



LEGAL DESCRIPTION

(BOUNDARY SURVEY PREPARED BY KEM-TEC & ASSOCIATES, JOB NUMBER: 12-02633)

LAND IN THE CITY OF ANN ARBOR, COUNTY OF WASHTENAW, MICHIGAN, DESCRIBED AS:

PARCEL 1: (AS SURVEYED) BEGINNING AT THE INTERSECTION OF THE NORTH LINE OF HURON STREET AND THE EAST LINE OF DIVISION STREET AND RUNNING THENCE NORTH 04 DEGREES 10 MINUTES 40 SECONDS EAST ALONG THE EAST LINE OF DIVISION STREET, 124 FEET; THENCE SOUTH 85 DEGREES 47 MINUTES 20 SECONDS EAST 68 FEET; THENCE SOUTH 04 DEGREES 10 MINUTES 40 SECONDS WEST 28 FEET; THENCE NORTH 85 DEGREES 47 MINUTES 20 SECONDS WEST 4 FEET; THENCE SOUTH 04 DEGREES 10 MINUTES 40 SECONDS WEST 96 FEET TO THE NORTH LINE OF HURON STREET; THENCE NORTH 85 DEGREES 47 MINUTES 20 SECONDS WEST 64 FEET TO THE PLACE OF BEGINNING, BEING PART OF ASSESSOR'S PLAT No. 8 IN THE CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN, EXCEPTING THE FOLLOWING DESCRIBED PROPERTY: COMMENCING AT A POINT WHERE THE EAST LINE OF DIVISION STREET INTERSECTS THE NORTH LINE OF HURON STREET, RUNNING THENCE NORTH 04 DEGREES 10 MINUTES 40 SECONDS EAST ALONG THE EAST LINE OF DIVISION STREET, 88.5 FEET; THENCE SOUTH 85 DEGREES 47 MINUTES 20 SECONDS EAST PARALLEL TO THE NORTH LINE OF HURON STREET, 64 FEET; THENCE SOUTH 04 DEGREES 10 MINUTES 40 SECONDS WEST PARALLEL TO THE EAST LINE OF DIVISION STREET, 88.5 FEET; THENCE NORTH 85 DEGREES 47 MINUTES 20 SECONDS WEST 64 FEET ON THE NORTH LINE OF HURON STREET TO THE POINT OF BEGINNING.

PARCEL 2: (AS SURVEYED) COMMENCING AT A POINT WHERE THE EAST LINE OF DIVISION STREET INTERSECTS WITH THE NORTH LINE OF HURON STREET; THENCE RUNNING NORTH 04 DEGREES 10 MINUTES 40 SECONDS EAST ALONG THE EAST LINE OF DIVISION STREET 78.5 FEET; THENCE EAST 85 DEGREES 47 MINUTES 20 SECONDS EAST PARALLEL TO THE NORTH LINE OF HURON STREET 64 FEET; THENCE SOUTH 04 DEGREES 10 MINUTES 40 SECONDS WEST PARALLEL TO THE EAST LINE OF DIVISION STREET 78.5 FEET; THENCE NORTH 85 DEGREES 47 MINUTES 20 SECONDS WEST ON THE NORTH LINE OF HURON STREET 64 FEET TO THE PLACE OF BEGINNING, ALSO A NON-EXCLUSIVE RIGHT OF WAY OVER A STRIP OF LAND 10 FEET IN WIDTH ADJOINING AND CONTIGUOUS TO THE ABOVE DESCRIBED PARCEL ON THE NORTH TO BE USED AS A COMMON DRIVEWAY, BEING A PART OF LOT 23 OF ASSESSOR'S PLAT No. 8 IN THE CITY OF ANN ARBOR, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN LIBER 4 OF PLATS, PAGE 38, WASHTENAW COUNTY RECORDS.

PARCEL 3: (AS SURVEYED) LOT 22 AND PART OF LOTS 21 AND 23, ASSESSOR'S PLAT No. 8, AS RECORDED IN LIBER 4 OF PLATS, PAGE 38, WASHTENAW COUNTY RECORDS, WHICH IS DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE NORTH LINE OF HURON STREET, SOUTH 85°47'20" EAST 64.00 FEET EAST OF INTERSECTION OF SAID NORTH LINE OF HURON STREET WITH EAST LINE OF DIVISION STREET; THENCE RUNNING SOUTH 85°47'20" EAST ALONG THE NORTH LINE OF HURON STREET, 185.50 FEET, AND TO SOUTHWEST CORNER OF LAND NOW OWNED BY SLOAN PLAZA CONDO. (AND ONCE OWNED BY BAPTIST CONVENTION OF THE STATE OF MICHIGAN); THENCE NORTH 04°10'40" EAST ALONG WEST LINE OF LAND OF SAID SLOAN PLAZA CONDO, 200.83 FEET; THENCE SOUTH 85°47'20" EAST PARALLEL WITH NORTH LINE OF HURON STREET, 84.40 FEET; THENCE SOUTH 04°10'40" WEST PARALLEL WITH WEST LINE OF DIVISION STREET, 50.00 FEET; THENCE SOUTH 85°47'20" EAST PARALLEL WITH THE NORTH LINE OF HURON STREET, 32.00 FEET; THENCE NORTH 04°10'40" EAST PARALLEL WITH THE WEST LINE OF DIVISION STREET, 74.20 FEET; THENCE NORTH 85°47'20" WEST PARALLEL WITH NORTH LINE OF HURON STREET, 152.03 FEET; THENCE SOUTH 04°10'40" WEST ALONG EAST LINE OF LAND NOW OWNED BY TYLER NORMAN TRUST (ONCE OWNED BY WAHR), 24.20 FEET AND TO SOUTHEAST CORNER OF SAID TYLER NORMAN TRUST'S LAND, THENCE NORTH 85°47'20" WEST ALONG SOUTH LINE OF TYLER NORMAN TRUST'S LAND, 59.48 FEET; THENCE SOUTH 04°10'40" WEST PARALLEL WITH THE WEST LINE OF DIVISION STREET, 40.00 FEET; THENCE NORTH 85°47'20" WEST PARALLEL WITH THE NORTH LINE OF HURON STREET, 22.39 FEET; THENCE SOUTH 04°10'40" WEST PARALLEL WITH THE WEST LINE OF DIVISION STREET, 36.83 FEET; THENCE NORTH 85°47'20" WEST PARALLEL WITH THE NORTH LINE OF HURON STREET, 64.00 FEET; THENCE SOUTH 04°10'40" WEST PARALLEL WITH THE WEST LINE OF DIVISION STREET, 28.00 FEET; THENCE NORTH 85°47'20" WEST PARALLEL WITH THE NORTH LINE OF HURON STREET, 4.00 FEET; THENCE SOUTH 04°10'40" WEST 96.00 FEET TO THE PLACE OF BEGINNING, BEING A PART OF THE NORTHEAST QUARTER OF SECTION 29, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN, EXCEPTING THEREFROM LAND CONVEYED TO ERVIN ACCEPTANCE COMPANY, A MICHIGAN CORPORATION, RECORDED IN LIBER 392, PAGE 444, WASHTENAW COUNTY RECORDS.

PARCEL 4: (AS SURVEYED) THE NORTH 10 FEET IN WIDTH, NORTH AND SOUTH OF THE FOLLOWING PARCEL OF LAND, TO WIT: COMMENCING AT A POINT WHERE THE EAST LINE OF DIVISION STREET INTERSECTS THE NORTH LINE OF HURON STREET; THENCE RUNNING NORTH 04°10'40" EAST ALONG THE EAST LINE OF DIVISION STREET 88.50 FEET; THENCE SOUTH 85°47'20" EAST PARALLEL TO THE NORTH LINE OF HURON STREET, 64.00 FEET; THENCE SOUTH 04°10'40" WEST PARALLEL TO THE EAST LINE OF DIVISION STREET, 88.50 FEET; THENCE NORTH 85°47'20" WEST ON THE NORTH LINE OF HURON STREET, 64.00 FEET TO THE PLACE OF BEGINNING, BEING THE NORTH 10 FEET OF THE SOUTH 88.5 FEET OF LOT 23, ASSESSOR'S PLAT NO. 8, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN.

TREE LIST & EVALUATION

Table with columns: TAG#, DIA., COMMON NAME, GENUS/SPECIES, SCORE, %ALIVE, NOTES, ACTION. Lists various tree species like Honey Locust, Norway Maple, Bradford Pear, etc.

LM = LANDMARK TREE, INV=INVASIVE TREE, R = REMOVE TREE
\* = STREET TREE
\*\* = Not regulated; health score <16.

SITE SUMMARY NOTES:

The proposed development will comply with the following off-street parking regulations for buildings that exceed the normal maximum permitted useable floor area:

No off-street motor vehicle parking is required in the special parking district for structures which do not exceed the normal maximum permitted useable floor area or for structures zoned PUD with useable floor area which does not exceed 400 percent of the lot area. Structures which exceed the normal maximum useable floor area by providing floor area premiums, or PUD-zoned structures that exceed 400 percent of lot area, shall provide parking spaces for the useable floor area in excess of the normal maximum permitted. This parking shall be provided at a rate of 1 off-street parking space for each 1,000 square feet of useable floor area.

The amount of Useable Floor Space above the normal maximum permitted floor area is 112,027 SF / 1,000 = 112 spaces required. 132 total parking spaces are provided 122 spaces in two levels of underground parking and 10 spaces on the ground level.

The proposed development will comply with the following bicycle parking regulations for buildings in the D1 Zoning District: Off-street bicycle parking is required for residential uses in the special parking district at a rate of 1 off-street bicycle space for each 2,500 square feet of useable floor area and shall be provided in compliance with the requirements of Section 5:168.1 for Class A spaces. Off-street bicycle parking is required for non-residential uses in the special parking district at a rate of 1 off-street bicycle parking space for each 10,000 square feet of useable floor area and shall be provided in compliance with the requirements of Section 5:168.1 for Class C spaces.

The Useable Floor Area of the building is 213,401 SF residential / 2,500 = 85 bike spaces required and 58,454 SF non-residential / 2,500 SF = 24 bike spaces required. A total of 109 spaces are required. 120 bike spaces are proposed, including 110 Class A resident spaces in lockers inside the underground parking and on each apartment level, 4 Class B spaces under the building overhang at the S.E. corner of the building and 6 Class C spaces in the N. Division R.O.W.

The proposed development will comply with the following Residential Use Premium Requirement: Residential Use Premium. In D1 and D2 districts, 0.75 square foot of floor area in excess of the normal maximum useable floor area in percentage of lot area shall be allowed for each square foot of floor area, regardless of location within the building, that is used for multiple-family dwellings housing and that meets the standards of Chapter 105 (Housing Code).

The allowable Residential Use Premium is calculated to be the proposed residential area (by right) of 121,943 SF x 0.75 = 91,458 SF. This Residential Use Premium is added to the residential floor area (by right) of 121,943 SF, totaling 213,401 SF of allowable Useable Floor Area using premiums. The proposed Useable Floor Area is 213,401 SF.

The proposed development will comply with the following Residential Use Premium Requirement: Every sleeping room in the building shall have at least 1 window, sliding glass door, skylight, or other acceptable light transmitting media facing directly to the outdoors. The minimum total glazed area for every sleeping room shall be not less than 8% of the habitable floor area of such room. If dwelling units constitute a portion of a mixed use building, dwelling units must be completed and receive a certificate of occupancy in advance or at the same time as the certificate of occupancy for nonresidential use, or the property owner shall provide a performance bond for the residential use at the time the certificate of occupancy is requested, subject to the requirements of Chapter 57.

The proposed development will comply with the following: As a condition of receiving the additional floor area through a premium option, the building must comply with the following energy efficiency standards for the construction of all new floor area:

- 1. A minimum of two points must be achieved under the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Energy & Atmosphere Credit No. 1. The most recent version in effect at the time of site plan approval shall be applied.
2. Compliance with this requirement shall be verified and documented by the property owner using an industry standard software energy modeling tool (EQUEST or equivalent) prior to the issuance of building permits.
Industry standard software energy modeling data will be utilized by our Mechanical Engineer to document our compliance and submitted for approval as part of our building permit application.

PROJECT INFORMATION AND ANALYSIS

- 1. DEVELOPMENT PROGRAM: (a) Description: the proposed development includes removal of the existing buildings and construction of an apartment building. There will be two levels of underground parking that are accessed from E. Huron Street, and a few additional ground level spaces accessed from the N. Division Street service drive. Also on the ground level will be retail uses, main entry lobby, manager's office, fire control center, and a service area. Thirteen levels of fully furnished apartments will contain 216 units. (b) Proposed Phasing and Probable Construction Cost: the development will be constructed in one phase, beginning in or before 2/1/2013, with completion on or before 8/1/2014. The estimated construction cost is \$45,000,000.
2. COMMUNITY ANALYSIS: (a) Impact on Public Schools: the units are fully furnished rental apartments that range from 1 to 4 bedrooms. The units are designed primarily for young professionals, faculty, visiting professors, and college students. The number of children living in the building is expected to be minimal so there will be virtually no impact on public elementary and high schools. (b) Relationship to Neighboring Uses: The residential units will provide additional student housing and interior parking very close to the University of Michigan Central Campus. The residents are likely to patronize the restaurants, other businesses in the adjacent buildings, and may attend nearby churches. Nearby buildings include a mix of commercial, residential uses, and institutional uses. (c) Impact of Adjacent Uses on Proposed Development: residents will likely patronize the businesses and institutions in the surrounding area. The building will shade residences to the north during parts of the day and parts of the year. (d) Impact on Air and Water Quality and Existing Natural Features: no significant impact on air and water quality is expected. There are no landmark trees on the site. One tree is large enough to qualify as a landmark but it does not meet the required health evaluation standard. No landmark trees are to be removed. There are three off site landmark trees within 50 feet of the property line. #6874 is a 24" black walnut on 114 N. Division. Any development on the site will impact a portion of the Critical Root Zone of this tree because the existing house at 110 N. Division is within that area and will be removed. Although this tree is to remain, 12 caliper inches of mitigation plantings are requested. Mitigation is shown on the Landscape Plan, sheet 10 and includes 2-3" caliper blackgum to be planted on site, and a monetary contribution of \$1,116 (6 x \$186/cal. inch) for plantings in nearby parks. #6891 is a 21" American elm at 120 N. Division. There is no proposed disturbance within the CRZ of that tree and no mitigation is required. #6892 is a 48" bur oak at 120 N. Division. About 20% of the CRZ of that tree overlaps onto the 413 E. Huron site. That area is almost entirely occupied by a wood privacy fence, the dead landmark size tree, a trash area and concrete pad, and bituminous surface. Removal of these features will impact the CRZ and will actually result in an increase in pervious landscape area. Because the impact is minimal, no mitigation is required. #6894 is a 25" bur oak at 126 N. Division. A portion of the CRZ of this tree extends to within about 38 feet of the site. There is no proposed disturbance within the CRZ of this tree and no mitigation is required. There are six street trees to be removed. On the Division Street frontage, a 1" honeylocust, an 8" Norway maple (invasive), and a 2" pear will be removed. On the west side of N. Division, three trees will be removed to extend public utilities. These include a 9" honeylocust, a 17" Norway maple and a 16" Norway maple (both invasive). On the E. Huron frontage, a 2" ginkgo will be removed. Mitigation is provided as shown on the Landscape Plan, sheet 10, with 4-3" caliper Skyline honeylocust and 9-3" caliper Regal Prince columnar oak. An additional monetary contribution of \$2,976 is provided (16 x \$186/cal. inch). (e) Impact on Historic Sites/Structures: There are no on-site historic structures.
3. SITE ANALYSIS: (a) Existing Land Use and Site Activity: Former mixed use including a house with an office and one 1-bedroom apartment, retail and parking. (b) Inventory of Site Conditions: Soil Types: Fox Sandy Loam (FoA), at zero to 2 percent slopes. Vegetation: no significant vegetation. Topography: the site slopes from south down to the north at approximately 2 percent. (c) Description of On-Site Natural Features: Endangered Species Habitat: none. 100-Year Floodplain: none. Landmark Trees: there is one landmark size tree on the site, - a 31" bur oak at the northwest corner of the site but the tree is in poor condition and does not meet health requirements for a landmark tree. There are three landmark trees off site that are within 50 feet of the site. These include a 24" black walnut (#6874) on 114 N. Division, a 21" American elm (#6891) and a 48" bur oak (#6892) at 120 N. Division. There is a 25" bur oak (#6894) at 126 N. Division that is more than 50 feet from the site, although a portion of the Critical Root Zone extends to approximately 38 feet from the site. See the Tree List and Evaluation table on sheet 2, and see sheet 14, Natural Features and Alternative Plans. Steep Slopes: none. Existing Watercourses: none. Wetlands: none. Woodlands: none. (d) Existing Structures On-Site: Existing and Proposed Pathways / Access Points: Entrance to underground parking levels will be from E. Huron. Access to the service area and a few exterior parking spaces is from N. Division. The main entry and lobby is on the south. A secondary entry is provided onto the service drive. (e) Utility Availability, Existing Rights-of-Way and Easements: see Existing Conditions Plan. Existing sanitary sewer, water main, and gas are located in the E. Huron and N. Division Street rights-of-way. Storm sewer is located in the E. Huron Street right-of-way. Electric services are approximately at the center of the west edge of the site. (f) General Drainage Pattern: the site is nearly flat, sloping slightly to the northwest, and drains to City storm sewer in rights-of-way.
4. SCHEMATIC DESIGN: (a) Comparison Chart of Proposed Development and City Requirements: see Project Data sheet. (b) Existing / Proposed Topography and Limits of Soil Disturbance: see Grading Plan. (c) Orientation and General Location of Proposed Improvements: see Dimensional Site Plan. (d) Vertical Sections Resulting in Significant Change of Steep Slope: not applicable. (e) Proposed Circulation Patterns On-Site: see Dimensional Site Plan and Architectural Plans. Pedestrians access the site through the proposed doors on E. Huron and N. Division. Vehicles enter the building via the proposed curb cut at the southeast corner of the building. Service access and exterior parking is accessed by a service driveway at the northwest corner of the building. A compactor will be located in the service area at the northwest corner of the site. (f) Proposed Lot and Setback Lines: see Dimensional Site Plan. (g) Disturbance of Natural Features and Proposed Mitigation Measures: No regulated natural features exist on site.
5. GENERAL INFORMATION: (a) Project Name: 413 E. Huron (b) Petitioner's Name and Address: Ann Arbor Green Property, LLC, 171 17th Street NW, Suite 1200, Atlanta, GA 30363-1032. (c) North Arrow and Drawing Scale: see each sheet. (d) Existing and Proposed Zoning: D1, E. Huron 1 character district. (e) Total Floor Area (no. of dwelling units): 271,855 sf gross, 216 units. (f) Proposed Building Height: 150 feet. (g) Statement of Interest: the petitioner is the owner. (h) Map of Applicant's Contiguous Land Holdings in Proposed Development Area: the petitioner has not additional contiguous land holdings. (i) Vicinity Map of Property Within 250 ft of Development: see the Cover Sheet. (j) Project Time Schedule: start on or before 2/1/2013, and complete on or before 8/1/2014. (k) Location / Identification of Public Areas/Municipal Corporation Lines in Proposed Development Area: See Existing Conditions plan. The site is located in downtown Ann Arbor. (l) Legal Description of Parcel: See Project Data sheet. (m) Copy of Proposed Plan in 8-1/2 x 11 format: to be provided as pdfs.

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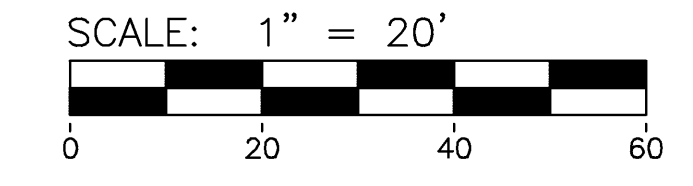
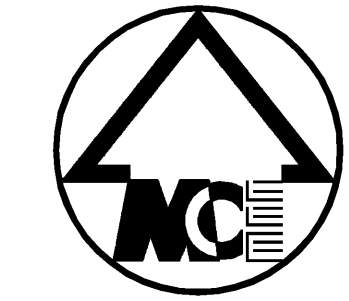
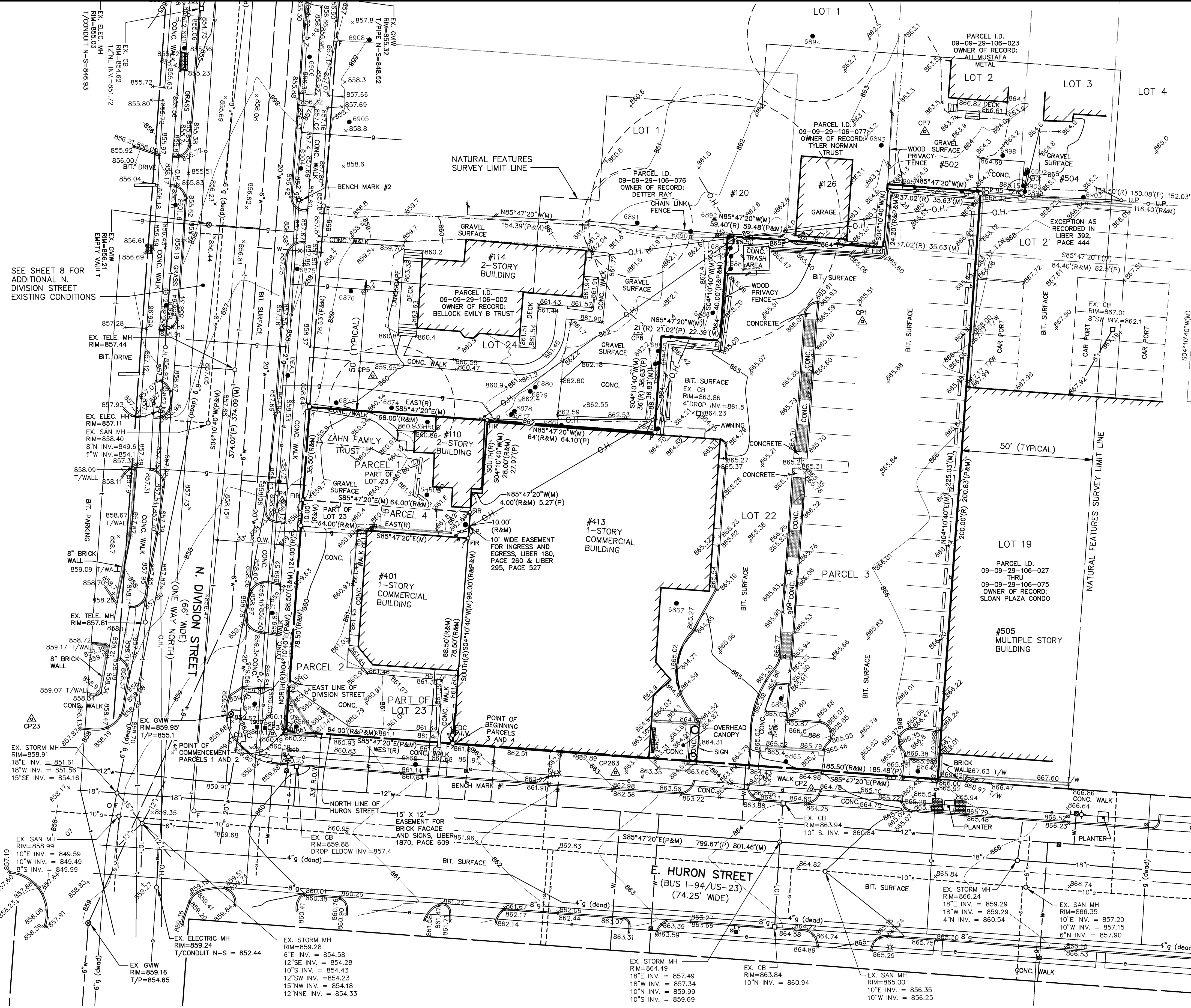
MIDWESTERN CONSULTING logo and contact information: 3815 Plaza Drive, Ann Arbor, Michigan 48108, Phone: 734.995.0200, Fax: 734.995.0599

CLIENT: ANN ARBOR GREEN PROPERTY OWNER, LLC, 171 17TH STREET, SUITE 1200, ATLANTA, GA 30363, ATTN: CONOR McNALLY, PHONE: (404) 788-2902

PROJECT DATA AND GENERAL INFORMATION: 413 E. HURON SITE PLAN

Job No: 12156, SHEET 2 OF 30, DATE: 11-26-12, REV. DATE, REV. PER CITY, REV. PER CITY COUNCIL, REV. PER CITY

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**LEGEND**

- 838 — EXIST. CONTOUR
- × 836.2 EXIST. SPOT ELEVATION
- GUY WIRE
- U.P. — EXIST. UTILITY POLE
- EXIST. A/C UNIT
- ELEC. TRANSFORMER
- OH — EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- EXIST. WATER MAIN
- EXIST. HYDRANT
- EXIST. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- EXIST. CURB STOP & BOX
- EXIST. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- EXIST. ROOF DRAIN
- EXIST. SANITARY SEWER
- EXIST. CLEANOUT
- SIGN
- P.M. — PARKING METER
- TELEPHONE RISER
- TRAFFIC SIGNAL CONTROL BOX
- ELECTRIC METER
- WATER METER
- GAS METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- CRITICAL ROOT ZONE FOR LANDMARK TREE
- SECTION CORNER
- O.F. — FOUND IRON PIPE
- FPK — FOUND P.K.
- F.I.R. — FOUND IRON ROD
- (R) — CONTROL PT.
- (M) — RECORDED
- (R&M) — MEASURED
- (R&M) — RECORDED & MEASURED
- SB-1 — SOIL BORING

**BENCH MARKS**

- BM#1 — TOP OF CONC. ON SOUTH SIDE OF LIGHT POLE BASE ON NORTH SIDE OF HURON ST. +/- 130' EAST OF DIVISION ST. ELEV. = 862.85 NAVD88
- BM#2 — TOP OF BOLT ON S.E. SIDE OF LIGHT POLE BASE ON EAST SIDE DIVISION ST. +/- 215' NORTH OF HURON ST. ELEV. = 858.11 NAVD88

**GENERAL SOILS DESCRIPTION**  
 SOIL SURVEY OF WASHTENAW COUNTY  
 USDA SOIL CONSERVATION SERVICE, 1977

**FOX SERIES**  
 WELL DRAINED, NEARLY LEVEL TO STEEP SOILS FORMED IN LOAMY TEXTURED AND SANDY TEXTURED GRAVELLY SAND. THESE SOILS ARE ON OUTWASH PLAINS, KAMES, VALLEY TRAINS, TERRACES, AND MORAINES. AVAILABLE WATER CAPACITY AND PERMEABILITY IS MODERATE.

**FOA - FOX SANDY LOAM, 0-2 PERCENT SLOPE.**  
 THIS SOIL IS DROUGHTY AND RUNOFF IS SLOW. DEPTH TO SEASONAL HIGH WATER TABLE IS > 6 FEET.

**NOTES:**

1. LOCATION OF EXIST. UNDERGROUND WATERMAIN, GAS MAIN, ELECTRIC AND TELEPHONE LINES WERE OBTAINED FROM MUNICIPAL RECORDS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.
2. UTILITY RECORDS FROM DETROIT EDISON, CONSUMERS POWER COMPANY AND AMERITECH TELEPHONE COMPANY HAVE YET TO BE RECEIVED AS OF THIS PRINTING AND THEREFORE ARE NOT SHOWN IN THEIR ENTIRETY ON THIS PLOT.
3. SEE TREE INDEX ON SHEET 2.
4. SEE LEGAL DESCRIPTIONS ON SHEET 2.

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.

**MIDWESTERN CONSULTING**  
 Civil, Environmental and Transportation Engineers Planners, Surveyors Landscape Architects  
 3815 Plaza Drive  
 Ann Arbor, Michigan 48108  
 Phone: 734.995.0200  
 Fax: 734.995.0599

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**MIDWESTERN CONSULTING, LLC**  
 CLIENT: ANN ARBOR GREEN PROPERTY OWNER, LLC  
 171 17TH STREET, SUITE 1200  
 ATLANTA, GA 30363  
 ATTN: CONOR McHALLY  
 PHONE: (404) 788-2802

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**413 E. HURON**  
 SITE PLAN  
 EXISTING CONDITIONS

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**3**

DATE:	11-26-12
SHEET:	3 OF 30
REV. DATE:	
REV. PER CITY:	
REV. PER COUNTY:	
REV. PER STATE:	
ENC. JAF	
ENC. EGO	
TECH:	
SITE: 12156E1	
FILE:	

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**12156**  
 Know what's Below.  
 Call before you dig.





**SANITARY SEWER FLOW MITIGATION CALCULATIONS**

**Design Population:**

413 E. Huron will be a combined retail, restaurant/cafe and housing development. It will be a multi story building with underground parking spaces.

**Existing Flow:**

The sanitary sewer flow produced by the existing commercially used buildings (at the corner and north of the corner) to be removed will be based on the City of Ann Arbor's sanitary sewer flow evaluation Table 'A'. The computed dry weather flow rate for the existing uses will be as follows:  
(1950 sf + 614 sf) of non-medical office space @ 0.06 gpd/sf = 154 gpd

**Design Flow:**

Based on the City of Ann Arbor's sanitary sewer flow evaluation Table 'A', the design dry weather flow rate for the development will be:

- a. 124 parking spaces proposed  
Use 124 spaces @ 27 gpd/space = 3,348 gpd
  - b. 152 apartments from 601 sf to 1,200 sf @ 275 gpd/unit = 41,800 gpd
  - c. 56 apartments over 1200 sf @ 350 gpd/unit = 19,600 gpd
  - d. Retail Space 1 + Retail Space 2 + 1/3 of Lounge/Coffee Space (per architectural sheet #A403)  
(2059 + 2262 + (1/3 x 6092)) sq. ft. @ 30 of per seat = 212 seats  
Use assumed for "Restaurant w/ dishwasher" @ 30 gpd/seat = 6,360 gpd
  - e. pool occupancy = 1/50 sf @ 20 gpd per capita = 24x38 = 912 sf/50 = 18.24 people  
Using 19 people @ 20 gpd = 380 gpd
- Total Design average flow = 71,488 gpd

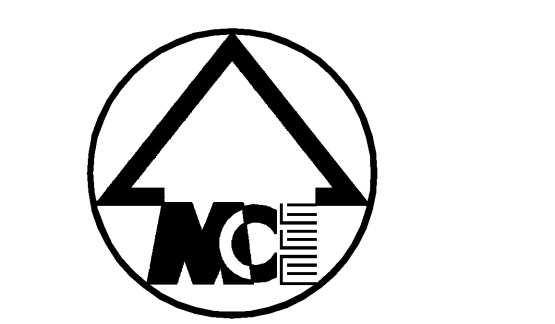
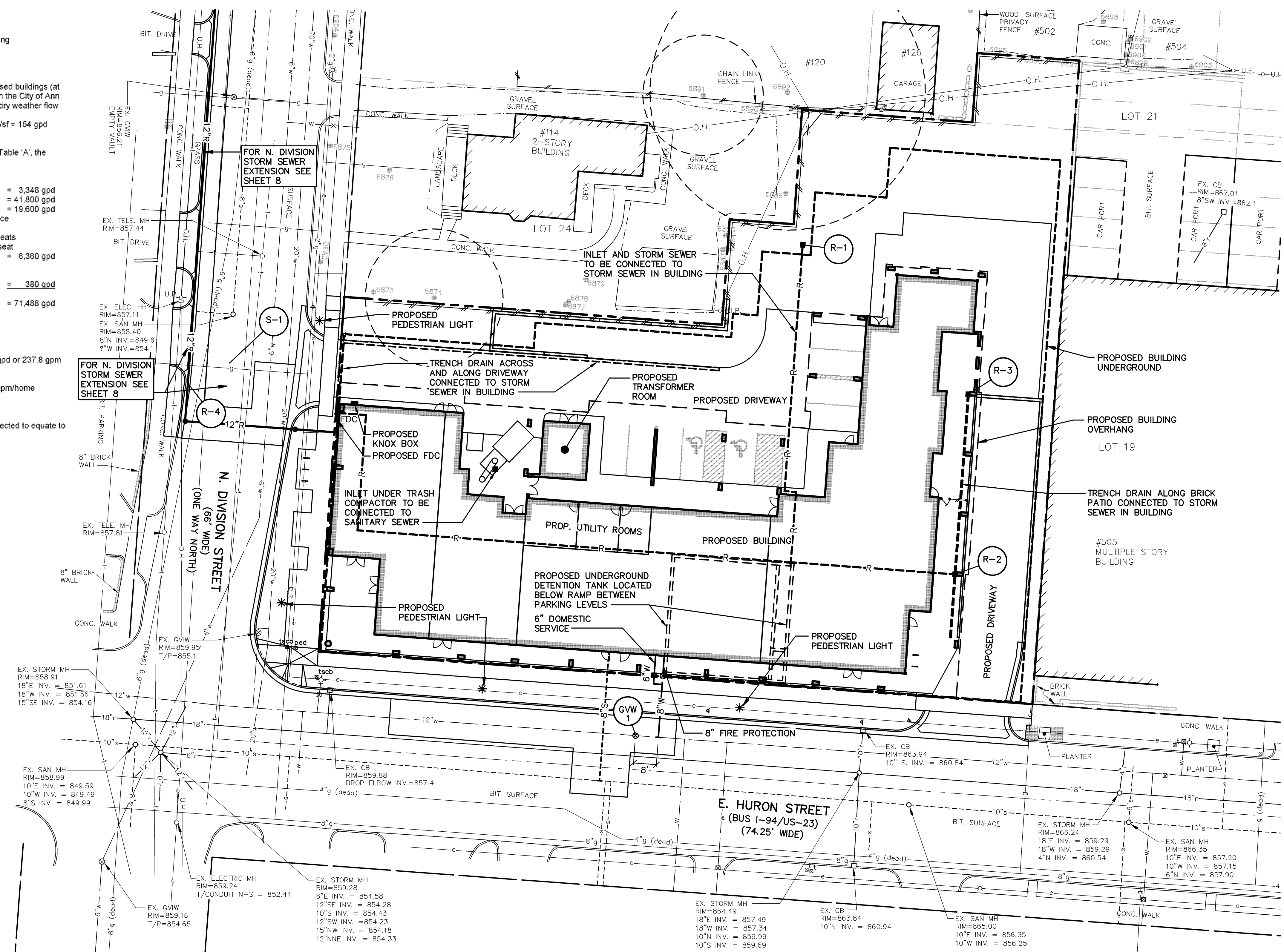
**Mitigation Flow:**

Mitigation flow = Design average flow - Existing average flow  
Mitigation flow = 71,488 gpd - 154 gpd = 71,334 gpd  
Mitigation peak flow = 71,334 gpd x 4 (peaking) x 1.2 (recovery) = 342,403 gpd or 237.8 gpm

**Footing Drain Disconnect Summary:**

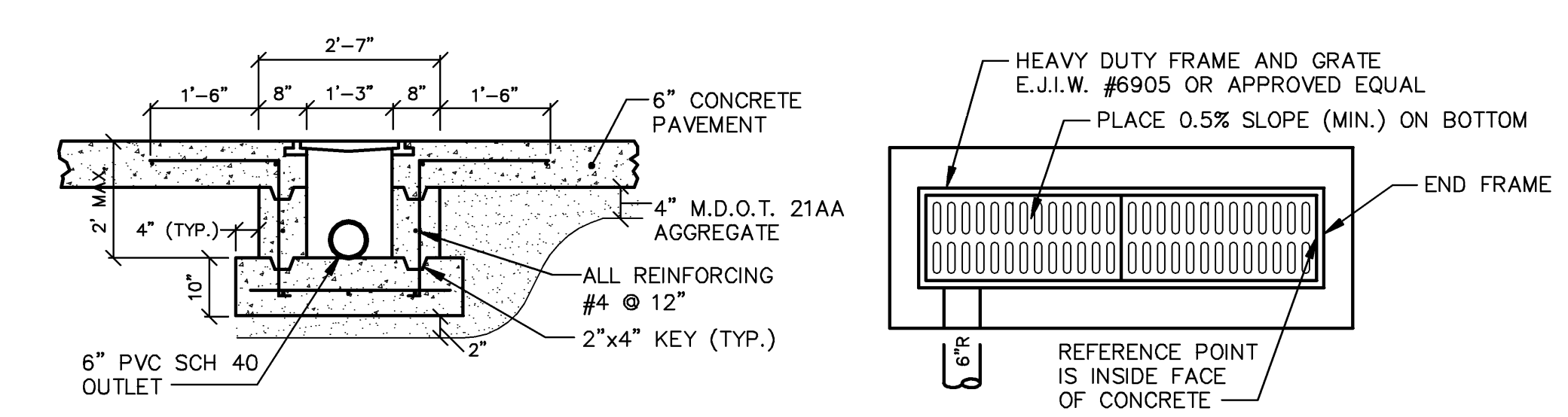
Footing Drain Disconnect Factor from the City of Ann Arbor = 4 gpm/home  
Number of Footing Drain Disconnects Required = 237.8 gpm / 4 gpm / home = 59.45 homes

A total of 59 homes will need to have their footing drains disconnected to equate to the additional peak flow produced.



**LEGEND**

- 838 EXIST. CONTOUR
- 838 PROP. CONTOUR
- 836.2 EXIST. SPOT ELEVATION
- 36.60 PROP. SPOT ELEVATION
- U.P. EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- OH EXIST. LIGHT POLE
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- g EXIST. GAS VALVE
- w EXIST. WATER MAIN
- w PROP. WATER MAIN
- H EXIST. HYDRANT
- H PROP. HYDRANT
- GV EXIST. GATE VALVE IN BOX
- GV PROP. GATE VALVE IN BOX
- WV EXIST. GATE VALVE IN WELL
- WV PROP. GATE VALVE IN WELL
- CS EXIST. CURB STOP & BOX
- CS PROP. CURB STOP & BOX
- R EXIST. STORM SEWER
- R PROP. STORM SEWER
- IB EXIST. CATCH BASIN OR INLET
- IB PROP. CATCH BASIN OR INLET
- HW EXIST. HEAD WALL
- HW PROP. SANITARY SEWER
- HW PROP. SANITARY SEWER
- EX EXIST. CLEANOUT
- EX PROP. CLEANOUT
- C/D OF DITCH
- SR SIDEWALK RAMP
- EA ENCLOSED TRASH AREA
- MAILBOX
- TR TELEPHONE RISER
- TR CABLE TELEVISION RISER
- EM ELECTRIC METER
- WM WATER METER
- GM GAS METER
- POST
- ST SINGLE TREE
- FENCE
- TRB TREE OR BRUSH LIMIT
- LANDMARK TREE
- SC SECTION CORNER
- FR FOUND IRON PIPE
- FR FOUND IRON ROD
- CP CONTROL PT.



**CONCRETE TRENCH DRAIN DETAIL (B)**  
NO SCALE (ACROSS DRIVES ONLY)

**Utility Plan Notes:**

- Per Chapter 49, Section 4-58 of City Code: All sidewalks are to be kept and maintained in good repair by the owner of the land adjacent to and abutting the same. Prior to the issuance of the final Certificate of Occupancy for this site, all existing sidewalks in need of repair must be repaired in accordance with City standards.
- Proposed E. Huron streetscape includes new sidewalk and street trees. Proposed N. Division streetscape includes new sidewalk, street trees, perennials, and bicycle parking.
- 100-year storm water detention is provided underground, under the ramp to the B2 underground parking level. Per the City of Ann Arbor, the detention system is to outlet to the west to N. Division Street. New public storm sewer (minimum 12" diameter) is to be constructed from the site to the north to the existing storm structure at E. Ann Street.  
The service drive and ground level parking is also above underground parking. This area drains into the building to the detention system. The landscape area along the north side of the site is also mostly on top of underground parking and drains into the storm sewer system inside the building.  
Runoff will drain or be pumped to a detention chamber under the ramp between the two levels of underground parking. The chamber includes a sediment forebay, discharge pump, redundancy, and power failure contingency via generator backup.
- Sanitary, domestic water and fire suppression water services are to tap existing mains in E. Huron Street. Sanitary sewer modeling will be done by the City to determine whether off-site sanitary sewer improvements are required.
- All roof drains are to run down through the building and are to connect to the storm detention system at the north end of the site.
- Dewatering operations during construction, if necessary, must provide sediment control and storm discharge, in the sewer system in State Street, NOT into the E. Huron storm sewer system that ties into the Allen Creek Drain.
- There are no proposed firewalls in the building.
- If temporary tie-backs are required in the right-of-way for construction purposes, a temporary licensing agreement will be provided. If the building's footings will be located in the right-of-way, the locations shall be clearly identified on the plans and a permanent licensing agreement will be provided.
- All sidewalks constructed in the public right-of-way shall meet requirements and guidelines as set forth in the ADA Standards for Accessible Design.
- If footing drains for the existing building are connected to the sanitary sewer system, disconnection will be required in accordance with current City specifications. Verification of existing footing drains shall be performed by the City's consultant, Camp, Dresser and McKee. The contact person is Jay Zawacki who can be reached at 734 213-5444.
- Booster pumps will be provided for domestic and fire water services.
- The one streetlight on E. Huron Street and the one streetlight on N. Division are to be removed. Two new pedestrian lights that match the existing lights on S. Division south of Huron will be installed on each of these frontages, with final approval granted by Field Operations. The owner will enter a Special Assessment District agreement with the City.
- The saltwater swimming pool backwash water will be drained to the proposed storm sewer outlet pipe along N. Division Street.
- 110 N. Division and 401 E. Huron have been occupied within the last 24 months and are taken as a credit against the proposed sanitary sewer flow.
- 110 N. Division was occupied until approximately November 1, 2012. 401 E. Huron was occupied until approximately September 1, 2012. 413 E. Huron has not been occupied within the last 24 months and no credit has been taken for the sanitary flow from that building.
- Work within the N. Division right-of-way is subject to additional conditions because a portion of the street was recently resurfaced and there is a 10-year moratorium on excavations in or under that street. Special conditions, including paving limits, will be required for the proposed utility work.

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**MIDWESTERN CONSULTING**  
Civil, Environmental and Transportation Engineers  
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Landscape Architects

3815 Plaza Drive  
Ann Arbor, Michigan 48108  
Phone: 734.995.0200  
Fax: 734.995.0599

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CLIENT: ANN ARBOR GREEN PROPERTY OWNER, LLC  
171 17TH STREET, SUITE 1200  
ATLANTA, GA 30363  
ATTN: CONOR McNALLY  
PHONE: (404) 788-2802

---

**413 E. HURON**  
SITE PLAN  
UTILITY PLAN

---

**6**

---

JOB NO. 12156  
DATE: 11-28-12  
SHEET: 6 OF 30  
REV. DATE REV. PER CITY REV. PER CITY REV. PER CITY  
12-19-12 CAD: WAJ 1-04-13 ENC: JAF 3-21-13 ENC: EFO  
SHEET 12156/PT1 PFB

---

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

**SOIL EROSION CONTROL NOTES**

- All soil erosion control measures shall comply with the current City of Ann Arbor ordinances, Washtenaw County standards and specifications for soil erosion and sedimentation control, and State of Michigan "Soil Erosion and Sedimentation Control Act - P.A. 347".
- Prior to commencing earthmoving operations, the grading contractor shall install the silt fence and temporary catch basin filter(s) shown on the plans.
- All lawn areas which will have a slope steeper than 3:1 shall be sodded and pegged or seeded and mulched using a soil erosion control fabric or blanket. Hydroseeding may be used in lieu of seed and mulch or sod where slopes are less than 3:1.
- All disturbed areas, even where future pavement and buildings are proposed are to be re-vegetated per City standards for temporary seeding.
- 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.
- The removal of trapped sediment and the cleanout or replacement of clogged storm may be necessary after each storm event during the project.
- Only upon stabilization of all disturbed areas may the silt fence and temporary gravel filters be removed. All storm sewers must be also cleaned of all sediment.
- All inlets and catch basins will have sediment filters installed after their construction. These filters will be maintained until all areas around the structure have been stabilized.
- The Contractor will maintain all necessary soil erosion control devices until soil stabilization has occurred.
- Appropriate emergency access will be provided during construction.
- The estimated cost of soil erosion control measures is \$3000.
- The estimated cost to protect all soil surfaces from erosion should construction discontinue is \$1500.
- External streets will be immediately cleaned of any tracked mud following each mud-tracking occurrence.
- Any grading on the tree side of the tree protection fence limits shall be performed by hand tools only. The tree protection fence shall then be re-installed after grading.
- Dewatering operations during construction, if necessary, must provide sediment control and must discharge to the storm sewer in N. Division Street and not to the storm sewer in E. Huron. The nearest storm structure is at the intersection of N. Division and E. Ann.
- Final locations and dimensions of the mud tracking mat and concrete washout area are to be determined by the contractor subject to City approval.
- Permanent soil erosion controls are required to be installed within five (5) days after final grading or final earth change.

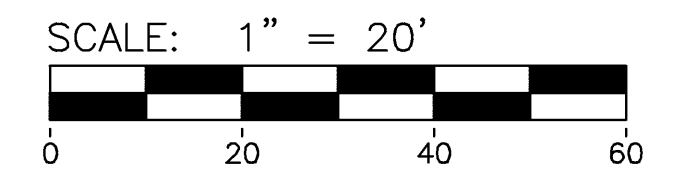
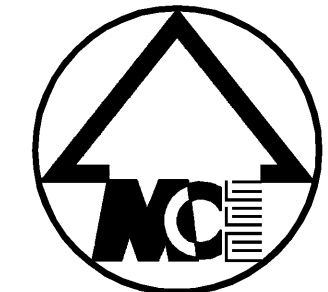
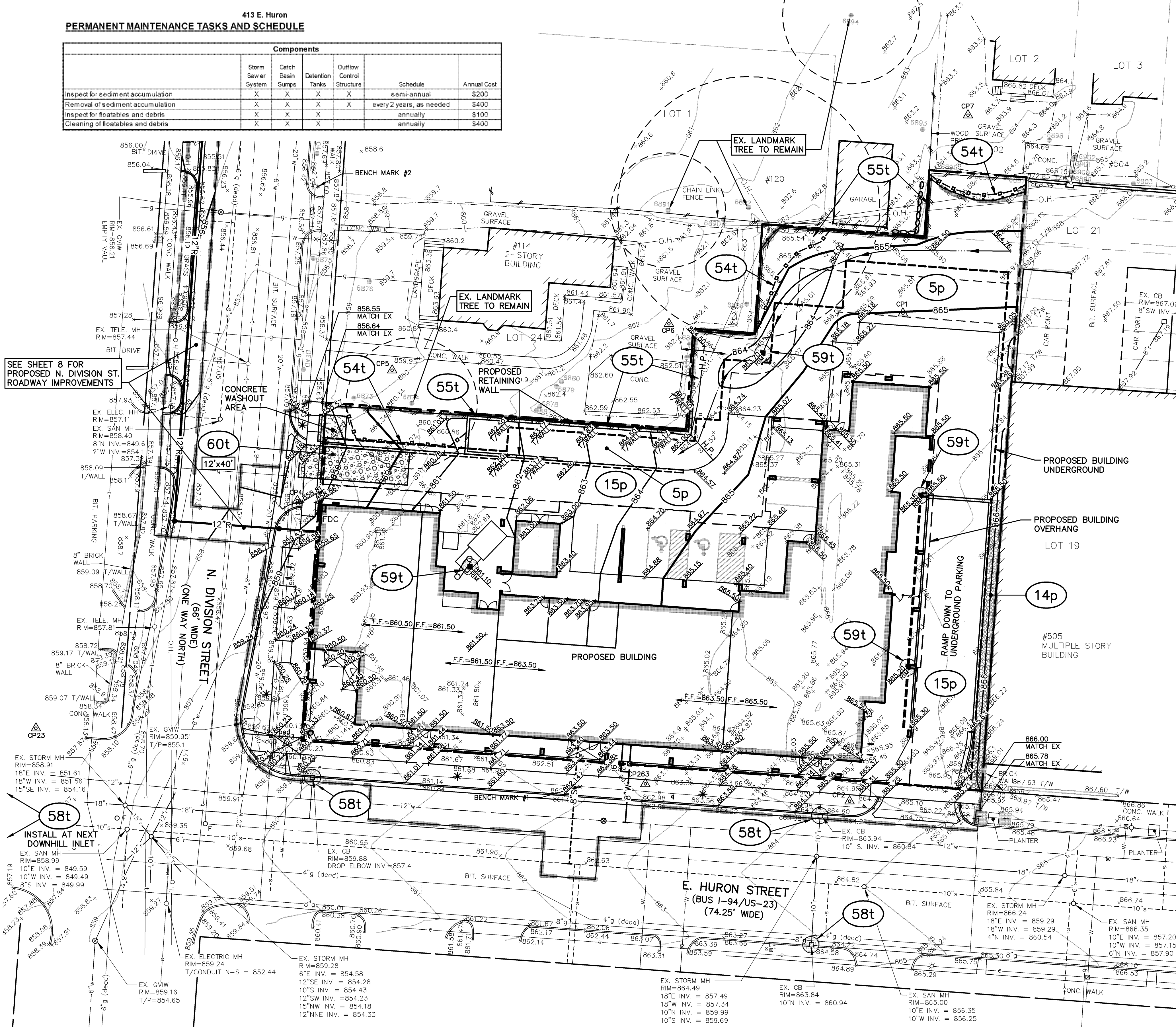
**PERMANENT MAINTENANCE TASKS AND SCHEDULE**

Components	Schedule				Annual Cost
	Storm Sewer System	Catch Basin Sumps	Detention Tanks	Outflow Control Structure	
Inspect for sediment accumulation	X	X	X	X	semi-annual \$200
Removal of sediment accumulation	X	X	X	X	every 2 years, as needed \$400
Inspect for floatables and debris	X	X	X	X	annually \$100
Cleaning of floatables and debris	X	X	X	X	annually \$400

**MAINTENANCE PROGRAM FOR SOIL EROSION CONTROLS**

- The Owner shall be responsible for maintaining the permanent soil erosion control measures.
- Repair lawn areas with seed and mulch or sod as needed.

SEE SHEET 8 FOR PROPOSED N. DIVISION ST. ROADWAY IMPROVEMENTS



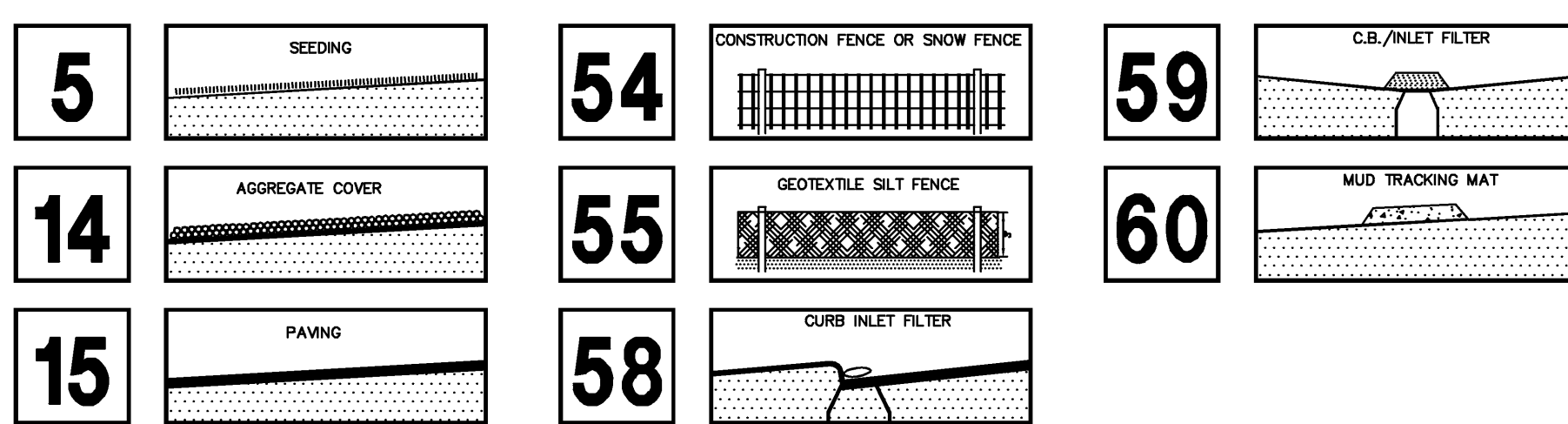
**LEGEND**

- 838 EXIST. CONTOUR
- 838 PROP. CONTOUR
- ×36.60 EXIST. SPOT ELEVATION
- 36.60 PROP. SPOT ELEVATION
- U.P. EXIST. UTILITY POLE
- GUY WIRE
- EX. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- EX. LIGHT POLE
- EX. TELEPHONE LINE
- EX. ELECTRIC LINE
- EX. GAS LINE
- EX. GAS VALVE
- EX. WATER MAIN
- EX. WATER MAIN
- EX. HYDRANT
- PROP. HYDRANT
- EX. GATE VALVE IN BOX
- PROP. GATE VALVE IN BOX
- EX. GATE VALVE IN WELL
- PROP. GATE VALVE IN WELL
- EX. CURB STOP & BOX
- PROP. CURB STOP & BOX
- EX. STORM SEWER
- PROP. STORM SEWER
- EX. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- HEAD WALL
- EX. SANITARY SEWER
- PROP. SANITARY SEWER
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- C/L OF DITCH
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- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- LANDMARK TREE
- SECTION CORNER
- OF FOUND IRON PIPE
- OFIR FOUND IRON ROD
- CONTROL PT.
- GRADING LIMITS
- CATCH BASIN FILTER
- TREE PROTECTION FENCE
- SILT FENCE
- 55t SOIL EROSION CONTROL MEASURE

- NOTES:**
- PROPOSED CURB & GUTTER, PAVEMENT AND SIDEWALK TO MATCH EXISTING PAVEMENT/SIDEWALK GRADE AT REMOVAL LIMITS.
  - SEE SHEET 11 FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL DETAILS.

**SOIL EROSION CONTROL MEASURES**

t = temporary p = permanent



Note: Construction sequence & schedule is preliminary and subject to adjustment in response to forces beyond our control. These may include weather, material availability, labor unrest or other unforeseen circumstances.

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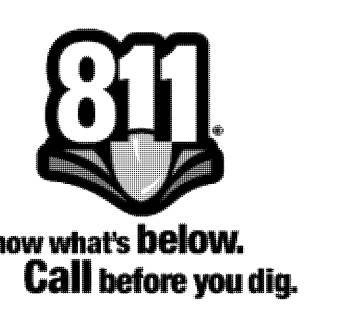
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Civil, Environmental and Transportation Engineers  
Planners, Surveyors  
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3815 Plaza Drive  
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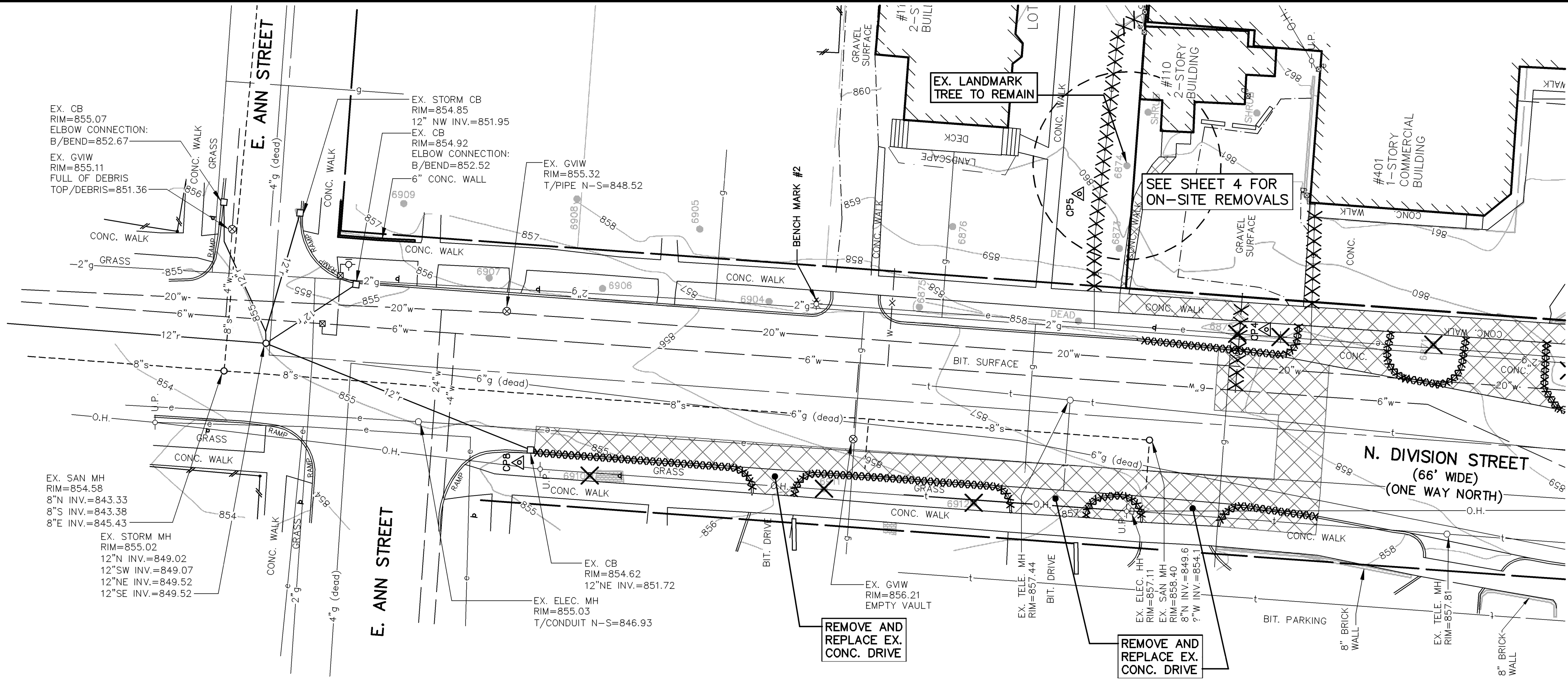
**413 E. HURON**  
SITE PLAN

GRADING AND SOIL EROSION CONTROL PLAN

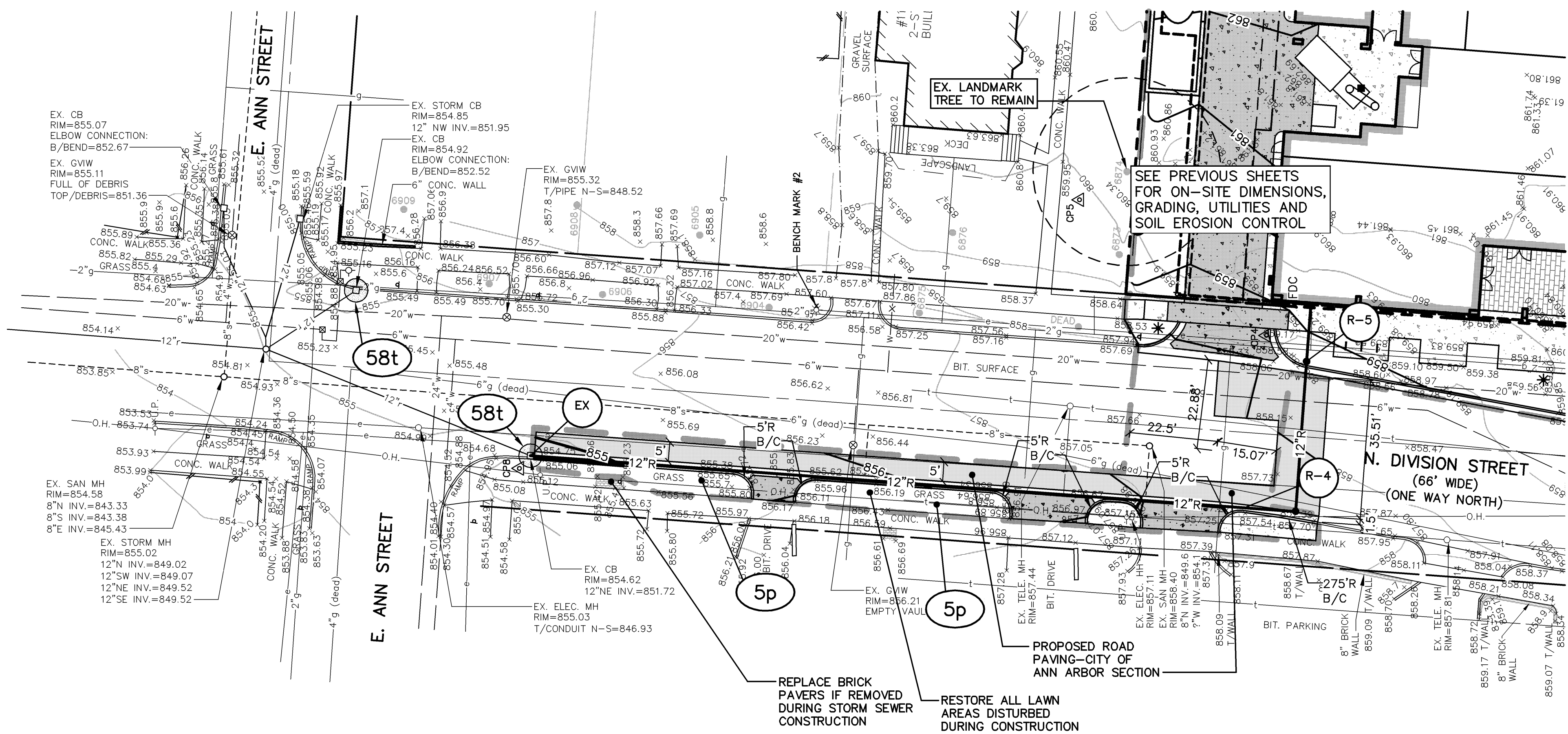
JOB No. 12156  
REVISIONS:  
REV. DATE REV. BY  
1-19-12 CAD: WAJ  
1-24-13 ENG: JAF  
3-21-13 REV: EDO  
SITE: 12156G01  
SHEET 7 OF 30



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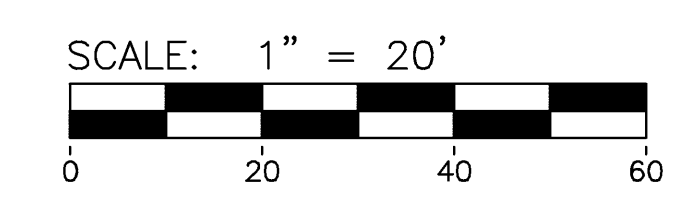
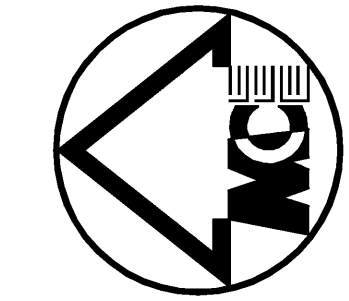
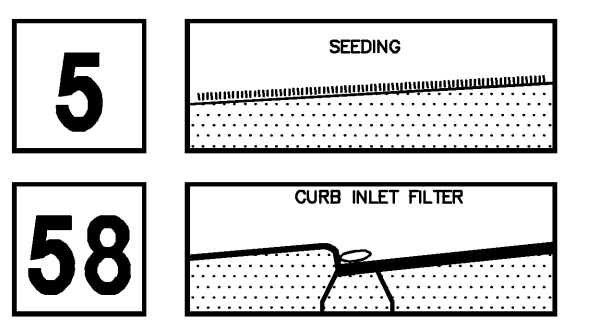
**EXISTING CONDITIONS AND REMOVAL PLAN**



**STORM SEWER EXTENSION PLAN**

- NOTES:**
1. PROPOSED CURB & GUTTER, PAVEMENT AND SIDEWALK TO MATCH EXISTING PAVEMENT/ SIDEWALK GRADE AT REMOVAL LIMITS.
  2. SEE SHEET 5 FOR ROAD AND DRIVE PAVEMENT CROSS SECTIONS.
  3. ALL NOTES PREVIOUSLY SHOWN SHALL APPLY TO THIS SHEET.
  4. SEE SHEET 10 FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL DETAILS.
  5. ALL PAVEMENT MARKINGS REMOVED DURING CONSTRUCTION SHALL BE REPLACED.

**SOIL EROSION CONTROL MEASURES**



**LEGEND**

- 838 EXIST. CONTOUR
- 838 PROP. CONTOUR
- x836.2 EXIST. SPOT ELEVATION
- 36.60 PROP. SPOT ELEVATION
- U.P. EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- t EXIST. TELEPHONE LINE
- e EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- w EXIST. GAS VALVE
- 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
- EXIST. CURB STOP & BOX
- PROP. CURB STOP & BOX
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- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- HEAD WALL
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- T/C TOP OF CURB
- T/P TOP OF PAVEMENT
- C/L OF DITCH
- SIDEWALK RAMP
- ENCLOSED TRASH AREA
- SIGN
- MAILBOX
- TELEPHONE RISER
- CABLE TELEVISION RISER
- ELECTRIC METER
- WATER METER
- GAS METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- LANDMARK TREE
- SECTION CORNER
- FOUND IRON PIPE
- FOUND IRON ROD
- CONTROL PT.
- REMOVALS
- PAVEMENT REMOVAL
- GRADING LIMITS
- CATCH BASIN FILTER
- BITUMINOUS PAVING
- 4" THICK CONCRETE SIDEWALK
- 6" THICK HEAVY DUTY CONCRETE PAVEMENT

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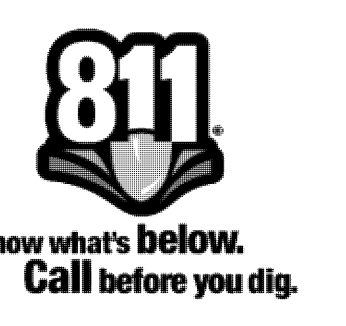
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**413 E. HURON**  
 SITE PLAN  
 N. DIVISION STORM SEWER EXTENSION PLAN

**8**

JOB No.	12156
DATE	11-26-12
SHEET	8 OF 30
REV. DATE	REV. DATE
12-19-12	ADD: WAJ
1-24-13	ENC: JAF
3-21-13	ENC: EFO
REV. PER CITY	REV. PER CITY
REV. PER COUNCIL	REV. PER COUNCIL
REV. PER STATE	REV. PER STATE
SHEET	12156R01
FILE	FF





**STORMWATER DETENTION CALCULATIONS**

**A. Area Analysis Comparison:**

	A (acres)	C	AC
Proposed Pavement	0.181	0.95	0.172
Proposed Building	0.538	0.95	0.511
Lawn	0.173	0.25	0.043
<b>TOTAL</b>	<b>0.892</b>		<b>0.726</b>

**B. Runoff Coefficient (C):**

$$C_{AVG} = 0.726 / 0.892 = 0.814$$

**D. Detention Volumes:**

$$\text{First Flush: } Vol_{FF} = 1,815 \times 0.892 \times 0.814 = 1,318 \text{ CF}$$

$$\text{Bank Full: } Vol_{BF} = 8,170 \times 0.892 \times 0.814 = 5,932 \text{ CF}$$

**100-Year: WCWRC Method of Calculating Detention Volume**

$$Q_A = 0.15 \text{ cfs per acre}$$

$$Q_C = 0.15 \times 0.892 = 0.134 \text{ CFS}$$

$$Q_C = Q_A / AC$$

$$Q_C = 0.134 / (0.892 \times 0.814) = 0.185$$

$$T = -25 + (10312.5 / Q_C)^{0.5} = 211.8 \text{ mins.}$$

$$V_S = 16500T / (T + 25) - 40 Q_C T = 13,200 \text{ CF/AC}$$

$$V_I = V_S \times A \times C = 9,584 \text{ CF}$$

$$5\% \text{ volume in sediment forebay} = 479 \text{ CF}$$

$$\text{Total Volume} = 10,063 \text{ CF}$$

**E. Detention Volumes Provided:**

The detention storage tank will be constructed below the ramp that leads from the first underground parking level (B1) to the second underground parking level (B2). The tank will be trapezoidal in shape with internal dimensions of 40 feet wide, 6.5 feet tall at the high end, 5.5 feet tall at the low end and a length of 40.6 feet.

**Volume provided in the storage tank:**

Elevation	Area (SF)	Volume (CF)	Total (CF)
839.5	0	0	0
840.5	1,540	1,540	1,540
841.5	1,540	1,540	3,080
842.5	1,540	1,540	4,620
843.5	1,540	1,540	6,160
843.75	1,540	385	6,545
844.5	1,569	1,569	8,114
845.0	1,569	785	8,899
846.0	Variable	1,236	10,135

**F. Storage Elevations:**

$$\text{First Flush: } H_W = \frac{1,318 - 0}{1,540} + 839.5 = 840.36$$

$$\text{Bank Full: } H_W = \frac{5,932 - 4,620}{1,540} + 842.5 = 843.35$$

$$\text{100-Year: } H_W = \frac{10,063 - 8,899}{1,236} + 845.0 = 845.94$$

**G. Outlet Structure**

The outlet holes for the first flush, bankfull and 100 year storm events will be placed through a wall at the east end of the storage tank. The holes will discharge to a chamber with a sump. A pump will discharge from the sump to the public storm sewer within North Division Street. The pumping rate will not exceed the maximum allowable discharge rate of 0.15 cfs/acre or 0.134 cfs or 60 gpm.

$$\text{First Flush: } Q_{AVG} = \frac{1,318}{24 \times 3,600} = 0.0153 \text{ CFS}$$

$$H_{AVG} = \frac{2/3(840.36 - 839.53)}{0.0153} = 0.55 \text{ FT}$$

$$A = \frac{0.0153}{0.62(2 \times 32.2 \times 0.55)^{0.5}} = 0.0041 \text{ SF}$$

$$A \text{ 3/4-inch diameter hole has an area of } 0.0031 \text{ SF}$$

Use one (1) 3/4-inch diameter holes with centerline elevation of 839.53.

$$Q_{FF} = 0.62 \times 1 \times 0.0031 \times (2 \times 32.2 \times 0.55)^{0.5} = 0.0114 \text{ CFS}$$

$$T_{FF} = \frac{1,318}{0.0114 \times 3,600} = 32.1 \text{ HRS}$$

$$\text{Bankfull: } H_{AVG} = \frac{2/3(843.35 - 839.53)}{0.0246} = 2.56 \text{ FT}$$

$$Q = 0.62 \times 1 \times 0.0031 \times (2 \times 32.2 \times 2.56)^{0.5} = 0.0246 \text{ CFS}$$

$$T = \frac{5,932}{0.0246 \times 3,600} = 67.0 \text{ HRS}$$

Time exceeds 48 hours; therefore, additional holes are needed.

Target time for detention assumed to be 48 hours.

$$V_{REM} = V_{BF} - V_{FF} = 5,932 - 1,318 = 4,614 \text{ CF}$$

$$T_{REM} = \frac{4,614}{48 - 32.1} = 15.9 \text{ HRS}$$

$$\text{Volume through one (1) 3/4-inch diameter hole is:}$$

$$H_{AVG} = \frac{2/3(ELEV_{BF} - ELEV_{FF}) + (ELEV_{FF} - ELEV_{B1})}{0.0246} = 2.82 \text{ FT}$$

$$Q_1 = 0.62 \times 1 \times 0.0031 \times (2 \times 32.2 \times 2.82)^{0.5} = 0.0259 \text{ CFS}$$

$$V_1 = 0.0259 \times 15.9 \times 3,600 = 1,483 \text{ CF}$$

$$V_2 = V_{REM} - V_1 = 4,614 - 1,483 = 3,131 \text{ CF}$$

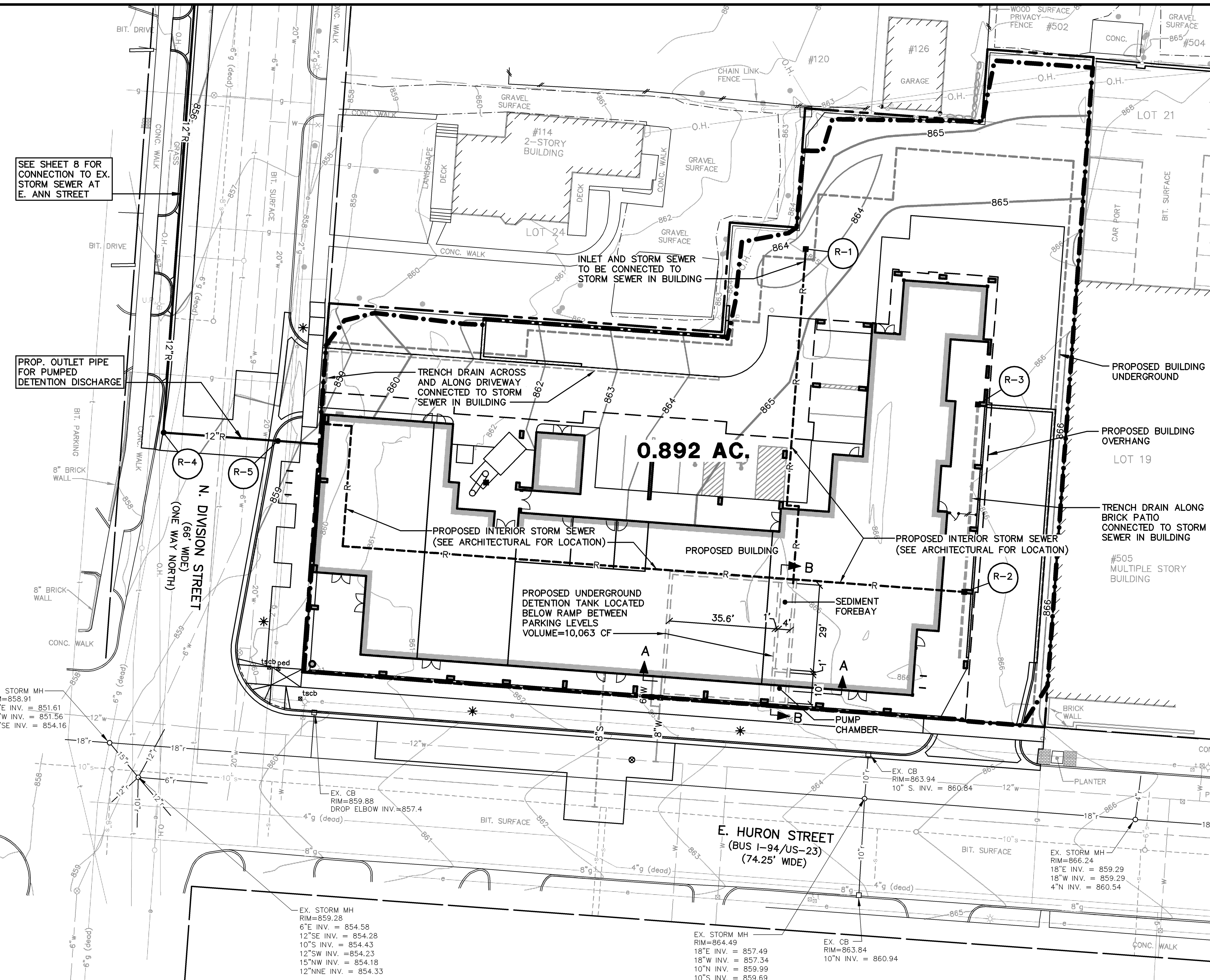
$$Q_2 = \frac{V_2}{T_{REM}} = \frac{3,131}{15.9} = 0.0547 \text{ CFS}$$

$$H_{AVG} = \frac{2/3(ELEV_{BF} - ELEV_{FF}) + (ELEV_{FF} - ELEV_{B1})}{0.0547} = 1.99 \text{ FT}$$

$$A = \frac{0.0547}{0.62(2 \times 32.2 \times 1.99)^{0.5}} = 0.0078 \text{ SF}$$

A 3/4-inch diameter hole has an area of 0.0031 SF.

Use two (2) 3/4-inch diameter holes at an elevation of 840.36.



SEE SHEET 8 FOR CONNECTION TO EX. STORM SEWER AT E. ANN STREET

PROP. OUTLET PIPE FOR PUMPED DETENTION DISCHARGE

EX. STORM MH RIM=856.91  
18"E INV. = 851.61  
18"W INV. = 851.56  
15"SE INV. = 854.16

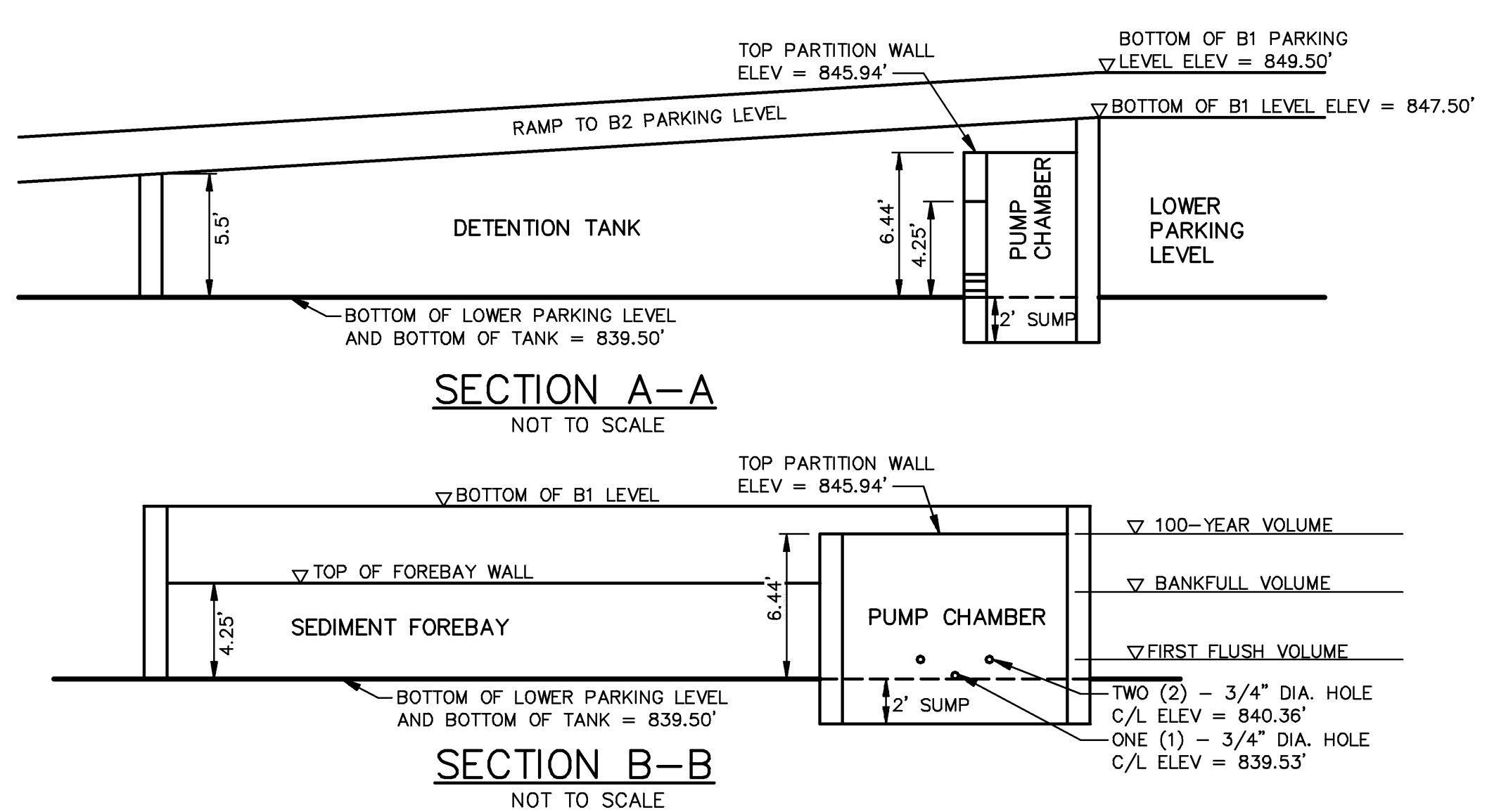
EX. CB RIM=859.88  
DROP ELBOW INV.=857.4

EX. STORM MH RIM=859.28  
6"E INV. = 854.58  
12"SE INV. = 854.28  
10"S INV. = 854.43  
12"SW INV. = 854.23  
15"NW INV. = 854.18  
12"NE INV. = 854.33

EX. STORM MH RIM=864.49  
18"E INV. = 857.49  
18"W INV. = 857.34  
10"NW INV. = 859.99  
10"S INV. = 859.69

EX. CB RIM=863.94  
10" S. INV. = 860.84

EX. CB RIM=863.84  
10"N INV. = 860.94



(3) 100-Year: Allowable Discharge (Not including infiltration)

$$Q_1 = 0.15 \text{ CFS} \times 0.892 \text{ ac} = 0.134 \text{ CFS}$$

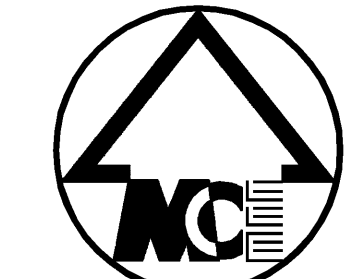
$$Q_{FF} + Q_{BF} = 0.62 \times 1 \times 0.0031 \times ((2 \times 32.2 \times (845.94 - 839.53))^{0.5} + 0.62 \times 2 \times 0.0031 \times ((2 \times 32.2 \times (845.94 - 840.36))^{0.5}) = 0.112 \text{ CFS}$$

$$Q_{100} = 0.134 - 0.112 = 0.022 \text{ CFS}$$

$$H = \frac{ELEV_{100} - ELEV_{BF}}{0.022} = \frac{845.94 - 840.36}{0.022} = 2.59 \text{ FT}$$

$$A = \frac{0.022}{0.62(2 \times 32.2 \times 2.59)^{0.5}} = 0.0027 \text{ SF}$$

The required hole area of 0.0027 square feet is less than the minimum hole size allowed per the current Washtenaw County Water Resources Commission requirements. No additional holes will be added at the Bankfull elevation of 843.35 with the 100-Year detention volume allowed to overflow.



SCALE: 1" = 20'  
0 20 40 60

**LEGEND**

- 838 EXIST. CONTOUR
- 838 PROP. CONTOUR
- x836.2 EXIST. SPOT ELEVATION
- 36.60 PROP. SPOT ELEVATION
- O.U.P. EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. GAS VALVE
- 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. CURB STOP & BOX
- PROP. CURB STOP & BOX
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- HEAD WALL
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- C/L OF DITCH
- SIDEWALK RAMP
- ENCLOSED TRASH AREA
- SIGN
- MAILBOX
- TELEPHONE RISER
- CABLE TELEVISION RISER
- ELECTRIC METER
- WATER METER
- GAS METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- LANDMARK TREE
- SECTION CORNER
- FOUND IRON PIPE
- FOUND IRON ROD
- CONTROL PT.
- DRAINAGE AREA BOUNDARY

**NOTES:**

1. Description of the storm water management system:  
100-year storm water detention is provided underground, under the ramp from the B1 underground parking level to the B2 underground parking level. Per the City of Ann Arbor, the detention system is to outlet to the west to N. Division Street. New public storm sewer (minimum 12" diameter) is to be constructed from the site to the north to the existing storm structure at E. Ann Street. The service drive and ground level parking is also above underground parking. This area drains into the building to the detention system. The landscape area along the north side of the site is also mostly on top of underground parking and drains into the storm sewer system inside the building.  
Runoff will drain or be pumped to a detention chamber under the ramp between the two levels of underground parking. The chamber includes a sediment forebay, discharge pump, redundancy, and power failure contingency via generator backup.
2. The long term maintenance plan and estimated costs are shown on sheet 7.
3. The site within the drainage area boundary drains internally into either the interior storm sewer or the roof drain system with both draining into the interior detention system.
4. All storm water collected by the drainage system will be piped through the building to the sediment forebay within the underground storage tank.



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**MIDWESTERN CONSULTING**  
Civil, Environmental and Transportation Engineers  
Planners, Surveyors  
Landscape Architects  
3815 Plaza Drive  
Ann Arbor, Michigan 48108  
Phone: 734.995.0200  
Fax: 734.995.0599

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**MIDWESTERN CONSULTING, LLC**  
CLIENT: ANN ARBOR GREEN PROPERTY OWNER, LLC  
171 17TH STREET, SUITE 1200  
ATLANTA, GA 30363  
ATTN: CONOR McNALLY  
PHONE: (404) 788-2902

---

**413 E. HURON**  
SITE PLAN  
DRAINAGE AREA PLAN

---

**9**

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JOB No. 12156  
SHEET 9 OF 30  
REV. DATE 11-26-12  
REV. PER CITY 12-19-12  
ENG. JAF  
TECH. EJO  
SITE 12156.DAT  
PFB

**LANDSCAPE NOTES**

- Water outlets will be provided within 150 feet of all required plantings.
- Plant materials shall be selected and installed in accordance with standards established by the City Parks and Recreation Department.
- 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 as a continuing obligation for the duration of the site plan.
- Restored disturbed areas with a minimum of three (3) inches of topsoil and then seed/fertilizer/mulch. Fertilizer for the initial installation of lawns shall provide not less than one (1) pound of actual nitrogen per 1000 sq ft of lawn area and shall contain not less than two percent (2%) potassium and four percent (4%) phosphoric acid. After the first growing season, only fertilizers that contain no phosphorus shall be used on the site.

- Lawn seed mix shall consist as follows:
- 15% Rugby Kentucky Bluegrass
  - 10% Park Kentucky Bluegrass
  - 40% Ruby Creeping Red Fescue
  - 15% Perennial Ryegrass
  - 20% Zoysia Hard Fescue

- Seed shall be applied at a rate of five pounds (5 lbs) per 1000 sq ft. 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.

- 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 and September 15.
- All plants except ground cover are to receive four (4) inches of shredded bark mulch. Ground cover to receive two (2) inches of Canadian peat mulch. All mulch beds to have landscape fabric between mulch and planting soil.
- All trees to be located a minimum of 10 feet from public utilities.
- 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. All evergreen trees shall be branched fully to the ground, symmetrical in shape and have not been sheared in the last three (3) growing seasons.
- Shade trees are to be a minimum of 15 feet on center. Evergreen trees are to be a minimum of 12 feet on center. Shade trees in the conflicting land use buffer are to be 15 feet on center.
- All compacted subgrade soils in proposed landscape areas shall be tilled to a minimum 12 inch depth prior to placement of topsoil, geotextile fabric, or other planting media as specified.

- 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:
  - Ratio of Loose Compost to Topsoil by Volume: 1:4.
  - Ratio of Lime Compost to Topsoil by Volume: 1:4.
  - Ratio of Loose Compost to Topsoil by Volume: 1:4.
  - Ratio of Loose Compost to Topsoil by Volume: 1:4.

- Weight of Lime per 1000 Sq. Ft.: Amend with lime only on recommendation of soil test to adjust soil pH.
- Weight of Sulfur or Aluminum Sulfate per 1000 Sq. Ft.: Amend with sulfur or aluminum sulfate only on recommendation of soil test to adjust soil pH.
- Volume of Sand: Amend with sand only on recommendation of Landscape Architect to adjust soil texture.
- Weight of Slow-Release Fertilizer per 1000 Sq. Ft.: Amend with fertilizer only on recommendation of soil test to adjust soil fertility.

- Structural soil ('CU-Soil or equal) is to be provided between the building foundation and the back of curb at N. Division Street and E. Huron Street per the detail on this sheet.

**NOTES:**

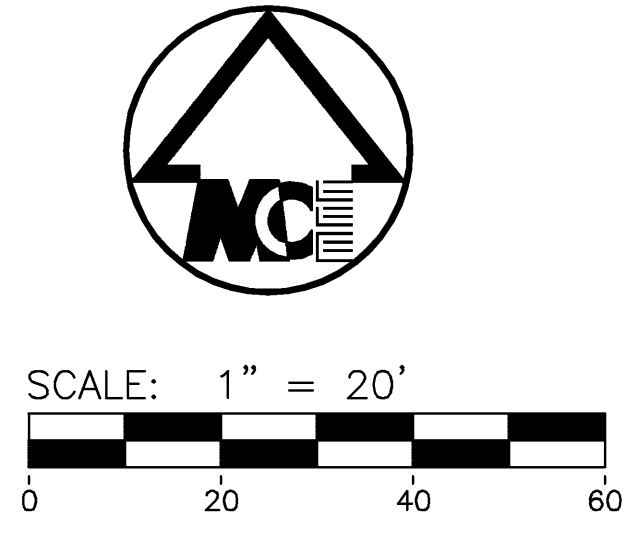
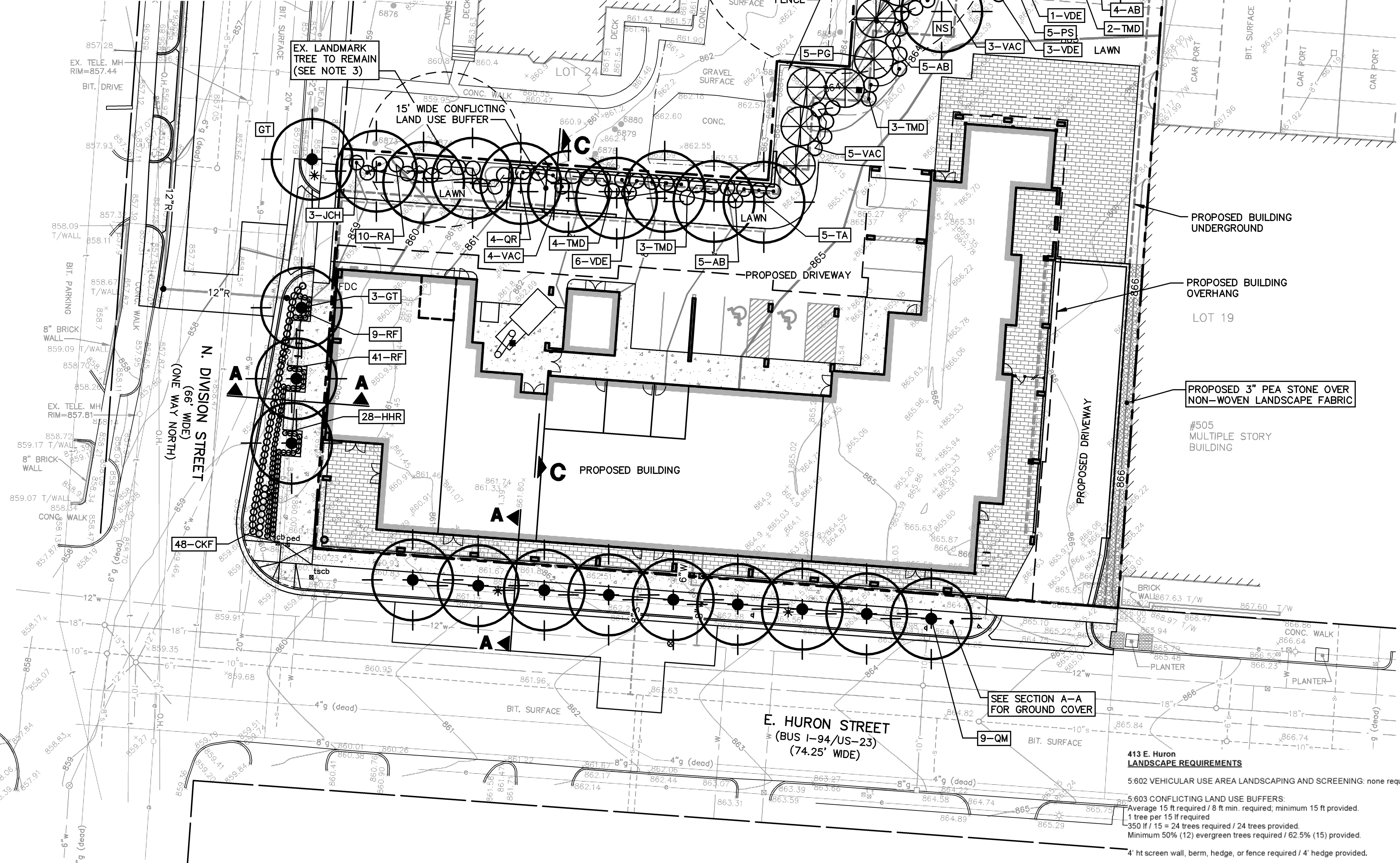
- SEE SHEET 12 FOR LANDSCAPE PLANTING DETAILS
- SEE SHEET A-602 FOR CROSS SECTION C-C.
- LANDMARK TREE MAINTENANCE PROGRAM:
  - WITH THE PERMISSION OF THE OWNERS OF 114 AND 120 N. DIVISION, THE OWNER WILL HIRE A CERTIFIED ARBORIST TO CARE FOR THE TREES FOR FIVE YEARS.
  - THE ARBORIST WILL LIMB OUT THESE TREES TO BALANCE CALCULATED ROOT LOSS.
  - THE ARBORIST WILL PERFORM DEEP ROOT FEEDING TWICE A YEAR (SPRING AND FALL) AND WATERING AS NECESSARY FOR FIVE YEARS.
- ANY GRADING ON THE TREE SIDE OF THE TREE PROTECTION FENCE LIMITS (SHOWN ON SHEET 7) SHALL BE PERFORMED BY HAND TOOLS ONLY WITHIN THE CRITICAL ROOT ZONE OF THE LANDMARK TREES (#6874 AND #6892).

Quantity	Symbol	Botanical Name	Common Name	Size	Root	Remarks
2"	NS	Nyssa Sylvatica	Blackgum	3" cal	BB	
4	GT	Gleditsia t. 'Skycole'	Skyline honeylocust	3" cal	BB	6' branch ht.
10	PG	Picea glauca	White spruce	7" ht.	BB	
5	PS	Pinus strobus	White pine	7" ht.	BB	
9	QM	Quercus x.wareu 'Long'	Regal Prince columnar oak	3" cal	BB	6' branch ht.
4	QR	Quercus rubra	Red oak	2" cal	BB	6' branch ht.
5	TA	Tilia Americana	American Basswood	2" cal	BB	6' branch ht.

14	AB	Aronia a. 'Brilliantissima'	Brilliant red chokeberry	3' ht	BB/Cont	4' o.c.
3	JCH	Juniperus c. 'Sea Green'	Sea Green Juniper	30" ht	BB/Cont	4' o.c.
10	RA	Rhus aromatica	Fragrant sumac	30" ht	BB/Cont	4' o.c.
12	VAC	Viburnum acerifolium	Mapleleaf Viburnum	30" ht	BB/Cont	4' o.c.
10	VDE	Viburnum dentatum	Arrowwood Viburnum	30" ht	BB/Cont	4' o.c.
13	TMD	Taxus x. media 'Tautoni'	Tautoni Yew	30" ht	BB/Cont	4' o.c.

48	CKF	Calamagrostis 'Karl Foerster'	Karl Foerster feather reed grass	#2	cont.	
28	HHR	Hemerocallis 'Happy Returns'	Happy Returns daylily	#2	cont.	
50	RF	Rudbeckia fulgida 'Early Bird Gold'	Early Bird Gold blackeyed susan	#2	cont.	

\*These two trees provided 50% of the required landmark tree mitigation

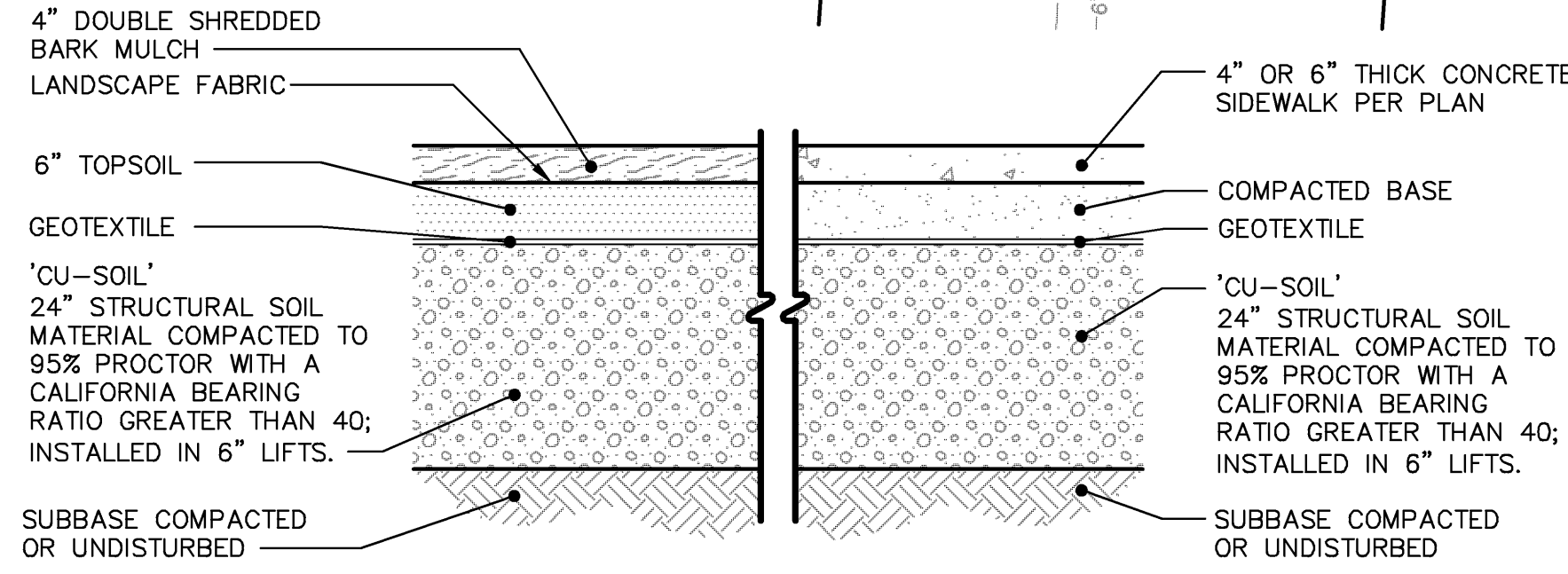


**LEGEND**

- 838 EXIST. CONTOUR
- 838 PROP. CONTOUR
- UP EXIST. UTILITY POLE
- GY WIRE
- OH ELEC. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- t EXIST. LIGHT POLE
- e EXIST. TELEPHONE LINE
- w EXIST. ELECTRIC LINE
- g EXIST. GAS LINE
- w EXIST. WATER MAIN
- W PROP. WATER MAIN
- OH EXIST. HYDRANT
- OH PROP. HYDRANT
- OH EXIST. GATE VALVE IN BOX
- OH PROP. GATE VALVE IN BOX
- OH EXIST. GATE VALVE IN WELL
- OH PROP. GATE VALVE IN WELL
- OH EXIST. CURB STOP & BOX
- OH PROP. CURB STOP & BOX
- OH EXIST. STORM SEWER
- OH PROP. STORM SEWER
- OH EXIST. CATCH BASIN OR INLET
- OH PROP. CATCH BASIN OR INLET
- OH END SECTION
- OH HEAD WALL
- OH EXIST. SANITARY SEWER
- OH PROP. SANITARY SEWER
- OH ENCLOSED TRASH AREA
- OH SIGN
- OH MAILBOX
- OH TELEPHONE RISER
- OH CABLE TELEVISION RISER
- OH ELECTRIC METER
- OH WATER METER
- OH GAS METER
- OH POST
- OH SINGLE TREE
- OH FENCE
- OH TREE OR BRUSH LIMIT
- OH LANDMARK TREE
- OH SECTION CORNER
- OH FOUND IRON PIPE
- OH FOUND IRON ROD
- OH CONTROL PT.

**LANDSCAPE LEGEND**

- ⊕ PROPOSED CANOPY TREE
- ⊕ PROPOSED FLOWERING TREE
- ⊕ PROPOSED EVERGREEN TREE
- ⊕ PROPOSED DECIDUOUS SHRUBS
- ⊕ PROPOSED EVERGREEN SHRUBS
- ⊕ STREET TREE CANOPY LOSS (MITIGATION PLANTING)
- ⊕ PROPOSED GRAVEL
- ⊕ PROPOSED BRICK PAVERS (SEE ARCHITECTURAL PLANS)



**STRUCTURAL SOIL MIX BY WEIGHT:**

- CRUSHED STONE: 100
- CLAY LOAM: 40
- HYDROGEL: 0.03

**CRUSHED STONE: GRANITE OR LIMESTONE**

- NARROWLY GRADED 3/4" TO 1 1/2"
- ANGULAR WITH NO FINES

**CLAY LOAM: PER USDA CLASSIFICATION SYSTEM**

- GRAVEL: LESS THAN 5%
- SAND: 25-30%
- SILT: 20-40%
- CLAY: 25-40%

**HYDROGEL: POTASSIUM PROPENOATE-PROPENAMIDE COPOLYMER**

**413 E. Huron LANDSCAPE REQUIREMENTS**

5.602 VEHICULAR USE AREA LANDSCAPING AND SCREENING: none required.

5.603 CONFLICTING LAND USE BUFFERS:

- Average 15 ft required / 8 ft min. required; minimum 15 ft provided.
- 1 tree per 15 ft required
- 350 lf / 15 = 24 trees required / 24 trees provided.
- Minimum 50% (12) evergreen trees required / 62.5% (15) provided.
- 4' ht screen wall, berm, hedge, or fence required / 4' hedge provided.

**STREET TREE CANOPY LOSS (MITIGATION PLANTING)**

N. Division Street

- #870 2-inch Bradford pear is to be removed
- #871 8-inch Norway maple (invasive) is to be removed
- #872 4-inch honeylocust is to be removed
- #891 8-inch honeylocust is to be removed
- #891 17-inch Norway maple (invasive) is to be removed
- #891 16-inch Norway maple (invasive) is to be removed

E. Huron Street

- #868 2-inch ginkgo is to be removed
- Subtotal: 55 cal. inches removed

Mitigation required = 55 cal. inches

Mitigation plantings provided = 13 @ 3-inch caliper = 39 cal. inches

Additional payment = 16 caliper inches x \$186 = \$2,976

**LANDMARK TREE REPLACEMENT:**

Mitigation is provided for tree #8874, a 24" caliper black walnut.

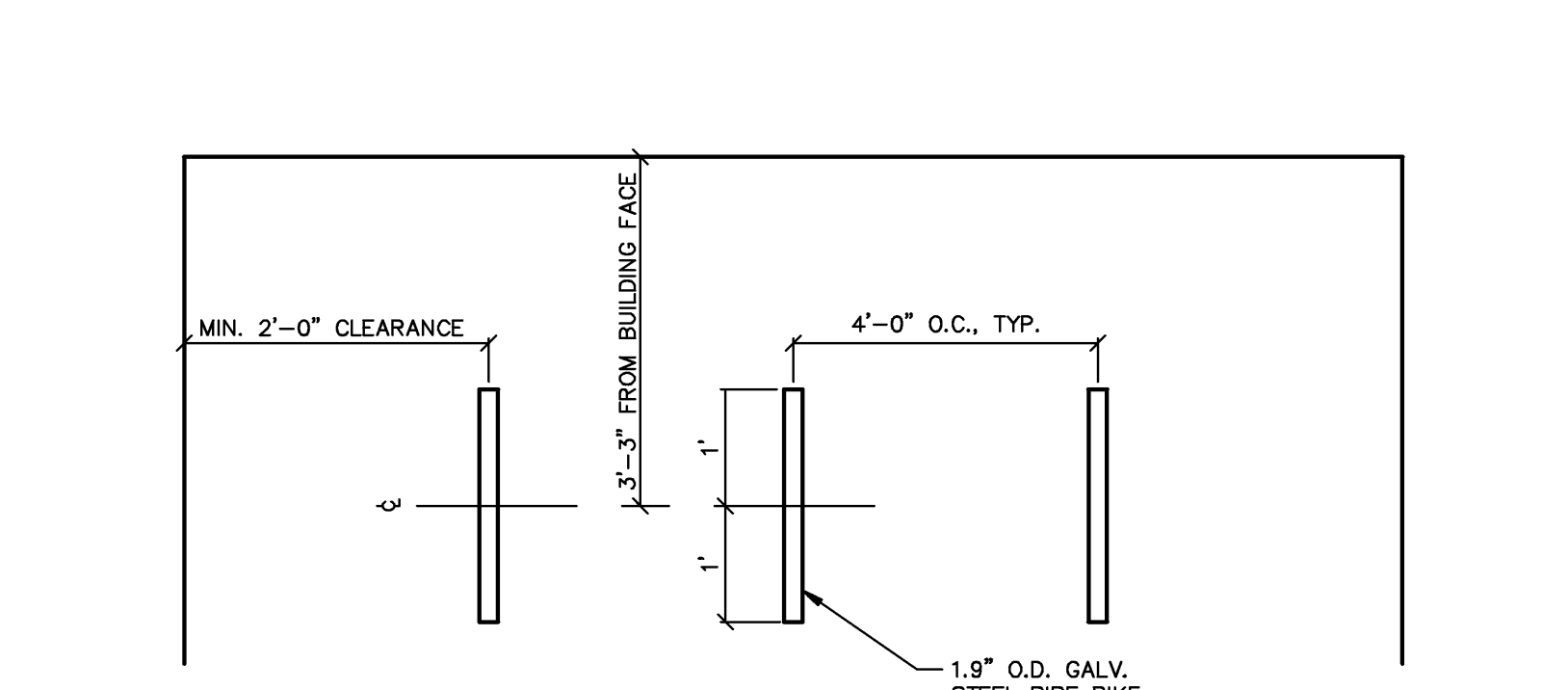
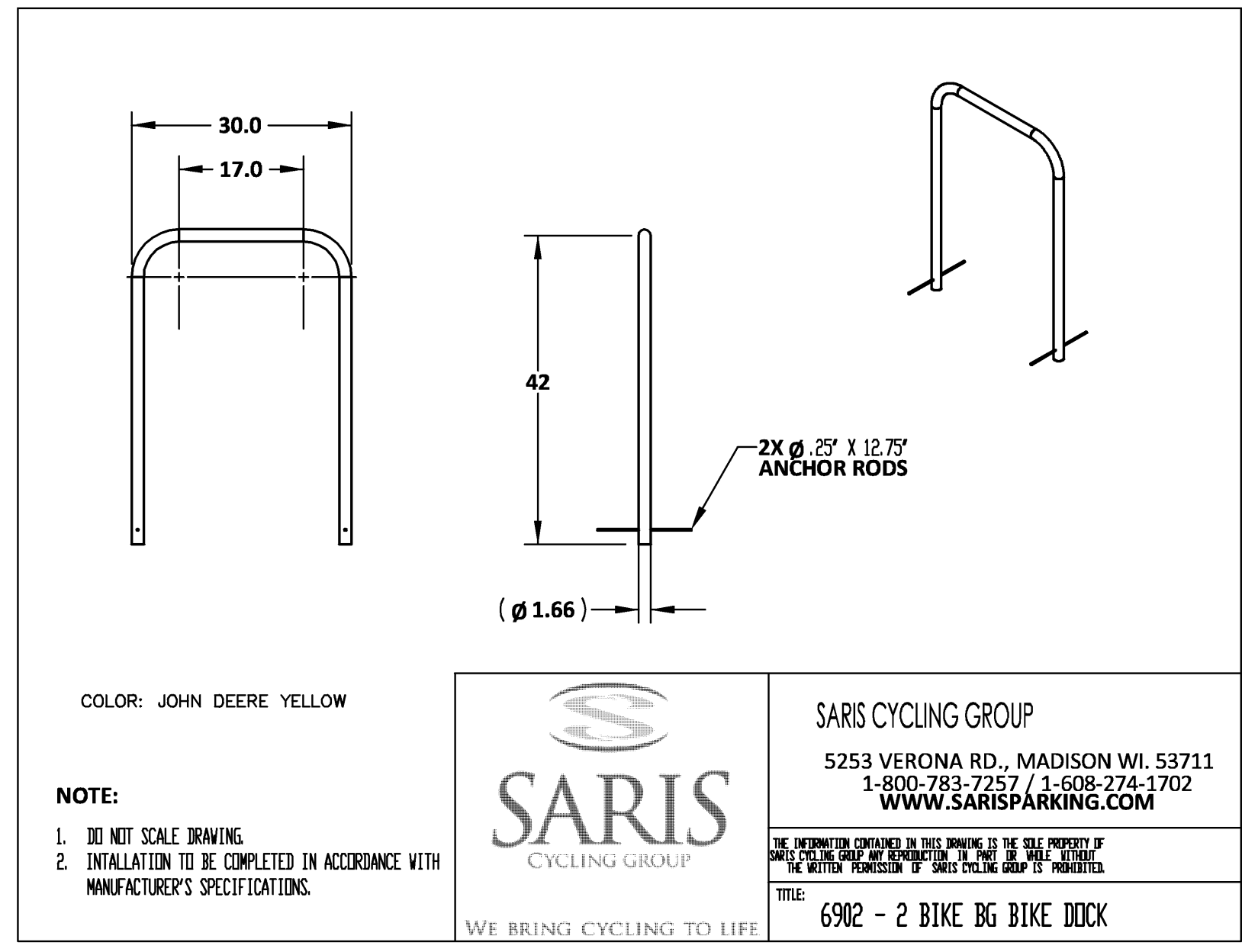
- 24" x 50% = 12 caliper inches required
- 2" NS, blackgum @ 3" caliper = 6 caliper inches provided on site.
- Parks contribution of 6 x \$186 per caliper inch provided for plantings in nearby parks.

**STREET TREE ESCROW**

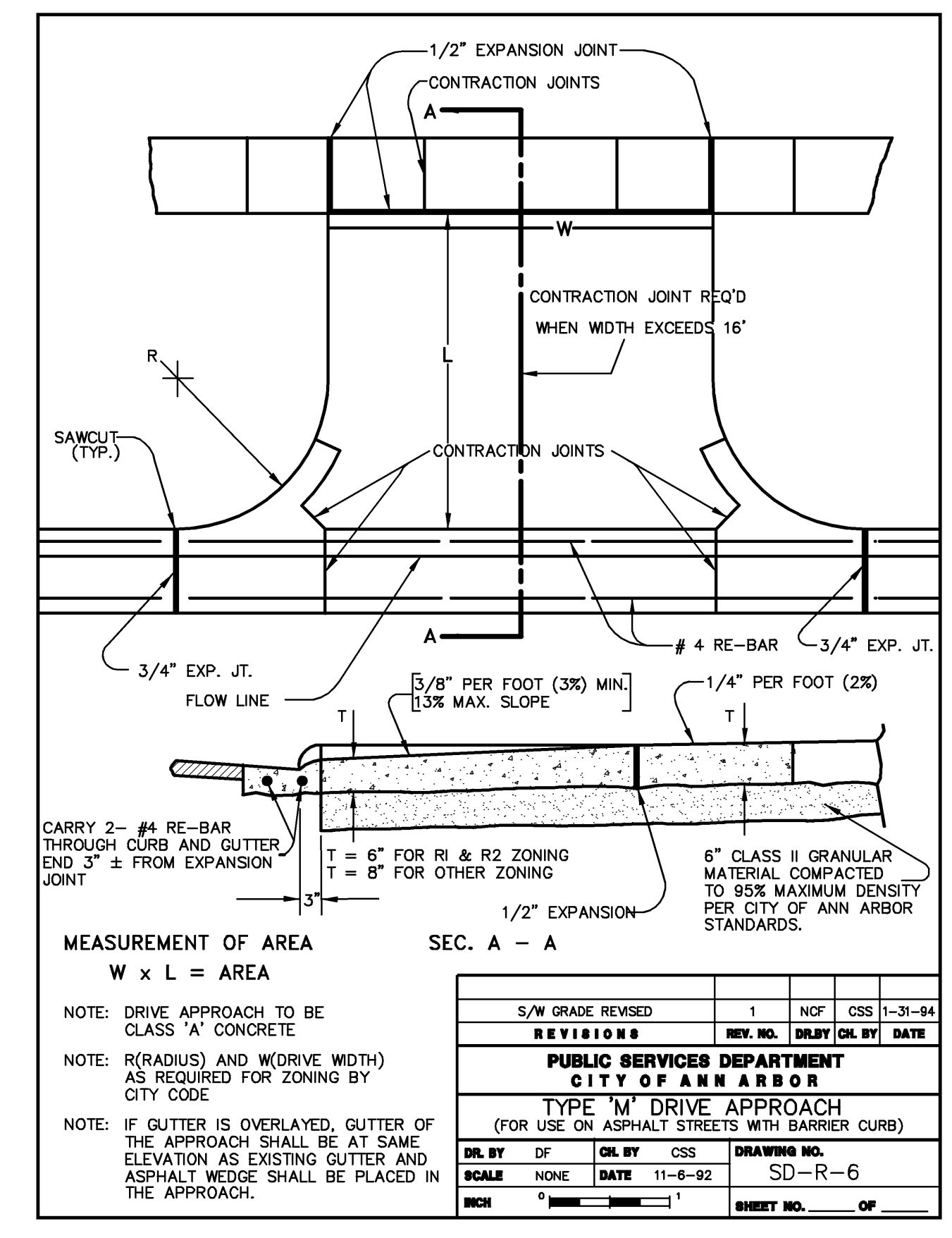
- N. Division Street frontage = 124 lf
- E. Huron Street frontage = 249.5 lf
- 373.5 lf x \$1.30 = \$485.55 or equivalent
- 4 trees @ 3-inch caliper x \$186 = \$744 provided.
- Street tree escrow of \$485.55 will be provided prior to issuing building permits and will be refunded after city staff inspection shows long term survival of the proposed street trees.



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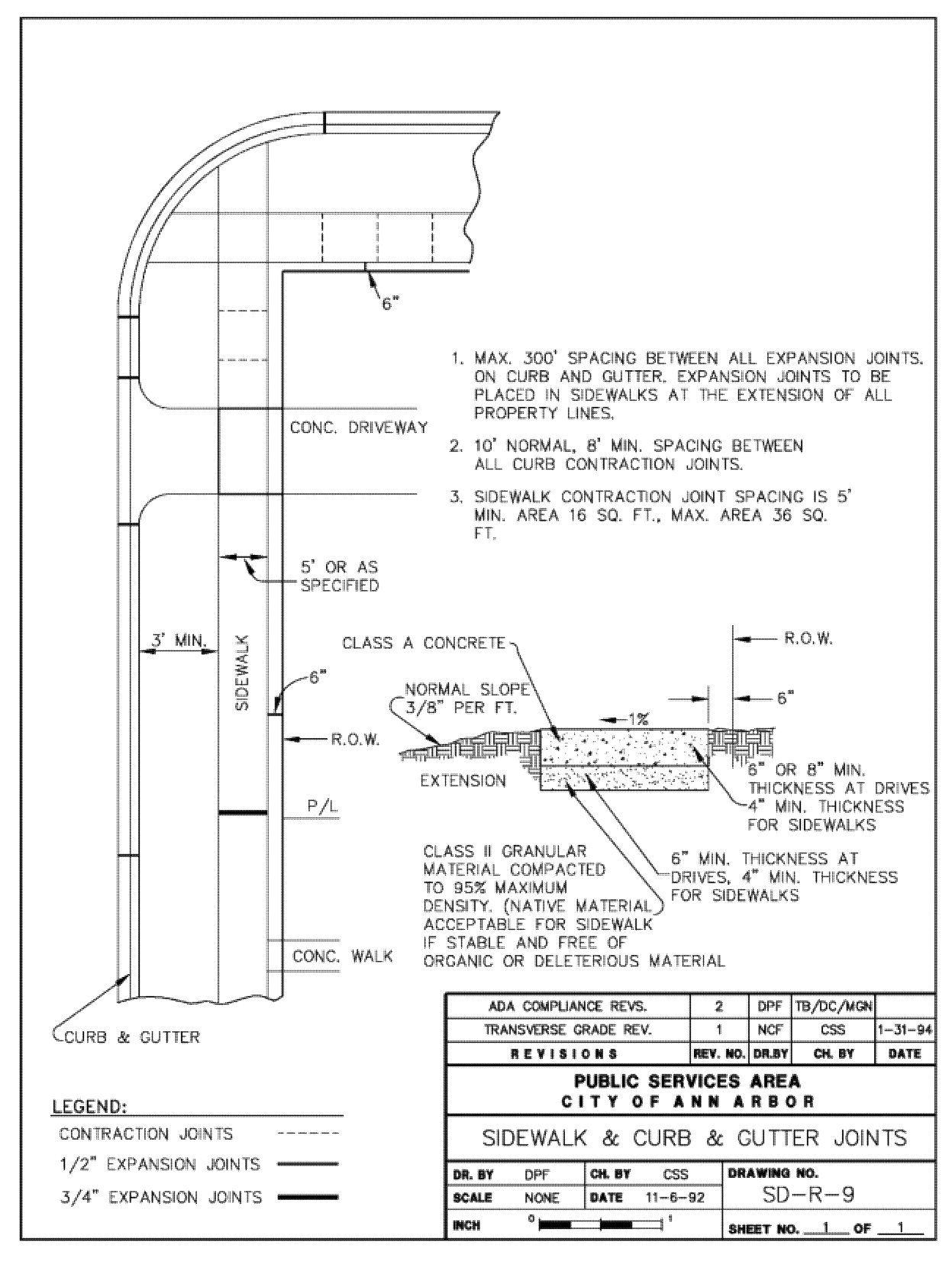
**LOOP BIKE RACK (PLAN)**  
NO SCALE



REV. NO.	DATE	BY	CHK BY	DATE
1	11-31-04	NCF	CSS	11-31-04

**PUBLIC SERVICES DEPARTMENT**  
**CITY OF ANN ARBOR**  
**TYPE 'M' DRIVE APPROACH**  
(FOR USE ON ASPHALT STREETS WITH BARRIER CURB)

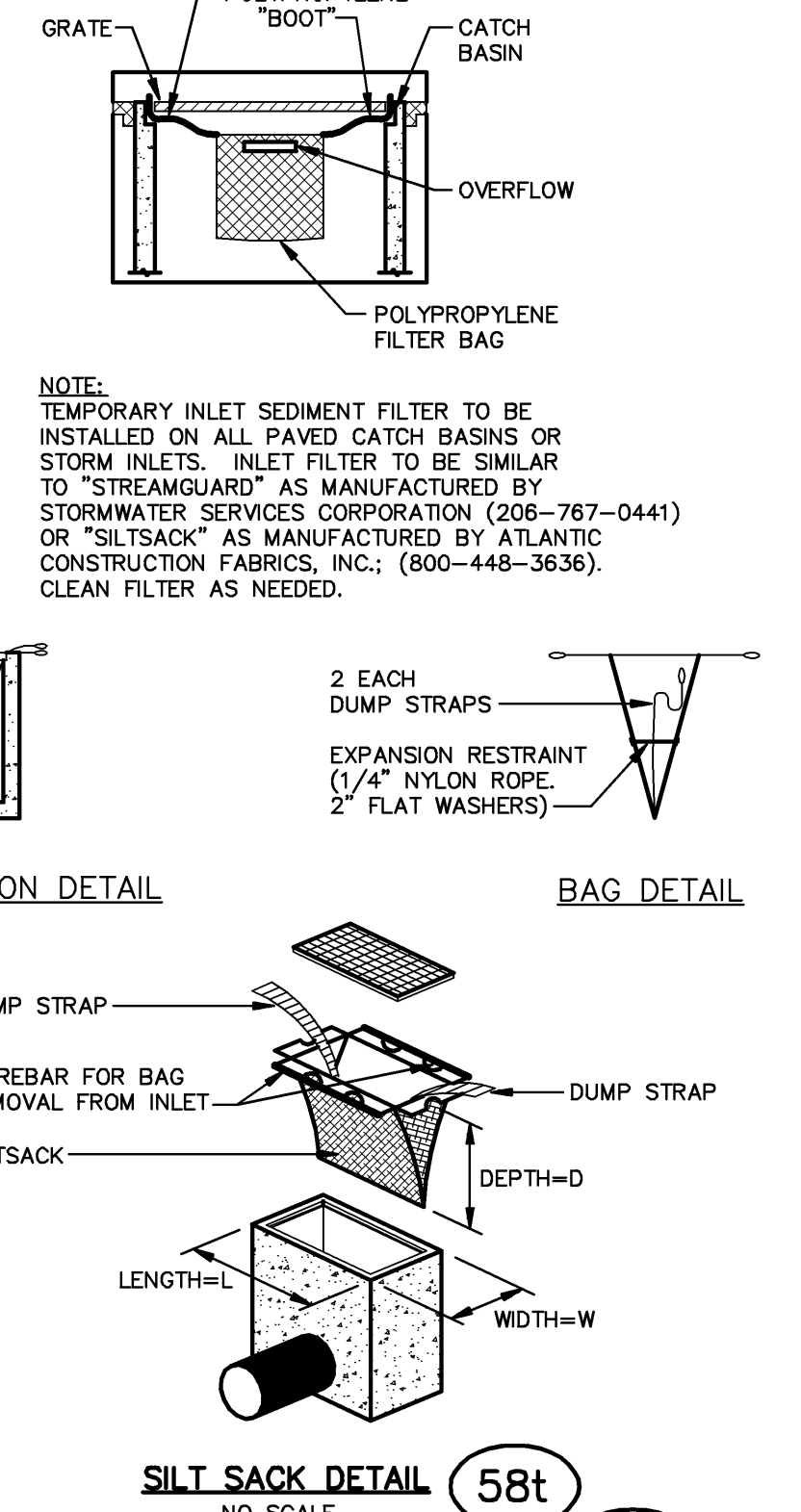
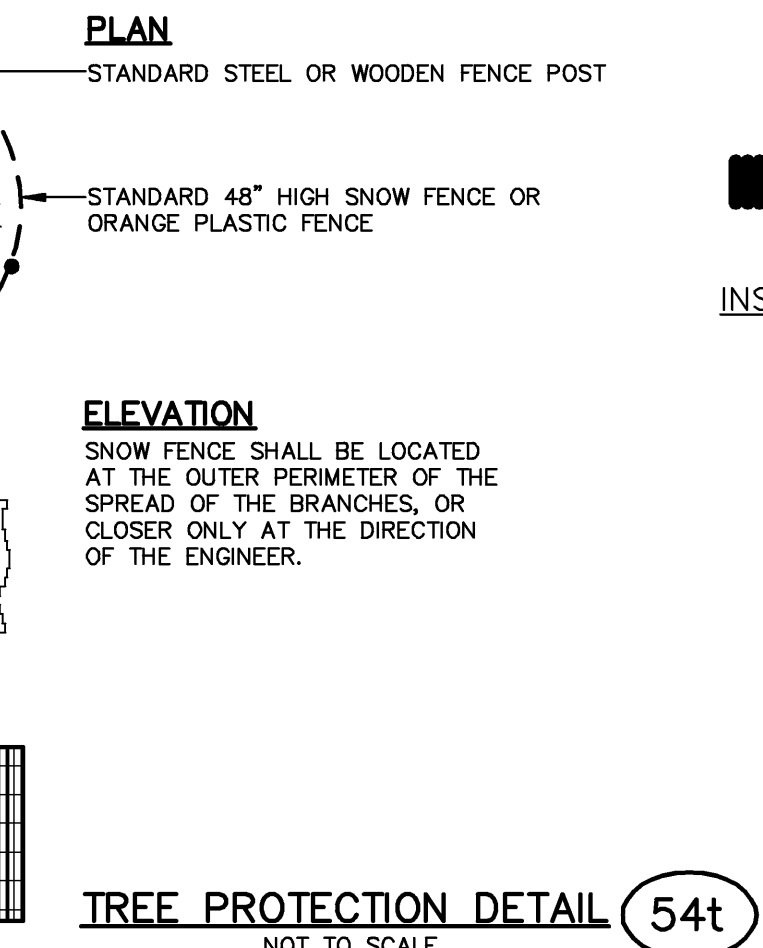
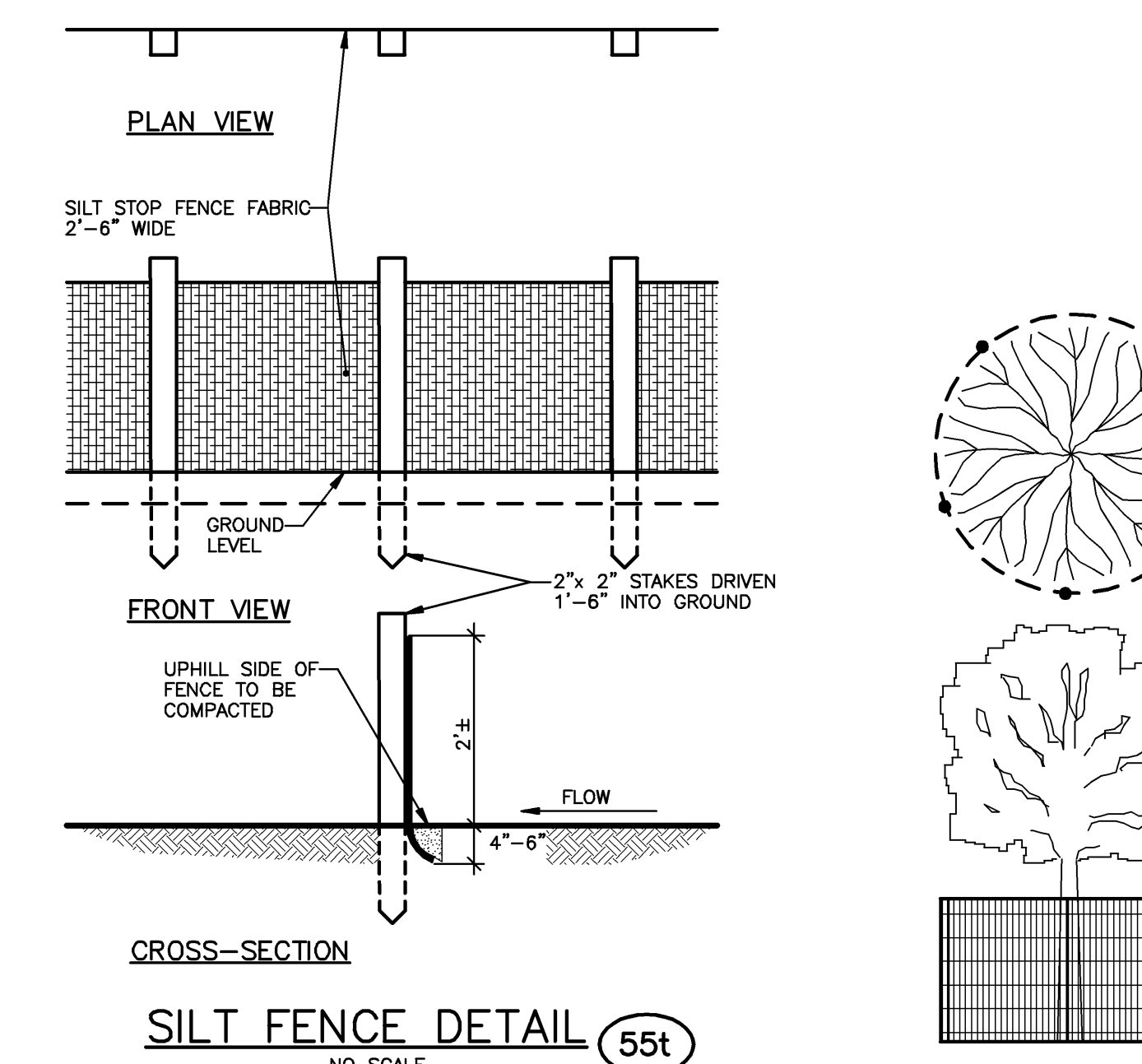
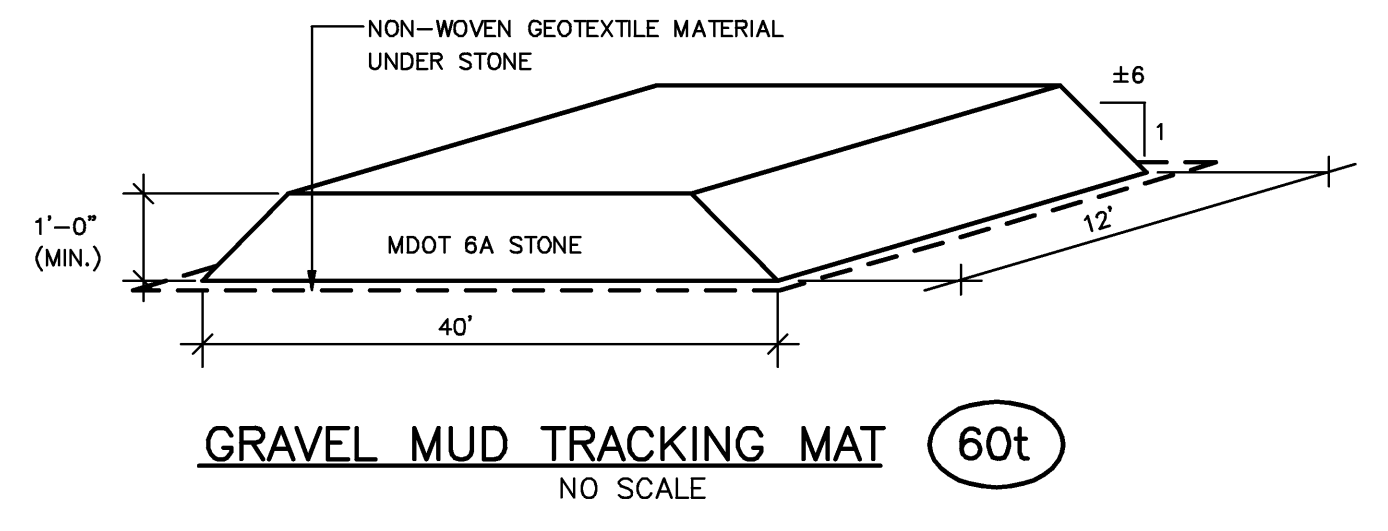
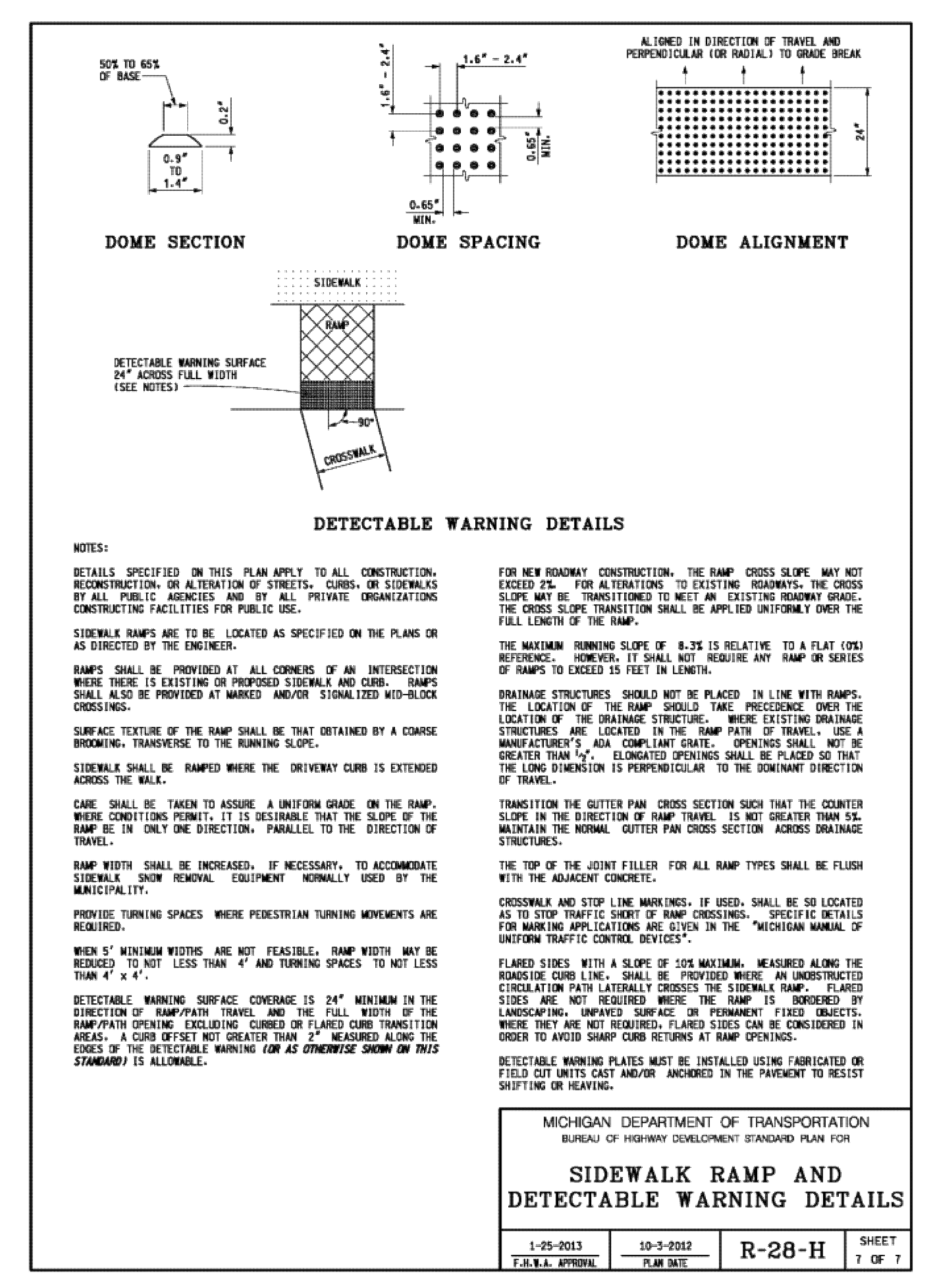
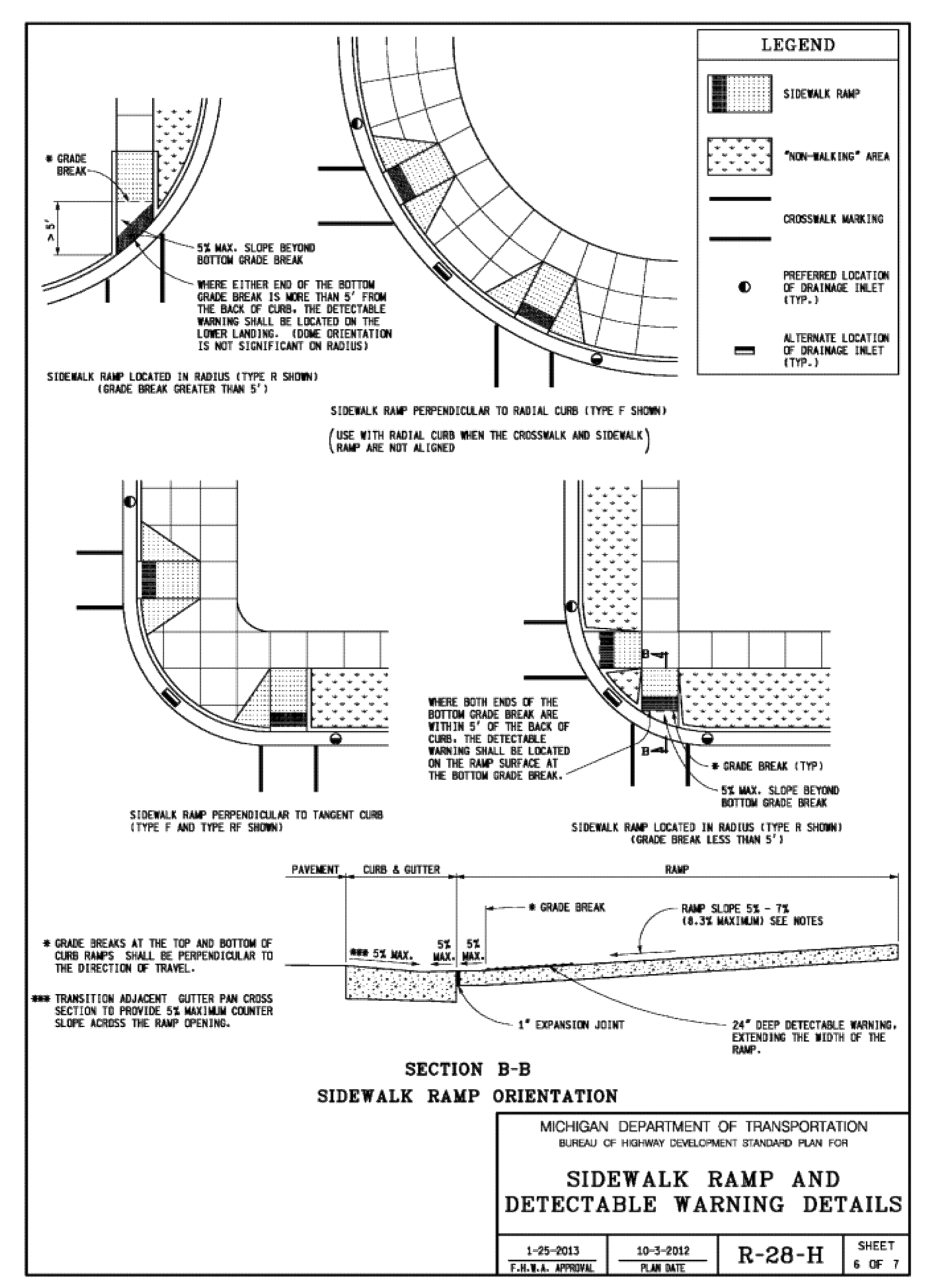
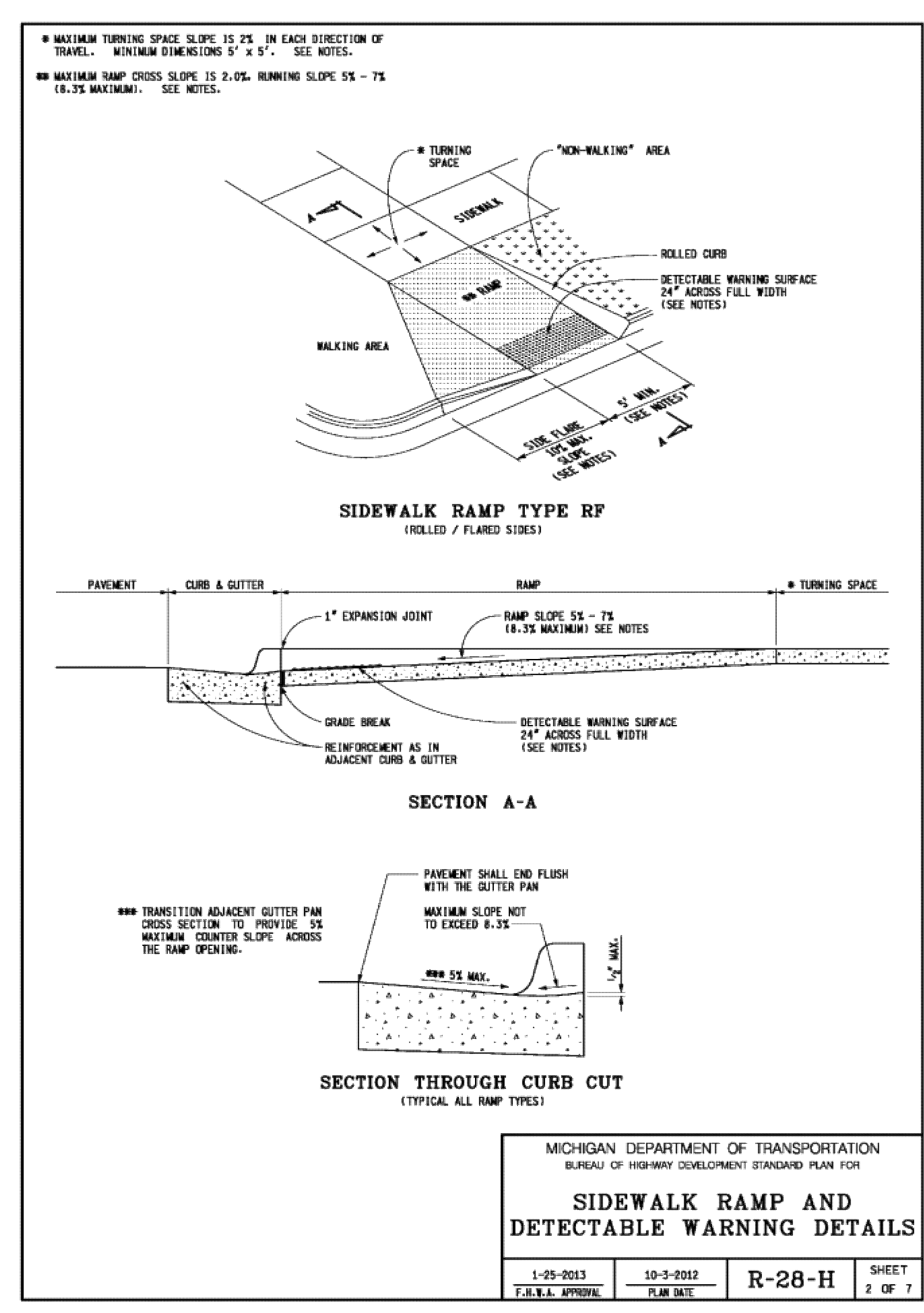
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SCALE NONE	DATE 11-6-92	SD-R-6	

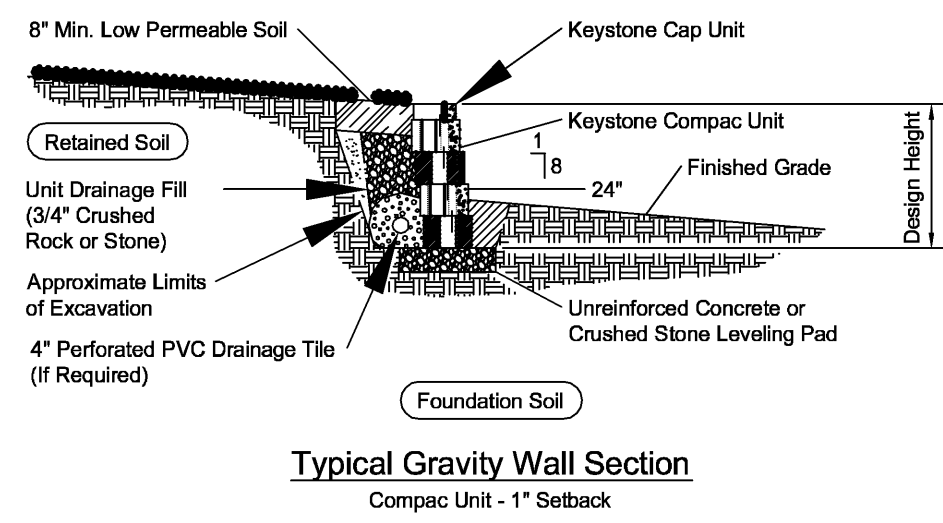


REV. NO.	DATE	BY	CHK BY	DATE
1	11-6-92	NCF	CSS	11-31-04

**PUBLIC SERVICES DEPARTMENT**  
**CITY OF ANN ARBOR**  
**SIDEWALK & CURB & GUTTER JOINTS**

DR. BY	CHK BY	CSS	DRAWING NO.
SCALE NONE	DATE 11-6-92	SD-R-9	





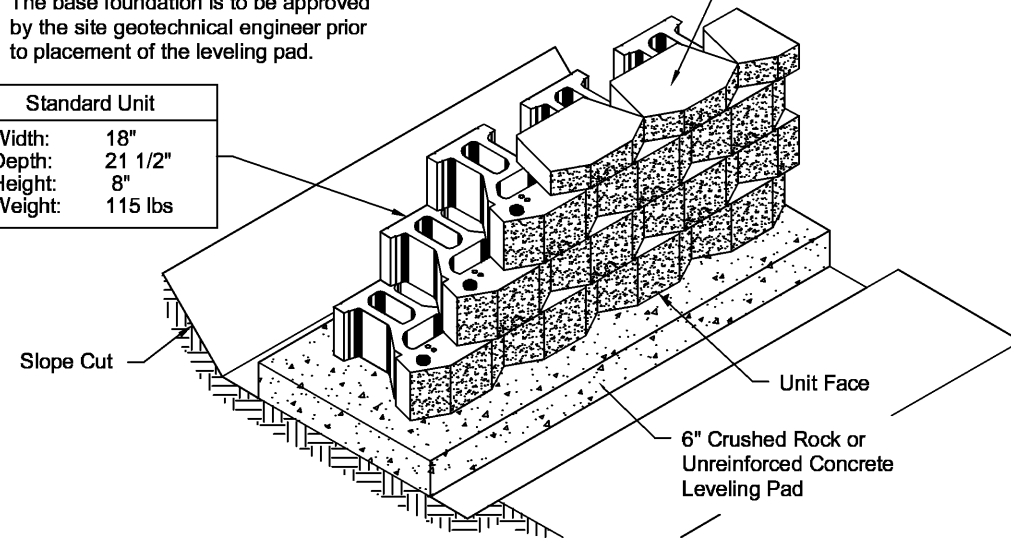
Typical Gravity Wall Section  
Compac Unit - 1\"/>

**Base Leveling Pad Notes:**

- The leveling pad is to be constructed of crushed stone or 2,000 psi unreinforced concrete.
- The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Standard Unit	
Width:	18"
Depth:	21 1/2"
Height:	8"
Weight:	115 lbs

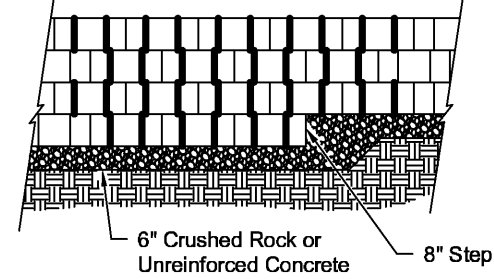
Cap Unit	
Width:	18"
Depth:	10 1/2"
Height:	4"
Weight:	45 lbs



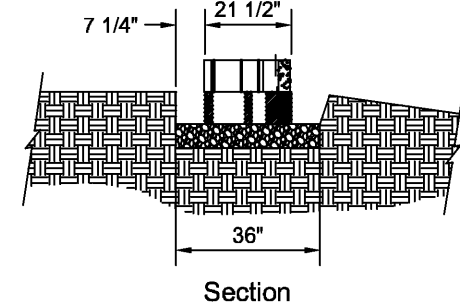
Standard Unit/Base Pad Isometric View  
\*Dimensions & Weight May Vary by Region

**PRECAST BLOCK WALL DETAIL**

NOT TO SCALE



Elevation

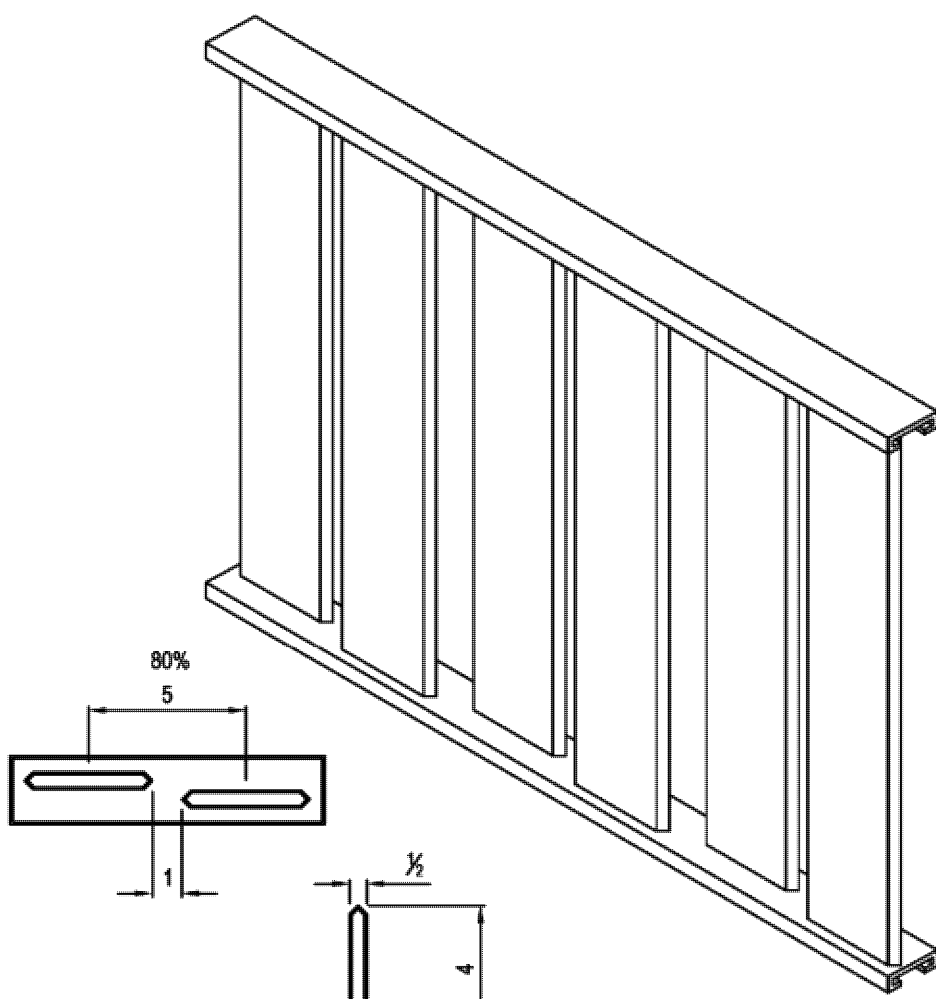


Section

Leveling Pad Detail



AMETCO MANUFACTURING CORPORATION  
4326 HAMANN PARKWAY P.O. BOX 1210  
WILLOUGHBY, OHIO 44096  
TOLL FREE: 1-800-321-7042  
PHONE: (440) 951-4300  
FAX: (440) 951-2542  
www.ametco.com

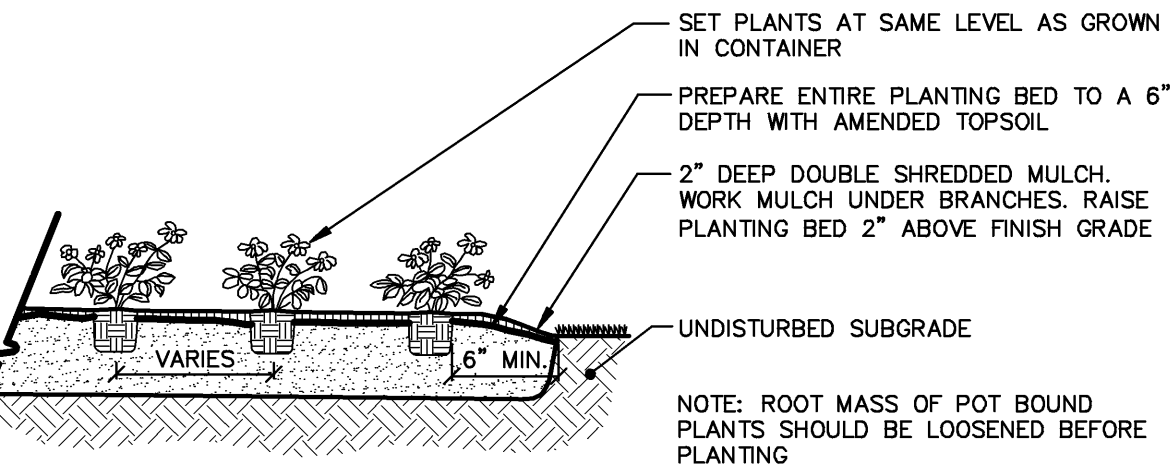


- NOTES:
- THE 4\"/>
  - INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
  - ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.
  - AMETCO'S ALUMINUM FENCING SYSTEM IS 100% MANUFACTURED IN THE UNITED STATES.
  - DO NOT SCALE DRAWINGS.
  - CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT [www.CADdetails.com/info](http://www.CADdetails.com/info) REFERENCE NUMBER 048-088

ALUMINUM FENCE SYSTEMS  
SATURN DESIGN ALUMINUM FENCE SYSTEM

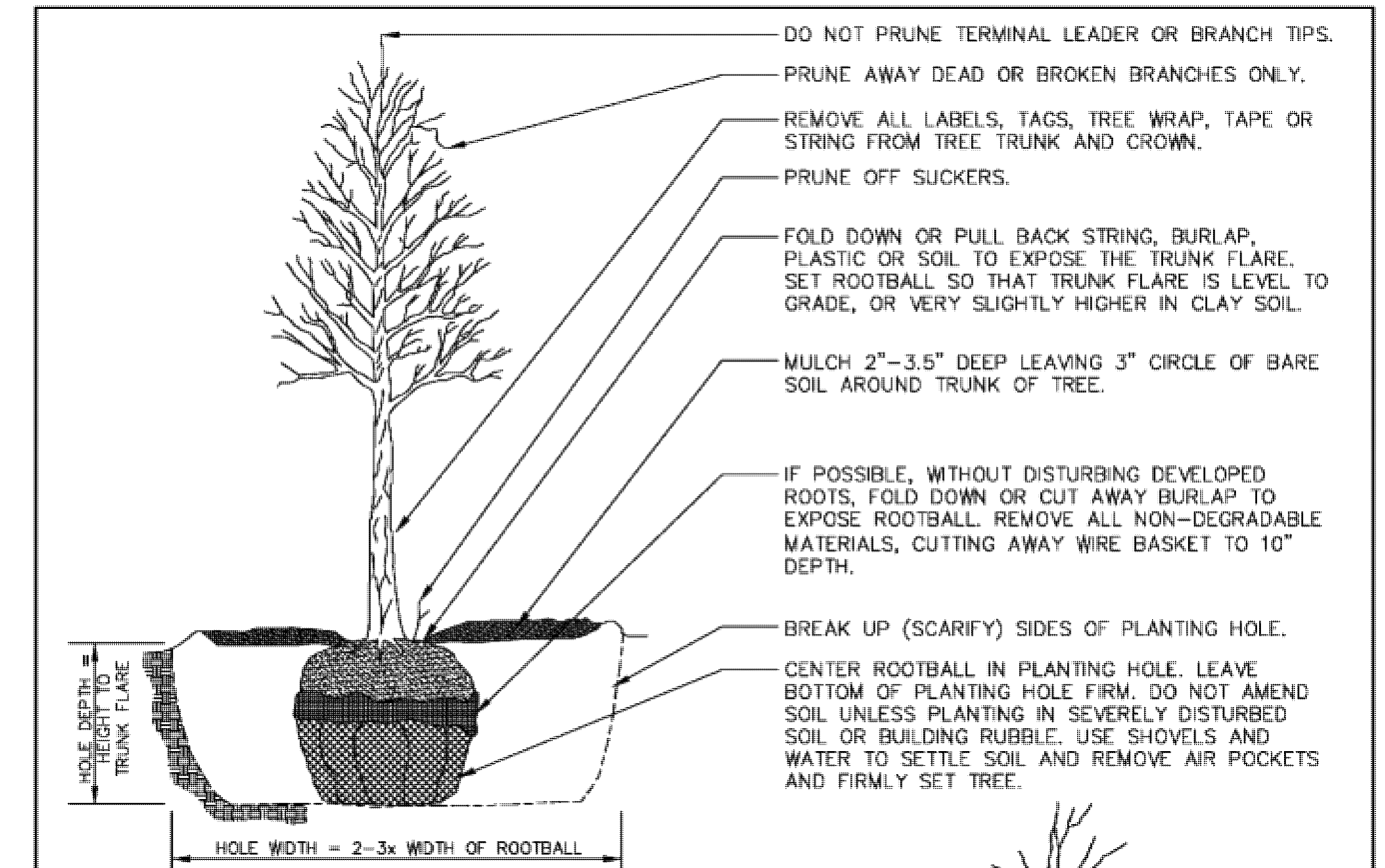
**PRIVACY FENCE DETAIL**

6\"/>



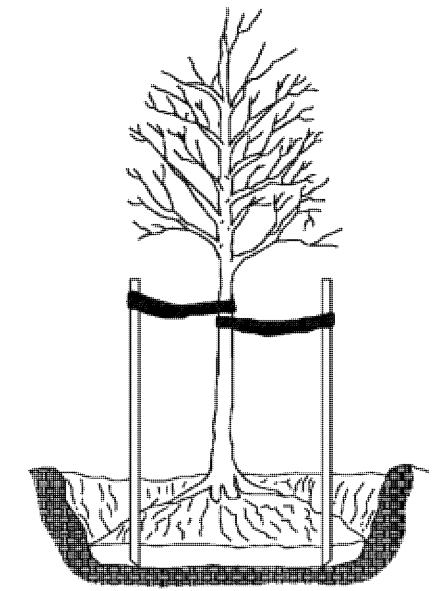
**ANNUAL AND PERENNIAL PLANTING**

NOT TO SCALE



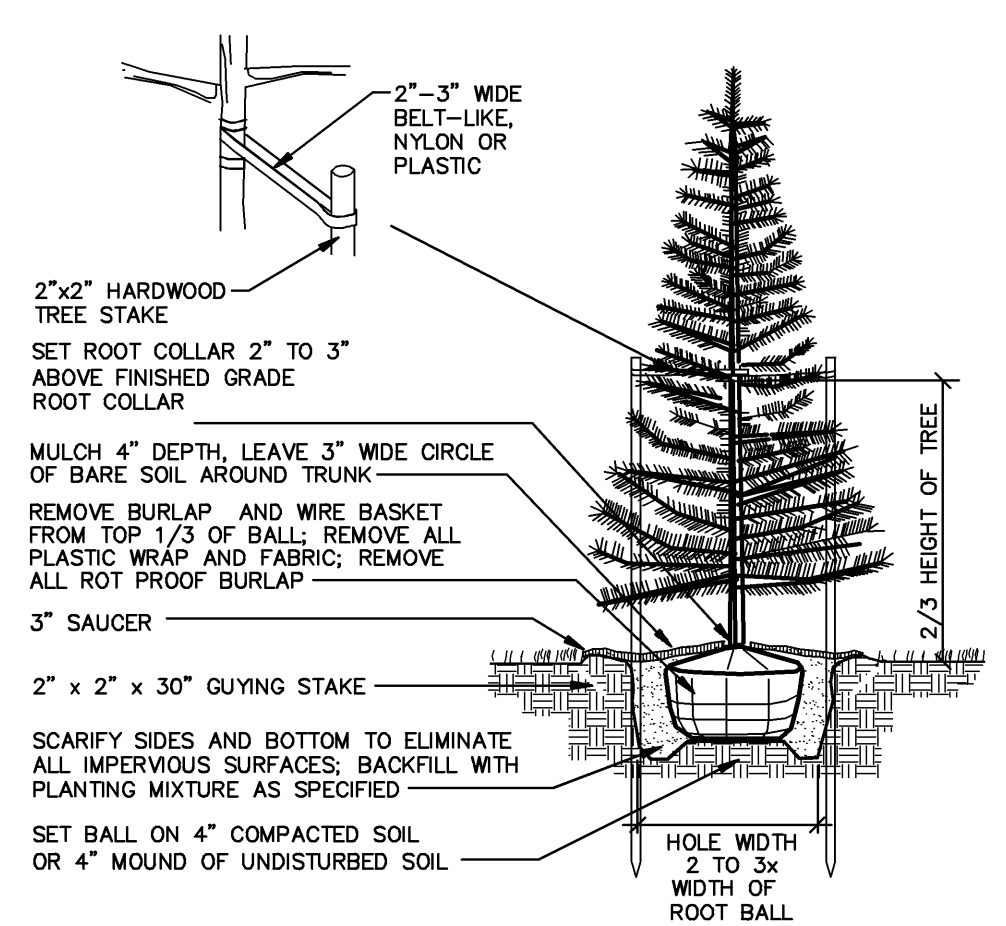
DO NOT STAKE UNLESS IN HEAVY CLAY SOIL, WINDY CONDITIONS, 3\"/>

- STAKE WITH 2 x 2 HARDWOOD STAKES, OR APPROVED EQUAL, DRIVEN 6\"/>
- LOOSELY STAKE TREE TRUNK TO ALLOW FOR TRUNK FLEECING.
- STAKE TREES JUST BELOW FIRST BRANCH WITH 2\"/>
- REMOVE ALL STAKING MATERIALS AFTER 1 YEAR.



REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
TREE PLANTING DETAIL				
DR. BY	ARG	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	7-23-10	SD-L-3
				SHEET NO. OF

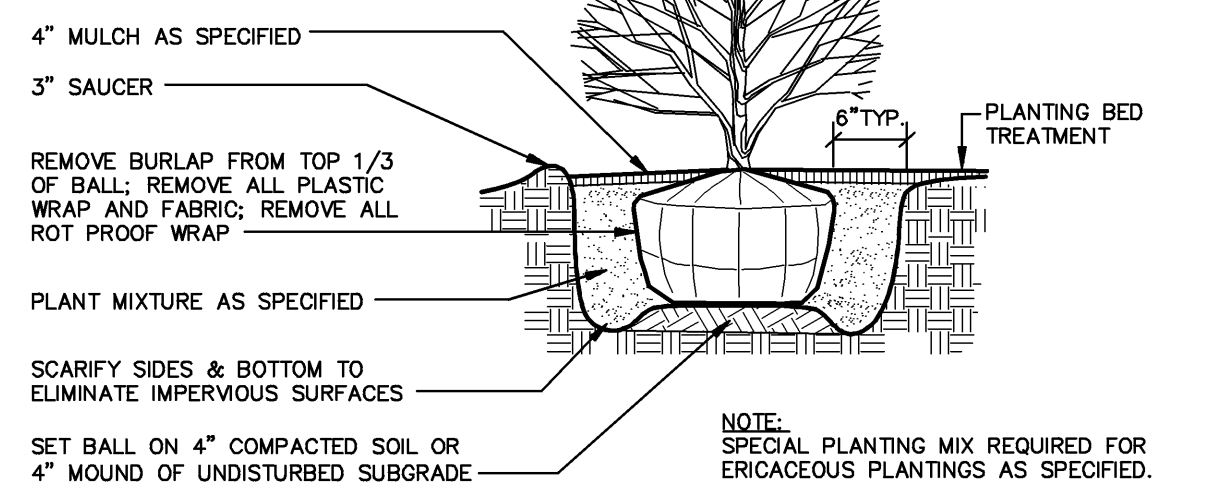
NOTE: REMOVE STAKING/GUYING MATERIAL AFTER ONE YEAR.



**EVERGREEN TREE PLANTING DETAIL**

NOT TO SCALE

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\"/>



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

**SHRUB PLANTING DETAIL**

NOT TO SCALE

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**MIDWESTERN CONSULTING**  
Civil, Environmental and Transportation Engineers Planners, Surveyors Landscape Architects  
3815 Plaza Drive  
Ann Arbor, Michigan 48108  
Phone: 734.995.0200  
Fax: 734.995.0599

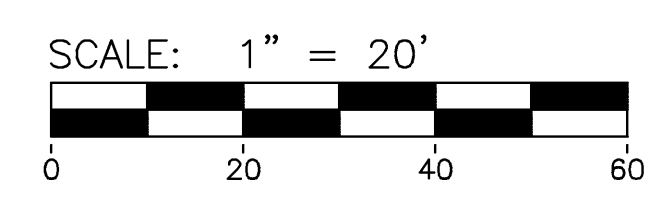
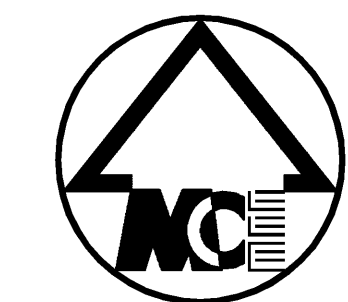
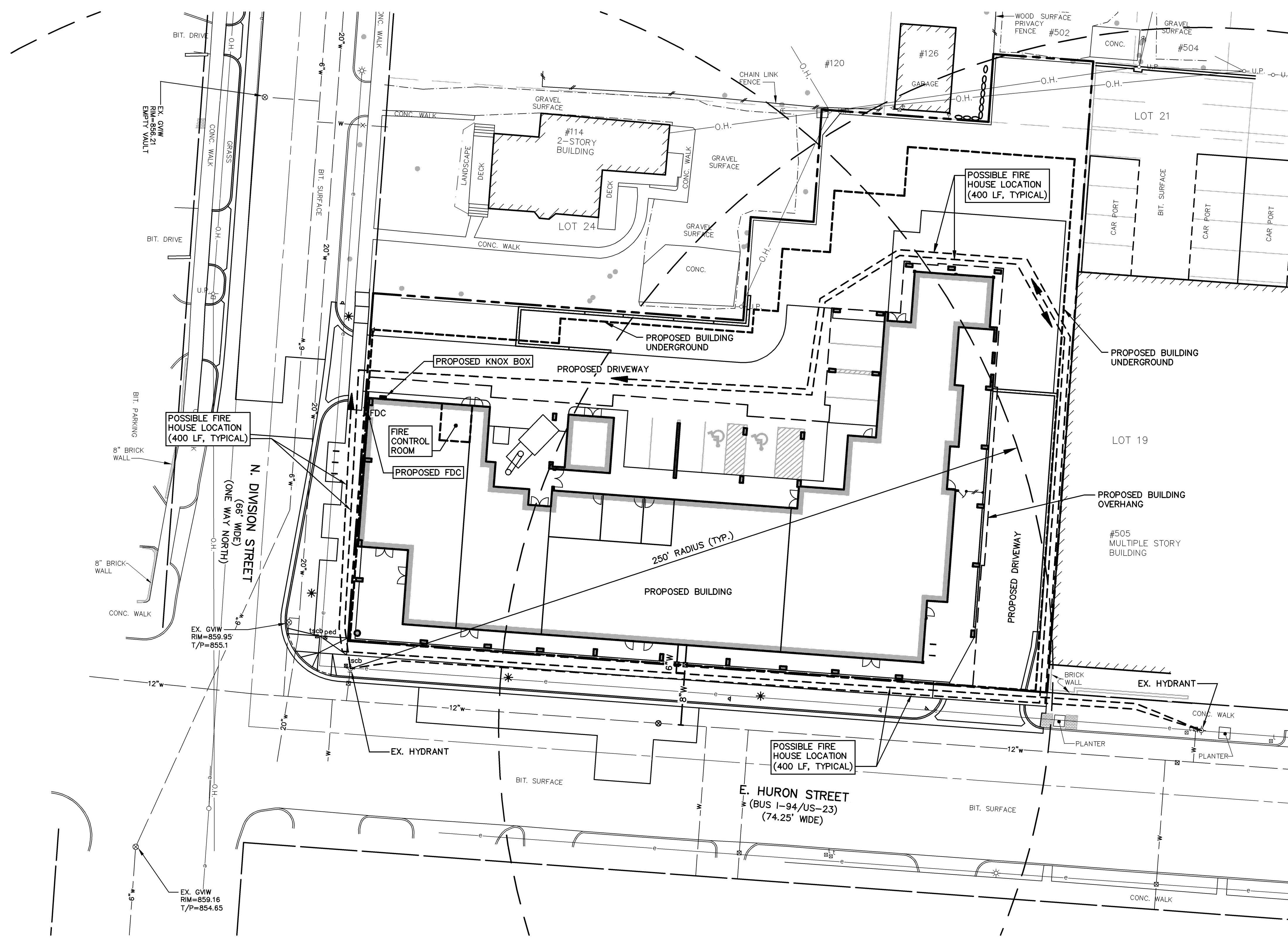
CLIENT  
ANN ARBOR GREEN PROPERTY OWNER, LLC  
171 17TH STREET, SUITE 1200  
ATLANTA, GA 30363  
ATTN: CONOR McNALLY  
PHONE: (404) 788-2802

**413 E. HURON**  
SITE PLAN  
MISCELLANEOUS SITE DETAILS

**12**

JOB No.	12156	DATE: 12-19-12
REVISIONS:	SHEET 12 OF 30	
REV. PER CITY	12-19-12	DR. DATE
REV. PER CITY	1-04-13	ENC. WAJ
		ENC. JAF
		TECH. EJO
		SITE V.12156DIT
		PPF

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**LEGEND**

- EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- EXIST. LIGHT POLE
- 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. CURB STOP & BOX
- PROP. CURB STOP & BOX
- SIGN
- PARKING METER
- MAILBOX
- TELEPHONE RISER
- WATER METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- SECTION CORNER
- FOUND IRON PIPE
- FOUND IRON ROD
- CONTROL PT.

**Fire Protection Plan Notes:**

1. Water services are to be separate domestic and fire lines.
2. Sprinkler control rooms shall be accessible without entering personal living spaces.
3. Addressing: numerics shall be a minimum of 4" in height and clearly visible when approaching the building.
4. Flow requirements: flow shall comply with international fire code (IFC) standards found in Appendix B of the code.
5. Fire department connections (FDC's) shall be within 100' of a hydrant.
6. Fire department connection (FDC): hook-up location is subject to fire marshal's approval.
7. FDC's shall be 4" storz connections or (2) 2 1/2" nst connections.
8. FDC access shall comply with ifc 912.3.
9. FDC signage shall be provided and shall comply with ifc 912.4.
10. Fire protection alarm and detection system shall be in compliance with all applicable codes adopted by the city of Ann Arbor.
11. Knox Box emergency access system with keys to access the building, the fire control room, an elevator key, and any other keys to areas that may be relevant during emergencies will be required. Box with proper keys shall be in place prior to issuance of certificates of occupancy for the buildings.
12. The Knox Box shall be mounted no higher than 6 feet from grade in an approved location on the exterior for emergency access to the building as well as access to the fire suppression system control rooms if applicable.
13. Construction sequencing
  - A. Hydrants must be in service and approved during construction.
  - B. Hydrants providing protection coverage for the building must be in service and approved by both engineering and fire departments before the fire department will support permit issuance for new construction phase and before combustible materials are placed on the job site.
  - C. Storage areas for construction materials must be approved so as not to interfere with fire/emergency site access.
  - D. If site access is to be restricted during construction, Knox Box locks for gates are to be provided.
14. No firewalls will be constructed within the building.
15. A booster pump is to be provided on the fire suppression water service lead.
16. The fire control room is to be accessed from an exterior door.

**MIDWESTERN CONSULTING**  
 Civil, Environmental and Transportation Engineers  
 Planners, Surveyors  
 Landscape Architects  
 3815 Plaza Drive  
 Ann Arbor, Michigan 48108  
 Phone: 734.995.0200  
 Fax: 734.995.0599

CLIENT  
 ANN ARBOR GREEN PROPERTY OWNER, LLC  
 171 17TH STREET, SUITE 1200  
 ATLANTA, GA 30363  
 ATTN: CONOR McMAHALLY  
 PHONE: (404) 788-2902

**413 E. HURON**  
 SITE PLAN  
 FIRE PROTECTION PLAN

**13**

JOB No.	12156
DATE	11-28-12
SHEET	13 OF
REV. DATE	REV. DATE
12-19-12	CADD: WAJ
1-04-13	ENG: JAF
	TECH: EGO
	SITE: 12156\FPI
	PDF

Natural Features Statement of Impact (Chapter 576, Section 5:126)

(1) A Site Inventory Identifying the Location of Existing Natural Features and a Written Description of Their Quality, Character, and Health:

(a) Sheet 14 Natural Features and Alternative Plans: There are no steep slopes, woodlands, wetlands, or floodplains on or within 50 feet of the site. There are Landmark Trees off site that are within 50 feet of the site. These are shown on the Existing Conditions Plan, sheet 3. The Tree List and Evaluation table is shown on the Project Data and General Information sheet, sheet 2.

(b) Natural Features Protection Plan Identifying Natural Features to be Preserved: Landmark Trees are the only Natural Features on or within 50 feet of the site.

Landmark Tree Inventory and Analysis: There is one landmark size tree on the site, # 6889, but it is less than 40% healthy and is to be removed. The health evaluation sheet shows a rating of 11. (To be a regulated Landmark Tree, a health evaluation of 16 or more is required.) No mitigation is required. Note that this tree is within the Critical Root Zone (CRZ) of an off site landmark tree, #6892. Removal of this essentially dead tree does require some disturbance within the CRZ of #6892.

There are three landmark trees and a portion of the CRZ of a 4th landmark tree off site and that are within 50 feet of the site:

#6874: a 24" black walnut on the 114 N. Division site with a health evaluation of 20. Just less than 50% of the CRZ overlaps onto the 413 E. Huron site. This area includes the existing structure at 110 N. Division, a concrete sidewalk, and a gravel parking area. See the picture of this location on this sheet. Because the removal of these features impacts approximately 50% of the CRZ, mitigation of this tree is provided even though the tree is to remain. Mitigation is provided as described and shown on the Landscape Plan, sheet 10.

Removals in this area are necessary in part to provide the required minimum 15-foot wide Conflicting Land Use Buffer along the north property line.

The proposed site development increases the pervious landscape area within the Critical Root Zone of this tree by approximately 12%. There are no reasonable alternatives that would not require this CRZ disturbance to accomplish the permitted use.

#6891: a 21" American elm on the 120 N. Division site with a health evaluation of 20. There is no proposed disturbance within the CRZ of this tree so no mitigation is required.

#6892: a 48" bur oak with a health evaluation of 21 is located on the 120 N. Division site. Approximately 20% of the CRZ overlaps onto the northwest corner of the 413 E. Huron site. Existing features in this area include tree #6889 as described in item b above, a wood privacy fence in poor condition, a trash area with concrete paving, and bituminous parking lot. See the picture of this location on this sheet. These features could remain within the proposed site plan for 413 E. Huron, but the trash area is about half the size that is necessary meet current standards or to serve the proposed building and tree #6889 represents a hazard that should be removed. Removals in this area are necessary in part to provide the required minimum 15-foot wide Conflicting Land Use Buffer along the north property line.

The proposed site development also increases the pervious landscape area within the Critical Root Zone of this tree by approximately 12%.

#6894: a 25" bur oak with a health evaluation of 20 is located on the 126 N. Division site, and is more than 50 feet from the site. The CRZ of the tree extends to within 38 feet of the site. There is no proposed disturbance within the CRZ of this tree and no mitigation is required.

(2) A Natural Features Protection Plan Identifying Natural Features to be Preserved:

Landmark trees to remain are shown on sheets 4, 7, 8, and 10.

Tree protection measures for each regulated landmark tree:

#6874: perimeter security fencing will be installed along the north property line; soil erosion control measures, i.e. silt fence, will be installed along the north property line, then the tree protection fence will be installed outside the building demolition limits at 110 N. Division. Upon completion of demolition and backfilling, the tree protection fencing will be relocated as shown on the Grading and Soil Erosion Control Plan, sheet 7.

#6891: no proposed disturbance; no protection required.

#6892: perimeter security fencing will be installed along the property line; soil erosion control measures, i.e. silt fence, will be installed along the property line; upon completion of wood privacy fence, trash area, concrete paving and bituminous paving removal, install tree protection fence at the limits of proposed grading, as shown on the Grading and Soil Erosion Control Plan, sheet 7.

#6894: no proposed disturbance; no protection required.

(3) Alternatives Analysis Report for Natural Features that are Proposed to be Disturbed:

(a) Removal of Existing Site Features:

There are no reasonable alternatives to the removal of the existing site features located within the CRZ's of #6874 and #6892, off site Landmark Trees. The existing features must be removed to provide Conflicting Land Use Buffers, and #6891 must be removed because it is essentially dead and represents a hazard. #6887 (tree of heaven; invasive) and #6888 (box elder) will also be removed. The trash area, concrete pad, and parking area paving will be removed. The dilapidated wood screen fence along the property line will also be removed. The relationship of these two landmark trees to the existing site features and the 15 foot wide Conflicting Land Use Buffer is shown on the partial plan on this sheet and on the Existing Conditions Plan, sheet 3.

Alternatives for Proposed Site Improvements:

Alternatives considered for the design of the proposed building and site improvements include different configurations and locations of the underground parking levels.

#6874 Alternative Plans:

Alternatives considered for the area near #6874 are shown on the partial plan on this sheet. The Alternative 'A' foundation configuration showed the north wall of the proposed underground parking essentially at the north property line. This impacts almost 50% of the Critical Root Zone (CRZ) of the tree. This configuration provides the most efficient layout for underground parking and the highest number of parking spaces.

Alternative 'B' shows the proposed foundation location 13 feet south of the north property line. This alternative is shown on the Dimensional Site Plan, sheet 5. The foundation layout adjusted to locate approximately 15% of the proposed underground parking within the theoretical CRZ of tree #6874. The footprint of the existing structure is shown on the diagram and on sheet 5 to show the location of the proposed foundation relative to the tree and the existing basement that is to be removed. The net result is to increase amount of pervious landscape area within the CRZ of this tree by 222 square feet, or 12%. The configuration of the underground parking is revised and the number of parking spaces in reduced from 146 to 124.

Alternative 'C' shows the no impact alternative. That means that 110 N. Division would remain and that site would not be part of the project. The affect on the site plan is to reduce the frontage on N. Division by about 46 feet to 79 feet. The underground parking foundation wall could be at the south line of 110 N. Division. Providing a 30 foot setback would reduce the frontage for levels 1-14 to approximately 49 feet.

The service drive could remain, but the 10 ground level parking spaces would be eliminated. In addition, the trash/compactor, transformer and generator would all be moved out of the building and onto the service drive. Units displaced from the northwest portion of the building would be relocated to the upper levels and/or be added on to the east end of the building, reducing or eliminating the voluntary setback adjacent to Sloan Plaza. The configuration of the underground parking would be impacted and the number of parking spaces would be further reduced by at least 10 spaces. Total parking would probably be reduced to the minimum 104 required.

#6892 Alternative Plans:

Approximately 20% of the CRZ of #6892 overlaps onto the 413 E. Huron site and is currently mostly paved. Existing site features in this area will be removed as described above.

Alternative 'A' shows the foundation line of underground parking approximately 11 feet from the north property line and 8 feet from the west property line. This provides the most efficient configuration for parking and the most parking spaces. This locates underground parking about 8% of the theoretical CRZ of #6892. This area provides little water or nutrients to that tree. The net impact of this layout is to increase the pervious landscape area within the CRZ by about 680 square feet, or 12%.

Alternative 'B' shows the foundation line at 11 feet from the north property line and 7 feet from the west property line, and notched out to remove a 23 foot by 17 foot area from the CRZ. This footprint is shown on the Dimensional Site Plan, sheet 5. It locates underground parking within approximately 2% of the CRZ of tree #6892. This minimal impact is also offset by the removal of the existing trash area, concrete slab and bituminous parking area paving. Total pervious landscape area within the CRZ is increased by about 18%.

Alternative 'C' is the no impact alternative, although in this location there will be impacts from the removal of existing site features no matter which alternative is selected. This alternative shows the foundation of the underground parking entirely outside of the CRZ of tree #6892. The reduction of the impact on the theoretical CRZ of the tree is minimal. Circulation within the underground parking levels is made more difficult because this change would create a pinch point in the two way aisle that would be about 12 feet wide. Several additional parking spaces would also be eliminated. Given that the CRZ is already impacted by the removals, the reduction in the impact from the proposed underground parking is minimal, that additional parking benefits the project, and additional parking may reduce the number of residents searching for parking in the nearby neighborhoods, this alternative was not selected.

Alternative Plans for the Conflicting Land Use Buffer:

There was a request from at least one neighbor for a 9 foot high masonry screen wall along the property line (that would satisfy the screening aspect of the Conflicting Land Use Buffer requirement). Constructing such a wall would have required a significant amount of additional disturbance to excavate for and install the required footing for the wall. The proposed site plans include landscaping that meets the CLUB requirements, and includes a 6 foot high aluminum screen fence that requires minimal post footings.

(b) The proposed plan was selected as one that minimizes impacts on the off site natural features, provides the required Conflicting Land Use Buffers, and provides an efficient foundation configuration for providing on site underground parking.

(c) Mitigation Plan: Proposed five year maintenance program for #6874 and #6892: This requirement has been added to the Landscape Plan, sheet 10 as Note 3:

- (i) With the permission of the owners of 114 and 120 N. Division, the owner will hire a certified arborist to care for the trees for five years.
(ii) The arborist will limb out these trees to balance calculated root loss.
(iii) The arborist will perform deep root feeding twice a year (spring and fall) and watering as necessary for five years.

#6874: this tree is to remain, is to be protected as described in item (2) above and is to be maintained per item (3)(c) above. At the same time, mitigation of the tree is provided as though it is to be removed. The Landscape Requirements shown on Landscape Plan, sheet 10, show that 12 caliper inches of replacement trees are required. Proposed mitigation includes two 3" caliper blackgum trees near the north end of the north end of the site and a monetary contribution for planting additional trees in nearby parks.

The net result is to increase amount of pervious landscape area within the CRZ of this tree by 222 square feet, or 12%.

Note 14 on the Grading and Soil Erosion Control Plan, sheet 7 indicates that any grading beyond the tree protection limits shall be performed by hand tools only and the tree protection fence will be re-installed after grading.

#6892: this tree is to remain, is to be protected as described in item (2) above and is to be maintained per item (3)(c) above. Note 14 on the Grading and Soil Erosion Control Plan, sheet 7 indicates that any grading beyond the tree protection limits shall be performed by hand tools only and the tree protection fence will be re-installed after grading.

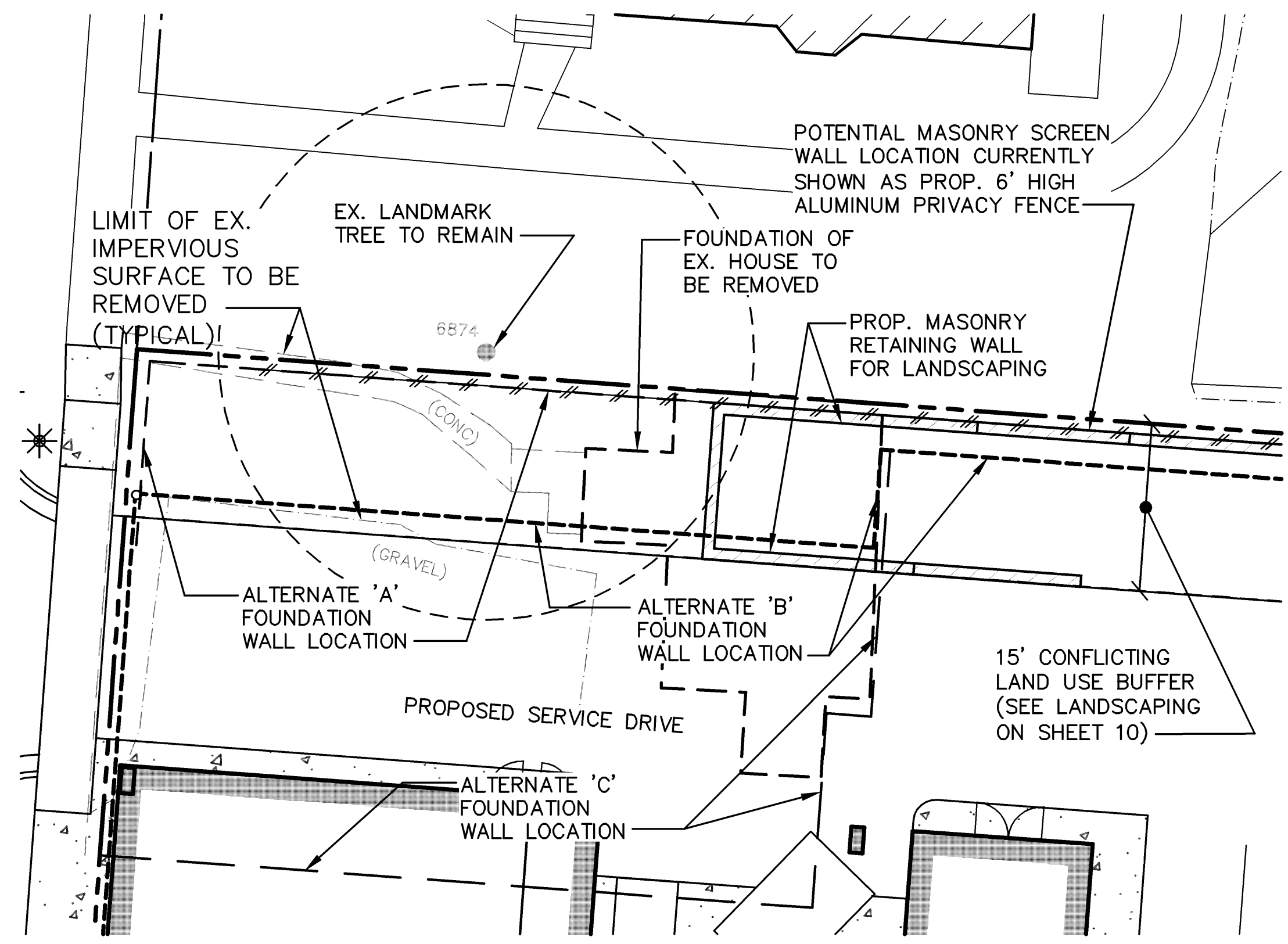
The net result is to increase amount of pervious landscape area within the CRZ of this tree by 889 sf, or about 12%.



LANDMARK TREE #6874

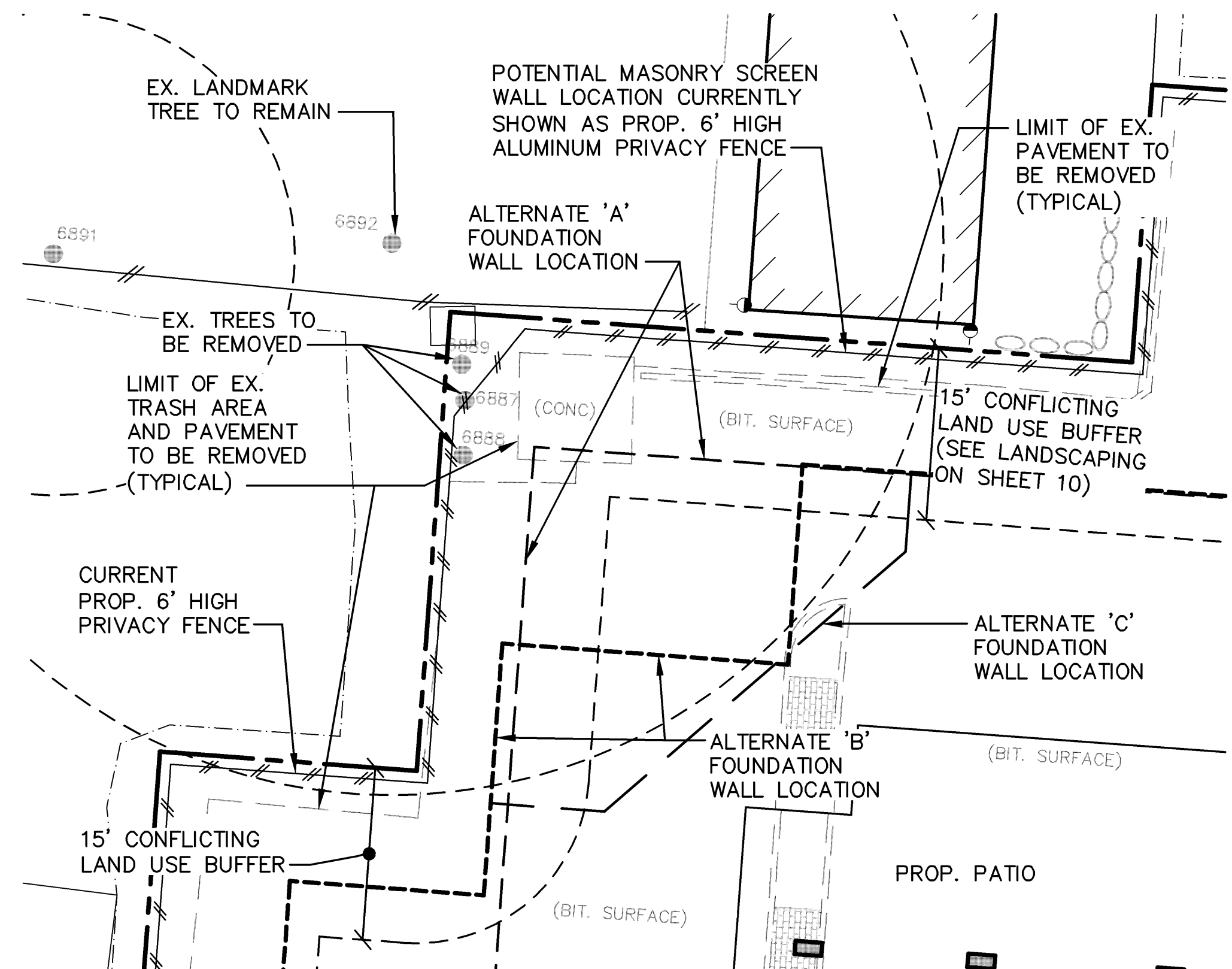


LANDMARK TREE #6892



LANDMARK TREE #6874 - FOUNDATION ALTERNATIVES

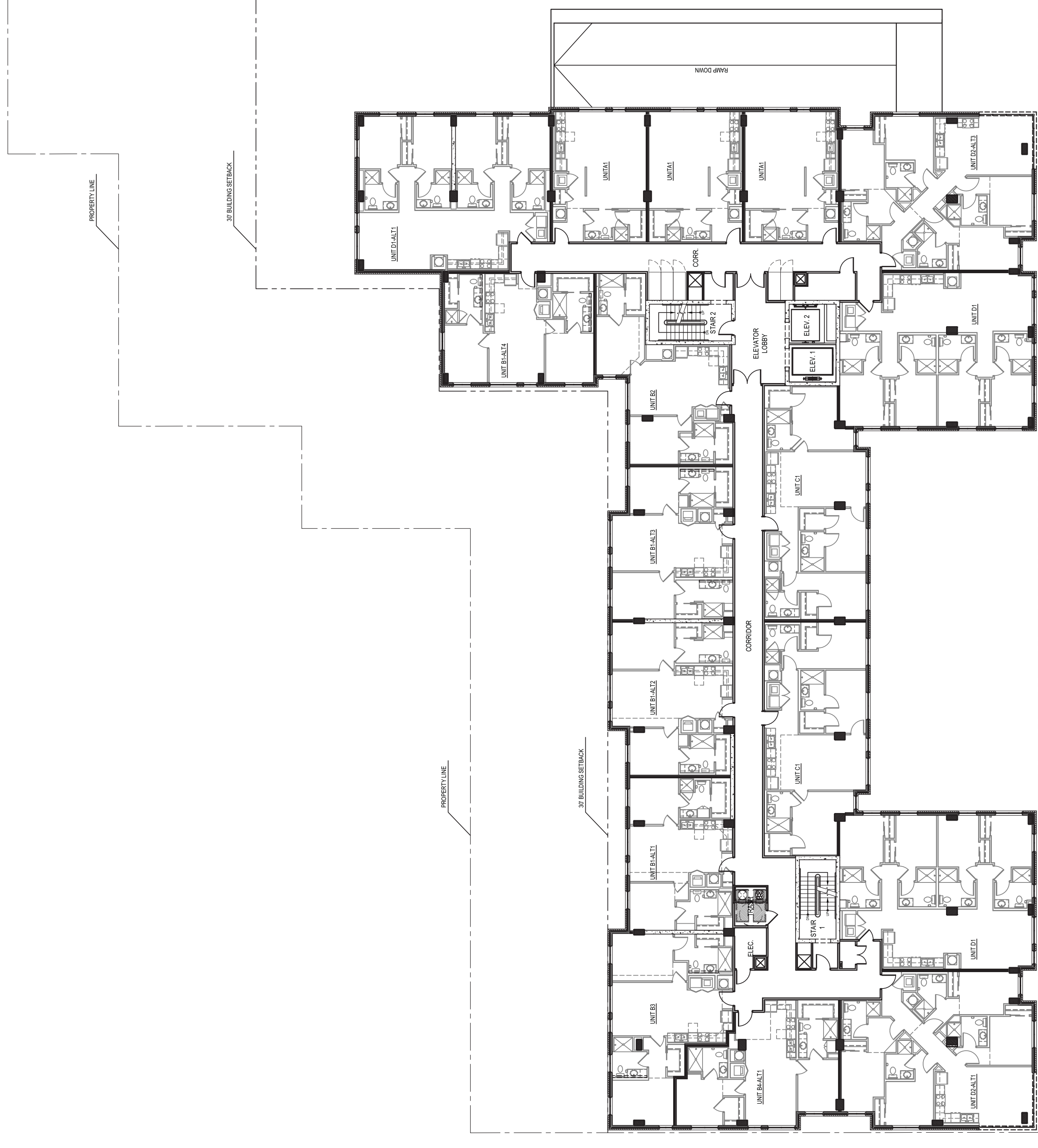
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LANDMARK TREE #6892 - FOUNDATION ALTERNATIVES

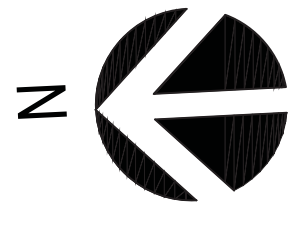
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N. DIVISION ST.

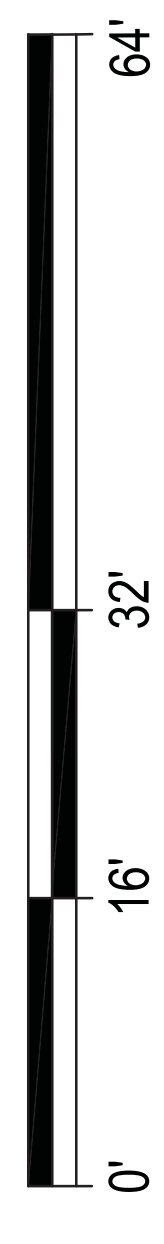
E. HURON STREET



# 4TH - 12TH FLOOR PLAN

A-406

SCALE: 1:16 (24"x36" SHEET)



**413 E. HURON ST.**

ANN ARBOR GREEN PROPERTY OWNER LLC / CARTER

03-25-2013

ANN ARBOR, MI

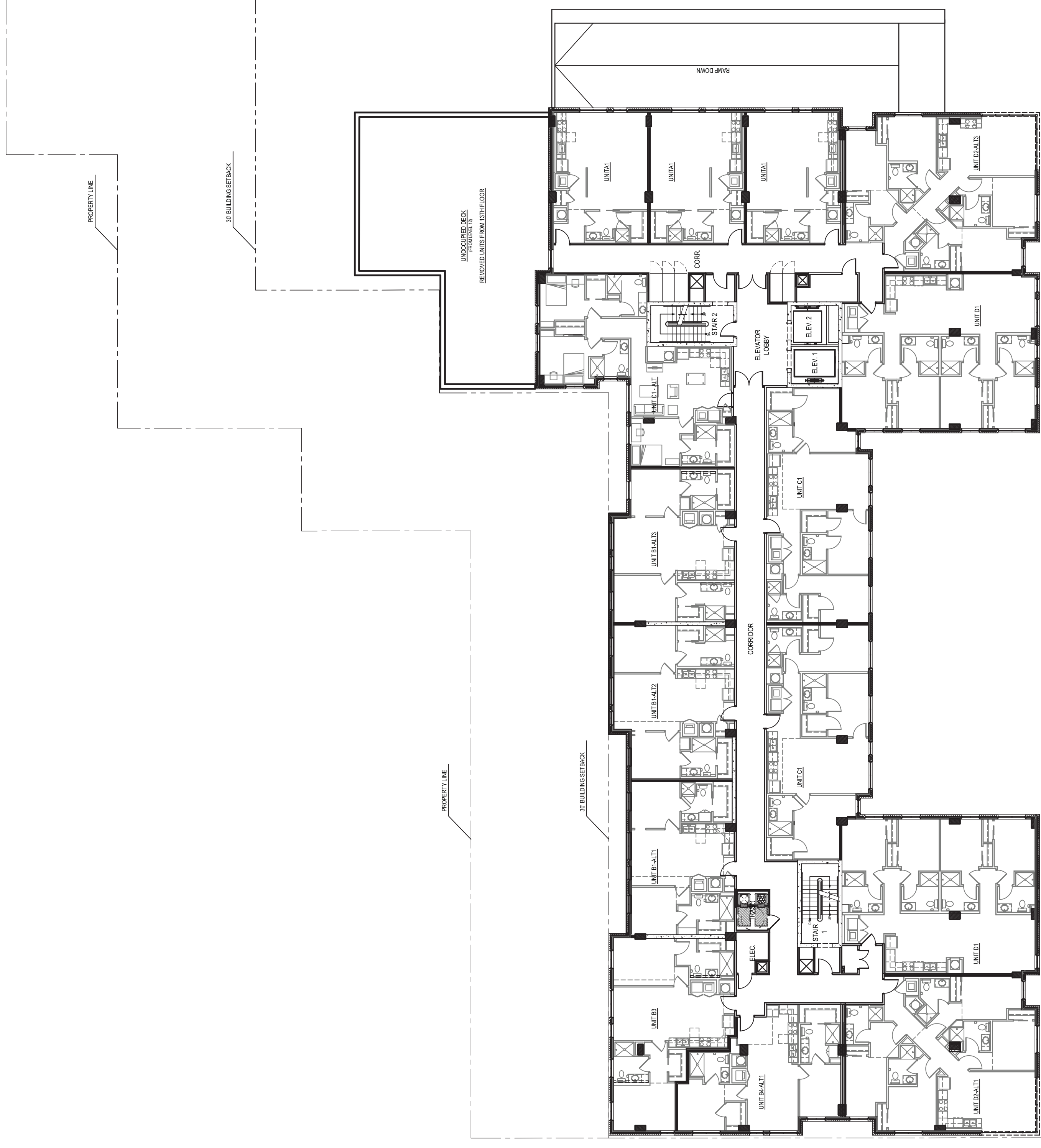
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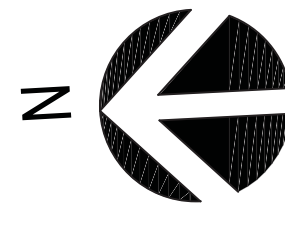


**HUMPHREYS & PARTNERS ARCHITECTS L.P.**  
 5339 Alpha Road, Suite 300 Dallas, TX 75240 (972) 701-9636 (972) 701-9639  
 www.humphreys.com marketing@humphreys.com  
 DALLAS IRVINE NEW ORLEANS ORLANDO SEATTLE

N. DIVISION ST.



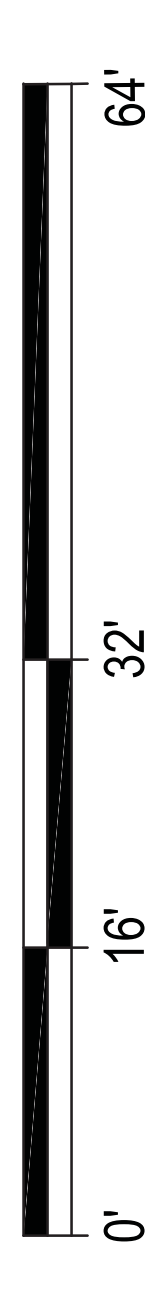
E. HURON STREET



# 13TH FLOOR PLAN

## A-407

SCALE: 1:16 (24"X36" SHEET)



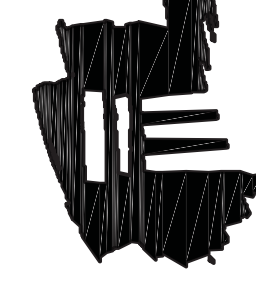
### 413 E. HURON ST.

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03-25-2013

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 www.humphreys.com marketing@humphreys.com  
 DALLAS IRVINE NEW ORLEANS ORLANDO SEATTLE

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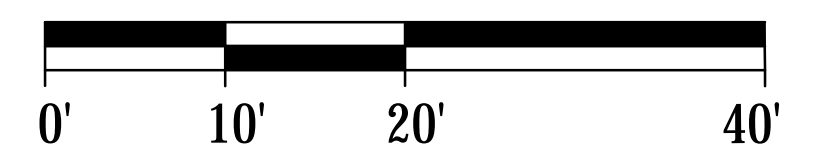
# E. HURON STREET ELEVATION

## MATERIAL LEGEND

- BRICK TYPE #1: GLAZED DARK GRAY IRON SPOT BRICK
- BRICK TYPE #2: LIGHT GRAY IRON SPOT BRICK
- BRICK TYPE #3: DARK GRAY IRON SPOT BRICK
- BRICK TYPE #4: LIGHT GRAY BRICK
- BRICK TYPE #5: LIGHT TAN BRICK
- SLAB CHANNEL: 12' BLACKENED METAL SLAB CHANNEL
- GROUND FLOOR COLUMNS: LIGHT GLAZED THIN BRICK
- STOREFRONT TYPE 1: NATURAL WOOD FRAME STOREFRONT SYSTEM
- STOREFRONT TYPE 2: NATURAL WOOD FRAME OPERABLE STOREFRONT SYSTEM
- STOREFRONT TYPE 3: ALUMINUM OPERABLE STOREFRONT SYSTEM

A-501

SCALE: 1:10 (24"x36" SHEET)



**413 E. HURON ST.**

ANN ARBOR GREEN PROPERTY OWNER LLC / CARTER

03-25-2013

ANN ARBOR, MI

HPA# 2012327



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 www.humphreys.com marketing@humphreys.com  
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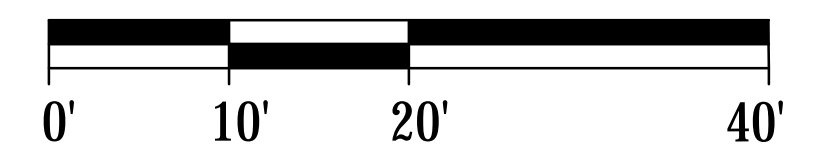
## N. DIVISION STREET ELEVATION

### MATERIAL LEGEND

BRICK TYPE #1: GLAZED DARK GRAY IRON SPOT BRICK  
 BRICK TYPE #2: LIGHT GRAY IRON SPOT BRICK  
 BRICK TYPE #3: DARK GRAY IRON SPOT BRICK  
 BRICK TYPE #4: LIGHT GRAY BRICK  
 BRICK TYPE #5: LIGHT TAN BRICK  
 SLAB CHANNEL: 12' BLACKENED METAL SLAB CHANNEL  
 GROUND FLOOR COLUMNS: LIGHT GLAZED THIN BRICK  
 STOREFRONT TYPE 1: NATURAL WOOD FRAME STOREFRONT SYSTEM  
 STOREFRONT TYPE 2: NATURAL WOOD FRAME OPERABLE STOREFRONT SYSTEM  
 STOREFRONT TYPE 3: ALUMINUM OPERABLE STOREFRONT SYSTEM

A-502

SCALE: 1:10 (24"x36" SHEET)



**413 E. HURON ST.**





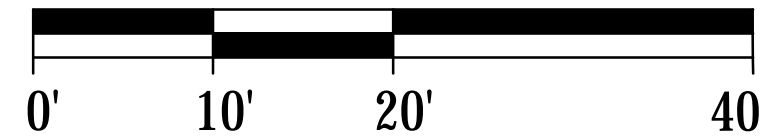
# EAST ELEVATION

**413 E. HURON ST.**

MATERIAL LEGEND	
BRICK TYPE #1: GLAZED DARK GRAY IRON SPOT BRICK	SLAB CHANNEL: 12' BLACKENED METAL SLAB CHANNEL
BRICK TYPE #2: LIGHT GRAY IRON SPOT BRICK	GROUND FLOOR COLUMNS: LIGHT GLAZED THIN BRICK
BRICK TYPE #3: DARK GRAY IRON SPOT BRICK	STOREFRONT TYPE 1: NATURAL WOOD FRAME STOREFRONT SYSTEM
BRICK TYPE #4: LIGHT GRAY BRICK	STOREFRONT TYPE 2: NATURAL WOOD FRAME OPERABLE STOREFRONT SYSTEM
BRICK TYPE #5: LIGHT TAN BRICK	STOREFRONT TYPE 3: ALUMINUM OPERABLE STOREFRONT SYSTEM

**A-503**

SCALE: 1:10 (24"x36" SHEET)



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ANN ARBOR GREEN PROPERTY OWNER LLC / CARTER  
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**HUMPHREYS & PARTNERS ARCHITECTS L.P.**  
5339 Alpha Road, Suite 300 Dallas, TX 75240 (972) 701-9636 (972) 701-9639  
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# NORTH ELEVATION

## MATERIAL LEGEND

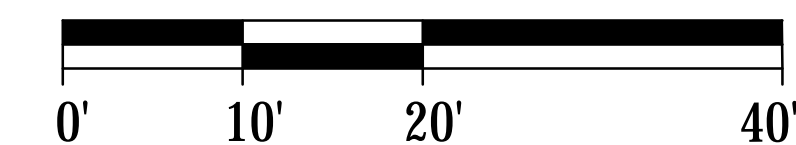
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 BRICK TYPE #3: DARK GRAY IRON SPOT BRICK  
 BRICK TYPE #4: LIGHT GRAY BRICK  
 BRICK TYPE #5: LIGHT TAN BRICK

SLAB CHANNEL: 12" BLACKENED METAL SLAB CHANNEL  
 GROUND FLOOR COLUMNS: LIGHT GLAZED THIN BRICK

STOREFRONT TYPE 1: NATURAL WOOD FRAME STOREFRONT SYSTEM  
 STOREFRONT TYPE 2: NATURAL WOOD FRAME OPERABLE STOREFRONT SYSTEM  
 STOREFRONT TYPE 3: ALUMINUM OPERABLE STOREFRONT SYSTEM

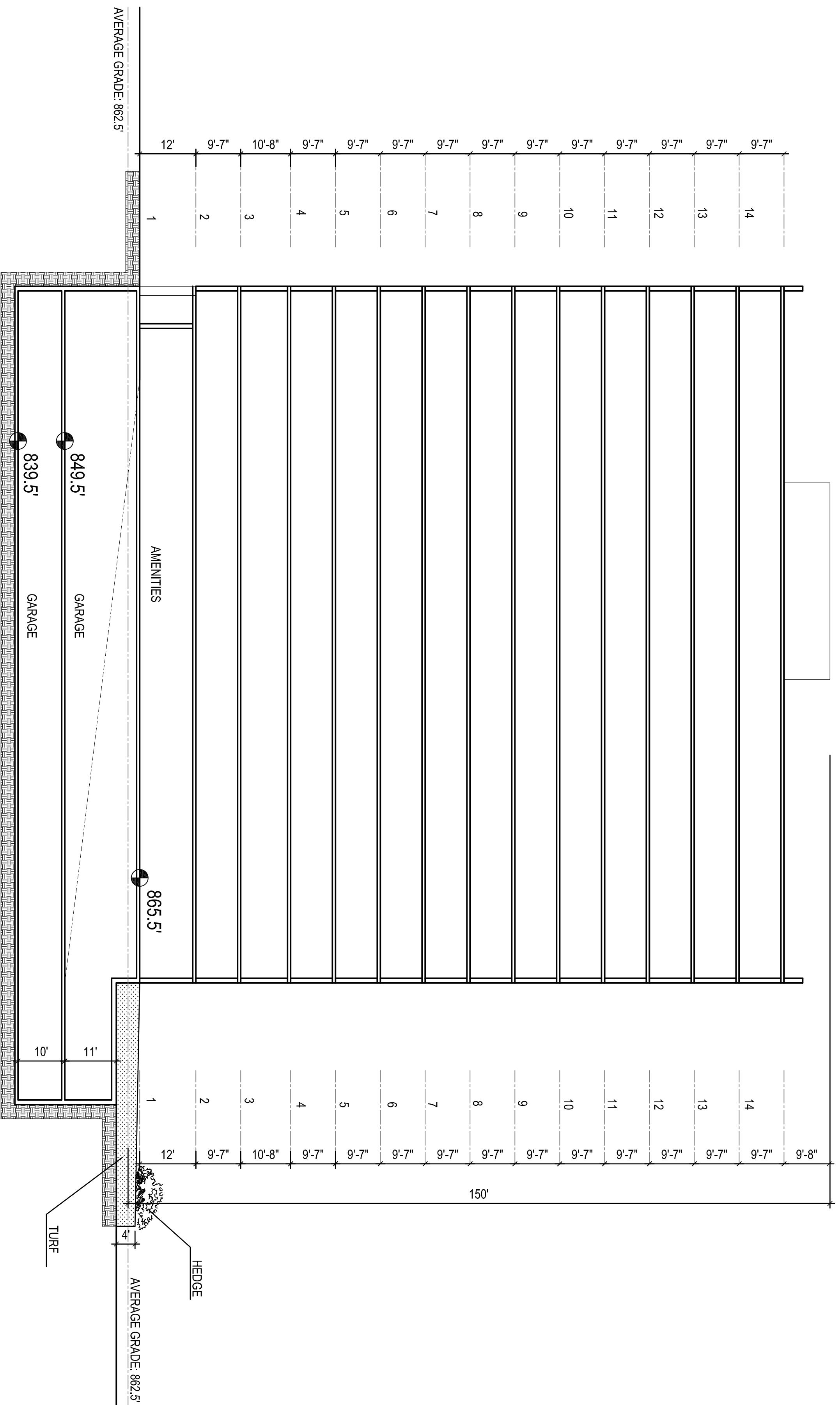
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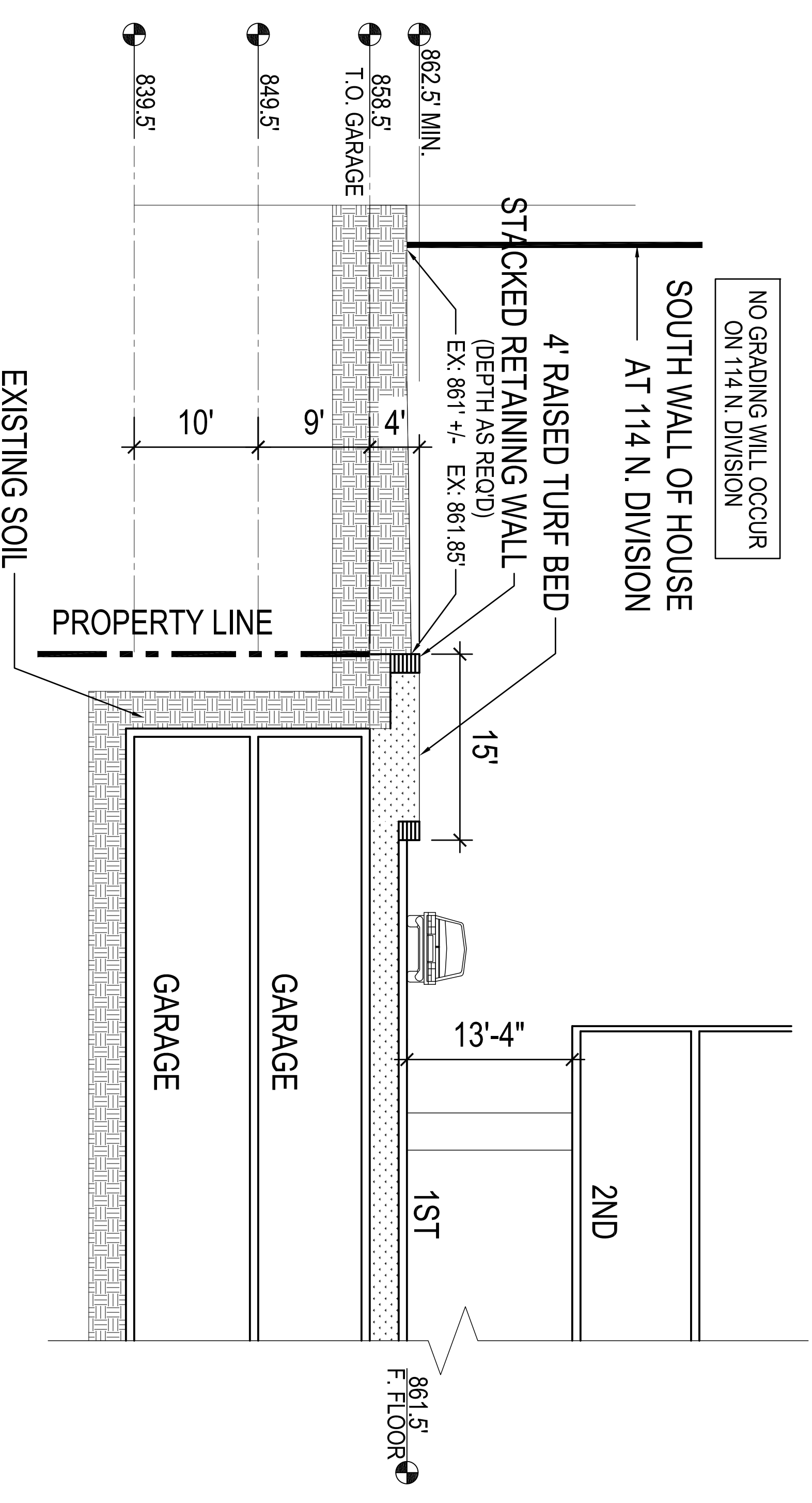


**413 E. HURON ST.**





# SECTION B-B



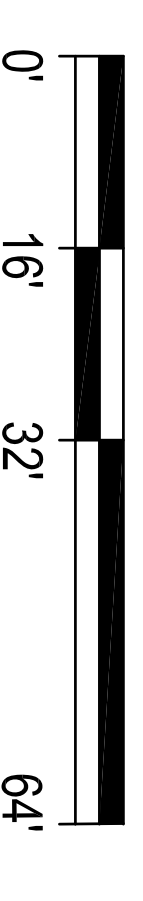
# SECTION C-C REVISED

( LANDSCAPE BUFFER ABOVE GARAGE )

3-26-2013

A-602

SCALE: 1:16 (24"X36" SHEET)



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ANN ARBOR GREEN PROPERTY OWNER LLC / CARTER  
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413 E. HURON ST.

ANN ARBOR, MI  
HPA# 2012327



HUMPHREYS & PARTNERS ARCHITECTS, L.P.  
5339 Alpha Road, Suite 300 Dallas, TX 75240 (972) 701-9636 (972) 701-9639  
www.humphreys.com marketing@humphreys.com  
DALLAS IRVINE NEW ORLEANS ORLANDO SEATTLE