

NO SCALE

STORMWATER MAINTENANCE SCHEDULE

DURING CONSTRUCTION:

TASK	Paved Areas	Pervious Areas	Riprap & Silt Fence	Storm Pipes	Catch Basins and Manholes	Inlet Grates	Flow Restriction Devices	Filtration Devices	Basins	SCHEDULE	PROJECT COST
Inspect for sediment accumulation	X		X	X	X		X	X	X	Weekly	$500.00
Removal of sediment accumulation	X		X	X	X		X	X	X	As needed* & prior to turnover	$1,800.00
Inspect for floatables and debris				X	X	X	X	X	X	Quarterly	$200.00
Cleaning for floatables and debris				X	X	X	X	X	X	Quarterly and at turnover	$300.00
Inspect for erosion		X	X							Weekly	$500.00
Reestablish permanent vegetation on eroded slopes		X								As needed* & prior to turnover	$500.00
Clean drives and parking lots	X									Weekly or as determined by permitting agency	$1,000.00
Water disturbed areas to provide dust control	All disturbed areas of site									As needed* & prior to turnover	$800.00
Inspect structural elements during wet weather and compare to as-built plans (by a professional engineer reporting to the owner)			X	X			X	X	X	Annually and at turnover	$500.00
Make adjustments or replacements as determined by wet weather inspection			X	X			X	X	X	As needed* & prior to turnover	$1,200.00
* "as needed" means when sediment has accumulated to a minimum of one foot depth.										**Total Estimated Project Phase Cost**	**$7,300.00**

Maintenance of soil erosion and sedimentation during construction to be the reponsibility of the general contractor.

PERMANENT MAINTENANCE:

TASK	Paved Areas	Pervious Areas	Riprap	Storm Pipes	Catch Basins and Manholes	Inlet Grates	Flow Restriction Devices	Filtration Devices	Basins	SCHEDULE	ANNUAL COST
Inspect for sediment accumulation	X		X	X	X		X	X	X	Annually	$500.00
Removal of sediment accumulation	X		X	X	X		X	X	X	Annually, and as needed*	$1,000.00
Inspect for floatables and debris				X	X	X	X	X	X	Annually	$200.00
Cleaning for floatables and debris				X	X	X	X	X	X	Annually, and as needed*	$500.00
Inspect and repair any infiltration basin damage									X	Annually, and after each storm of 1-inch or more	$600.00
Inspect for erosion		X	X							Every six months	$350.00
Reestablish permanent vegetation on eroded slopes		X								As needed*	$350.00
Clean drives and parking lots	X									Annually	$300.00
Mowing		X								Weekly during growing season* * Mowing within 25' of storm basin is only allowed twice per year.	$250.00
Inspect structural elements during wet weather and compare to as-built plans (by a professional engineer reporting to the owner)			X	X			X	X	X	Annually	$100.00
Make adjustments or replacements as determined by wet weather inspection			X	X			X	X	X	As needed*	$200.00
Keep records of all inspections and maintenance										Annually	$150.00
Keep records of all costs for inspections,										Annually	$150.00
Property owner to review cost-effectiveness of the preventative maintenance program and make necessary adjustments.										Annually	$150.00
Onwer to hire a professional engineer to carry out emergency inspections upon identification of severe problems.										As needed*	$150.00
* "as needed" means when sediment has accumulated to a minimum of one foot depth.										**Total Estimated Annual Maintenance Cost**	$4,950.00

Permanent maintenance of soil erosion and sedimentation control to be the responsibility of Clover Development.

NOTE: No chemicals are allowed in stormwater features or buffer zones with the following exception: Invasive species may be treated with chemicals by a certified applicator.

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CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

EROSION CONTROL BLANKET INSTALLATION DETAILS

Date: — | Designed: — | Drawn: M. GARDNER 7/1/21 | Checked: — | Approved: —

USDA United States Department of Agriculture — Natural Resources Conservation Service

File No. IL_ENG-61
Drawing No.
Page 1 of 1
Sheet of

CLOVER COMMUNITIES CRYSTAL LAKE LLC
SITE PLAN FOR PLANNING COMMISSION
SOIL EROSION CONTROL DETAILS

C5.6

DATE: 12/23/2021
SHEET 29 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
21216SE2.DWG

JOB No. **21216**

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/12/21
SITE PLAN SUBMITTAL 2	12/23/21
SITE PLAN SUBMITTAL 2	

M:\Civil3d_Proj\21216\Site Plan\21216SE2.dwg, 12/23/2021 10:57 AM, Jeremy A. Mathei, C5.6 SOIL EROSION CONTROL DETAILS, MCLLC.PDF.pc3
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M:\Civil3d_Proj\21216\Site Plan\21216PH1.dwg, 12/23/2021 10:57 AM, Jeremy A. Matthei, C6.0 PHOTOMETRIC AND SITE LIGHTING PLAN, MCLLC PDF.pc3
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D-Series Size 0
LED Area Luminaire

Buy American

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

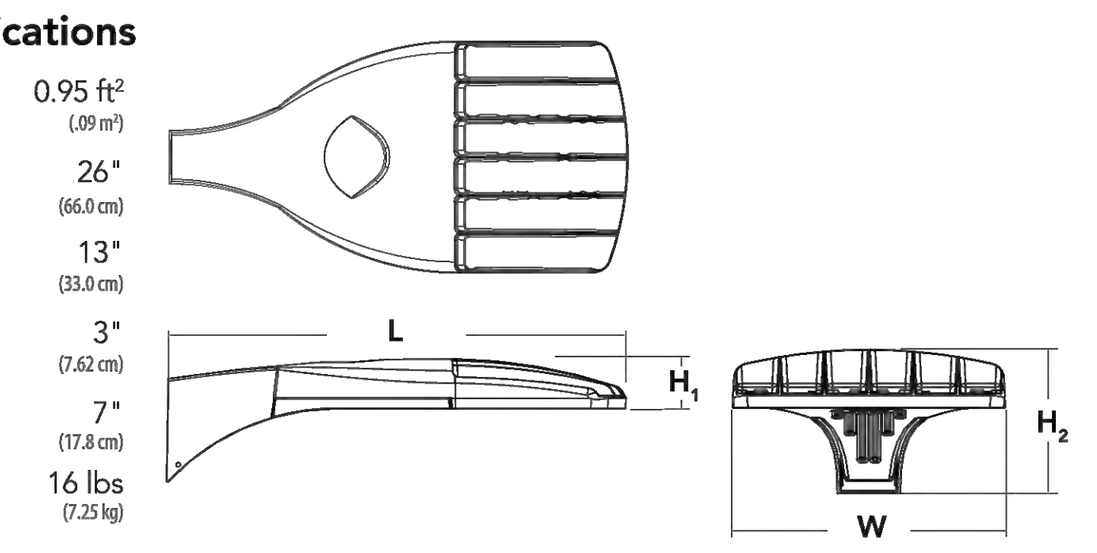
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA:	0.95 ft² (.09 m²)
Length:	26" (66.0 cm)
Width:	13" (33.0 cm)
Height₁:	3" (7.62 cm)
Height₂:	7" (17.8 cm)
Weight (max):	16 lbs (7.25 kg)



Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED					
Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics: P1, P2, P3, P4[1], P5, P6, P7[1]; Rotated optics: P10[2], P11[2], P12[2], P13[1,2]	30K 3000 K; 40K 4000 K; 50K 5000 K	T1S Type I short (Automotive); T2S Type II short; T2M Type II medium; T3S Type III short; T3M Type III medium; T4M Type IV medium; TFTM Forward throw medium; T5VS Type V very short[3]; T5S Type V short[3]; T5M Type V medium[3]; T5W Type V wide[3]; BLC Backlight control[4]; LCCO Left corner cutoff[4]; RCCO Right corner cutoff[4]	MVOLT (120V-277V)[5,6]; XVOLT (277V-480V)[7,8,9]; 120[6]; 208[6]; 240[6]; 277[6]; 347[6]; 480[6]	Shipped included: SPA Square pole mounting; RPA Round pole mounting[10]; WBA Wall bracket[3]; SPUMBA Square pole universal mounting adaptor[11]; RPUMBA Round pole universal mounting adaptor[11]; Shipped separately: KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[12]

Control options		Other options	Finish (required)
Shipped installed: NLTAIR2 nLight AIR generation 2 enabled[13,14]; PIRHN Network, high/low motion/ambient sensor[15]; PER NEMA twist-lock receptacle only (control ordered separate)[16]; PER5 Five-pin receptacle only (control ordered separate)[16,17]; PER7 Seven-pin receptacle only (leads exit fixture) (control ordered separate)[16,17]; DMG 0-10V dimming extend out back of housing for external control (control ordered separate)[18]	PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[19,20]; PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[19,20]; PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[19,20]; PIRH1FC3V High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[19,20]; FAO Field adjustable output[21]	Shipped installed: HS House-side shield[22]; SF Single fuse (120, 277, 347V)[6]; DF Double fuse (208, 240, 480V)[6]; L90 Left rotated optics[2]; R90 Right rotated optics[2]; DDL Diffused drop lens[22]; HA 50°C ambient operations[1]; BAA Buy America(n) Act Compliant; Shipped separately: BS Bird spikes[23]; EGS External glare shield	DDBXD Dark bronze; DBLXD Black; DNAXD Natural aluminum; DWHXD White; DDBTXD Textured dark bronze; DBLBXD Textured black; DNATXD Textured natural aluminum; DWHGXD Textured white

LITHONIA LIGHTING. COMMERCIAL OUTDOOR

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DSX0-LED Rev. 07/19/21 Page 1 of 8



NOTES:
1. CALCULATION POINTS ARE AT GROUND LEVEL.
2. ALL FIXTURE HEIGHTS ARE NOTED ON THE PLAN
3. CALCULATIONS POINTS ARE ON A 5' x 5' SPACING.
4. CARS, SHRUBBERY, EQUIPMENT AND SIGNAGE CAN CAUSE REDUCED LIGHT LEVELS FROM WHAT IS EXPECTED.
5. CALCULATIONS PROVIDED ARE NOT A GUARANTEE OF PERFORMANCE. ACTUAL LIGHT LEVELS MAY VARY.
**FIELD VERIFICATION REQUIRED.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Full Area Calc.	+	0.1 fc	2.8 fc	0.0 fc	N/A	N/A
Parking Lot Calc.	⋇	1.3 fc	2.8 fc	0.4 fc	7.0:1	3.3:1

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor
▭ □	P4	8	Lithonia Lighting	DSX0 LED P4 40K T4M MVOLT	DSX0 LED P4 40K T4M MVOLT	LED	1	DSX0_LED_P4_40K_T4M_MVOLT.ies	10335	0.93
▭ □	P3	13	Lithonia Lighting	DSX0 LED P4 40K T3M MVOLT	DSX0 LED P4 40K T3M MVOLT	LED	1	DSX0_LED_P4_40K_T3M_MVOLT.ies	10256	0.93

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KSA LIGHTING & CONTROLS

CLOVER COMMUNITIES, CRYSTAL LAKE - PHOTOMETRIC ANALYSIS

DRAFTED BY
JB
DATE
10/11/2021
SCALE
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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
PHOTOMETRIC AND SITE LIGHTING PLAN

C6.0

DATE: 12/22/2021
SHEET 30 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216PH1.DWG

JOB No. 21216

ISSUED:	REV. DATE
SITE PLAN SUBMITTAL 1	11/02/21
IDOT SUBMITTAL 1	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

M:\Civil\3d_Proj\21216\Site Plan\DOT\21216TC1.dwg, 12/23/2021 10:58 AM, Jeremy A. Matthei, C7.0 TRAFFIC CONTROL PLAN, MCLLC PDF.pc3
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W1-6 (R) (24" x 48")
8.0 SFT TYPE IIB SIGN
2-3 LB POST (26 LF)



W6-3 (36")
9.0 SFT TYPE IIIB SIGN
2-3 LB POST (26 LF)



W1-4 (L) (30")
6.3 SFT TYPE IIIB SIGN
1-3 LB POST (13 LF)



W20-1 (48")
16.0 SFT TYPE IIB SIGN
(2)-3 LB/FT POSTS

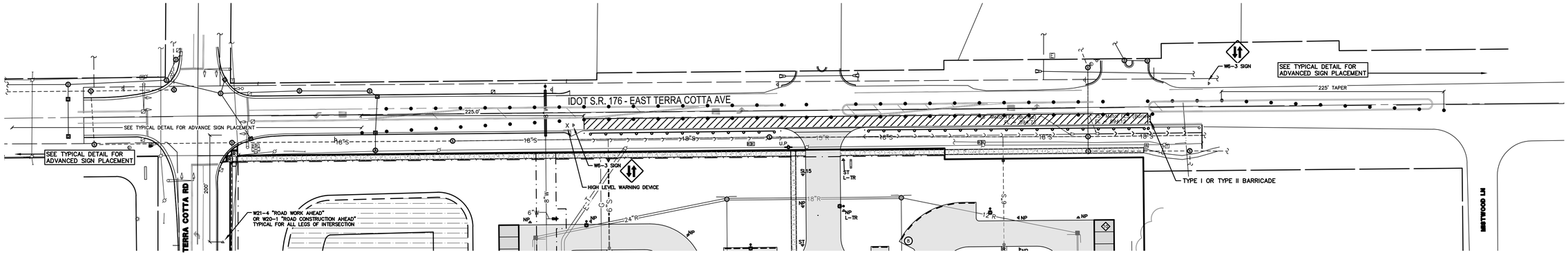
POSTED SPEED = 35 MPH
WIDTH OF CLOSURE (W) = 11 FT
L DISTANCE = $WS^2/60 = 11*35^2/60 = 225$ FT
DISTANCE BETWEEN SIGNS = 200 FT
DISTANCE BETWEEN CONES = 25 FT

LEGEND

- ASPHALT ROADWAY
- CONCRETE SIDEWALK
- CONCRETE PAVEMENT
- BUILDING
- U.P. — EXIST. UTILITY POLE
- OHE — EXIST. OVERHEAD UTILITY LINE
- T — EXIST. TELEPHONE LINE
- E — EXIST. ELECTRIC LINE
- G — EXIST. GAS LINE
- FO — EXIST. FIBER OPTIC LINE
- w — EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- r — EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- s — EXIST. SANITARY SEWER
- sp^{ped} — PEDESTRIAN CROSSING SIGNAL
- SIGN
- FIRE LANE – NO PARKING SIGN
- SECTION CORNER
- GRADING LIMITS
- WETLAND LIMITS
- W — PROP. WATER MAIN
- PROP. HYDRANT
- PROP. GATE VALVE IN BOX
- R — PROP. STORM SEWER
- PROP. CATCH BASIN OR INLET
- PROP. BEEHIVE INLET
- S — PROP. SANITARY SEWER

SCALE: 1" = 50'
0 50 100 150

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CONSTRUCTION SEQUENCE

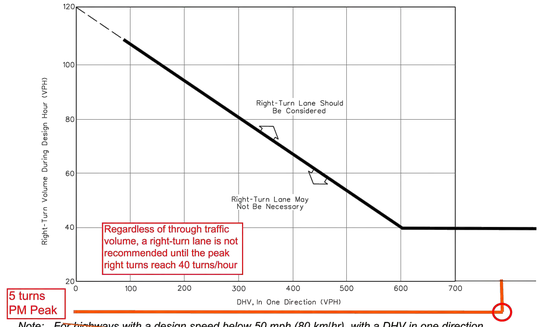
1. INSTALL TEMPORARY TRAFFIC CONTROL SIGNS FOR A LANE CLOSURE ON A TWO LANE TWO-WAY ROADWAY ILLINOIS DEPT OF TRANSPORTATION TYPICAL DETAIL AS SHOWN
2. REMOVE CONFLICTING PAVEMENT MARKINGS.
3. INSTALL TEMPORARY PAVEMENT MARKINGS AS SHOWN.
4. INSTALL CHANNELIZING DEVICES AS SHOWN.
5. REMOVE PAVEMENT AREAS AS SHOWN.
6. CONSTRUCT NEW IMPROVEMENTS AS SHOWN.

NOTES

1. WORK IN STATE ROUTE 172 RIGHT-OF-WAY, AND AT THE INTERSECTION OF S.R. 172 AND TERRA COTTA ROAD, SHALL BE PERMITTED AND APPROVED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
2. WORK IN THE TERRA COTTA ROAD RIGHT-OF-WAY SHALL BE PERMITTED AND APPROVED BY THE CITY OF CRYSTAL LAKE.
3. ALL PAVEMENT MARKINGS AND SIGNS SHALL COMPLY WITH THE 2009 MUTCD AND 2016 IDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. PAVEMENT MARKINGS SHALL BE WATERBORNE UNLESS REQUESTED OTHERWISE BY THE CITY OF CRYSTAL LAKE OR IDOT.

Illinois INTERSECTIONS August 2018

IDOT Design Guide (applies to S.R. 176)



Regardless of through traffic volume, a right-turn lane is not recommended until the peak right turns reach 40 turns/hour

5 turns PM Peak

794 peak-hour volume

Note: For highways with a design speed below 50 mph (80 km/hr), with a DHV in one direction of less than 300, and where right turns are greater than 40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

Note does not apply

Example

Given:
- Design Speed = 35 mph (60 km/hr)
- DHV (in one direction) = 250 vph
- Right Turns = 100 vph

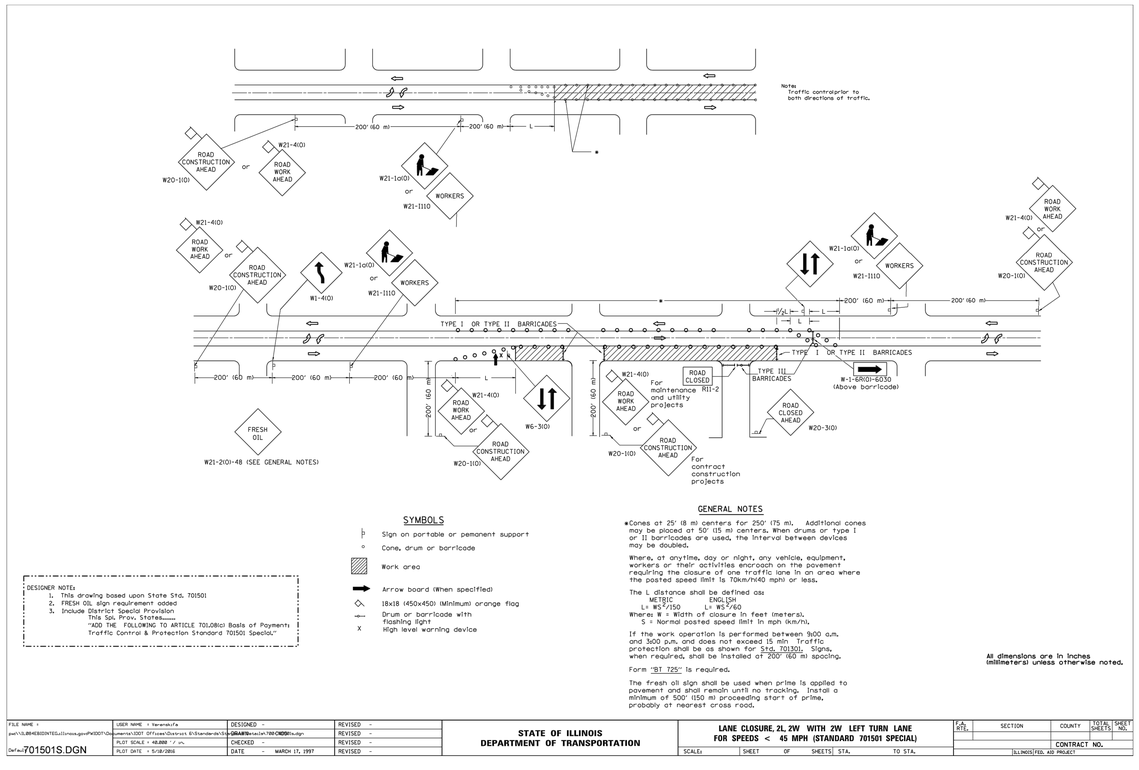
Problem: Determine if a right-turn lane is warranted.

Solution: To read the vertical axis, use 100 - 20 = 80 vph. The figure indicates that right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

Figure 36-3.A

Speed Limit 35 mph
Peak hour PM entering rt.-turn: 17 total x 25% distribution = 5 vph
Peak hour PM eastbound S.R.176: 794 vph
Right-turn lane not required.
See 9/21/21 Traffic Impact Study by GHA (p. 9-13) for further traffic detailed calculations and models.



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	PLOT SCALE = 40.000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 5/18/2016	DATE - MARCH 17, 1997	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LANE CLOSURE, 2L, 2W WITH 2W LEFT TURN LANE FOR SPEEDS < 45 MPH (STANDARD 701501 SPECIAL)

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEET SHEETS NO.
		CONTRACT NO.	
		ILLINOIS FED. AID PROJECT	

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SITE PLAN FOR PLANNING COMMISSION
TRAFFIC CONTROL PLAN

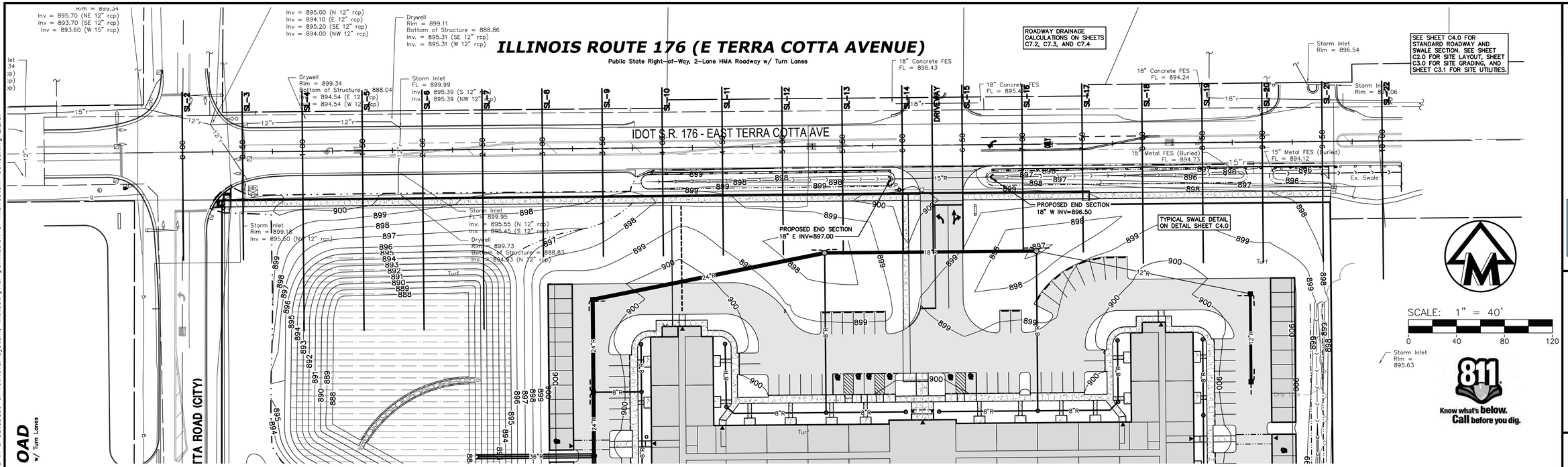
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DATE: 11/17/21
SHEET 31 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
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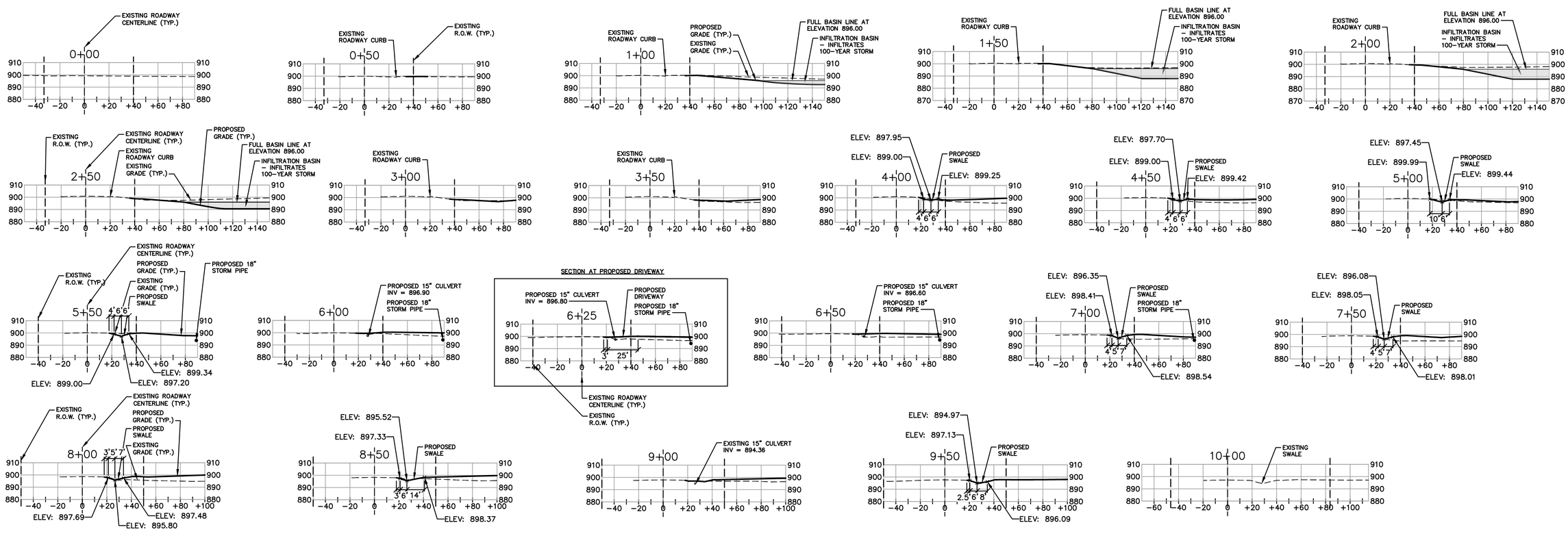
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IDOT SUBMITTAL 1	11/17/21

JOB No. 21216

M:\Civil3d_Proj\21216\Site Plan\IDOT\21216IS1 Site Plan.dwg, 12/23/2021 10:59 AM, Jeremy A. Matthei, C7.1 ROADWAY CROSS-SECTIONS, MCLLC PDF.pc3
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EAST TERRA COTTA AVENUE CROSS-SECTIONS



The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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ROADWAY CROSS-SECTIONS

C7.1

DATE: 11/17/21
SHEET 32 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
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JOB No. 21216

REVISIONS:	REV. DATE
IDOT SUBMITTAL 1	11/17/21

M:\Civil3dLPro\21216\Site Plan\00T\212160A1.dwg, 12/23/2021 10:59 AM, Jeremy A. Mothei, C7.2 EXISTING DRAINAGE PLAN, MCLLC PDF.pc3
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ILLINOIS ROUTE 176 (E TERRA COTTA AVENUE)

Public State Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

TERRA COTTA ROAD

Public City Right-of-Way, 2-Lane HMA Roadway w/ Turn Lanes

Storm Inlet
Rim = 899.34
Inv = 895.70 (NE 12" rcp)
Inv = 893.70 (SE 12" rcp)
Inv = 893.60 (W 15" rcp)

Storm Manhole
Rim = 899.35
Inv = 895.00 (N 12" rcp)
Inv = 894.10 (E 12" rcp)
Inv = 895.20 (SE 12" rcp)
Inv = 894.00 (NW 12" rcp)

Drywell
Rim = 899.11
Bottom of Structure = 888.86
Inv. = 895.31 (SE 12" rcp)
Inv. = 895.31 (W 12" rcp)

Drywell
Rim = 899.34
Bottom of Structure = 888.04
Inv. = 894.54 (E 12" rcp)
Inv. = 894.54 (W 12" rcp)

Storm Inlet
FL = 899.99
Inv. = 895.39 (S 12" rcp)
Inv. = 895.39 (NW 12" rcp)

S.R.-176:
DRAINS WESTERLY IN
STORM SEWER SYSTEM

S.R.-176:
DRAINS ONTO SITE TO
DEPRESSIONS C & D

18" Concrete FES
FL = 896.43

18" Concrete FES
FL = 895.47

S.R.-176:
DRAINS INTO
ROADSIDE SWALE

18" Concrete FES
FL = 894.24

Storm Inlet
Rim = 896.54

Storm Inlet
Rim = 896.06

DRAINAGE AREA TO
STORM SEWER SYSTEM
18,242 SFT (0.42 AC)

DRAINAGE AREA TO
DEPRESSIONS C & D
ON PROJECT SITE
10,724 SFT (0.25 AC)

DRAINAGE AREA TO
ROADSIDE SWALE
18,520 SFT (0.43 AC)

15" Metal FES (Buried)
FL = 894.73

15" Metal FES (Buried)
FL = 894.12

Ex. Swale

EXISTING SWALE

Storm Inlet
FL = 899.95
Inv. = 895.55 (N 12" rcp)
Inv. = 895.45 (S 12" rcp)

Drywell
Rim = 899.73
Bottom of Structure = 888.83
Inv. = 894.93 (N 12" rcp)

Storm Inlet
Rim = 899.18
Inv = 895.50 (NW 12" rcp)

OUTFALL POINT 1
(DRAINS TO S.R.-176 R.O.W.)

DEPRESSION B
OVERFLOWS TO OUTFALL POINT 1
24,607 SFT (0.56 AC)

DRAINAGE AREA TO
OUTFALL PONT 1
52,000 SFT (1.19 AC)

TERRA COTTA ROAD:
DRAINAGE AREA TO
SITE DEPRESSION

DEPRESSION C
OVERFLOWS TO OUTFALL POINT 1
68,500 SFT (1.57 AC)

DEPRESSION D
OVERFLOWS TO OUTFALL POINT 1
45,379 SFT (1.04 AC)

Storm Inlet
Rim =
895.63

DRAINAGE AREA TO
DEPRESSION A ON
PROJECT SITE
36,341 SFT (0.83 AC)

ROADWAY DRAINAGE
OUTLET TO SITE

DEPRESSION A (WETLAND)
91,179 SFT (2.09 AC)

12" Concrete FES
FL = 892.27

Curb Inlet
Flow = 896.82
Inv = 892.60 (E 12" rcp)
Inv = 892.70 (W 12" rcp)

DRAINAGE AREA TO
OUTFALL PONT 2
34,418 SFT (0.79 AC)

DEPRESSION E
OVERFLOWS TO OUTFALL POINT 2
72,203 SFT (1.66 AC)

SITE DRAINAGE
CALCULATIONS
ON SHEET
C5.4

OUTFALL POINT 2
(TO SUNRISE SENIOR LIVING)

Curb Inlet
FL = 894.65
Bottom of Structure = 889.45
Inv. = 890.65 (SE 12" rcp)

Storm Inlet
Rim = 894.40
Inv. = 890.96 (NW 12" rcp)

Storm Inlet
FL = 899.87
Inv = 895.02 (E 12" rcp)
Inv = 894.91 (W 12" rcp)

Storm Inlet
Rim = 896.78
Inv. = 894.57 (E 10")

Storm Inlet
Rim = 897.12
Inv. = 893.47 (E 10")
Inv. = 893.27 (S 12")
Inv. = 893.47 (W 10")

Turf
Drip Line

SCALE: 1" = 40'
0 40 80 120

Know what's below. Call before you dig.

National Flood Hazard Layer FIRMette



FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS: Without Base Flood Elevation (BFE) (Zone A, V, A99); With BFE or Depth (Zone AE, AO, AH, VE, AR); Regulatory Floodway
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile (Zone X)
- OTHER AREAS OF FLOOD HAZARD: Future Conditions 1% Annual Chance Flood Hazard (Zone X); Area with Reduced Flood Risk due to Levee. See Notes. (Zone X); Area with Flood Risk due to Levee (Zone D)
- OTHER AREAS: NO SCREEN Area of Minimal Flood Hazard (Zone X); Effective LOMRs; Area of Undetermined Flood Hazard (Zone D)
- GENERAL STRUCTURES: Channel, Culvert, or Storm Sewer; Levee, Dike, or Floodwall
- OTHER FEATURES: 20.2 / 17.8 Cross Sections with 1% Annual Chance Water Surface Elevation; Coastal Transect; Base Flood Elevation Line (BFE); Limit of Study; Jurisdiction Boundary; Coastal Transect Baseline; Profile Baseline; Hydrographic Feature
- MAP PANELS: Digital Data Available; No Digital Data Available; Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/16/2021 at 3:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
EXISTING DRAINAGE PLAN

C7.2

DATE: 11/17/21
SHEET 33 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
212160A1.dwg
Plot

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REVISIONS:	REV. DATE
IDOT SUBMITTAL 1	11/17/21

M:\Civil3dLPro\21216\Site Plan\D07\21216DA2.dwg, 12/23/2021 10:59 AM, Jeremy A. Mathei, C7.3 EXISTING DRAINAGE CALCULATIONS, MCLLC PDF.pc3
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SITE DRAINAGE CALCULATIONS ON SHEET C5.4

PROPOSED DIRECT DRAINAGE FROM SITE TO R.O.W.

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
11/15/2021

Rational C Values:

Soil Type	Roof/Pvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Garage		0	0.00	0.95	0.00
Pavement		0	0.00	0.95	0.00
Grass	A	0	0.00	0.20	0.00
Grass	B	0	0.00	0.30	0.00
Grass	C	9,008	0.21	0.35	0.07
Grass	D	0	0.00	0.50	0.00
Total		9,008	0.21	0.35	0.07

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Direct Drainage to Swale	9,008	0	0	0	9,008	C	0.35	3,153	0.072	0.207	0.35

FLOW CALCULATION SHEET
Clover Crystal Lake - 21216 - 11/15/2021

Runoff Formula: Q = CIA
MIDWESTERN CONSULTING, INC. — Intensity: 10-year: 0.94 in (5.66 in/hr)
3815 Plaza Drive — 50-year: 1.19 in (7.14 in/hr)
Ann Arbor, MI 48108 — Type of Pipe = rcp — 100-year: 1.29 in (7.74 in/hr)
734-995-0200 — n = 0.013 — Min time of concentration 10.00 min

10-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.207	0.35	0.072	0.000	0.072	10.00	5.66	**0.41**

50-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.207	0.35	0.072	0.000	0.072	10.00	7.14	**0.52**

100-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.207	0.35	0.072	0.000	0.072	10.00	7.74	**0.56**

*REMAINDER OF SITE INFILTRATES INTO STORM BASIN. SEE CALCULATIONS ON SHEET C5.4.

EXISTING DIRECT DRAINAGE FROM SITE TO R.O.W.

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
11/15/2021

Rational C Values:

Soil Type	Roof/Pvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Garage		0	0.00	0.95	0.00
Pavement		0	0.00	0.95	0.00
Grass	A	0	0.00	0.20	0.00
Grass	B	0	0.00	0.30	0.00
Grass	C	52,000	1.19	0.35	0.42
Grass	D	0	0.00	0.50	0.00
Total		52,000	1.19	0.35	0.42

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Outfall Point 1	52,000	0	0	0	52,000	C	0.35	18,200	0.418	1.194	0.35

FLOW CALCULATION SHEET
Clover Crystal Lake - 21216 - 11/15/2021

Runoff Formula: Q = CIA
MIDWESTERN CONSULTING, INC. — Intensity: 10-year: 0.94 in (5.66 in/hr)
3815 Plaza Drive — 50-year: 1.19 in (7.14 in/hr)
Ann Arbor, MI 48108 — Type of Pipe = rcp — 100-year: 1.29 in (7.74 in/hr)
734-995-0200 — n = 0.013 — Min time of concentration 10.00 min

10-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Outfall Point 1	1.194	0.35	0.418	0.000	0.418	10.00	5.66	**2.36**

50-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Outfall Point 1	1.194	0.35	0.418	0.000	0.418	10.00	7.14	**2.98**

100-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Outfall Point 1	1.194	0.35	0.418	0.000	0.418	10.00	7.74	**3.23**

CHANGE IN FLOW FROM SITE TO R.O.W.

Comparison Chart		
	CxA (ac)	Flow (cfs)
Existing (10-year)	1.93	2.36
Existing (50-year)	1.93	2.98
Existing (100-year)	1.93	3.23
Proposed (10-year)	0.48	0.41
Proposed (50-year)	0.48	0.52
Proposed (100-year)	0.48	0.56
Reduction (10-year)	1.45	1.95
Reduction (50-year)	1.45	2.46
Reduction (100-year)	1.45	2.67

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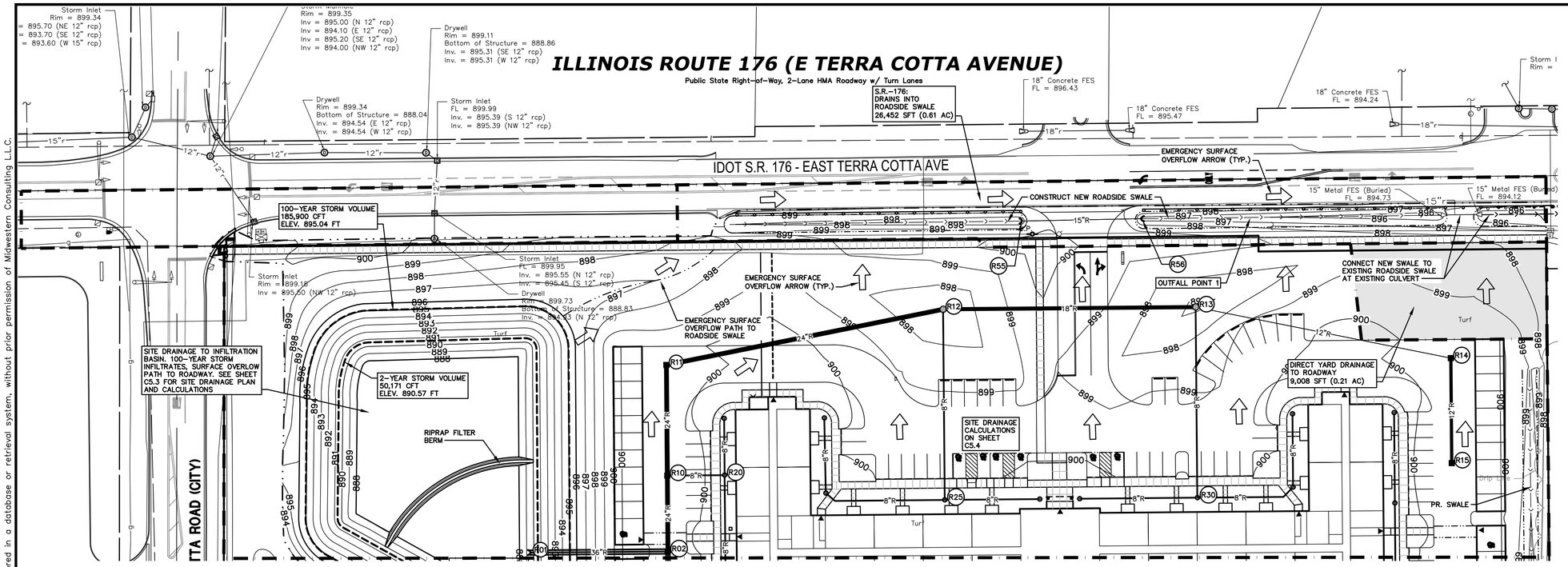
SITE PLAN FOR PLANNING COMMISSION
EXISTING DRAINAGE CALCULATIONS

C7.3

DATE: 11/17/21
SHEET 34 OF 37
CADD: JRB
ENG: JAM
PM: RCW
TECH:
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JOB No. 21216

REVISIONS:
DDOT SUBMITTAL 1 — REV. DATE 11/17/21



SCALE: 1" = 40'

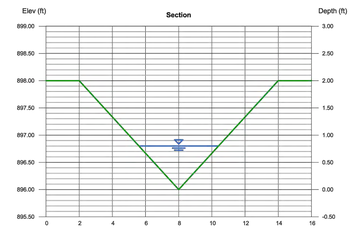
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Channel Report

Hydroflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Nov 16 2021

Roadside Swale Flow Calculations

Triangular		**Highlighted**	
Side Slopes (z:1)	= 3.00, 3.00	Depth (ft)	= 0.80
Total Depth (ft)	= 2.00	Q (cfs)	= 5.790
		Area (sqft)	= 1.92
Invert Elev (ft)	= 896.00	Velocity (ft/s)	= 3.02
Slope (%)	= 0.60	Wetted Perim (ft)	= 5.06
N-Value	= 0.020	Crit Depth, Yc (ft)	= 0.75
		Top Width (ft)	= 4.80
Calculations		EGL (ft)	= 0.94
Compute by:	Q vs Depth		
No. Increments	= 10		



*SWALE HANDLES 5.79 CFS, WHICH IS GREATER THAN THE 3.71 CFS 100-YEAR FLOW.

STORM CALCULATIONS (DIRECT DRAINAGE TO SWALE INCLUDING ROADWAY)

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
11/15/2021

Rational C Values:

Soil Type	RoofPvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Garage		0	0.00	0.95	0.00
Pavement		8,836	0.20	0.95	0.19
Grass	A	0	0.00	0.20	0.00
Grass	B	0	0.00	0.30	0.00
Grass	C	6,838	0.16	0.35	0.05
Grass	D	0	0.00	0.50	0.00
Total		15,674	0.36	0.69	0.25

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Direct Drainage to Swale	15,674	0	8,836	8,836	6,838	C	0.35	10,788	0.248	0.360	0.69

FLOW CALCULATION SHEET
Clover Crystal Lake - 21216 - 11/15/2021

MIDWESTERN CONSULTING, INC.
3815 Plaza Drive
Ann Arbor, MI 48108
734-995-0200

Runoff Formula: Q = CIA
Intensity: 10-year: 0.94 in (5.66 in/hr)
50-year: 1.19 in (7.14 in/hr)
100-year 1.29 in (7.74 in/hr)
Type of Pipe = rcp
n = 0.013
Min time of concentration 10.00 min

10-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.360	0.69	0.248	0.000	0.248	10.00	5.66	**1.40**

50-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.360	0.69	0.248	0.000	0.248	10.00	7.14	**1.77**

100-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)
Direct Drainage to Swale	0.360	0.69	0.248	0.000	0.248	10.00	7.74	**1.92**

*0 CFS INFILTRATION BASIN OUTFLOW TO R.O.W.

STORM CALCULATIONS (UPSTREAM OF PROPOSED CULVERT INCLUDING ROADWAY)

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
11/15/2021

Rational C Values:

Soil Type	RoofPvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Garage		0	0.00	0.95	0.00
Pavement		5,248	0.12	0.95	0.11
Grass	A	0	0.00	0.20	0.00
Grass	B	0	0.00	0.30	0.00
Grass	C	5,530	0.13	0.35	0.04
Grass	D	0	0.00	0.50	0.00
Total		10,778	0.25	0.64	0.16

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Upstream of Proposed Culvert	10,778	0	5,248	5,248	5,530	C	0.35	6,921	0.159	0.247	0.64

FLOW CALCULATION SHEET
Clover Crystal Lake - 21216 - 11/15/2021

MIDWESTERN CONSULTING, INC.
3815 Plaza Drive
Ann Arbor, MI 48108
734-995-0200

Runoff Formula: Q = CIA
Intensity: 10-year: 0.94 in (5.66 in/hr)
50-year: 1.19 in (7.14 in/hr)
100-year 1.29 in (7.74 in/hr)
Type of Pipe = rcp
n = 0.013
Min time of concentration 10.00 min

10-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Upstream of Proposed Culvert	0.247	0.64	0.159	0.000	0.159	10.00	5.66	**0.90**	15	84	0.60	4.09	0.34	5.02	4.12

50-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Upstream of Proposed Culvert	0.247	0.64	0.159	0.000	0.159	10.00	7.14	**1.13**	15	84	0.60	4.09	0.34	5.02	3.88

100-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Upstream of Proposed Culvert	0.247	0.64	0.159	0.000	0.159	10.00	7.74	**1.23**	15	84	0.60	4.09	0.34	5.02	3.79

*0 CFS INFILTRATION BASIN OUTFLOW TO R.O.W.
*CULVERT HANDLES 5.02 CFS, WHICH IS GREATER THAN THE 1.23 CFS 100-YEAR FLOW.

STORM CALCULATIONS (TOTAL DRAINAGE TO EXISTING ROADSIDE SWALE)

Clover Crystal Lake Stormwater Areas
Midwestern Consulting
11/15/2021

Rational C Values:

Soil Type	RoofPvmt.	Vegetated	Water
A	0.95	0.20	1.00
B	0.95	0.30	1.00
C	**0.95**	**0.35**	**1.00**
D	0.95	0.50	1.00

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Garage		0	0.00	0.95	0.00
Pavement		14,084	0.32	0.95	0.31
Grass	A	0	0.00	0.20	0.00
Grass	B	0	0.00	0.30	0.00
Grass	C	21,376	0.49	0.35	0.17
Grass	D	0	0.00	0.50	0.00
Total		35,460	0.81	0.59	0.48

Inlet #	sft total area	sft roof	sft pvmt.	total imp.	sft veg.	Soil Type	Veg. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Total Drainage	35,460	0	14,084	14,084	21,376	C	0.35	20,861	0.479	0.814	0.59

FLOW CALCULATION SHEET
Clover Crystal Lake - 21216 - 11/15/2021

MIDWESTERN CONSULTING, INC.
3815 Plaza Drive
Ann Arbor, MI 48108
734-995-0200

Runoff Formula: Q = CIA
Intensity: 10-year: 0.94 in (5.66 in/hr)
50-year: 1.19 in (7.14 in/hr)
100-year 1.29 in (7.74 in/hr)
Type of Pipe = rcp
n = 0.013
Min time of concentration 10.00 min

10-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Total Drainage	0.814	0.59	0.479	0.000	0.479	10.00	5.66	**2.71**	15	28	2.20	7.83	0.06	9.61	6.90

50-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Total Drainage	0.814	0.59	0.479	0.000	0.479	10.00	7.14	**3.42**	15	28	2.20	7.83	0.06	9.61	6.19

100-year

Structure No.	Drainage Area A (Acres)	Runoff Coeff. C	CxA	ADD. CxA	Σ CxA	Time T (min.)	Rainfall I (in./hr.)	Q (cfs)	Pipe Dia. (in.)	Pipe Length (ft.)	Pipe Slope %	Velocity Flowing Full (ft./sec.)	Travel Time (min.)	Sewer Capacity (cfs)	Spare Capac. (cfs)
Total Drainage	0.814	0.59	0.479	0.000	0.479	10.00	7.74	**3.71**	15	28	2.20	7.83	0.06	9.61	5.90

*0 CFS INFILTRATION BASIN OUTFLOW TO R.O.W.
*CULVERT HANDLES 9.61 CFS, WHICH IS GREATER THAN THE 3.71 CFS 100-YEAR FLOW.

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M:\Civil3d_Proj\21216\Site Plan\(00?)\21216DA3.dwg, 12/23/2021 11:00 AM, Jeremy A. Mothe, C7.4 PROPOSED ROADWAY DRAINAGE PLAN AND CALCULATIONS, MCLLC PDF.pc3
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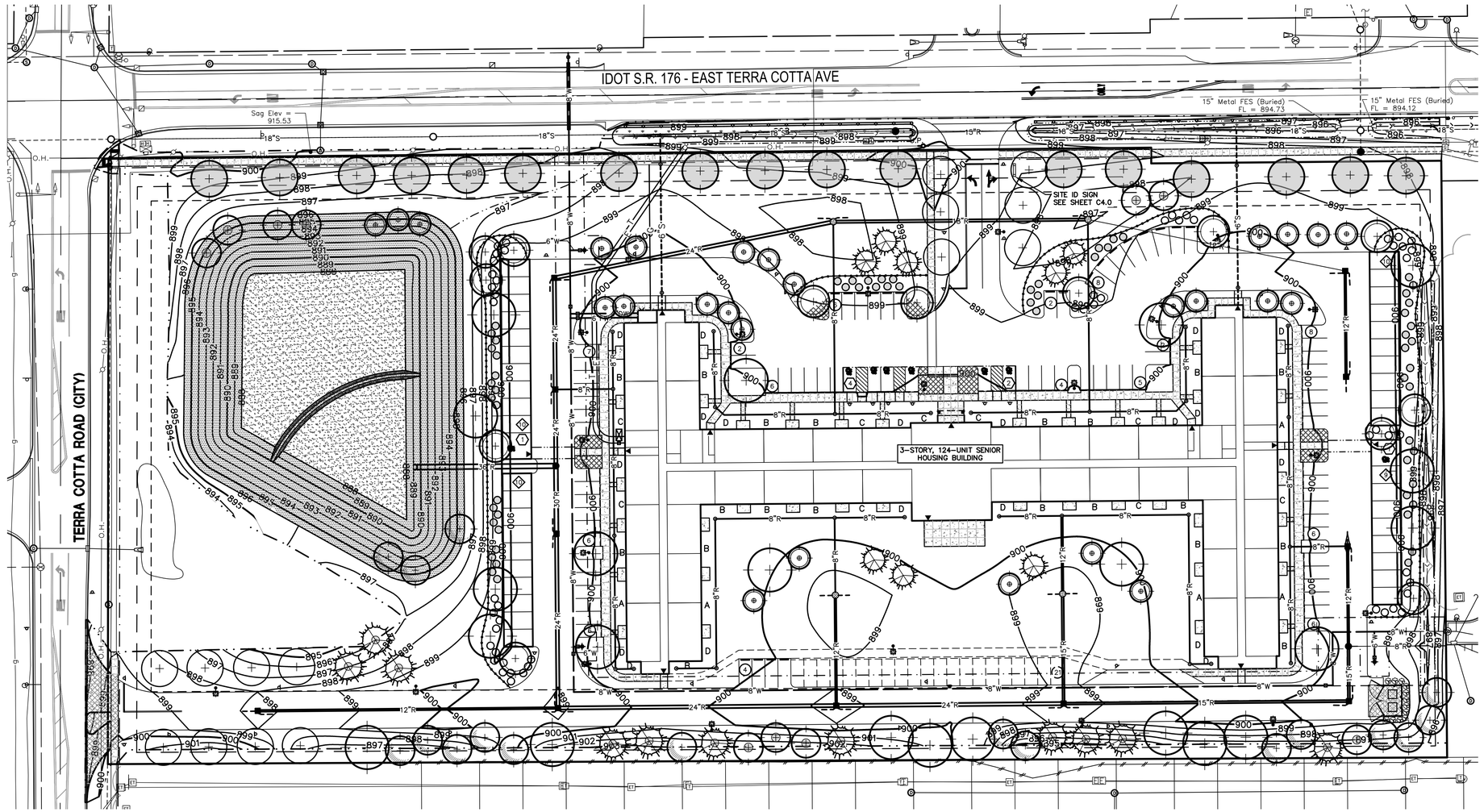
SITE PLAN FOR PLANNING COMMISSION
PROPOSED ROADWAY DRAINAGE PLAN AND CALCULATIONS

C7.4

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SHEET 35 OF 37
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ENG: JAM
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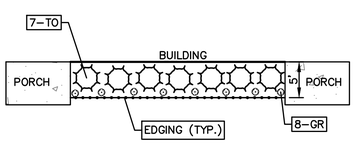
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IDOT SUBMITTAL 1	11/17/21



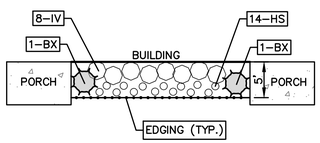
LANDSCAPE LEGEND

- AUTUMN BLAZE RED MAPLE
- REDSPIRE PEAR
- BLACK HILLS SPRUCE
- SERVICEBERRY
- JAPANESE LILAC
- GREEN COLUMN BLACK MAPLE
- NORWAY SPRUCE
- REDMOND LINDEN
- REDBUD
- ARROWWOOD VIBURNUM
- GRAY DOGWOOD
- GLOBE ARBORVITAE
- GREEN MOUNTAIN BOXWOOD
- EMERALD GREEN ARBORVITAE
- AUTUMN JOY SEDUM
- LITTLE HENRY SWEETSPIRE
- ROZANNE GERANIUM
- STELLA D'ORO DAYLILY
- PERENNIAL BED
- BASIN BOTTOM SEED MIX
- SIDE SLOPE SEED MIX
- SWALE SEED MIX
- PROPOSED EDGING
- A/B/C/D — FOUNDATION PLANTINGS — SEE TYPICAL DETAILS



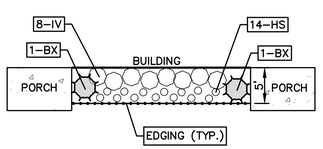
FOUNDATION PLANTING TYPE A

SCALE: 1" = 10FT



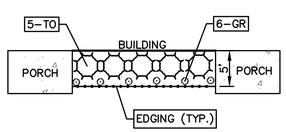
FOUNDATION PLANTING TYPE B

SCALE: 1" = 10FT



FOUNDATION PLANTING TYPE C

SCALE: 1" = 10FT



FOUNDATION PLANTING TYPE D

SCALE: 1" = 10FT

PLANT SCHEDULE

Symbol	Tree Mitigation	Foundation	Parking	Other	Botanical Name	Common Name	Spp Group	Size	Cont	Notes
AC	18				Amelanchier canadensis	Serviceberry	B	2.5 " cal	B&B	
PG	3		2		Picea glauca 'Densata'	Black Hills Spruce	B	6' hgt	B&B	
TA	17		4		Tilia americana 'Redmond'	Redmond Linden	A	2.5 " cal	B&B	
SR			13		Syringa reticulata	Japanese Tree Lilac	B	2.5 " cal	B&B	
AR	10		7		Acer rubrum 'Autumn Blaze'	Autumn Blaze Red Maple	B	2.5 " cal	B&B	
CC	27				Cercis canadensis	Redbud	B	2.5" cal	B&B	
AS	9				Acer saccharum nigrum 'Green Column'	Green Column Black Maple	A	2.5" cal	B&B	
PC	14				Pyrus callyana 'Redspire'	Redspire Pear	A	2.5" cal	B&B	
PA	11				Picea abies	Norway Spruce	B	6' hgt	B&B	
SUBTOTAL			26							
IV		274			Itea virginica	Little Henry Sweetspire		36" hgt	B&B	
VD			54		Viburnum dentatum	Arrowwood Viburnum		36" hgt	B&B	
CR			61		Cornus racemosa	Gray Dogwood		36" hgt	B&B	
BX		40			Buxus x 'Green Mountain'	Green Mountain Boxwood		No. 3	Cont.	
TO		80			Thuja occidentalis 'Little Giant'	Little Giant Globe Arborvitae		36" hgt	B&B	
TS				12	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	A	4' hgt	B&B	
SUBTOTAL			115							
HS		280			Hemerocalis stella d'oro	Stell D'Oro Daylily		No. 3	Cont.	
SS		171			Sedum spectabile	Autumn Joy Sedum		No. 3	Cont.	
GR		94			Geranium 'Rozanne'	Rozanne Geranium		No. 3	Cont.	
TOTAL	**109**	**939**	**141**	**12**						

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348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734-346-0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC

SITE PLAN FOR PLANNING COMMISSION
LANDSCAPE PLAN

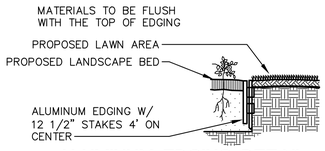
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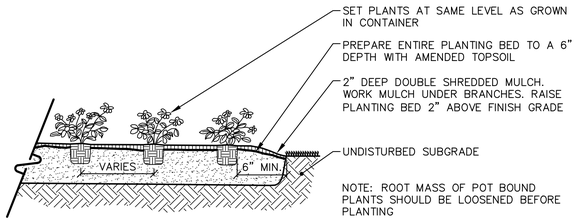
ISSUED:	DATE
SITE PLAN SUBMITTAL 1	11/17/21
SITE SUBMITTAL	12/13/21
SITE PLAN SUBMITTAL 2	12/23/21

DATE: 12/22/2021
SHEET 35 OF 37
CADD: JBB
ENG: JAM
PM: RCW
TECH:
21216LP1.DWG

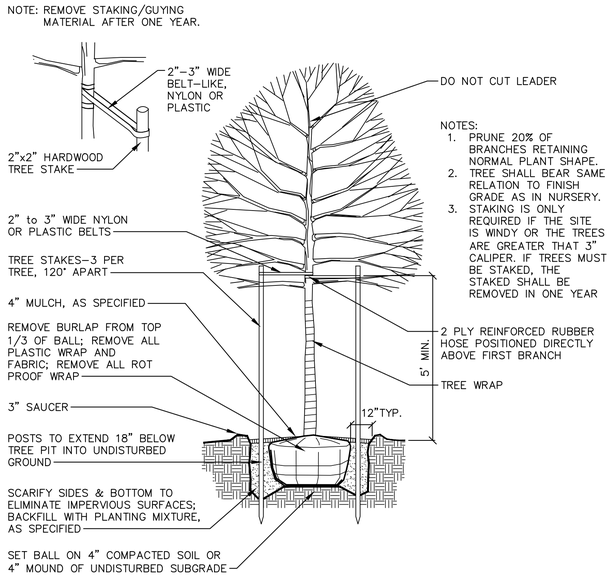
M:\Civil3d_Proj\21216\Site Plan\21216LP2.dwg, 12/23/2021 11:01 AM, Jeremy A. Mettler, L1.1 LANDSCAPE DETAILS, MCLLC PDF.pc3
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ALUMINUM EDGING DETAIL
SCALE : NTS



ANNUAL AND PERENNIAL PLANTING
SCALE : NTS



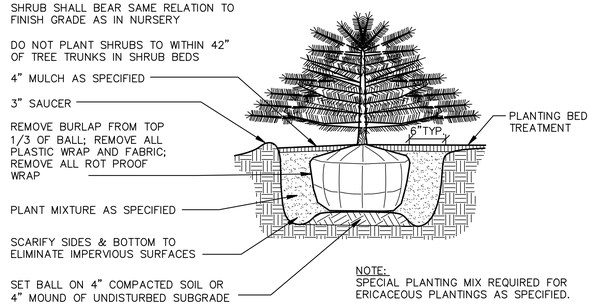
DECIDUOUS TREE PLANTING DETAIL
2–1/2" CAL. OR SMALLER
SCALE: NTS

NOTE:
PRUNE 20% OF BRANCHES AND FOLIAGE RETAINING NORMAL PLANT

SHAPE DO NOT TRIM EVERGREENS

SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IN NURSERY

DO NOT PLANT SHRUBS TO WITHIN 42" OF TREE TRUNKS IN SHRUB BEDS



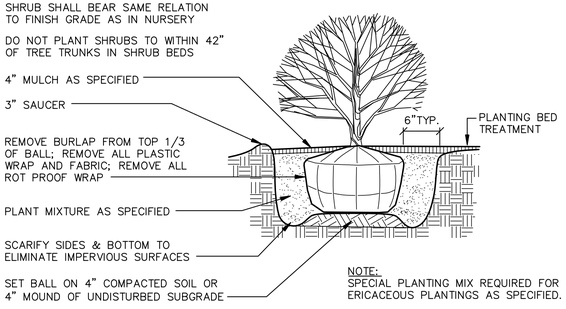
NOTE:
SPECIAL PLANTING MIX REQUIRED FOR ERICACEOUS PLANTINGS AS SPECIFIED.

EVERGREEN SHRUB PLANTING DETAIL
NOT TO SCALE

DO NOT TRIM EVERGREENS

SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IN NURSERY

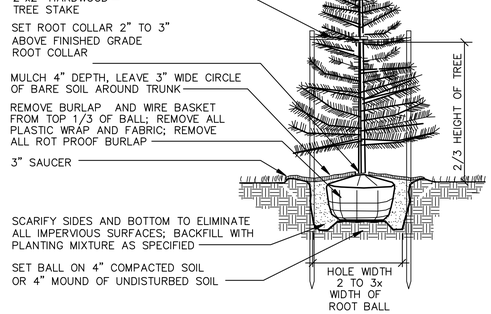
DO NOT PLANT SHRUBS TO WITHIN 42" OF TREE TRUNKS IN SHRUB BEDS



NOTE:
SPECIAL PLANTING MIX REQUIRED FOR ERICACEOUS PLANTINGS AS SPECIFIED.

SHRUB PLANTING DETAIL
NOT TO SCALE

NOTE: REMOVE STAKING/GUYING MATERIAL AFTER ONE YEAR.



EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in–service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

Basin Bottom - Stormwater Seed Mix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges/Rushes:		
Bolboschoenus fluviatilis	River Bulrush	1.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Bottlebrush Sedge	3.00
Carex vulpinoidea	Brown Fox Sedge	2.00
Elymus virginicus	Virginia Wild Rye	24.00
Glyceria striata	Fowl Manna Grass	1.00
Juncus effusus	Common Rush	1.00
Leersia oryzoides	Rice Cut Grass	1.00
Panicum virgatum	Switch Grass	2.00
Schoenoplectus tabernaemontani	Great Bulrush	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperinus	Wool Grass	1.00
	Total	**41.50**
Temporary Cover:		
Avena sativa	Common Oat	512.00
	Total	**512.00**
Forbs & Shrubs:		
Alisma subcordatum	Common Water Plantain	2.50
Asclepias incarnata	Swamp Milkweed	2.00
Bidens spp.	Bidens Species	2.00
Eupatorium perfoliatum	Common Boneset	1.00
Helenium autumnale	Sneezeweed	2.00
Iris virginica v. shrevei	Blue Flag	4.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	1.00
Penthorum sedoides	Ditch Stonecrop	0.50
Persicaria spp.	Pinkweed Species	2.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	1.00
Rudbeckia triloba	Brown-Eyed Susan	1.50
Sagittaria latifolia	Common Arrowhead	1.00
Senna hebecarpa	Wild Senna	2.00
Symphyotrichum lanceolatum	Panicled Aster	0.50
Symphyotrichum novae-angliae	New England Aster	0.50
Thalictrum dasycarpum	Purple Meadow Rue	2.00
	Total	**26.00**

Basin Side Slope - Economy Prairie Seed Mix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses:		
Andropogon gerardii	Big Bluestem	12.00
Bouteloua curtipendula	Side-Oats Grama	16.00
Carex spp.	Prairie Sedge Species	3.00
Elymus canadensis	Canada Wild Rye	24.00
Panicum virgatum	Switch Grass	2.50
Schizachyrium scoparium	Little Bluestem	32.00
Sorghastrum nutans	Indian Grass	12.00
	Total	**101.50**
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	**460.00**
Forbs:		
Asclepias syriaca	Common Milkweed	1.00
Asclepias tuberosa	Butterfly Weed	1.00
Chamaecrista fasciculata	Partridge Pea	10.00
Coreopsis lanceolata	Sand Coreopsis	6.00
Echinacea purpurea	Broad-Leaved Purple Coneflower	8.00
Heliopsis helianthoides	False Sunflower	0.25
Monarda fistulosa	Wild Bergamot	0.50
Penstemon digitalis	Foxglove Beard Tongue	1.00
Ratibida pinnata	Yellow Coneflower	4.00
Rudbeckia hirta	Black-Eyed Susan	8.00
Solidago speciosa	Showy Goldenrod	0.50
Symphyotrichum laeve	Smooth Blue Aster	1.00
Symphyotrichum novae-angliae	New England Aster	0.50
	Total	**41.75**

Swale Seed Mix by Cardno

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges:		
Andropogon gerardii	Big Bluestem	4.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Bottlebrush Sedge	3.00
Carex spp.	Prairie Sedge Species	8.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus canadensis	Canada Wild Rye	16.00
Elymus virginicus	Virginia Wild Rye	16.00
Juncus canadensis	Canadian Rush	1.00
Panicum virgatum	Switch Grass	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperinus	Wool Grass	0.50
Spartina pectinata	Prairie Cord Grass	3.00
	Total	**60.00**
Temporary Cover:		
Avena sativa	Common Oat	512.00
	Total	**512.00**
Forbs:		
Alisma subcordatum	Common Water Plantain	1.00
Asclepias incarnata	Swamp Milkweed	2.00
Coreopsis tripteris	Tall Coreopsis	1.00
Euthamia graminifolia	Common Grass-Leaved Goldenrod	0.50
Eutrochium maculatum	Spotted Joe-Pye Weed	1.00
Iris virginica v. shrevei	Blue Flag	4.00
Liatris spicata	Marsh Blazing Star	1.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	0.50
Penthorum sedoides	Ditch Stonecrop	1.00
Pycnanthemum virginianum	Common Mountain Mint	0.50
Rudbeckia triloba	Brown-Eyed Susan	1.00
Senna hebecarpa	Wild Senna	1.00
Silphium terebinthinaceum	Prairie Dock	1.00
Symphyotrichum novae-angliae	New England Aster	0.50
Verbena hastata	Blue Vervain	1.50
Zizia aurea	Golden Alexanders	2.00
	Total	**20.00**

LANDSCAPE NOTES

1. For any plant quantity discrepancies between the plan view and the plant schedules, the plant schedule shall take precedence.
2. Plant materials shall be selected and installed in accordance with standards established by the City of Crystal Lake.
3. Landscape contractor shall provide irrigation/water source for proposed plant material for two years from time of planting or for period specified in contract.
4. All diseased, damaged or dead material shown on the site plan as proposed plantings shall be replaced by the end of the following growing season.
5. Restore all disturbed areas with a minimum of four (4) inches of topsoil and then seed/ fertilize/mulch unless otherwise noted on landscape plan.
6. All disturbed areas not to be seeded with native seed mixes identified on the Landscape Plan shall be lawn areas. Lawn seed mix shall meet species composition requirements of IDOT Class 1 Lawn Mixture. Seed shall be installed and stabilized per IDOT standard specifications most current issue. Mulch within 24 hours with two (2) tons of straw per acre, or 71 bales of excelsior mulch per acre. Anchor straw mulch with spray coating of adhesive material applied at the rate of 150 gals. / acre.
7. Fertilizer for the initial installation of lawns shall provide not less than one (1) pound of actual nitrogen per 1,000 sq ft of lawn area and shall contain not less than two percent (2%) potassium and four percent (4%) phosphoric acid.
8. After the first growing season, only fertilizers that contain NO phosphorus shall be used on the site in lawn areas only.
9. Areas identified on the Landscape Plan with seed mixes shall be seeded with specified seed mixes from Michigan Wildflower Farm, or equivalent as approved by landscape architect. Temporary cover crop shall be included with all seed mixes. Seeding rates and installation techniques shall be confirmed with supplier.
10. All seeded areas with slopes less than 1:5 (one vertical foot for every 3 horizontal feet) shall be mulched with straw mulch at the rate of two (2) bales per 1,000 square feet. All seeded areas with slopes greater than 1:5 shall be seeded and provided with a biodegradable erosion control blanket such as North American Green S150, 100% biodegradable, jute netted or approved substitution, and shall be secured with biodegradable stakes.
11. Deciduous plants shall be planted between March 1 and May 15 and from October 1 until the prepared soil becomes frozen. Evergreen plants shall be planted between March 1 and June 1 and from August 15 to September 15.
12. All compacted subgrade soils in proposed planting areas shall be tilled to a minimum 12-inch depth prior to placement of a minimum of 6" topsoil, geotextile fabric, or other planting media as specified.
13. All landscape beds on planting plan where identified as being lined with edging contractor shall install a commercial grade steel edging. Edging shall be fabricated in 10' - 20' sections with anchor stake loops stamped in face of section at a minimum of 32" on center. Use minimum 15" tapered steel anchoring stakes (3/16" thick) provided by manufacturer. Edging and stakes shall be finished with black enamel paint.
14. All trees to be located a minimum of 10 feet from public utilities.
15. All single trunk, deciduous trees shall have a straight and a symmetrical crown with a central leader. One sided trees or those with thin or open crowns shall not be accepted.
16. All evergreen trees, where applicable, shall be branched fully to the ground, symmetrical in shape and have not been sheared in the last three (3) growing seasons.
17. Proposed trees will be planted a minimum of 15 feet apart.
18. Topsoil and compost shall meet most recent issue of IDOT standard specifications for Topsoil and Compost.
19. Planting Soil: Existing, in-place or stockpiled topsoil. Supplement with imported topsoil as needed. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mix surface soil with the following soil amendments to produce planting soil:
    a. Ratio of Loose Compost to Topsoil by Volume: 1:4.
    b. Weight of Lime per 1000 Sq. Ft.: Amend with lime only on recommendation of soil test to adjust soil pH.
    c. Weight of Sulfur or Aluminum Sulfate per 1,000 Sq. Ft.: Amend with sulfur or aluminum sulfate only on recommendation of soil test to adjust soil pH.
    d. Volume of Sand: Amend with sand only on recommendation of Landscape Architect to adjust soil texture.
    e. Weight of Slow-Release Fertilizer per 1,000 Sq. Ft.: Amend with fertilizer only on recommendation of soil test to adjust soil fertility.

Maintenance and Warranty:

1. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
2. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
3. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
4. Contractor shall warranty all plant material and trees to remain alive and be in healthy, vigorous and like new condition for the specified period from installation to Substantial Completion. The entire Landscaping Project, including but not limited to: plants, shrubs, mulches, etc. are to be under Warranty for One Year after Substantial Completion date of the Project. Trees (including street trees as specified on the landscape plan and mitigation trees based on trees recommended to be saved) are to be under Warranty for Two Years after Substantial completion date of the Project. At the end of the specified Warranty period the Owner's Representative will inspect plant material for compliance. Contractor shall replace, in accordance with the drawings and specifications, all plants, trees, shrubs, etc or as determined by the Owner's Representative, are in an unhealthy or unsightly condition. Warranty shall not include damage or loss of plants, trees, and shrubs caused by fires, floods, freezing rains, lightning storms, or winds over 75 miles per hour, acts of vandalism or negligence on the part of the owner, or any other incident beyond landscape contractor's control.
5. During the warranty period for the installed deciduous mitigation trees:
    a. The trunk of young trees shall be wrapped in late autumn and wrap shall be removed in early spring
    b. Burlap screening or wrapping shall be installed on the southwest and windward sides from late autumn to early spring.
    c. Trees shall be watered in spring and autumn and during dry conditions at a frequency determined by certified arborist.
    d. Mulching around trees shall be maintained at a depth of 2 to 3 inches

Native Seeding/Installation/ and 2-year Maintenance:

1. Seeding installation shall be performed by a qualified contractor with documented experience of successful established seeding and as approved by the City and client. Seed shall be installed per manufacturer's specification.
2. No chemicals are allowed in the stormwater features with the following exception: invasive species may be treated with chemicals by a certified applicator.
3. Upon completion of construction in year 1, native seeding areas and stormwater areas shall be heavily seeded with cover crop and straw mulch or erosion control blanket.
4. In Year 1-installation season– three herbicide applications shall be performed in order to eradicate weedy species in native seed installation areas. Contractor is responsible for obtaining any necessary permits for herbicide applications. All herbicide applied to native areas shall be suitable for aquatic environments.
5. In year 1, native seeding and stormwater planting areas shall be seeded after October 1, but before November 30 (or prior to ground freezing) or as approved by Landscape Architect or guaranteed by the supplier. Contractor shall perform regularly scheduled watering for installed seed and as needed based on weather conditions to ensure germination and establishment of seed.
6. Native seeding areas shall be maintained by contractor for two years after installation season to promote establishment of native vegetation and reduce weeds and invasive species. Contractor is responsible for obtaining any necessary permits for herbicide applications. All herbicide applied to native areas shall be suitable for aquatic environments.
7. During the first maintenance season, the seeded areas shall be mowed monthly to a height of 4 to 6 inches when vegetation reaches 10 to 12 inches in height through September. Annual invasive weeds such as crabgrass, purple knapweed, purple loosestrife, yellow or white sweet clover, black medic or other invasive plants shall be spot controlled with herbicide. Do not hand pull invasive weeds during first maintenance season.
8. During the second growing season, the seeded areas shall be mowed approximately every month to a height of 8 inches when vegetation reaches 12 to 18 inches. Annual invasive weeds noted above shall be spot controlled with or hand pulled as appropriate.
9. Long-term maintenance of the native seeded areas and detention basin shall be performed by the Owner. Maintenance shall include mowing to 4 inches in height during early spring (between February and April) and raking to remove clippings. Spot treatment/removal of invasive weeds may be necessary if localized areas become dominated by invasive weeds. Mowing is only allowed twice per year.

MIDWESTERN CONSULTING
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Land Development • Land Survey • Institutional • Municipal
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CLIENT
CLOVER COMMUNITIES CRYSTAL LAKE LLC
348 HARRIS HILL ROAD
WILLIAMSVILLE, NY 14221
ATTN: BETH ERNAT
734–346–0246

CLOVER COMMUNITIES CRYSTAL LAKE LLC
CRYSTAL LAKE PLANNING COMMISSION
SITE PLAN FOR LANDSCAPE DETAILS

L1.1

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JOB No. 21216

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SITE PLAN SUBMITTAL 1	11/12/21
SITE PLAN SUBMITTAL	11/17/21
SITE PLAN SUBMITTAL 2	12/23/21

November 19, 2021

City of Crystal Lake,
Community Development

VIA Electronic Submission

RE: Concept Plan Review Application – Southeast Corner of Terra Cotta and Rt 176 PIN 14-34-301-048-0000

Clover Communities Crystal Lake LLC, has the property referenced above under contract and is seeking a concept review of the use and general layout of the property prior to proceeded with approvals.

Clover Communities

Clover Communities Crystal Lake LLC is a subsidiary of Clover Management West "Clover" and is proposing a 124-unit senior living complex. The proposed project is age restricted, market-rate, multi-family residential. If approved for construction the project would break ground in Spring, 2022. Clover Communities has been in business for over 35 years providing independent senior living with over 60 communities currently in operation in New York, Pennsylvania, Ohio, Indiana, Missouri and Kentucky. Clover is expanding its operations to Illinois, Michigan, North and South Carolina, and Tennessee. While many senior care facilities were devasted by COVID-19, Clover Communities continued operations with regulations and were able to continue with development and construction of new sites.

Project Introduction

Clover Communities Crystal Lake LLC has proposed 124-units of market rate senior (age-restricted 55 and older) independent living. The project would sit on approximately-9 acres and consist of rental units in a single 3-story wood frame building approximately 28 feet in height measured to the eave of the roof. The unit mix will consist of 4 1 bedroom, 1-bathroom units, 100 2-bedroom, 1-bathroom units, and 20 2 bedroom, 1 and ½ bathroom units. The building includes 90 leasable interior storage units and

40 leasable exterior garage units. Each unit is fully equipped with a kitchen, dishwasher, and washer and dryer. The building includes a large service elevator, ample common space throughout including a Community Room, Common Patio area, Common garden/open space, Family Room, Fitness Area, Salon, Coffee Bar and Lounge.

Background Information

Clover was started in 1987 by Its current owner and President, Mr. Michael Joseph. Clover consists of development, construction, and property management and currently owns or manages more than 10 million square feet of property, including market rate, senior Independent Living communities, totaling over 6,500 units.

Aging in Place

The U.S. Centers for Disease Control and Prevention defines aging in place as "the ability to live in one's own home and/or community safely, independently, and comfortably, regardless of age, income, or ability level". Census.gov estimates that by 2030 all baby boomers will be older than 65, accounting for 1 for every 5 residents in the United States.

Residents staying within their community and region as they age is identified by many organizations as an overall health benefit to the community. According to AARP in 2014, "In addition to preventing social isolation, allowing older people to stay involved in their communities [aging in place] has been found to have health benefits. Civic engagement and volunteering can reduce mortality; increase physical function, muscular strength, and levels of self-rated health; reduce symptoms of depression and pain; and increase life expectancy." An additional benefit for choosing to age in place with independent living is freeing up single family homes for new buyers creating market demand for existing housing stock and increasing population density without demand on the school districts.

Clover provides an independent living option to the aging population that is seeking to stay within its community. Providing rental units at market rate targets populations that do not qualify for income restricted properties and do not want or cannot afford full-service care type facilities with meals, housekeeping, and medical assistance. Additionally, rental units do not create legacy costs and burdens to beneficiaries that may not qualify to occupy properties in a community with an age restricted Home Owners Association. Clover structures leases with several options for long- or short-term rental. All of Clover's leases have provisions that allow residents to move quickly if health declines and a medical care facility is needed. Clover has no "buy-in" costs that make aging in place restrictive to middle class aging populations.

Site Considerations

Access and accessibility are major factors in selecting a Clover site. Residents who are aging restrict their driving and drive times to access shopping, worship, and healthcare independently. The proposed site is conveniently located for residents and provides little impact to the residential property to the south. The proposed orientation of the building would be toward Route 176 with the south elevation consisting of patios and outdoor open space for residents. A detention pond would be located on the west side of the property nearest the existing wetland. The property is located in a bowl and is taking in much of the surrounding properties water. Utilities and primary access to the property would be from Rt 176 utilizing the existing road . Due to the low impact independent senior living has on traffic counts this is an ideal entry point with the lighted intersection of IL 176 and Terra Cotta.

There is existing wetland on the western most boundary of the lot. We intend to preserve this area with no need to cause disturbance.

Clover Survey

Clover surveys its 10,000+ residents bi-annually to determine market trends and marketing philosophy. Through the survey important information is derived such as:

- The average age of Clover residents is 76 years or older.
- 27 percent of residents come from an existing apartment and 61 percent come from a single-family home (12% other).
- 97 percent of residents come from 1-5 miles of the property.
- 79 percent of residents live alone.
- 45 percent of residents chose Clover based on the location.

Impact Considerations

The proposed project has the potential to bring up to 244 residents to Crystal Lake based on full capacity and double occupancy of all units. However, typical market trends and experience tell us 79 percent of residents in a Clover project are single occupants, therefore the expected increase in population would be 147 residents at full occupancy.

While no empirical data exists for age-restricted independent senior living emergency call generation, Clover estimates approximately one call for service weekly based on call history at over 60 locations. The majority of calls are medical assistance related. Call trends also increase with the age of the building as there is a direct correlation to the age of the residents within the building. The average Clover residents stays for 10 years.

Using the assumption of 1 additional Fire/EMS per week, the proposed development would generation approximately 52 additional calls per year. This does not assume that most of the residents are current Bartlett residents and would generate the same call volume in their current living situation.

Site Specific Safety Features:

Clover Communities Crystal Lake is an age-restricted senior independent living project. Independent living does not provide for medical care; residents are ambulatory. The proposed building in addition to being fully sprinkled with have emergency exit plans clearly labeled in each unit as well as hallways and common areas. Resident drills are conducted to re-enforce safe exit plans in case of a fire. The main elevator is full sized to accommodate a full-sized stretcher. The drive aisle around the exterior of the building is sized for full-turns for all fire apparatus. Each unit has a balcony or patio to access outdoors. There is no commercial kitchen on-site, reducing potential for large scale fires. Lastly, residents can quickly end lease terms when medical care becomes necessary because of decreased mobility.

Community Living Benefits

Clover communities are designed as retirement communities allowing for independent living in a community setting.

Individual units are equipped with the following:

- Fully equipped kitchen with breakfast bar
- In unit washer and dryer
- Central air conditioning
- Energy-saving appliances
- Sliding glass doors leading to private patio/balcony
- Walk-in shower available
- Emergency pull-cord system

The proposed building and all clover buildings are equipped with the following:

- On-site beauty salon/barber shop
- Community room with patio
- Community activities and planned trips
- Community lounge with fireplace
- Fully handicapped-accessible
- Centrally located elevator service
- Wide, well-lit hallways with handrails
- Secure building, TV-monitored entrance with controlled access
- Fitness center
- Indoor central mailbox system
- Indoor trash rooms

- Coffee room with seating
- Family room
- Game room
- Individual storage units
- Sprinkler system throughout building
- Smoke/CO detectors throughout building

The building amenities are included in every tenant lease and do not require additional deposits. Resident keys access all the amenities. This facility is not open to the public or rentable without a lease. These facilities are designed to be an extension of the individual tenant units specific to senior independent living.



CLOVER
DEVELOPMENT

Apartment Interiors



CLOVER
DEVELOPMENT

Common Areas









Patio
&
Reading Room

CLOVER
DEVELOPMENT



CLOVER
DEVELOPMENT

Events








CLOVER
DEVELOPMENT

Events











Traffic Impact Study

Clover Group
Residential Development
Crystal Lake, Illinois

September 29, 2021

Prepared for:

Prepared by:

Dan Brinkman, P.E., PTOE
Assistant Director of Transportation Services

GHA GEWALT HAMILTON ASSOCIATES, INC.



Part I. Introduction and Project Context

Gewalt Hamilton Associates, Inc. (GHA) has conducted a Traffic Impact Study (TIS) for the proposed Senior Housing development to be constructed at the southeast corner of the IL Rte 176 (E Terra Cotta Avenue) intersection with Terra Cotta Road. The Clover Group is proposing to construct a single, three-story building containing 119 dwelling units on the approximately 9.0-acre subject site. The July 12, 2021 Concept Plan by C&S Engineers, Inc. illustrates a single access point to Terra Cotta Road. However, subsequent discussions with the City Engineer and petitioner resulted in a revised access plan which will include a single full-movement access to IL Rte 176 aligned with the existing office campus driveway and a limited (3/4 movement) access drive to Terra Cotta Road located near the south property line. This access will allow right and left turns out, but only right turns in due to its proximity to the existing Casey's driveway and congestion along Terra Cotta Road.

The following summarizes our findings and provides various recommendations for your consideration. *Appendices* referenced are in the Technical Addendum at the end of this document.

Part II. Background Information

Site Location Map and Roadway Inventory

Exhibit 1 provides a site location map. The existing traffic operations in the site area are illustrated on ***Exhibit 2***. ***Appendix A*** provides a photo inventory of operations along the site frontage. Pertinent comments to the adjacent roadways include:

IL Rte 176 (E Terra Cotta Avenue)

- IL Rte 176 is an east-west, Principal Arterial under the jurisdiction of the Illinois Department of Transportation (IDOT).
- Along the site frontage, IL Rte 176 is designated as a Strategic Regional Arterial (SRA) Route by IDOT.
- Along the site frontage, IL Rte 176 provides one travel lane in each direction separated by a full-width (12-foot), flush median.
- East of the site frontage as IL Rte 176 approaches the IL Rte 31 intersection it widens to provide two through lanes in each direction.
- IL Rte 176 has a posted speed limit of 35 miles per hour (mph) in the vicinity of the site.
- Separate eastbound and westbound left turn lanes are provided at the signalized intersection with Terra Cotta Road.
- IL Rte 176 is designated as a Class II Truck route.
- The Annual Average Daily Traffic (AADT), year 2019, on IL Rte 176 was 16,200 vehicles per day.

Terra Cotta Road

- Terra Cotta Road is a north south, Major Collector under the jurisdiction of the City of Crystal Lake.
- Along the site frontage, Terra Cotta Road provides one travel lane in each direction separated by a full width (12-foot) flush median.
- South of the site, the median tapers away and Terra Cotta Road is two lanes.
- Separate northbound and southbound left turn lanes are provided at the signalized intersection with IL Rte 176.
- A separate northbound left turn lane is provided for the existing Casey's access.
- Terra Cotta Road has a posted speed limit of 30 mph south of IL Rte 176 and 35 mph north of IL Rte 176.

- The Annual Average Daily Traffic (AADT), year 2017, on Terra Cotta Road was 9,250 vehicles south of IL Rte 176.

Pedestrian Facilities

- A sidewalk is provided along the east side of Terra Cotta Road south of IL Rte 176 along the site frontage.
- There is no sidewalk on either side of IL Rte 176 in the vicinity of the subject site.

Transit

- Per the PACE website www.pacebus.com, Route 806 Crystal Lake-Fox Lake runs east -west along IL Rte 176 and along Terra Cotta Road south of IL Rte 176. No signs or stops are visible in the area.

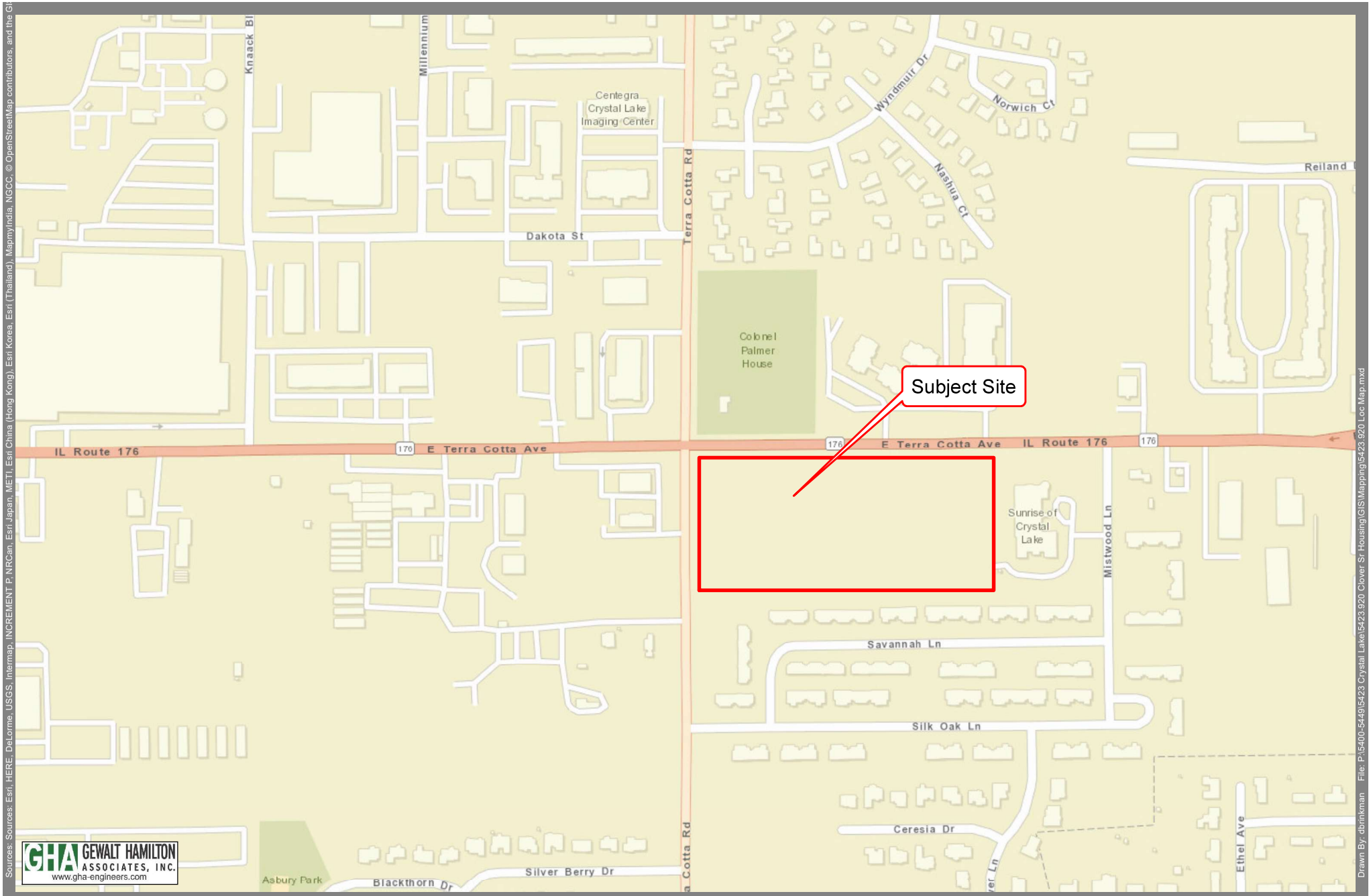


Exhibit 1 - Location Map

Proposed Senior Housing Development
SEC IL Rte 176 at Terra Cotta Road

Map Center: -88.29649 42.24853

Date: 9/17/2021 Project:

Sources: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GI

Drawn By: dbrinkman File: P:\5400-5449\5423 Crystal Lake\5423.920 Clover Sr Housing\GIS\Mapping\5423.920 Loc Map.mxd



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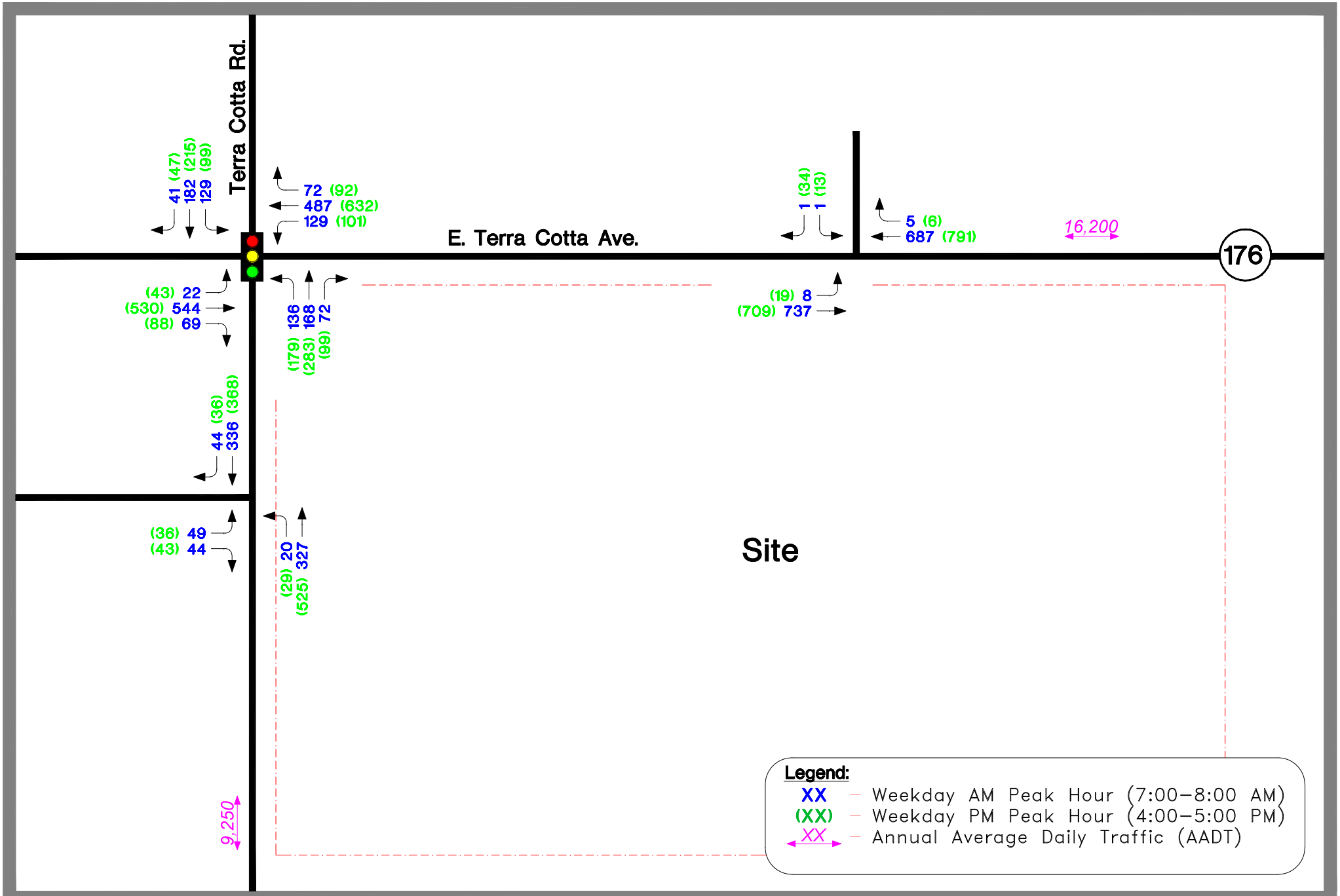
Exhibit 2
Existing Traffic Operations

Existing Traffic

Exhibit 3 summarizes the existing weekday morning and evening peak hour traffic volumes. Peak period traffic turning movement counts were conducted by GHA on Thursday September 9, 2021 from 6:00 AM to 9:00 AM and from 3:00 PM to 7:00 PM at the IL Rte 176 intersections with Terra Cotta Road and the existing office complex drive as well as the Casey's access on Terra Cotta Road. The observed weekday morning and evening peak hours generally occurred from 7:00 to 8:00 AM, 4:00 to 5:00 PM respectively. *Exhibit 3* also provides the AADT (24-hour volume) along IL Rte 176 and Terra Cotta Road as published by IDOT on their website: www.gettingaroundillinois.com.

A summary of the traffic counts can be found in ***Appendix B***. It should be noted that traffic counts conducted during this post-pandemic time period should be compared to historical data (if available) to analyze whether the volumes have increased or decreased. If the volumes have decreased, a COVID factor should be applied to ensure that the maximum impacts are considered. The traffic counts conducted in 2021 were compared to historical hourly traffic count data from 2017 (pre-pandemic) along Terra Cotta Road available from the IDOT database. All movements were increased to a minimum of the historical data if the 2021 counts were lower. If observed volumes were higher than the pre-pandemic counts, they were maintained.

No unusual activities (e.g., roadway construction, or inclement weather) were observed during our counts that would be expected to impact traffic volumes or travel patterns in the vicinity. Summaries of the 2021 existing traffic counts and historical IDOT data can be found in ***Appendix B***.



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Exhibit 3
Existing Traffic
Sources: 1) GHA September 2021 2) IDOT AADT 2017 & 2019

Crash Analysis

Crash data was obtained from the IDOT Division of Transportation and Safety for the last five calendar years, 2016 through 2020. A summary of the crash data is provided in ***Table 1*** with the locations mapped on the exhibit contained in ***Appendix C-1***.

Table 1: Crash Summary (2016-2020) [A]

Location	No. of Crashes	Severity [B]					Crash Type [D]							Percent During Wet/Icy Conditions
		PD	PI [C]			F	CM	Turn	RE	SSD	FO	Ped	Bike	
			A	B	C									
Intersections - Crashes within 200' of intersection														
IL Rte 176 at Terra Cotta Rd	35	28	-	1	6	-	3	12	18	1	1	-	-	17%
IL Rte 176 at Existing Access	1	-	-	-	1	-	-	-	1	-	-	-	-	0%
Segments														
IL 176 Site Frontage	9	7	-	1	1	-	-	-	8	-	-	1	-	33%
Terra Cotta Road	3	3	-	-	-	-	-	1	2	-	-	-	-	0%
Total (2016-20)	**45**	**35**	**0**	**2**	**8**	**0**	**3**	**12**	**27**	**1**	**1**	**1**	**0**	**20%**

[A] Source: IDOT Division of Transportation Safety for the 2016-2020 calendar years.

[B] PD = property damage only; PI = personal injury; F = fatality.

[C] Type A (incapacitating injury); Type B (non-incapacitating injury); Type C (possible injury).

[D] CM = cross movement/angle; RE = rear end; Turn = Turning; SSD = Sideswipe Same Direction; FO = fixed object; Ped = pedestrian.

As shown in Table 1, the intersection of IL Rte 176 and Terra Cotta Road experienced 35 crashes over the five-year analyses period, with an average of 7 crashes per year. Approximately 80 percent (28 of 35) of the crashes involved property damage only and approximately 51 percent (18 of 35) were rear-end collisions. Turning movement crashes and cross movement / angle crashes accounted for 43 percent (15 of 35) of the reported crashes at this intersection.

There was a single reported crash with a minor injury reported at the existing access on IL Rte 176 where the site access is proposed to align.

There were 9 additional crashes on IL Rte 176 along the frontage of the site, all but 1 were rear end crashes, 33 percent of which occurred on wet or icy pavement.

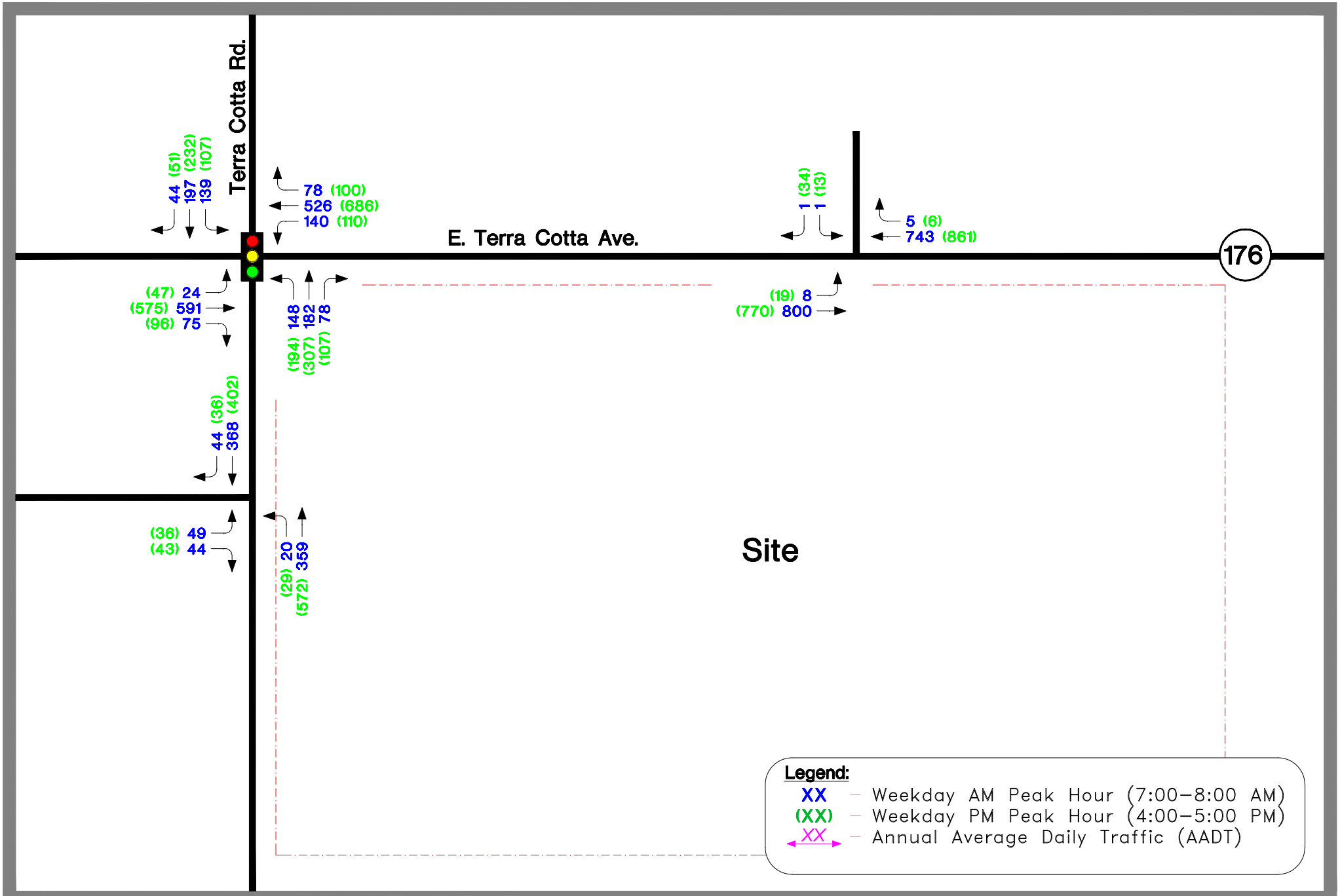
There were three crashes along the Terra Cotta Road site frontage, 2 turning movement crashes and 1 rear end crash. None of those crashes involved injuries.

There was a single pedestrian crash which occurred east of Terra Cotta Road when a pedestrian crossed mid-block during the evening under “dark” conditions per the crash report.

No-Build Traffic

Traffic growth in the area is a function of expected land development in the region. Future traffic volume conditions were developed for the year 2028, build-out year of the development (anticipated completion in year 2023) plus five years. Based on a review of historical traffic volumes and the Chicago Metropolitan Agency for Planning (CMAP) 2050 projections (see ***Appendix D***), traffic volumes along the roadways surrounding the site

are assumed to experience an overall annual, compounded growth rate of between 1.11% and 1.18% per year. Accordingly, the 2028 No-Build peak hour traffic volumes (see ***Exhibit 4***) were developed by applying the predicted growth rates to the COVID-19 adjusted existing traffic.



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Exhibit 4
2028 Baseline Traffic

Part III. Traffic Evaluation

Future Site Characteristics

Proposed Development Plan

The Clover Group is proposing to construct a single, three-story building containing 119 dwelling units on the approximately 9.0-acre subject site. The July 12, 2021 Concept Plan by C&S Engineers, Inc. illustrates a single access point to Terra Cotta Road. However, subsequent discussions with the City Engineer and petitioner resulted in a revised access plan which will include full access to IL Rte 176 and a limited (3/4 movement) access drive to Terra Cotta Road.

The IL Rte 176 access will align with the western access to the existing office complex located approximately 635-feet east of Terra Cotta Road. The limited (3/4 movement) access allowing right and left turns out, but only right turns in, is proposed near the south property line approximately 410 feet south of IL Rte 176 and approximately 135 feet south of the existing Casey's access drive.

These dimensions are also illustrated on ***Exhibit 5.***

The July 12, 2021 Concept Plan is provided in ***Appendix E***.

Trip Generation

Table 2 summarizes the traffic generation calculations for the proposed Senior Housing development. Trip generation rates published by the Institute of Transportation Engineers (ITE) in the 10th Edition of the Manual *Trip Generation* were used to determine the anticipated traffic generated by the proposed development. As can be seen in ***Table 2*** the proposed age-restricted complex is expected to generate between 25 and 30 trips (combined inbound and outbound) during each or the Peak Hours and approximately 450 trips (again inbound and outbound total) in a 24-hour period.

See ***Appendix F*** for excerpts of the ITE manual.

Table 2: Trip Generation Calculations

Land Use	Size	ITE Code	Weekday Peak Hours						Daily		
			Morning 7:00-8:00 AM			Evening 4:00-5:00 PM					
			In	Out	Sum	In	Out	Sum	In	Out	Sum
Delivery Station											
Senior Housing	119.0 DU	252	9	15	24	17	14	31	226	226	452
New Trips			**9**	**15**	**24**	**17**	**14**	**31**	**226**	**226**	**452**

Sources:ITE Trip Generation Manual, 10th Edition - See Appendix F

Trip Distribution

Table 3 provides the anticipated distribution of site traffic. This was based on existing site travel patterns, proposed access, and the operational characteristics of the adjacent street system, including the existing congestion along Terra Cotta Road at the IL Rte 176 intersection during the Peak Hours. Ultimately, trip

distribution will be a function of resident employment locations desired shopping opportunities and personal route choice.

Table 3: Trip Distribution

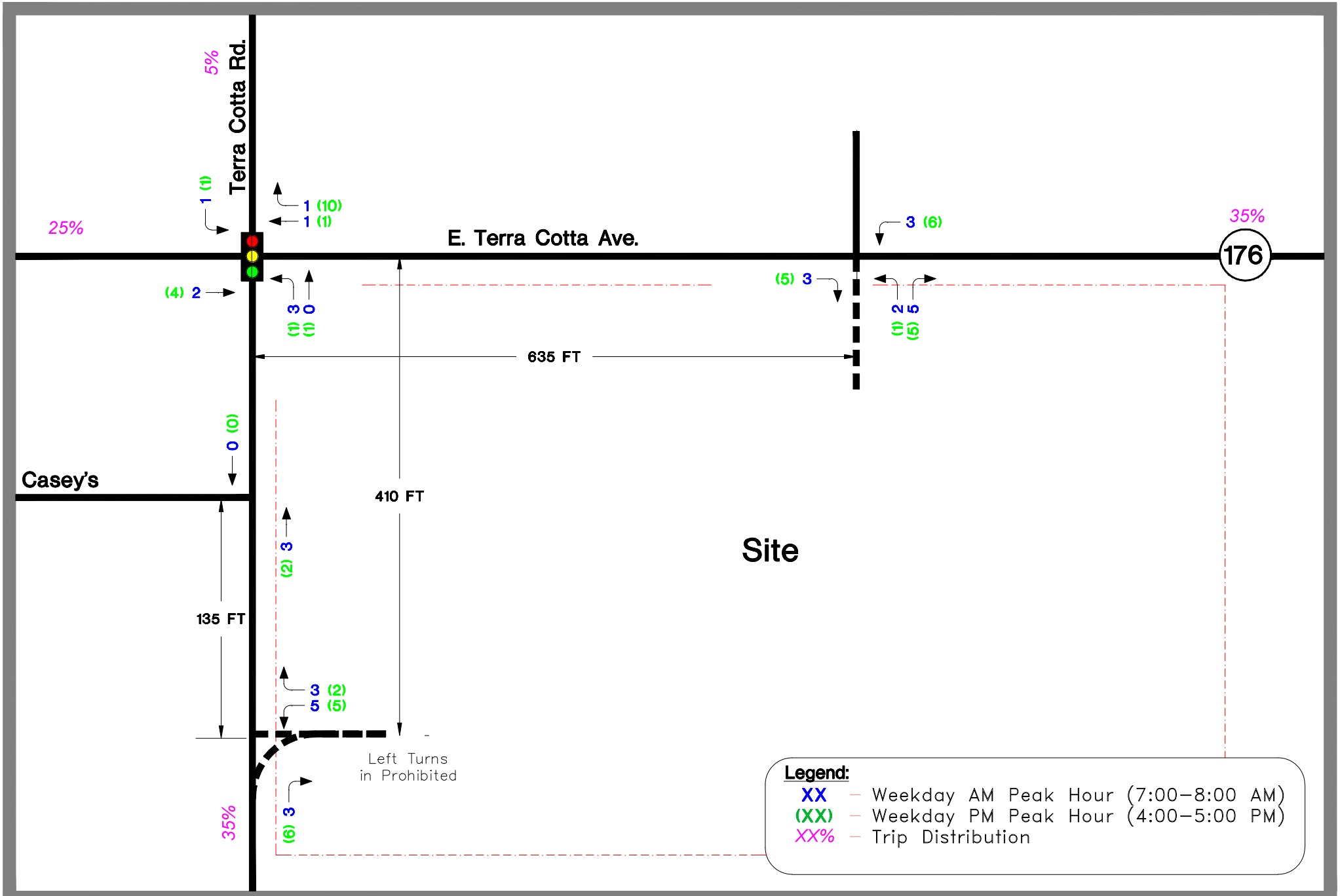
Route & Direction	Percent Route To/From Site
IL Rte 176	
East of Site	35%
West of Terra Cotta Rd	25%
Terra Cotta Road	
North of IL Rte 176	5%
South of Site	35%
Totals =	***100%***

Anticipated traffic usage of the area roadway network is also illustrated on ***Exhibit 5.***

Site and Total Traffic Assignments

Exhibit 5 illustrates the site traffic assignment for the development's trips, which is based on the traffic characteristics summarized in *Tables 2 and 3* (traffic generation and trip distribution) and assigned to the area roadways. As previously noted, the proposed development is anticipated to open in late 2022 or early 2023. Therefore, we have considered the total impacts of the complete development for the year 2028, buildout plus five years.

The site traffic (*Exhibit 5*) and 2028 No-Build traffic (*Exhibit 4*) were combined to produce the 2028 Total traffic, which is illustrated on ***Exhibit 6***.

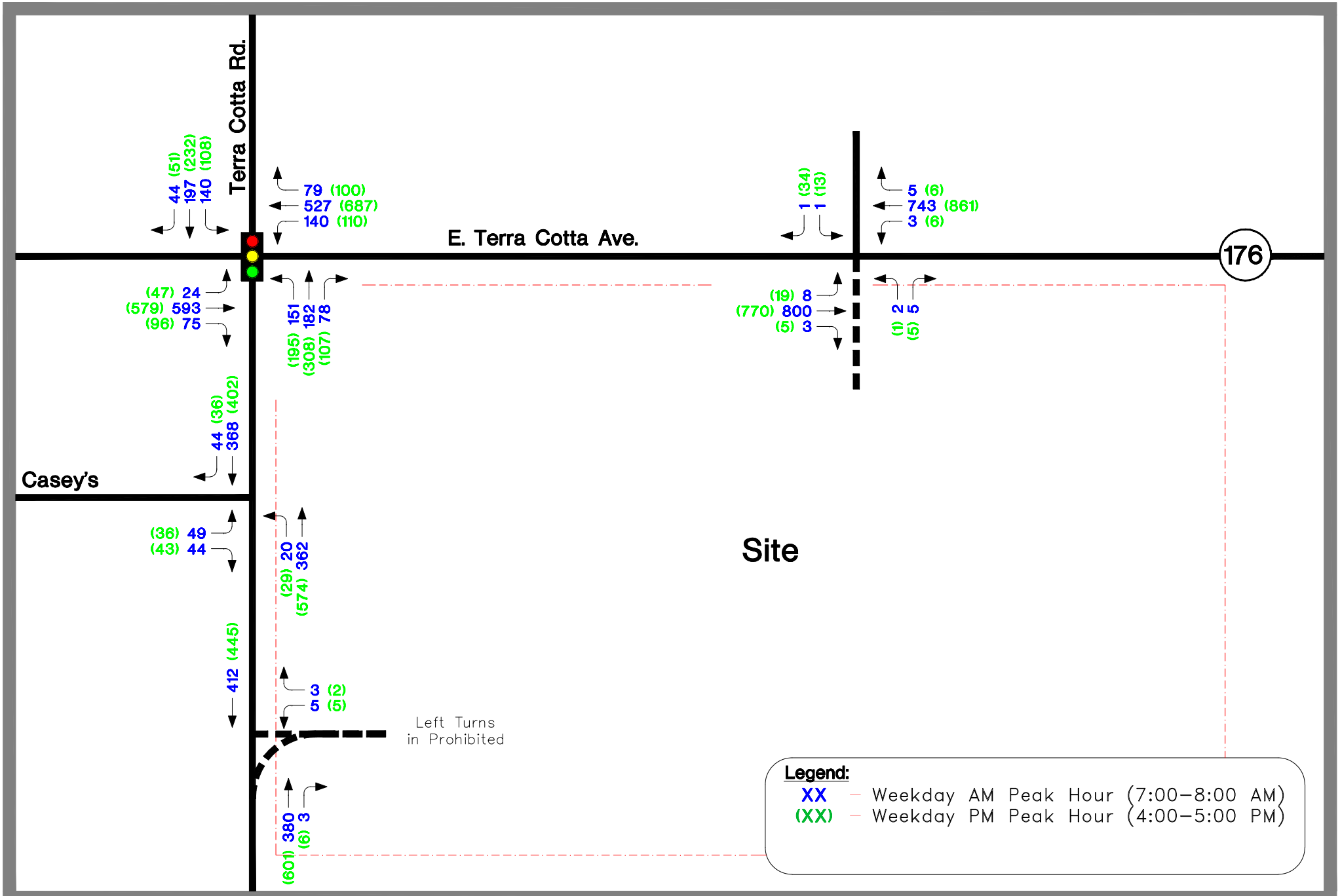


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Exhibit 5
Site Traffic



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Exhibit 6
2028 Total Traffic

Capacity Analysis

Capacity analyses are a standard measurement that identifies how an intersection operates. They are measured in terms of Level of Service (LOS). The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels of Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS C is often considered acceptable for design purposes and LOS D is usually considered as providing the lower threshold of acceptable operations. Since the level of service is a function of the traffic flows placed upon it, the facility may operate at a wide range of levels of service, depending on the time of day, day of week or period of year. A description of the operating condition under each level of service, based on the analysis parameters as published in the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), Sixth Edition, is provided in ***Table 4***.

Table 4: Level of Service (LOS) Summary

LOS	Description	Delay (sec/vehicle)	
		Traffic Signal	**Stop Sign**
A	Describes conditions with little to no delay to motorists.	<10	< 10
B	Represents a desirable level with relatively low delay to motorists.	>10 and < 20	>10 and < 15
C	Describes conditions with average delays to motorists.	>20 and < 35	>15 and < 25
D	Describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.	>35 and < 55	>25 and < 35
E	Represents operating conditions with high delay values. This level is often considered within urban settings or for minor streets intersecting major arterial roadways to be the limit of acceptable delay.	>55 and < 80	>35 and < 50
F	Is unacceptable to most drivers with high delay values that often occur when arrival flow rates exceed the capacity of the intersection.	>80	>50

Capacity analyses were performed using the methodologies outlined in the HCM, for the following scenarios:

- *Existing Traffic* – COVID-19 Adjusted Existing traffic (year 2021),
- *No-Build Traffic* – Future (non-site, year 2028) traffic with background growth, and
- *Total Traffic* – Future No-Build traffic volumes (year 2028) plus the addition of the site generated traffic.

Table 5 summarizes the intersection capacity and queue analysis results. Capacity analysis summary printouts are provided in ***Appendix G.***

Table 5: Level-of-Service Summary

Intersection / Timeframe / Scenario	Roadway Conditions	LOS Per Movement By Approach (> = Shared Lane; - = Non Critical or not Allowed Movement)												Intersection / Approach	
		Eastbound			Westbound			Northbound			Southbound			Delay (sec / veh)	LOS
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
1. IL Rte 176 at Terra Cotta Road	**Traffic Signal**	Eastbound			Westbound			Northbound			Southbound			**Intersection Delay**	
A. Weekday Morning Peak Hour															
Existing Traffic (See Exhibit 3)	• Current	B	C	<	B	B	<	C	D	<	C	D	<	**28.2**	**C**
	• 95th Queue Length (ft)	12	493	-	64	380	-	127	267	-	124	242	-		
No-Build Traffic (See Exhibit 4)	• Current	B	C	<	C	C	<	C	D	<	C	D	<	**31.5**	**C**
	• 95th Queue Length (ft)	14	595	-	74	438	-	136	289	-	130	260	-		
Total Traffic (See Exhibit 6)	• Current	B	C	<	C	C	<	C	D	<	C	D	<	**31.8**	**C**
	• 95th Queue Length (ft)	14	602	-	75	442	-	139	289	-	134	260	-		
B. Weekday Evening Peak Hour															
Existing Traffic (See Exhibit 3)	• Current	C	C	<	B	C	<	C	E	<	C	D	<	**37.9**	**D**
	• 95th Queue Length (ft)	25	525	-	55	638	-	160	476	-	96	284	-		
No-Build Traffic (See Exhibit 4)	• Current	C	D	<	C	D	<	C	E	<	C	D	<	**47.5**	**D**
	• 95th Queue Length (ft)	30	633	-	63	814	-	178	559	-	104	313	-		
Total Traffic (See Exhibit 6)	• Current	C	D	<	C	D	<	C	E	<	C	D	<	**47.9**	**D**
	• 95th Queue Length (ft)	30	642	-	63	820	-	179	563	-	105	313	-		

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe / Scenario	Roadway Conditions	LOS Per Movement By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersection / Approach	
		Eastbound			Westbound			Northbound			Southbound			Delay (sec / veh)	LOS
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
2. IL Rte 176 at Access/Site Access	**TWSC NB & SB Stop**	Eastbound			Westbound			Northbound			Southbound			**SB Approach Delay**	
A. Weekday Morning Peak Hour															
Existing Traffic (See Exhibit 3)	• Current	A	-	-	-	-	-	-	-	-	C	-	B	**14.5**	**B**
	• 95th Queue Length (ft)	0	-	-	-	-	-	-	-	-	0	-	0	-	-
No-Build Traffic (See Exhibit 4)	• Current	A	-	-	-	-	-	-	-	-	C	-	B	**15.3**	**C**
	• 95th Queue Length (ft)	0	-	-	-	-	-	-	-	-	0	-	0	**NB Approach**	
Total Traffic (See Exhibit 6)	• As Planned	A	-	-	A	-	-	C	-	C	C	-	B	**16.4**	**C**
	• 95th Queue Length (ft)	0	-	-	0	-	-	0	-	0	0	-	0	-	-
B. Weekday Evening Peak Hour															
Existing Traffic (See Exhibit 3)	• Current	A	-	-	-	-	-	-	-	-	C	-	C	**16.4**	**C**
	• 95th Queue Length (ft)	0	-	-	-	-	-	-	-	-	3	-	8	-	-
No-Build Traffic (See Exhibit 4)	• Current	B	-	-	-	-	-	-	-	-	C	-	C	**17.7**	**C**
	• 95th Queue Length (ft)	0	-	-	-	-	-	-	-	-	3	-	10	**NB Approach**	
Total Traffic (See Exhibit 6)	• As Planned	B	-	-	A	-	-	C	-	C	C	-	B	**16.2**	**C**
	• 95th Queue Length (ft)	0	-	-	0	-	-	0	-	0	5	-	10	-	-
3. Terra Cotta Rd at Casey's Access	**TWSC NB & SB Stop**	Eastbound			Westbound			Northbound			Southbound			**EB Approach Delay**	
A. Weekday Morning Peak Hour															
Existing Traffic (See Exhibit 3)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**11.7**	**B**
	• 95th Queue Length (ft)	8	-	5	-	-	-	3	-	-	-	-	-	-	-
No-Build Traffic (See Exhibit 4)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**12.1**	**B**
	• 95th Queue Length (ft)	8	-	5	-	-	-	3	-	-	-	-	-	-	-
Total Traffic (See Exhibit 6)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**12.1**	**B**
	• 95th Queue Length (ft)	8	-	5	-	-	-	3	-	-	-	-	-	-	-

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe / Scenario	Roadway Conditions	LOS Per Movement By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersection / Approach	
		Eastbound			Westbound			Northbound			Southbound			Delay	
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	(sec / veh)	LOS
B. Weekday Evening Peak Hour									-	-					
Existing Traffic (See Exhibit 3)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**12.5**	**B**
	• 95th Queue Length (ft)	8	-	5	-	-	-	3	-	-	-	-	-	-	-
No-Build Traffic (See Exhibit 4)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**13.0**	**B**
	• 95th Queue Length (ft)	8	-	8	-	-	-	3	-	-	-	-	-	-	-
Total Traffic (See Exhibit 6)	• Current	B	-	B	-	-	-	A	-	-	-	-	-	**13.0**	**B**
	• 95th Queue Length (ft)	8	-	8	-	-	-	3	-	-	-	-	-	-	-
4. Terra Cotta Road at Site Access	**TWSC WB Stops**	Eastbound			Westbound			Northbound			Southbound			**EB Approach**	
A. Weekday Morning Peak Hour															
Total Traffic (See Exhibit 6)	• As Planned	C	-	B	-	-	-	-	-	-	-	-	-	**14.2**	**B**
	• 95th Queue Length (ft)	3	-	0	-	-	-	-	-	-	-	-	-	-	-
B. Weekday Evening Peak Hour															
Total Traffic (See Exhibit 6)	• As Planned	C	-	B	-	-	-	-	-	-	-	-	-	**19.2**	**C**
	• 95th Queue Length (ft)	3	-	0	-	-	-	-	-	-	-	-	-	-	-

2028 Total traffic conditions assumed the following, with *Exhibit* 7, illustrating future traffic operations:

- As previously noted, a full access to IL Rte 176 has been discussed aligned opposite the existing access for the office complex.
- Westbound left turns into the site from IL Rte 176 will be made from a newly created westbound left turn lane within the existing painted median on IL Rte 176.
- Eastbound right turns into the site from IL Rte 176 will be made from the existing through lane. An increased curb radius is recommended, but a right turn lane is not warranted.
- Exiting traffic onto IL Rte 176 should have separate right and left turn lanes under Stop Sign control.
- As previously noted, a 3/4 access (left turns in prohibited) to Terra Cotta Road has been discussed offset south of the existing Casey's access drive.
- No left turns in will be allowed at this location.
- Exiting traffic onto Terra Cotta Road should have separate right and left turn lanes under Stop Sign control.

Access Spacing

- The IL Rte 176 access will align with the western access to the existing office complex located approximately 635-feet east of Terra Cotta Road.
- The limited (3/4 movement) access allowing right and left turns out, but only right turns in, is proposed near the south property line approximately 410 feet south of IL Rte 176 and approximately 135 feet south of the existing Casey's access drive.

Recall, these dimensions are illustrated on ***Exhibit 5.***

The following summarizes the findings of the Capacity Analyses.

IL Rte 176 (E Terra Cotta Avenue) at Terra Cotta Road
This signalized intersection operates under "free" conditions, i.e., a fixed signal cycle length is not in place, and the signal is not connected to other signals in the area. Under both existing and future (No-Build and Total) conditions, all movements at this signalized intersection operate at acceptable Levels of Service (at LOS "D" or better) during the peak hours with the exception of northbound through/right turn movements which operate at LOS E. Overall intersection operations remain at or above the acceptable LOS D as well, although queues regularly exceed the marked turn lanes.

Regional improvements to the intersection have been planned as far back as the October 2010 SRA Report was published (See ***Appendix J***). However, the proposed site traffic does not have a material impact on any of these LOS E movements or queues.

IL Rte 176 (E Terra Cotta Avenue) at Office Access / Site Access
All individual movements at this unsignalized intersection are expected to remain at or above the "design" LOS C through the year 2028. Approach delays are minimal, and queues can be accommodated on site. Separate left and right turn lanes allow right turn movements not to be delayed by left turns waiting for gaps in both directions of traffic.

Terra Cotta Road at Casey's Access
All individual movements at this unsignalized intersection are expected to remain at or above the "design" LOS C through the year 2028. Approach delays are minimal, and queues can be accommodated on site. Separate

left and right turn lanes allow right turn movements not to be delayed by left turns waiting for gaps in both directions of traffic.

Terra Cotta Road at Proposed Access
A new 3/4 movement (no Left in) access is proposed with separate right and left turn lanes for exiting traffic. All movements are expected to operate at or above LOS C through 2028. Separate left and right turn lanes allow right turn movements not to be delayed by left turns waiting for gaps in both directions of traffic.

Parking and Circulation

The Clover development will consist of 119 age-restricted, market -rate dwelling units in a single 3-story building. Per Section 4-200 of the City's Unified Development Code, parking for multi- family developments is required based on the size of the unit. Table 6 summarizes the required parking for the proposed development.

Table 6 Parking Calculations

UNIT TYPE	NUMBER OF UNITS PROPOSED	PARKING REQUIREMENT PER UNIT	TOTAL PARKING REQUIREMENT
1-BEDROOM	4	1.5+0.25 guest	7
2-BEDROOM	115	2 +0.25 guest	258.75 ~259
TOTAL=	119		266 spaces

The current site plan (refer to ***Appendix E***) proposes a total of 120 parking spaces, 80 surface spaces and 40 individual garages. This represents a deficit of 146 spaces from the City's code.

Clover has provided a summary of parking data for other developments they operate (See ***Appendix H***). Their internal data indicates that their developments average a 1.09 space per unit supply and average 78% occupancy or utilization of those spaces. GHA calculated the demand based on the data provided at 0.85 spaces per unit (occupant cars / total units).

For comparison, the Institute of Transportation Engineers (ITE) indicates that similar age-restricted multi-family buildings experience a weekday peak of 0.61 spaces per unit which would equate to a demand of approximately 73 spaces. A non-age-restricted building of the same size and unit mix would be expected to experience a demand of 1.31 spaces per unit for a estimated peak demand of 156 spaces.

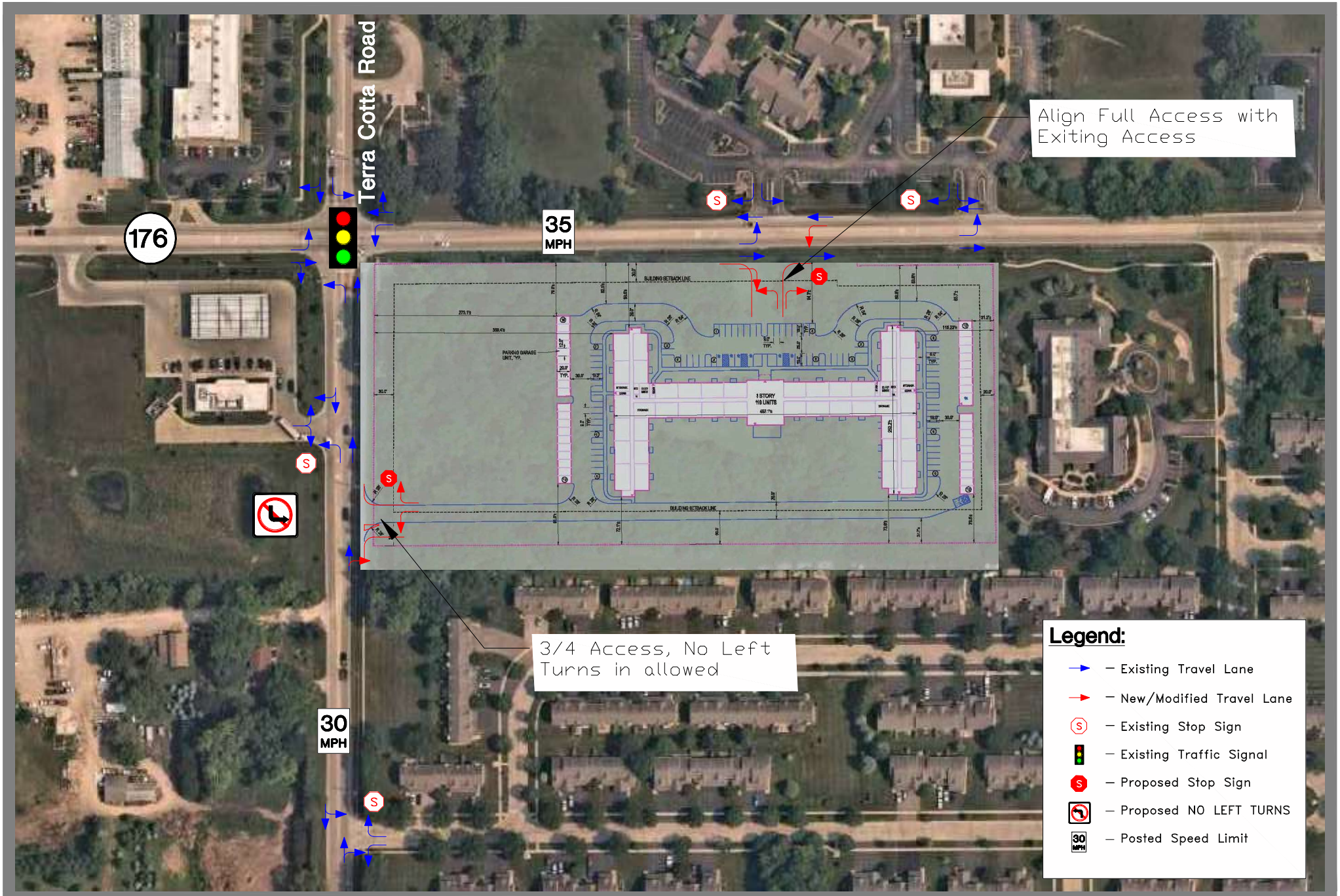
We would suggest that the site plan be modified to provide additional parking to at a minimum get to the 0.85 space per unit demand (119*0.85 = 101 spaces) plus the City's requirement for 0.25 spaces per unit for guest parking (119*0.25 = 30) which would be a total of 131 spaces, a net increase of 11 over the current proposal.

ITE Parking Generation Manual Excerpts can be found in ***Appendix I***.

Site Plan Comments

GHA has previously described recommended changes to the site plan with respect to access and parking supply. Our last comment includes a recommendation to preserve a minimum of 10-feet along the IL Rte 176 frontage for future IDOT roadway improvements to IL Rte 176. ***Appendix J*** includes an excerpt from the October 2010 SRA report for IL Rte 176 illustrating a future improvement to the IL Rte 176 at Terra Cotta intersection as well as the need for an additional 10-feet of Right of Way along the south side (north site frontage) of IL Rte 176 east of Terra Cotta Road.

While IDOT will not likely require this as part of the permitting process, it is good practice not to develop this area or install additional utilities within this strip to minimize future interruptions should IDOT proceed with plans to improve IL Rte 176 in the future. There are no plans to improve IL Rte 176 along the site frontage in the current IDOT multi-year (2021-2025) plan.



GHA GEWALT HAMILTON ASSOCIATES, INC.

N

Not to Scale

Exhibit 7
Recommended Traffic Operations

Part IV. Recommendations and Conclusions

Analyses have been conducted under existing and future conditions to determine the impact from the proposed delivery station development on the study area intersections. The capacity analysis results indicate that the increase in project site-generated traffic has little to no effect upon the Peak Hour operations of the area roadway network with the recommendations contained herein:

- Construct a new full access to IL Rte 176 has been discussed aligned opposite the existing access for the office complex.
- Westbound left turns into the site from IL Rte 176 will be made from a newly created westbound left turn lane within the existing painted median on IL Rte 176.
- Eastbound right turns into the site from IL Rte 176 will be made from the existing through lane. An increased curb radius is recommended, but a right turn lane is not warranted.
- Exiting traffic onto IL Rte 176 should have separate right and left turn lanes under Stop Sign control.
- As previously noted, a 3/4 access (left turns in prohibited) to Terra Cotta Road has been discussed offset south of the existing Casey's access drive.
- Exiting traffic onto Terra Cotta Road should have separate right and left turn lanes under Stop Sign control.
- On site parking should be increased by approximately 11 spaces to provide a supply sufficient to meet the Clover Group's internal data's suggested demand of 0.84 spaces per unit plus the City's required 0.25 spaces per unit guest parking requirements.
- Preserve additional space for future Right of Way along IL Rte 176 and Terra Cotta Road (not dedicate) to minimize development impacts should IDOT ultimately improve the intersection to the geometrics recommended in the 2010 SRA report.

This Impact Study has been prepared by



Daniel P Brinkman, PE, PTOE
Assistant Director of Transportation Services

Part V. Technical Addendum

The following Appendices were previously referenced. They provide technical support for our observations, findings and recommendations discussed in the text.

Appendices

A. Photo Inventory
B. 2021 & Historic Traffic Count Summaries
C. Crash Summary Map
D. CMAP Traffic Projections
E. July 12, 2021 Site Plan
F. ITE Trip Generation Manual Excerpts
G. Capacity Analysis Worksheets
H. Clover Group Parking Data
I. ITE Parking Generation Manual Excerpts
J. December 2010 SRA Report Excerpt

September 10, 2021

Planning & Zoning Commission
City of Crystal Lake
100 West Woodstock Street
Crystal Lake, Illinois 60014

Re: # 2021-127 Clover Senior Residential
731 East Terra Cotta Avenue

Gentlemen:

My name is Edward Dose and reside at 227 Mistwood Lane in the Mistwood Residential area adjacent to the proposed Senior Living facility.

I have a list of concerns regarding this development which need to be addressed before this project is approved. They are as follows:

Parking variance—I oppose any variance to the required number of Parking spaces. This is not a small site, parking area needs to be found. The area is already burdened by the overflow of parking from Sunrise Assisted Living due to a lack of parking spots. The Senior facility will have staff to park, other Clover buildings list beauty and barber shop facilities, where does this staff park. Will the facility have a bus for excursions, if so, it needs a parking spot.

Cross access road-If Sunrise grants a cross access road on their property——

Will the access road to Clover be a City Street or private street?
How will roadway intersect with Mistwood Lane?
Will Sunrise lose parking spaces on their property? This is totally un-acceptable.

RECEIVED
SEP 13 2021
BY

Due to amount of traffic on Terra Cotta Road and limiting outbound traffic from Clover as right turn only, I envision the cross access road to Mistwood Lane becoming the main in/out for the Clover Residences which will add more traffic to the streets of Mistwood (Mistwood Lane, Savannah Lane and Silk Oak). This is a concern due to children and the many residents who walk or run in the complex, mailboxes being of the cluster type which requires many (some elderly) to cross the street to receive their mail. Turning left from Mistwood onto Terra Cotta Ave, and turning left from Silk Oak onto Terra Cotta Road is difficult at times now, added traffic will add to the burden.

Thank you for taking these items under advisement.

Sincerely,

Edward Dose

RECEIVED
SEP 13 2021

October 19, 2021

To: The Crystal Lake Planning & Zoning Commission and Staff

From : The Mistwood Place Homeowner's Association Board of Directors

c/o Northwest Property Management, www.nwpropertymanagement.net, Attn. Toni Voelker

780 Tek Drive, Crystal Lake, IL. 60014

815-459-9187 fax: 815-459-1306

POSITION PAPER AND OBJECTIONS OF THE MISTWOOD PLACE HOMEOWNERS ASSOCIATION AND BOARD OF DIRECTORS TO THE THREE STORY, HIGH DENSITY, MULTI-FAMILY CLOVER SENIOR RESIDENTIAL APARTMENT PROPOSAL (#2021-127) FOR 731 EAST TERRA COTTA AVENUE IN CRYSTAL LAKE, ILLINOIS

Introduction

The Mistwood Place Homeowner's Association has existed for approximately 28 years. The Association consists of the owners of the residential townhomes in the subdivision known as Mistwood Place, which is situated on approximately 19 acres to the south and east of the location proposed for the Clover apartment complex. The Mistwood association's operations are conducted by its Board of Directors selected by the association homeowners. The day to day management of the association's affairs is handled by Northwest Property Management, selected by the Board of Directors.

These Objections and this Position Paper are supported by the two sections which follow: "Current Zoning of the Premises Is the Appropriate Classification" and "Traffic and Parking Relative to the Clover Proposal"; these sections are in turn followed by a" Conclusion and Summary". Also attached for reference purposes, in the reading of the above two sections, are copies of a "PIQ Map" and "CONCEPT PLAN", as well as two pages of artist renditions of the proposed apartment building, which were included in Clover's Senior Residential Conceptual PUD Project Review application to the Planning and Zoning Commission.

THE CURRENT ZONING OF THE PREMISES IS THE APPROPRIATE CLASSIFICATION

A purpose of zoning is to prohibit uses, buildings or structures which are incompatible with the character of surrounding development; and to prevent the overcrowding of land, thereby insuring proper living and working conditions and preventing the development of blight and slums. The current zoning of the subject property, B-2 General Commercial, is the appropriate zoning classification for this property. The character of the properties all along and fronting on either side of Route 176, going east from the intersection with Terra Cotta Road to the Route 31 intersection, are business/ commercial (except for the Sunrise Assisted Living facility which is located along 176, but fronts on Mistwood Lane, and perhaps for the Park District's Colonel Palmer House). Likewise the properties all along Route 176 going west from the Terra Cotta Road / Route 176 intersection to the railroad crossing, are business/ commercial (except for the small single family residence on the Countryside Florist Nursery business). The character of the surrounding development mentioned above, is not compatible with the Clover senior residential 119 unit apartment building proposed to be built fronting on Route 176 . We may all agree that affordable independent senior apartments are desirable in Crystal Lake; but this site is not the place for one, especially as proposed.

Clover may contend that the Mistwood Place residential subdivision to the south and southeast of the premises in question is comparable/ compatible with its apartment building proposed for Route 176. However Mistwood is not located on Route 176. In fact the businesses along 176 provide somewhat of a buffer for Mistwood. Mistwood is situated on approximately 19 acres, has 142 two- story townhouse units each with two- car garages, all located in 29 separate detached buildings, on landscaped lawns amidst bushes and trees. Mistwood also counts many seniors, estimated at approximately 50, among their residents in addition to other families. The Mistwood townhomes are predominately owner occupied, although approximately 33 units are rented to non-family tenants by their owners. The Mistwood Place Homeowners Association has been in existence for approximately 28 years.

The Clover proposed senior apartment site has approximately 9 acres; the proposed long, single, H-shaped wood frame apartment building, would be 3 stories tall, with long corridors and elevators in the center of the H, and 119 apartments. The building would front directly on Route 176 at the southeast corner of the Route 176/ Terra Cotta Road intersection. The rear of the 3 story apartment building would be situated adjacent to and north of approximately 20 of the Mistwood Place townhomes on Savannah Ln. A proposed driveway extending across the entire southern (rear) portion of the apartment building site would be adjacent and north of the back yards of those 20 townhomes. Clover anticipates 142 tenants at full residency, although the number of 2 bedroom apartments planned to be built will be 115 of the 119 total units. If each of the two bedrooms were occupied, the number of tenants would increase to 234 (115 times 2 = 230 + 4 one bedroom = 234 total residents). Clover admits that its proposed project has the potential to add 236 residents to Crystal Lake based on full capacity and double occupancy of all units. The proposed project will only provide 120 parking spaces including 40 garage spaces. According to Clover this is 146 spaces less than the code permits, i.e. there should be 266 parking spaces.

The above comparison demonstrates that Clover's proposed 3 story apartment building and use of the site is incompatible with Mistwood Place, the character of the development along Route 176 and surrounding environs. There is nothing like the proposed 3 story apartment building in the area of the site. Its proposed appearance is too straight, angular, flat-faced, cold and institutional looking.

Clover wants a change in the existing B-2 General Commercial zoning of the site to R-3B Multi-Family Residential. But it also seeks to circumvent the allowed uses permitted under the R-3B zoning classification, by requesting substantial variations in both density and parking spaces. R-3B zoning permits 9 units to the acre (81 total units). Clover wants 13.2 units per acre (119 total) - approximately a 48% increase. As to parking, the code provides for 266 parking spaces as Clover acknowledges; however Clover seeks another variation from the R-3B zoning classification to allow 120 parking spaces - a decrease in the required number of approximately 55%. The Crystal Lake zoning ordinance does allow for variations in a proper case; but at some point the underlying purpose of zoning becomes gutted by variation requests not well grounded in necessity. The existing zoning of the site (B-2 General Commerce) is proper and compatible with the character of the surrounding property; and it should remain so. Business usage of the premises would also generate sales tax revenues for the city. Clover's application should be denied as its proposed use is wrong for this property and surrounding environs.

TRAFFIC AND PARKING RELATIVE TO THE CLOVER PROPOSAL

Traffic, which is already a significant problem for the area around the proposed apartment building site, will very likely become much worse, especially as the populace returns more to pre-covid commuting and transportation levels. State Route 176, aka Terra Cotta Ave., is an east/west highway on which the proposed site for the senior apartment facility will front. 176 is a major traffic artery over which travels almost anything on wheels, including a large volume of truck traffic. Intersecting 176 at the location of the proposed apartment site is Terra Cotta Road, a north/south highway which is also a major highway, although not yet having the same overall volume and type of traffic as 176. The senior apartment site is proposed to be located at the southeast corner of the intersection of these two major thoroughfares. Mistwood Place is separated from 176 on the north, by the proposed site for the Clover senior apartments, the Sunrise assisted living facility, a law firm and a small used-car lot with an office building. Mistwood Place is separated from Terra Cotta Road on the west by open green space and vacant lots. Direct ingress and egress to Mistwood Place is provided over two entrances/exits in Mistwood Place: Mistwood Lane off 176 and Silk Oak Lane off Terra Cotta Road.

During the morning and afternoon rush hours, traffic backs up from the 176/ Terra Cotta Road intersection all the way down toward the 176/ Rte. 31 intersection to the east, so that it is virtually impossible to exit Mistwood Ln., cross the east-bound lane of 176 and turn left/ west on 176. Even at non rush hour times, traffic often backs up on 176 at the Mistwood Ln. exit, sometimes because of cars trying to exit the office complex on the north side of 176 across from the site of the proposed senior apartment complex. As a result some Mistwood residents find it necessary to avoid use of the Mistwood Lane exit to go west on 176, and instead take the Silk Oak Ln. exit onto Terra Cotta Rd. (if there is an opening in the traffic), turn north to head up to the 176/Terra Cotta Rd. intersection with its traffic light, wait for the green and turn left/west onto 176 at the point of Casey's service station .But this alternate route often doesn't work well because of the volume of traffic on Terra Cotta Rd.

If the west entrance to the proposed apartment site is located across from the vicinity of Casey's access drive on Terra Cotta Rd., the intersection traffic will become even more congested. So will the area around the 176 exit from the office complex on the north side of 176, if a second entrance to the proposed apartment site is located on the 176/north side of the site. If the residents of Mistwood Place are unable to reasonably exit their subdivision, they will be like captives in their own neighborhood (which may sound like an overstatement until you experience the rush hour effect in that area). The traffic back-ups along 176 also result in westbound drivers using Mistwood Ln. to get off 176 and drive through Mistwood Place to avoid the congestion at the 176/Terra Cotta Rd. intersection.

Against this backdrop, Clover underestimates the number of tenants and vehicles its project may generate and therefore the amount of additional traffic that will result. It claims that at full capacity 142 tenants would result, though admitting that the number could be 236 at full capacity and double occupancy. Their plan in fact provides for many more 2 bedroom apartments (115 of the 119 total apartments) than 1 bedroom apartments. As to vehicles, although the ordinance calls for 266, Clover proposes to provide 120 parking spaces (including 40 garage spaces available for an extra charge to tenants). Clover seems to overlook that some of its units may have more than one car or more than one driver per car, and the impact of visitor and delivery parking/traffic for the 142 to 236 potential tenants.

Regarding visitors, Clover will allow grandchildren visits at their apartments on weekends, but overnight stays are not permitted, unless a tenant is permanently disabled; and these rules are self- policed.

Clover contends its "average" tenant is a widowed 76 year old who doesn't drive during peak hour traffic; and that there should be less than a 1% increase in traffic due to the project. But Clover's average, presumably based on its many tenants from around the country, may not be representative of Crystal Lake. Also, Clover agrees that it will be accepting tenants who are 55 years and older; and at $1700 per month for rent ($20,400/year) it is reasonable to assume that tenants in the 55 to 65 or 70 age group will still be driving to and from work during the rush hours (as most in that age group do anyway). In addition to work, this age group is very active caring for children, grandchildren and/ or parents, shopping, attending to healthcare, volunteering, pursuing recreational activities, and in the course of it all, making multiple trips in their cars each day. And the fact that the 176/ Terra Cotta Rd. intersection area is not pedestrian friendly, would dictate that the apartment residents drive as opposed to walking.

But if Clover's traffic increase estimate of 1% even approaches reality, the traffic congestion in this area cannot take the increased burden. Any increase in traffic can make a bottleneck situation unworkable and once traffic is allowed to increase, its volume cannot be reduced. Mistwood residents need to reasonably enter and exit their subdivision, as do the school buses that service their children, and any emergency vehicles that are needed. Even assuming only 119 more vehicles (a fairly sizeable estimate) are added due to the apartment complex, the situation there will not remain static; especially during the long construction phase of such a large project. Year after year things will change as leases expire and tenants come and go. At Mistwood Place however, its owners cannot easily move on as can tenants at the end of a lease, if they don't like the changes.

Clover's representative also alluded to a possible benefit to its apartment tenants by locating next to the Sunrise assisted living facility on Mistwood Ln. next to and across from portions of Mistwood Place. The Sunrise building covers roughly only one-third as much land as Clover's proposed apartment building. Sunrise's staff provides an excellent service to its inhabitants in a professional and caring manner and the appearance of the front of the two story Sunrise building is magnificent. However the planning for parking at the facility was seriously deficient with repercussions which continue to affect parking, traffic and safety of residents of Mistwood Place. Probably because of an argument that seniors in need of assisted living wouldn't be driving, an insufficient number of parking places were required at Sunrise. As a result, visitors and some staff, park off- premises along Mistwood Ln. and along both sides of the Mistwood cul de sac opposite the Sunrise property. These extra vehicles, in addition to creating other problems, narrow the roadway driving space and hinder safe passage on these streets. The problem becomes most acute during holiday and special event periods, during which traffic becomes very congested if not impossible, especially for emergency vehicles.

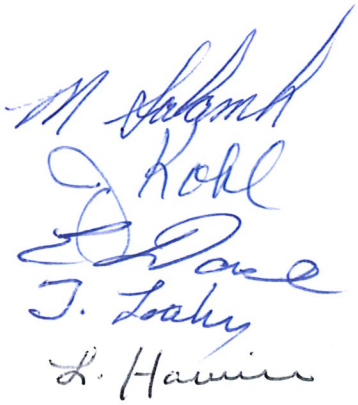
Should the long driveway planned for behind the proposed apartment complex along its southern portion, be extended to connect to the Sunrise property, the off-site parking problem would be exacerbated by the lack of parking spaces on the apartment property; and that driveway could also be used as a cut-through to bypass the 176/Terra Cotta Rd. intersection traffic. Even absent a joining with the Sunrise facility, the long driveway proposed for just north of the approximately 20 Mistwood Place townhomes along Savannah Ln., would likely destroy many of the trees and bushes there, bring traffic, parking and noise to the current park-like setting of the back yards of those townhomes, and undoubtedly affect their market values.

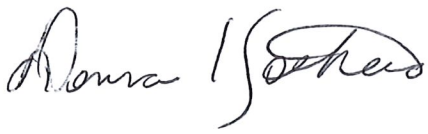
SUMMARY AND CONCLUSION

The Mistwood Place board of directors and residents respectfully request that zoning of the subject property at the southeast corner of Terra Cotta Road and Route 176 remain Business/General Commercial.
Re-Zoning to Residential with the very high density, limited parking and three story apartment facility proposed, would be unlike anything in the area. It would seriously large impact the safety of area residents and those driving though the region. The proposed facility would be incompatible with area businesses and surrounding environs; and its long rear driveway would irreversibly alter the character of the nearby Mistwood townhomes. It would be the wrong use for this property.
The impact of the proposed 142 to 236 residents, and more than 119 cars (without even counting visitor or service vehicles) will overburden already gridlocked intersections especially at rush hour times of the day.
Mistwood Place residents routinely experience traffic congestion and parking blockages due to the visitors at Sunrise Assisted Living, even though the Sunrise residents do not have cars.
With the addition of 119 residential units (some with more than one driver or car), the amount of traffic gridlock and lack of parking will worsen, especially during high traffic times of morning and after school. Seniors, ages 55-plus, are very active with many automobile related needs. Most people age 55-65 are still working full-time, caring for children or their parents, volunteering, shopping, and travelling about the region in their cars on a daily basis.
Mistwood Place is a 28 year old Crystal Lake neighborhood. Its board of directors represents 142 households with seniors, adults, special needs folks and children.
Area traffic and parking is already overcrowded and difficult at best, with the existing property usage.
We implore the Zoning & Planning Commission to consider those already living in this area. Please keep our neighborhood safe from this project's anticipated additional traffic, parking, and cut-through drivers seeking to avoid the gridlock.
Keep the zoning as "Business" so that traffic and parking does not worsen in the manner expected with the proposed apartment facility

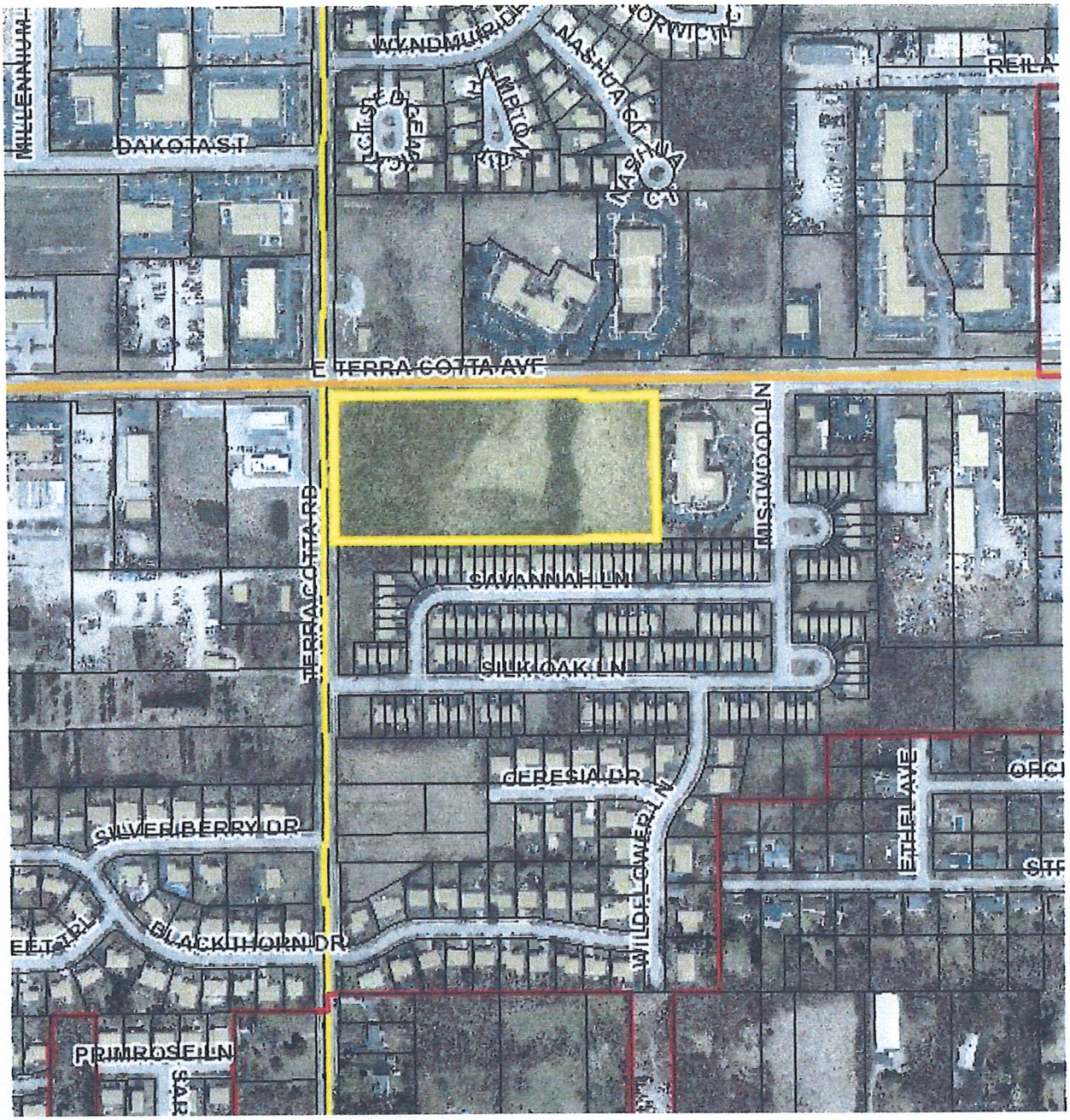
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Thank you for your attention and consideration of this matter.

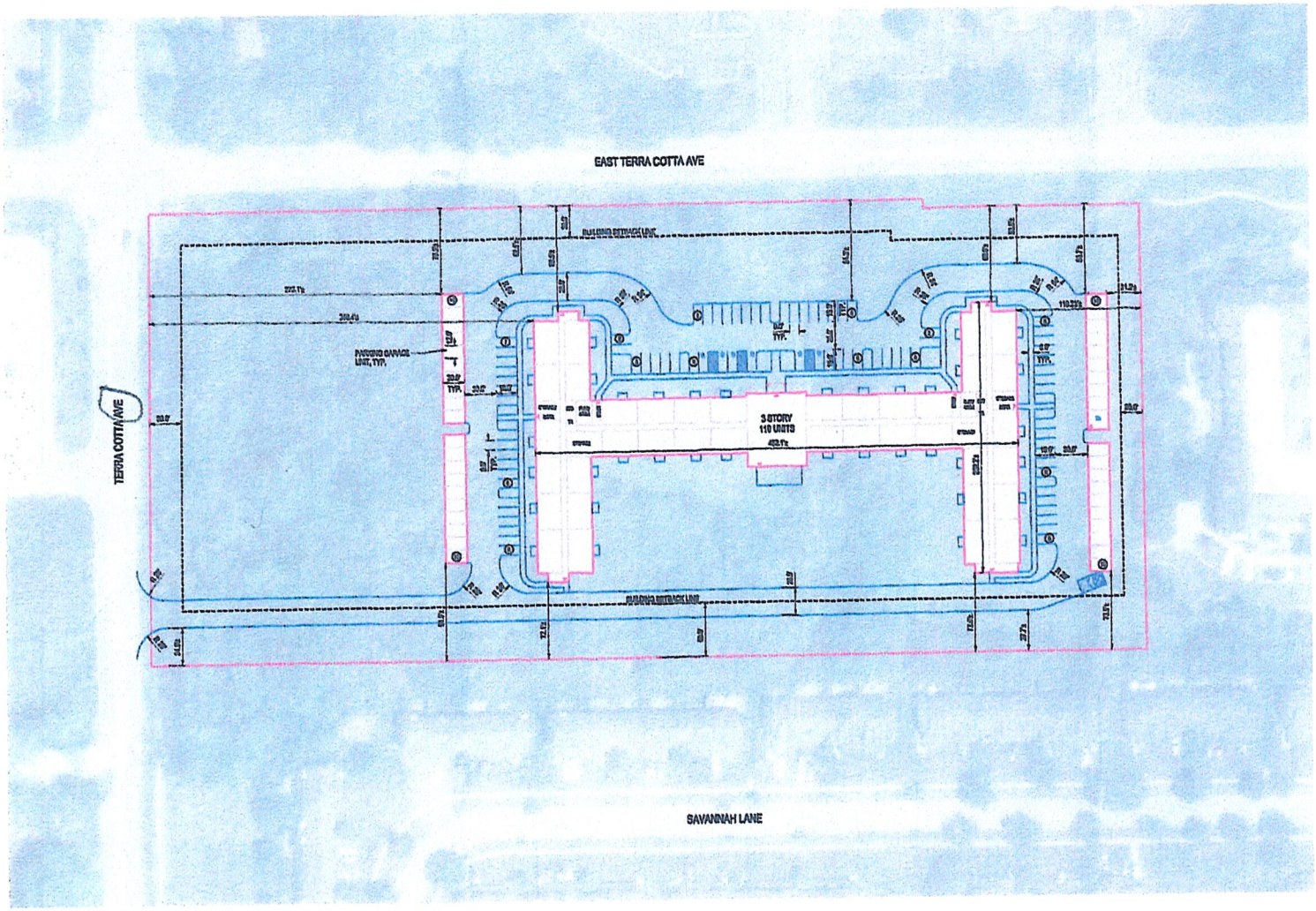
Yours Truly, the Mistwood Place
Homeowner's Association Board of Directors.





PIQ Map
731 E. Terra Cotta Avenue





CURRENT ZONING: B-2-PUD
PROPOSED ZONING: R-3B PUD
9.0± ACRES
3 STORY BUILDING
110 UNITS (97% 2 BEDROOM)
(24 2-BEDROOM 1.5 BATH, 81 2-BEDROOM, 1 BATH, 4 1-BEDROOM)
2,076 SF STORAGE (FIRST FLOOR)
44,260 SF (132,780 TOTAL)
120 PARKING SPACES (INCLUDING 40 GARAGES)

PLAN NORTH

0' 30' 60' 120' ft.

CAD NO.

C&S COMPANIES
C&S Engineers, Inc.
141 Elm Street, Suite 100
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

CLOVER GROUP

SENIOR HOUSING
TERRA COTTA AVENUE
CRYSTAL LAKE, IL

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO: 152.405.001
DATE: 7-13-2021
SCALE: 1"=30'
DRAWN BY: S. SCHNEIDER
DESIGNED BY:
CHECKED BY:

NO ALTERATION PERMITTED HEREON
EXCEPT WITH WRITTEN PERMISSION

CONCEPT PLAN

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