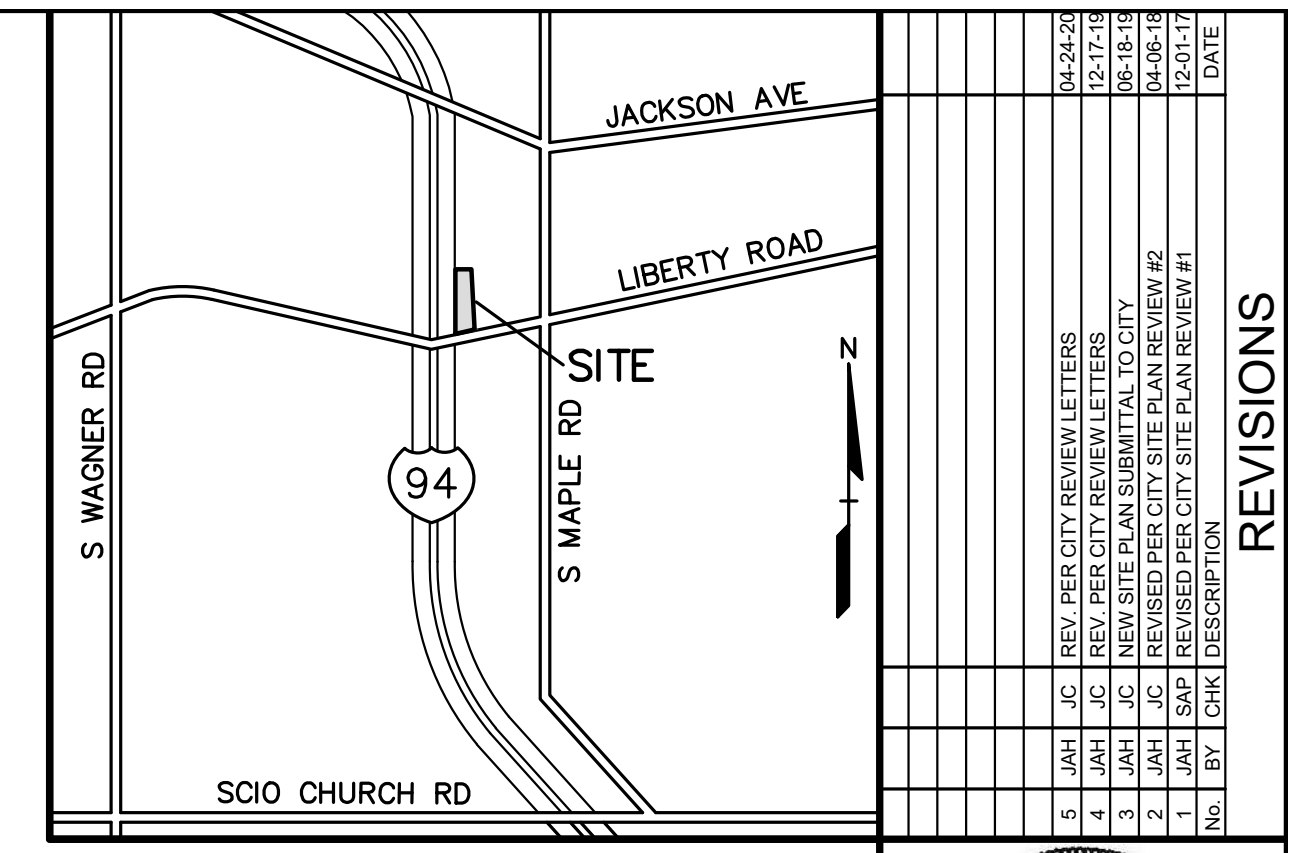


SITE PLAN DRAWINGS FOR LIBERTY TOWNHOMES

2658 W. LIBERTY STREET
A PART OF SE 1/4 SECTION 25, T.2S, R.5E,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN



NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	04-24-2017
2	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	05-17-2017
3	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #3	06-08-2017
4	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #4	06-27-2017
5	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #5	07-10-2017

DEVELOPMENT PROGRAM

THE PROPOSED PROJECT IS LOCATED ON ONE PARCEL OF CURRENTLY VACANT LAND ZONED R4B, MULTI-FAMILY RESIDENTIAL. THE DEVELOPMENT WILL CONSIST OF NINE THREE-STORY APARTMENT BUILDINGS RANGING IN FLOOR AREAS. EACH UNIT WILL HAVE A PRIVATE GARAGE WITH AN ENTRANCE TO THE UNIT AS WELL AS AN ADDITIONAL EXTERIOR ENTRANCE ON THE SIDE OPPOSITE OF THE GARAGE.

THE DEVELOPMENT WILL BE ACCESSED VIA ONE DRIVEWAY FROM LIBERTY STREET AND INCLUDE A TOTAL OF 109 PARKING SPACES, INCLUDING 52 PRIVATE GARAGE SPACES (PROVIDING 52 CLASS 'A' BIKE PARKING SPACES).

IN ALL, THE PROPOSED DEVELOPMENT CONSISTS OF 52 APARTMENT UNITS.

SITE DENSITY WILL BE 11.2 UNITS/ACRE.

PROBABLE SITE CONSTRUCTION COST = \$5,200,000

COMMUNITY ANALYSIS:

- THE PROPOSED DEVELOPMENT IS NOT EXPECTED TO SIGNIFICANTLY IMPACT LOCAL SCHOOLS.
- THE SURROUNDING USES CONSIST OF AN INTERSTATE EXPRESSWAY (I-94), CITY STREET (LIBERTY), SOUTH MAPLE PARK, ONE SINGLE FAMILY HOME, AND 242 CHURCH. THESE USES ARE NOT EXPECTED TO BE NEGATIVELY IMPACTED BY THIS DEVELOPMENT.
- THE SITE WILL BE SCREENED FROM THE SURROUNDING USES BY PRIVACY FENCING, LANDSCAPING AND EXISTING TREES, MITIGATING IMPACTS ON THE RESIDENTS.
- THE SITE IS CURRENTLY VACANT, CONSISTING OF PERIMETER TREES, GRASS AND SCRUB BRUSH. A MAJORITY OF THE SITE IS VOID OF NATURAL FEATURES. SEVEN LANDMARK TREES EXIST ON THE SITE, OF WHICH TWO WILL BE REMOVED AND REPLACED PER MITIGATION REQUIREMENTS. OF SPECIAL INTEREST IS A STAND OF MATURE SPRUCE AND PINE TREES ALONG THE WEST BOUNDARY OF THE SITE FRONTING THE I-94 EXPRESSWAY. ONLY TWO OF THESE TREES WILL BE REMOVED FOR DEVELOPMENT, THE REST BEING PRESERVED WITH THE USE OF A RETAINING WALL ALONG THE WEST SIDE OF THE PROPOSED BUILDINGS. THE SITE WILL NOT CAUSE ANY ADVERSE IMPACTS TO AIR AND WATER QUALITY.
- THERE ARE NO KNOWN HISTORIC SITES ON THE PROPERTIES.

SITE ANALYSIS:

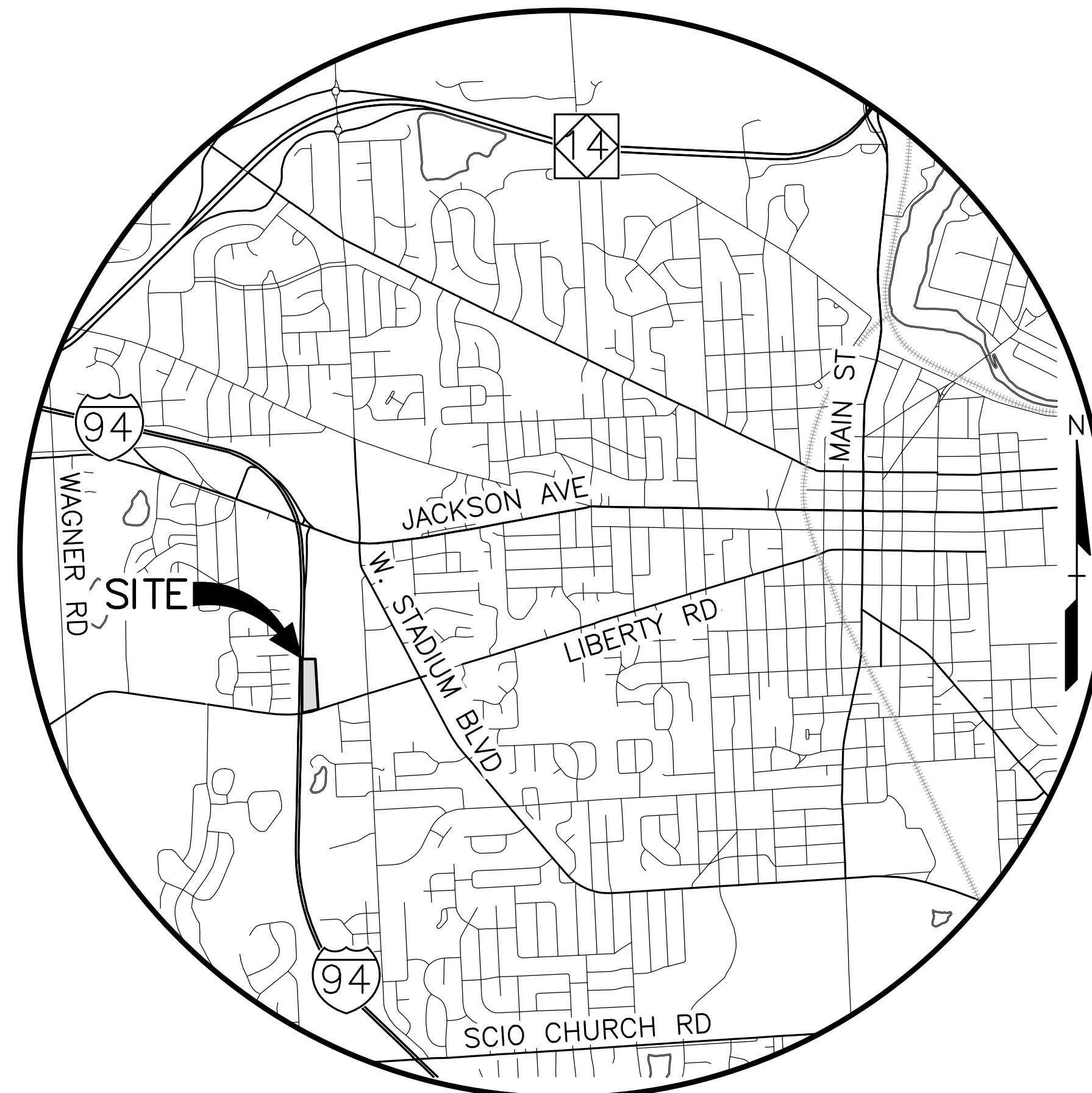
- THE SITE IS CURRENTLY VACANT.
- SITE CONDITIONS:
 - SOIL TYPES ON SITE ARE CONOVER LOAM AND MIAMI LOAM PER THE WASHTENAW COUNTY SOIL SURVEY. A GEOTECHNICAL INVESTIGATION PERFORMED IN 2004 REPORTED PRIMARILY CLAY AND SILTY CLAY BELOW THE OVERLYING TOPSOIL, WITH ISOLATED AREAS OF SAND LAYERS. INFILTRATION TESTING PERFORMED IN 2015 REVEALED SIMILAR RESULTS, WITH NO INDICATION OF SOIL SUITABILITY FOR STORM WATER INFILTRATION.
 - SITE VEGETATION CONSISTS PRIMARILY OF SCRUB BRUSH AND GRASSES OVER THE MAJORITY OF THE SITE, WITH TREES LOCATED AROUND THE PERIMETER, INCLUDING A STAND OF MATURE SPRUCE AND PINE TREES ALONG THE WEST BOUNDARY OF THE SITE. REFER TO SHEETS P-2 AND P-2.1, "TOPOGRAPHIC SURVEY" FOR SITE TOPOGRAPHY.
- SITE NATURAL FEATURES
 - THERE IS NO KNOWN ENDANGERED SPECIES HABITAT ON SITE.
 - THE SITE IS NOT LOCATED WITHIN THE 100-YEAR FLOOD PLAIN.
 - SEVEN LANDMARK TREES EXIST ON THE SITE. REFER TO SHEETS P-2.2 AND P-2.3 FOR EXACT LOCATIONS, AND LANDMARK TREE EVALUATION FORMS FOR CONDITION ASSESSMENT OF LANDMARK TREES.
 - TREE #1078 20-INCH DIA. NORWAY SPRUCE LOCATED NEAR THE SOUTH END OF THE SITE NEAR LIBERTY (TO BE REMOVED)
 - TREE #1079 22-INCH DIA. NORWAY SPRUCE LOCATED NEAR THE SOUTH END OF THE SITE NEAR LIBERTY (TO BE REMOVED)
 - TREE #1096 19-INCH DIA. NORWAY SPRUCE LOCATED NEAR THE SOUTHWEST CORNER OF THE SITE (TO REMAIN)
 - TREE #1132 40-INCH DIA. RED OAK LOCATED ON THE EAST PROPERTY LINE NEAR THE N.E. CORNER OF THE SITE (TO REMAIN)
 - TREE #1139 19-INCH DIA. SHAGBARK HICKORY LOCATED ON THE EAST PROPERTY LINE LINE (TO REMAIN)
 - TREE #1141 21-INCH DIA. SHAGBARK HICKORY LOCATED ON THE EAST PROPERTY LINE LINE (TO REMAIN)
 - TREE #1142 36-INCH DIA WHITE OAK LOCATED ON THE EAST PROPERTY LINE LINE (TO REMAIN)
 - NO STEEP SLOPES EXIST ON THE SITE.
 - THERE ARE NO WATERCOURSES ON THE PROPERTY.
 - THERE ARE NO WETLANDS ON THE PROPERTY.
 - THERE ARE NO WOODLANDS ON THE PROPERTY.
- THERE ARE NO EXISTING STRUCTURES ON THE SITE.
- THE SITE WILL BE ACCESSED VIA A PROPOSED DRIVEWAY ON LIBERTY STREET. THE SITE SIDEWALKS WILL CONNECT TO A PROPOSED PUBLIC WALK ON LIBERTY STREET AND WILL CONNECT TO ALL PARKING LOTS, BUILDING ENTRANCES, AND TO A WALKING LOOP AROUND THE PROPOSED DETENTION AREA. THE PROPOSED PUBLIC SIDEWALK ON LIBERTY STREET WILL EXTEND EAST THROUGH THE EAST PROPERTY LINE AND CONNECT TO THE EXISTING PUBLIC SIDEWALK IN FRONT OF 2608 W. LIBERTY STREET. ALL SIDEWALKS PROPOSED IN THE PUBLIC RIGHT-OF-WAY SHALL MEET ALL REQUIREMENTS AS SET FORTH IN THE ADA STANDARDS FOR ACCESSIBLE DESIGN.
- PUBLIC UTILITIES
 - PUBLIC WATER MAIN WILL BE EXTENDED THROUGH THE SITE, CONNECTING TO THE EXISTING MAIN WITHIN LIBERTY STREET AND TO THE EXISTING WATER MAIN LOCATED ON THE ADJACENT 242 CHURCH PROPERTY TO THE NORTH. 40" WIDE WATER MAIN EASEMENTS WILL BE PROVIDED ON SITE. THE WATER MAIN CONNECTION THROUGH THE 242 CHURCH PROPERTY WILL UTILIZE AN EXISTING PUBLIC EASEMENT.
 - PUBLIC SANITARY SEWER WILL CONNECT TO THE EXISTING SANITARY SEWER ON LIBERTY STREET TO THE SOUTH. A MINIMUM WIDTH OF TWICE THE DEPTH PLUS TEN FEET, WITH THE SEWER OFFSET FIVE FEET FROM THE CENTER WITH A MINIMUM WIDTH OF THIRTY FEET SANITARY SEWER EASEMENT WILL BE PROVIDED THROUGH THE SITE, AS REQUIRED.
- THE SITE CURRENTLY DRAINS UN-DETAINED VIA SHEET FLOW TO THE I-94 HIGHWAY RIGHT-OF-WAY, THE EXISTING LIBERTY STREET STORM SEWER SYSTEM, AND THE ADJACENT PARCEL TO THE EAST. THE PROPOSED DEVELOPMENT INCLUDES A NEW DETENTION BASIN WITH A SEDIMENT FOREBAY AND A NEW ON-SITE ENCLOSED STORM SEWER SYSTEM DESIGNED PER THE WASHTENAW COUNTY WATER RESOURCES COMMISSIONER STANDARDS. THE DETENTION BASIN WILL CAPTURE STORM WATER RUNOFF FROM EXISTING ON-SITE AND OFF-SITE TRIBUTARY DRAINAGE AREAS. THE DETENTION BASIN WILL DISCHARGE TO THE EXISTING STORM SEWER SYSTEM IN THE LIBERTY STREET RIGHT-OF-WAY AT A LOWER PEAK FLOW RATE THAN CURRENTLY EXISTS.

SITE NATURAL FEATURES ALTERNATIVES ANALYSIS

THE UNUSUAL SHAPE OF THE SITE, LONG AND NARROW AND REDUCING IN WIDTH TO THE NORTH, LIMITED THE DEVELOPMENT LAYOUTS PRACTICAL ON THE SITE. OTHER LAYOUTS INVESTIGATED INCLUDED THE FOLLOWING:

- LARGER NARROW BUILDINGS ORIENTED WITH THEIR LONG DIMENSION PARALLEL TO I-94. THIS LAYOUT WOULD ALLOW THE SITE TO BE SLIGHTLY CONSTRUCTED IN THE EAST-WEST DIRECTION TO LIMIT IMPACT TO ROOT ZONES OF PERIMETER TREES, HOWEVER THIS WOULD PLACE A LARGE PORTION OF THE OCCUPANTS WINDOWS FACING THE EXPRESSWAY. IN INITIAL MEETINGS WITH THE CITY, THIS APPROACH WAS DISCOURAGED FOR THIS REASON.
- PLACING THE BUILDINGS TOWARD THE NORTH END OF THE SITE RATHER THAN THE SOUTH END. THIS LAYOUT WOULD SITE THE BUILDINGS AWAY FROM THE TREES LOCATED AT THE SOUTHWEST CORNER OF THE SITE. HOWEVER, THE SHAPE OF THE SITE WOULD LIMIT FEASIBILITY OF BUILDINGS AT THE NORTH END OF THE SITE WITHOUT ORIENTING THEM TOWARD I-94. PLACING THE BUILDINGS NEAR THE NORTH END OF THE SITE WOULD PLACE THEM CLOSE TO THE BILLBOARD AND THE CORRESPONDING CLEAR VISION EASEMENT WHICH LIMITS THE AVAILABLE SPACE. THIS WOULD ALSO ISOLATE THE COMMUNITY AWAY FROM LIBERTY STREET, AND NOT MEET THE 40' MAXIMUM BUILDING SETBACK REQUIREMENT. ADDITIONALLY, PARKING WOULD BE HAVE TO BE LOCATED FARTHER AWAY FROM THE BUILDINGS DUE TO THE LACK OF SPACE AVAILABLE AT THE NORTH END OF THE PROPERTY.

SEE ALTERNATE LAYOUT ANALYSIS SHEET, P-2.4, FOR MORE INFORMATION.



LOCATION MAP
NO SCALE

LEGAL DESCRIPTION:

(Per PEA, Inc.)
A parcel of land in the Southeast 1/4 of Section 25, Town 2 South, Range 5 East, Washtenaw County, Michigan, being more particularly described as:
Commencing at the Southeast corner of said Section 25;
thence along the East line of said Section 25, also being the centerline of Maple Road (variable width - public) N00°28'00"E (tax N00°28'00"W), 988.84 feet to the centerline of Liberty Street (variable width - public);
thence along said centerline, S75°26'15"W, 876.75 feet;
thence N00°19'55"E, 72.44 feet to the North line of said Liberty Street and the POINT OF BEGINNING;

thence along said North line, 240.18 feet (tax 240.19 feet) along the arc of a curve to the right, having a radius of 1839.86 feet, a central angle of 7°28'46" (record 2°07'00"), and a chord bearing S79°14'11"W, 240.01 feet (tax S79°14'30"W, 240.02 feet, record S79°14'30"W, 240.19 feet) to the East Right-of-Way line of I-94;
thence along said East Right-of-Way line, N05°01'00"E, 1089.89 feet (tax 1089.74 feet);
thence S89°40'05"E, 146.51 feet (tax S89°42'34"E, 146.58 feet);
thence S00°19'55"W, 1040.06 feet (tax S00°19'35"W, 1040.02 feet) to the aforementioned North line of Liberty Street and the POINT OF BEGINNING. Containing ±4.65 acres of land.

INDEX OF DRAWINGS:

- P-1 COVER SHEET
- P-2 TOPOGRAPHIC SURVEY (SOUTH)
- P-2.1 TOPOGRAPHIC SURVEY (NORTH)
- 1 OF 1 ALTA/NSPS LAND TITLE SURVEY
- P-2.2 NATURAL FEATURES PLAN (SOUTH)
- P-2.3 NATURAL FEATURES PLAN (NORTH)
- P-2.4 ALTERNATIVE LAYOUT ANALYSIS
- P-3 OVERALL SITE PLAN
- P-3.1 DIMENSION AND PAVING PLAN (SOUTH)
- P-3.2 DIMENSION AND PAVING PLAN (NORTH)
- P-4 GRADING PLAN (SOUTH)
- P-4.1 GRADING PLAN (NORTH)
- P-5 SOIL EROSION CONTROL PLAN (SOUTH)
- P-5.1 SOIL EROSION CONTROL PLAN (NORTH)
- P-6 OVERALL UTILITY PLAN
- P-6.1 UTILITY PLAN (SOUTH)
- P-6.2 UTILITY PLAN (NORTH)
- P-7 STORM WATER MANAGEMENT PLAN
- P-7.1 OVERALL DRAINAGE PLAN
- P-8 STORM WATER CALCULATIONS AND DETAILS
- P-8.1 W.C.W.R.C. COMPUTATIONAL REQUIREMENTS
- P-9 NOTES AND DETAILS
- P-9.1 MDOT DETAILS

- L-1 LANDSCAPE PLAN
- L-2 LANDSCAPE PLAN
- L-3 LANDSCAPE DETAILS

- A-101 COVER
- A-102 CLUSTER CONCEPT PLANS
- A-103 UNIT CONCEPT PLANS
- A-104 ELEVATIONS
- A-105 SECTION

- 1 OF 1 PHOTOMETRIC LIGHTING PLAN

CITY OF ANN ARBOR STANDARD DETAILS:

- AA-1 CITY OF ANN ARBOR DETAIL SHEET
- AA-2 CITY OF ANN ARBOR DETAIL SHEET
- AA-3 CITY OF ANN ARBOR DETAIL SHEET

NOTE:

THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN COMPLETE CONFORMANCE WITH THE CITY OF ANN ARBOR STANDARDS.

PETITIONER (DEVELOPER):

MCP LIBERTY DEVCO, LLC
2617 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326
CONTACT: TONY RANDAZZO
PHONE: (248) 373-2440

CIVIL ENGINEER:

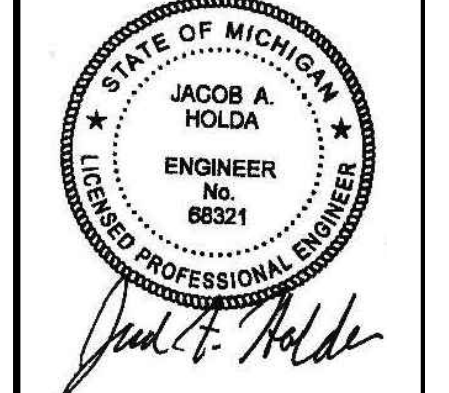
PEA, INC.
7927 NEMCO WAY, STE. 115
BRIGHTON, MICHIGAN 48116
CONTACT: JONATHAN E. CURRY, PE
PHONE: (517) 546-8583
FAX: (517) 546-8973

ARCHITECT:

JARRATT ARCHITECTURE
108 N. LAFAYETTE ST.
SOUTH LYON, MI, 48175
CONTACT: WILLIAM JARRATT
PHONE: (248) 446-1100 X 42

LANDSCAPE ARCHITECT:

VERT VERDE LANDSCAPE ARCHITECTURE, LLC
PLYMOUTH, MI
CONTACT: JAMES GRAY, PLA
PHONE: (734) 249-3568



CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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Brighton, MI 48116
t: 517.546.8583
f: 517.546.8973
www.peainc.com

NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
2617 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326

COVER SHEET
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 5E,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES.	JAH	DN	JAH	SJR	RS	PJM	JC
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ORIGINAL ISSUE DATE: JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: NONE
DRAWING NUMBER: P-1

BENCHMARKS
(GPS DERIVED - NAVD88)

BM#300
SET BENCHMARK IN SOUTHWEST FACE OF UTILITY POLE, SOUTH SIDE OF LIBERTY STREET, OPPOSITE EAST PROPERTY LINE.
ELEV. - 974.44

BM#301
TOP OF NORTHEAST CORNER OF CONCRETE BRIDGE ABUTMENT WALL, NORTHEAST CORNER OF I-4/LIBERTY STREET (BY PIER WITH PLAQUE).
ELEV. - 976.14

BM#302
CUT 'X' WEST TOP OF CONCRETE LIGHT POLE BASE.
ELEV. - 965.04

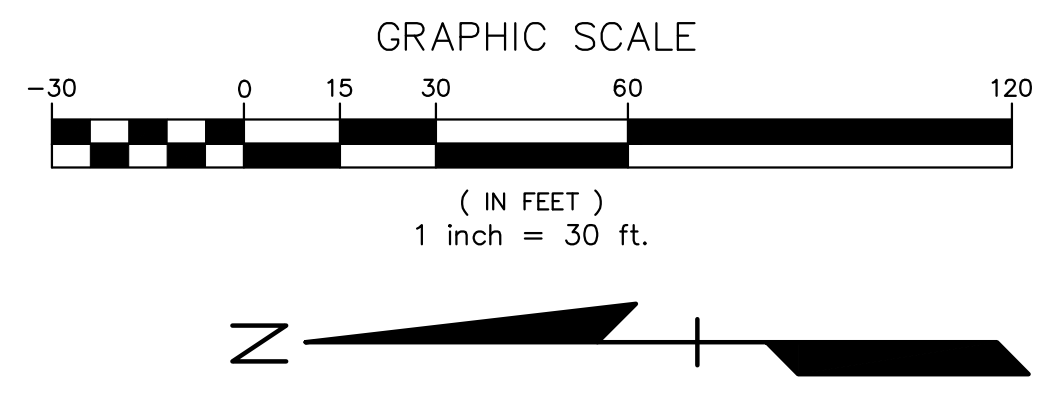
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thence S00°19'55"W, 1040.06 feet (tax S00°19'35"W, 1040.02 feet) to the aforementioned North line of Liberty Street and the POINT OF BEGINNING.
Containing ±4.65 acres of land.

FLOOD NOTE:

BY GRAPHICAL PLOTTING, THE SUBJECT PARCEL LIES WITHIN "AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN" (ZONE X) PER NON-PRINTED FEMA FLOOD INSURANCE RATE MAP 26161C-0243E, EFFECTIVE APRIL 3, 2012.

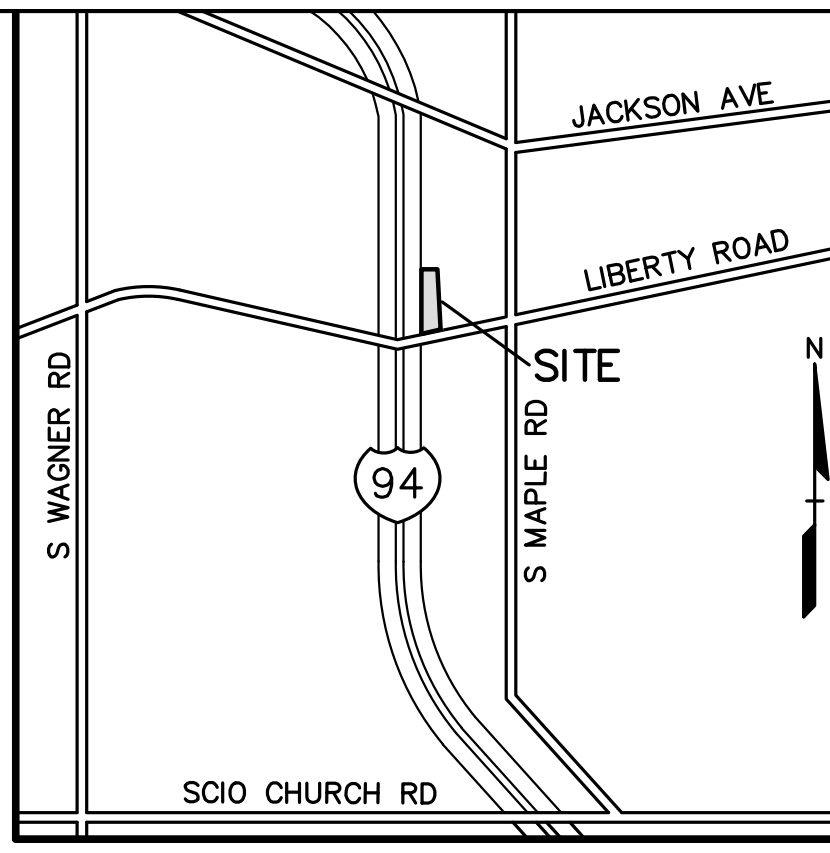


LEGEND

● IRON FOUND	⊗ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊗ IRON SET	⊗ MONUMENT FOUND	⊙ RECORDED
⊗ NAIL FOUND	⊗ MONUMENT SET	⊙ MEASURED
⊗ NAIL & CAP SET		⊙ CALCULATED

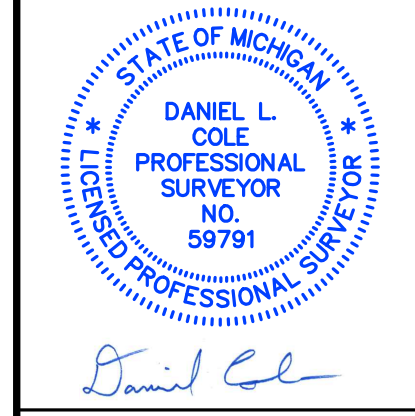
EXISTING

—OH-ELEC-110V—	ELEC. PHONE OR CABLE TV OH. LINE, POLE & GUY WIRE
—UG-CATV—	UNDERGROUND CABLE TV, CATV PEDESTAL
—UG-UG-PHONE—	TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
—UG-ELEC-110V—	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE
—UG-ELEC-240V—	GAS MAIN, VALVE & GAS LINE MARKER
—UG-ELEC-240V—	WATERMAIN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE
—UG-ELEC-240V—	SANITARY SEWER, CLEANOUT & MANHOLE
—UG-ELEC-240V—	STORM SEWER, CLEANOUT & MANHOLE
—UG-ELEC-240V—	COMBINED SEWER & MANHOLE
—UG-ELEC-240V—	CATCH BASIN
—UG-ELEC-240V—	INLET (NO INCOMING LINES)
—UG-ELEC-240V—	YARD DRAIN (2" DIA. & SMALLER)
—UG-ELEC-240V—	POST INDICATOR VALVE
—UG-ELEC-240V—	WATER VALVE 800%/HYDRANT VALVE BOX, SERVICE SHUTOFF
—UG-ELEC-240V—	MALIBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
—UG-ELEC-240V—	UNIDENTIFIED STRUCTURE
—UG-ELEC-240V—	SPOT ELEVATION
—UG-ELEC-240V—	AS BUILT ELEVATION
—UG-ELEC-240V—	CONTOUR LINE
—UG-ELEC-240V—	FENCE
—UG-ELEC-240V—	GUARD RAIL
—UG-ELEC-240V—	STREET LIGHT
—UG-ELEC-240V—	SION
—UG-ELEC-240V—	CONCRETE
—UG-ELEC-240V—	ASPHALT
—UG-ELEC-240V—	WETLAND
—UG-ELEC-240V—	GRAVEL SHOULDER
—UG-ELEC-240V—	SOIL TYPE
—UG-ELEC-240V—	SOIL TYPE LIMITS



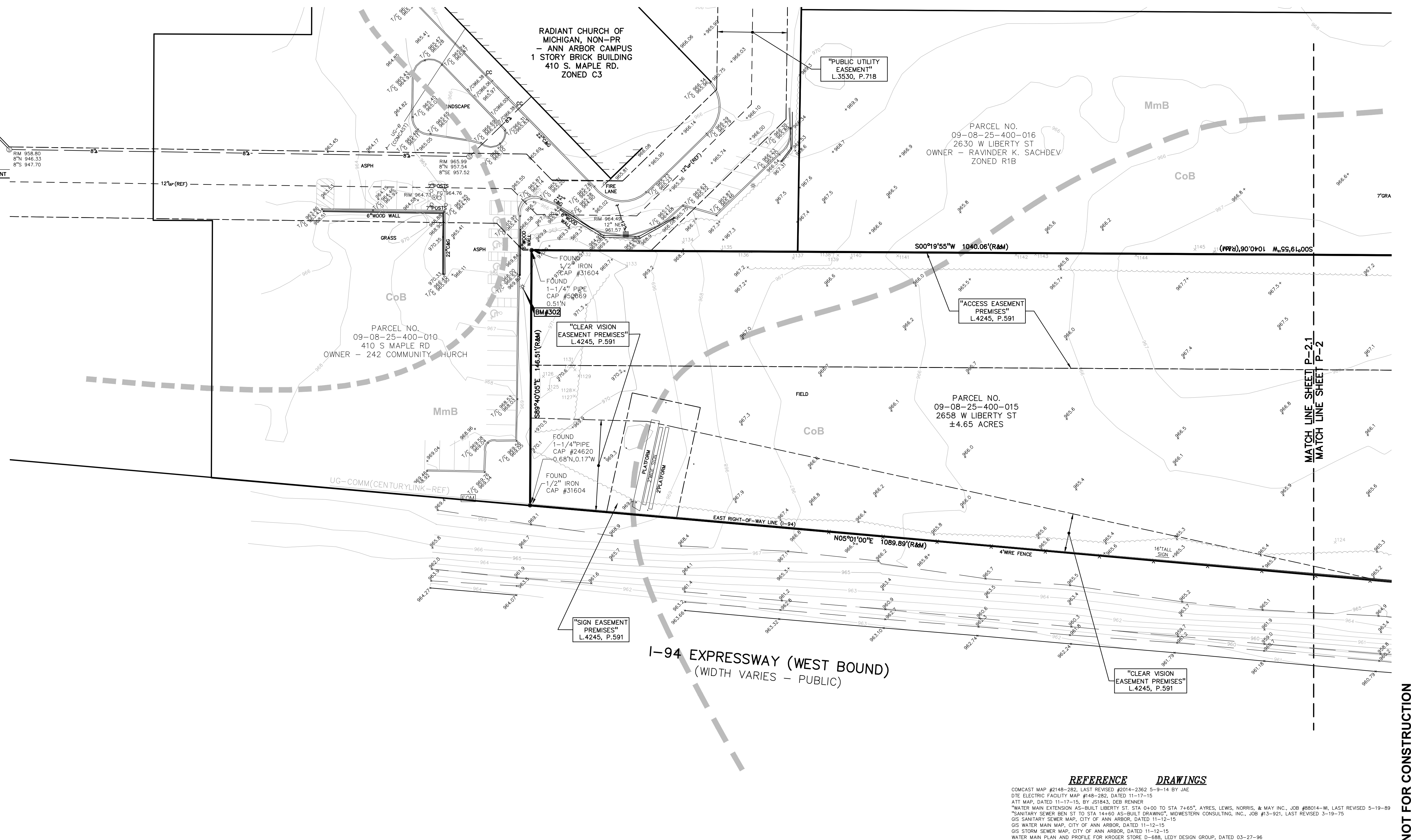
REVISIONS

NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #1	04-24-20
2	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #2	05-12-20
3	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #3	05-12-20
4	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #4	05-12-20
5	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #5	05-12-20



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TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT
1071	BS	11	Blue Spruce	Picea pungens	GOOD	
1072	BS	13	Blue Spruce	Picea pungens	GOOD	
1073	BS	10	Blue Spruce	Picea pungens	GOOD	
1074	BK	10	Box elder	Acer negundo	GOOD	
1075	BS	11	Blue Spruce	Picea pungens	GOOD	
1076	BS	8	Blue Spruce	Picea pungens	FAIR	
1077	BS	16	Blue Spruce	Picea pungens	GOOD	
1078	NS	20	Norway Spruce	Picea abies	GOOD	
1079	NS	22	Norway Spruce	Picea abies	GOOD	
1080	BS	13	Blue Spruce	Picea pungens	GOOD	
1081	BS	12	Blue Spruce	Picea pungens	GOOD	
1082	BK	12	Box elder	Acer negundo	POOR	
1083	BS	14	Blue Spruce	Picea pungens	GOOD	
1084	EE	18	Siberian Elm	Ulmus pumila	FAIR	
1085	RO	12	Red Oak	Quercus rubra	GOOD	
1086	CA	8	Crab Apple	Malus coronaria	POOR	
1087	BK	9	Box elder	Acer negundo	GOOD	x3
1088	NM	10	Norway Maple	Acer platanoides	GOOD	x3
1089	WP	13	(Eastern) White Pine	Pinus strobus	FAIR	x2
1090	NS	9	Norway Spruce	Picea abies	GOOD	
1091	NS	10	Norway Spruce	Picea abies	GOOD	
1092	NS	8	Norway Spruce	Picea abies	GOOD	
1093	NS	15	Norway Spruce	Picea abies	FAIR	
1094	BK	8	Box elder	Acer negundo	FAIR	
1095	NS	8	Norway Spruce	Picea abies	GOOD	
1096	NS	19	Norway Spruce	Picea abies	GOOD	
1097	NS	12	Norway Spruce	Picea abies	GOOD	
1098	NS	10	Norway Spruce	Picea abies	GOOD	
1099	NS	11	Norway Spruce	Picea abies	GOOD	
1100	NS	9	Norway Spruce	Picea abies	FAIR	
1101	NS	9	Norway Spruce	Picea abies	GOOD	
1102	NS	10	Norway Spruce	Picea abies	GOOD	
1103	BS	10	Blue Spruce	Picea pungens	GOOD	
1104	NS	13	Norway Spruce	Picea abies	GOOD	
1105	NS	8	Norway Spruce	Picea abies	GOOD	x2
1106	BS	11	Blue Spruce	Picea pungens	GOOD	
1107	NS	11	Norway Spruce	Picea abies	GOOD	
1108	BS	12	Blue Spruce	Picea pungens	GOOD	
1109	NS	12	Norway Spruce	Picea abies	GOOD	
1110	NS	11	Norway Spruce	Picea abies	GOOD	
1111	NS	10	Norway Spruce	Picea abies	GOOD	
1112	BS	11	Blue Spruce	Picea pungens	FAIR	
1113	WP	9	(Eastern) White Pine	Pinus strobus	GOOD	
1114	NS	9	Norway Spruce	Picea abies	FAIR	
1115	NS	10	Norway Spruce	Picea abies	GOOD	
1116	NS	12	Norway Spruce	Picea abies	FAIR	
1117	NS	9	Norway Spruce	Picea abies	GOOD	
1118	NS	11	Norway Spruce	Picea abies	GOOD	
1119	NS	10	Norway Spruce	Picea abies	GOOD	
1120	BS	11	Blue Spruce	Picea pungens	GOOD	
1121	au	14	Austrian Pine	Pinus nigra	GOOD	
1122	au	13	Austrian Pine	Pinus nigra	GOOD	
1123	E	16	American Elm	Ulmus americana	GOOD	x2
1124	RM	9	Red Maple	Acer rubrum	GOOD	
1125	E	13	American Elm	Ulmus americana	FAIR	
1126	E	9	American Elm	Ulmus americana	FAIR	
1127	au	9	Austrian Pine	Pinus nigra	GOOD	
1128	au	8	Austrian Pine	Pinus nigra	GOOD	
1129	au	10	Austrian Pine	Pinus nigra	GOOD	
1130	au	8	Austrian Pine	Pinus nigra	GOOD	
1131	au	8	Austrian Pine	Pinus nigra	GOOD	
1132	RO	40	Red Oak	Quercus rubra	FAIR	
1133	SH	13	Shagbark Hickory	Carya ovata	GOOD	
1134	SH	10	Shagbark Hickory	Carya ovata	GOOD	
1135	E	11	American Elm	Ulmus americana	GOOD	
1136	SH	11	Shagbark Hickory	Carya ovata	GOOD	
1137	SH	12	Shagbark Hickory	Carya ovata	GOOD	
1138	BR	16	Bur oak	Quercus macrocarpa	GOOD	
1139	SH	19	Shagbark Hickory	Carya ovata	GOOD	x2
1140	SH	10	Shagbark Hickory	Carya ovata	GOOD	
1141	SH	21	Shagbark Hickory	Carya ovata	GOOD	
1142	WO	36	White Oak	Quercus alba	GOOD	
1143	WO	10	White Oak	Quercus alba	GOOD	
1144	SH	13	Shagbark Hickory	Carya ovata	GOOD	x2
1145	SH	13	Shagbark Hickory	Carya ovata	GOOD	
1146	SH	15	Shagbark Hickory	Carya ovata	GOOD	
1147	NM	12	Norway Maple	Acer platanoides	FAIR	
1148	WP	16	(Eastern) White Pine	Pinus strobus	FAIR	
1149	WP	16	(Eastern) White Pine	Pinus strobus	GOOD	
1150	NS	9	Norway Spruce	Picea abies	GOOD	
1151	NS	12	Norway Spruce	Picea abies	GOOD	
1152	BK	11	Box elder	Acer negundo	POOR	
1153	NS	14	Norway Spruce	Picea abies	GOOD	



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MCP LIBERTY DEVCO, LLC
2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326

**TOPOGRAPHIC SURVEY (NORTH)
LIBERTY TOWNHOMES**
PART OF THE SE 1/4 OF SECTION 25 T. 2S. R. 5E.
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES: JAH DN JAH SJR RS P.M. JC
S:\PROJECTS\2017\03-187_TOWNSHIP LIBERTY MICHIGAN\GIS\DWG\SITE PLAN\2017-03-187-010-1716.rvt

ORIGINAL ISSUE DATE:
JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: 1" = 30'

DRAWING NUMBER:
P-2.1

REFERENCE DRAWINGS

COMCAST MAP #2148-282, LAST REVISED #2014-2362 5-9-14 BY JAE
DTE ELECTRIC FACILITY MAP #148-282, DATED 11-17-15
ATTI MAP, DATED 11-17-15, BY #2043, DER BEMER
"WATER MAIN EXTENSION AS-BUILT LIBERTY ST. STA 0+00 TO STA 7+60", AYRES, LEWIS, NORRIS, & MAY INC, JOB #8014-W, LAST REVISED 5-19-09
"SANITARY SEWER BEN ST TO STA 14+50 AS-BUILT DRAWING", MIDWESTERN CONSULTING, INC, JOB #13-921, LAST REVISED 3-19-15
GS SANITARY SEWER MAP, CITY OF ANN ARBOR, DATED 11-12-15
GS WATER MAIN MAP, CITY OF ANN ARBOR, DATED 11-12-15
GS STORM SEWER MAP, CITY OF ANN ARBOR, DATED 11-12-15
WATER MAIN PLAN AND PROFILE FOR KROGER STORE D-688, LEDY DESIGN GROUP, DATED 03-27-06

SCHEDULE B-II (EXCEPTIONS)

First American Title Insurance Company
 Commitment No. 845787
 Commitment Date: April 16, 2019

- Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I-Requirements are met.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or by making inquiry of persons in possession of the Land.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title including discrepancies, conflicts in boundary lines, shortage in area, or any other facts that would be disclosed by an accurate and complete land survey of the Land, and that are not shown in the Public Records.
[SURVEYOR'S COMMENTS: AS SHOWN ON THE SURVEY MAP, IF ANY.]
- Any lien or right to lien for services, labor or material imposed by law and not shown by the Public Records.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Taxes and assessments not due and payable at Commitment Date.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Interest of Donald E. Van Curler and Carol A. Van Curler, as Co-Trustees of the Van Curler Investment Trust dated November 14, 2000, as evidenced by instrument recorded in Liber 4120, page 21.
[SURVEYOR'S COMMENTS: EXHIBIT 1 THEREIN DESCRIBES A PORTION OF THE SUBJECT PARCEL AND IS SHOWN ON THE SURVEY MAP.]
- Mortgage in the original amount of \$8,384,212.80 executed by MCP Liberty Devco LLC, a Michigan limited liability company to Fund Investment 90, LLC, dated December 06, 2018, recorded December 10, 2018, in Liber 5284, page 139.
[SURVEYOR'S COMMENTS: SCHEDULE A THEREIN DESCRIBES THE ENTIRE SUBJECT PARCEL; HOWEVER, THIS IS NOT A PLOTTABLE LAND SURVEY ITEMS AND IS NOT SHOWN ON THE SURVEY MAP.]
- Assignment of Leases and Rents executed by MCP Liberty Devco LLC, a Michigan limited liability company to Fund Investment 90, LLC, dated December 06, 2018, recorded December 10, 2018, in Liber 5284, page 140.
[SURVEYOR'S COMMENTS: EXHIBIT A THEREIN DESCRIBES THE ENTIRE SUBJECT PARCEL; HOWEVER, THIS IS NOT A PLOTTABLE LAND SURVEY ITEMS AND IS NOT SHOWN ON THE SURVEY MAP.]

SCHEDULE B-II (EXCEPTIONS) CONT.

- UCC Financing Statement between MCP Liberty Devco LLC, Debtor(s), and Fund Investment 90, LLC, Secured Party, recorded December 12, 2018, in Liber 5284, page 530.
[SURVEYOR'S COMMENTS: EXHIBIT A THEREIN DESCRIBES THE ENTIRE SUBJECT PARCEL; HOWEVER, THIS IS NOT A PLOTTABLE LAND SURVEY ITEMS AND IS NOT SHOWN ON THE SURVEY MAP.]
- Grant of Easement in favor of Weber's, Inc. and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 4245, page 591.
[SURVEYOR'S COMMENTS: AFFECTS THE SURVEYED PROPERTY AS PLOTTED AND SHOWN ON THE SURVEY MAP.]
- Terms and Conditions contained in Resolution Authorizing Sanitary Sewer and Water Improvement Charges as disclosed by instrument recorded in Liber 4628, page 823.
[SURVEYOR'S COMMENTS: RESOLUTION ITEM 1 THEREIN DESCRIBES THE ENTIRE SUBJECT PARCEL; HOWEVER, THIS IS NOT A PLOTTABLE LAND SURVEY ITEMS AND IS NOT SHOWN ON THE SURVEY MAP.]
- Any rights, title interest or claim thereof to that portion of the land taken, used or granted for streets, roads or highways.
[SURVEYOR'S COMMENTS: AS SHOWN ON THE SURVEY MAP, IF ANY.]
- Interest of others in oil, gas and mineral rights, if any, whether or not recorded in the public records.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Interest, if any, of the United States, State of Michigan, or any political subdivision thereof, in the oil, gas and minerals in and under and that may be produced from the captioned land.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Loss or damage arising out of any discrepancy between the legal description of the property as insured and the legal description of the property as assessed on the Washtenaw County tax rolls.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Matters referenced by survey recorded in Liber 2230, page 941.
[SURVEYOR'S COMMENTS: MATTERS NOT CLEARLY REFERENCED OR IDENTIFIED THEREIN AND MAY OR MAY NOT BE NOT SHOWN ON THE SURVEY MAP.]
- Rights of tenants, if any, under any unrecorded leases.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]
- Lien for outstanding water or sewer charges, if any.
[SURVEYOR'S COMMENTS: THIS IS NOT A PLOTTABLE LAND SURVEY ITEM AND IS NOT SHOWN ON THE SURVEY MAP.]

EXHIBIT "A"- LEGAL DESCRIPTION

First American Title Insurance Company
 Commitment No. 845787
 Commitment Date: April 16, 2019

Land in the City of Ann Arbor, Washtenaw County, MI, described as follows:

Commencing at the Southeast corner of Section 25, Town 2 South, Range 5 East, City of Ann Arbor, Washtenaw County, Michigan; thence North 00 degrees 28 minutes 00 seconds East 988.84 feet along the East line of said Section and the centerline of Maple Road to a point on the centerline of Liberty Road; thence South 75 degrees 26 minutes 15 seconds West, 876.75 feet along said centerline; thence North 00 degrees 19 minutes 55 seconds East, 72.44 feet to a point on the Northerly right-of-way line of Liberty Road, said point being the POINT OF BEGINNING; thence along said right-of-way line Westerly 240.19 feet along the arc of a curve to the right, radius 1839.86 feet, chord South 79 degrees 14 minutes 30 seconds West 240.02 feet to a point on the Easterly right-of-way line of the I-94 Expressway; thence North 05 degrees 01 minutes 00 seconds East 1089.74 feet along said right-of-way line; thence South 89 degrees 42 minutes 34 seconds East 146.58 feet; thence South 00 degrees 19 minutes 35 seconds West 1040.02 feet to the Point of Beginning. Being a part of the Southeast 1/4 of Section 25, Town 2 South, Range 5 East, City of Ann Arbor, formerly Township of Scio, Washtenaw County, Michigan.

SURVEYOR'S NOTES

Table A Items

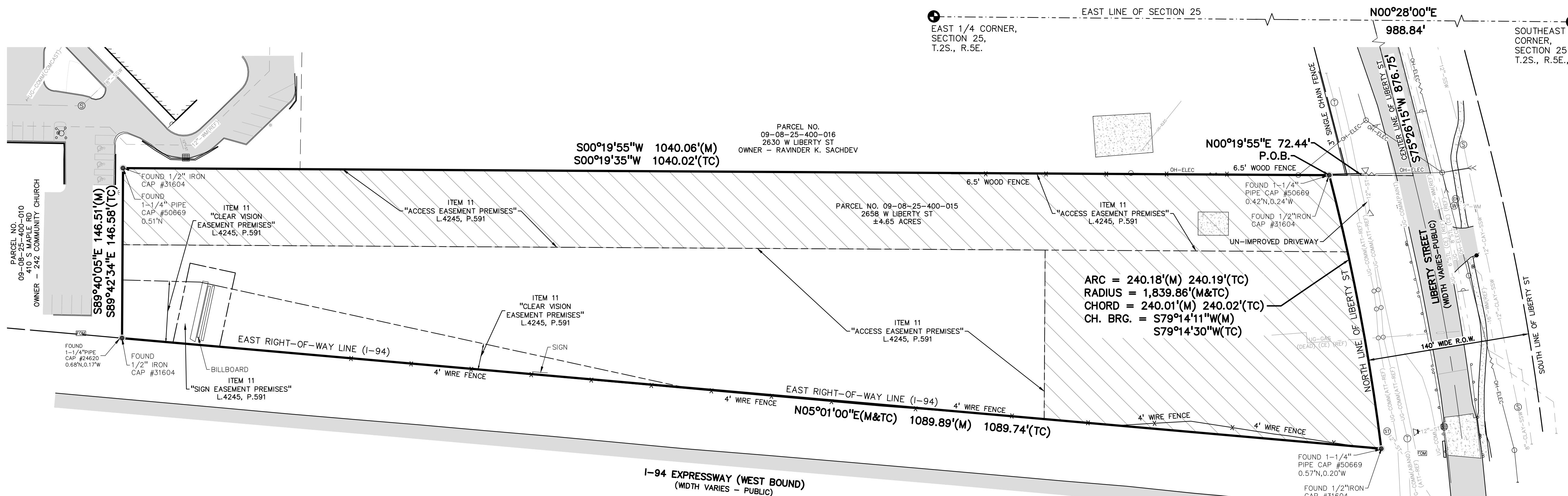
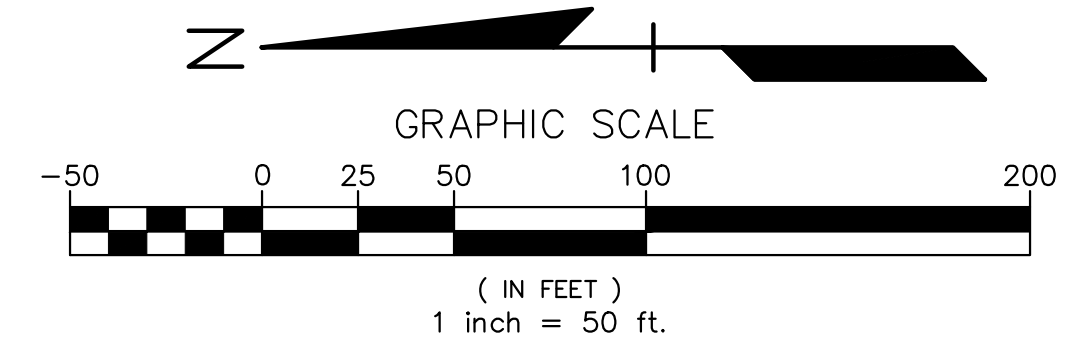
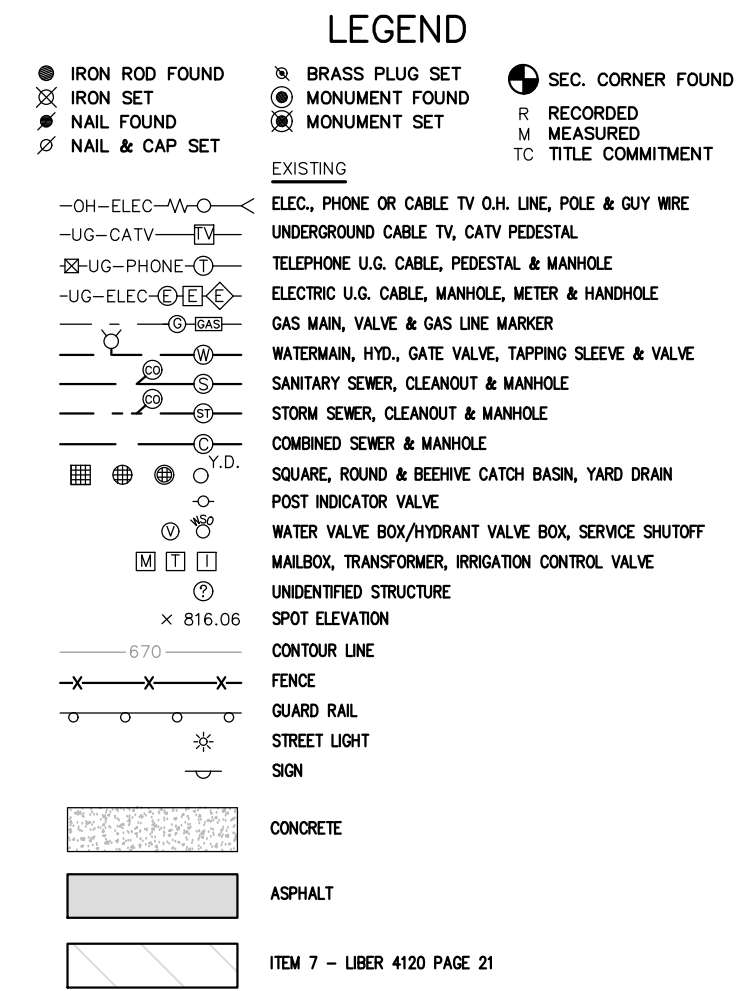
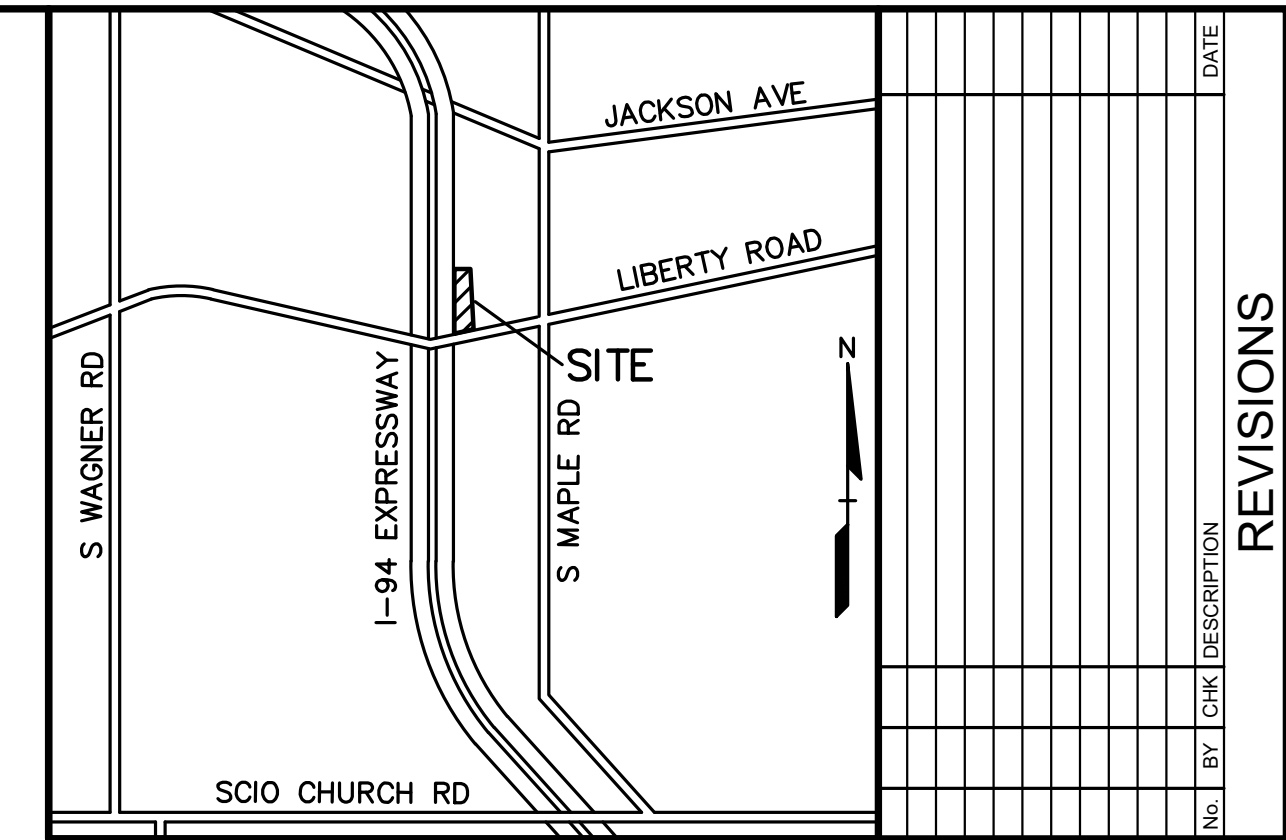
- The subject property is identified as:
 2658 W Liberty St. Ann Arbor, MI 48103
 Tax Parcel No. 09-08-25-400-015
- By graphic plotting, the subject parcel is in "Zone X" (Areas determined to be outside of 0.2% annual chance floodplain) per FEMA Flood Insurance Rate Map Numbers 26161C0243E, Effective Date of April 03, 2012.
- The property covers approximately 4.65 acres of land.
- Substantial features observed in the process of conducting the fieldwork are shown on the survey map and are depicted as observed.
- The location of utilities existing on and serving the subject property are shown on the survey map and depicted as observed in the field and/or as noted in plans obtained from utility companies.
- Names of adjoining land owners are shown and noted on the survey map pursuant to current tax records.

SURVEYOR'S CERTIFICATE

To: MCP Liberty Devco, LLC
 First American Title Insurance Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 8, 11, and 13 of Table A thereof. The fieldwork was completed on April 29, 2019.

Christopher T. Beland, P.S.
 Michigan Professional Surveyor No. 49106
 Agent for Professional Engineering Associates, Inc.
 Date: May --, 2019



NO.	BY	CHK	DESCRIPTION	DATE

CAUTION!
 THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS MADE BY THE SURVEYOR FOR THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS PROFESSIONAL ENGINEERING ASSOCIATES, INC. FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

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MCP LIBERTY DEVCO, LLC
 2817 Beacon Hill Drive
 Auburn Hills, MI 48326

ALTA/NSPS LAND TITLE SURVEY
TROWBRIDGE LIBERTY FAMILY
 09-08-25-400-015
 CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JSH SUR. CB P.M. JC
 DN. JSH SUR. CB P.M. JC

ORIGINAL ISSUE DATE:
 MAY 07, 2019

PEA JOB NO. 2017-167

SCALE: 1" = 50'

DRAWING NUMBER:
1 of 1

EXISTING LAND USE
THE SITE IS CURRENTLY OVERGROWN GRASS EDGED WITH TREES

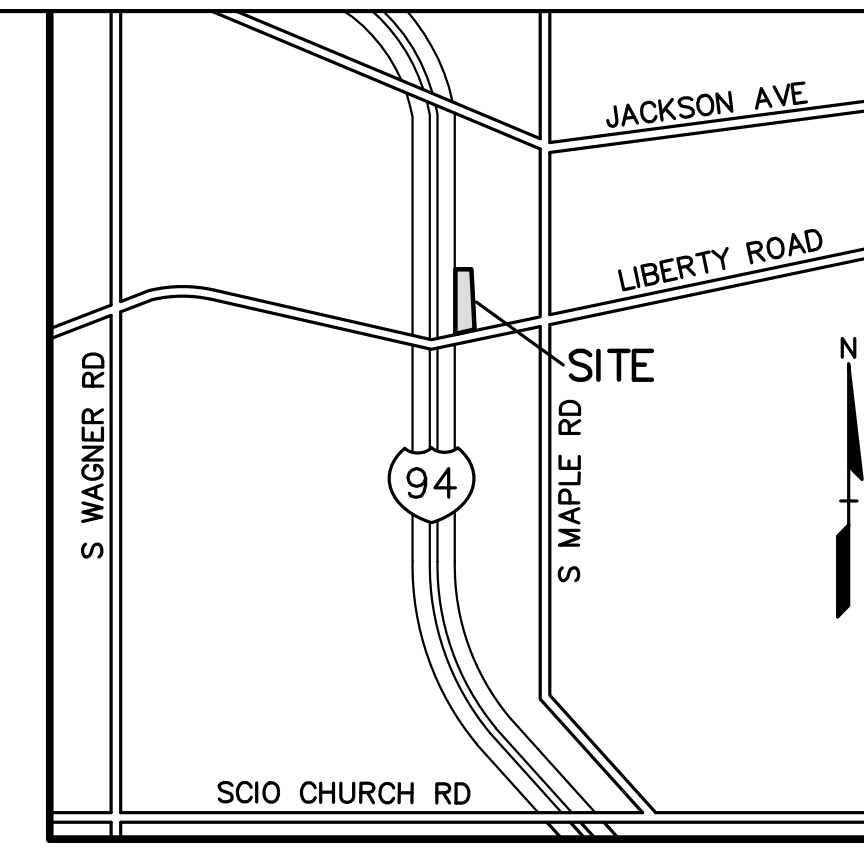
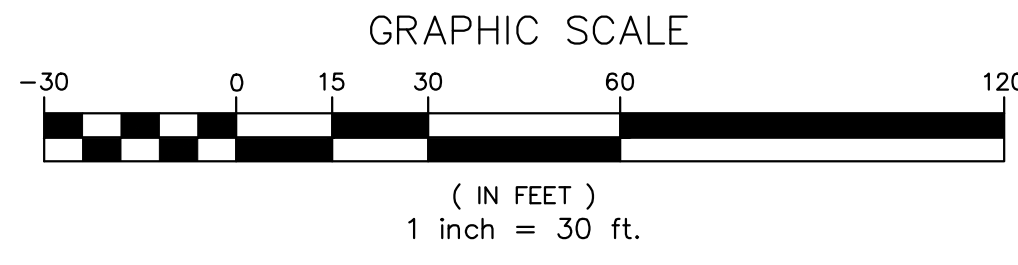
NATURAL FEATURES INVENTORY
THE SITE DOES NOT CONTAIN ANY WOODLANDS

THE SITE DOES NOT CONTAIN ANY WETLANDS OR WATER COURSE

THE SITE DOES NOT CONTAIN ANY FLOODPLAINS

THE SITE DOES NOT CONTAIN ANY STEEP SLOPES

THE SITE CONTAINS SEVEN LANDMARK TREES WITHIN THE PROPERTY LIMIT. TWO WILL BE REMOVED AND REPLACED (SEE LANDSCAPE PLAN)



NO.	BY	CHK	DESCRIPTION	DATE
1	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	04-24-20
2	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	05-12-20
3	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #3	06-04-20
4	JAH	JC	REVISED PER CITY REVIEW LETTERS	08-12-20
5	JAH	JC	REVISED PER CITY REVIEW LETTERS	04-24-20

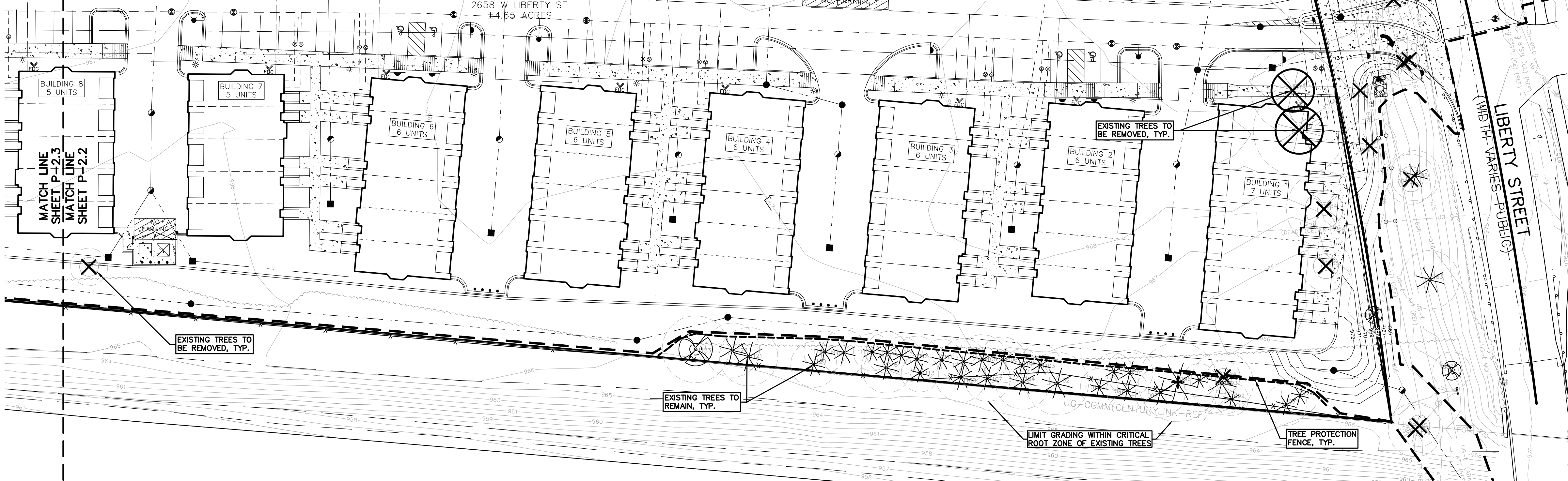
PARCEL NO.
09-08-25-400-006
2608 W LIBERTY ST

PARCEL NO.
09-08-25-400-007
2608 W LIBERTY ST
OWNER - KOCH & WHITE
HEATING & COOLING

SE CORNER, SECTION 25
T.2S., R.9E., SCIO TWP.
WASHTENAW CO., MI
FOUND W.C.R.P. CAP ON PIPE
L.C.R.C. LIBER 00001, PAGE 0561

PARCEL NO.
09-08-25-400-016
2630 W LIBERTY ST
OWNER - RAVINDER K. SACHDEV
ZONED R1B

PARCEL NO.
09-08-25-400-015
2658 W LIBERTY ST
±4.65 ACRES



NOTE:
HEAVY DASHED LINE INDICATES LIMITS OF EARTH DISRUPTION.
AREA = ±4.7 ACRES TOTAL
(ONSITE AND R.O.W. WORK)

LEGEND

● IRON FOUND	● BRASS PLUG SET	● SEC. CORNER FOUND
● NAIL FOUND	● MONUMENT FOUND	● RECORDED
● NAIL & CAP SET	● MONUMENT SET	● MEASURED
		● CALCULATED

EXISTING

- OH-ELEC-W: ELEC. PHONE OR CABLE TV G.H. LINE, POLE & GUY WIRE
- UG-CATV: UNDERGROUND CABLE TV, CATV PEDESTAL
- UG-UG-PHONE: TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
- UG-ELEC: ELECTRIC U.G. CABLE, MANHOLE, WETTER & HANDHOLE
- GAS MAIN, VALVE & GAS LINE MARKER
- WATERMAIN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- CATCH BASIN, INLET, YARD DRAIN
- POST INDICATOR VALVE
- WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
- MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE

PROPOSED

- SPOT ELEVATION
- CONTOUR LINE
- FENCE
- GUARD RAIL
- STREET LIGHT
- SIGN
- CONC. CONCRETE
- ASPH. ASPHALT
- GRAVEL SHOULDER
- WETLAND

KEY

- ⊗ LANDMARK TREES TO BE REMOVED
- ⊗ TREES TO BE REMOVED
- ★ LANDMARK TREES TO REMAIN
- ★ TREES TO REMAIN

NOTE:
REFER TO LANDSCAPE PLANS FOR TREE PROTECTION FENCE DETAIL AND NOTES.

I-94 EXPRESSWAY (WEST BOUND)
(WIDTH VARIES - PUBLIC)

CAUTION!
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2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326

NATURAL FEATURES PLAN (SOUTH)
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25 T. 2S. R. 9E.
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JAH DN JAH SJR RS P.M. JC
S:\PROJECTS\2017\2017-167_TOWNHOMES_LIBERTY_ML-14\DWG\SITE_PLAN\2022-1_P-2.2_NAT_FEATURES-1718.dwg

NOT FOR CONSTRUCTION

ORIGINAL ISSUE DATE:
JULY 27, 2017

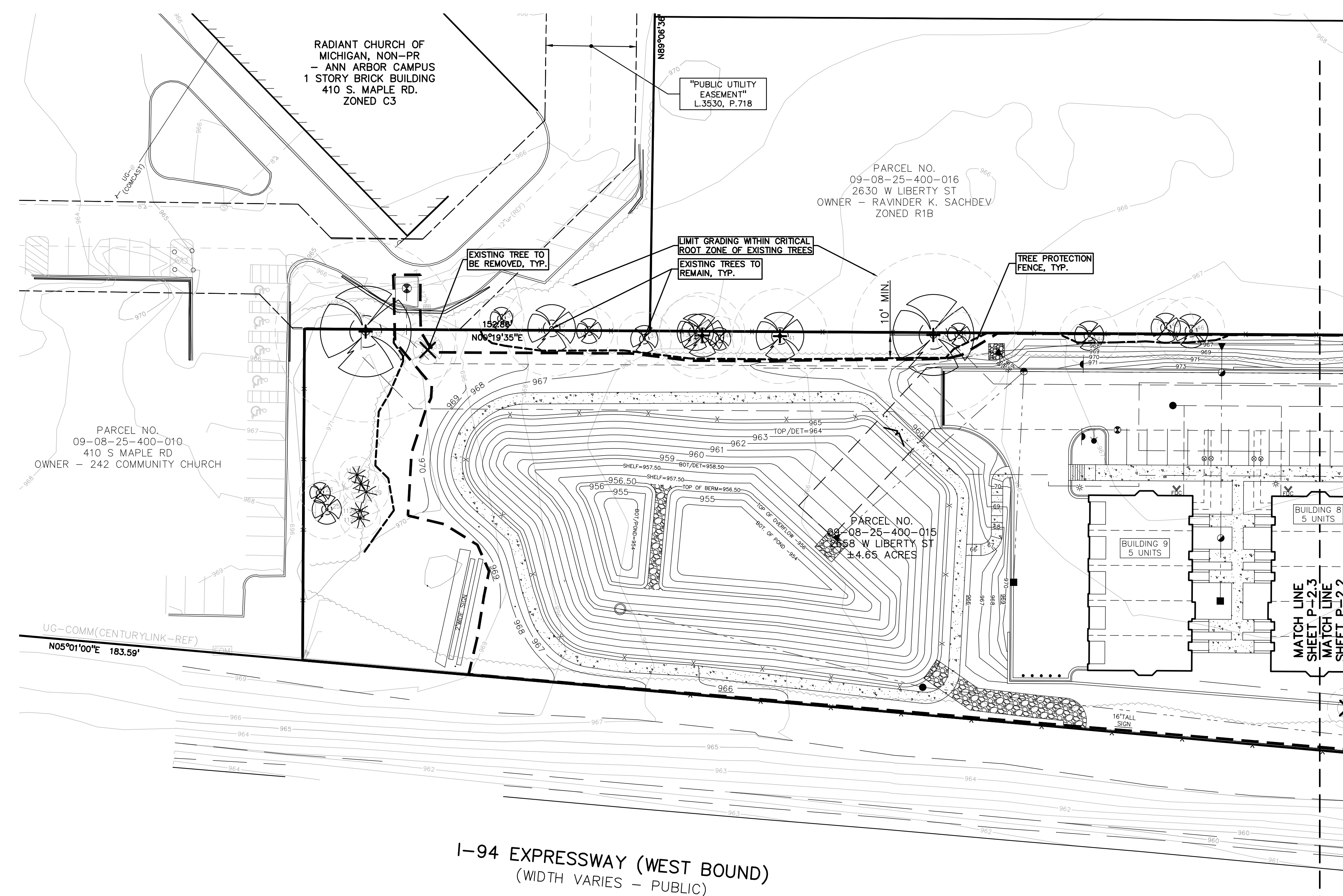
PEA JOB NO. 2017-167

SCALE: 1" = 30'

DRAWING NUMBER:
P-2.2

TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	NOTE
1071	BS	11	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1072	BS	13	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1073	BS	10	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1074	BX	10	Box elder	Acer negundo	GOOD		Tree to be Removed
1075	BS	11	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1076	BS	8	Blue Spruce	Picea pungens	FAIR		Tree to be Removed
1077	BS	16	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1078	NS	20	Norway Spruce	Picea Abies	GOOD		Landmark to be Removed
1079	NS	22	Norway Spruce	Picea Abies	GOOD		Landmark to be Removed
1080	BS	13	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1081	BS	12	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1082	BX	12	Box elder	Acer negundo	POOR		Tree to be Removed
1083	BS	14	Blue Spruce	Picea pungens	GOOD		Tree to be Removed
1084	EE	38	Siberian Elm	Ulmus pumila	FAIR		Tree to be Removed
1085	RO	12	Red Oak	Quercus rubra	GOOD		Tree to be Removed
1086	CA	8	Crab Apple	Malus coronaria	POOR		Tree to be Removed
1087	BX	9	Box elder	Acer negundo	GOOD	x3	Tree to be Removed
1088	NM	10	Norway Maple	Acer platanoides	GOOD	x3	Tree to be Removed
1089	WP	13	(Eastern) White Pine	Pinus strobus	FAIR	x2	Tree to be Removed
1090	NS	9	Norway Spruce	Picea Abies	GOOD		Tree to be Removed
1091	NS	10	Norway Spruce	Picea Abies	GOOD		Tree to be Removed
1092	NS	8	Norway Spruce	Picea Abies	GOOD		Tree to be Removed
1093	NS	15	Norway Spruce	Picea Abies	FAIR		Tree to be Removed
1094	BX	8	Box elder	Acer negundo	FAIR		Tree to be Removed
1095	NS	8	Norway Spruce	Picea Abies	GOOD		Tree to be Removed
1096	NS	19	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1097	NS	12	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1098	NS	10	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1099	NS	11	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1100	NS	9	Norway Spruce	Picea Abies	FAIR		Landmark to Remain
1101	NS	9	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1102	NS	15	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1103	BS	10	Blue Spruce	Picea pungens	GOOD		Landmark to Remain
1104	NS	13	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1105	NS	8	Norway Spruce	Picea Abies	GOOD	x2	Landmark to Remain
1106	BS	11	Blue Spruce	Picea pungens	GOOD		Landmark to Remain
1107	NS	11	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1108	BS	12	Blue Spruce	Picea pungens	GOOD		Landmark to Remain
1109	NS	12	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1110	NS	11	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1111	NS	10	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1112	BS	11	Blue Spruce	Picea pungens	FAIR		Landmark to Remain
1113	WP	9	(Eastern) White Pine	Pinus strobus	GOOD		Landmark to Remain
1114	NS	9	Norway Spruce	Picea Abies	FAIR		Landmark to Remain
1115	NS	10	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1116	NS	12	Norway Spruce	Picea Abies	FAIR		Landmark to Remain
1117	NS	9	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1118	NS	11	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1119	NS	10	Norway Spruce	Picea Abies	GOOD		Landmark to Remain
1120	BS	11	Blue Spruce	Picea pungens	GOOD		Landmark to Remain
1121	au	14	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1122	au	13	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1123	E	16	American Elm	Ulmus americana	GOOD	x2	Landmark to Remain
1124	NM	9	Red Maple	Acer rubrum	GOOD	x3	TREE TO BE REMOVED
1125	E	13	American Elm	Ulmus americana	FAIR		Landmark to Remain
1126	E	9	American Elm	Ulmus americana	FAIR		Landmark to Remain
1127	au	9	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1128	au	8	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1129	au	10	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1130	au	8	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1131	au	8	Austrian Pine	Pinus nigra	GOOD		Landmark to Remain
1132	RO	40	Red Oak	Quercus rubra	FAIR		Landmark to Remain
1133	SH	43	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1134	SH	10	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1135	E	21	American Elm	Ulmus americana	GOOD		Landmark to Remain
1136	SH	11	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1137	SH	12	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1138	BR	16	Bur oak	Quercus macrocarpa	GOOD		Landmark to Remain
1139	SH	19	Shagbark Hickory	Carya ovata	GOOD	x2	Landmark to Remain
1140	SH	10	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1141	SH	21	Shagbark Hickory	Carya ovata	GOOD		Landmark to Remain
1142	WO	36	White Oak	Quercus alba	GOOD		CRZ IMPACTS
1143	WO	10	White Oak	Quercus alba	GOOD		CRZ IMPACTS
1144	SH	13	Shagbark Hickory	Carya ovata	GOOD	x2	CRZ IMPACTS
1145	SH	13	Shagbark Hickory	Carya ovata	GOOD		CRZ IMPACTS
1146	SH	15	Shagbark Hickory	Carya ovata	GOOD		CRZ IMPACTS
1147	NM	12	Norway Maple	Acer platanoides	FAIR		CRZ IMPACTS
1148	WP	16	(Eastern) White Pine	Pinus strobus	FAIR		CRZ IMPACTS
1149	WP	16	(Eastern) White Pine	Pinus strobus	GOOD		CRZ IMPACTS
1150	NS	9	Norway Spruce	Picea Abies	GOOD		CRZ IMPACTS
1151	NS	12	Norway Spruce	Picea Abies	GOOD		CRZ IMPACTS
1152	BX	11	Box elder	Acer negundo	POOR		CRZ IMPACTS
1153	NS	14	Norway Spruce	Picea Abies	GOOD		CRZ IMPACTS

*CRZ IMPACTED TREE- TO REMAIN BUT MITIGATION PROVIDED. SEE LANDSCAPE PLANS.
 NOTE:
 A COPY OF THE TREE HEALTH/ CONDITION EVALUATION FOR EACH LANDMARK TREE WILL BE PROVIDED IN A SEPERATE PDF DOCUMENT.



I-94 EXPRESSWAY (WEST BOUND)
 (WIDTH VARIES - PUBLIC)

LEGEND

● IRON FOUND	⊗ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊗ IRON SET	⊙ MONUMENT FOUND	⊙ RECORDED
⊗ NAIL FOUND	⊙ MONUMENT SET	⊙ MEASURED
⊗ NAIL & CAP SET		⊙ CALCULATED

EXISTING

- OH—ELEC—V—V—C— ELEC. PHONE OR CABLE TV OH. LINE, POLE & GUY WIRE
- UG—CITY— ELEC. PHONE OR CABLE TV, CITY PEDESTAL
- UG—PHONE— TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
- UG—ELEC—ELEC. U.G. CABLE, MANHOLE, METER & HANDHOLE
- GAS—MAN, VALVE & GAS LINE MARKER
- WATERMAN, HYD. GATE, VALVE, TAPPING SLEEVE & VALVE
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- CATCH BASIN, INLET, YARD DRAIN
- POST INDICATOR VALVE
- WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
- METER BOX, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE
- SPOT ELEVATION
- CONTOUR LINE
- FENCE
- GUARD RAIL
- STREET LIGHT
- SIGN

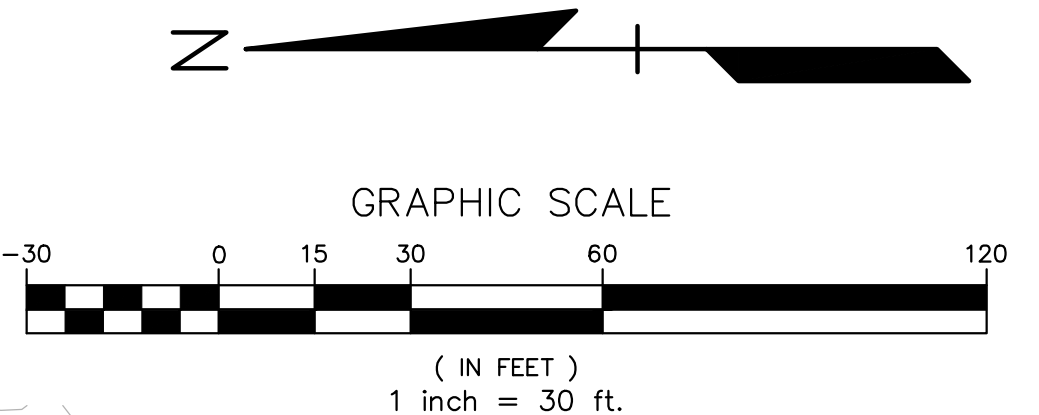
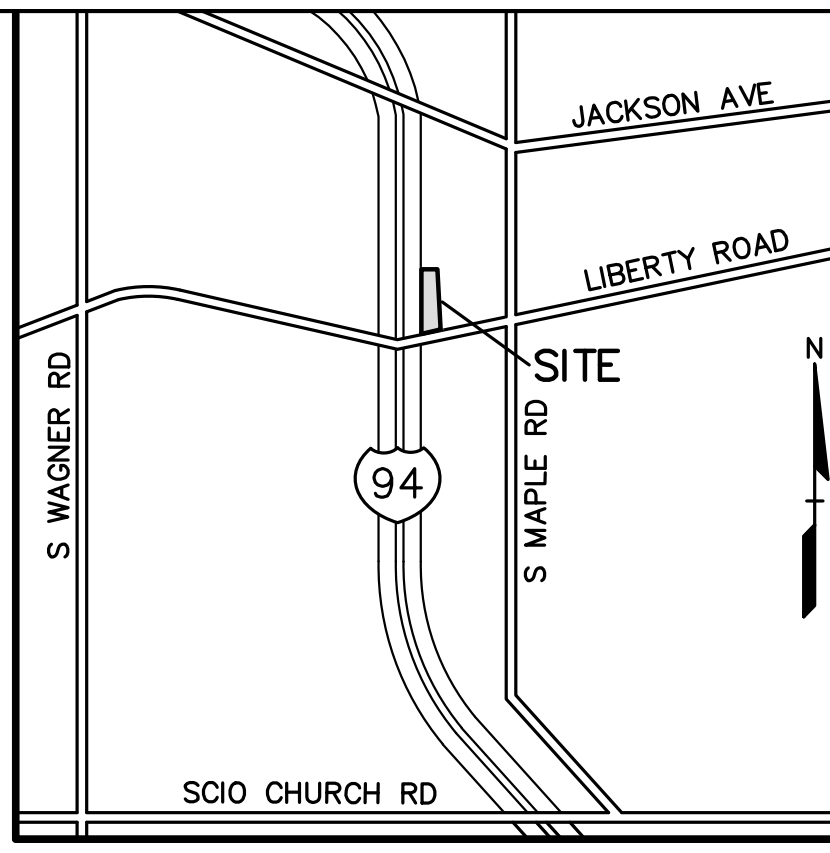
PROPOSED

- CONC— CONCRETE
- ASPH— ASPHALT
- GRAVEL— GRAVEL SHOULDER
- WETLAND
- STD HEAVY R.O.W. DUTY
- STD HEAVY DEEP DUTY

KEY

- ⊗ = LANDMARK TREES TO BE REMOVED (NONE ON THIS SHEET)
- ⊗ = TREES TO BE REMOVED
- ⊗ = LANDMARK TREES TO REMAIN
- ⊗ = TREES TO REMAIN

NOTE:
 REFER TO LANDSCAPE PLANS FOR TREE PROTECTION FENCE DETAIL AND NOTES.



REVISIONS

NO.	BY	CHK.	DESCRIPTION	DATE
5	JAH	JC	REV. PER CITY REVIEW LETTERS	04-24-20
4	JAH	JC	REV. PER CITY REVIEW LETTERS	02-17-19
3	JAH	JC	REV. PER CITY REVIEW LETTERS	02-17-19
2	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	04-08-18
1	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	12-01-17

CAUTION!!
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CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL, ENGINEER, ARCHITECT AND ALL LIABILITY INSURANCE POLICIES IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ASSUMED FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

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NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
 2817 BEACON HILL DRIVE
 AUBURN HILLS, MICHIGAN - 48326

NATURAL FEATURES PLAN (NORTH)
 LIBERTY TOWNHOMES
 PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 9E,
 CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES: JAH DN JAH SJR RS P.M. JC
 S:\PROJECTS\2017\2017-167_Townhomeze Liberty Hill\ANLY\NATURAL FEATURES PLAN\2017-167-223_NAT FEATURES.DWG

ORIGINAL ISSUE DATE:
 JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: 1" = 30'

DRAWING NUMBER:
P-2.3

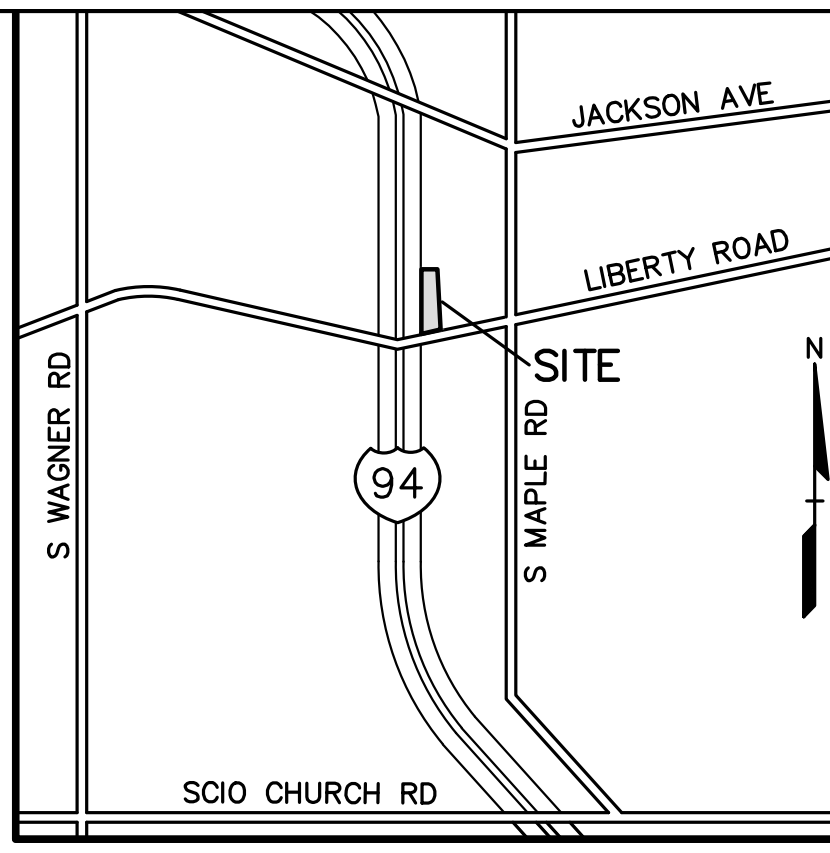
SITE NATURAL FEATURES ANALYSIS ALTERNATIVE #1

LARGER NARROW BUILDINGS ORIENTED WITH THEIR LONG DIMENSION PARALLEL TO I-94:
 THIS LAYOUT WOULD ALLOW THE SITE TO BE SLIGHTLY CONSTRICTED IN THE EAST-WEST DIRECTION TO LIMIT IMPACT TO ROOT ZONES OF PERIMETER TREES, HOWEVER THIS WOULD PLACE A LARGE PORTION OF THE OCCUPANTS WINDOWS FACING THE EXPRESSWAY. IN INITIAL MEETINGS WITH THE CITY, THIS APPROACH WAS DISCOURAGED FOR THIS REASON.

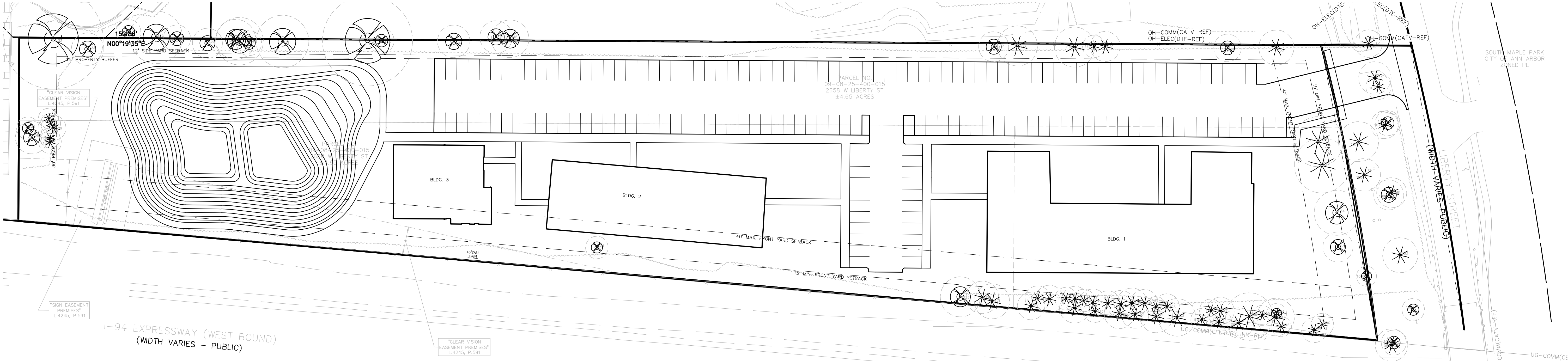
LEGEND

● IRON FOUND	⊗ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊗ IRON SET	⊙ MONUMENT FOUND	⊙ RECORDED
⊗ NAIL FOUND	⊙ MONUMENT SET	⊙ MEASURED
⊗ NAIL & CAP		⊙ CALCULATED

— OH-ELEC—W—	ELEC. PHONE OR CABLE TV OH LINE, POLE & GUY WIRE	CONC.	CONCRETE
— UG-CATV—	UNDERGROUND CABLE TV GUY FEEDING	ASPH.	ASPHALT
— UG-PHONE—	TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE	GRAVEL	GRAVEL SHOULDER
— UG-ELEC—	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE	WETLAND	WETLAND
— GAS—	GAS MAIN, VALVE & GAS LINE MARKER		
— WATER—	WATERMAN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE		
— SANITARY—	SANITARY SEWER, CLEANOUT & MANHOLE		
— STORM—	STORM SEWER, CLEANOUT & MANHOLE		
— COMB—	COMBINED SEWER & MANHOLE		
— CATCH—	CATCH BASIN, INLET, TYP. DRAIN		
— POST—	POST INDICATOR VALVE		
— WATER—	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF		
— MAILBOX—	MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE		
— UNDEVELOPED—	UNDEVELOPED STRUCTURE		
— SPOT—	SPOT ELEVATION		
— CONTOUR—	CONTOUR LINE		
— FENCE—	FENCE		
— GUARD—	GUARD RAIL		
— STREET—	STREET LIGHT		
— SIGN—	SIGN		

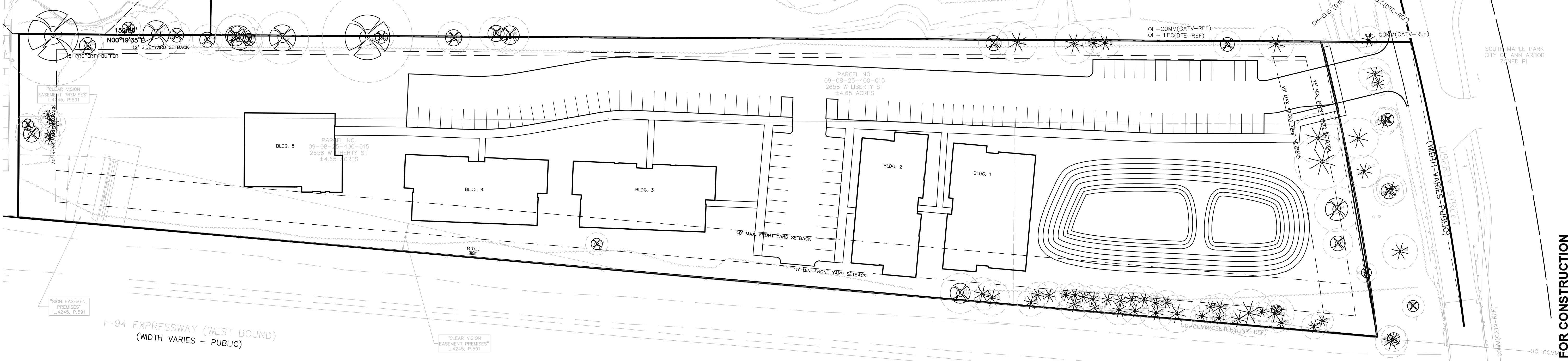
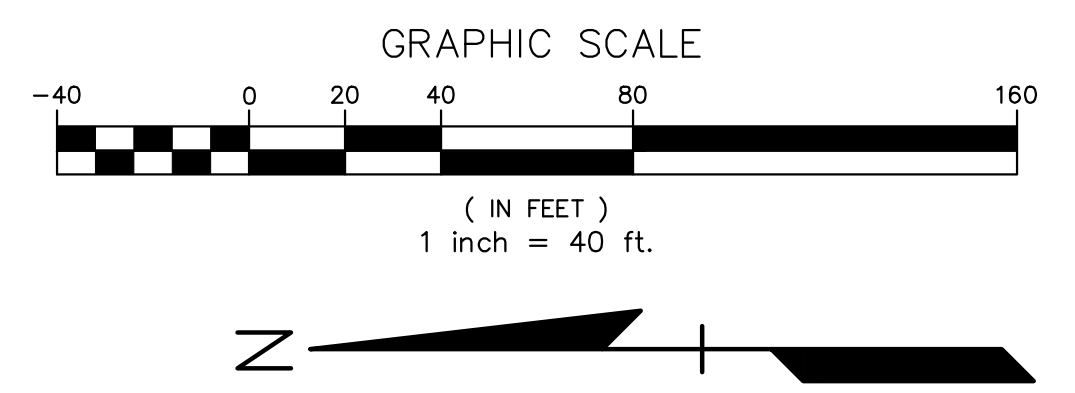


NO.	BY	CHK.	DESCRIPTION	DATE
5	JAH/JC	JAH/JC	REV. PER CITY REVIEW LETTERS	04-24-20
4	JAH/JC	JAH/JC	REV. PER CITY REVIEW LETTERS	02-17-19
3	JAH/JC	JAH/JC	REVISED PER CITY SITE PLAN REVIEW #2	04-08-18
2	JAH/JC	JAH/JC	REVISED PER CITY SITE PLAN REVIEW #1	12-01-17
1	JAH/JC	JAH/JC	REVISED PER CITY SITE PLAN REVIEW #1	12-01-17



SITE NATURAL FEATURES ANALYSIS ALTERNATIVE #2

PLACING THE BUILDINGS TOWARD THE NORTH END OF THE SITE RATHER THAN THE SOUTH END:
 THIS LAYOUT WOULD SITE THE BUILDINGS AWAY FROM THE TREES LOCATED AT THE SOUTHWEST CORNER OF THE SITE. HOWEVER, THE SHAPE OF THE SITE WOULD LIMIT FEASIBILITY OF BUILDINGS AT THE NORTH END OF THE SITE ORIENTING THEM TOWARD I-94. PLACING THE BUILDINGS NEAR THE NORTH END OF THE SITE WOULD PLACE THEM CLOSE TO THE BILLBOARD AND THE CORRESPONDING CLEAR VISION EASEMENT WHICH LIMITS THE AVAILABLE SPACE. THIS WOULD ALSO ISOLATE THE COMMUNITY AWAY FROM LIBERTY STREET, AND NOT MEET THE 40' MAXIMUM BUILDING SETBACK REQUIREMENT. ADDITIONALLY, PARKING WOULD HAVE TO BE LOCATED FARTHER AWAY FROM THE BUILDINGS DUE TO THE LACK OF SPACE AVAILABLE AT THE NORTH END OF THE PROPERTY.



CAUTION!
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NOT FOR CONSTRUCTION	MCP LIBERTY DEVCO, LLC 2817 BEACON HILL DRIVE AUBURN HILLS, MICHIGAN - 48326
	ALTERNATIVE LAYOUT ANALYSIS LIBERTY TOWNHOMES PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 9E, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN
DES.	JAH DN JAH SJR RS P.M. JC

ORIGINAL ISSUE DATE:
 JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: 1" = 40'

DRAWING NUMBER:
P-2.4

LEGAL DESCRIPTION:
(Per PEA, Inc.)

A parcel of land in the Southeast 1/4 of Section 25, Town 2 South, Range 5 East, Washtenaw County, Michigan, being more particularly described as:
Commencing at the Southeast corner of said Section 25; thence along the East line of said Section 25, also being the centerline of Maple Road (variable width - public) N00°28'00"E (tax N00°28'00"W), 988.84 feet to the centerline of Liberty Street (variable width - public); thence along said centerline, S75°26'15"W, 876.75 feet; thence N00°19'55"E, 72.44 feet to the North line of said Liberty Street and the POINT OF BEGINNING;
thence along said North line, 240.18 feet (tax 240.19 feet) along the arc of a curve to the right, having a radius of 1839.86 feet, a central angle of 7°28'46" (record 2°07'00"), and a chord bearing S79°14'11"W, 240.01 feet (tax S79°14'30"W, 240.02 feet, record S79°14'30"W, 240.19 feet) to the East Right-of-Way line of I-94; thence along said East Right-of-Way line, N05°01'00"E, 1089.89 feet (tax 1089.74 feet); thence S89°40'05"E, 146.51 feet (tax S89°42'34"E, 146.58 feet); thence S00°19'55"W, 1040.06 feet (tax S00°19'55"W, 1040.02 feet) to the aforementioned North line of Liberty Street and the POINT OF BEGINNING.
Containing ±4.65 acres of land.

WETLAND AND FLOODPLAIN NOTES:

NO REGULATED WETLANDS EXIST ON THE SITE.
THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE 100-YEAR FLOODPLAIN.

BUILDING NOTES:

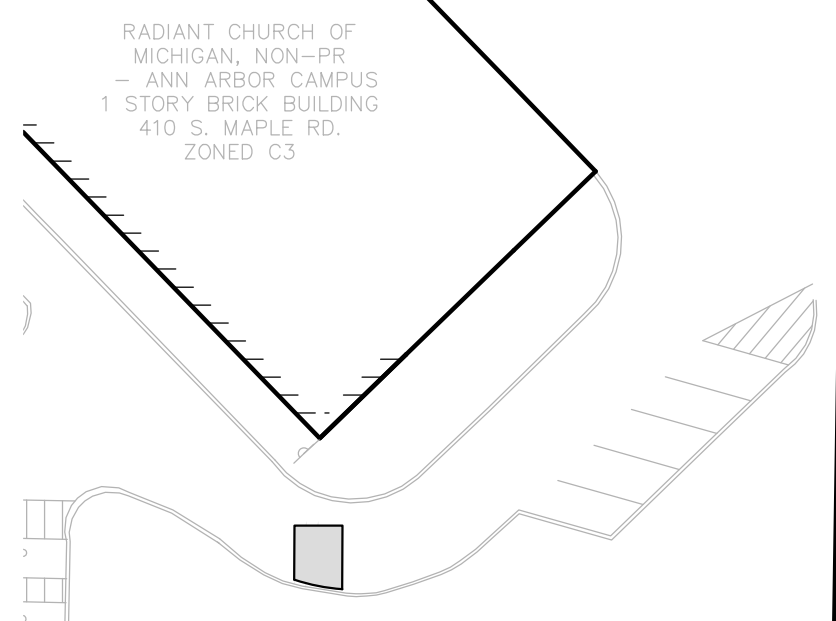
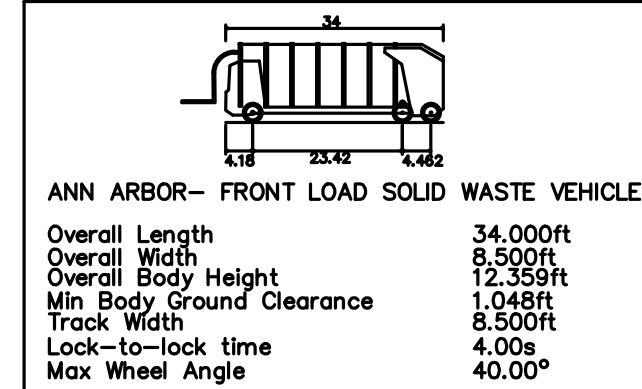
SEE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS AND DETAILS

PUBLIC SIDEWALK NOTE:

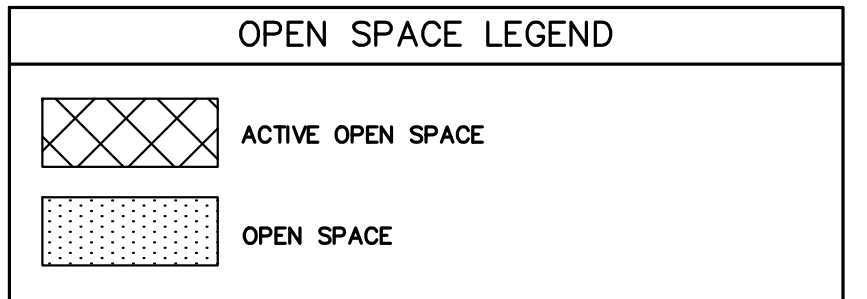
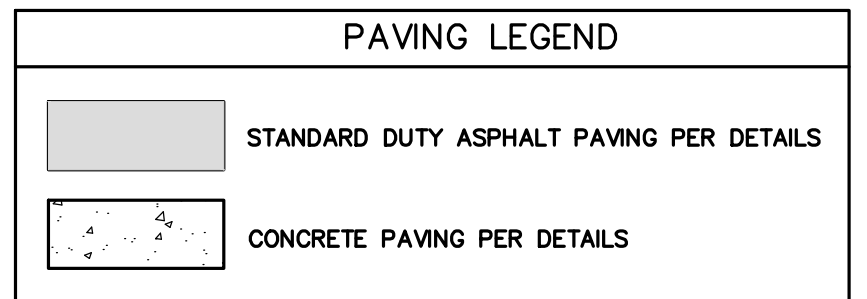
PER CHAPTER 49, SECTION 4-58 OF THE CITY CODE, "ALL SIDEWALKS ARE TO BE KEPT AND MAINTAINED IN GOOD REPAIR BY THE OWNER OF THE LAND ADJACENT TO AND ABUTTING THE SAME" PRIOR TO THE ISSUANCE OF THE FINAL CERTIFICATE OF OCCUPANCY FOR THIS SITE. ALL EXISTING SIDEWALKS IN NEED OF REPAIR MUST BE REPAIRED IN ACCORDANCE WITH CITY STANDARDS.

NOTE:

ALL OFF SITE EASEMENTS SHALL BE EXECUTED AND RECORDED PRIOR TO THE ISSUANCE OF ANY PERMITS.



TRAFFIC:
REFER TO TRAFFIC IMPACT ASSESSMENT BY FISHBEEK, THOMPSON, CARR AND HUBER, INC. FOR SITE TRIP GENERATION INFORMATION.



AREA, HEIGHT AND PLACEMENT REGULATIONS		
LOCATION: 2658 W. LIBERTY ST. CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN		
ZONING DISTRICT:	CURRENT R4B- MULTI- FAMILY	PROPOSED R4B- MULTI- FAMILY
ADJACENT PARCELS:	C3- FRINGE COMMERCIAL PL- PUBLIC LAND	R1B- SINGLE FAMILY DWELLING AND C3 -FRINGE COMMERCIAL R4A- MULTIPLE FAMILY DWELLING
USE:	MULTI-FAMILY RESIDENTIAL RENTAL APARTMENT UNITS	
ITEM	REQUIREMENTS	PROVIDED
GROSS FLOOR AREA	N.A.	126,100 S.F.
NUMBER OF FLOORS	N.A.	4
MAXIMUM BUILDING HEIGHT	35' OR 45' FOR BUILDINGS WITH PARKING BELOW AT LEAST 35% OF THE BUILDING	28'
MINIMUM LOT AREA	14,000 S.F.	202,554 S.F. (4.65 ACRES)
MINIMUM LOT WIDTH	120 FT.	146.50 FT.
MAXIMUM DENSITY (DWELLING UNITS/ACRE)	15	= 52/4.65 = 11
NUMBER OF DWELLING UNITS	70 MAX.	52
MINIMUM OPEN SPACE	55%	56 %
MINIMUM ACTIVE OPEN SPACE	300 S.F./DWELLING UNIT = 15,600 S.F.	53,440 S.F.
FRONT SETBACK	15 FT. MIN. 40 FT. MAX.	SOUTH: 15.00 FT.
MINIMUM SIDE SETBACK	12 FT.	WEST: 25.88 FT. EAST: 71.50 FT.
MINIMUM CONFLICTING LAND USE BUFFER	15 FT.	EAST: 15 FT.
MINIMUM REAR SETBACK	30 FT.	NORTH: 347.26 FT.

REFERENCE IS MADE TO THE CITY OF ANN ARBOR ZONING ORDINANCE

PARKING INFORMATION		
ITEM	REQUIREMENTS	PROVIDED
APARTMENTS - 52 UNITS	52x 1.5/UNIT = 78 SPACES (PER ZONING ORDINANCE) COMPACT PARKING 30% MAX. 3 B.F. SPACES INCLUDING 1 VAN ACCESSIBLE BIKE PARKING 1.5 UNITS = 52/5 = 10 50% CLASS A = 5 SPACES 50% CLASS C = 5 SPACES	105 SPACES (2.0/UNIT) INCLUDING 6 COMPACT SPACES (6%) 4 B.F. SPACES TOTAL INCLUDING 2 VAN ACCESSIBLE BIKE PARKING (52 UNITS HAVE PRIVATE GARAGES) 52 CLASS A SPACES PROVIDED
MIN. PARKING DIM. (STANDARD)	9 FT x 18 FT	9 FT x 18 FT
MIN. PARKING DIM. (COMPACT)	8 FT x 16 FT	8 FT x 16 FT
MIN. DRIVE ISLE WIDTH	22 FT	26 FT

REFERENCE IS MADE TO THE CITY OF ANN ARBOR ZONING ORDINANCE

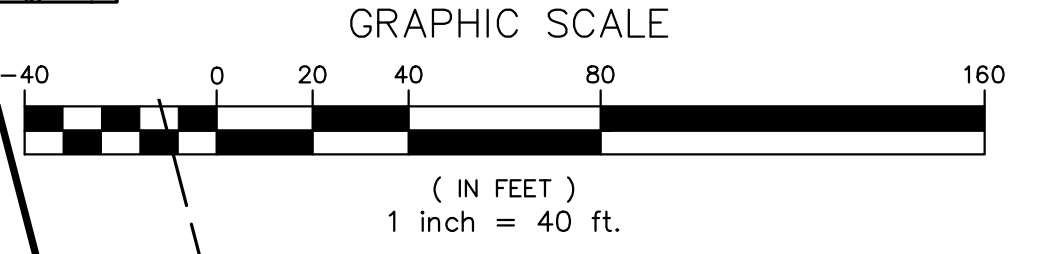
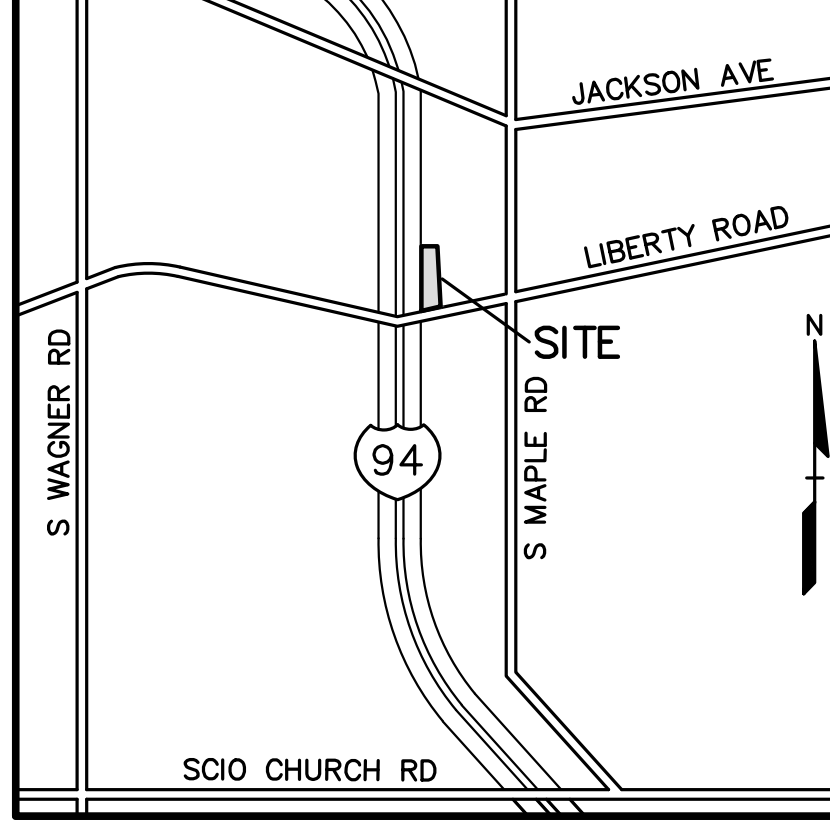
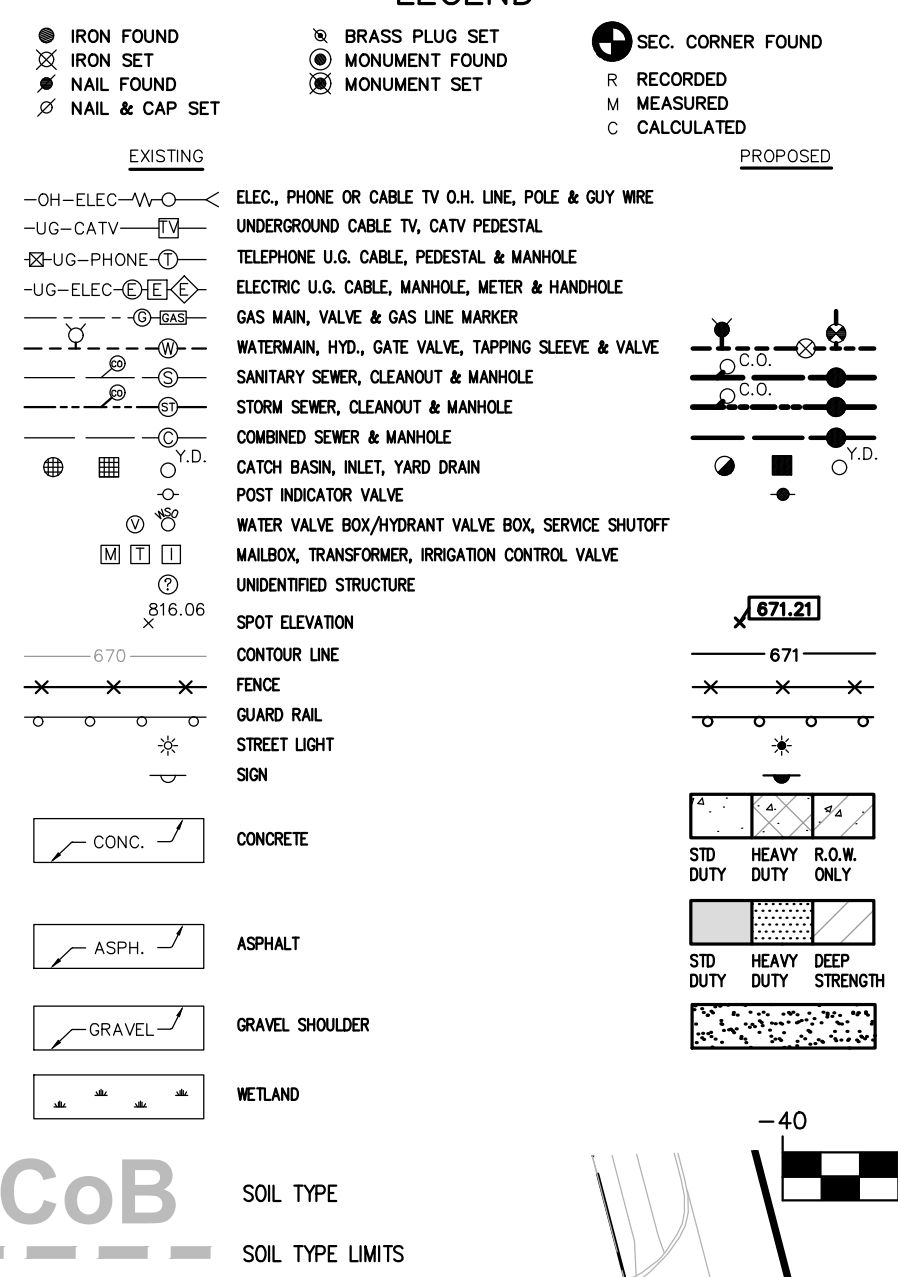
GENERAL NOTES:

- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
- REFER TO SHEET P-9 FOR ON-SITE PAVING DETAILS.
- REFER TO MDOOT DETAIL R-28-H FOR SIDEWALK RAMP DETAILS. SEE SHEET P-9.1.
- 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AS SHOWN OR AS DIRECTED BY THE FIRE OFFICIAL.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF ANN ARBOR CURRENT STANDARDS AND REGULATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAYS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND/OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.
- HYDRANTS SHALL BE IN SERVICE AND APPROVED DURING CONSTRUCTION.
- HYDRANTS PROVIDING PROTECTION COVERAGE FOR THE BUILDING SHALL BE IN SERVICE AND APPROVED BY BOTH PLANNING AND FIRE DEPARTMENTS BEFORE FIRE DEPARTMENT WILL SUPPORT PERMIT ISSUANCE FOR NEW CONSTRUCTION PHASE AND BEFORE COMBUSTIBLE MATERIAL ARE PLACED ON JOB SITE.
- STORAGE AREA FOR CONSTRUCTION MATERIAL SHALL NOT INTERFERE WITH FIRE/EMERGENCY SITE ACCESS.

TRASH AND RECYCLING EASEMENT NOTE:

A BLANKET EASEMENT OF THE SITE SHALL BE GRANTED FOR "CITY OF ANN ARBOR," TO ACCESS THE TWO TRASH AND RECYCLING ENCLOSURES ONSITE.

LEGEND



CAUTION!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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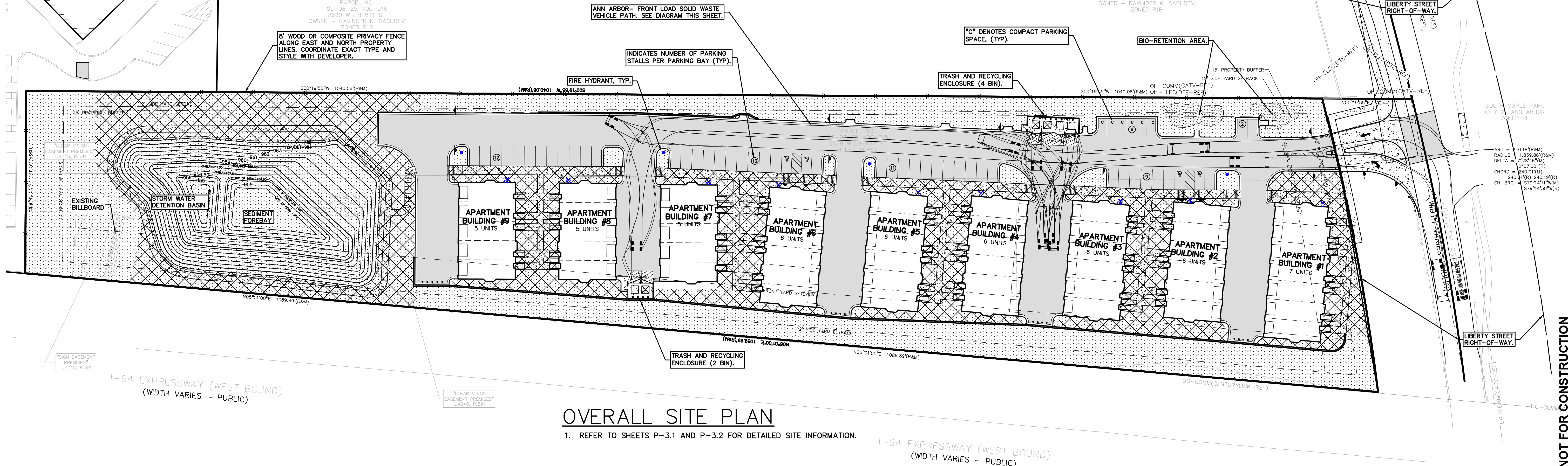
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7927 Nemco Way, Ste 115
Brighton, MI 48116
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f: 517.546.8973
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MCP LIBERTY DEVCO, LLC
2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326
OVERALL SITE PLAN
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 5E,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN
DES. JAH DN JAH SJR RS PAM JC
S:\PROJECTS\2017\07-187_TOWNHOME LIBERTY.MXD - ANALYSIS\CONSTRUCTION\PEA\ANS\025-(P-3)_DM_PAVING-1706.dwg

NOT FOR CONSTRUCTION
ORIGINAL ISSUE DATE: JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: 1" = 40'
DRAWING NUMBER: **P-3**



OVERALL SITE PLAN

1. REFER TO SHEETS P-3.1 AND P-3.2 FOR DETAILED SITE INFORMATION.

I-94 EXPRESSWAY (WEST BOUND)
(WIDTH VARIES - PUBLIC)

NOT FOR CONSTRUCTION

LEGEND

● IRON FOUND	● BRASS PLUG SET	● SEC. CORNER FOUND
⊗ IRON SET	⊗ MONUMENT FOUND	⊗ RECORDED
⊗ NAIL FOUND	⊗ MONUMENT SET	⊗ MEASURED
⊗ NAIL & CAP SET		⊗ CALCULATED

— OH-ELEC—	ELEC. PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE
— UG-CATV—	UNDERGROUND CABLE TV, CATV PEDESTAL
— UG-PHONE—	TELEPHONE U.G. CABLE, MANHOLE, WIRE & MANHOLE
— UG-ELEC—	ELECTRIC U.G. CABLE, MANHOLE, WIRE & MANHOLE
— GAS—	GAS MAIN, VALVE & GAS LINE MARKER
— WATER—	WATER MAIN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE
— SANITARY—	SANITARY SEWER, CLEANOUT & MANHOLE
— STORM—	STORM SEWER, CLEANOUT & MANHOLE
— COMBINED—	COMBINED SEWER & MANHOLE
— CATCH—	CATCH BASIN, INLET, W/DO BRAN
— POST—	POST INDICATOR VALVE
— VALVE—	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
— MAILBOX—	MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
— UNIDENTIFIED—	UNIDENTIFIED STRUCTURE

— 216.06	SPOT ELEVATION
— 671	CONTOUR LINE
— FENCE	FENCE
— CHAIN	CHAIN RAIL
— STREET	STREET LIGHT
— CONC.	CONCRETE
— ASPH.	ASPHALT
— GRAVEL	GRAVEL SHOULDER
— WETLAND	WETLAND

— SOIL TYPE	SOIL TYPE
— SOIL TYPE LIMITS	SOIL TYPE LIMITS

EROSION CONTROL STANDARDS:

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO STANDARDS AND SPECIFICATIONS OF THE JURISDICTIONAL AGENCY UNDER PART 91 OF ACT 451 OF 1994, AS AMENDED.
2. DAILY INSPECTIONS SHALL BE MADE BY CONTRACTOR WHILE WORKING TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY. ALL SOIL EROSION CONTROL PROVISIONS SHALL BE PROPERLY MAINTAINED DURING CONSTRUCTION.
3. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, AND PONDS.
4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGE AREAS HAVE BEEN COMPLETED.
5. STAGING THE WORK WILL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLANS AND AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED EARTH.
6. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
7. DUST SHALL BE CONTROLLED BY WATERING OR BY OTHER APPROVED MEANS THROUGHOUT ALL CONSTRUCTION OPERATIONS.
8. PERMANENT SOIL EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 5 CALENDAR DAYS. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED.
9. THE CONTRACTOR SHALL PRESERVE NATURAL VEGETATION AS MUCH AS POSSIBLE.
10. ANY WORK OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL REQUIRE A SEPARATE GRADING PERMIT.
11. FOLLOWING THE PLACEMENT OF 4" OF TOPSOIL AND HYDROSEED, STRAW MULCH BLANKET IS TO BE INSTALLED PERPENDICULAR ALONG THE PROPOSED SLOPES 1:6 OR STEEPER FROM TOP OF SLOPE TO TOE OF SLOPE, INCLUDING DITCH BOTTOMS, AND IT MUST BE PEGGED IN PLACE.
12. ALL MUD/DIRT TRACKED ONTO EXISTING COUNTY/CITY ROADS FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
13. TEMPORARY STABILIZATION OF THE ENTIRE SITE SHALL BE COMPLETED AND APPROVAL OBTAINED FROM THE CITY OF ANN ARBOR.
14. ALL EARTHWORK OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE DUE CARE PLAN BY ASTI ENVIRONMENTAL, DATED JULY 17, 2014.
15. CONTRACTOR SHALL INSTALL A BRIGHTLY COLORED SNOW FENCE DEMARCATION BARRIER AS DESCRIBED IN THE DUE CARE PLAN AND AS SHOWN IN THE DEMARCATION BARRIER DETAIL.

EROSION CONTROL QUANTITIES

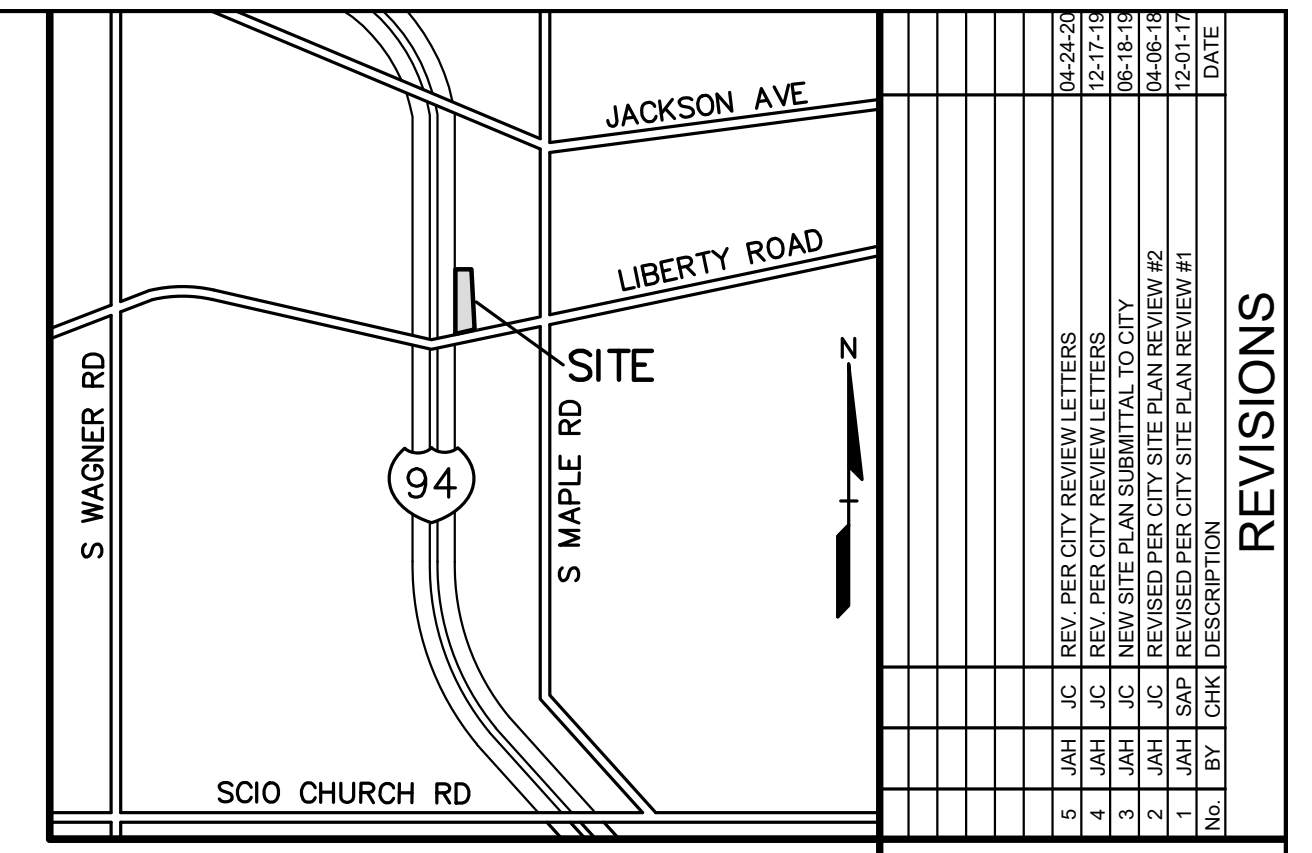
SILT FENCE	2,515 LF.		
CONSTRUCTION BARRIER FENCING	205 LF.	\$1.60	\$328
INLET FILTER	33 EA.	\$120	\$3,960
TEMPORARY ACCESS DRIVE	1 EA.	\$1,200	\$1,200
CHECK DAM	1 EA.	\$600	\$600
TEMPORARY SEEDING EXTENTS	±6,000 S.Y.	\$1.05	\$6,300
EROSION CONTROL BLANKETS	±6,000 S.Y.	\$1.30	\$7,800
INSTALL TEMP. END SECTION SED. TRAP	4 EA.	\$120	\$480
TOTAL			\$49,187

EROSION CONTROL COST ESTIMATE (CONSTRUCTION)

INSTALL SILT FENCE	2,515 LF.	\$1.60	\$4,024
INSTALL CONSTRUCTION BARRIER FENCING	205 LF.	\$1.60	\$328
INSTALL INLET FILTERS	33 EA.	\$120	\$3,960
INSTALL TEMPORARY ACCESS DRIVES	1 EA.	\$1,200	\$1,200
INSTALL CHECK DAM	1 EA.	\$600	\$600
TEMPORARY SEEDING	±6,000 S.Y.	\$1.05	\$6,300
INSTALL EROSION CONTROL BLANKETS	±6,000 S.Y.	\$1.30	\$7,800
INSTALL TEMP. END SECTION SED. TRAP	4 EA.	\$120	\$480
TOTAL			\$49,187

SITE SOILS NOTE/LEGEND:

PER THE US DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE SOILS MAP FOR WASHTENAW COUNTY, SITE SOILS CONSIST OF:
 CoB: CONOVER LOAM, 0 TO 4 PERCENT SLOPES
 MmB: MIAMI LOAM, 2 TO 6 PERCENT SLOPES



REVISIONS

NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JC	REV. PER CITY REVIEW LETTERS	04-24-20
2	JAH	JC	REV. PER CITY REVIEW LETTERS	05-27-20
3	JAH	JC	REV. PER CITY REVIEW LETTERS	06-10-20
4	JAH	JC	REV. PER CITY REVIEW LETTERS	06-10-20
5	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	06-10-20
6	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	09-01-20

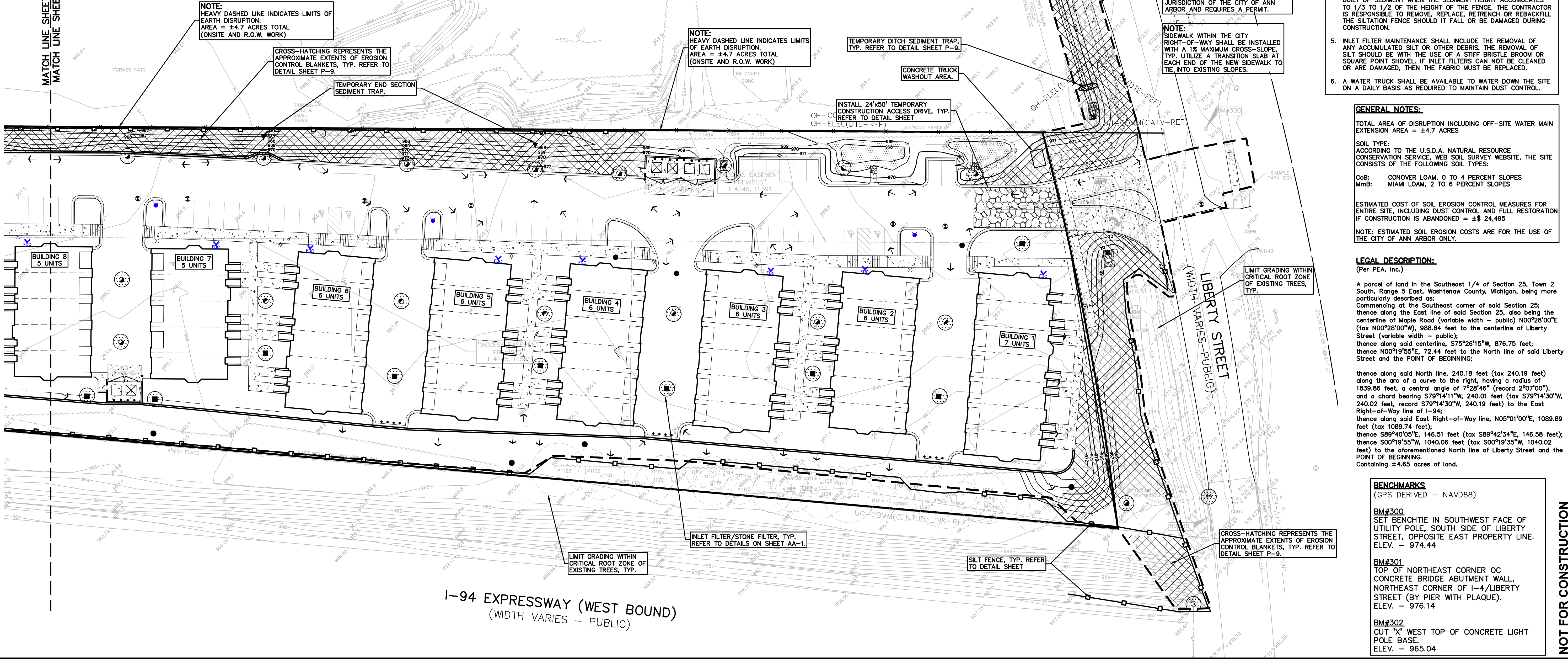
SYMBOLS: STORM, EROSION & GRADING

— SILT FENCE, TYP.	
— ORANGE CONSTRUCTION BARRIER FENCING	
— STORM SEWER INLET FILTER/ STONE FILTER	
— TEMPORARY CONSTRUCTION ACCESS DRIVE	
— EROSION CONTROL BLANKETS	
— TEMPORARY DITCH SEDIMENT TRAP	

NOTE: HEAVY DASHED LINE INDICATES LIMITS OF EARTH DISRUPTION. AREA = ±4.7 ACRES TOTAL (ONSITE AND R.O.W. WORK)

NOTE: CROSS-HATCHING REPRESENTS THE APPROXIMATE EXTENTS OF EROSION CONTROL BLANKETS, TYP. REFER TO DETAIL SHEET P-9.

NOTE: HEAVY DASHED LINE INDICATES LIMITS OF EARTH DISRUPTION. AREA = ±4.7 ACRES TOTAL (ONSITE AND R.O.W. WORK)



NOTE: HEAVY DASHED LINE INDICATES LIMITS OF EARTH DISRUPTION. AREA = ±4.7 ACRES TOTAL (ONSITE AND R.O.W. WORK)

NOTE: ANY WORK WITHIN THE LIBERTY STREET RIGHT-OF-WAY IS UNDER THE JURISDICTION OF THE CITY OF ANN ARBOR AND REQUIRES A PERMIT.

NOTE: SIDEWALK WITHIN THE CITY RIGHT-OF-WAY SHALL BE INSTALLED WITH A 1% MAXIMUM CROSS-SLOPE. TYP. UTILIZE A TRANSITION SLAB AT EACH END OF THE NEW SIDEWALK TO TIE INTO EXISTING SLOPES.

SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

1. THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENTATION CONTROL DEVICES ONCE EACH WEEK AND/OR WITHIN 24 HOURS OF A RAINFALL EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. THE FOLLOWING STEPS SHALL BE IMPLEMENTED IF ANY DAMAGE HAS OCCURRED.
2. ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.
3. ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED DAILY BY SCRAPING. STREET SWEEPING IS REQUIRED WEEKLY.
4. SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
5. INLET FILTER MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE REMOVAL OF SILT SHOULD BE WITH THE USE OF A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTERS CAN NOT BE CLEANED OR ARE DAMAGED, THEN THE FABRIC MUST BE REPLACED.
6. A WATER TRUCK SHALL BE AVAILABLE TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.

GENERAL NOTES:

TOTAL AREA OF DISRUPTION INCLUDING OFF-SITE WATER MAIN EXTENSION AREA = ±4.7 ACRES

SOIL TYPE: ACCORDING TO THE U.S.D.A. NATURAL RESOURCE CONSERVATION SERVICE, WEB SOIL SURVEY WEBSITE, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:
 CoB: CONOVER LOAM, 0 TO 4 PERCENT SLOPES
 MmB: MIAMI LOAM, 2 TO 6 PERCENT SLOPES

ESTIMATED COST OF SOIL EROSION CONTROL MEASURES FOR ENTIRE SITE, INCLUDING DUST CONTROL AND FULL RESTORATION IF CONSTRUCTION IS ABANDONED = ±\$ 24,495

NOTE: ESTIMATED SOIL EROSION COSTS ARE FOR THE USE OF THE CITY OF ANN ARBOR ONLY.

LEGAL DESCRIPTION:

(Per PEA, Inc.)
 A parcel of land in the Southeast 1/4 of Section 25, Town 2 South, Range 5 East, Washtenaw County, Michigan, being more particularly described as:
 Commencing at the Southeast corner of said Section 25; thence along the East line of said Section 25, also being the centerline of Maple Road (variable width - public) N00°28'00"E (tax N00°28'00"W), 988.84 feet to the centerline of Liberty Street (variable width - public); thence along said centerline, S75°26'15"W, 876.75 feet; thence N00°19'55"E, 72.44 feet to the North line of said Liberty Street and the POINT OF BEGINNING;
 thence along said North line, 240.18 feet (tax 240.19 feet) along the arc of a curve to the right, having a radius of 1839.86 feet, a central angle of 7°28'46" (record 2°07'00"), and a chord bearing S79°14'11"W, 240.01 feet (tax S79°14'30"W, 240.02 feet, record S79°14'30"W, 240.19 feet) to the East Right-of-Way line of I-94;
 thence along said East Right-of-Way line, N05°01'00"E, 1089.89 feet (tax 1089.74 feet); thence S89°40'05"E, 146.51 feet (tax S89°42'34"E, 146.58 feet); thence S00°19'55"W, 1040.06 feet (tax S00°19'35"W, 1040.02 feet) to the aforementioned North line of Liberty Street and the POINT OF BEGINNING, containing ±4.65 acres of land.

BENCHMARKS

- (GPS DERIVED - NAVD88)
- BMA#300**
SET BENCHMARK IN SOUTHWEST FACE OF UTILITY POLE, SOUTH SIDE OF LIBERTY STREET, OPPOSITE EAST PROPERTY LINE. ELEV. - 974.44
 - BMA#301**
TOP OF NORTHEAST CORNER OC CONCRETE BRIDGE ABUTMENT WALL, NORTHEAST CORNER OF I-4/LIBERTY STREET (BY PIER WITH PLAQUE). ELEV. - 976.14
 - BMA#302**
CUT 'X' WEST TOP OF CONCRETE LIGHT POLE BASE. ELEV. - 965.04

CAUTION!
 THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY FOR INFORMATION. THE CONTRACTOR SHALL BE PROMPTLY RESPONSIBLE FOR VERIFYING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
 2817 BEACON HILL DRIVE
 AUBURN HILLS, MICHIGAN - 48326

SOIL EROSION CONTROL PLAN (SOUTH)
LIBERTY TOWNHOMES
 PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 5E, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES: JAH DN JAH SJR RS P.M. JC
 S:\PROJECTS\2017\001-187_TOWNHOME LIBERTY MLL\ANL\SOIL EROSION CONTROL PLAN (SOUTH) (P-10) (REVISED) (7/17/20) DWG

ORIGINAL ISSUE DATE: JULY 27, 2017
 PEA JOB NO. 2017-167
 SCALE: 1" = 30'
 DRAWING NUMBER: **P-5**

I-94 EXPRESSWAY (WEST BOUND)
 (WIDTH VARIES - PUBLIC)

LEGEND

● IRON FOUND	● BRASS PLUG SET	● SEC. CORNER FOUND
○ IRON SET	○ MONUMENT FOUND	○ RECORDED
○ NAIL FOUND	○ MONUMENT SET	○ MEASURED
○ NAIL & CAP SET		○ CALCULATED

— OH-ELEC—V—V—	ELEC. PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE
— UG-CATV—	UNDERGROUND CABLE TV, CATV FEEDLINE
— UG-PHONE—	TELEPHONE U.G. CABLE SERVICE & MANHOLE
— UG-ELEC—	ELECTRIC U.G. CABLE, MANHOLE, WATER & MANHOLE
— GAS—	GAS MAIN, VALVE & GAS LINE MARKER
— WATER—	WATERMAIN, HYD. GATE VALVE, TAPPING SLAVE & VALVE
— SANITARY—	SANITARY SEWER, CLEANOUT & MANHOLE
— STORM—	STORM SEWER, CLEANOUT & MANHOLE
— CORNER—	CORNER SEWER & MANHOLE
— GUY—	GUY WIRE, INLET, YARD DRAIN
— POST—	POST INDICATOR VALVE
— VALVE—	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
— MBOX—	MALBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
— UNID—	UNIDENTIFIED STRUCTURE
— SPOT—	SPOT ELEVATION
— CONTOUR—	CONTOUR LINE
— FENCE—	FENCE
— GUARD—	GUARD RAIL
— STREET—	STREET LIGHT
— SIGN—	SIGN

— CONC—	CONCRETE
— ASPH—	ASPHALT
— GRAVEL—	GRAVEL SHOULDER
— WETLAND—	WETLAND

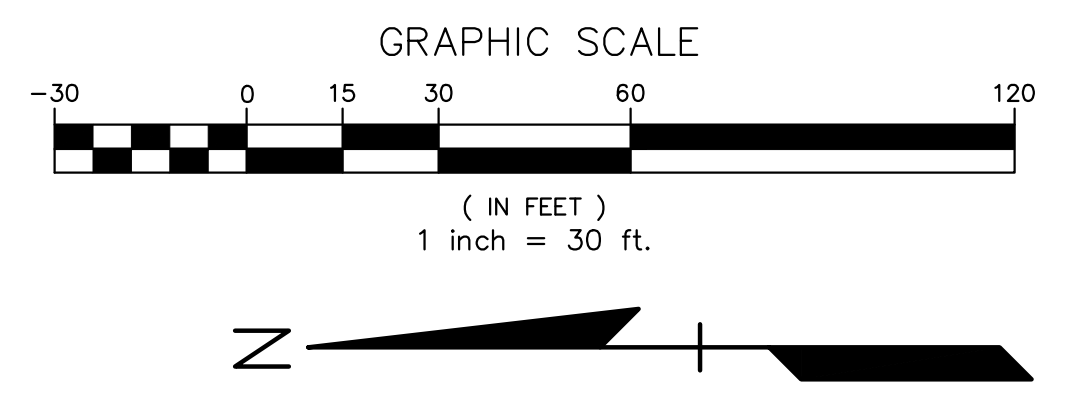
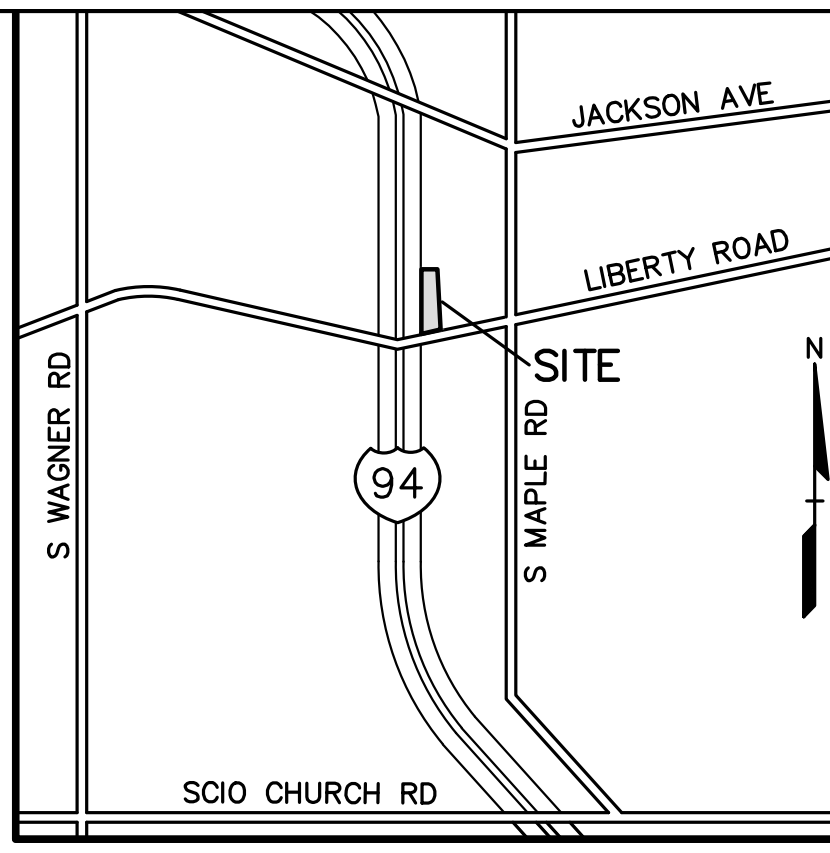
— SOIL TYPE—	SOIL TYPE
— SOIL TYPE LIMITS—	SOIL TYPE LIMITS

SYMBOLS: STORM, EROSION & GRADING

— SILT FENCE, TYP.
— ORANGE CONSTRUCTION BARRIER FENCING
— STORM SEWER INLET FILTER/ STONE FILTER
— TEMPORARY CONSTRUCTION ACCESS DRIVE
— EROSION CONTROL BLANKETS
— TEMPORARY CHECK DAM

SEQUENCE OF CONSTRUCTION:

START DAY	END DAY	ACTIVITY
1	1	CITY OF ANN ARBOR SOIL EROSION AND SEDIMENTATION CONTROL PRE-GRADING MEETING
2	300	INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES, SILT FENCES, INLET FILTERS, ETC. AS NECESSARY.
5	30	REMOVE ALL VEGETATION, TREES AND BRUSH FROM THE AREA OF PROPOSED IMPROVEMENT UNLESS MARKED TO REMAIN. STRIP AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE GRADED AND SEEDED.
5	65	DEMOLISH ALL PAVEMENT, SIDEWALK, AND UTILITIES AS REQUIRED TO INSTALL THE PROPOSED WORK.
5	75	DISPOSE OF ALL EXCESS/UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO ON-SITE BURN OR BURY PITS ALLOWED.
30	90	ROUGH GRADE SITE. SEED AND MULCH BLANKETS MUST BE INSTALLED AS SHOWN WITHIN 5 DAYS OF FINAL GRADE. REPAIR AND/OR RE-INSTALL ANY TEMPORARY SOIL EROSION CONTROL MEASURES THAT WERE DAMAGED DURING GRADING OPERATIONS.
40	240	TEMPORARY SEEDING MUST BE PROVIDED IN AREAS NOT TO BE WORKED ON FOR 14 DAYS OR LONGER.
45	105	CONSTRUCT AND STABILIZE DETENTION FACILITIES
45	120	INSTALL SITE UTILITIES (STORM, SANITARY, WATER MAIN, ETC.) INSTALL INLET FILTERS AT NEW DRAINAGE STRUCTURES.
110	120	WATER MAIN FLUSHING
50	120	INSTALL PARKING LOTS, ACCESS DRIVES AND ISLES UP TO AGGRAGATE BASE
120	300	CONSTRUCT PROPOSED BUILDINGS
150	175	FINE GRADE SITE AND PREPARE FOR SITE PAVING OPERATIONS.
175	205	INSTALL ALL PAVEMENT, SIDEWALKS, CURBING AS PROPOSED. IF PERMANENT LANDSCAPING IS NOT TO BE INSTALLED SOON AFTER PAVING IS COMPLETE, ALL AREAS WITHIN 20 FEET OF BACK OF CURB MUST BE TEMPORARILY SEEDED. REPAIR INLET FILTERS, SILT FENCE AND ANY OTHER DAMAGED SOIL EROSION CONTROL MEASURES AS NECESSARY.
205	265	FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND INSTALL ALL PERMANENT LANDSCAPING IN ALL DISTURBED AREAS NOT BUILT.
265	270	CLEAN PAVEMENT AND REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS REQUIRED.
300	300	REMOVE SEDIMENTATION CONTROLS ONCE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED AND THE CITY OF ANN ARBOR APPROVES THE FINAL GRADING



REVISIONS

NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #1	12-17-17
2	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #2	04-24-18
3	JAH	JAH	REVISED PER CITY REVIEW LETTERS	12-17-18
4	JAH	JAH	REVISED PER CITY REVIEW LETTERS	12-17-18
5	JAH	JAH	REVISED PER CITY REVIEW LETTERS	04-24-18

SITE SOILS NOTE/LEGEND:

PER THE US DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE SOILS MAP FOR WASHTENAW COUNTY, SITE SOILS CONSIST OF:
 CoB: CONOVER LOAM, 0 TO 4 PERCENT SLOPES
 MmB: MIAMI LOAM, 2 TO 6 PERCENT SLOPES

BENCHMARKS

(GPS DERIVED - NAVD88)

BM#300
 SET BENCHMARK IN SOUTHWEST FACE OF UTILITY POLE, SOUTH SIDE OF LIBERTY STREET, OPPOSITE EAST PROPERTY LINE.
 ELEV. - 974.44

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 TOP OF NORTHEAST CORNER OF CONCRETE BRIDGE ABUTMENT WALL, NORTHEAST CORNER OF 1-4/LIBERTY STREET (BY PIER WITH PLAQUE).
 ELEV. - 976.14

BM#302
 CUT 'X' WEST TOP OF CONCRETE LIGHT POLE BASE.
 ELEV. - 965.04

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(Per PEA, Inc.)

A parcel of land in the Southeast 1/4 of Section 25, Town 2 South, Range 5 East, Washtenaw County, Michigan, being more particularly described as:
 Commencing at the Southeast corner of said Section 25; thence along the East line of said Section 25, also being the centerline of Maple Road (variable width - public) N00°28'00"E (tax N00°28'00"W), 988.84 feet to the centerline of Liberty Street (variable width - public); thence along said centerline, S75°26'15"W, 876.75 feet; thence N00°19'55"E, 72.44 feet to the North line of said Liberty Street and the POINT OF BEGINNING;

thence along said North line, 240.18 feet (tax 240.19 feet) along the arc of a curve to the right, having a radius of 1839.86 feet, a central angle of 7°28'46" (record 2°07'00"), and a chord bearing S79°14'11"W, 240.01 feet (tax S79°14'30"W, 240.02 feet, record S79°14'30"W, 240.19 feet) to the East Right-of-Way line of I-94;
 thence along said East Right-of-Way line, N05°01'00"E, 1089.89 feet (tax 1089.74 feet);
 thence S89°40'05"E, 146.51 feet (tax S89°42'34"E, 146.58 feet);
 thence S00°19'55"W, 1040.06 feet (tax S00°19'35"W, 1040.02 feet) to the aforementioned North line of Liberty Street and the POINT OF BEGINNING.
 Containing ±4.65 acres of land.

SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

- THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENTATION CONTROL DEVICES ONCE EACH WEEK AND/OR WITHIN 24 HOURS OF A RAINFALL EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. THE FOLLOWING STEPS SHALL BE IMPLEMENTED IF ANY DAMAGE HAS OCCURRED.
- ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.
- ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED DAILY BY SCRAPING. STREET SWEEPING IS REQUIRED WEEKLY.
- SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
- INLET FILTER MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE REMOVAL OF SILT SHOULD BE WITH THE USE OF A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTERS CAN NOT BE CLEANED OR ARE DAMAGED, THEN THE FABRIC MUST BE REPLACED.
- A WATER TRUCK SHALL BE AVAILABLE TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.

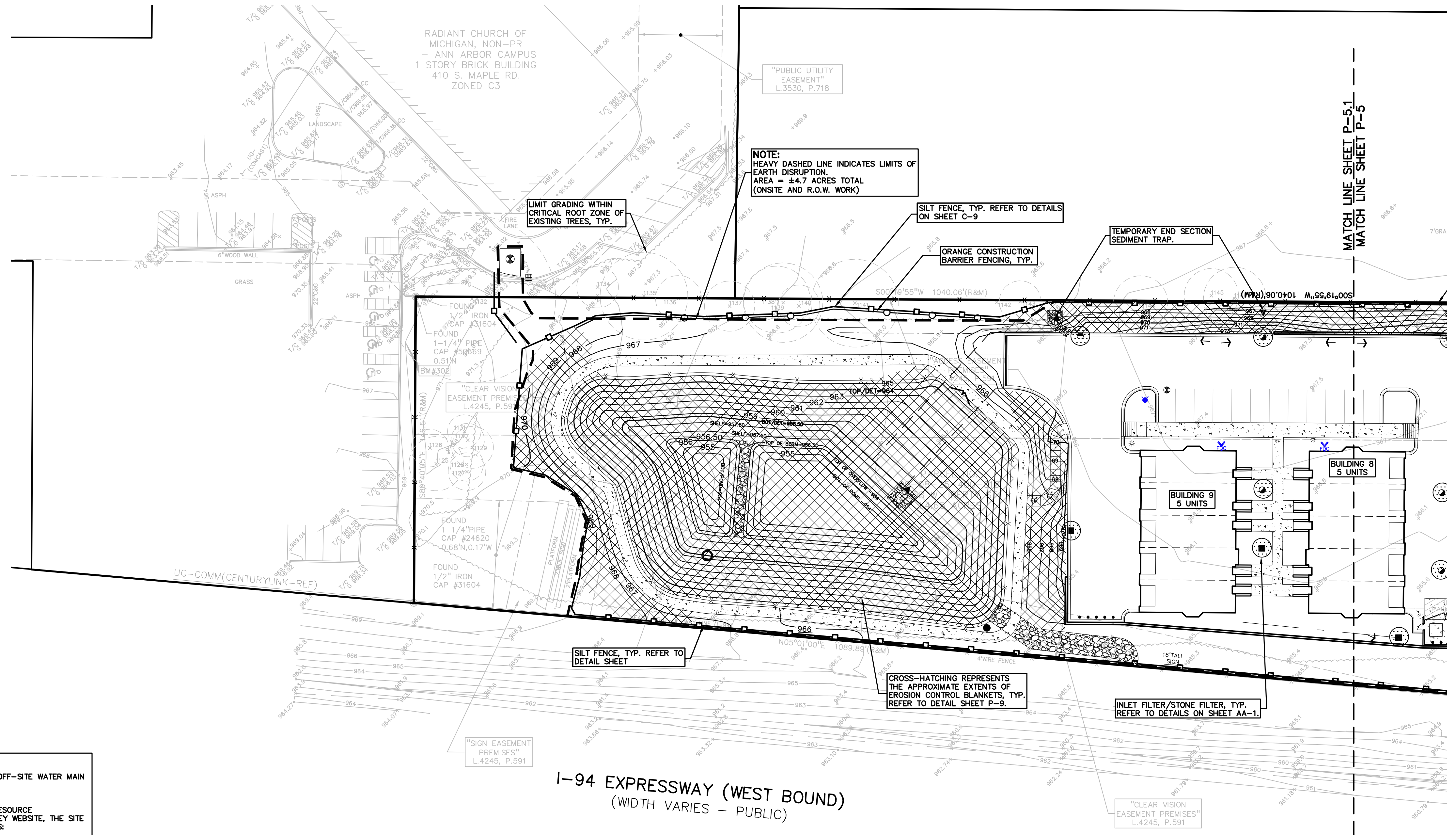
GENERAL NOTES:

TOTAL AREA OF DISRUPTION INCLUDING OFF-SITE WATER MAIN EXTENSION AREA = ±4.7 ACRES

SOIL TYPE:
 ACCORDING TO THE U.S.D.A. NATURAL RESOURCE CONSERVATION SERVICE, WEB SOIL SURVEY WEBSITE, THE SITE CONSISTS OF THE FOLLOWING SOIL TYPES:
 CoB: CONOVER LOAM, 0 TO 4 PERCENT SLOPES
 MmB: MIAMI LOAM, 2 TO 6 PERCENT SLOPES

ESTIMATED COST OF SOIL EROSION CONTROL MEASURES FOR ENTIRE SITE, INCLUDING DUST CONTROL AND FULL RESTORATION IF CONSTRUCTION IS ABANDONED = ±\$ 24,495

NOTE: ESTIMATED SOIL EROSION COSTS ARE FOR THE USE OF THE CITY OF ANN ARBOR ONLY.



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CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO GENERAL NECESSITY AND HOLD DESIGN PROFESSIONAL LIABILITY FOR ANY AND ALL USE OF THIS DRAWING OR WORK ON THIS PROJECT EXCEPTING LIABILITY FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

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SOIL EROSION CONTROL PLAN (NORTH)
LIBERTY TOWNHOMES
 PART OF THE SE 1/4 OF SECTION 25 T. 2S. R. 5E.
 CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES: JAH DN JAH SJR RS P.M. JC
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NOT FOR CONSTRUCTION

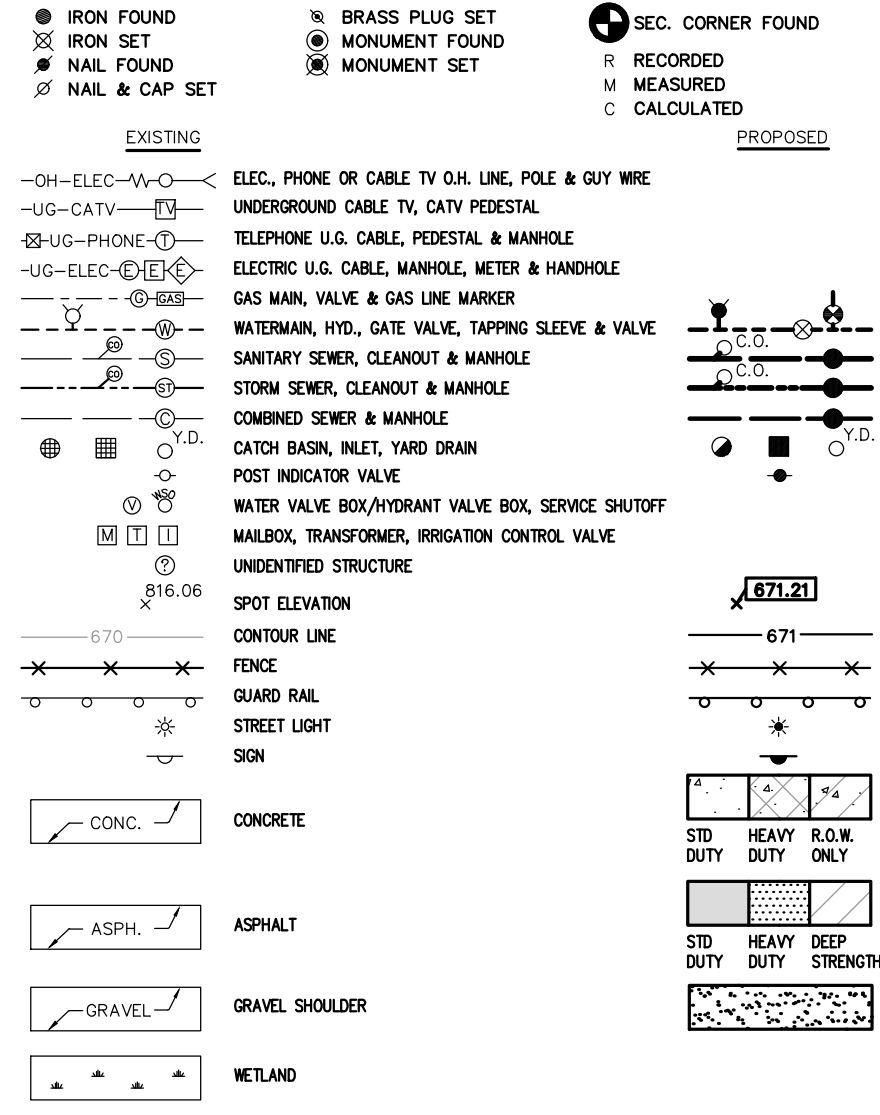
ORIGINAL ISSUE DATE:
 JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: 1" = 30'

DRAWING NUMBER:
P-5.1

LEGEND



- GENERAL UTILITY NOTES:**
1. ALL UTILITY LINES, STRUCTURES, TRENCHES, AND BACKFILLING SHALL CONFORM WITH THE STANDARDS AND REQUIREMENTS OF THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS.
 2. NO PHYSICAL CONNECTION TO THE EXISTING WATER MAIN CAN BE MADE UNTIL ALL NEW WATER MAIN PASSES PRESSURE AND BACTERIOLOGICAL TESTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR.
 3. REFER TO DETAIL SHEET P-9 FOR ADDITIONAL UTILITY DETAILS AND NOTES.
 4. ALL WATER MAIN AND FITTINGS (4" DIAMETER AND LARGER) SHALL BE DUCTILE IRON, CLASS 54, AND SHALL BE POLYETHYLENE WRAPPED PER ANS/AWWA C105/A21.5.
 5. ALL WATER MAIN SHALL BE PROVIDED WITH 5.5' OF COVER UNLESS OTHERWISE NOTED.
 6. ALL FIRE HYDRANTS SHALL MEET THE REQUIREMENTS OF DIVISION III, SECTION 2H, OF THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. THE EJW MODEL 5-BR SATISFIES THE REQUIREMENTS. TRAFFIC FLANGES SHALL BE PER THE CITY OF ANN ARBOR SPECIFICATIONS.
 7. ALL NECESSARY FITTINGS, THRUST BLOCKS, RESTRAINING GLANDS, BLOW OFFS, ETC. FOR WATER MAIN ARE CONSIDERED INCIDENTAL TO THIS PROJECT. THE CONTRACTOR SHALL INSTALL THESE ITEMS AS NECESSARY AND AS REQUIRED BY THE CITY OF ANN ARBOR.
 8. THE WATER MAIN CONTRACTOR SHALL NOTIFY THE CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT AT (734) 994-2744 AT LEAST THREE WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION. INSPECTION SERVICES SHALL BE ARRANGED THROUGH TECHNICIAN SUPERVISOR, DAVE CLEMONS, AT (734) 323-7942.
 9. ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-76) CLASS IV WITH PREMIUM JOINTS, UNLESS OTHERWISE NOTED.
 10. ALL STORM SEWER LEADS SHALL BE PVC SCH 40 WITH GLUED JOINTS UNLESS OTHERWISE NOTED.
 11. PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
 12. THE CITY OF ANN ARBOR STANDARD DETAILS ARE INCORPORATED INTO AND MADE A PART OF THESE PLANS. CONTRACTOR TO REFER TO THE CITY OF ANN ARBOR STANDARD DETAIL SHEETS FOR ALL STRUCTURE, PIPE MATERIALS, BEDDING, TESTING, ETC. NOTES AND DETAILS.
 13. HYDRANTS SHALL BE CENTERED A MINIMUM 4' AND MAXIMUM 10' FROM THE FACE OF CONCRETE CURB, TYP.
 14. SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 PIPE AND FITTINGS. ALL JOINTS SHALL BE BELL AND SPIGOT RUBBER O-RING GASKET UNLESS OTHERWISE NOTED.
 15. CONTRACTOR SHALL VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES WITHIN THE SCHEDULED WORK AREA, AND NOTIFY THE OWNER AND/OR ENGINEER IF PROBLEMS ARE FORESEEABLE WITH THE PROPOSED CONSTRUCTION.
 16. SEE SHEET P-7 AND P-8 FOR STORM SEWER AND DETENTION CALCULATIONS.

HYDRANT COVERAGE NOTE:
HYDRANTS PROVIDING PROTECTION COVERAGE FOR THE BUILDING SHALL BE IN SERVICE AND APPROVED BY BOTH PLANNING AND FIRE DEPARTMENT BEFORE FIRE DEPARTMENT WILL SUPPORT PERMIT ISSUANCE FOR NEW CONSTRUCTION PHASE AND BEFORE COMBUSTIBLE MATERIALS ARE PLACED ON THE JOB SITE.

SANITARY SEWER BASIS OF DESIGN

PROPOSED (52) RESIDENTIAL APARTMENTS
52 UNITS
AVERAGE DAILY FLOW = 275 GPD/UNIT x 52 UNITS = 14,300 GPD
TOTAL AVERAGE DAILY FLOW = 14,300 GPD
14,300 GPD = 0.0221 CFS

EQUIVALENT POPULATION = 14,300 GPD / 100 GPD/PERSON = 143 PEOPLE
RESIDENTIAL EQUIVALENT UNITS = 14,300 GPD/350 GPD/REU = 41 REU
P = 143 / 1000 = 0.143

PEAKING FACTOR = $(18 + \sqrt{P}) / (4 + \sqrt{P}) = 18.38 / 4.38 = 4.20$
PEAK HOUR FLOW = 4.20 x 14,300 GPD x 0.1337 CF PER GALLON / 86,400 SEC. PER DAY = 0.093 CFS

CAPACITY OF 8" PVC PIPE @ 0.50% = 1.11 CFS (> 0.093 CFS)

NOTE: P = POPULATION IN THOUSANDS

SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

UTILITY CONSTRUCTION NOTE:
WATER MAIN CONSTRUCTION SHALL CONFORM TO DIVISION IV, SECTION 3, OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS. ALL SEWER CONSTRUCTION SHALL CONFORM TO DIVISION IV, SECTION 2, OF THE SPECIFICATIONS.

SANITARY SEWER NOTE:
SANITARY SEWER DEPTHS SHALL MEET THE CITY OF ANN ARBOR'S REQUIREMENTS AND WILL BE DOCUMENTED ON THE FINAL ENGINEERING PLANS.

MAINTENANCE ACCESS SURFACE NOTE:
ALL SURFACES TO BE UTILIZED FOR MANHOLE ACCESS SHALL BE DESIGNED TO SUPPORT A 64 KIP DUAL WHEEL LOAD (THE WEIGHT OF A FULLY LOADED VACTOR TRUCK)

NOTE:
PUBLIC UTILITY EASEMENT LEGAL DESCRIPTIONS WILL BE PREPARED DURING SITE CONSTRUCTION PLAN PREPARATION.

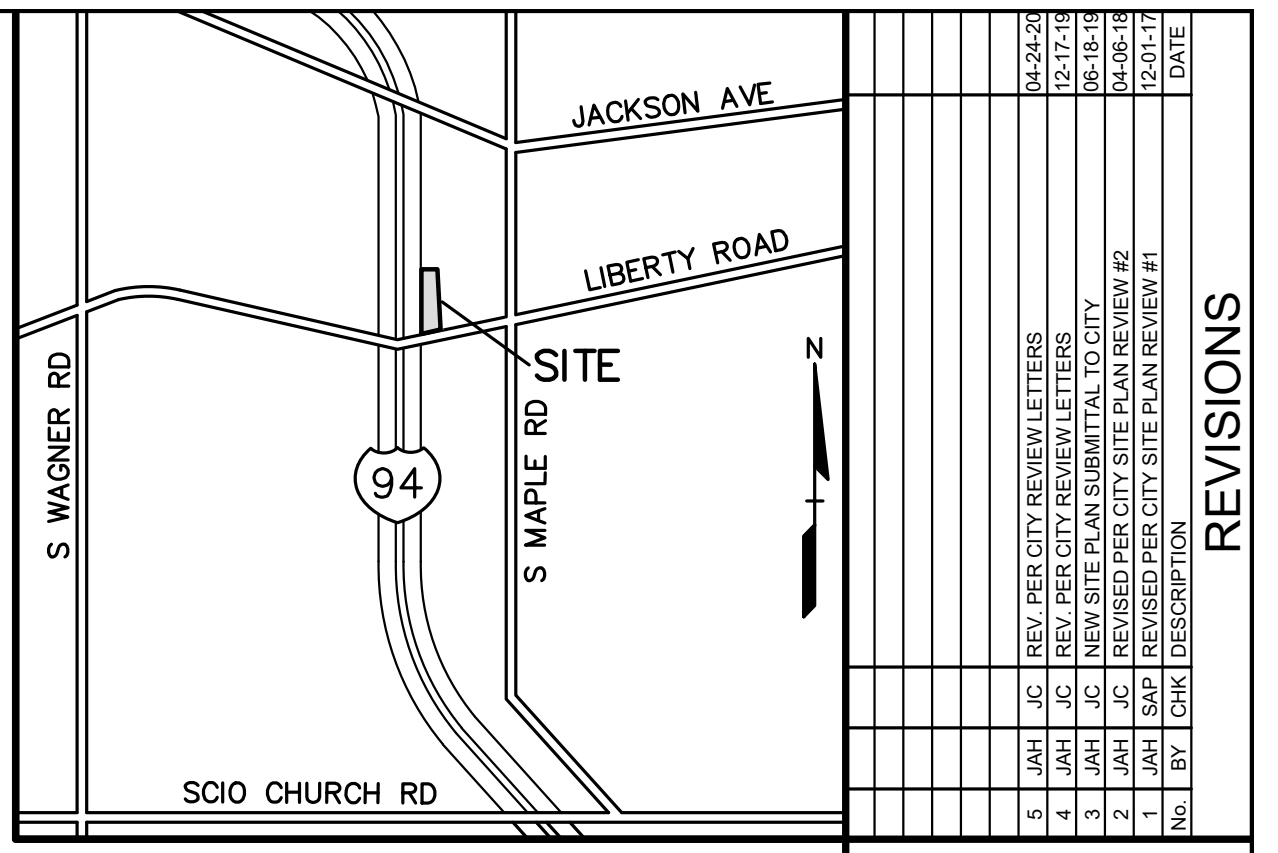
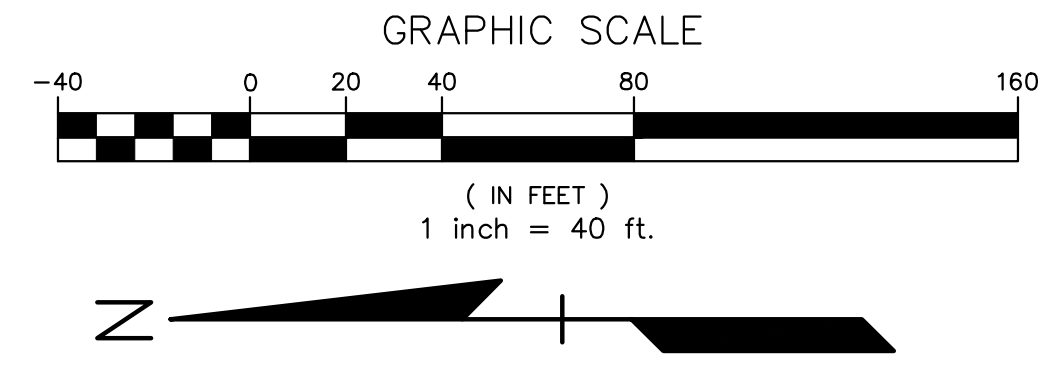
NOTE:
THE PROPOSED BUILDINGS WILL BE FIRE SUPPRESSED.

NOTE:
BOOSTER PUMPS WILL NOT BE USED FOR THE BUILDING WATER SERVICE LEADS.

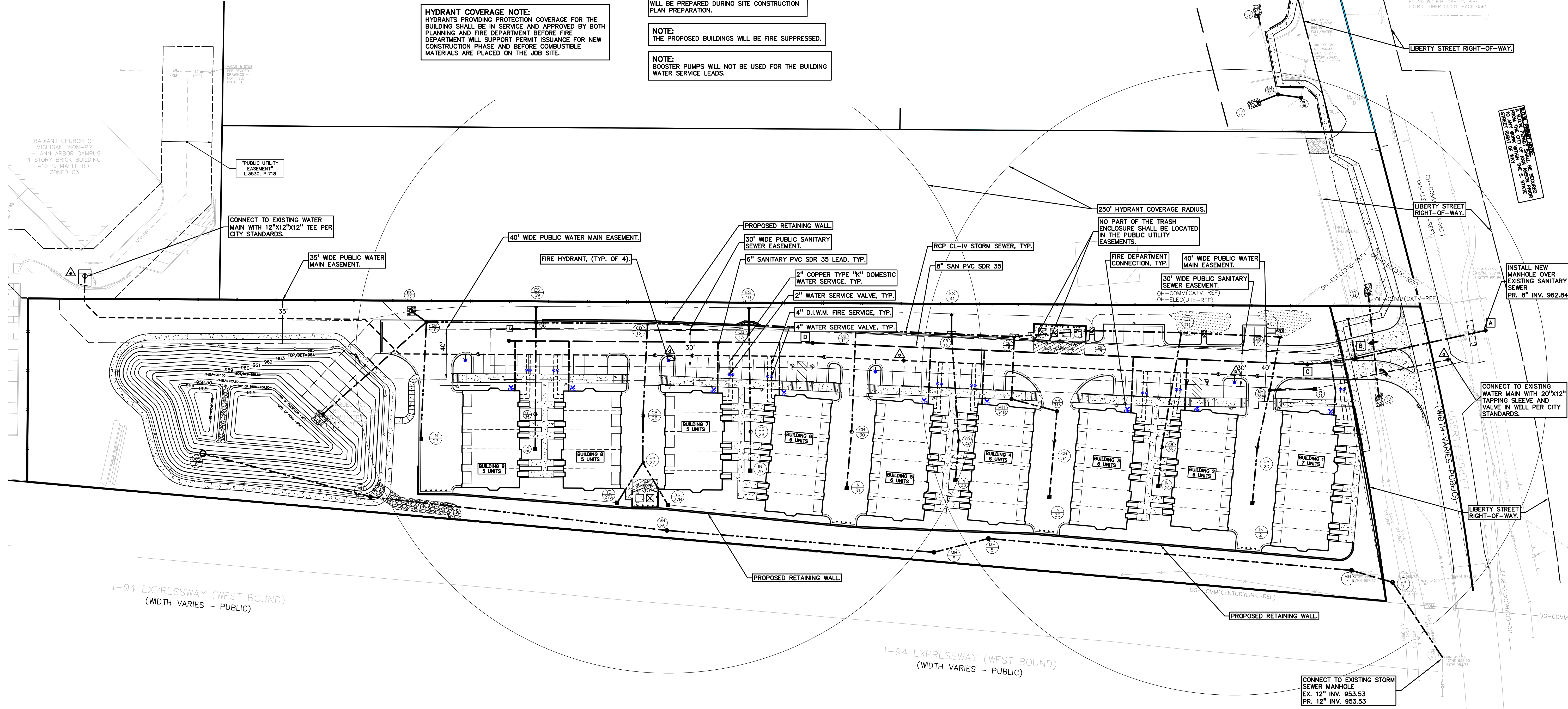
DEVELOPMENT SEWAGE FLOW OFFSET MITIGATION PROGRAM:

EXISTING:
THERE IS NO EXISTING FLOW FROM THIS PARCEL.

PROPOSED:
52 APARTMENT UNITS WITH GROSS FLOOR AREAS GREATER THAN 1,200 SF EACH:
52 UNITS x 300 GPD/UNIT = 15,600 GPD
PEAK FLOW = 15,600 GPD x 4 (PEAKING FACTOR) x 1.1 (SYSTEM RECOVERY FACTOR) = 68,640 GPD
68,640 GPD x 1 DAY/24 HRS x 1 HR/60 MIN = 47.67 GPM PEAK FLOW
TOTAL PEAK FLOW = 48 GPM TO BE MITIGATED
PER THE CITY OF ANN ARBOR "SANITARY FLOW OFFSET MITIGATION FOR DEVELOPMENT" (2/12/2019)



NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JC	REV. PER CITY REVIEW LETTERS	04-24-20
2	JAH	JC	REV. PER CITY REVIEW LETTERS	05-27-20
3	JAH	JC	REV. PER CITY REVIEW LETTERS	06-18-20
4	JAH	JC	REV. PER CITY REVIEW LETTERS	06-18-20
5	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	06-18-20
6	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	09-01-20



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OVERALL UTILITY PLAN
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25 T. 2S. R. 9E.
CITY OF ANN ARBOR, WASHINGTON COUNTY, MICHIGAN

DES. JAH DN JAH SJR RS P.M. JC
S:\PROJECTS\2017\2017-167_TOWNHOMES_LIBERTY_ML\ANL\GEN\DWG\SITE_PLAN\DWG\17-167-1012.dwg

NOT FOR CONSTRUCTION

ORIGINAL ISSUE DATE:
JULY 27, 2017

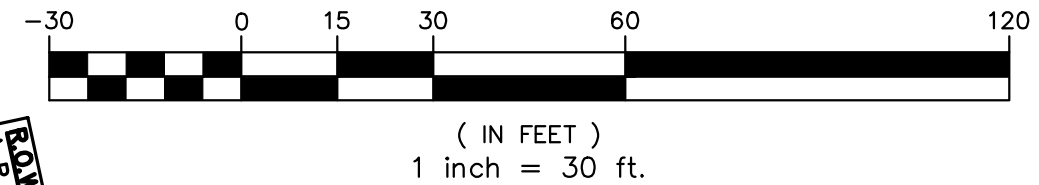
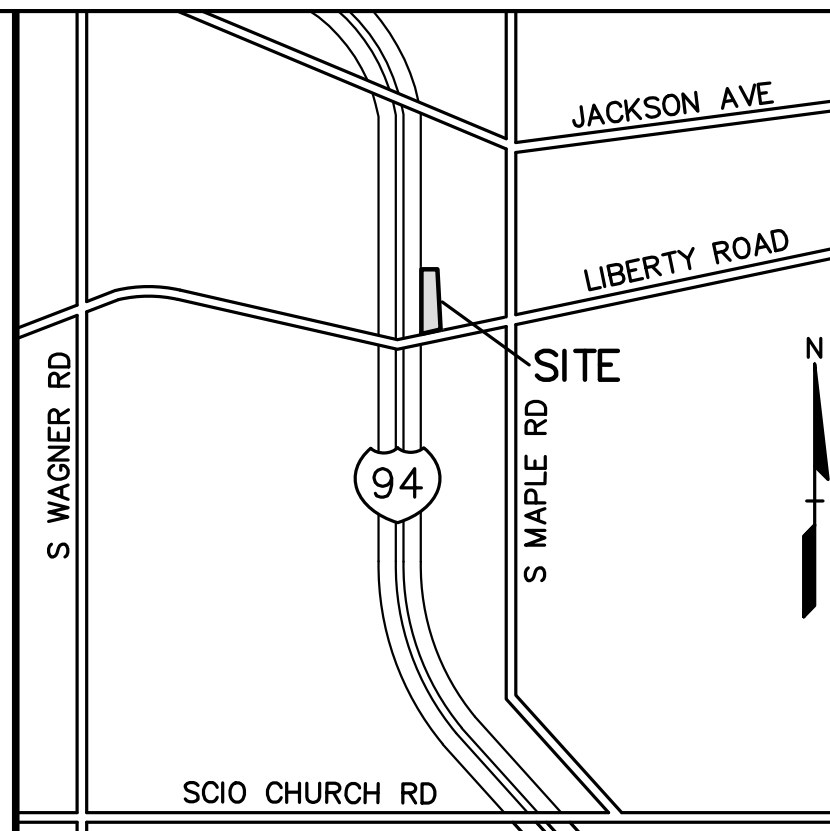
PEA JOB NO. 2017-167

SCALE: 1" = 40'

DRAWING NUMBER:
P-6

NO.	DATE	BY	CHK.	DESCRIPTION
1	04-24-20	JAH	JC	REV. PER CITY REVIEW LETTERS
2	05-12-20	JAH	JC	REV. PER CITY REVIEW LETTERS
3	06-18-20	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2
4	06-18-20	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1
5	07-01-20	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1

REVISIONS



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AUBURN HILLS, MICHIGAN - 48326

UTILITY PLAN (SOUTH)
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 25, R. 9E,
CITY OF ANN ARBOR, WASHINGTON COUNTY, MICHIGAN

DES. JAH DN JAH SJR RS P.M. JC
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NOT FOR CONSTRUCTION

ORIGINAL ISSUE DATE: JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: 1" = 30'
DRAWING NUMBER: **P-6.1**

LEGEND

● IRON FOUND	⊗ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊗ IRON SET	⊗ MONUMENT FOUND	R RECORDED
⊗ NAIL FOUND	⊗ MONUMENT SET	M MEASURED
⊗ NAIL & CAP SET		C CALCULATED

EXISTING

- OH-ELEC-W-O-ELEC. PHONE OR CABLE TV O.H. LINE, POLE & GUY WIRE
- UG-CATV-UNDERGROUND CABLE TV, CATV PEDESTAL
- UG-PHONE-TELEPHONE U.G. CABLE, PEDESTAL & MANHOLE
- UG-ELEC-ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE
- CG-W-WATERMANN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE
- SS-SANITARY SEWER, CLEANOUT & MANHOLE
- SS-STORM SEWER, CLEANOUT & MANHOLE
- CB-CATCH BASIN, INLET, YARD DRAIN
- PIV-POST INDICATOR VALVE
- WV-WATER VALVE BOX, HYDRANT VALVE BOX, SERVICE SHUTOFF
- TR-TRANSFORMER, IRRIGATION CONTROL VALVE
- UN-UNIDENTIFIED STRUCTURE
- SP-SPOT ELEVATION
- CL-CONTOUR LINE
- 670-670 FENCE
- 671-671 GUARD RAIL
- 672-672 STREET LIGHT
- 673-673 SIGN

PROPOSED

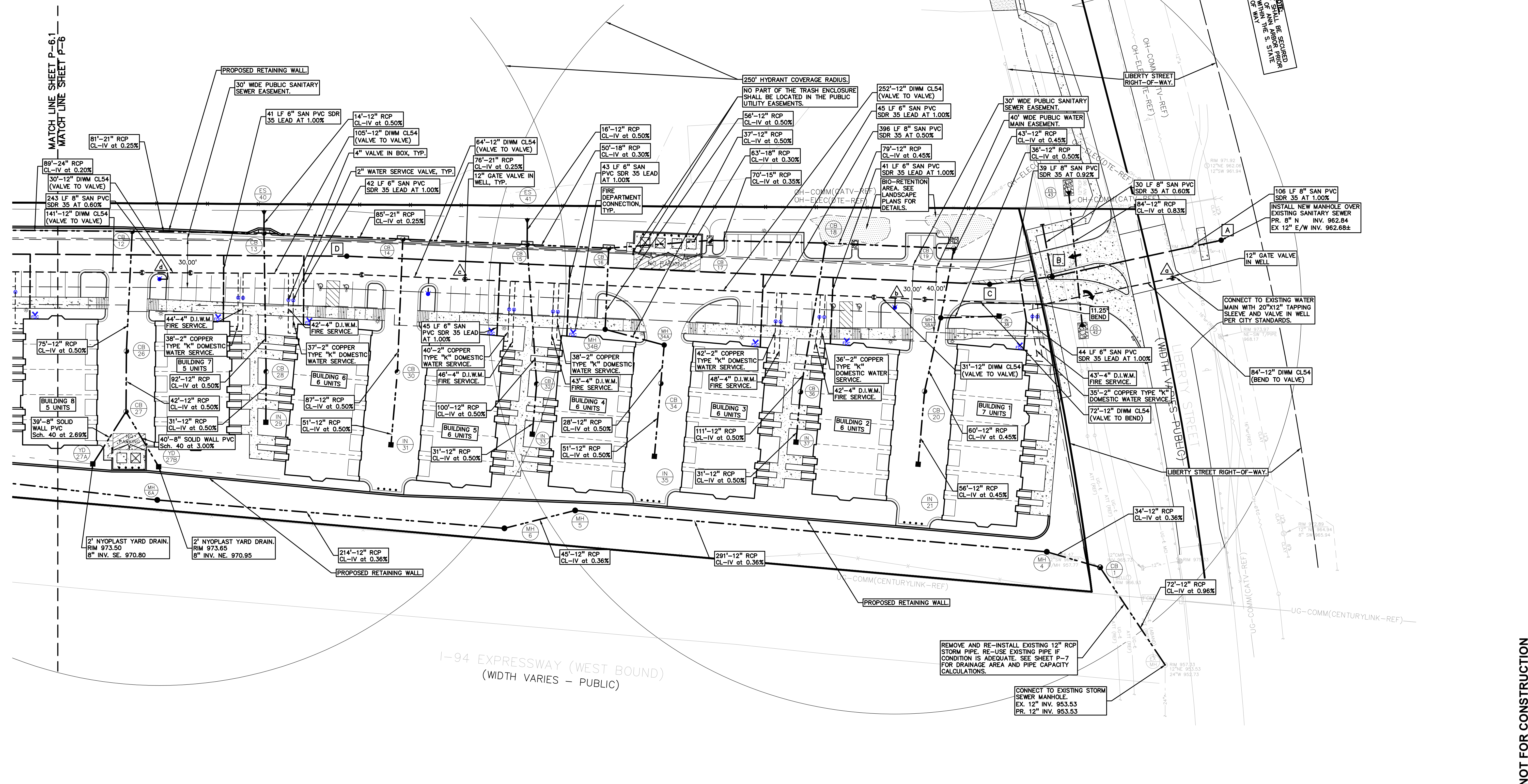
- CONC-CONCRETE
- ASPH-ASPHALT
- GRAVEL-GRAVEL SHOULDER
- WELD-WELD
- STD DUTY HEAVY R.O.K. ONLY
- STD DUTY HEAVY R.E.P. ONLY

BENCHMARKS
(GPS DERIVED - NAVD88)

BM#300
SET BENCHMARK IN SOUTHWEST FACE OF UTILITY POLE, SOUTH SIDE OF LIBERTY STREET, OPPOSITE EAST PROPERTY LINE. ELEV. = 974.44

BM#301
TOP OF NORTHEAST CORNER OC CONCRETE BRIDGE ABUTMENT WALL, NORTHEAST CORNER OF I-4/LIBERTY STREET (BY PIER WITH PLAQUE). ELEV. = 976.14

BM#302
CUT 'X' WEST TOP OF CONCRETE LIGHT POLE BASE. ELEV. = 965.04



MATCH LINE SHEET P-6.1
MATCH LINE SHEET P-6

LEGEND

● IRON FOUND	⊗ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊗ IRON SET	⊙ MONUMENT FOUND	⊙ RECORDED
⊗ NAIL FOUND	⊙ MONUMENT SET	⊙ MEASURED
⊗ NAIL & CAP SET		⊙ CALCULATED

EXISTING

- OH-ELEC-W-O-ELEC. PHONE OR CABLE TV. O.A. LINE, POLE & GUY WIRE
- UG-CATV-UG. CATV
- UG-PHONE-UG. PHONE
- UG-ELEC-UG. CABLE, PEDSTAL & MANHOLE
- UG-ELEC-UG. CABLE, MANHOLE, METER & HANDHOLE
- UG-GAS-GAS MAIN, VALVE & GAS LINE MARKER
- WATERMAN, HYD. GATE VALVE, TAPPING SLUICE & VALVE
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- CATCH BASIN, INLET, YARD DRAIN
- POST INDICATOR VALVE
- WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF
- MANHOLE, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE

PROPOSED

- SPOT ELEVATION
- CONTOUR LINE
- FENCE
- GUARD RAIL
- STREET LIGHT
- SIGN

CONCRETE

- CONC.
- STD. HEAVY DUTY
- HEAVY DUTY ONLY
- STD. HEAVY DEEP DUTY
- HEAVY DEEP DUTY STRENGTH

ASPH.

- ASPH.

GRAVEL

- GRAVEL SHOULDER

WETLAND

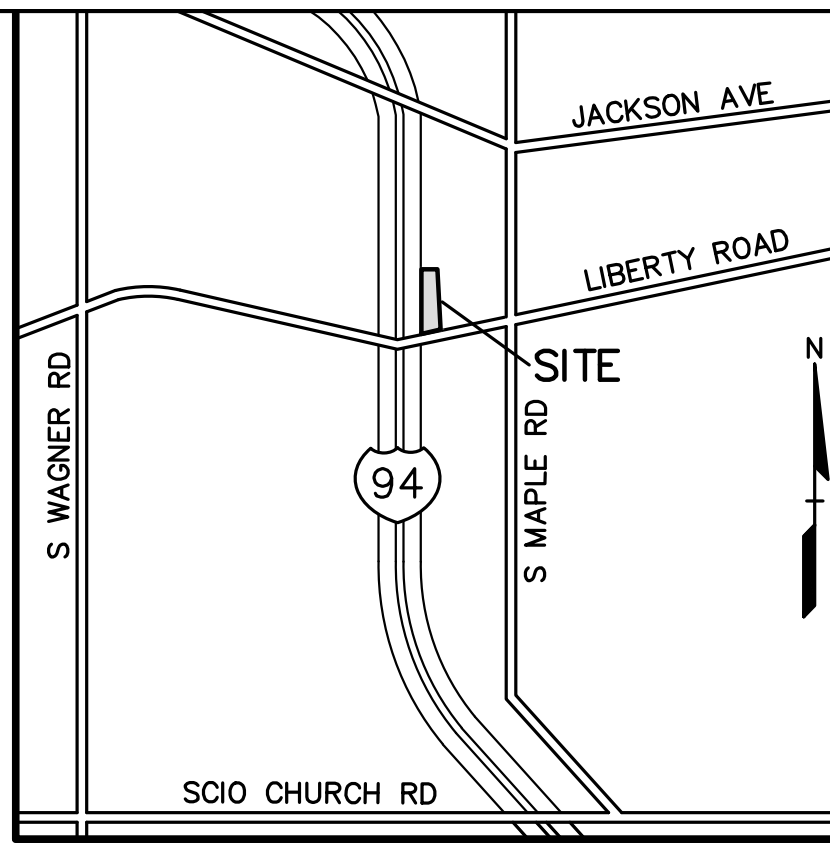
- WETLAND

BENCHMARKS
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TOP OF NORTHEAST CORNER OF CONCRETE BRIDGE ABUTMENT WALL, NORTHEAST CORNER OF I-4/LIBERTY STREET (BY PIER WITH PLAQUE). ELEV. - 976.14

BM#302
CUT "X" WEST TOP OF CONCRETE LIGHT POLE BASE. ELEV. - 965.04



NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JAC	REV. PER CITY REVIEW LETTERS	04-24-20
2	JAH	JAC	REV. PER CITY REVIEW LETTERS	05-17-19
3	JAH	JAC	REVISED PER CITY SITE PLAN REVIEW #2	06-08-19
4	JAH	JAC	REVISED PER CITY SITE PLAN REVIEW #1	10-01-17

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UTILITY PLAN (NORTH)
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 2S., R. 9E.,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JAH DN JAH SUR RS P.M. JC
S:\PROJECTS\2017\2017-187_TOWNHOMES_LIBERTY_HILLS_ANALYSIS\DWG\SITE_PLAN\DWG\PEA_P-6.2.dwg

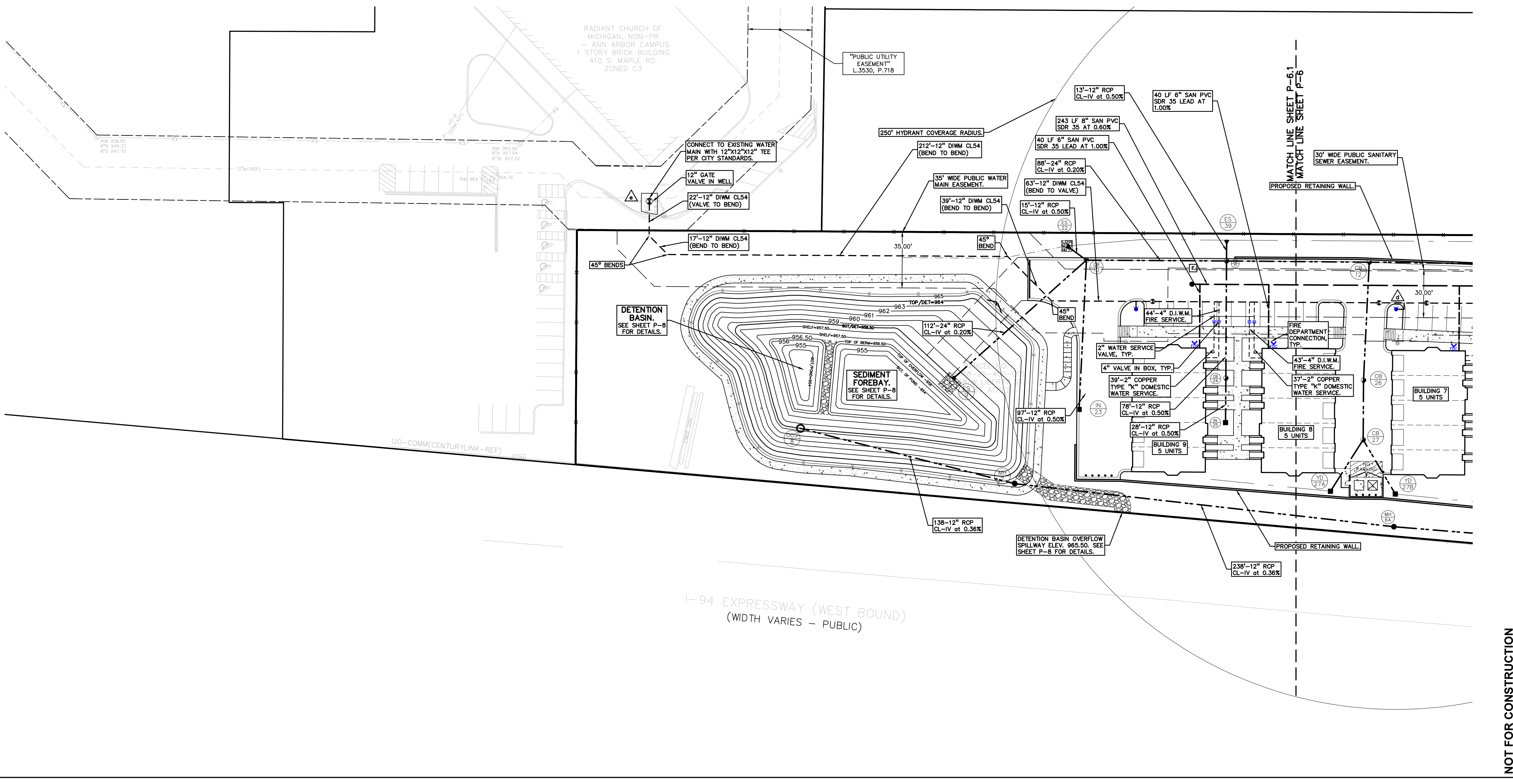
NOT FOR CONSTRUCTION

ORIGINAL ISSUE DATE:
JULY 27, 2017

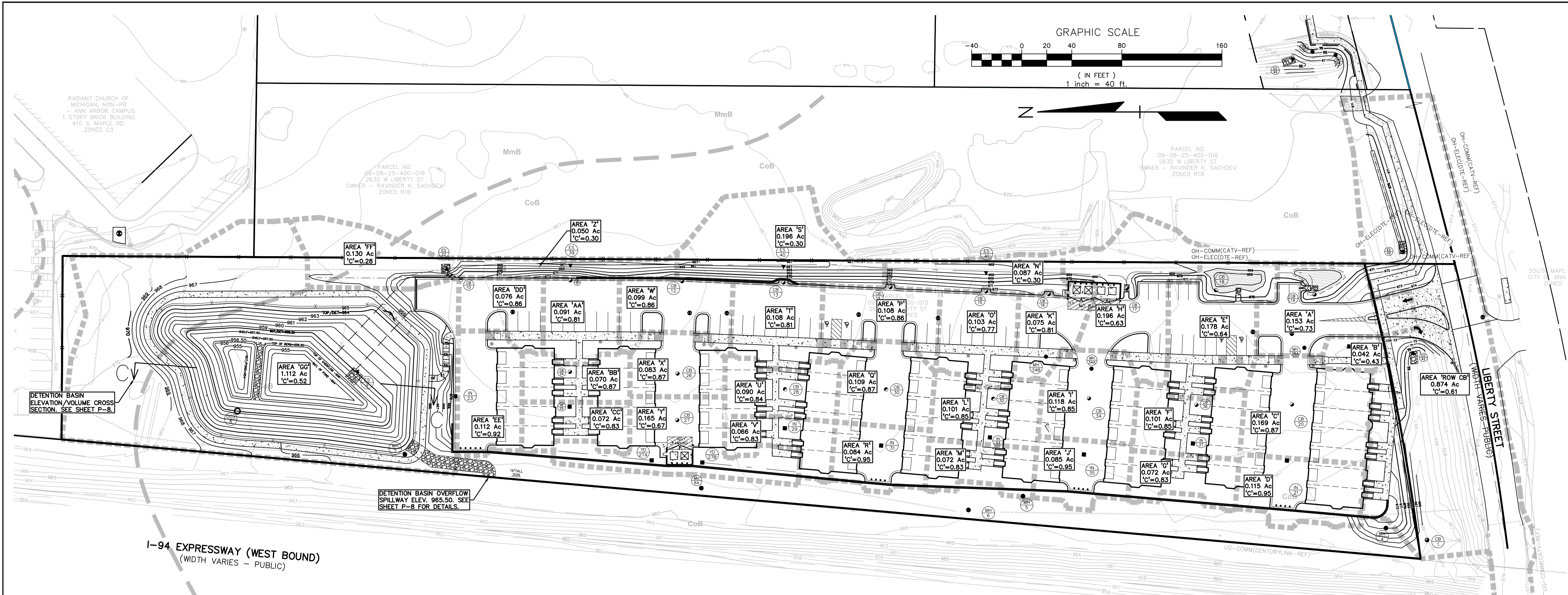
PEA JOB NO. 2017-167

SCALE: 1" = 30'

DRAWING NUMBER:
P-6.2



I-94 EXPRESSWAY (WEST BOUND)
(WIDTH VARIES - PUBLIC)



NO.	BY	DATE	REVISIONS
1	JAH	04-06-18	REVISED PER CITY SITE PLAN REVIEW #1
2	JAH	04-06-18	REVISED PER CITY SITE PLAN REVIEW #2
3	JAH	04-06-18	REVISED PER CITY SITE PLAN REVIEW #3
4	JAH	04-06-18	REVISED PER CITY SITE PLAN REVIEW #4
5	JAH	04-06-18	REVISED PER CITY SITE PLAN REVIEW #5

CAUTION!!
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3 FULL WORKING DAYS BEFORE YOU DIG CALL 811
 Know what's Below
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 MISS DIG System, Inc.
 1-800-482-7171 www.missdig.net



PEA, Inc.
 7927 Nemco Way, Ste 115
 Brighton, MI 48116
 T: 517.546.8583
 F: 517.546.8973
 www.peainc.com

NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
 2617 BEACON HILL DRIVE
 AUBURN HILLS, MICHIGAN 48006

STORM WATER MANAGEMENT PLAN
LIBERTY TOWNHOMES
 PART OF THE SE 1/4 OF SECTION 25, T. 25S, R. 5E, S. 15W, LIBERTY TOWNSHIP, WASHINGTON COUNTY, MICHIGAN

DESIGNED BY: JAH
 DRAWN BY: DN
 SURVEYED BY: JAH
 CHECKED BY: RS
 DATE: 07-20-17

ORIGINAL ISSUE DATE:
 JULY 20, 2017

PEA JOB NO. 2017-167

SCALE: 1" = 40'

DRAWING NUMBER:
P-7

RUNOFF COEFFICIENT CALCULATION

2017-167
 Liberty Townhomes
 PEA, INC.
 7-12-17

*C^W Water = 1.00
 *C^I Impervious = 0.95
 *C^G Greenspace(B soils) = 0.25
 *C^G Greenspace(C soils) = 0.30

Drainage Area	Impervious (Acres)	Greenspace (Acres)	Water (Acres)	Total Area (Acres)	Composite C ^W	Area (ac.) x C ^W
A	0.100	0.053	0.000	0.153	0.79	0.111
B	0.008	0.034	0.000	0.042	0.43	0.018
C	0.149	0.020	0.000	0.169	0.87	0.148
D	0.115	0.000	0.000	0.115	0.95	0.109
E	0.083	0.084	0.000	0.167	0.54	0.114
F	0.085	0.016	0.000	0.101	0.85	0.085
G	0.058	0.013	0.000	0.071	0.83	0.059
H	0.098	0.098	0.000	0.196	0.63	0.123
I	0.100	0.018	0.000	0.118	0.95	0.100
J	0.085	0.000	0.000	0.085	0.95	0.081
K	0.059	0.017	0.000	0.076	0.81	0.061
L	0.085	0.016	0.000	0.101	0.85	0.086
M	0.058	0.013	0.000	0.071	0.83	0.059
N	0.001	0.088	0.000	0.089	0.30	0.026
O	0.075	0.028	0.000	0.103	0.77	0.080
P	0.093	0.015	0.000	0.108	0.86	0.093
Q	0.086	0.013	0.000	0.099	0.87	0.095
R	0.084	0.000	0.000	0.084	0.95	0.080
S	0.000	0.196	0.000	0.196	0.30	0.059
T	0.084	0.023	0.000	0.107	0.81	0.087
U	0.075	0.015	0.000	0.090	0.84	0.076
V	0.054	0.012	0.000	0.066	0.83	0.055
W	0.085	0.014	0.000	0.099	0.86	0.085
X	0.073	0.010	0.000	0.083	0.87	0.072
Y	0.084	0.011	0.000	0.095	0.87	0.111
Z	0.000	0.050	0.000	0.050	0.30	0.015
AA	0.071	0.020	0.000	0.091	0.81	0.073
BB	0.061	0.009	0.000	0.070	0.87	0.061
CC	0.058	0.013	0.000	0.071	0.83	0.060
DD	0.065	0.010	0.000	0.075	0.86	0.065
EE	0.106	0.005	0.000	0.111	0.92	0.103
FF	0.000	0.130	0.000	0.130	0.28	0.036
GG	0.077	0.073	0.001	0.151	0.52	0.076
TOTALS	2.347	1.837	0.301	4.485	Sum "A"x"C" AVG "C" ^W	3.061 0.682

Drainage Area	Impervious (Acres)	Greenspace (Acres)	Water (Acres)	Total Area (Acres)	Composite C ^W	Area (ac.) x C ^W
ROW CB	0.449	0.423	0.000	0.872	0.61	0.533

TOPOGRAPHIC SURVEY DISCLAIMER:
 SOME TOPOGRAPHIC CONTOUR LINES OUTSIDE OF THE PERIMETER OF THE SUBJECT PARCEL WERE TAKEN FROM THE WASHTEENAW COUNTY MapWashtenaw ONLINE GIS MAP TOOL.
 PEA, INC. WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE CONTOUR LINES OR FOR DESIGN ERRORS/OMISSIONS RESULTING FROM ANY INACCURACIES.

STORM SEWER CALCULATIONS

10 YEAR STORM SEWER DESIGN - 2017-167
 11/22/2017
 Q = C I A
 Q = A x 1.486 in x R^{2/3} x S^{1/2}
 S = 175/(T+25)²

t = 20 MIN.
 n1 = 0.010 HDPE & PVC
 n2 = 0.013 CONC.

F.E.A. INC.
 2430 ROCHESTER COURT
 TROY, MI 48063
 (248) 689-9090

FROM STR TO STR	DRAINAGE AREA #	AREA A	COEFF. C	A x C	AREA TOTAL AT	TOTAL C x A	TIME t	INT. I	FLOW Q	PIPE CAP. > Q	PIPE AREA	PIPE LENGTH	PIPE DIA.	PIPE SLOPE	MIN PIPE SLOPE	H.G. SLOPE	VEL. FULL	TIME FLOW	H.G. ELEV. UP STREAM	H.G. ELEV. DOWN STREAM	INVERT ELEV. UP STREAM	INVERT ELEV. DOWN STREAM	RIM ELEV. UP STREAM	RIM ELEV. DOWN STREAM		
MAIN LINE	21-20	D	0.11	0.95	0.109	0.115	0.109	3.89	0.42	2.39	1.98	0.79	58	12	0.45	0.32	0.45	3.04	0.31	962.94	962.69	962.14	961.89	969.45	969.45	
	20-38A	C	0.17	0.87	0.148	0.284	0.257	3.04	0.33	3.86	0.99	2.39	1.40	0.79	0.45	0.32	0.45	3.04	0.33	962.89	962.42	961.89	961.62	969.45	971.15	
	38A-19	O	0.00	0.00	0.000	0.306	0.275	20.94	3.83	1.05	2.39	1.33	0.79	43	12	0.45	0.32	0.45	3.04	0.24	962.42	962.22	961.62	961.42	971.15	968.75
	19-18	A	0.15	0.73	0.111	0.479	0.386	20.87	3.82	1.47	2.39	0.92	0.79	79	12	0.45	0.32	0.45	3.04	0.43	962.22	961.87	961.42	961.07	968.75	966.00
	18-17	E	0.18	0.84	0.114	0.829	0.645	21.30	3.78	2.44	3.82	1.38	1.23	70	15	0.35	0.24	0.35	3.11	0.37	961.87	961.62	961.07	960.62	966.00	968.85
	17-16	H	0.20	0.83	0.123	1.025	0.767	21.68	3.75	2.88	5.75	2.87	1.77	63	18	0.30	0.19	0.30	3.25	0.32	961.62	961.43	960.62	960.23	966.85	971.30
	16-15	K	0.08	0.81	0.061	1.304	1.009	22.00	3.72	3.78	5.75	1.99	1.77	50	18	0.30	0.19	0.30	3.25	0.32	961.43	961.28	960.23	960.08	971.30	971.50
	15-14	O	0.10	0.77	0.080	1.666	1.280	22.28	3.70	4.67	7.92	3.25	2.40	78	21	0.25	0.15	0.25	3.29	0.38	961.28	961.09	959.88	959.69	971.50	971.90
	14-13	P	0.10	0.86	0.086	1.967	1.528	22.64	3.67	5.61	7.92	2.30	2.40	85	21	0.25	0.15	0.25	3.29	0.43	961.09	960.88	959.69	959.48	971.90	972.35
	13-12	T	0.11	0.81	0.087	2.427	1.804	23.07	3.64	6.57	7.92	1.35	2.40	81	21	0.25	0.15	0.25	3.29	0.41	960.88	960.68	959.48	959.28	972.35	972.75
	12-11	W	0.10	0.86	0.085	2.774	2.072	23.48	3.61	7.48	10.11	2.63	3.14	89	24	0.20	0.13	0.22	3.22	0.46	960.68	960.53	959.28	959.00	972.75	972.85
	11-10	AA	0.09	0.81	0.073	3.056	2.281	23.84	3.58	8.15	10.11	1.95	3.14	88	24	0.20	0.13	0.22	3.22	0.46	960.53	960.42	959.00	958.72	972.85	969.75
	10-9	DD	0.08	0.86	0.065	3.374	2.485	24.40	3.54	8.80	10.11	1.31	3.14	112	24	0.20	0.13	0.28	3.22	0.58	960.42	960.10	958.72	958.50	969.75	ES
LATERAL	38-38A	B	0.04	0.43	0.018	0.042	0.018	20.00	3.89	0.07	2.52	2.45	0.79	38	12	0.50	0.32	0.50	3.21	0.19	962.60	962.42	961.80	961.62	969.75	971.15
LATERAL	37-38	G	0.07	0.83	0.059	0.072	0.059	20.00	3.89	0.23	2.52	2.29	0.79	31	12	0.50	0.32	0.50	3.21	0.16	962.58	962.42	961.78	961.62	974.60	974.60
	36-18	F	0.10	0.85	0.085	0.172	0.145	20.58	3.84	0.58	2.52	1.98	0.79	111	12	0.50	0.32	0.50	3.21	0.58	962.42	961.87	961.62	961.07	974.60	969.00
LATERAL	35-34	J	0.09	0.95	0.081	0.085	0.081	20.00	3.89	0.31	2.52	2.20	0.79	51	12	0.50	0.32	0.50	3.21	0.27	962.29	962.04	961.49	961.24	970.45	970.45
	34-34A	I	0.12	0.85	0.100	0.203	0.181	20.15	3.88	0.70	2.52	1.81	0.79	28	12	0.50	0.32	0.50	3.21	0.15	962.04	961.90	961.24	961.00	970.45	971.20
	34A-34B	O	0.00	0.00	0.000	0.203	0.181	20.34	3.86	0.70	2.52	1.82	0.79	37	12	0.50	0.32	0.50	3.21	0.19	961.90	961.71	961.00	960.81	971.20	974.50
	34B-16	O	0.00	0.00	0.000	0.203	0.181	20.63	3.84	0.69	2.52	1.82	0.79	56	12	0.50	0.32	0.50	3.21	0.29	961.71	961.43	960.81	960.63	974.50	971.30
LATERAL	33-32	M	0.07	0.83	0.059	0.072	0.059	20.00	3.89	0.23	2.52	2.29	0.79	31	12	0.50	0.32	0.50	3.21	0.16	964.44	964.28	963.64	963.48	975.60	975.60
	32-15	L	0.10	0.85	0.086	0.172	0.145	20.52	3.84	0.58	2.52	1.98	0.79	100	12	0.50	0.32	0.50	3.21	0.52	964.28	963.78	963.48	962.98	975.60	971.50
LATERAL	31-30	R	0.08	0.95	0.080	0.084	0.080	20.00	3.89	0.31	2.52	2.21	0.79	51	12	0.50	0.32	0.50	3.21	0.27	961.78	961.53	960.88	960.73	971.70	971.70
	30-14	Q	0.11	0.87	0.085	0.193	0.175	20.45	3.85	0.67	2.52	1.84	0.79	87	12	0.50	0.32	0.50	3.21	0.45	961.53	961.09	960.73	960.29	971.70	971.90
LATERAL	29-28	V	0.07	0.83	0.055	0.066	0.055	20.00	3.89	0.21	2.52	2.30	0.79	31	12	0.50	0.32	0.50	3.21	0.16	965.50	965.34	964.70	964.54	976.85	976.85
	28-13	U	0.09	0.84	0.076	0.156	0.130	20.48	3.85	0.50	2.52	2.02	0.79	92	12	0.50	0.32	0.50	3.21	0.48	965.34	964.88	964.54	964.08	976.85	972.35
LATERAL	27-26	Y	0.17	0.87	0.112	0.165	0.110	20.																		

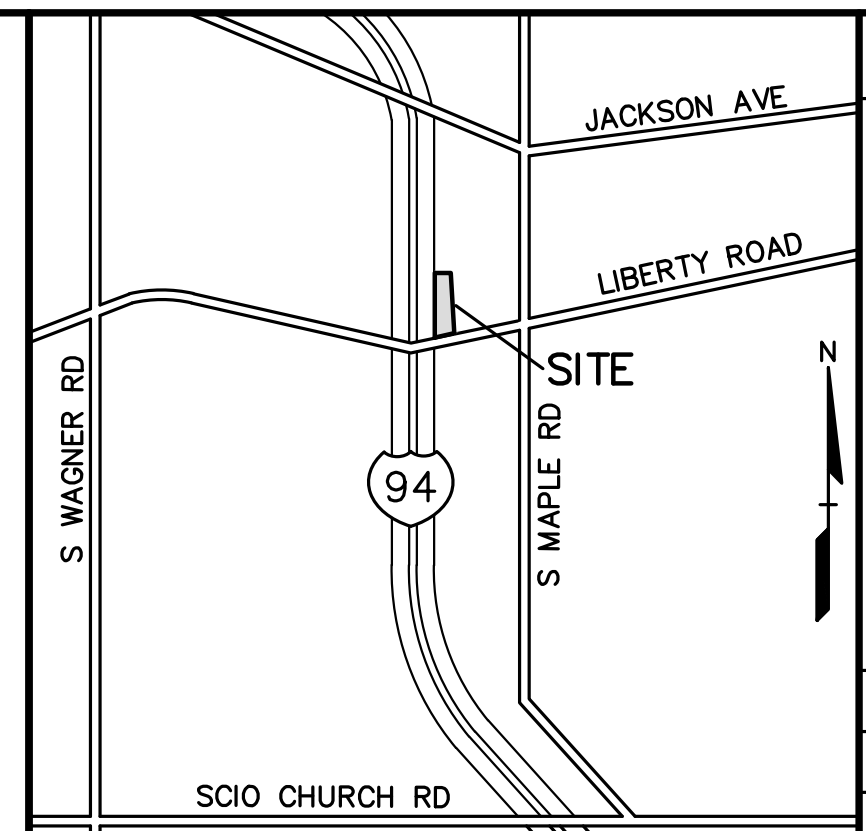
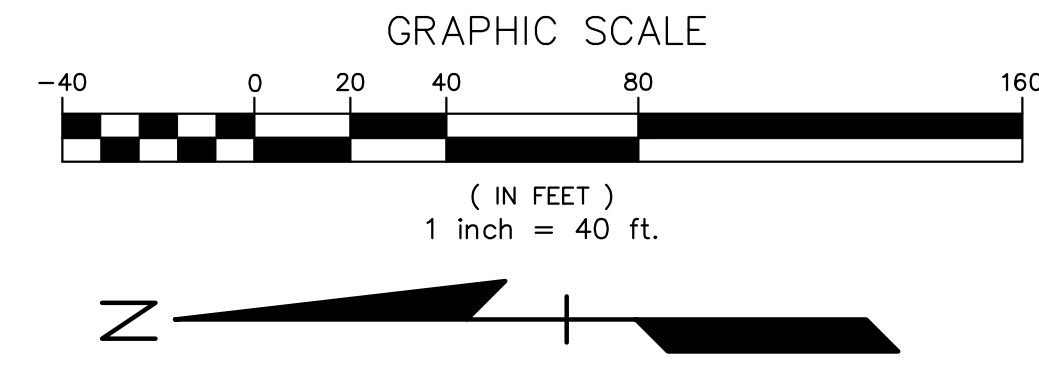
DRAINAGE AREA LEGEND	
	OFF-SITE DETAINED AREAS
	ON-SITE DETAINED AREAS
	ON-SITE UNDETAINED AREAS

SITE DRAINAGE COMPARISON
7/7/2017
BY: JAH

PROPOSED	OFF SITE DETAINED		
	AREA #1	0.02	0.95
AREA #2	0.19	0.36	0.07
AREA #5	0.10	0.25	0.03
TOTAL			0.12

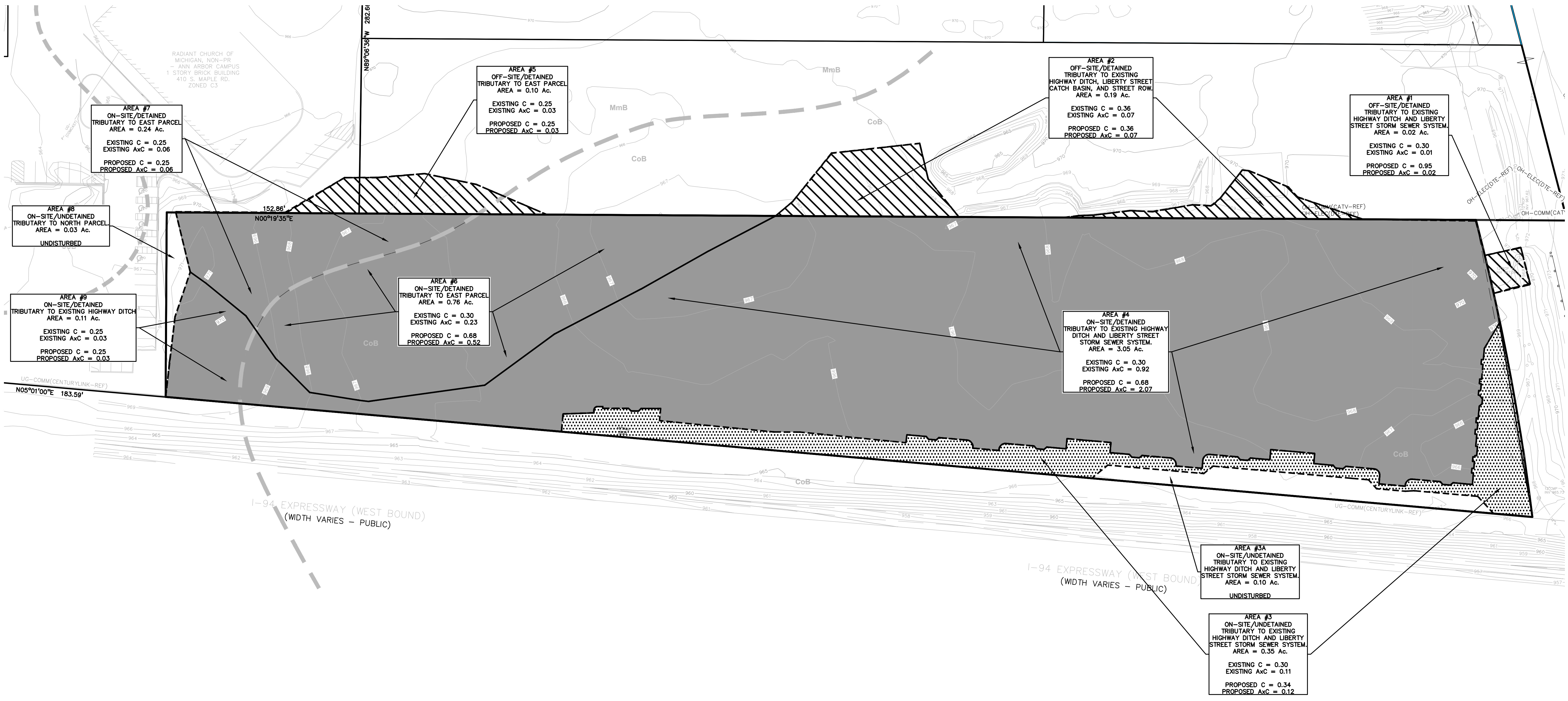
PROPOSED AREA #3	ON SITE UNDETAINED (DISTURBED)		
		0.35	0.34

OFF-SITE DETAINED = ON SITE UNDETAINED (DISTURBED)



NO.	BY	CHK	DESCRIPTION	DATE
1	JAH	JC	REV PER CITY REVIEW LETTERS	04-24-17
2	JAH	JC	REV PER CITY REVIEW LETTERS	12-17-16
3	JAH	JC	REV PER CITY SUBMITTAL TO CITY	06-18-16
4	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2	04-08-16
5	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #1	04-08-16

REVISIONS



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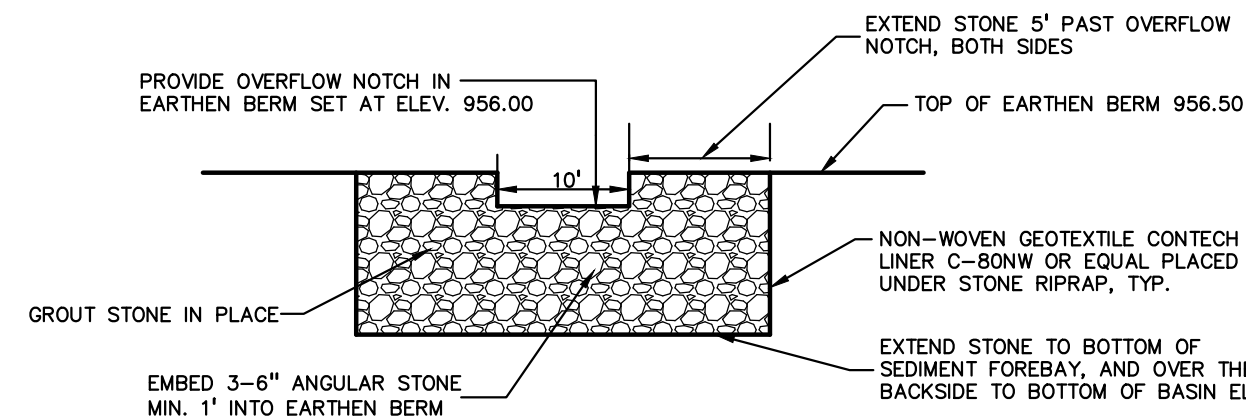


PEA, Inc.
7927 Nemco Way, Ste 115
Brighton, MI 48116
t: 517.546.8583
f: 517.546.8973
www.peainc.com

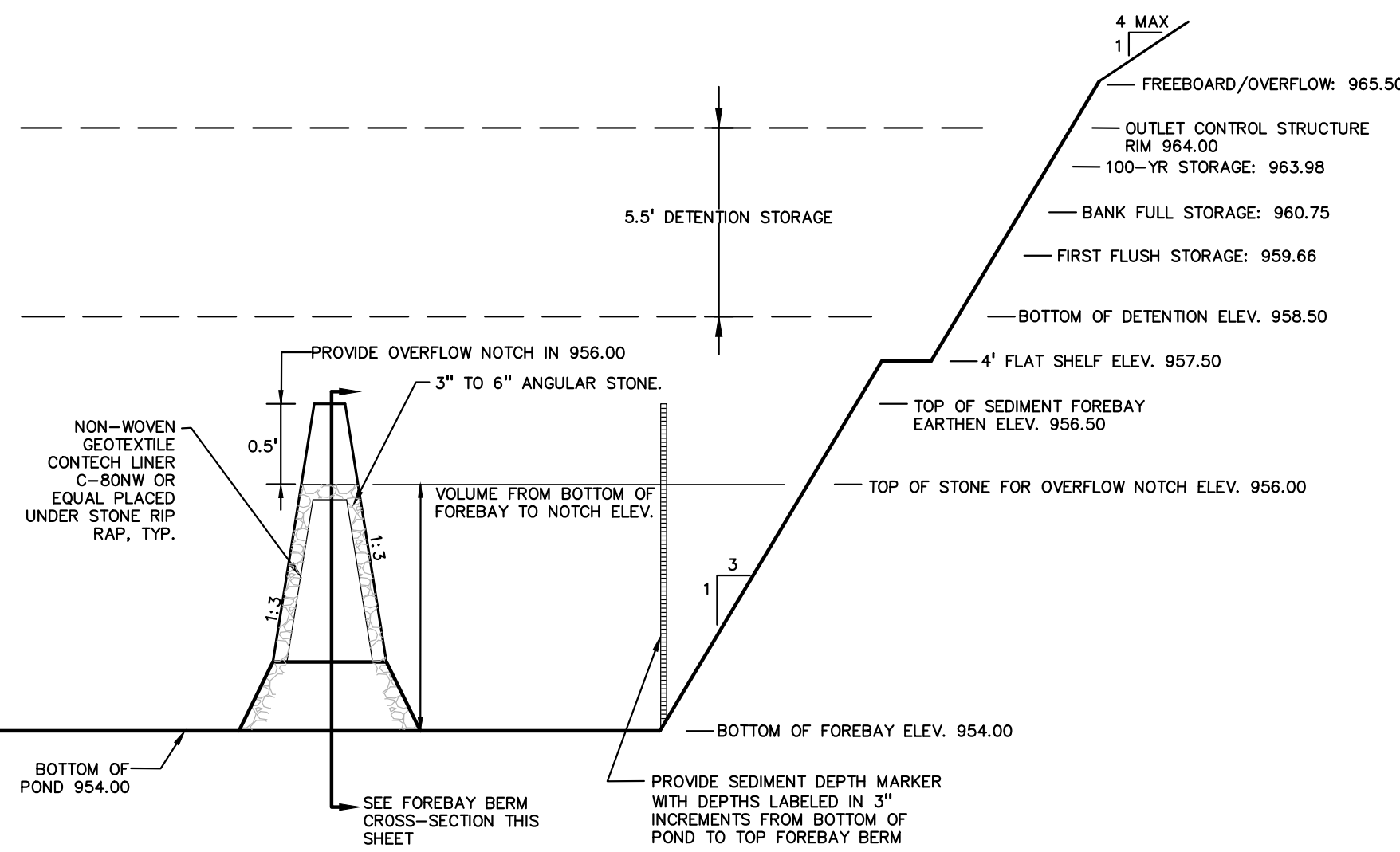
MCP LIBERTY DEVCO, LLC AUBURN HILLS, MICHIGAN 48326	
OVERALL DRAINAGE PLAN LIBERTY TOWNHOMES PART OF THE SE 1/4 SECTION 25, T2S, R1E, S8E CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN	
DES: JAH	DN: JAH
SUR: JAH	RS: JAH
P: JAH	JC: JAH

NOT FOR CONSTRUCTION

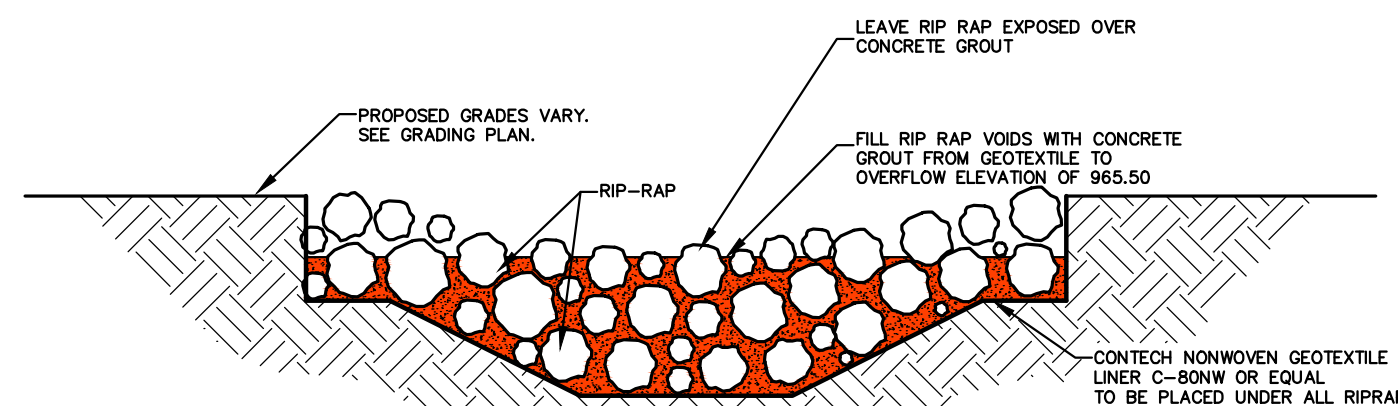
TOPOGRAPHIC SURVEY DISCLAIMER:
SOME TOPOGRAPHIC CONTOUR LINES OUTSIDE OF THE PERIMETER OF THE SUBJECT PARCEL WERE TAKEN FROM THE WASHTENAW COUNTY MapWashtenaw ONLINE GIS MAP TOOL.
PEA, INC. WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE CONTOUR LINES OR FOR DESIGN ERRORS/OMISSIONS RESULTING FROM ANY INACCURACIES.



FOREBAY BERM CROSS-SECTION
NOT TO SCALE



DETENTION BASIN ELEVATION/VOLUME SCHEMATIC CROSS SECTION C-C
NOT TO SCALE

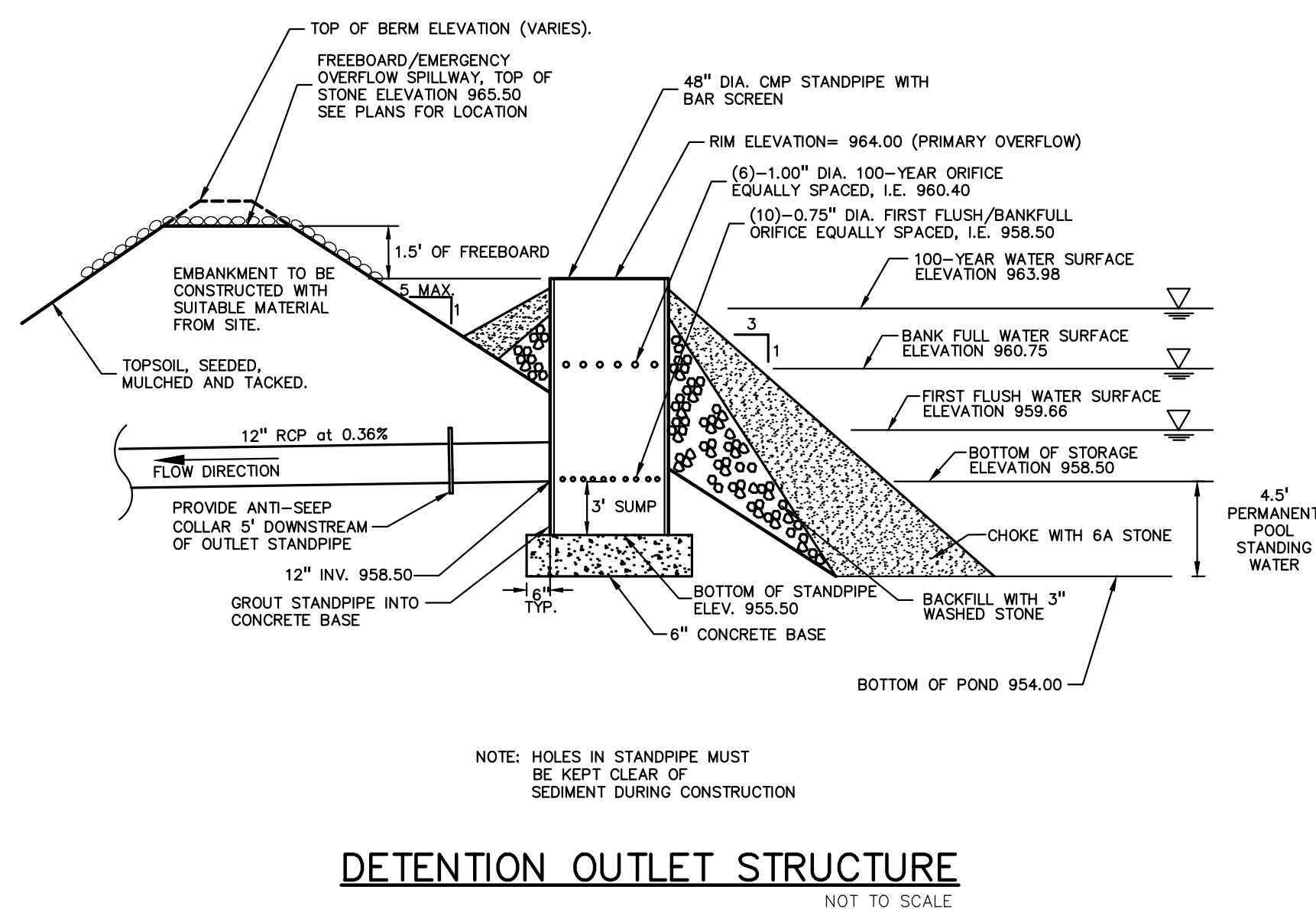


DETENTION BASIN OVERFLOW SPILLWAY CROSS SECTION
NOT TO SCALE

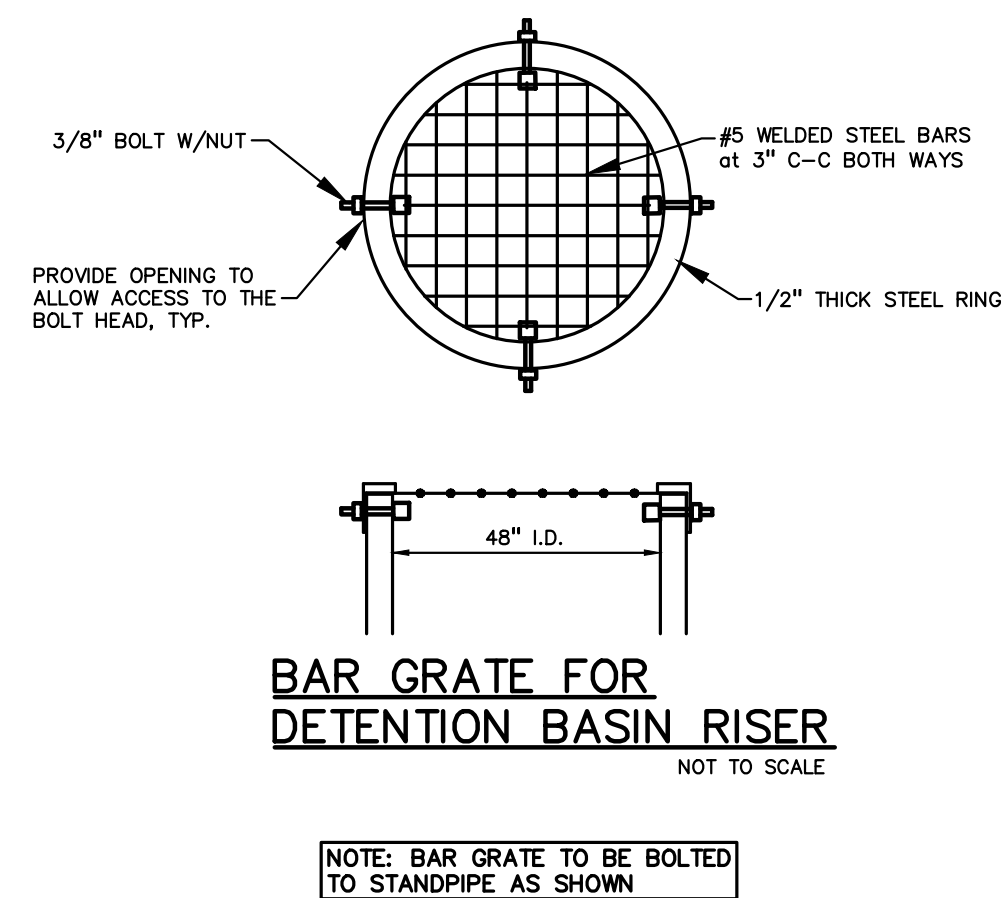
PEA, INC.		Purpose: NATURAL STORMWATER DETENTION BASIN		Project No: 2017-167		By: JAH		Date: 11/16/17	
DETENTION POND:		Natural Detention Basin		POND OUTLET:		ORIFICE			
DESIGN STORM EVENT:		100 YEAR STORM							
ALLOWABLE OUTFLOW:		0.15 CFS/AC							
Input Parameters		TOTAL DRAINAGE AREA: 195.386 SF							
		TOTAL DRAINAGE AREA: 4.49 AC							
		NET IMPERVIOUS AREA: 2.35 ac. at C = 0.95							
		PERVIOUS (B Soils) AREA: 42 ac. at C = 0.25							
		WATER PERVIOUS (C Soils) AREA: 1.41 ac. at C = 1.00							
		COMPOUND C: 0.68							
		4.49 ac.							
DETENTION CALCS		Q _o = OUTFLOW (15 CFS/AC) = 0.673 CFS							
		Q _o = Q _i / (AREA x C) = 0.22 CFS/ACRE IMPERVIOUS							
TOTAL VOLUME OF STORAGE REQUIRED		V _{det} = (Per WCWRC Worksheets)		63,368 CF					
NET REQUIRED DETENTION VOLUME (WITH 20% PENALTY)		V _{net} = (Per WCWRC Worksheets)		72,442 CF					
FIRST FLUSH VOLUME		V _{ff} = (Per WCWRC Worksheets)		11,112 CF					
BANK FULL VOLUME		V _{bf} = (Per WCWRC Worksheets)		23,428 CF					
SEDIMENT FOREBAY VOLUME		V _{sed} = 5% of V _{det}		3,622 CF					
BASIN SIZING		CONTOUR INTERPOLATION CALCS.							
CONTOUR ELEV	DETENTION AREA	INCR. VOLUME	CUMUL. VOLUME	100-YR HWL	BANK FULL	FIRST FLUSH			
TOP OF DET.	964	18,205	17,276	72,442	23,428	11,112			
963	16,347	15,440	55,498	-	-	-			
962	14,532	13,644	40,058	-	-	-			
961	12,755	11,881	26,415	-	960.75	-			
960	11,007	10,150	14,534	-	-	959.66			
959	9,293	8,484	4,384	-	-	-			
BOT. OF DET.	959.5	8,242	-	-	-	-			
SEDIMENT FOREBAY		CONTOUR INTERPOLATION CALCS.							
CONTOUR ELEV	CONTOUR AREA	INCR. VOLUME	CUMUL. VOLUME						
TOP OF SED.	956	2,740	2,410	4,194					
955	2,079	1,785	1,785	-					
BOT. OF SED.	954	1,490	-	-					
		4,194		>		3,622			

First Flush Calculations		Total First Flush Storage Volume, V _{ff} = 11,112 CF			
		Elevation of First Flush, X _{ff} (actual) = 959.66			
Outlet Sizing for First Flush:		Q _{out} = V _{ff} /60,400 sec		0.129 CFS	
Average Head for Orifice Equation:		Elevation Difference from X _{ff} to Outlet Elevation		1.16 FT	
		h _{avg} = 2/3 * (elev diff)		0.77 FT	
Office Area Required		A = Q/(0.62*sqrt(2gh))		0.0294 SF	
Number of Orifice Holes Required		Hole Diameter = 7.5"		Hole Area = 0.0031 SF	
		Holes = A / 0.0031		9.58 HOLES	
		therefore, use		9 HOLES	
Actual Release Rate:		A _{ff} = # holes * (hole area)		0.0278 SF	
		Q _{ff} = 0.62*A _{ff} *sqrt(2gh)		0.121 CFS	
Actual Holding Time		T _{det} = V _{ff} /Q _{ff}		25.55 HR	
				(Fact- 24 CK)	
Bank Full Calculations		Bank Full Storage Volume, V _{bf} = 23,428 CF			
		Elevation of Bank Full, X _{bf} (actual) = 960.75			
Average Head for Orifice Equation:		Elevation Difference from X _{bf} to Outlet Elevation		2.25 FT	
		h _{avg} = 2/3 * (elev diff)		1.50 FT	
Release Rate thru Bottom of Det. Orifices:		Q = 0.62*A _{ff} *sqrt(2gh)		0.168 CFS	
Actual Holding Time		T _{det} = V _{bf} /Q		38.66 HR	
				(36 < Holding Time < 48)	
				(No additional holes required for Bankfull)	
100-Year Storm Calculations		100-yr Detention Volume, V ₁₀₀ = 72,442 CF			
		Elevation of 100-Year Storm, X ₁₀₀ (actual) = 964.00			
		Design Rim Elevation for 100-yr Storm, X ₁₀₀ = 964.00			
		Allowable Outflow Rate, Q _{allow} = 0.15 cfs/acre = 0.673 CFS			
Actual Release Rate Provided by First Flush Orifices for 100-yr Storm:		A _{ff} = # holes * (hole area)		0.0278 SF	
		h _{avg} = X ₁₀₀ - X _{ff} (actual)		5.50 FT	
		Q _{ff} = 0.62*A _{ff} *sqrt(2gh)		0.32 CFS	
Q _{max} = Q _{allow} - Q _{ff}				0.351 CFS	
Maximum Head for Orifice Equation:		Elevation Difference from X ₁₀₀ to X _{ff} (BF)		3.25 FT	
Office Area Required		A = Q/(0.62*sqrt(2gh))		0.039 SF	
Number of Orifice Holes Required		Hole Diameter = 1.000"		Hole Area = 0.0055 SF	
		Holes = A / 0.0055		7.17 HOLES	
		therefore, use		6 HOLES	
Actual Release Rate:		A ₁₀₀ = # holes * (hole area)		0.0327 SF	
		Q ₁₀₀ = 0.62*A ₁₀₀ *sqrt(2gh)		0.29 CFS	
Q _{out} = Q ₁₀₀ + Q _{ff}				0.62 CFS	
Q _{out} < Q _{allow}		0.62 <= 0.67		OK!	
Discharge through the first flush orifices when the first flush and 100 year holes are contributing		h _{100ave} = (2/3)(X ₁₀₀ - X _{ff} - X _{det})		4.41666667 FT	
Q _{100ave} = (0.62)*sqrt(2gh)				0.289 CFS	
Average Discharge Through the 100 yr orifices when the other orifices are contributing		h _{100ave} = (2/3)(X ₁₀₀ - X _{det})		2.17 FT	
Q _{100ave} = (0.62)*sqrt(2gh)				0.240 CFS	
Check the 100 yr storm volume is discharged in less than 72 hrs		V ₁₀₀ = V ₁₀₀ - V _{ff}		49,014 CFT	
T ₁₀₀ = V ₁₀₀ / (Q _{100ave} + Q _{ff})				64.44 HRS	
				(T ₁₀₀ < 72 CK)	

TASKS	STORMWATER MANAGEMENT SYSTEM MAINTENANCE TASKS AND SCHEDULE		ESTIMATED ANNUAL BUDGET			SESC TASKS
	COMPONENTS	SCHEDULE	1st year	2nd year	3rd year	
Inspect for accumulated sediment	X X	Annually	\$100	\$100	\$100	X
Removal of accumulated sediment > 1' deep	X X	5 years or as required	\$300	\$100	\$0	X
Inspect for erosion	X X	Annually	\$125	\$100	\$100	X
Re-establish permanent controls, eroded areas	X X	As required	\$250	\$100	\$100	X
Inspect for floatables and debris	X X X X X X	Annually	\$75	\$75	\$100	X
Remove floatables and debris	X X X X X X	Annually	\$150	\$50	\$0	X
Replace stone check dams	X	As required	\$150	\$0	\$300	X
Mowing	X X	2X A YEAR	\$2,500	\$1,750	\$300	X
Vegetation and animal control	X X	Annually, or as required	\$50	\$50	\$100	X
Clean Streets	X X	As required	\$250	\$250	\$250	X
Inspect storm water system and components during wet weather and compare to as-built plans (by professional engineer, reporting to maintenance financing company)	X X X X X X	Annually	\$75	\$75	\$100	X
Make adjustments or replacements as determined by annual wet weather inspection.	X X X X X X	As required	\$300	\$300	\$300	X
Keep records of all inspections and maintenance activities and report to maintenance financing provider.	X X X X X X	Annually	\$0	\$0	\$0	X
Keep records of all costs for inspections, maintenance and repairs. Report to maintenance financing provider.	X X X X X X	Annually	\$0	\$0	\$0	X
Professional engineer, emergency observations	X X X X X X	As required	\$0	\$250	\$0	X
		Total Budget:	\$4,325	\$3,200	\$1,750	
		SESC Budget:	\$1,175	\$650	\$850	X



DETENTION OUTLET STRUCTURE
NOT TO SCALE



BAR GRATE FOR DETENTION BASIN RISER
NOT TO SCALE

TASKS	STORMWATER MANAGEMENT SYSTEM MAINTENANCE TASKS AND SCHEDULE		ESTIMATED ANNUAL BUDGET			SESC TASKS
	COMPONENTS	SCHEDULE	1st year	2nd year	3rd year	
Install & maintain soil erosion control measures	X X X X X X	Per plans or as required				
Inspect for accumulated sediment	X X X X X X	Weekly or after rain event				
Removal of accumulated sediment > 1' deep	X X X X X X	As required				
Inspect for erosion	X X X X X X	Weekly or after rain event				
Re-establish permanent & temporary controls	X X X X X X	As required				
Inspect for floatables and debris	X X X X X X	Weekly or after rain event				
Remove floatables and debris	X X X X X X	As required				
Replace stone check dams	X X X X X X	As required				
Mowing	X X X X X X	As required				
Certified Stormwater Manager inspections	X X X X X X	Weekly or after rain event				
Professional engineer, reporting to developer, construction observations	X X X X X X	As required				
Modifications per engineering recommendation	X X X X X X	Monthly				
Certified Stormwater Manager maintenance and inspection records	X X X X X X	Weekly				
Street Sweeping	X X X X X X	Weekly or as needed				
Inspect storm water system and components during wet weather and compare to as-built plans (by professional engineer, reporting to maintenance financing company)	X X X X X X	Annually				
Make adjustments or replacements as determined by annual wet weather inspection.	X X X X X X	As required				

CHEMICAL APPLICATION NOTE:
NO CHEMICALS ARE ALLOWED IN STORMWATER FEATURES OR BUFFER ZONES WITH THE FOLLOWING EXCEPTIONS: INVASIVE SPECIES MAY BE TREATED WITH CHEMICALS BY A CERTIFIED APPLICATOR.

CAUTION!
THE LOCATION AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETENESS OF ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR HEREBY AGREES TO GENERAL INDEMNIFY AND HOLD DESIGN PROFESSIONAL, ENGINEER, ARCHITECT AND ALL OTHERS, REAL OR LEGAL, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ASSUMED FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

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1-800-482-7171 www.missisdg.net



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Brighton, MI 48116
t: 517.546.8583
f: 517.546.8973
www.peainc.com

NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN - 48326

STORM WATER CALCULATIONS AND DETAILS
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25 T. 2S. R. 9E.
CITY OF ANN ARBOR, WASHINGTON COUNTY, MICHIGAN

DES: JAH DN SJR P.M. JC
DATE: 12-17-17

ORIGINAL ISSUE DATE: JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: NONE
DRAWING NUMBER: **P-8**

GENERAL NOTES:

- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ANN ARBOR.
- ALL NECESSARY PERMITS, BONDS AND INSURANCES ETC., SHALL BE PAID FOR BY THE CONTRACTOR. THE OWNER SHALL PAY FOR ALL CITY AND COUNTY INSPECTION FEES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING THE PERIODS OF CONSTRUCTION. THIS SHALL BE CONSIDERED INCIDENTAL TO THE JOB.
- PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) TO VERIFY THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES AND SHALL NOTIFY OTHER REPRESENTATIVES OF OTHER UTILITIES IN THE VICINITY OF THE WORK.
- ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR.
- MANHOLE, CATCH BASIN, GATE VALVES AND HYDRANT FINISH GRADES MUST BE CLOSELY CHECKED AND APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR'S WORK IS CONSIDERED COMPLETE.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF-SITE ANY TREES, BRUSH, STUMPS, TRASH OR OTHER UNWANTED DEBRIS AT THE OWNER'S DIRECTION, INCLUDING OLD BUILDING FOUNDATIONS AND FLOORS, BURNING OF TRASH, STUMPS OR OTHER DEBRIS SHALL NOT BE PERMITTED.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADING, LIGHTS AND TRAFFIC CONTROL DEVICES TO PROTECT THE WORK AND SAFELY CONTAIN TRAFFIC IN ACCORDANCE WITH "MUTCD".
- ALL EXCAVATIONS SHALL BE SLOPED, SHORED OR BRACED IN ACCORDANCE WITH M-OSHA REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE AN ADEQUATELY CONSTRUCTED AND BRACED SHORING SYSTEM FOR EMPLOYEES WORKING IN AN EXCAVATION THAT MAY EXPOSE EMPLOYEES TO THE DANGER OF MOVING GROUND.
- ALL REFERENCES TO M.D.O.T. SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PAVING NOTES:

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF WASHTENAW COUNTY, CITY OF ANN ARBOR, AND M.D.O.T.
- IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
- SUBGRADE UNDERCUTTING, INCLUDING BACKFILLING SHALL BE PERFORMED TO REPLACE MATERIALS SUSCEPTIBLE TO FROST HEAVING AND UNSTABLE SOIL CONDITIONS. ANY EXCAVATIONS THAT MAY BE REQUIRED BELOW THE TOPSOIL IN FILL SECTIONS OR BELOW SUBGRADE IN CUT SECTIONS, WILL BE CLASSIFIED AS SUBGRADE UNDERCUTTING.
- SUBGRADE UNDERCUTTING SHALL BE PERFORMED WHERE NECESSARY AND THE EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY SUBGRADE UNDERCUTTING SHALL BE BACKFILLED WITH SAND OR OTHER SIMILAR APPROVED MATERIAL. BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT (PER ASTM D-1557) UNLESS OTHERWISE SPECIFIED.
- BACKFILL UNDER PAVED AREAS SHALL BE AS SPECIFIED ON DETAILS.
- ANY SUB-GRADE WATERING REQUIRED TO ACHIEVE REQUIRED DENSITY SHALL BE CONSIDERED INCIDENTAL TO THE JOB.

GENERAL UTILITY NOTES:

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF ANN ARBOR AND WASHTENAW COUNTY.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND/OR OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDERGROUND UTILITIES, WHICH MIGHT AFFECT THIS JOB.
- ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
- WHENEVER EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER TO CENTER, AROUND PERIPHERY OF OPENING TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
- EXACT GRADES AND DEPTHS OF UTILITIES ARE TO BE CHECKED CLOSELY WITH THE FIELD ENGINEER PRIOR TO INSTALLATION.
- REFER TO CITY OF ANN ARBOR STANDARD DETAIL SHEETS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

STORM SEWER NOTES:

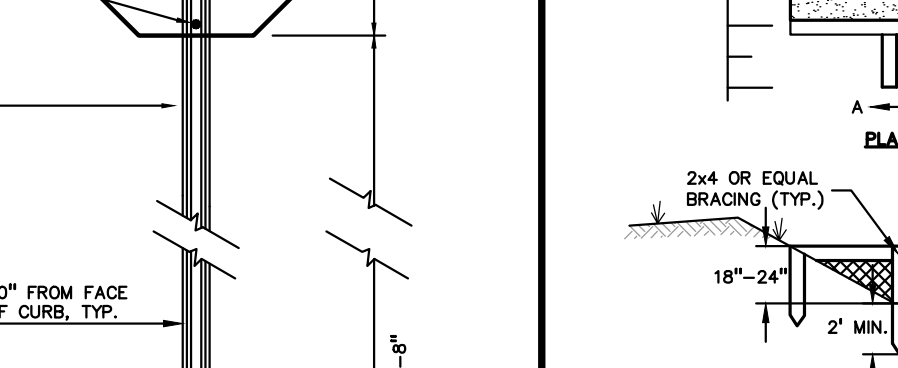
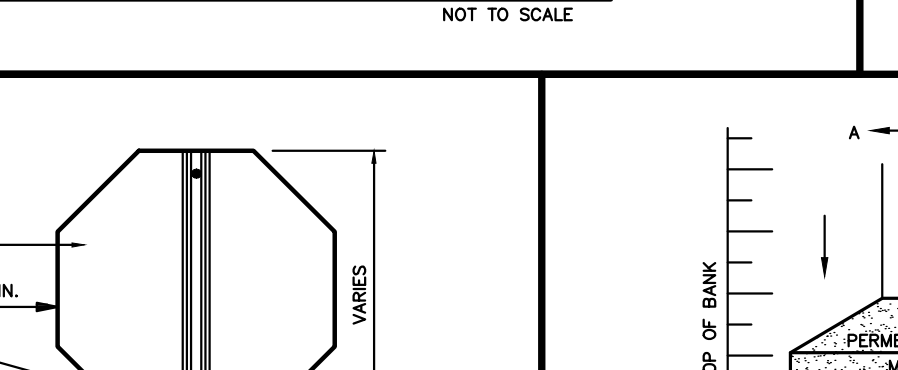
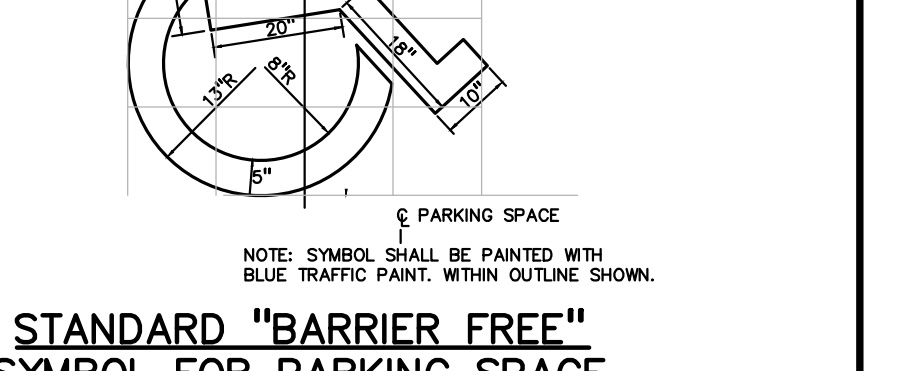
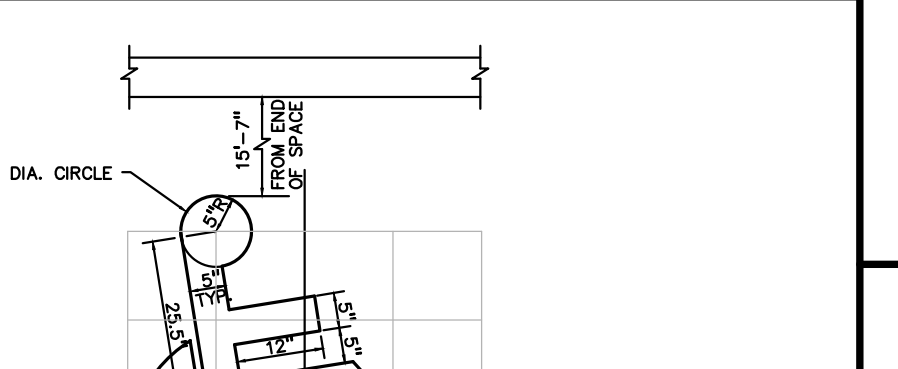
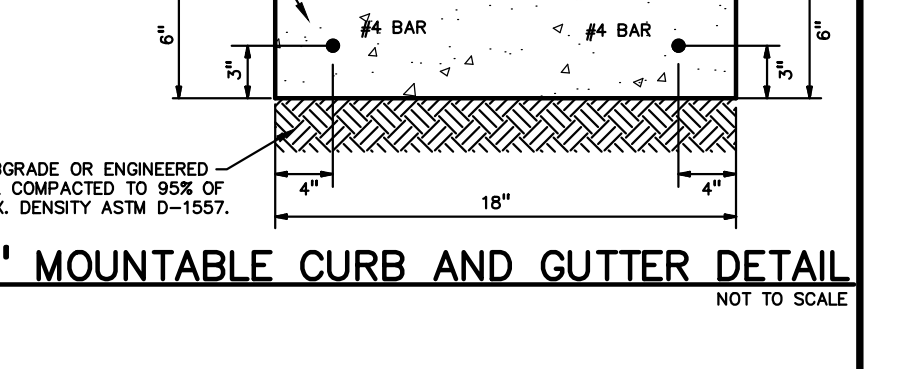
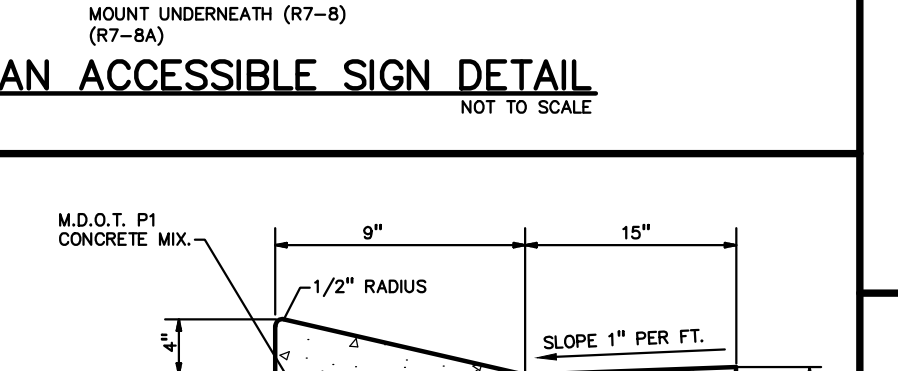
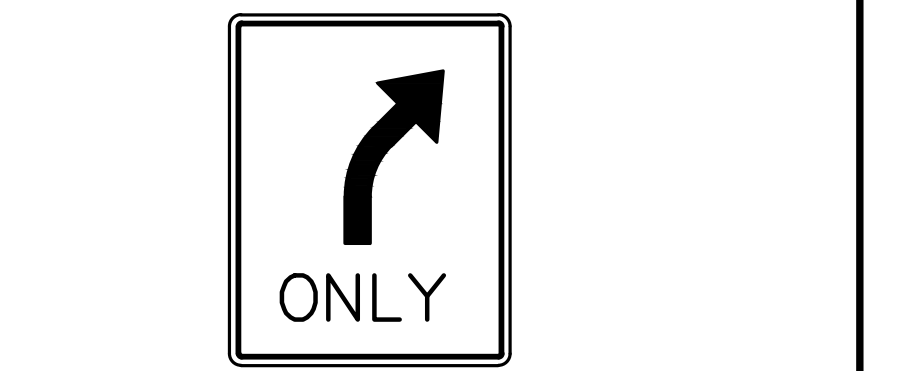
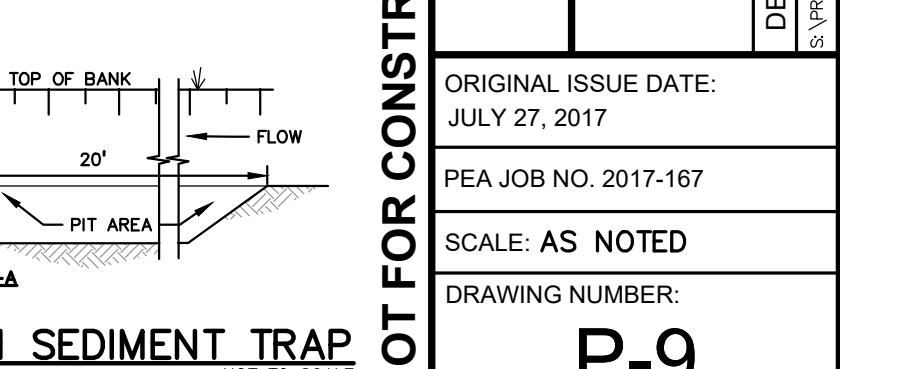
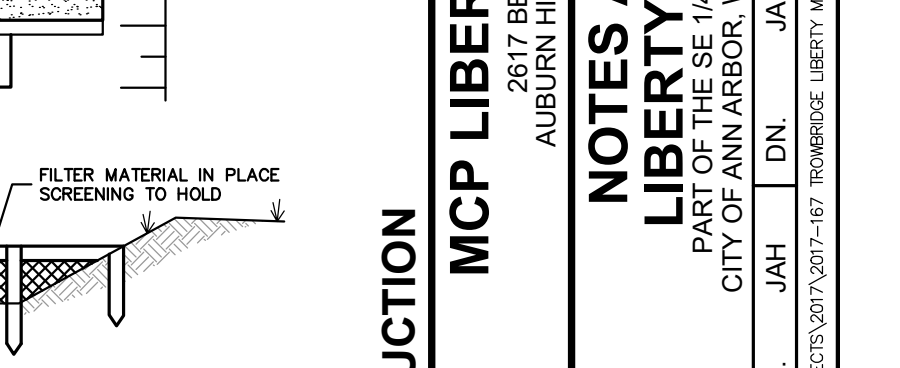
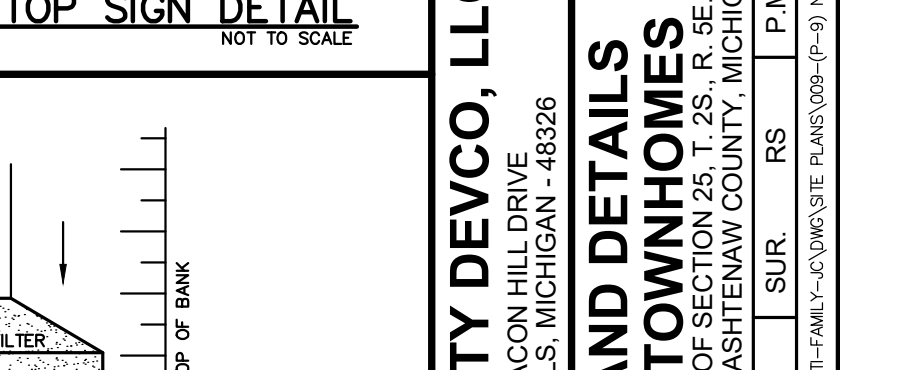
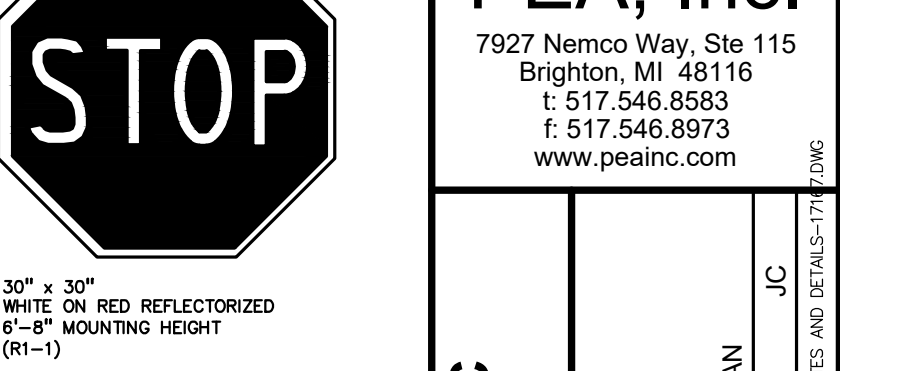
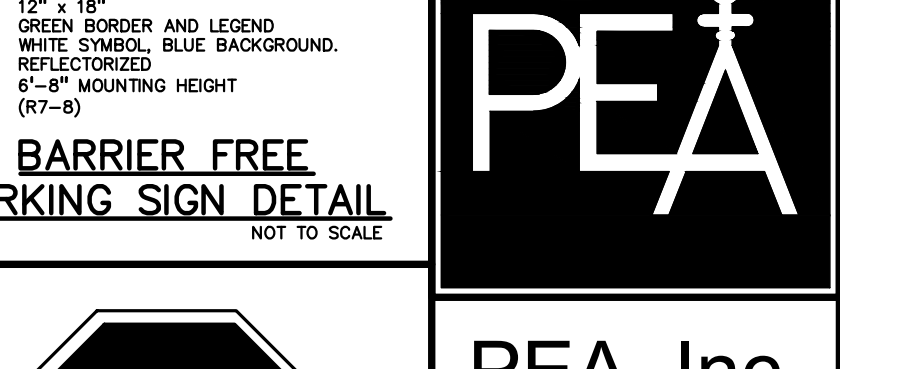
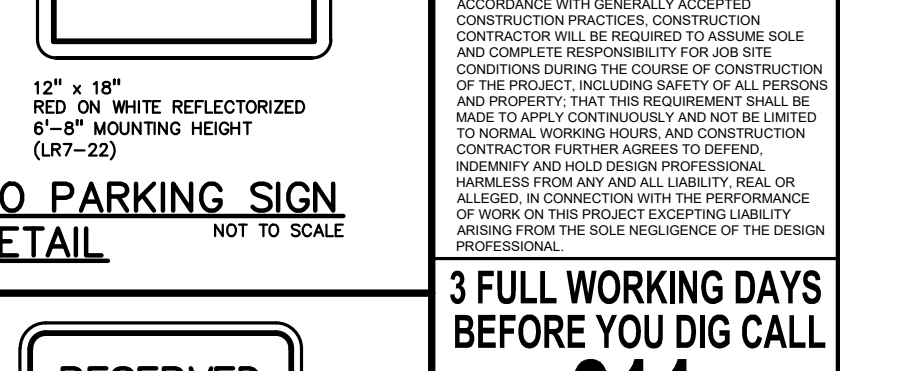
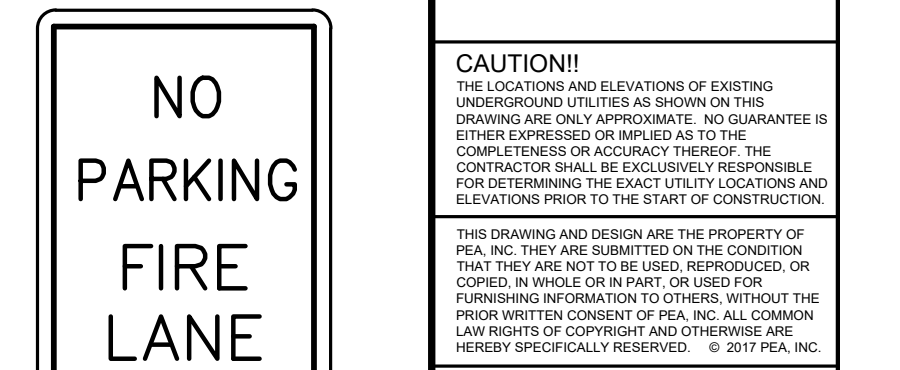
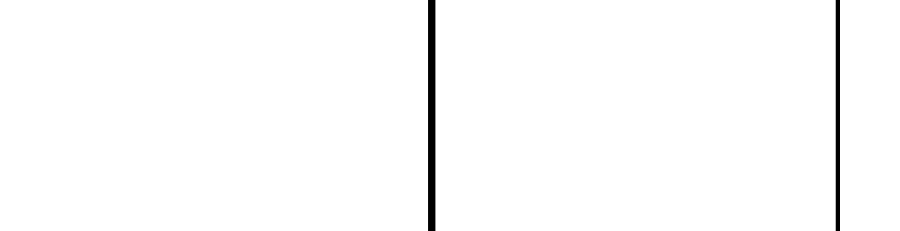
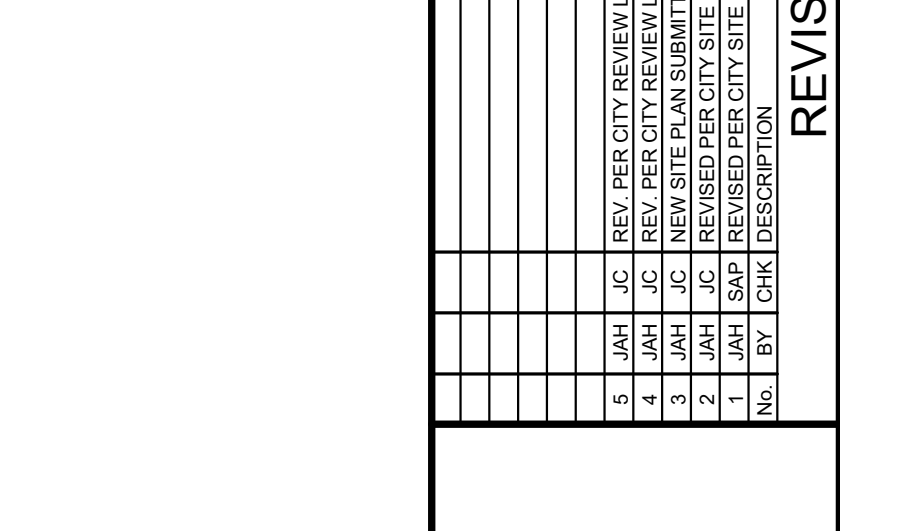
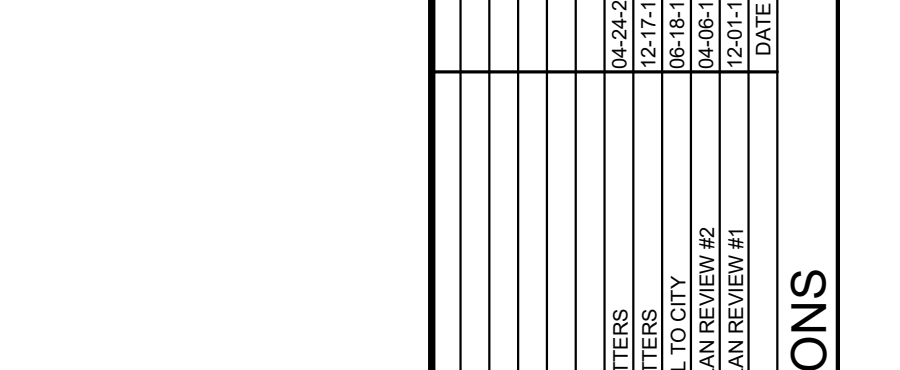
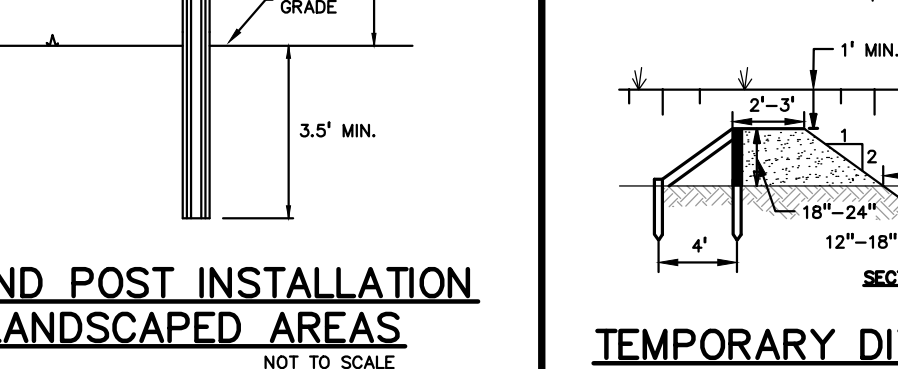
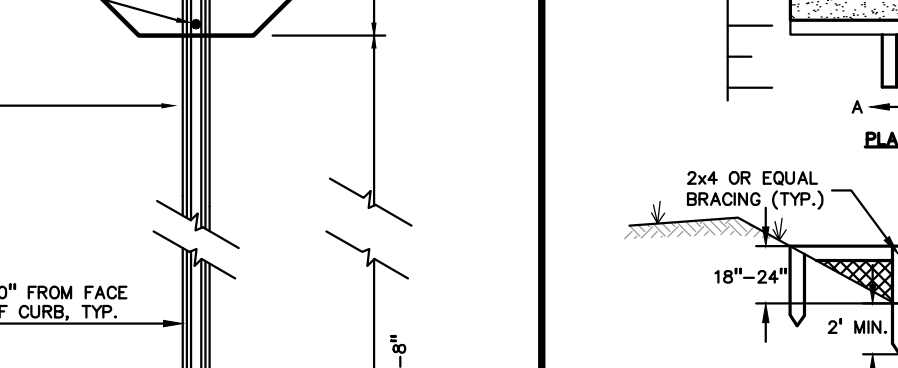
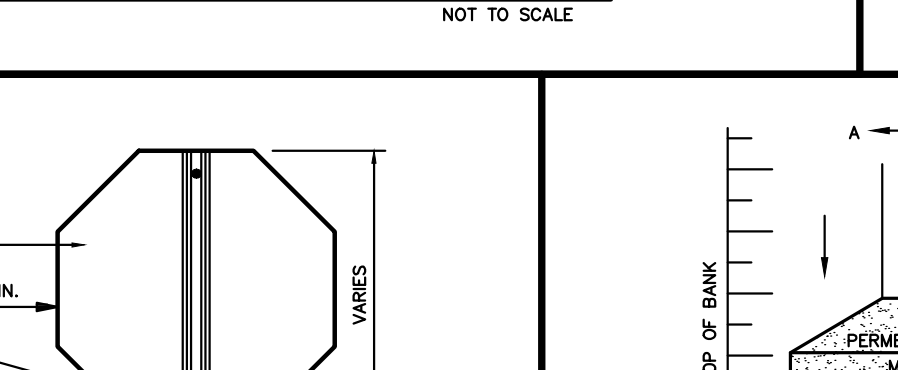
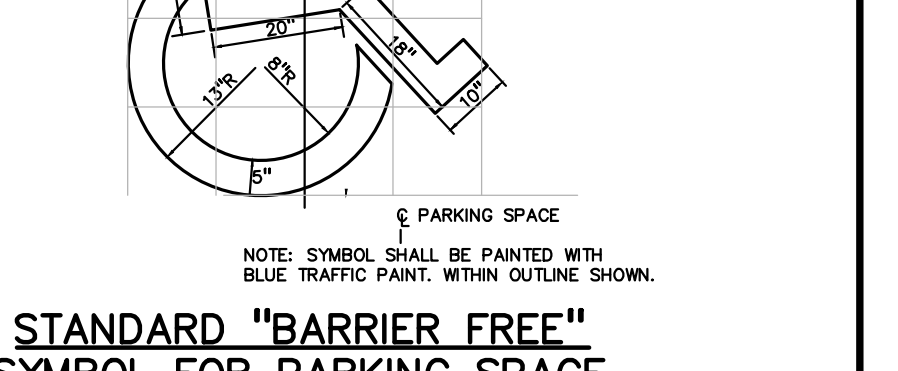
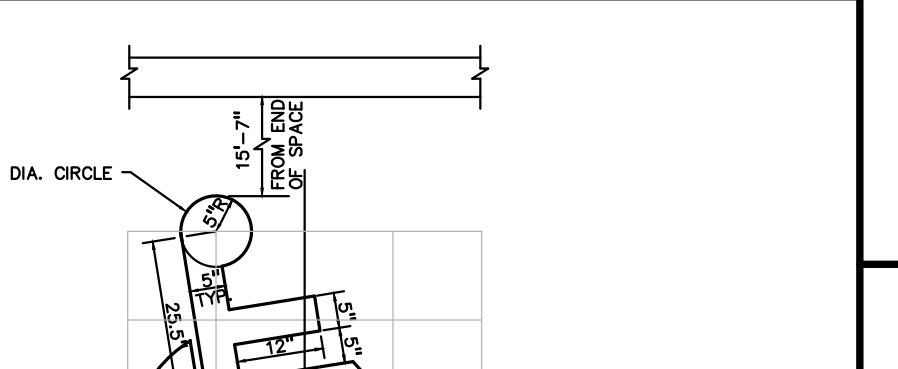
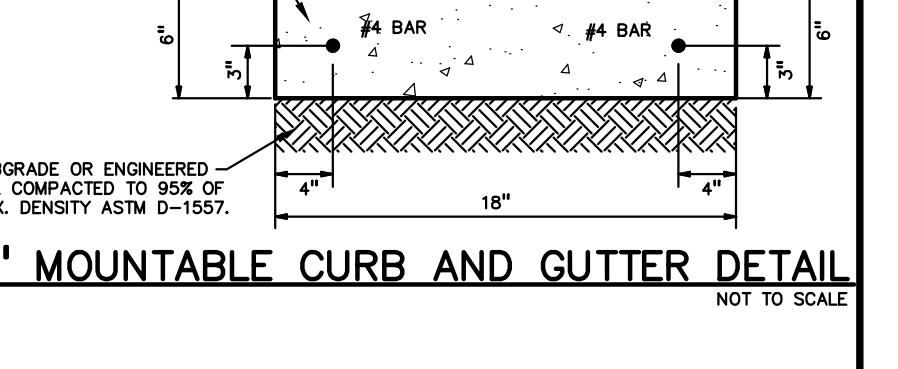
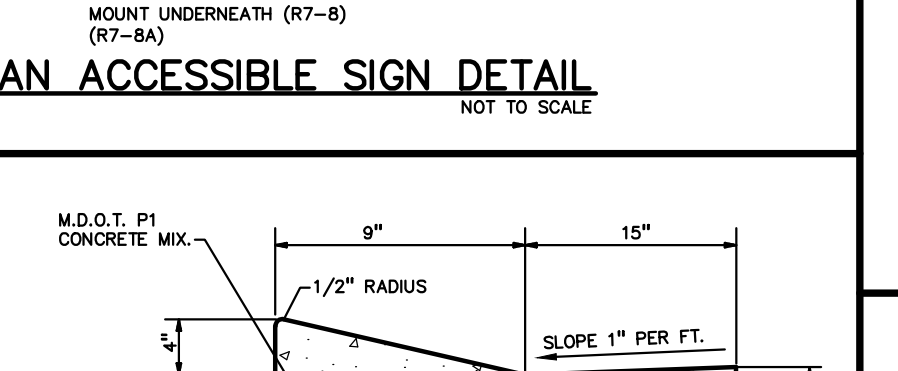
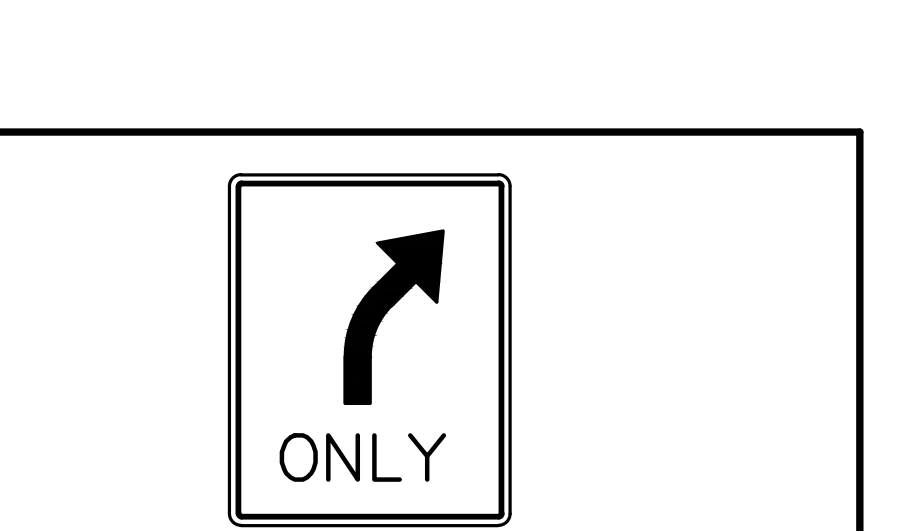
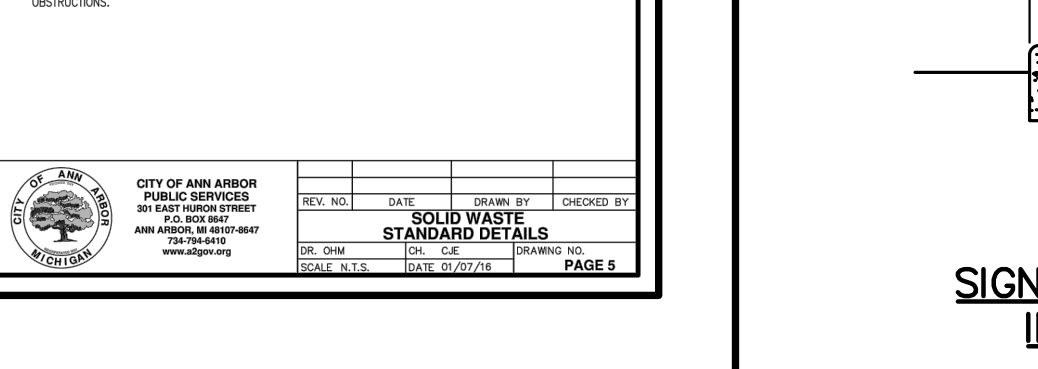
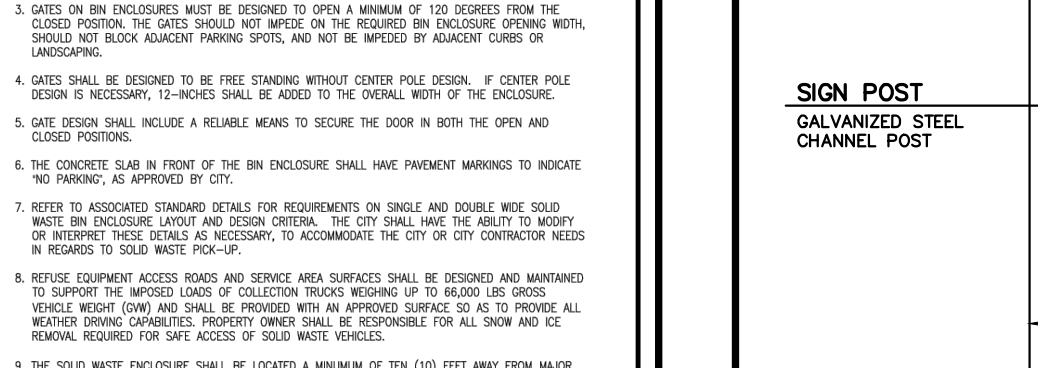
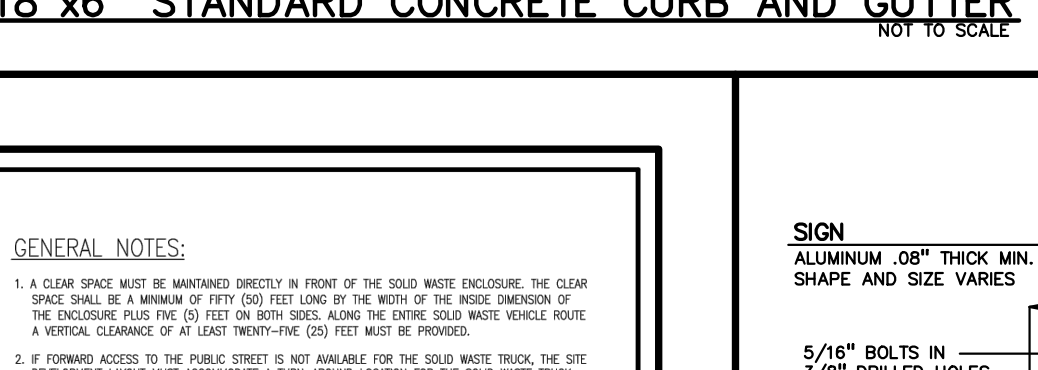
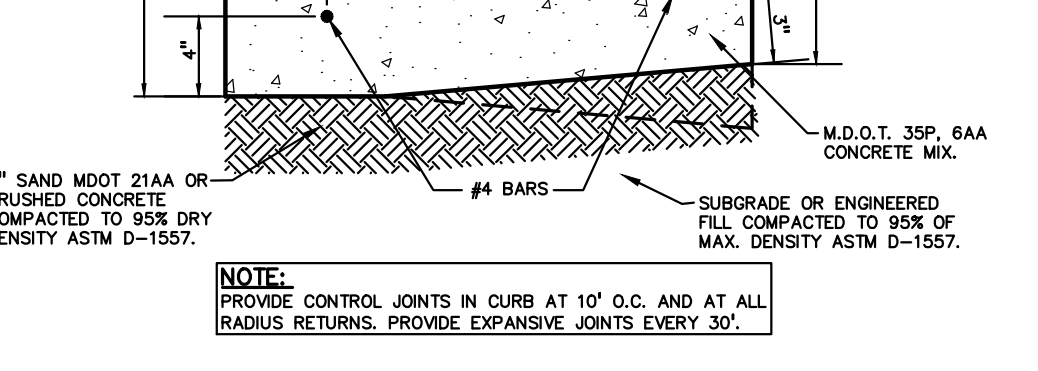
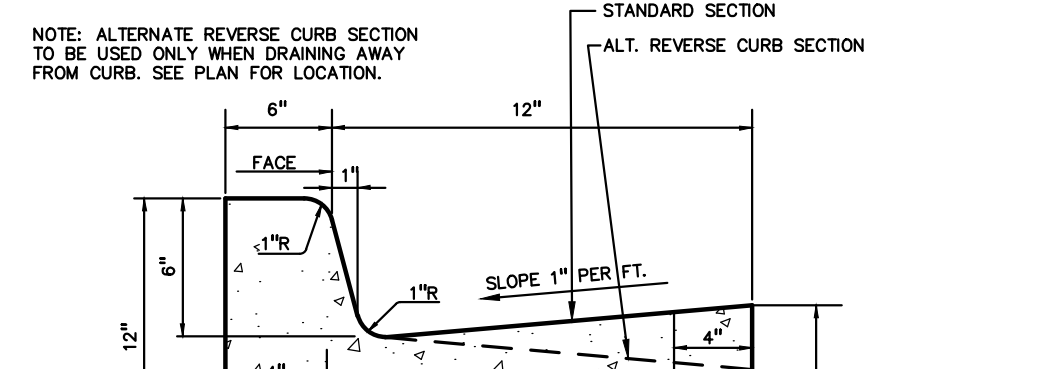
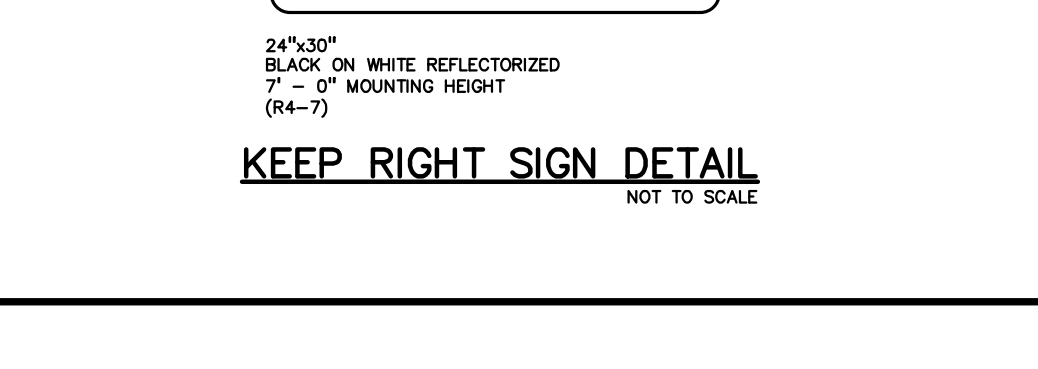
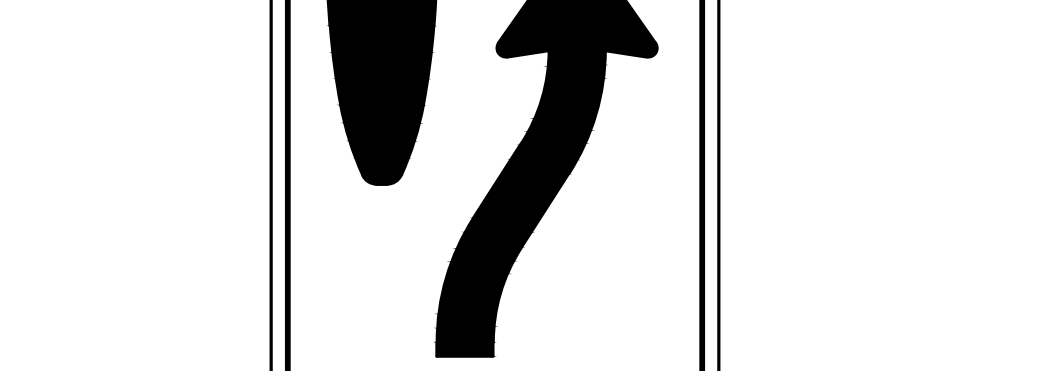
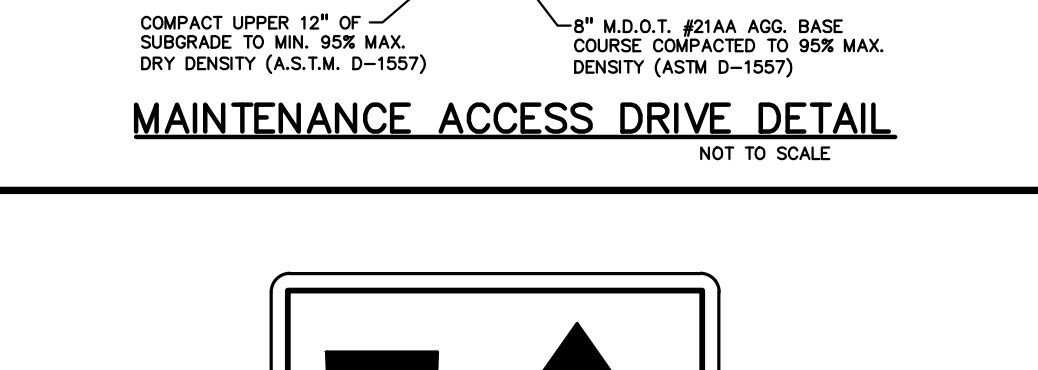
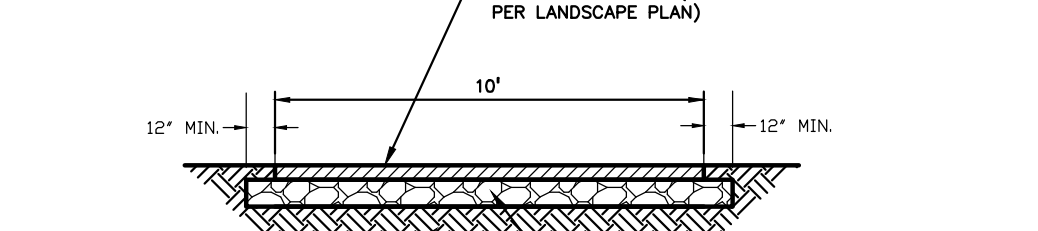
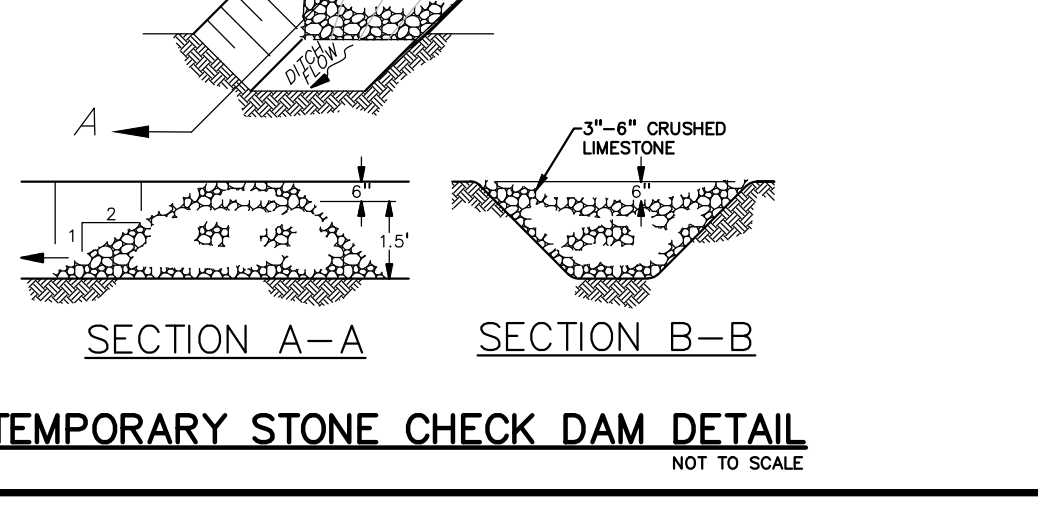
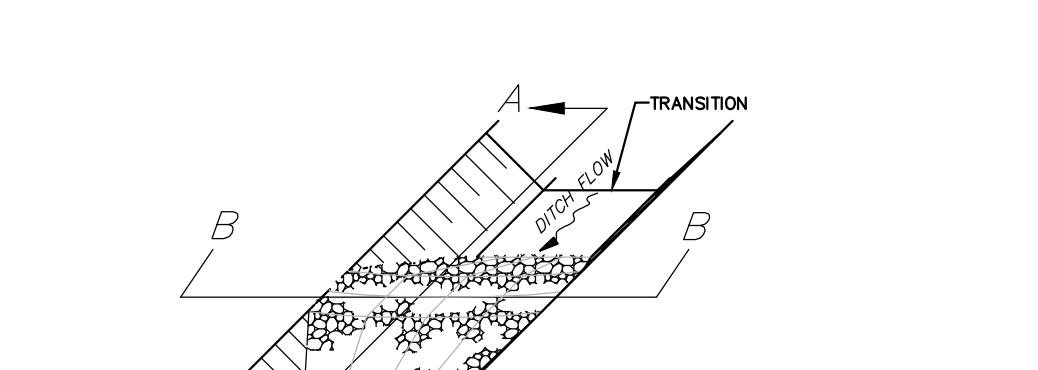
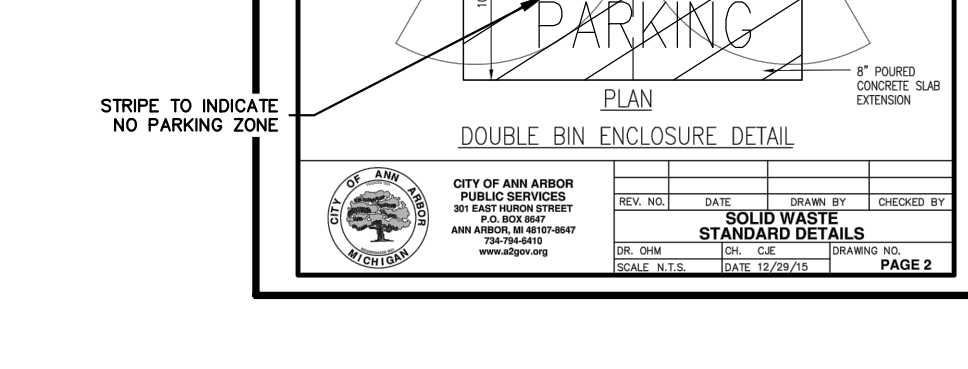
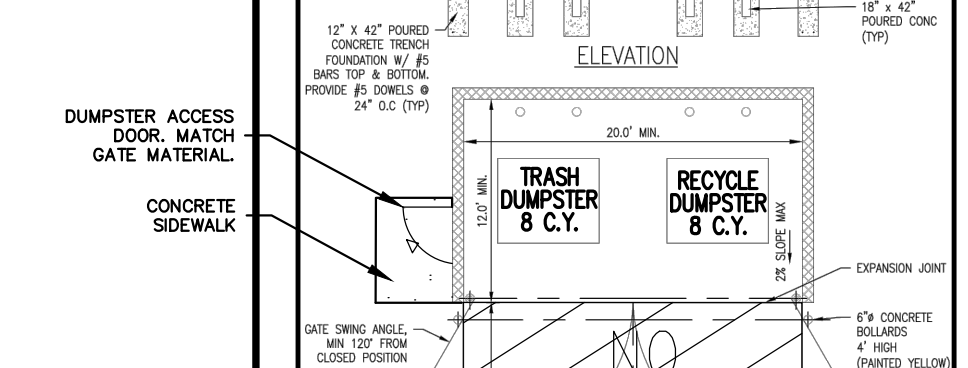
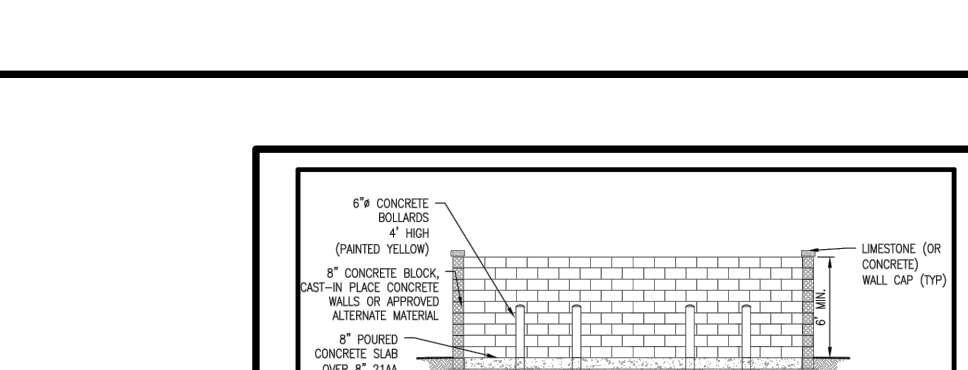
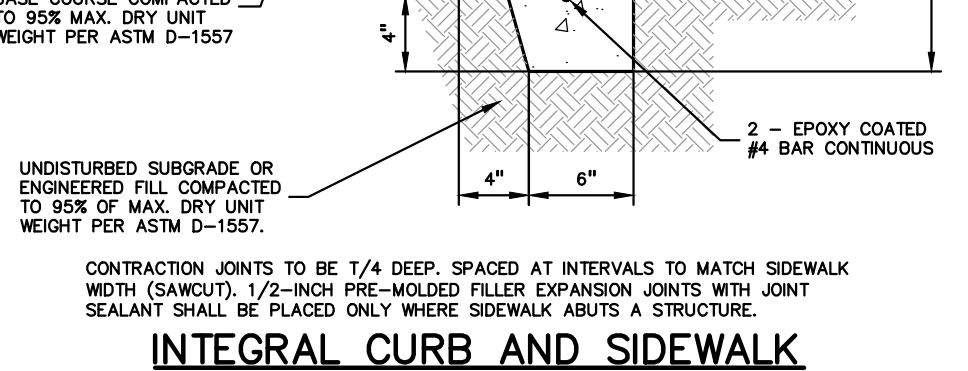
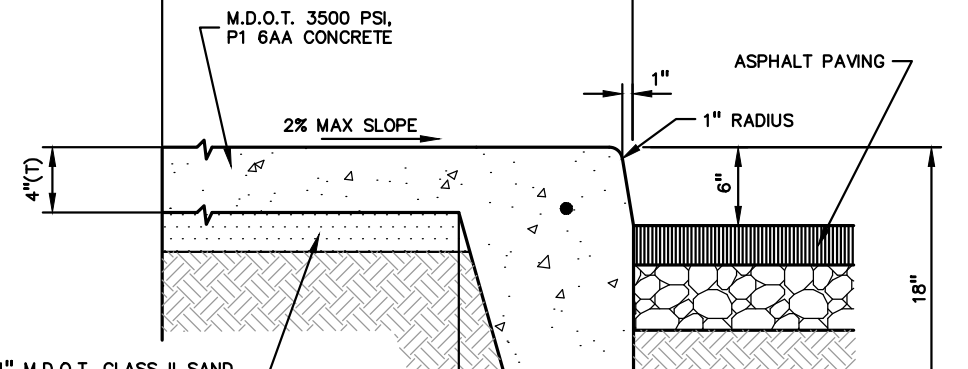
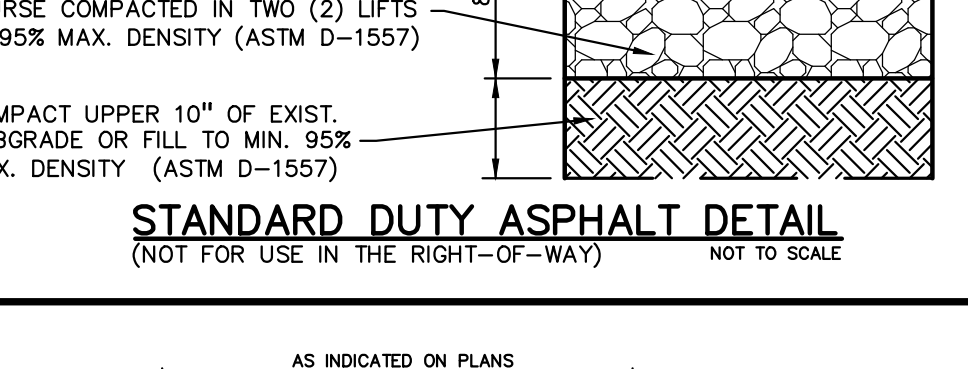
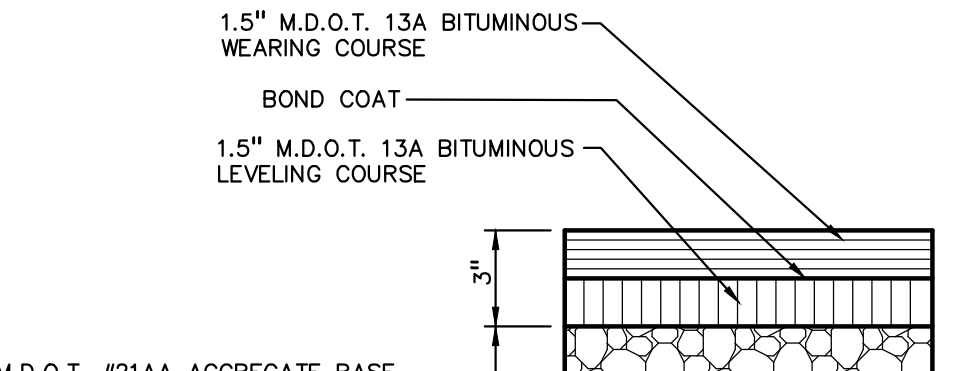
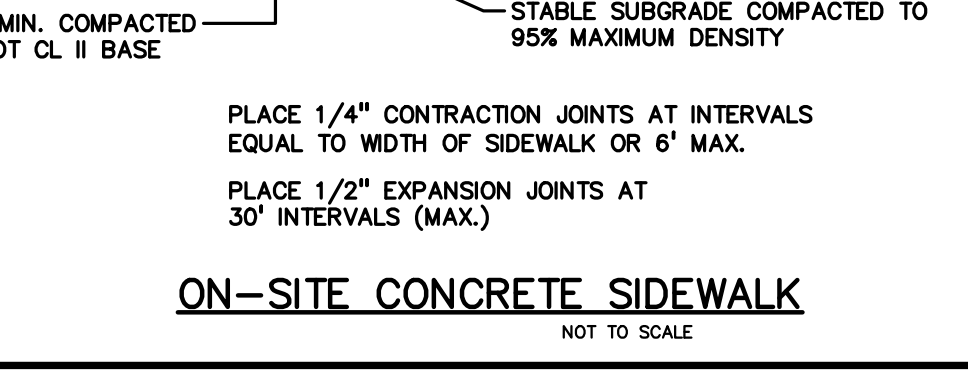
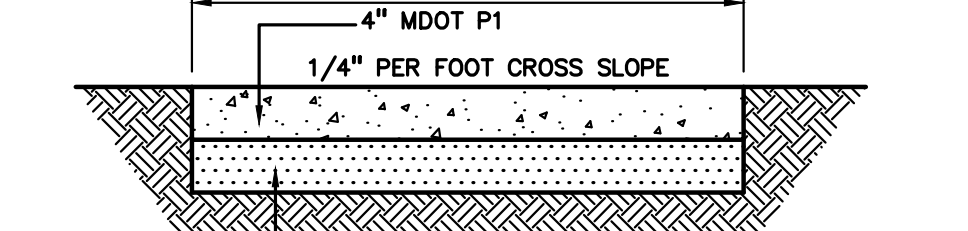
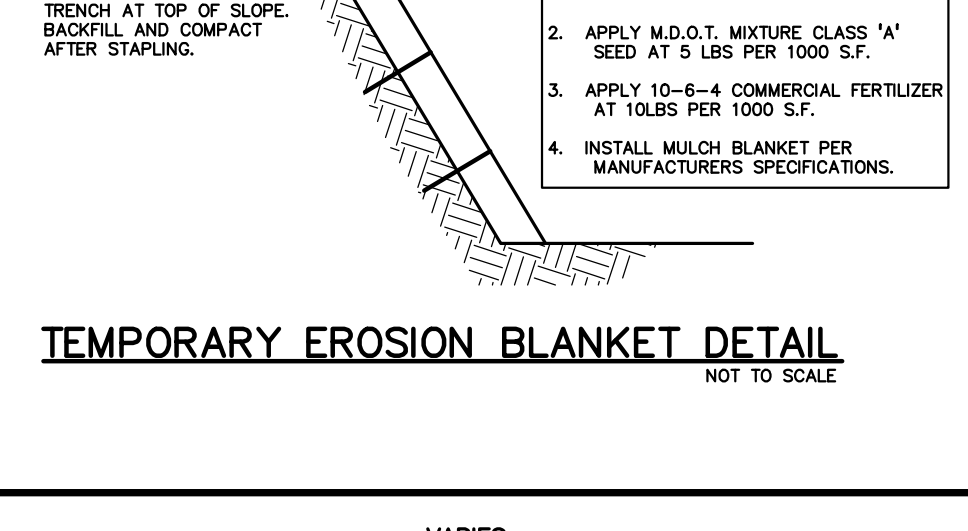
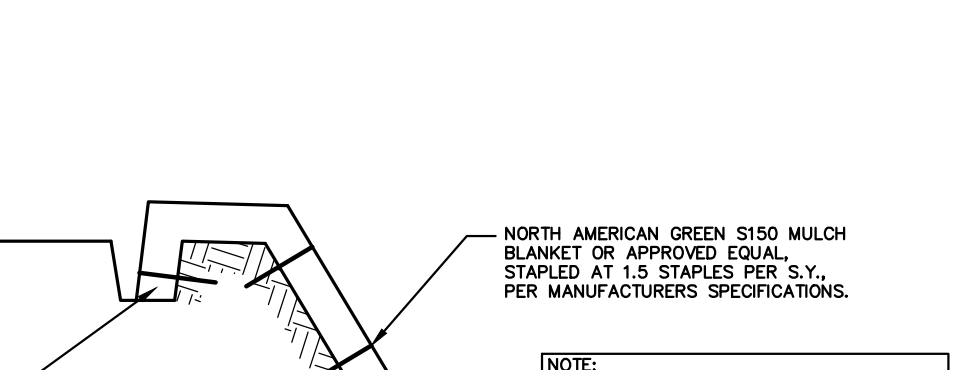
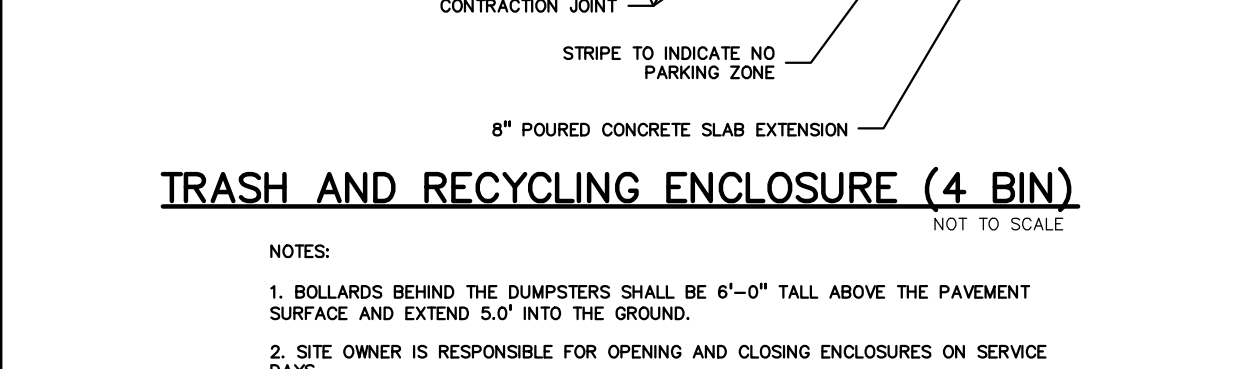
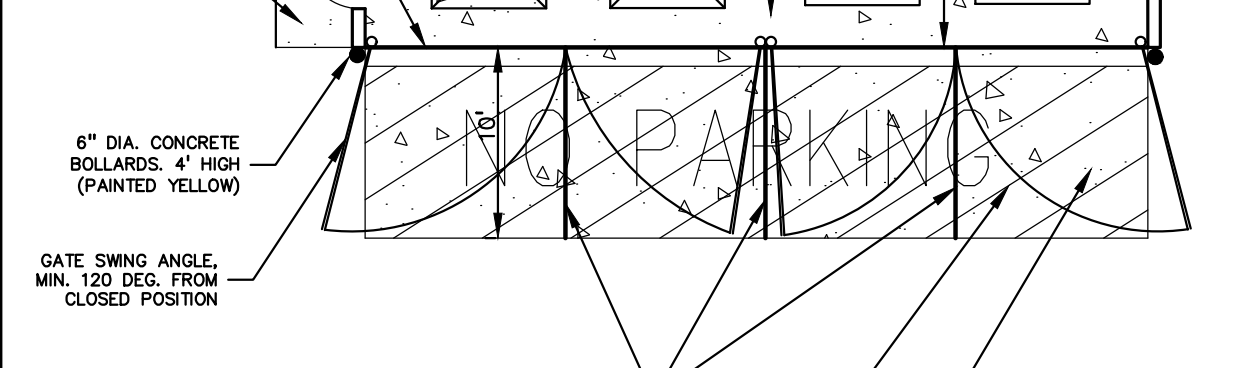
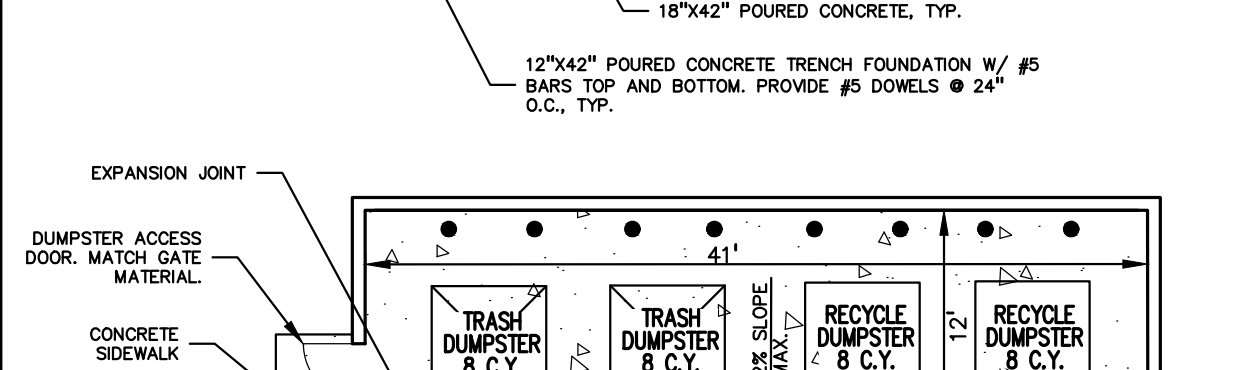
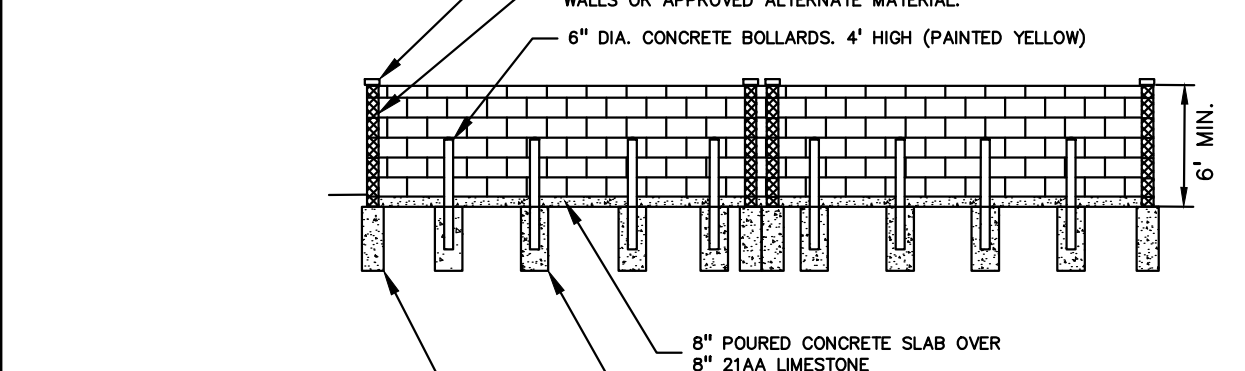
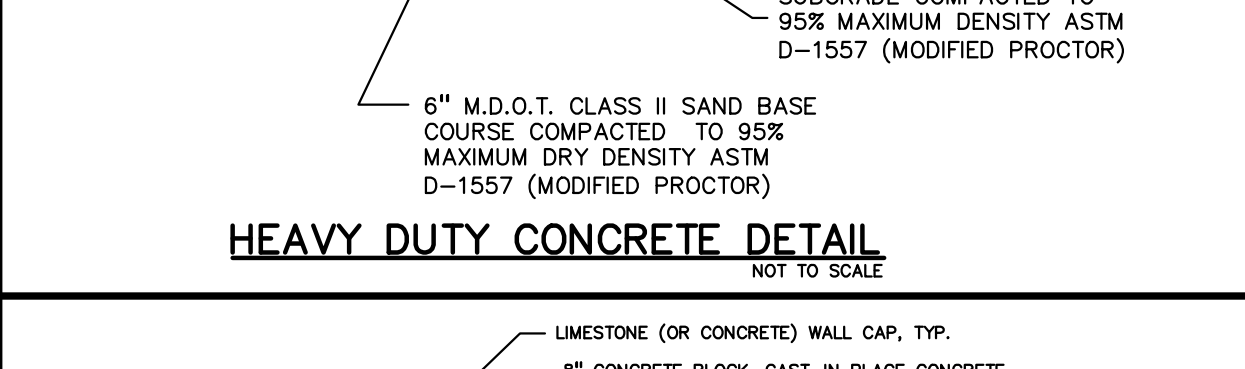
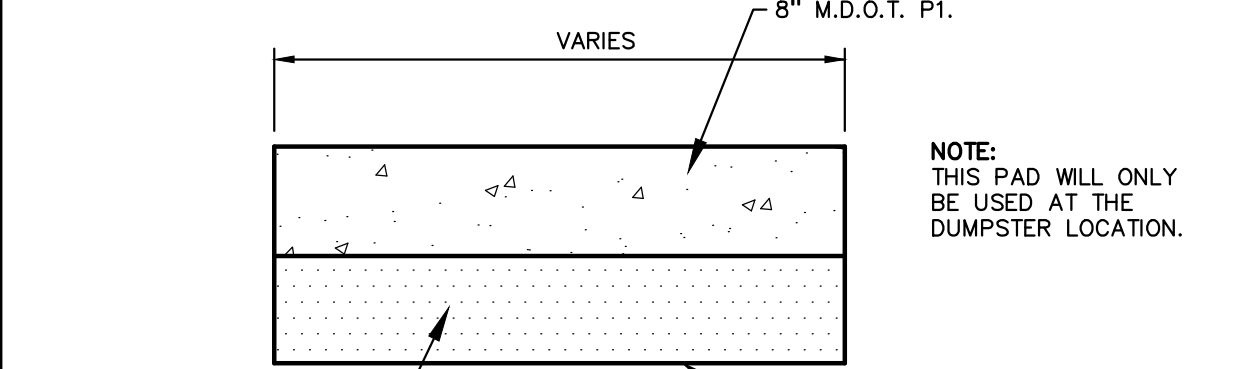
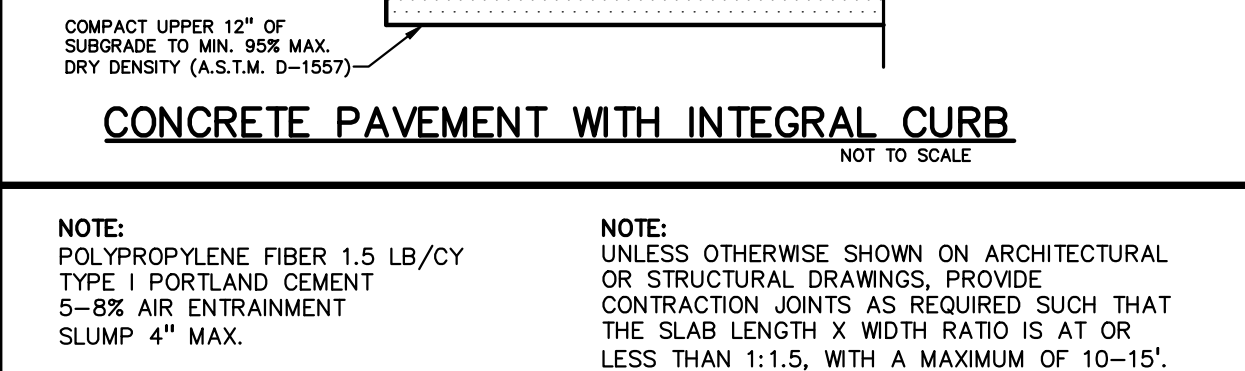
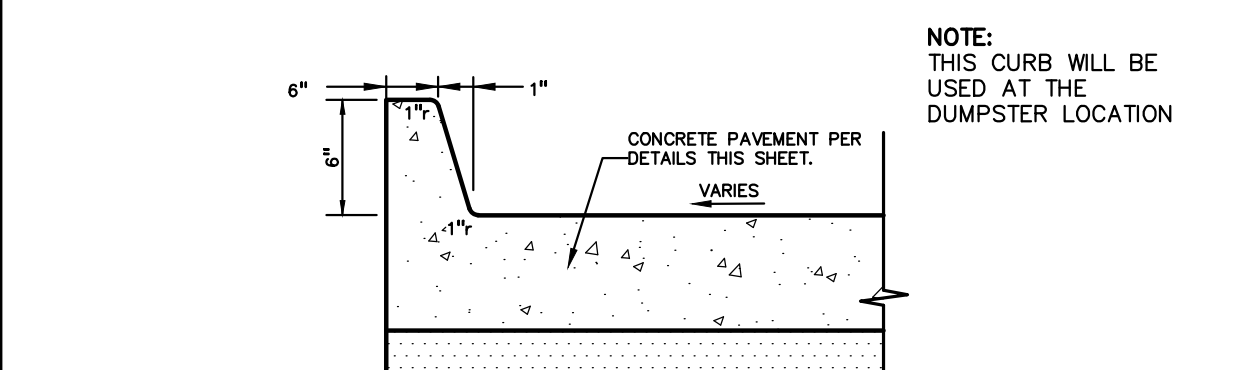
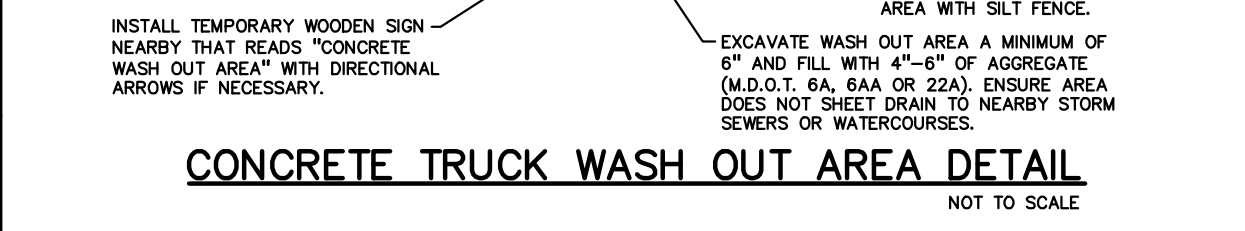
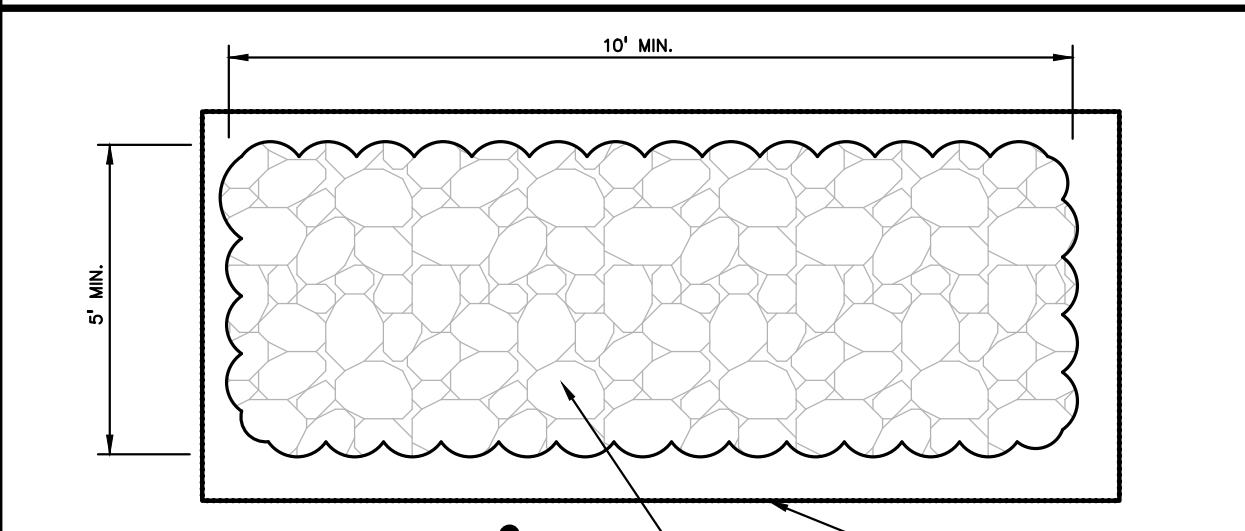
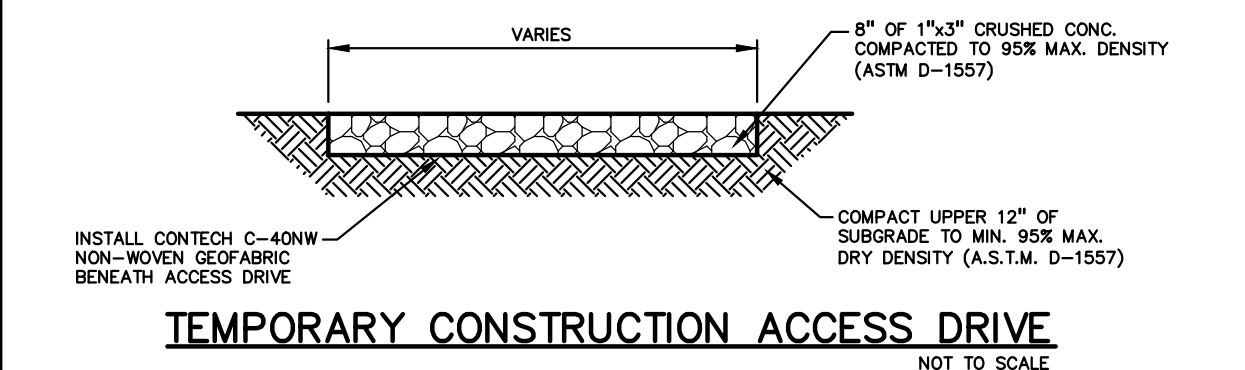
- ALL RCP CL-IV STORM SEWER SHALL BE INSTALLED ON CLASS 'B' BEDDING OR BETTER. SEE DETAILS FOR PVC PIPE BEDDING.
- JOINTS FOR ALL STORM SEWER 12" AND LARGER SHALL BE TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE.
- ALL STORM SEWER 12" AND LARGER SHALL BE RCP CLASS IV UNLESS OTHERWISE NOTED.
- REFER TO THE CITY OF ANN ARBOR STORM SEWER STANDARD DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

WATER MAIN NOTES:

- ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 5.5' BELOW FINISH GRADE. WHEN WATER MAINS MUST DIP TO PASS UNDER A STORM SEWER OR SANITARY SEWER, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF VERTICAL TWENTY TWO AND A HALF (22.5) DEGREE BENDS, PROPERLY ANCHORED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ANN ARBOR.
- ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
- ALL TEE'S, BENDS, CONNECTIONS, ETC. ARE CONSIDERED INCIDENTAL TO THE JOB.
- PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATER MAINS UNTIL TESTING IS SATISFACTORILY COMPLETED.
- MAINTAIN 10' HORIZONTAL CLEARANCE BETWEEN OUTER EDGE OF WATER MAIN AND ANY SANITARY SEWER OR STRUCTURE.
- ALL WATER MAIN SHALL BE DUCTILE IRON CLASS 54 WITH POLYETHYLENE WRAP.
- REFER TO THE CITY OF ANN ARBOR STANDARD WATER MAIN DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SANITARY SEWER NOTES:

- DOWNSPOUTS, WEEP TILE, FOOTING DRAINS OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER.
- ALL SANITARY LEADS SHALL BE CONSTRUCTED OF PVC SDR 35 PIPE WITH A MINIMUM DIAMETER OF 8" PER CITY REQUIREMENTS.
- ALL SANITARY SEWER SHALL BE CONSTRUCTED OF PVC SDR 35 PIPE WITH A MINIMUM DIAMETER OF 8" PER CITY REQUIREMENTS.
- JOINTS FOR P.V.C. SOLID WALL PIPE SHALL BE ELASTOMERIC (RUBBER GASKET) AS SPECIFIED IN A.S.T.M. DESIGNATION D-3212.
- REFER TO THE CITY OF ANN ARBOR SANITARY SEWER DETAIL SHEETS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.



NO.	BY	CHK.	DESCRIPTION	DATE
1	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #1	12-17-17
2	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #2	04-18-18
3	JAH	JAH	REVISED PER CITY SITE PLAN REVIEW #3	05-17-18
4	JAH	JAH	REVISED PER CITY REVIEW LETTERS	08-17-18
5	JAH	JAH	REVISED PER CITY REVIEW LETTERS	04-24-20

REVISIONS

CAUTION!
THE LOCATION AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY FOR INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

THIS DRAWING AND DESIGN ARE THE PROPERTY OF PEA, INC. THEY ARE LOANED TO THE CONTRACTOR FOR THE PROJECT ONLY AND NOT TO BE REPRODUCED, COPIED, IN WHOLE OR IN PART, OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF PEA, INC. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHERWISE ARE HEREBY SPECIFICALLY RESERVED. © 2017 PEA, INC.

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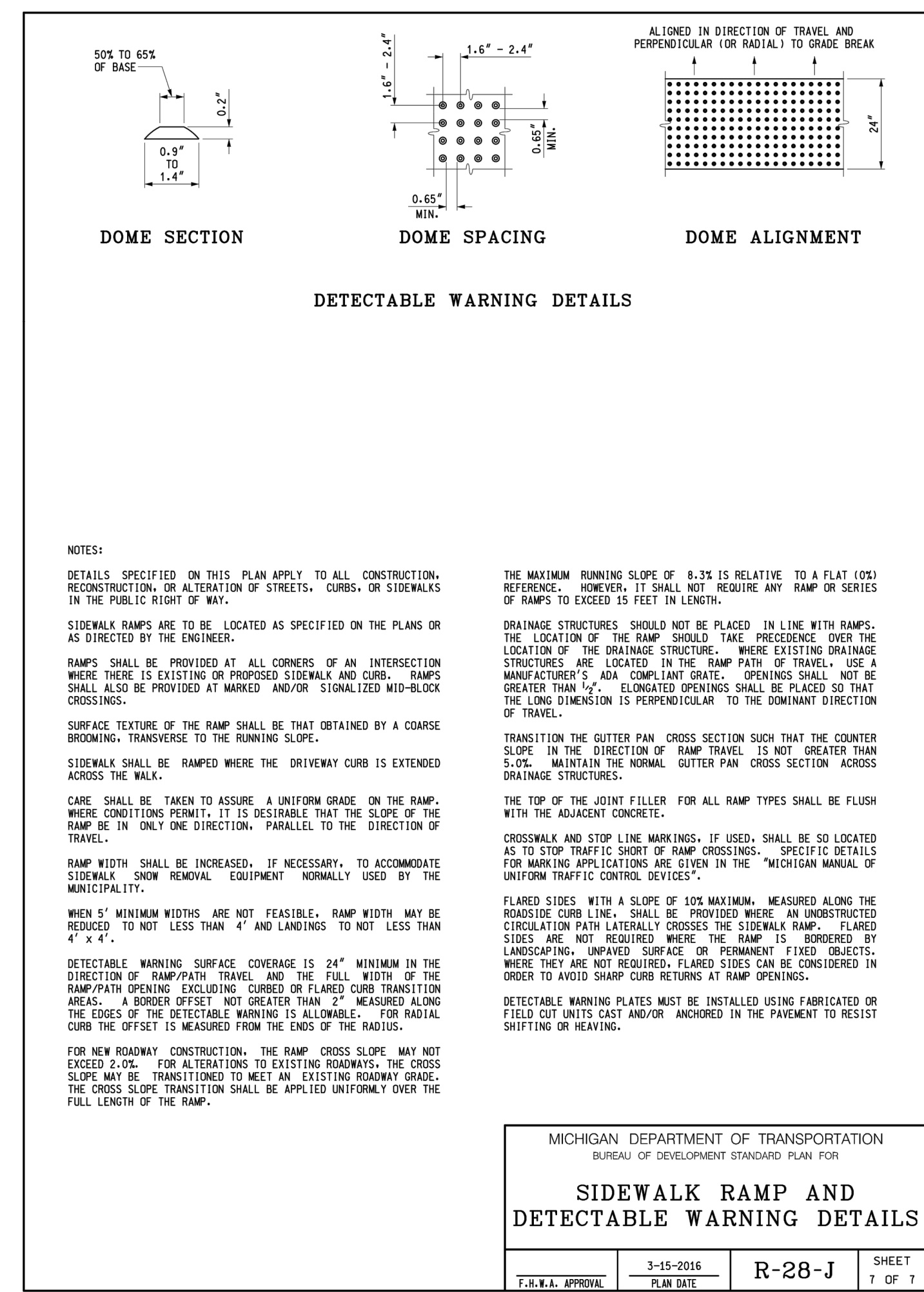
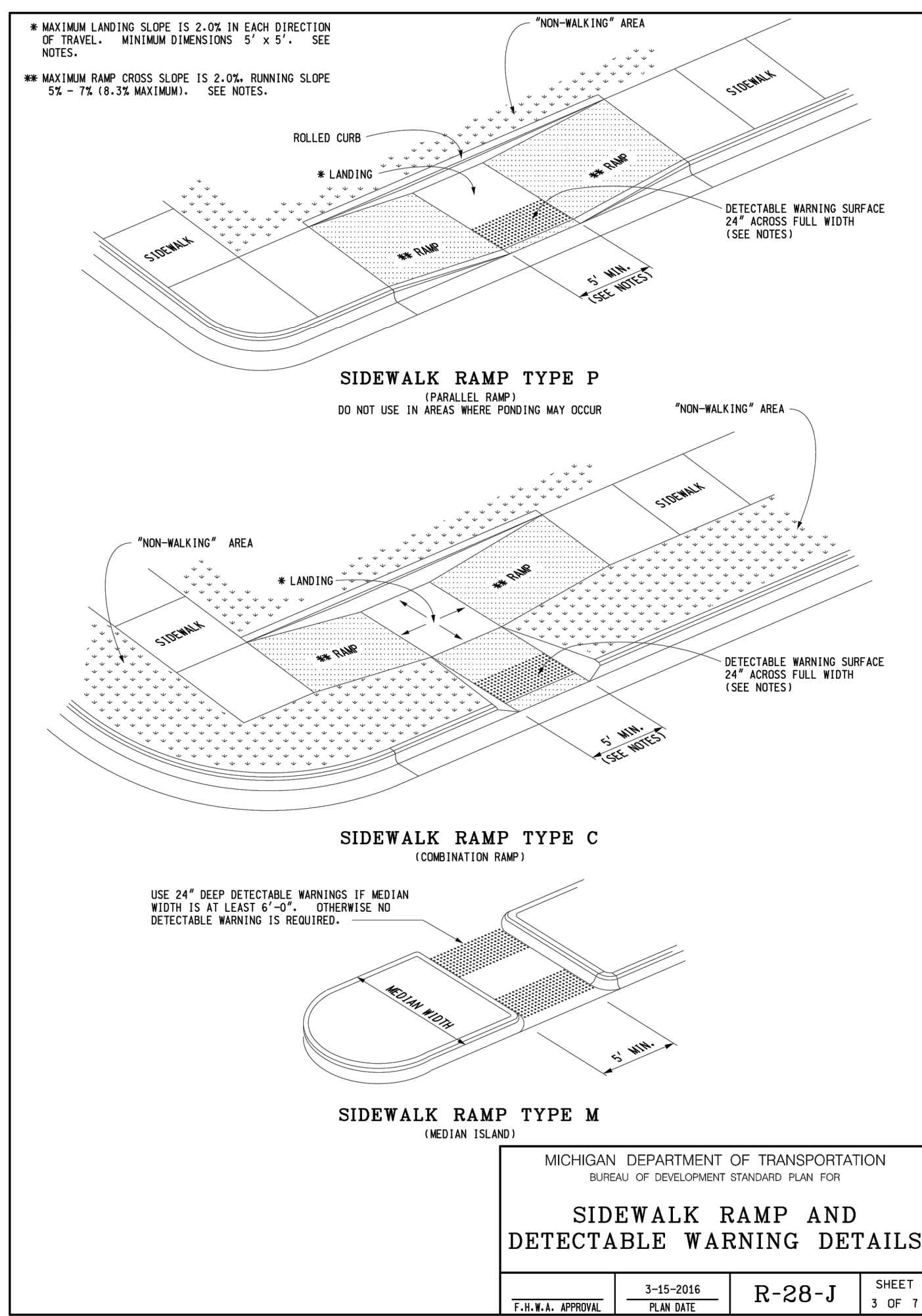
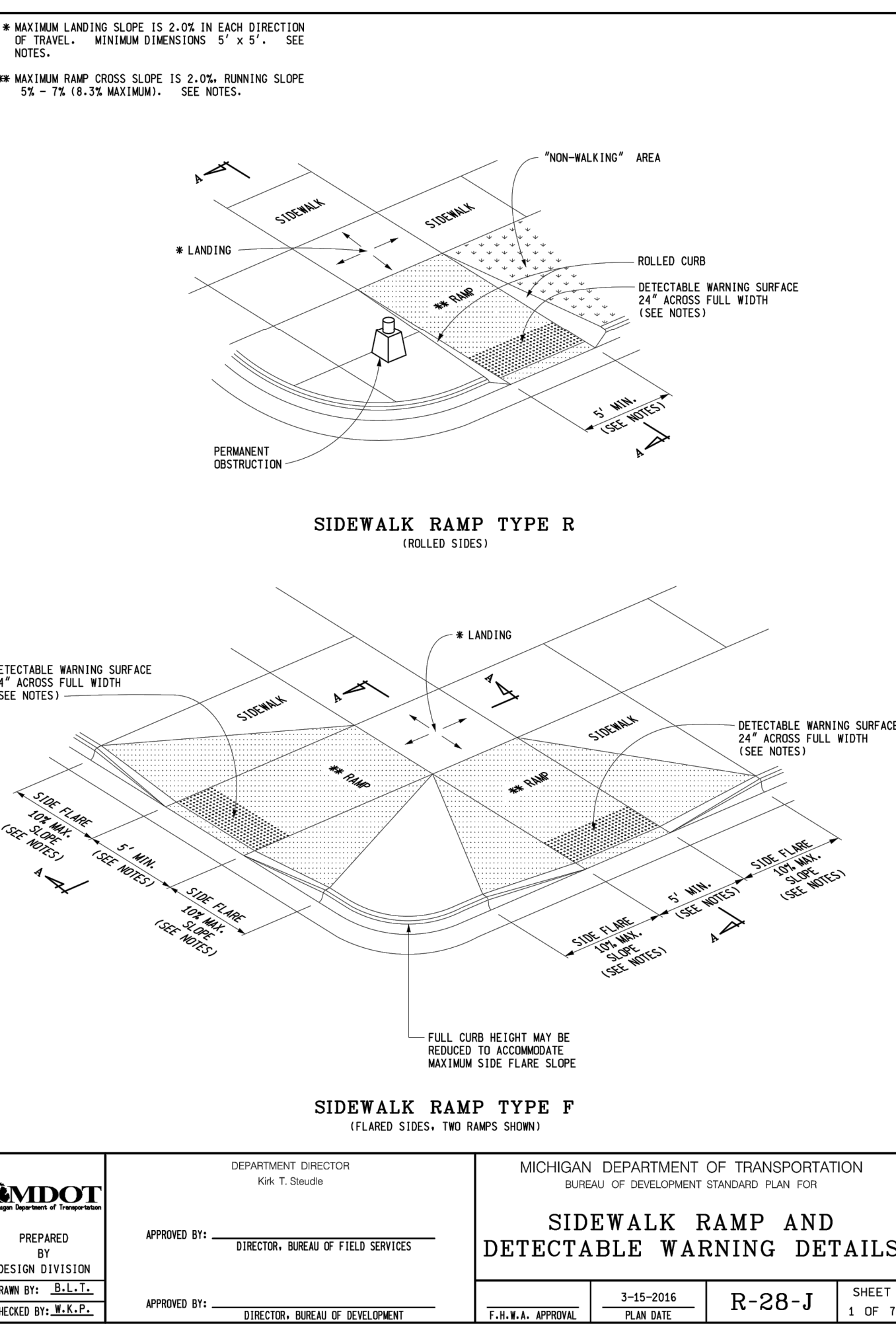
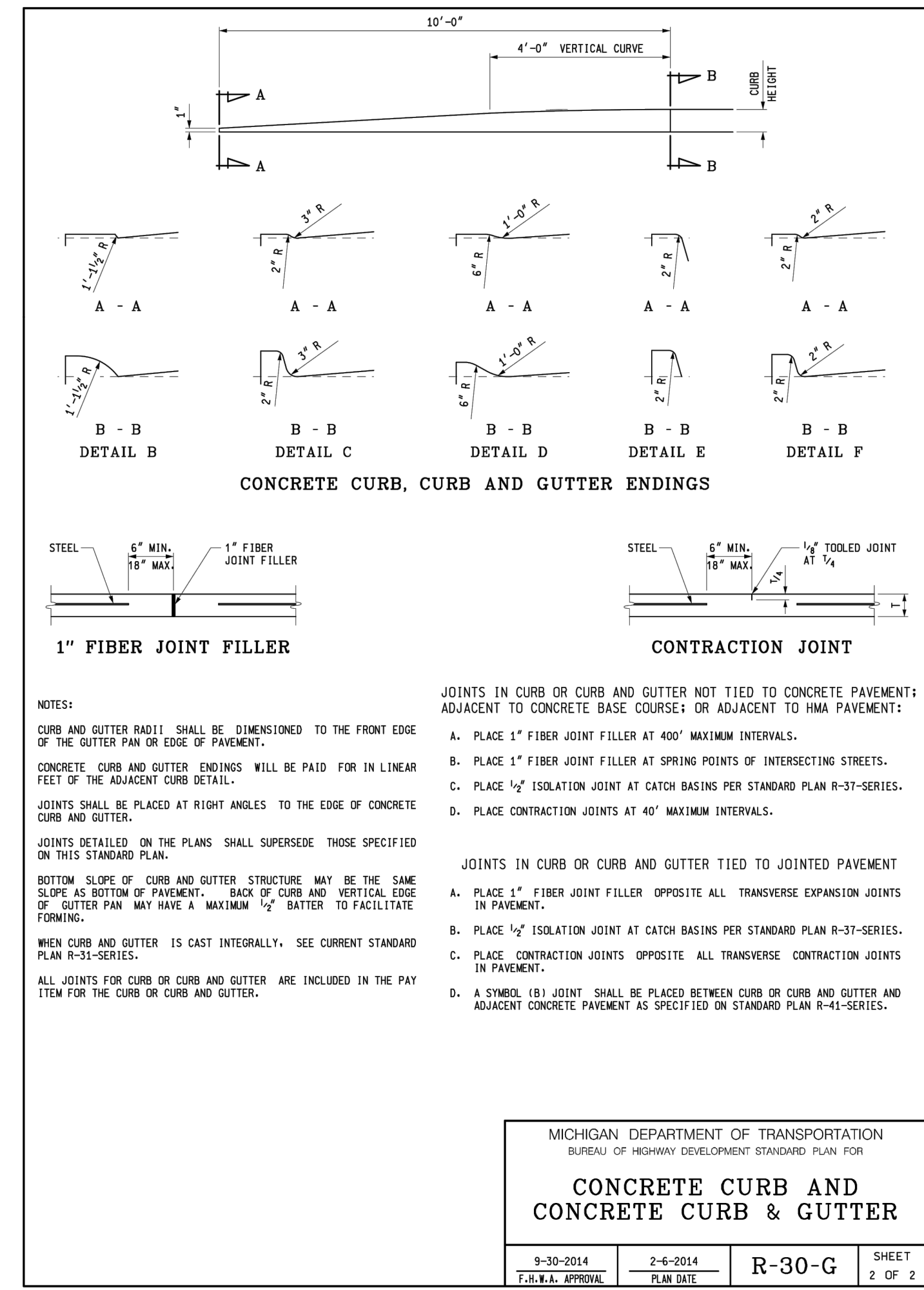
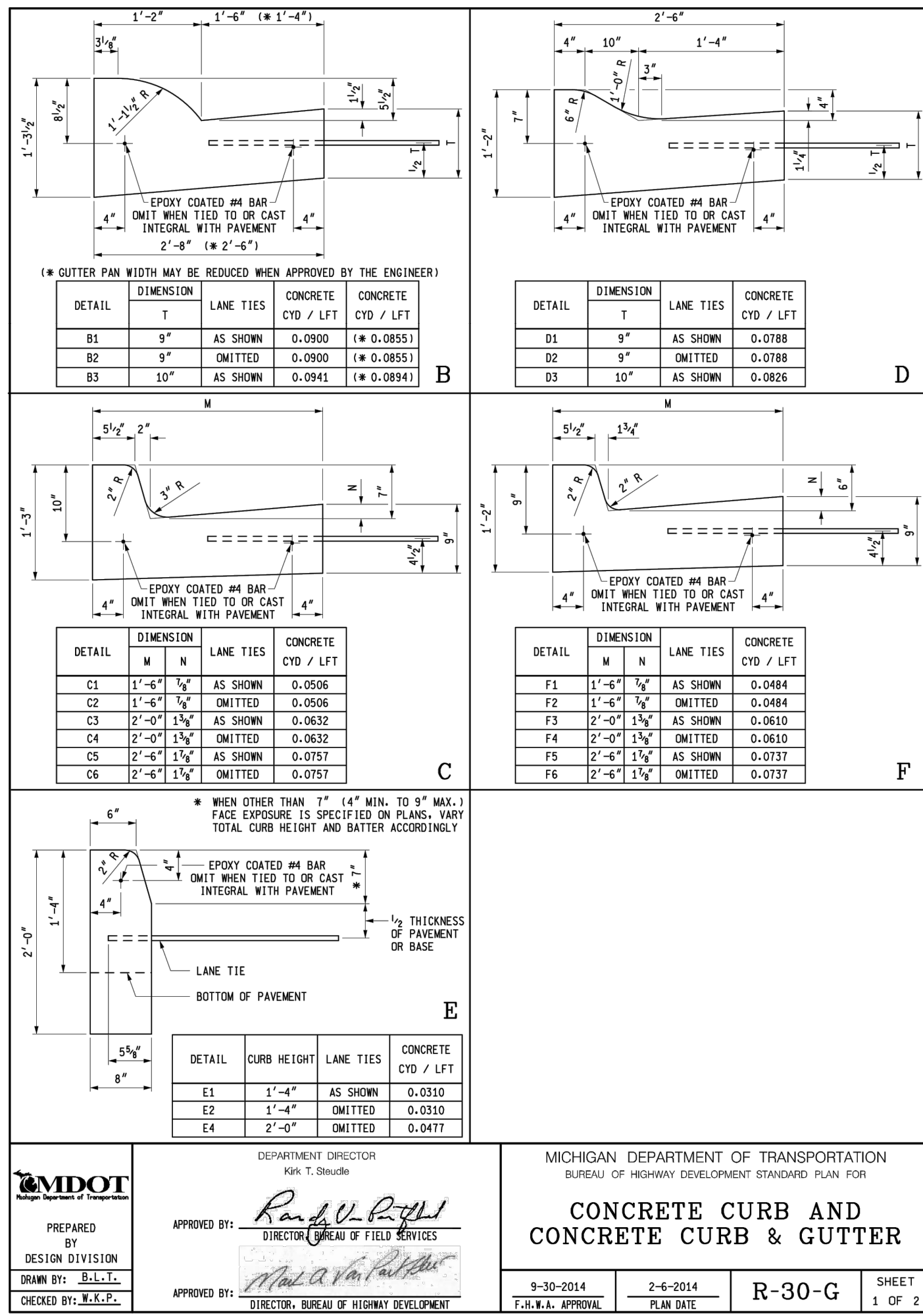
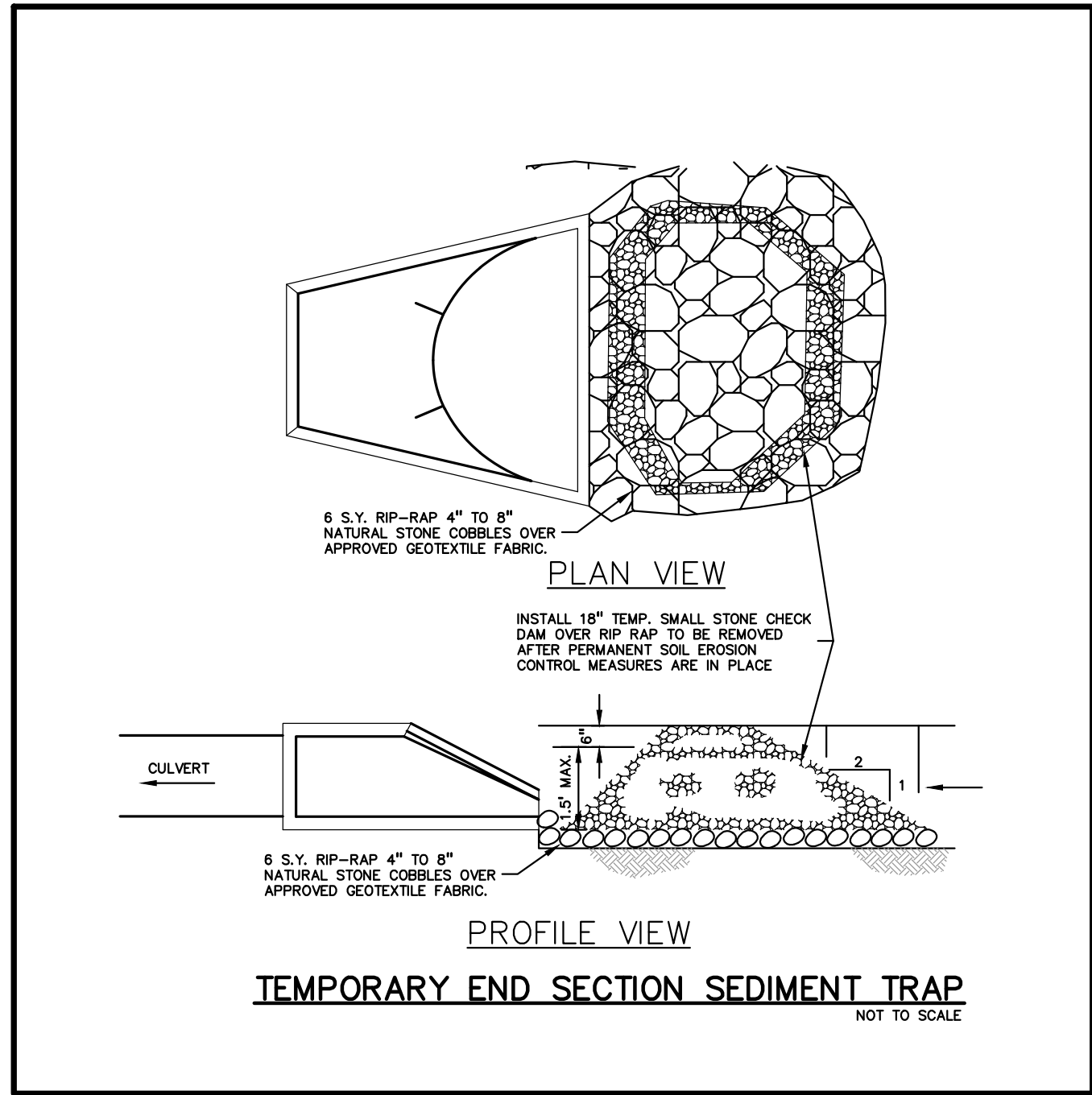
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MCP LIBERTY DEVCO, LLC
2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN 48326

NOTES AND DETAILS
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25 T. 28. N. R. 9E.
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JAH SUR. RS. PJM. JC
CHK. JAH SUR. RS. PJM. JC

ORIGINAL ISSUE DATE: JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: AS NOTED
DRAWING NUMBER: **P-9**



NOT FOR CONSTRUCTION

MCP LIBERTY DEVCO, LLC
2817 BEACON HILL DRIVE
AUBURN HILLS, MICHIGAN 48326

LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 9E,
CITY OF ANN ARBOR, WASHINGTON COUNTY, MICHIGAN

DES: JAH JAH SJR P.M. JC
CHK: JAH JAH SJR P.M. JC

DATE: 12-27-17

REVISIONS

NO.	BY	CHK.	DESCRIPTION
1	JAH	SJR	REVISED PER CITY SITE PLAN REVIEW #1
2	JAH	JC	REVISED PER CITY SITE PLAN REVIEW #2
3	JAH	JC	REVISED PER CITY REVIEW LETTERS
4	JAH	JC	REVISED PER CITY REVIEW LETTERS
5	JAH	JC	REVISED PER CITY REVIEW LETTERS

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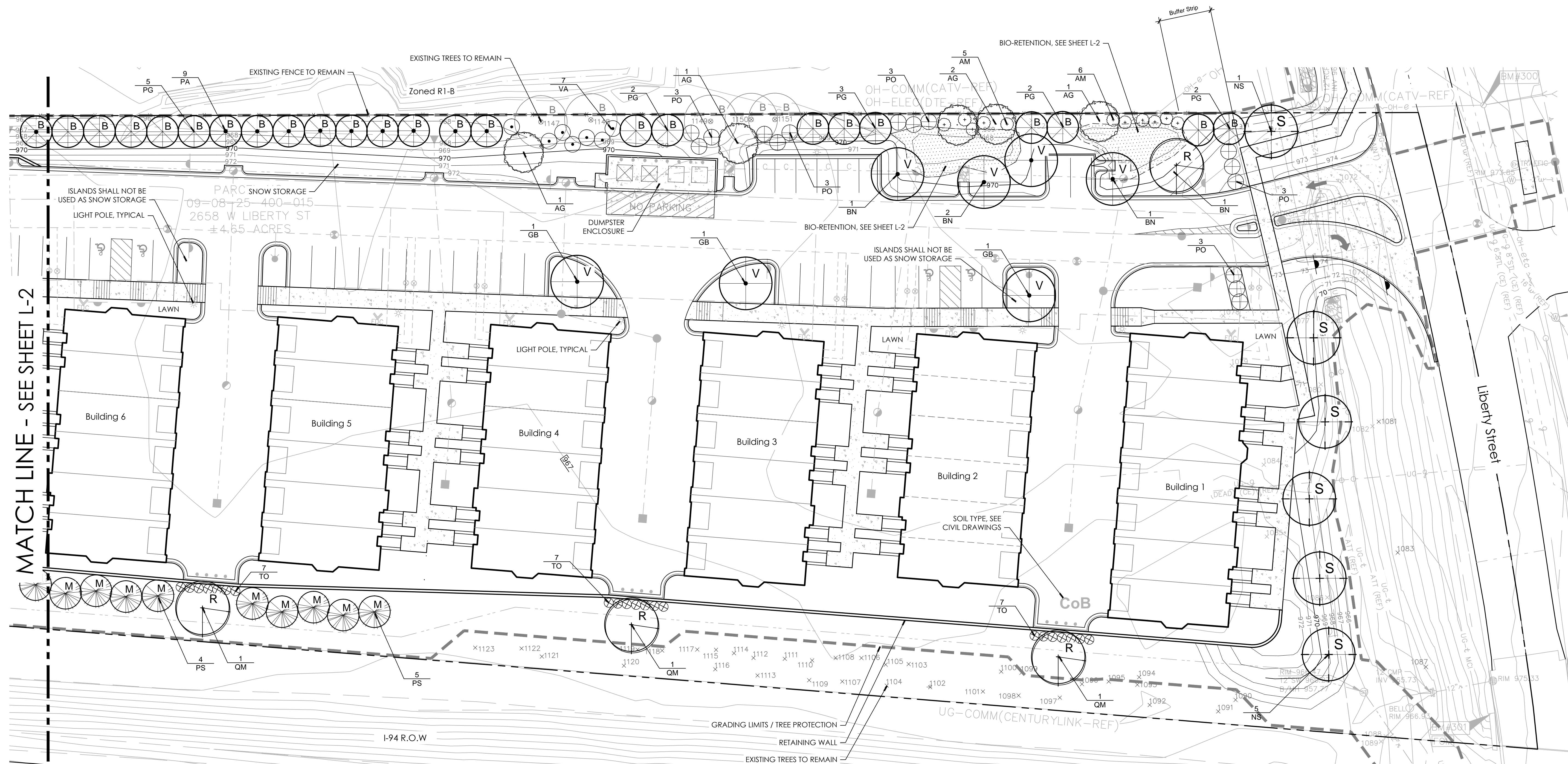
PEA, Inc.
7927 Nemco Way, Ste 115
Brighton, MI 48116
t: 517.546.8583
f: 517.546.8973
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ORIGINAL ISSUE DATE: JULY 27, 2017

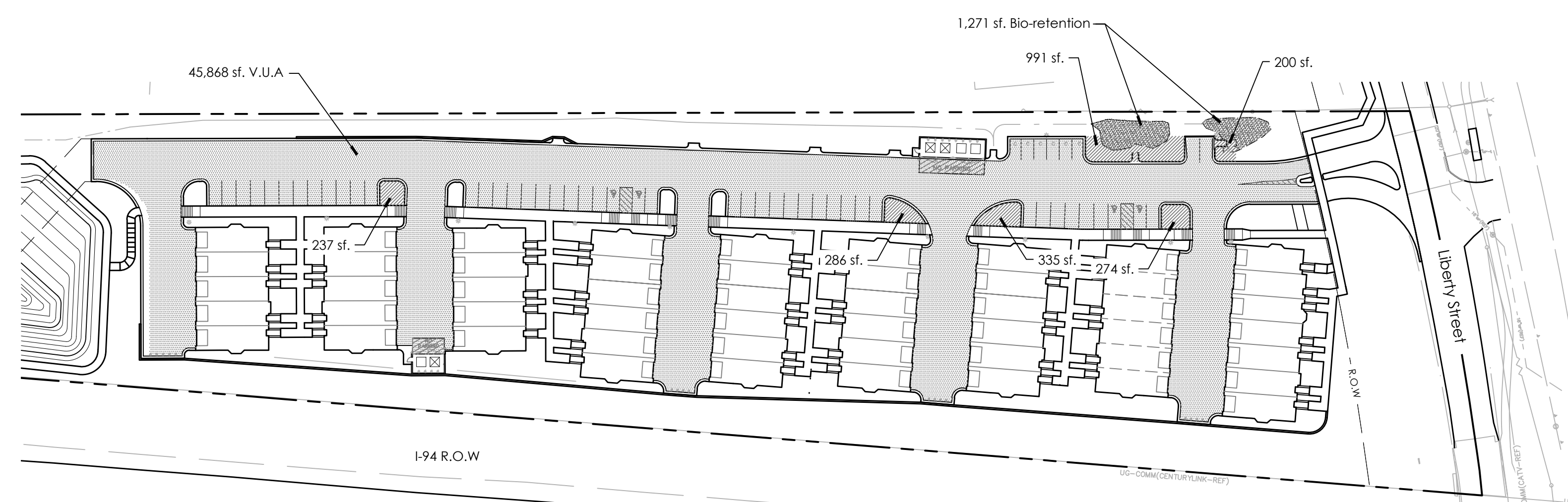
PEA JOB NO. 2017-167

SCALE: NONE

DRAWING NUMBER: P-9.1



LANDSCAPE PLAN - SOUTH
SCALE: 1" = 20'-0"



VEHICULAR USE AREA PLAN
SCALE: 1" = 60'-0"

Site Landscape Calculations

RIGHT OF WAY SCREENING: (R)
1 Deciduous shade or evergreen tree is required per 30 lf or fraction thereof of public R.O.W street frontage of the vehicular use area
Visible Vehicular Use Length: 139 lf.
Trees Required: 4.6 (139/30)
Trees Provided: 5

VEHICULAR USE AREA: (V)
Required Landscape Area: 1sf. per 20 sf. of VUA
45,868 sf.
Landscape Area Required: 2,293 sf. (1,147 sf. must be Bio-retention)
Landscape Area Provided: 2,323 sf. (See use area plan)
Bio-retention Area Provided: 1,271 sf.**
Total Provided: 3,798 sf.

CONFLICTING LAND USE BUFFER: (B)
Minimum of 1 deciduous or evergreen tree / 15 lf. of buffer
Total Conflicting Land Use Buffer: 725 lf.
Total Trees Required: 48.3 (725 / 15)
Total Trees Provided: 49

STREET TREE REQUIREMENT: (S)
1 Deciduous shade tree / 45 lf of R.O.W length is required
Row of Way Length - 240 lf
Street Trees Required: 5.3 (240 lf / 45)
Street Trees Provided: 6

STREET TREE ESCROW REQUIRED: \$312.00 (240 x \$1.30)
The street tree escrow must be paid prior to issuing building permits

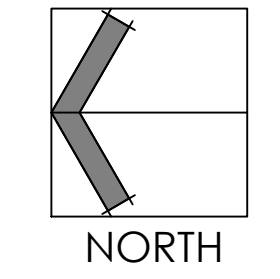
LANDMARK TREE MITIGATION: (M)
Mitigation Required: 13 Trees ((78.5' X .5) / 3')
Mitigation Provided: 18 Trees

** The Applicant requests a modification to have portions of the bio-retention areas outside of interior landscape islands. All attempts have been made to incorporate as much as possible in to the proposed islands but due to limited space and required easements for other utilities this was not possible. The proposed areas exceed the sf. requirement, still retain water from the vehicular use area and are logically placed to work with the overall storm water management of the site.

Trees Required: 9 (2,293 sf. / 250)
Trees Provided: 9

NOTE: SEE SHEET L-2 FOR PLANT LIST

NOT FOR CONSTRUCTION



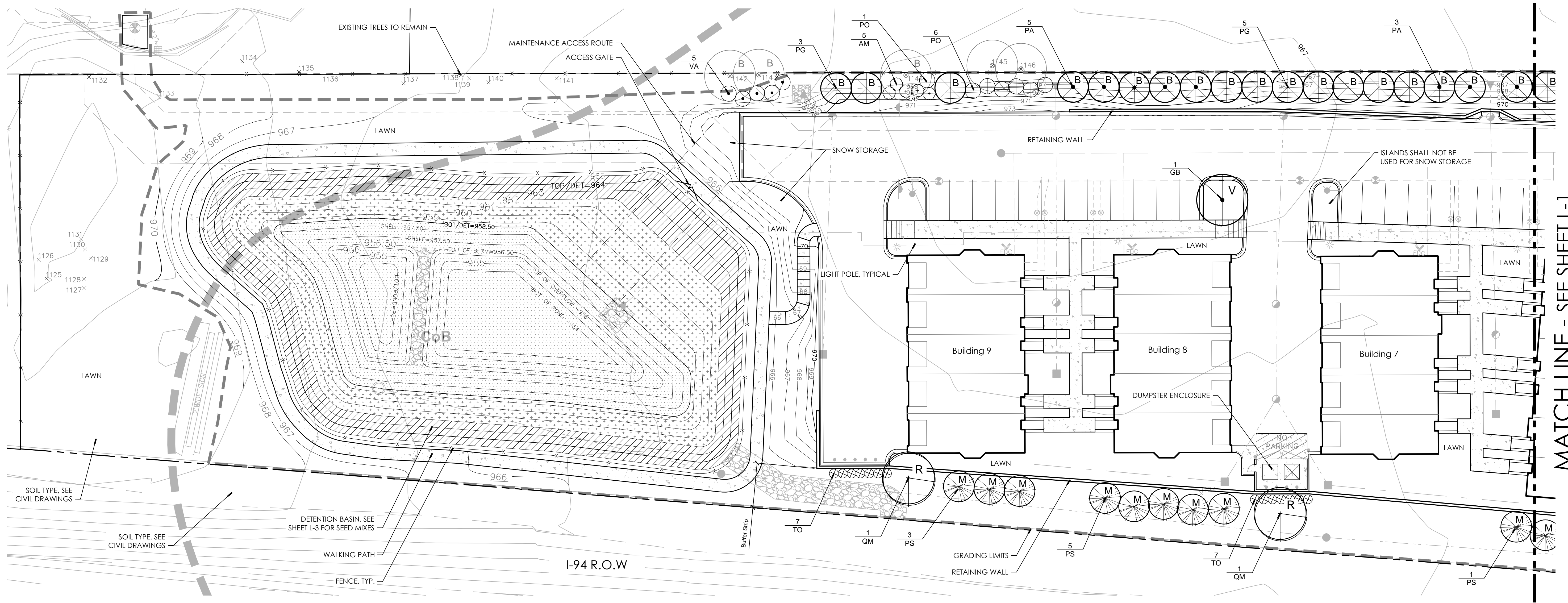
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Drawn: JG
Checked: JG
Date: 10.29.2018
Scale: AS NOTED

Project Number:
19.031

Sheet Number:
L-1



LANDSCAPE PLAN - NORTH
SCALE: 1" = 20'-0"

GENERAL NOTES:

- UTILITY BOXES WILL BE SCREENED ON 3 SIDES.
- ALL DISTURBED AREAS TO BE SOD OR SEED.
- ALL LANDSCAPE AREAS SHALL BE IRRIGATED.
- SNOW SHALL BE STORED IN BUILDING ISLANDS AND ALONG STREETS. STORAGE SHALL NOT INCLUDE DETENTION AREAS OR LANDSCAPED AREAS.
- THE STREET TREE ESCROW MUST BE PAID PRIOR TO ISSUING BUILDING PERMITS. CHECKS ARE TO MADE PAYABLE TO: CITY OF ANN ARBOR AND MAILED TO SYSTEMS PLANNING UNIT, 301 E. HURON ST., PO BOX 8647, ANN ARBOR, MI 48107-8647 -- ATTN: TIFFANY GIACOBBAZZI. PLEASE INCLUDE THE PROJECT NAME AND PROJECT NUMBER ON THE CHECK.
- TREES SHALL BE PLANTED 5'-8" FROM UTILITY LEADS.
- ALL PLANT SPECIES DEVIATIONS FROM THE APPROVED SITE PLAN MUST BE APPROVED BY THE CITY OF ANN ARBOR PRIOR TO INSTALLATION

ADDITIONAL NOTES:

Continuing Care
Landscaping shall be kept in a neat, orderly and healthy growing condition, free from debris and refuse. All landscape materials shall be maintained by a regular program of mowing, watering, weeding, feeding and pruning. Pruning shall be minimal at the time of installation, only to remove dead or diseased branches. Subsequent pruning shall assure proper maturation of plants to achieve their approved purpose.

Replenishment
All dead, damaged, or diseased plant material shall be replaced in accordance with this code by the end of the following planting season as a continuing obligation for the duration of the site plan.

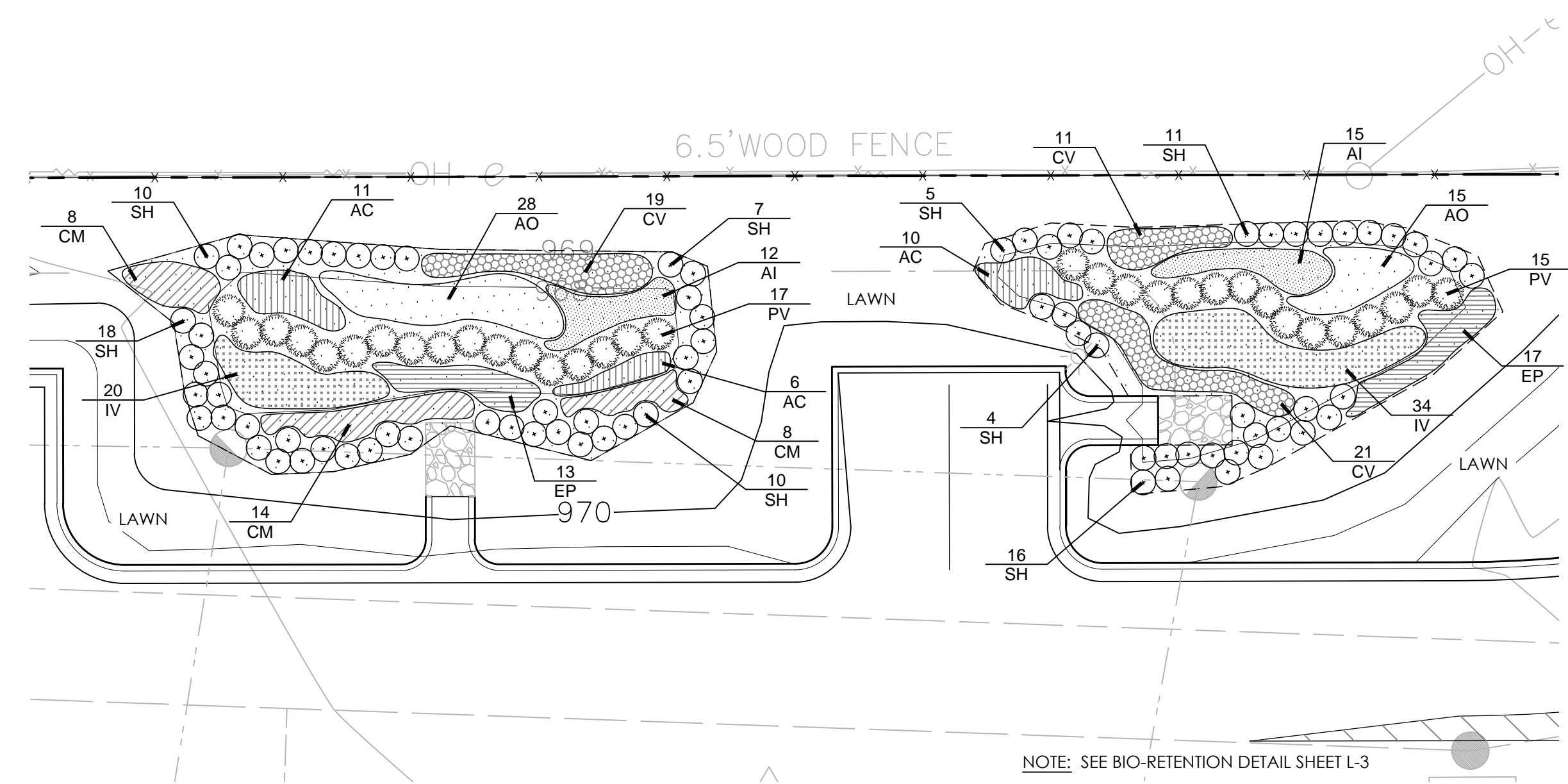
Watering
This shall be accomplished by installation of an underground irrigation system to provide water for the landscape areas specified on the landscape plan.

Clay Soils
Construct Earth Bed to Required Grade and Trim. Prior to Placement of Topsoil or Compost, Harrow all Earth Beds to a Minimum of 3" Depth.

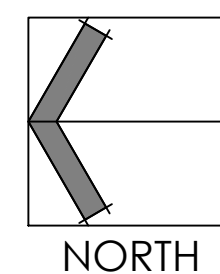
Fertilizer
Beyond Initial Fertilization. All Future Fertilizer Applications Shall not Contain Phosphorus.

PLANT SCHEDULE

TREES							
QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
5	AG	Amalanchier grandiflora	Servicberry	7'-8" ht.	as shown	B&B	Minimum 5 stems
5	BN	Betula nigra 'Heritage'	Heritage River Birch	12'-14" ht.	as shown	B&B	Minimum 3 stems
17	PA	Picea abies	Norway Spruce	7'-8" ht.	as shown	B&B	Unsheared, branched to ground
22	PG	Picea spruce	White Spruce	7'-8" ht.	as shown	B&B	Unsheared, branched to ground
4	GB	Ginkgo biloba	Maidenhair Tree (Male Only)	2.5" cal.	as shown	B&B	Single straight trunk
6	NS	Nyssa sylvatica	Blackgum	2.5" cal.	as shown	B&B	Single straight trunk
18	PS	Pinus strobus	Eastern White Pine	7'-8" ht.	as shown	B&B	Unsheared, branched to ground
5	QM	Quercus macrocarpa	Burr Oak	2.5" cal.	as shown	B&B	Single straight trunk
SHRUBS							
16	AM	Aronia melanocarpa	Chokeberry	30" ht	as shown	cont.	Well rooted
22	PO	Physocarpus o. 'Summer Wine'	Summer Wine Ninebark	30" ht	as shown	cont.	Well rooted
12	VA	Viburnum acerifolium	Mapleleaf Viburnum	30" ht	as shown	cont.	Well rooted
35	TO	Thuja o. 'Nigra'	Dark Green American Arborvitae	5'-6" ht	as shown	B&B	
PERENNIALS							
27	AC	Anemone canadensis	Canada Anemone	#1	18" o.c.	cont.	Well rooted
27	AI	Asclepias incarnata	Swamp Milkweed	#1	18" o.c.	cont.	Well rooted
43	AO	Aster o. 'October Skies'	October Skies Aster	#1	18" o.c.	cont.	Well rooted
30	CM	Carex muskingumensis	Palm Sedge	#1	18" o.c.	cont.	Well rooted
51	CV	Carex volpinoides	Fox Sedge	#1	24" o.c.	cont.	Well rooted
30	EP	Echinacea purpurea	Purple Coneflower	#1	18" o.c.	cont.	Well rooted
54	IV	Iris virginica	Blue Flag Iris	#1	18" o.c.	cont.	Well rooted
32	PV	Panicum v. 'Shenandoah'	Shenandoah Switchgrass	#1	30" o.c.	cont.	Well rooted
85	SH	Sporobolus heterolepis	Prairie Dropseed	#1	24" o.c.	cont.	Well rooted



BIO-RETENTION PLANTING
SCALE: 1" = 10'-0"



Seal:



Drawn: JG
Checked: JG
Date: 10.29.2018
Scale: AS NOTED

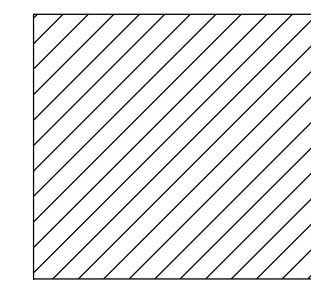
Project Number:
19.031
Sheet Number:
L-2

Detention Basin Seed Mixes:

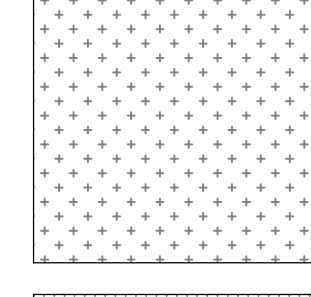
Emergent Wetland Seed Mix				
Botanical Name	Common Name	PLS Ounces/Acre	Seeds/Oz	Seeds/SQ FT
Permanent Grasses/Sedges/Rushes:				
<i>Carex comosa</i>	Bristly Sedge	2.50	4483	2.36
<i>Carex lasiocarpa</i>	Common Lake Sedge	0.25	20000	0.15
<i>Carex lasiocarpa</i>	Butterbush Sedge	4.00	12000	1.10
<i>Carex vulpinoidea</i>	Brown Fox Sedge	6.00	125000	17.22
<i>Eleocharis ovata</i>	Blunt Spike Rush	1.00	95000	2.18
<i>Leersia oryzoides</i>	Rice Cut Grass	3.00	94500	6.51
<i>Juncus effusus</i>	Common Rush	1.00	281000	6.45
<i>Scirpus acutus</i>	Hard-stemmed Bulrush	2.50	20000	1.15
<i>Scirpus pungens</i>	Charmaker's Rush	4.00	125000	11.48
<i>Scirpus validus</i>	Great Bulrush	6.00	37813	5.21
Total		30.25		63.91
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	8125	67.15
<i>Lotium multiflorum</i>	Annual Rye	100.00	14188	32.57
Total		460.00		99.72
Forbs:				
<i>Alopecurus calanmus</i>	Sweet Flag	0.50	7000	0.08
<i>Alisma spp.</i>	Water Plantain (Various Mix)	2.00	70175	3.22
<i>Asclepias incarnata</i>	Swamp Milkweed	1.50	4540	0.16
<i>Cephalanthus occidentalis</i>	Butterbush	0.50	12500	0.14
<i>Decodon verticillatus</i>	Swamp Loosestrife	0.50	40250	0.45
<i>Eupatorium maculatum</i>	Spotted Joe-Pye Weed	0.50	78125	0.90
<i>Hibiscus spp.</i>	Rosemallow (Various Mix)	3.00	2188	0.15
<i>Iris virginica</i>	Blue Flag	6.00	1480	0.19
<i>Lobelia cardinalis</i>	Cardinal Flower	0.25	437500	2.51
<i>Lobelia siphilitica</i>	Great Blue Lobelia	1.50	520000	17.91
<i>Lycopus americanus</i>	Common Water Horehound	0.25	235000	1.35
<i>Menilium ringens</i>	Monkey Flower	1.00	265500	6.51
<i>Peltandra virginica</i>	Arrow Arum	0.50	42	0.02
<i>Pantherum sadoides</i>	Ditch Stonecrop	0.50	36063	0.41
<i>Polygonum spp.</i>	Pinkweed (Various Mix)	0.50	4063	0.05
<i>Portulaca cordata</i>	Pickered Weed	10.00	1250	0.29
<i>Sagittaria latifolia</i>	Common Arrowhead	2.00	56700	2.60
<i>Sparganium americanum</i>	American Bur Reed	1.00	975	0.02
<i>Sparganium eurycarpum</i>	Common Bur Reed	4.00	596	0.05
<i>Veronica hastata</i>	Blue Verain	1.00	125000	36.84
Total		52.60		36.84

Low-profile Prairie Seed Mix				
Botanical Name	Common Name	PLS Ounces/Acre	Seeds/Oz	Seeds/SQ FT
Permanent Grasses:				
<i>Carex spp.</i>	Prairie Carex Mix	4.00	33422	3.07
<i>Elymus canadensis</i>	Canada Wild Rye	32.00	4295	3.13
<i>Elymus virginicus</i>	Virginia Wild Rye	10.00	9375	2.15
<i>Panicum crispum</i>	June Grass	1.00	15000	3.44
<i>Panicum virgatum</i>	Switch Grass	1.00	26356	6.65
<i>Scirpocorymbium scoparium</i>	Little Bluestem	32.00	8800	5.46
Total		80.00		18.91
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	8125	67.15
<i>Lotium multiflorum</i>	Annual Rye	100.00	14188	32.57
Total		460.00		99.72
Forbs:				
<i>Anemone cylindrica</i>	Thimbleweed	0.50	20938	0.24
<i>Asclepias tuberosa</i>	Butterfly Milkweed	2.00	3600	0.16
<i>Aster ericoides</i>	Heath Aster	0.25	48000	0.80
<i>Aster laevis</i>	Smooth Blue Aster	0.75	46000	0.83
<i>Aster novae-angliae</i>	New England Aster	0.25	76000	0.44
<i>Chamaecrista fasciculata</i>	Partridge Pea	14.00	3800	1.22
<i>Conepsus lanceolata</i>	Sand Coneopsis	0.00	12500	1.43
<i>Conepsus ripens</i>	Tall Coneopsis	3.00	13100	0.90
<i>Cirsium canadense</i>	White Prairie Clover	1.50	26250	0.90
<i>Desmodium canadense</i>	Sticky Tick Trefoil	1.50	20000	0.69
<i>Eragrostis ciliaris</i>	Flowering Spurge	8.00	7942	1.39
<i>Euthamia graminifolia</i>	Great-leaved Goldenrod	2.50	8600	0.46
<i>Lepidochloa ciliata</i>	Round-head Bush Clover	0.50	19000	0.46
<i>Liatris scarpia</i>	Rough Blazing Star	0.20	13000	0.15
<i>Lupinus perennis</i>	Wild Lupine	2.00	1000	0.05
<i>Moranda fruticosa</i>	Wild Bergamot	0.75	7800	1.34
<i>Parthenium integrifolium</i>	Wild Quinine	1.00	6800	0.16
<i>Pentstemon digynis</i>	Fragrant Beard Tongue	0.50	11000	1.32
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	1.00	331250	7.60
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00	26250	2.32
<i>Rudbeckia hirta</i>	Black-eyed Susan	0.50	11000	12.63
<i>Symphoricarpos ericoides</i>	Heath Aster	3.00	4000	0.28
<i>Siphium angustifolium</i>	Prairie Dock	0.50	1100	0.01
<i>Solidago nemoralis</i>	Old-Field Goldenrod	0.50	24000	2.75
<i>Solidago rigida</i>	Stiff Goldenrod	1.00	46000	1.06
<i>Tridactema ciliata</i>	Common Spiderwort	0.75	8000	0.14
<i>Veronica spp.</i>	Ironweed (Various Mix)	1.75	24000	0.86
<i>Veronicastrum virginianum</i>	Culvers Root	0.25	70000	4.30
Total		62.75		44.99

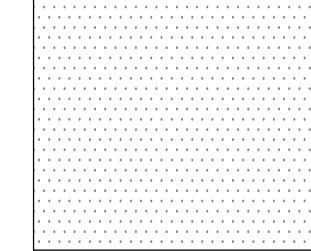
Notify Seed Supplier That This Seed Mix Shall NOT Contain *Rudbeckia subtomentosa*. *Echinacea purpurea* Quantity has been Increased.



LOW PROFILE PRAIRIE MIX



EMERGENT WETLAND MIX



STORMWATER MIX

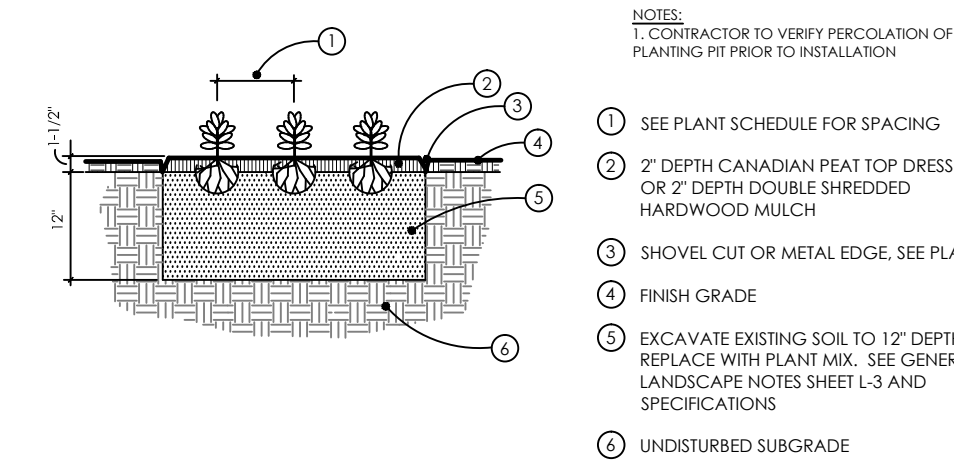
Stormwater Seed Mix				
Botanical Name	Common Name	PLS Ounces/Acre	Seeds/Oz	Seeds/SQ FT
Permanent Grasses/Sedges/Rushes:				
<i>Carex ostenata</i>	Crested Owl Sedge	1.00	59000	1.35
<i>Carex lasiocarpa</i>	Butterbush Sedge	2.00	12000	0.95
<i>Carex vulpinoidea</i>	Brown Fox Sedge	6.00	125000	17.22
<i>Elymus virginicus</i>	Virginia Wild Rye	12.00	4375	1.21
<i>Glycyca strata</i>	Fowl Manna Grass	1.25	125000	3.59
<i>Juncus effusus</i>	Common Rush	1.00	281000	6.45
<i>Juncus torreyi</i>	Torney's Rush	0.25	1134000	6.51
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00	94500	2.17
<i>Panicum virgatum</i>	Switch Grass	6.00	26356	5.21
<i>Scirpus atrovirens</i>	Dark Green Rush	1.00	187500	4.30
<i>Scirpus cyperinus</i>	Wool Grass	0.50	562500	6.46
<i>Scirpus fluviatilis</i>	River Bulrush	0.25	27500	0.18
<i>Scirpus validus</i>	Great Bulrush	6.00	37813	5.21
Total		40.25		60.38
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	8125	67.15
<i>Lotium multiflorum</i>	Annual Rye	100.00	14188	32.57
Total		460.00		99.72
Forbs & Shrubs				
<i>Alisma spp.</i>	Water Plantain (Various Mix)	4.25	70175	6.85
<i>Asclepias incarnata</i>	Swamp Milkweed	1.50	4540	0.16
<i>Bidens spp.</i>	Bidens (Various Mix)	2.00	14175	0.65
<i>Helianthus autumnale</i>	Steepleweed	2.00	141750	6.51
<i>Lycopus americanus</i>	Common Water Horehound	0.25	235000	1.35
<i>Menilium ringens</i>	Monkey Flower	1.00	265500	6.51
<i>Pantherum sadoides</i>	Ditch Stonecrop	0.50	36063	0.41
<i>Polygonum pennsylvanicum</i>	Pinkweed	4.00	4063	0.37
<i>Sagittaria latifolia</i>	Common Arrowhead	2.00	113400	5.21
<i>Senna hebecarpa</i>	Wild Senna	1.00	1400	0.03
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00	13500	0.62
Total		20.50		28.66

Notify Seed Supplier That This Seed Mix Shall NOT Contain *Rudbeckia subtomentosa*. *Sagittaria latifolia* Quantity has been Increased.

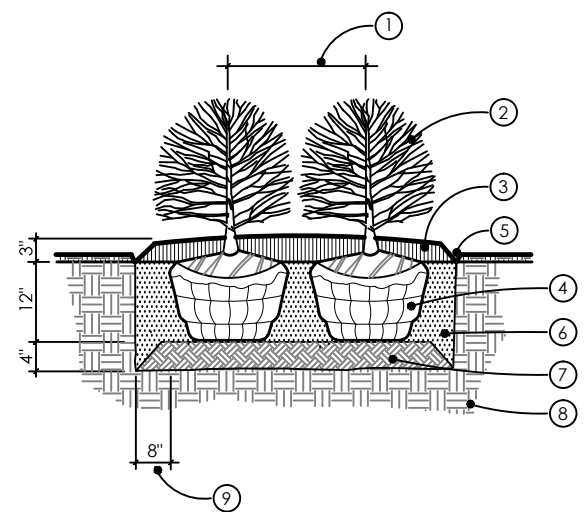
1. The seed mixes shall be applied at the specified rate of for each mix.
2. Must be installed to manufacturer specification and requirements.
Manufacturer: Cartho - JF-Nev, Inc. 128 Sunset Drive Walkerton, IN 46674 574-586-2412

GENERAL LANDSCAPE NOTES

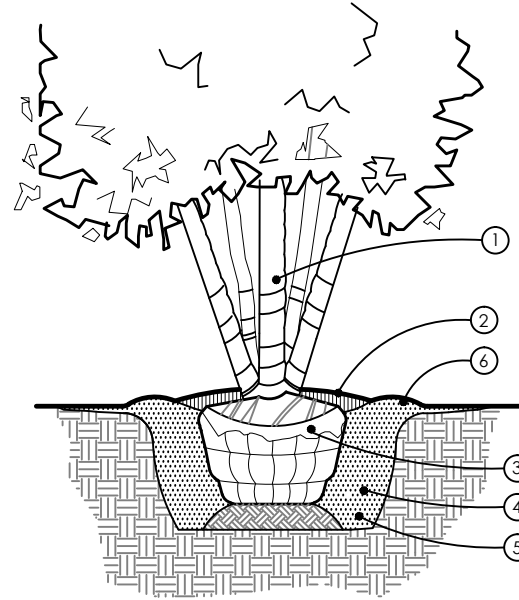
- LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL GOVERN QUANTITIES. CONTACT THE LANDSCAPE ARCHITECT WITH ANY CONCERNS.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES, AND SHALL REPORT ANY UNACCEPTABLE SITE CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT.
- PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION.
- PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE.
- THE CONTRACTOR AGREES TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR. AT THAT TIME, THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT FOR A FINAL INSPECTION. PLANT MATERIAL WITH A 25% DIEBACK OR GREATER AS DETERMINED BY THE OWNER'S REPRESENTATIVE SHALL BE REPLACED. THIS GUARANTEE INCLUDES THE FURNISHING OF NEW PLANTS, LABOR AND MATERIALS. THESE NEW PLANTS SHALL ALSO BE GUARANTEED FOR THE PERIOD OF ONE YEAR.
- ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE "AMERICAN STANDARDS FOR NURSERY STOCK". CONTRACTOR WILL SUPPLY FINISHED GRADE AND EXCAVATE AS NECESSARY TO SUPPLY PLANT MIX DEPTH IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS.
- PROVIDE CLEAN BACKFILL SOIL, USING MATERIAL STOCKPILED ON-SITE. SOIL SHALL BE SCREENED AND FREE OF DEBRIS, FOREIGN MATERIAL, AND STONE.
- SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANT PITS BEFORE BEING BACKFILLED. APPLICATION SHALL BE AT THE MANUFACTURERS RECOMMENDED RATES.
- AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL CONSIST OF 1/3 SCREENED TOPSOIL, 1/3 SAND, AND 1/3 COMPOST, MIXED WELL AND SPREAD TO A DEPTH AS INDICATED IN THE PLANTING DETAILS.
- ALL PLANTINGS SHALL BE MULCHED WITH DOUBLE SHREDDED HARDWOOD BARK. SPREAD TO A DEPTH OF 3" FOR TREES AND SHRUBS, AND 2" ON PERENNIALS, AND GROUND COVER PLANTINGS. MULCH SHALL BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND PIECES OF INCONSISTENT SIZE.
- NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE.
- THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.
- THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS.
- THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH OR SOD (AS INDICATED ON PLANS) ALL AREAS DESIGNATED AS SUCH ON THE PLANS, THROUGHOUT THE CONTRACT LIMITS. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING AREAS DISTURBED DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS, TO EQUAL OR GREATER CONDITION.
- ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESSIVE WATER FROM PONDING ON LAWN AREAS OR AROUND TREES AND SHRUBS.
- ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND SYSTEM.



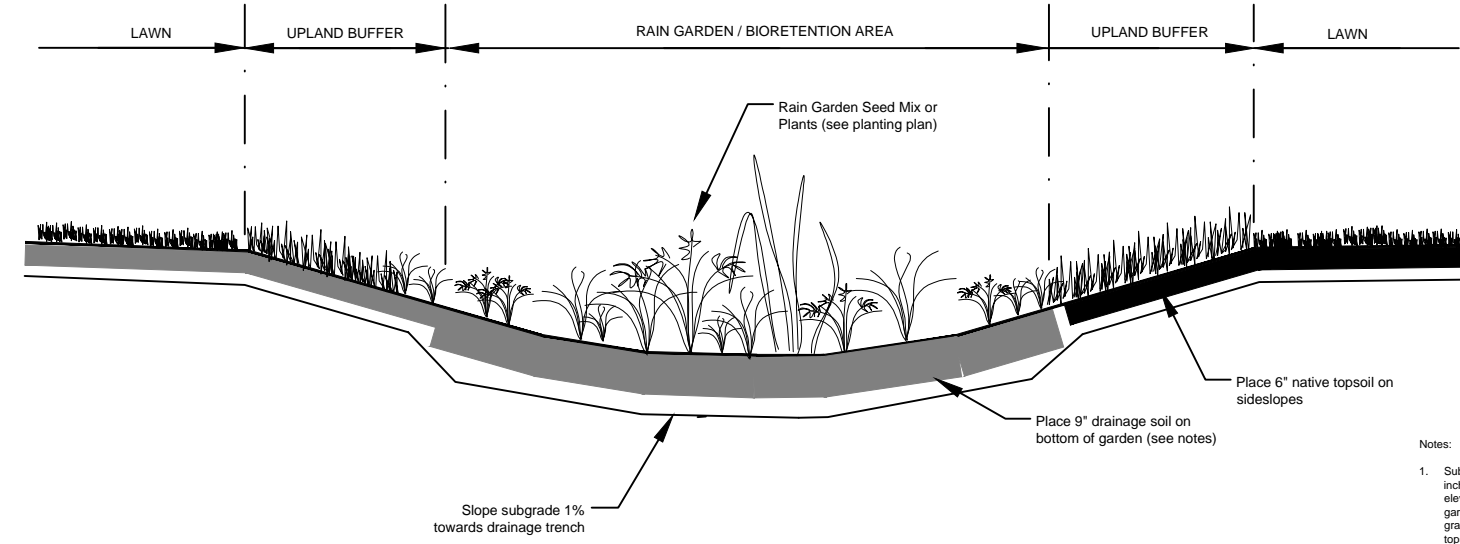
1 PERENNIAL / GROUND COVER PLANTING
NOT TO SCALE



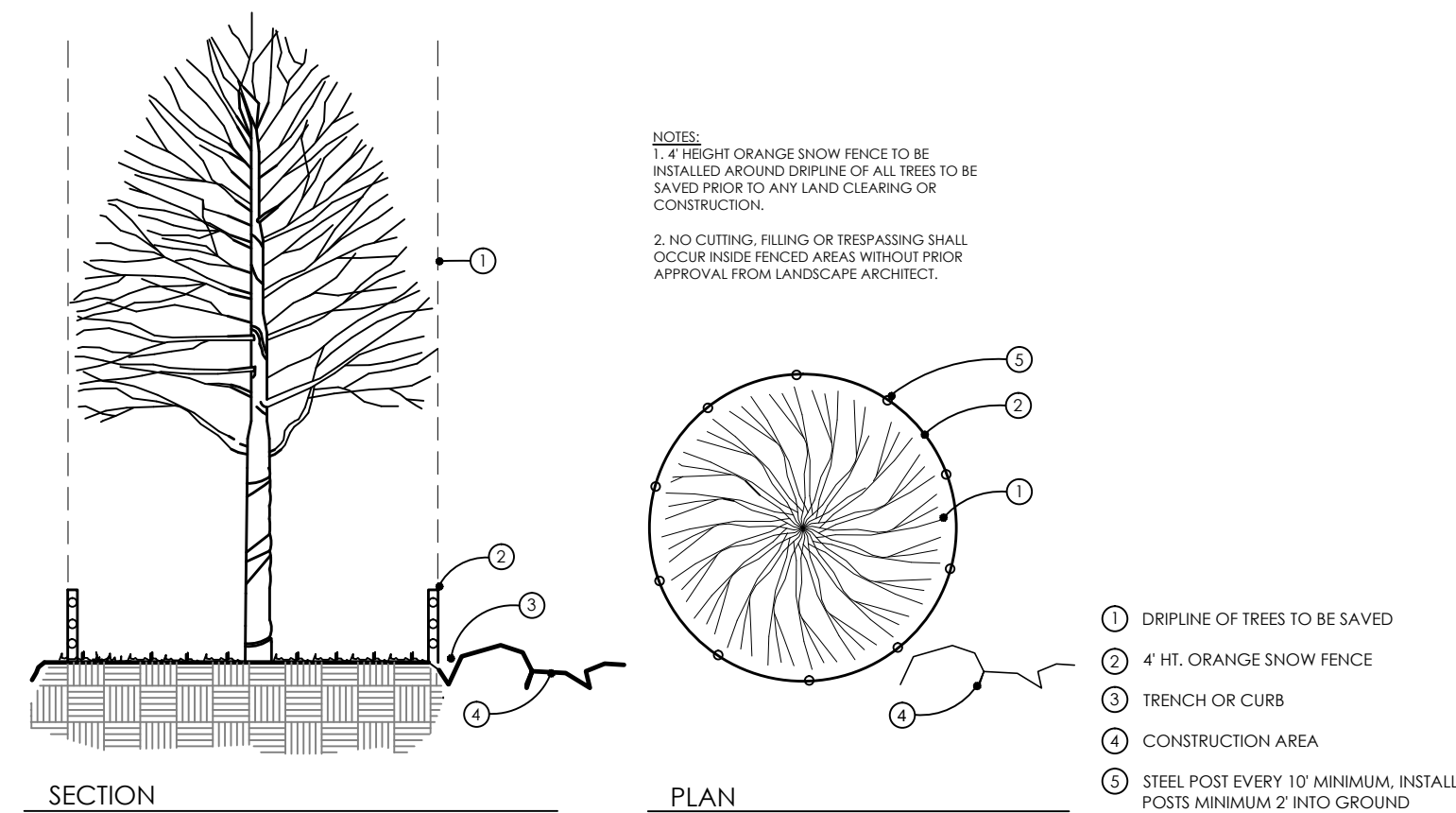
2 SHRUB PLANTING
NOT TO SCALE



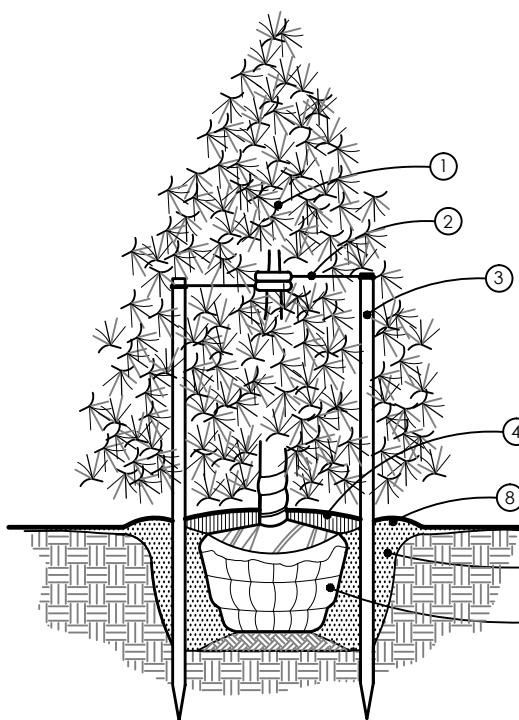
3 MULTISTEM TREE PLANTING
NOT TO SCALE



4 BIO-RETENTION DETAIL
Not To Scale



5 TREE PROTECTION
NOT TO SCALE



6 EVERGREEN TREE PLANTING
NOT TO SCALE

- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- SEE PLANT SCHEDULE FOR SPACING
 - 2" DEPTH CANADIAN PEAT TOP DRESSING OR 2" DEPTH DOUBLE SHREDDED HARDWOOD MULCH
 - SHOVEL CUT OR METAL EDGE, SEE PLAN
 - FINISH GRADE
 - EXCAVATE EXISTING SOIL TO 1/2" DEPTH, REPLACE WITH PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - UNDISTURBED SUBGRADE

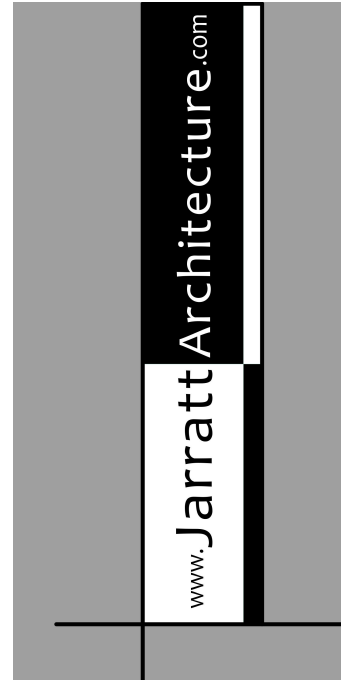
- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- SEE PLAN FOR SPACING
 - SHRUBS, SEE PLANT SCHEDULE
 - 3" DEPTH DOUBLE SHREDDED HARDWOOD MULCH, TYPICAL
 - REMOVE ALL NON-BIODEGRADABLE TWINE FROM ENTIRE ROOTBALL. REMOVE BURLAP FROM TOP 1/2 OF ROOTBALL.
 - SHOVEL CUT OR METAL EDGE, SEE PLAN
 - EXCAVATE EXISTING SOIL TO 1/2" DEPTH, REPLACE WITH PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - SCARIFY TO 4" DEPTH AND RECOMPACT
 - UNDISTURBED SUBGRADE
 - MINIMUM 8" BETWEEN ROOTBALL AND EDGE OF PLANTING PIT

- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- 3.00 TOP OF ROOTBALL 3" ABOVE FINISH GRADE
 - REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GROUNDING.
 - COVER PLANTING W/ 3" DOUBLE SHREDDED HARDWOOD BARK MULCH, MINIMUM 6" DIA. LEAVE 3" CIRCLE OF BARE SOIL AROUND BASE OF THE STEMS.
 - REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE ROOTBALL. FOLD DOWN ALL BURLAP AND REMOVE WIRE BASKET FROM THE TOP 1/3 OF THE ROOTBALL.
 - PLANT MIX, SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - TREE PIT TO BE THREE TIMES WIDTH OF ROOTBALL
 - 4" TOPSOIL SAUCER

- NOTES:
1. STAKE EVERGREENS UNDER 12" HEIGHT
- CUT EVERGREENS 12" HEIGHT AND OTHER
 - NEVER CUT OR PRUNE CENTRAL LEADER
 - SET STAKES VERTICAL AND EVENLY SPACED
 - PRUNE ONLY TO REMOVE DEAD OR BROKEN BRANCHES



Liberty Townhomes



Liberty Townhomes

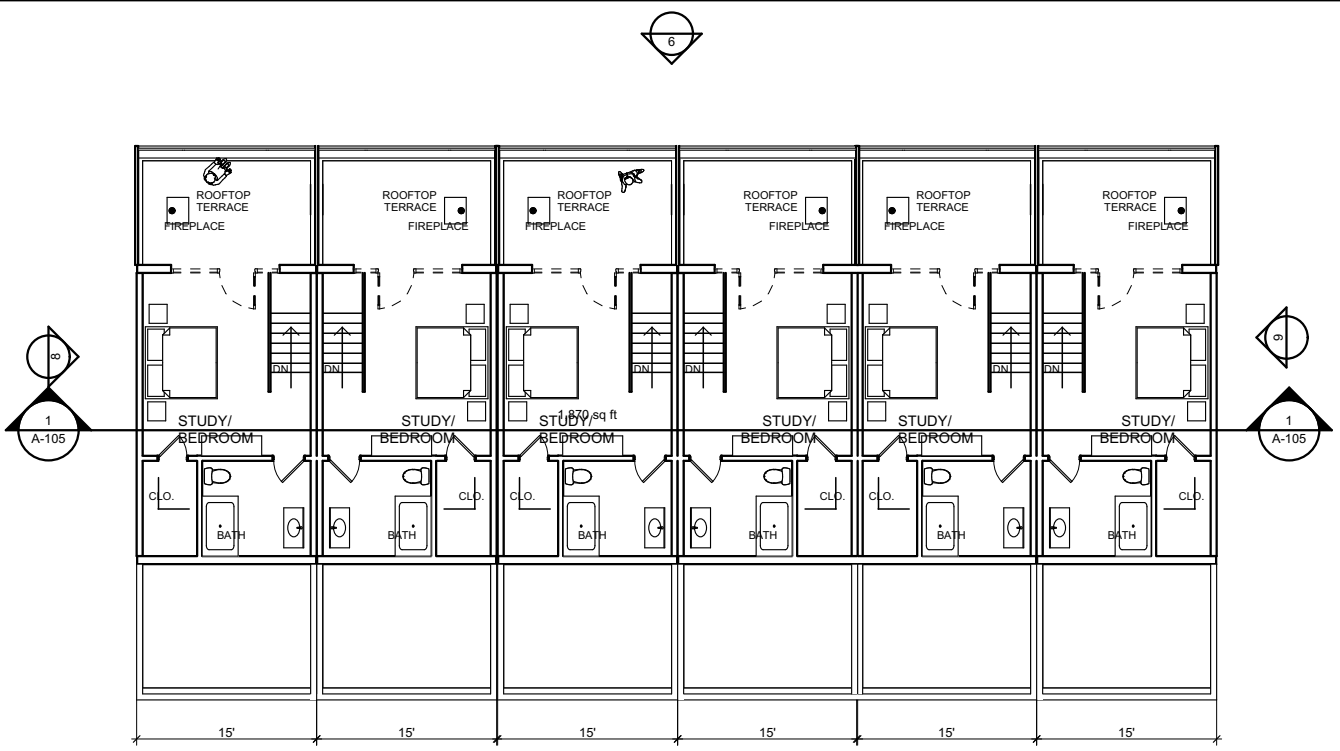
Ann Arbor, MI

8/17/2017	Concept Plans
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Issue Date	DESCRIPTION
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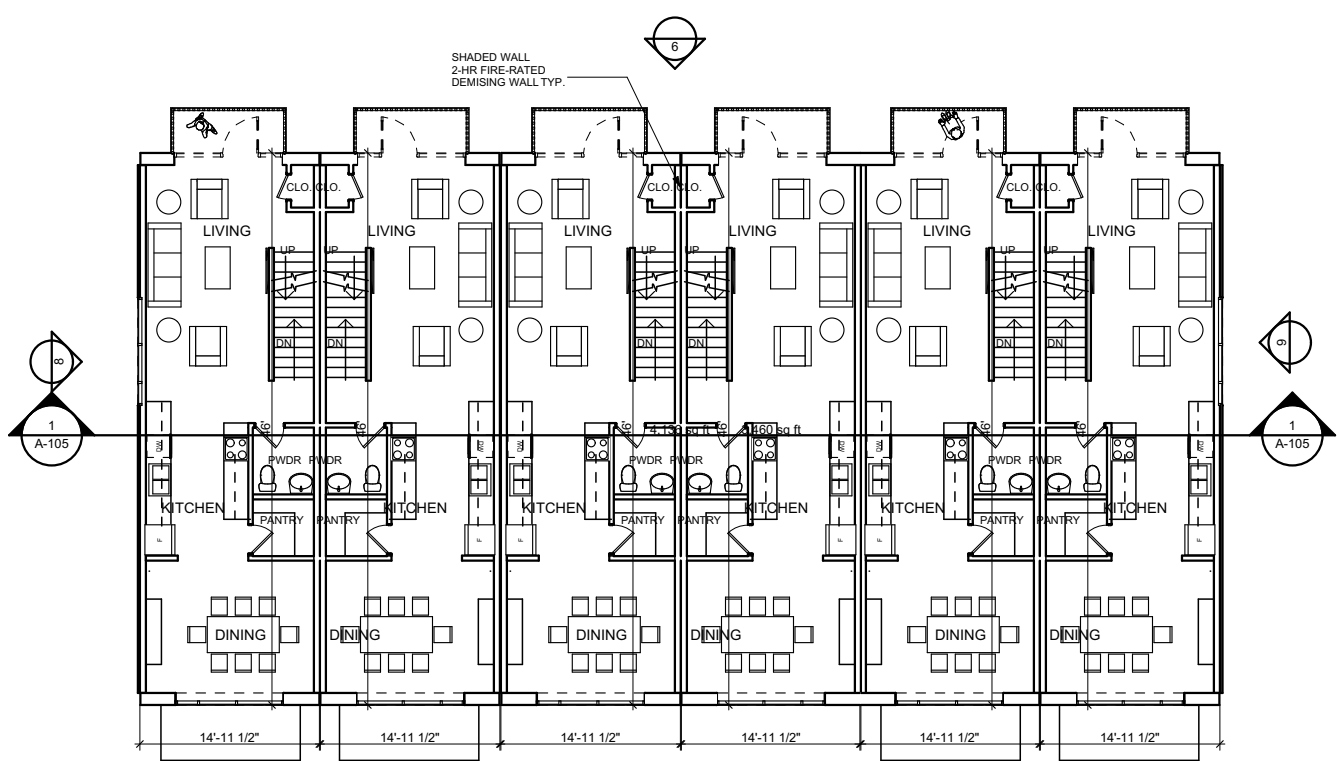
	COVER
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	A-101
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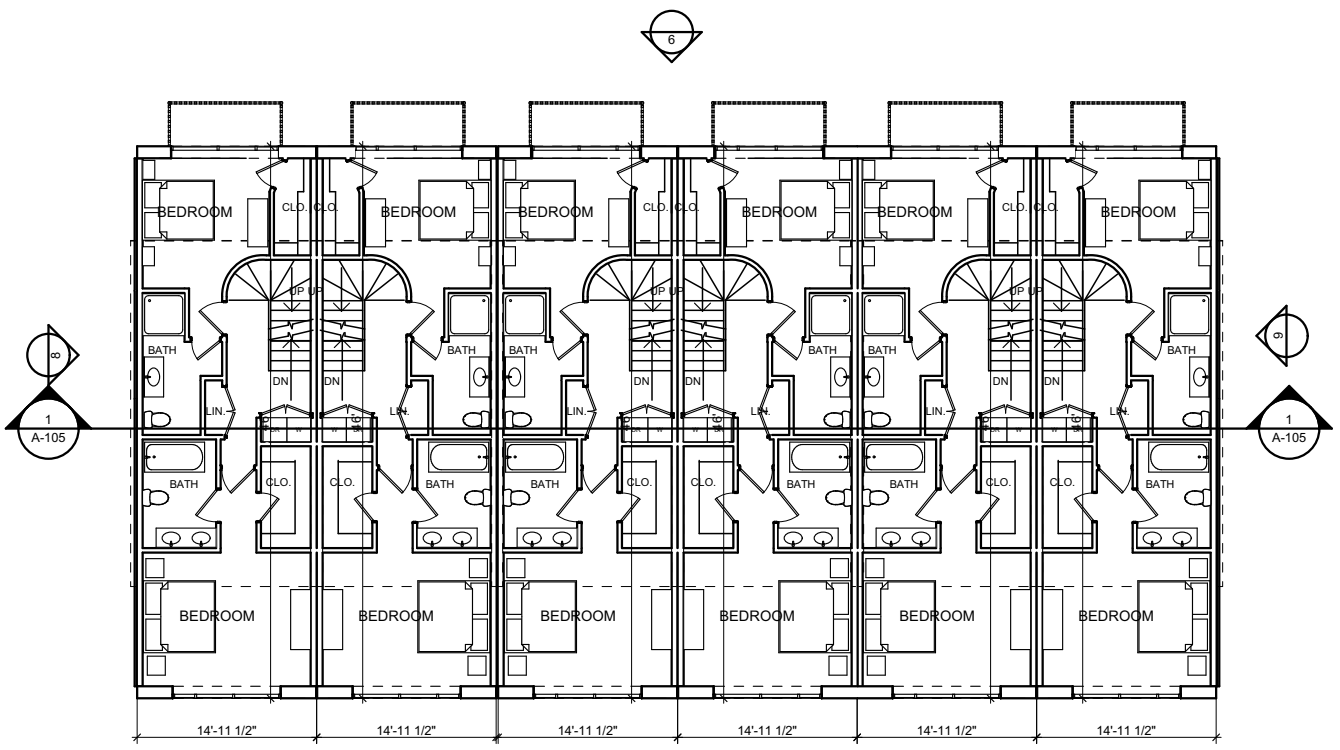
4th Floor

SCALE: 1/16" = 1'-0"



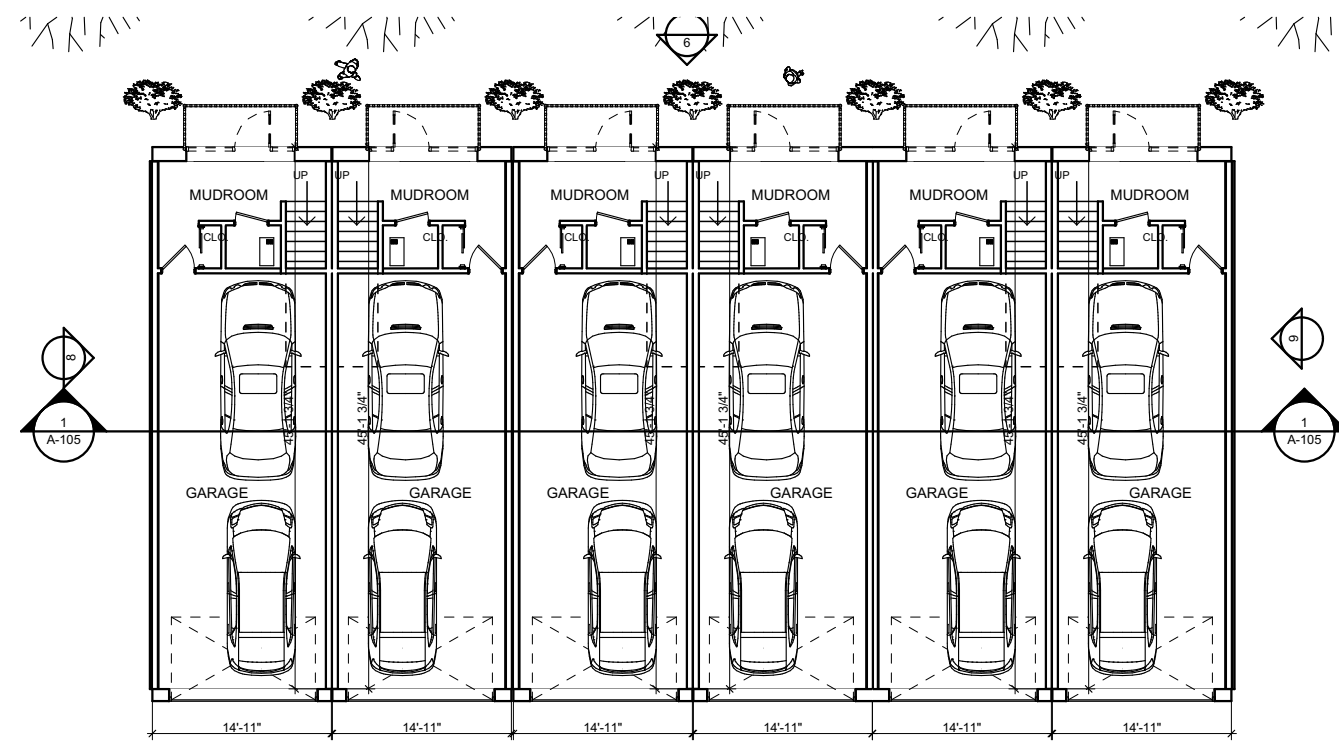
2nd Floor

SCALE: 1/16" = 1'-0"



3rd Floor

SCALE: 1/16" = 1'-0"



1st Floor

SCALE: 1/16" = 1'-0"

FLOOR AREAS
 5 UNITS - 12,300 SF TOTAL
 6 UNITS - 14,500 SF TOTAL
 7 UNITS - 16,700 SF TOTAL

Liberty Townhomes

Ann Arbor, MI

8/17/2017 Concept Plans

Issue Date DESCRIPTION

CLUSTER CONCEPT PLANS

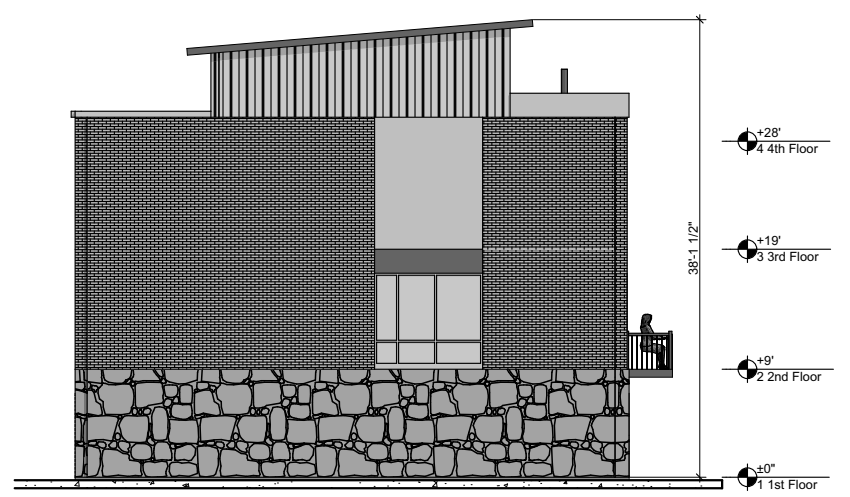
A-102

Liberty Townhomes

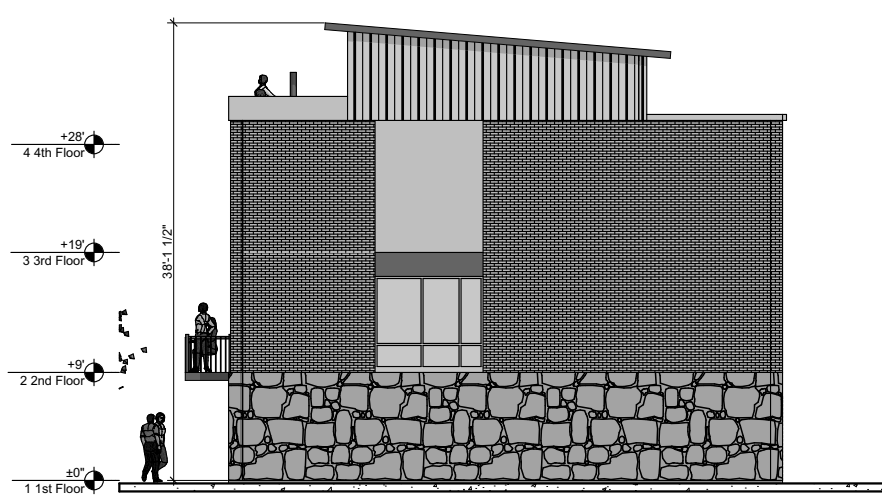
Ann Arbor, MI



3 REAR ELEVATION
SCALE: 1/16" = 1'-0"



2 SIDE ELEVATION
SCALE: 1/16" = 1'-0"



4 SIDE ELEVATION
SCALE: 1/16" = 1'-0"



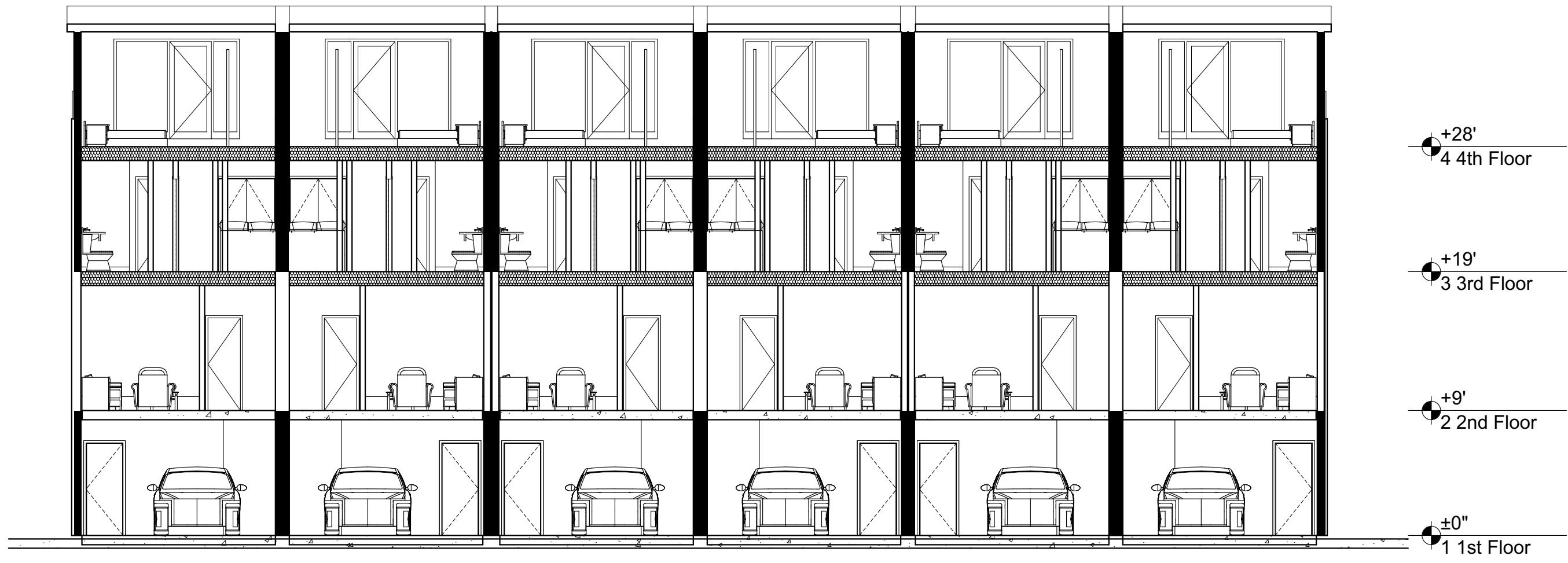
1 FRONT ELEVATION
SCALE: 1/16" = 1'-0"

Issue Date	DESCRIPTION
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ELEVATIONS

A-104

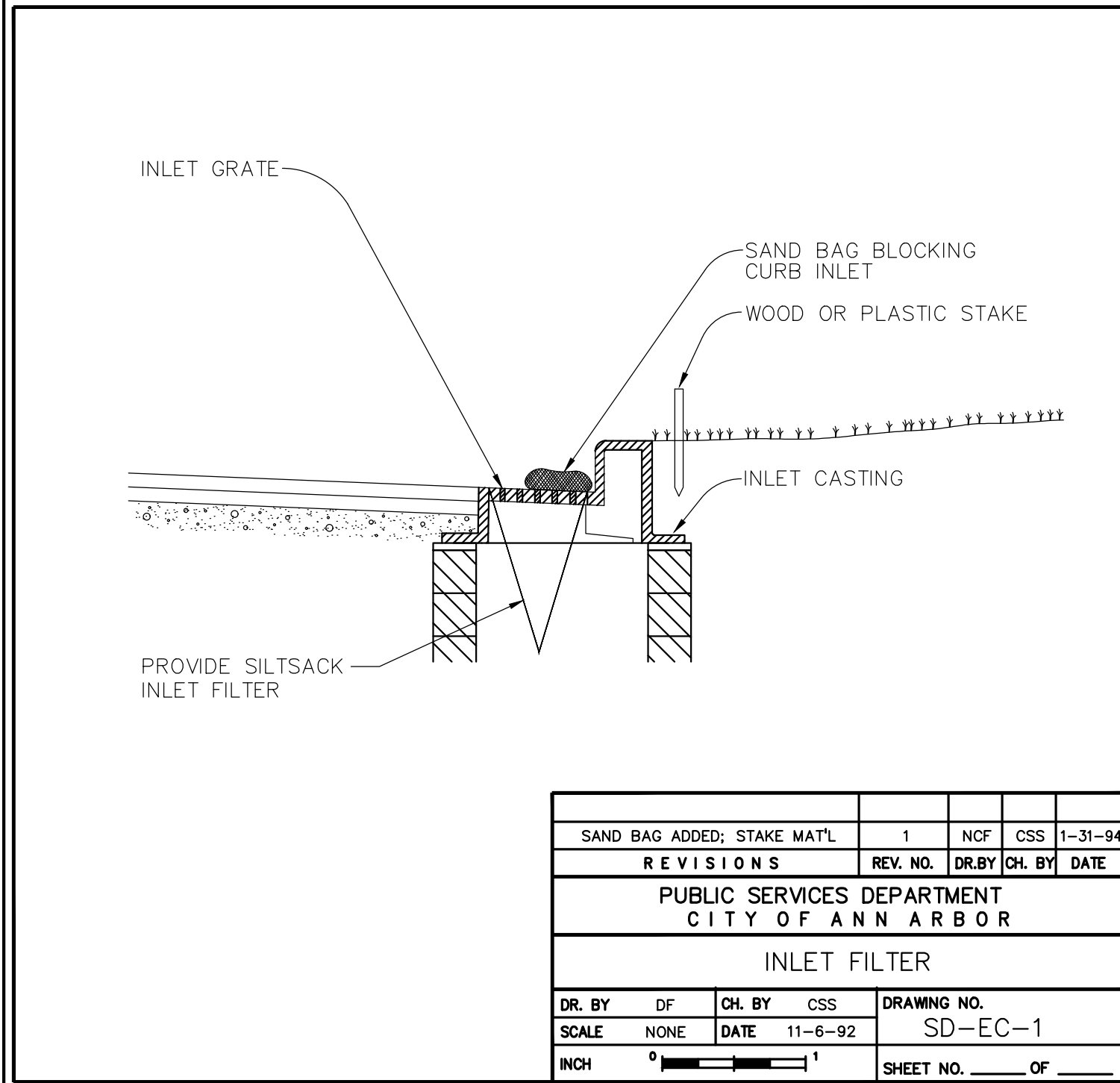
**Liberty
Townhomes**
Ann Arbor, MI



- +28'
4 4th Floor
- +19'
3 3rd Floor
- +9'
2 2nd Floor
- ±0"
1 1st Floor

1 SECTION
SCALE: 1/8" = 1'-0"

Issue Date	DESCRIPTION
	SECTION
	A-105



REV. NO.	DR. BY	CH. BY	DATE
1	NCF	CSS	11-31-94

REVISIONS

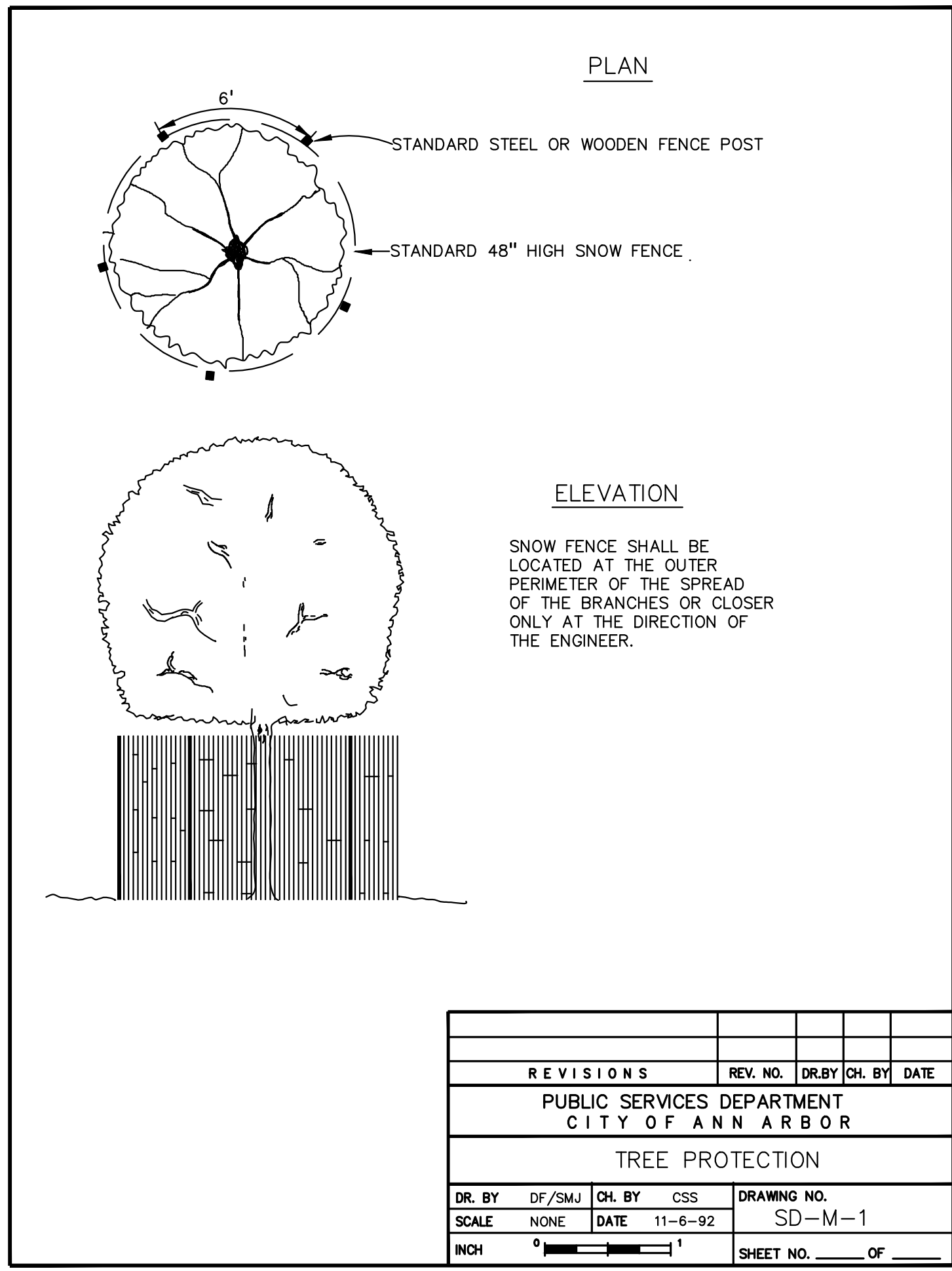
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

INLET FILTER

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SCALE	NONE	DATE	11-6-92	SD-EC-1

SCALE NONE DATE 11-6-92 DRAWING NO. SD-EC-1

INCH 0 1 SHEET NO. OF



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1	NCF	CSS	11-6-92

REVISIONS

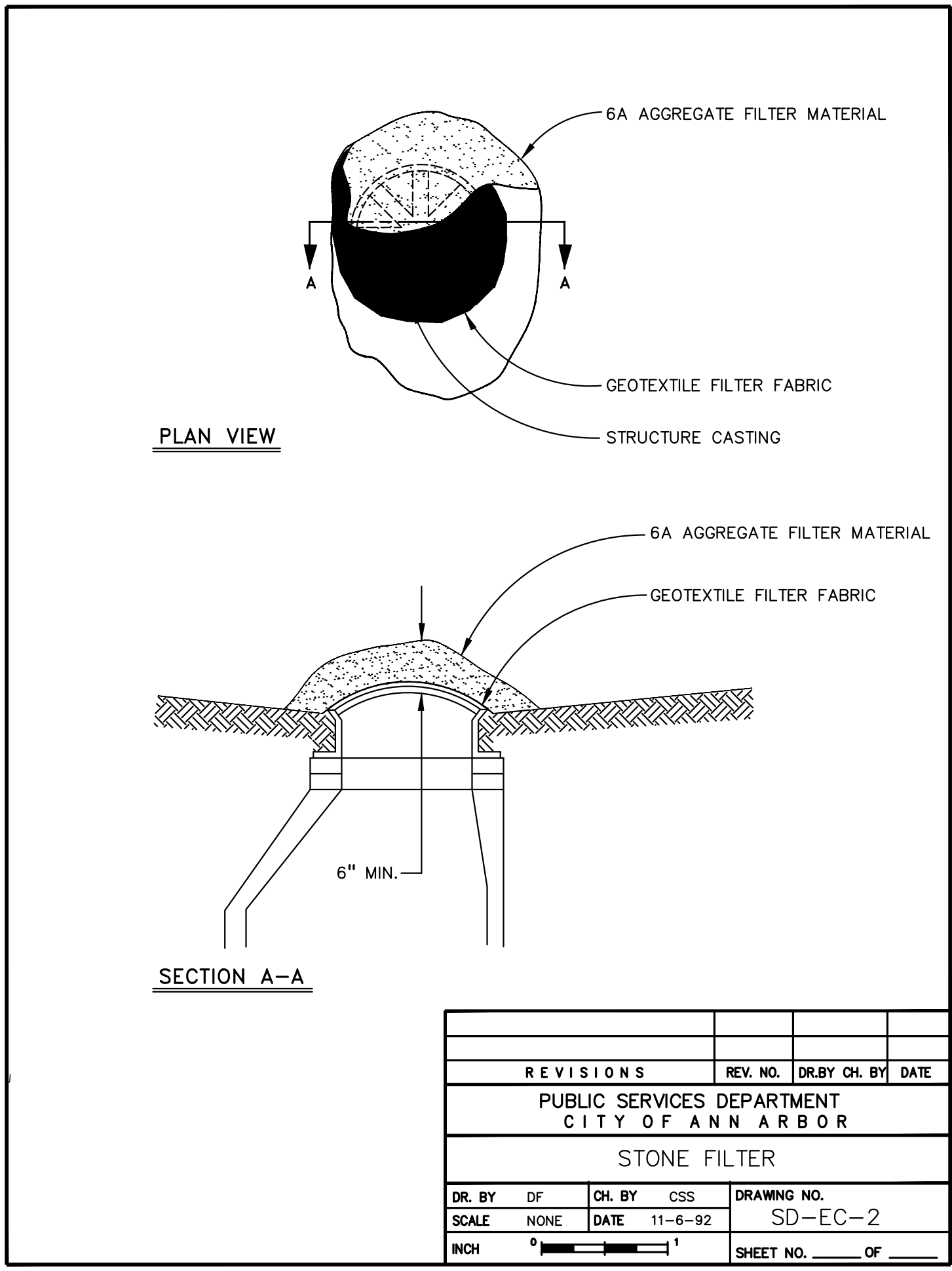
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

TREE PROTECTION

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SCALE NONE DATE 11-6-92 DRAWING NO. SD-M-1

INCH 0 1 SHEET NO. OF



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1	NCF	CSS	11-6-92

REVISIONS

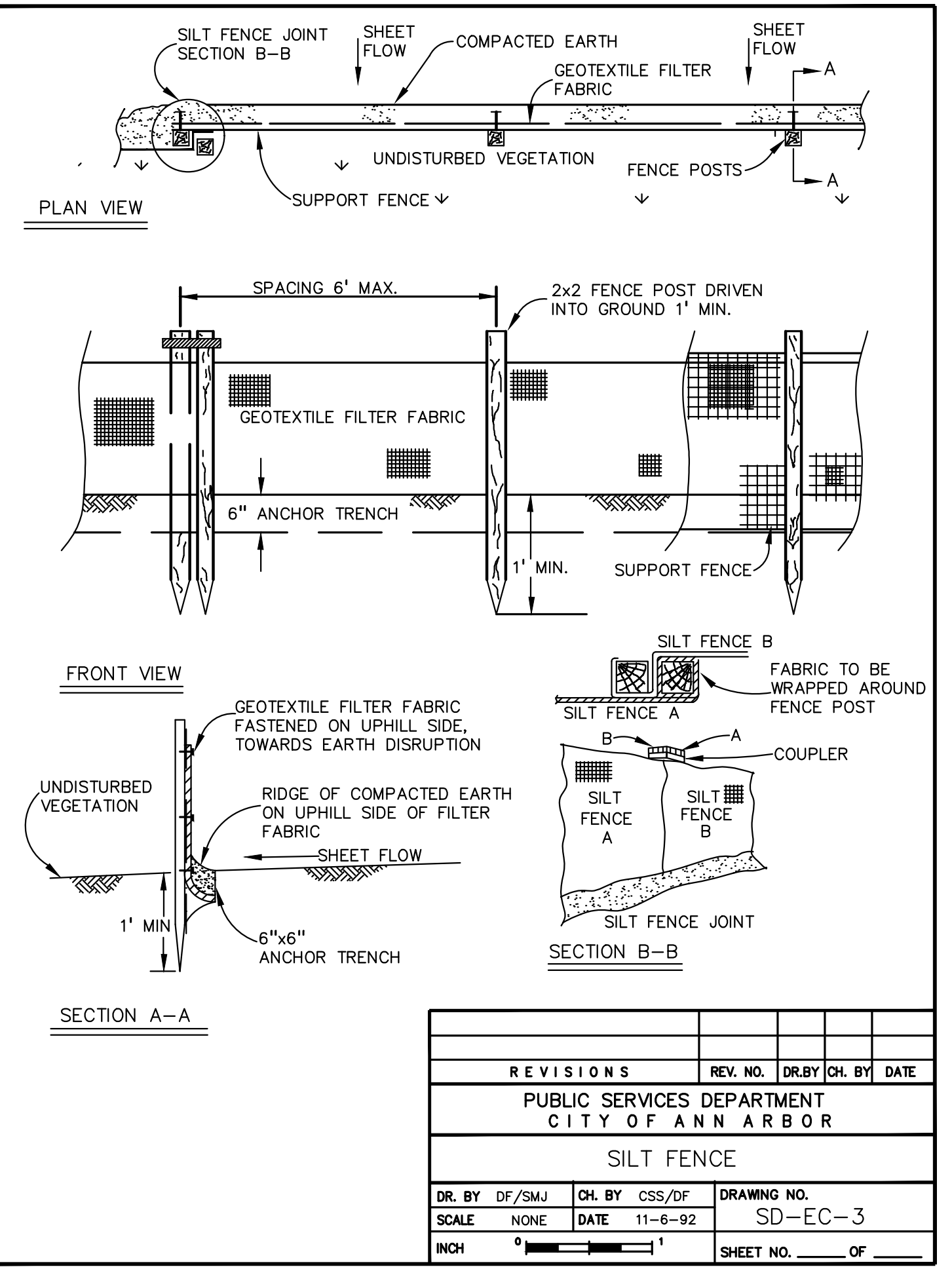
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

STONE FILTER

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SCALE NONE DATE 11-6-92 DRAWING NO. SD-EC-2

INCH 0 1 SHEET NO. OF



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1	NCF	CSS	11-6-92

REVISIONS

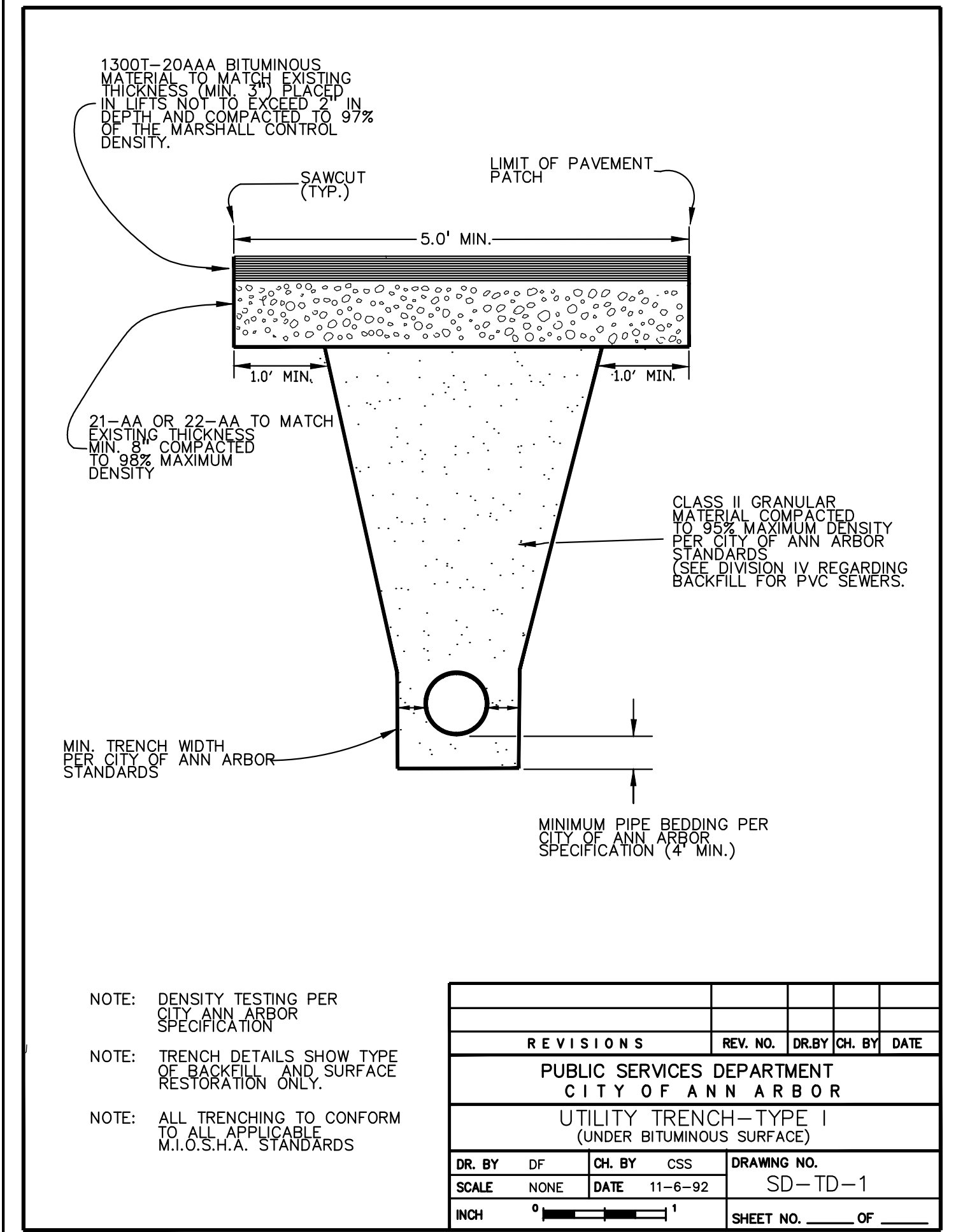
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

SILT FENCE

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-EC-3

SCALE NONE DATE 11-6-92 DRAWING NO. SD-EC-3

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE
1	NCF	CSS	11-6-92

REVISIONS

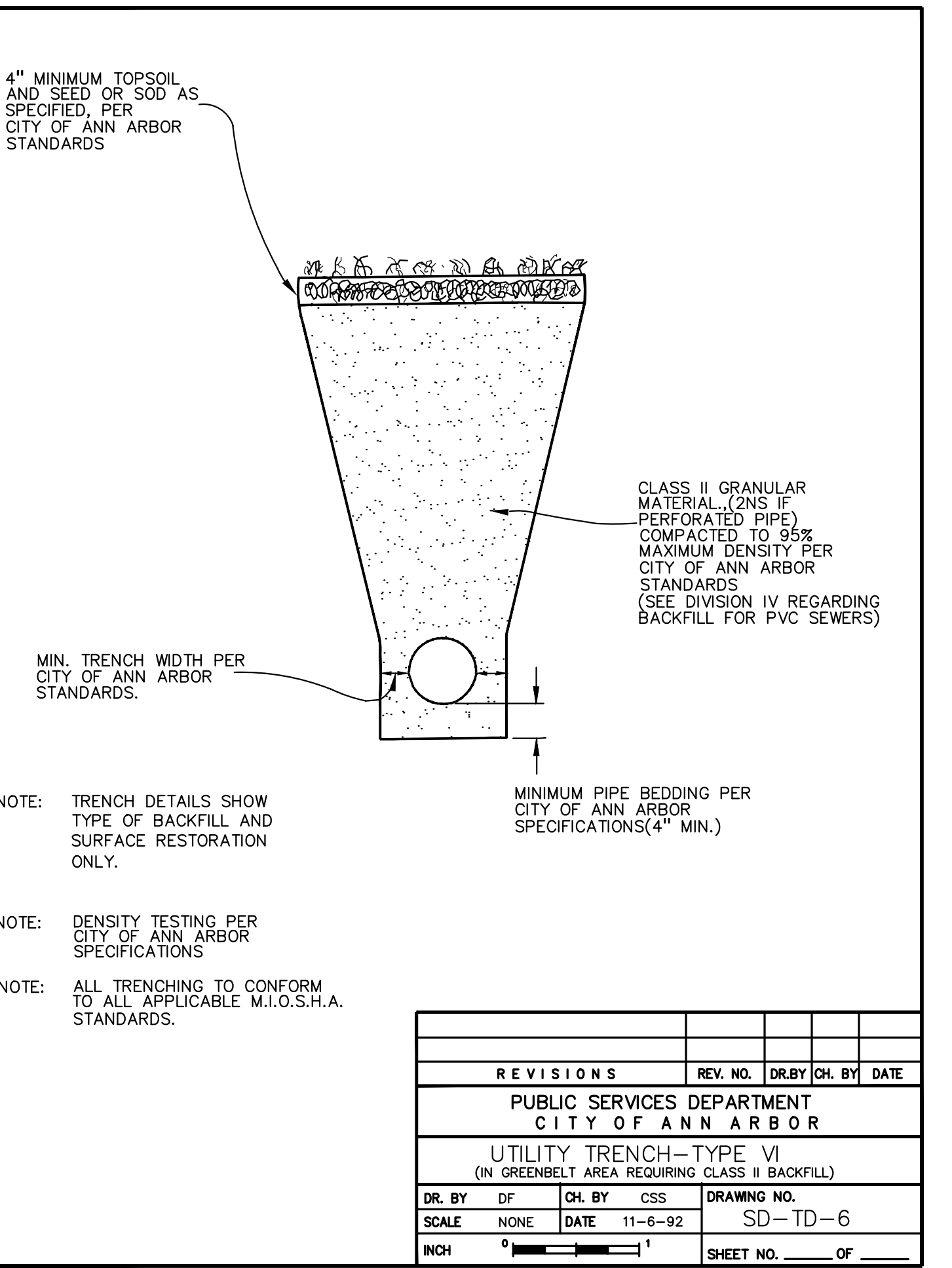
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

UTILITY TRENCH-TYPE I
(UNDER BITUMINOUS SURFACE)

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-TD-1

SCALE NONE DATE 11-6-92 DRAWING NO. SD-TD-1

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE
1	NCF	CSS	11-6-92

REVISIONS

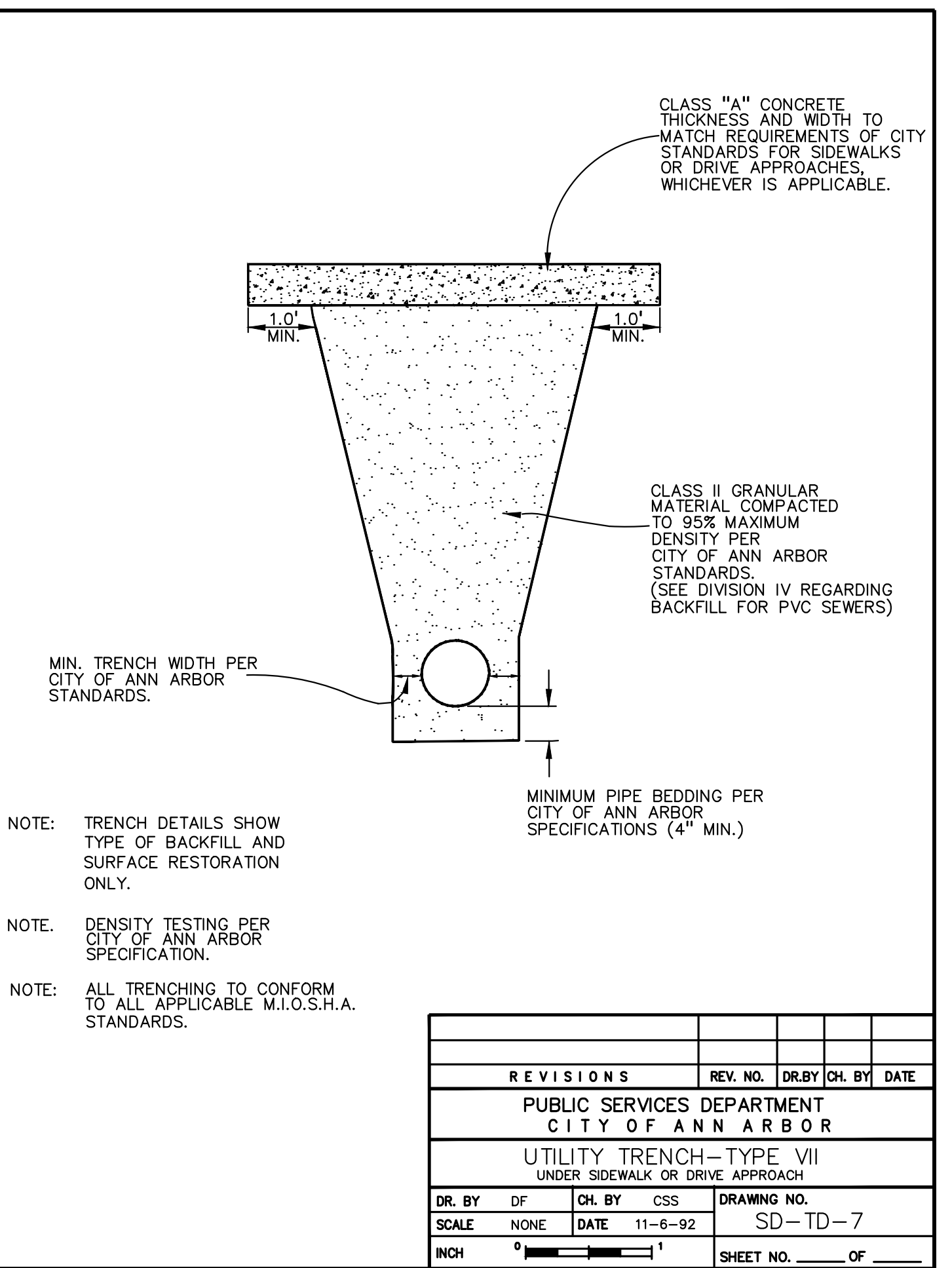
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

UTILITY TRENCH-TYPE VI
(IN GREENBELT AREA REQUIRING CLASS II BACKFILL)

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-TD-6

SCALE NONE DATE 11-6-92 DRAWING NO. SD-TD-6

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE
1	NCF	CSS	11-6-92

REVISIONS

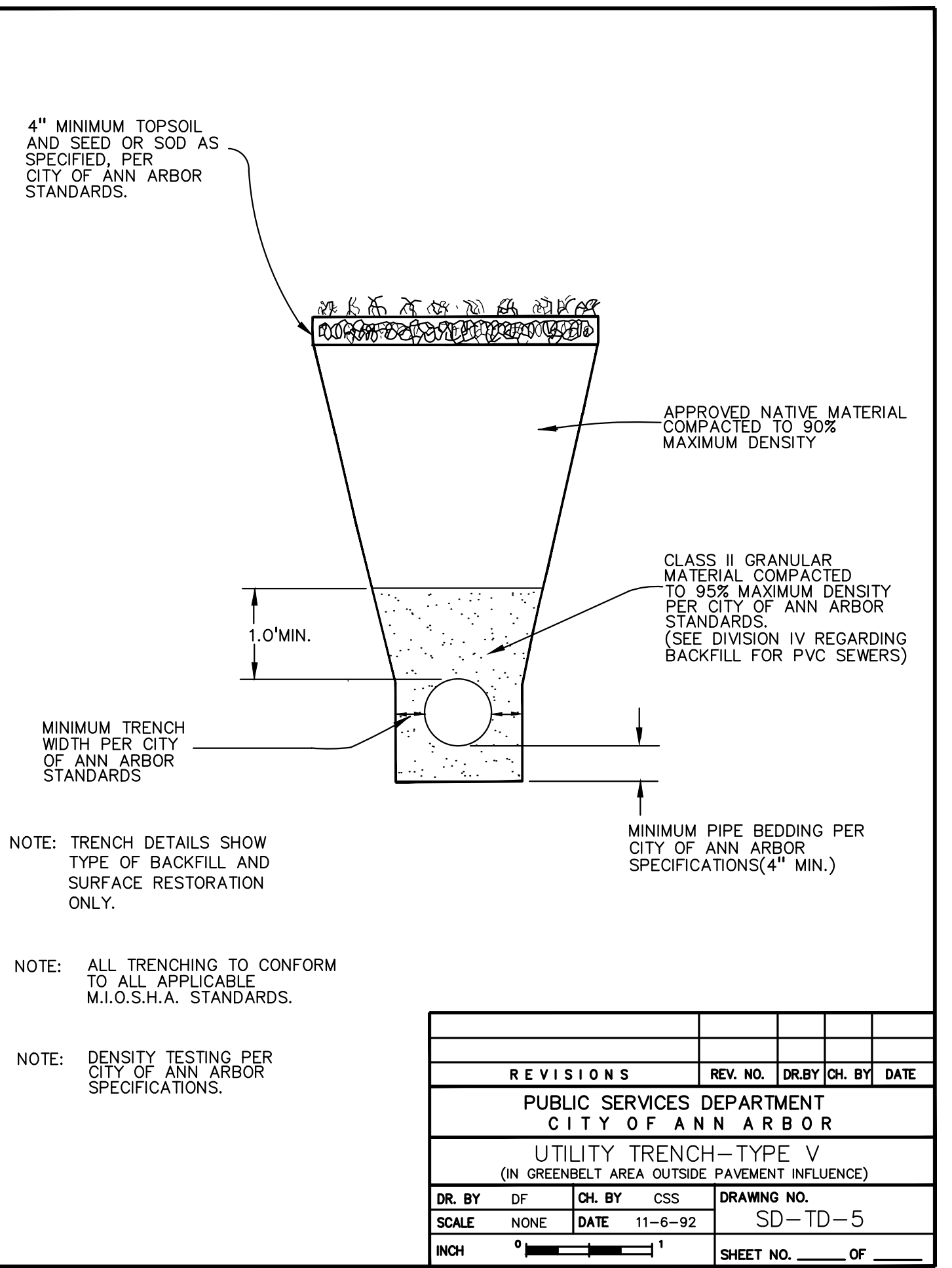
PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

UTILITY TRENCH-TYPE VII
(UNDER SIDEWALK OR DRIVE APPROACH)

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-TD-7

SCALE NONE DATE 11-6-92 DRAWING NO. SD-TD-7

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE
1	NCF	CSS	11-6-92

REVISIONS

PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

UTILITY TRENCH-TYPE V
(IN GREENBELT AREA OUTSIDE PAVEMENT INFLUENCE)

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-TD-5

SCALE NONE DATE 11-6-92 DRAWING NO. SD-TD-5

INCH 0 1 SHEET NO. OF

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

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CITY OF ANN ARBOR DETAILS
LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 2S, R. 5E,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JAH DN. JAH SUR. RS. P.M. JC
S:\PROJECTS\2017-167-TOWNHOMES LIBERTY MULTI-FAMILY-25WV\SITE PLAN\SD-TD-AA-3.CITY DETAILS-1707.dwg

ORIGINAL ISSUE DATE:
JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: AS NOTED

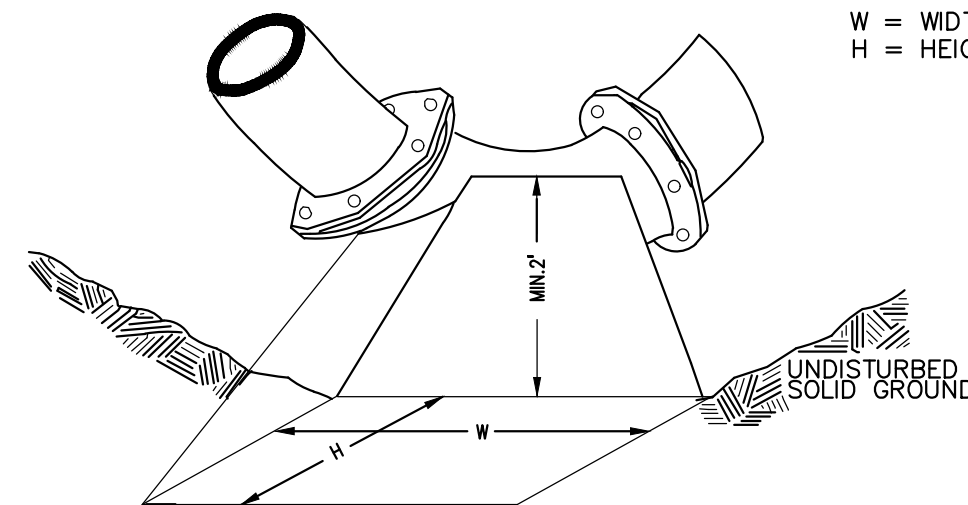
DRAWING NUMBER:
AA-1

MINIMUM STANDARDS

REACTION BACKING: The Class "A" concrete at the fitting face shall extend to within (2) inches of the bell and shall extend from the fitting face a minimum of (2) feet to the UNDISTURBED SOLID GROUND. The dimensions of the reaction backing (thrust block) at the face of the undisturbed solid ground shall be as shown in the Table below. If there isn't sufficient space for the installation of the "thrust block" without interference with other services, another arrangement satisfactory to the engineer shall be used, i.e. encasement.

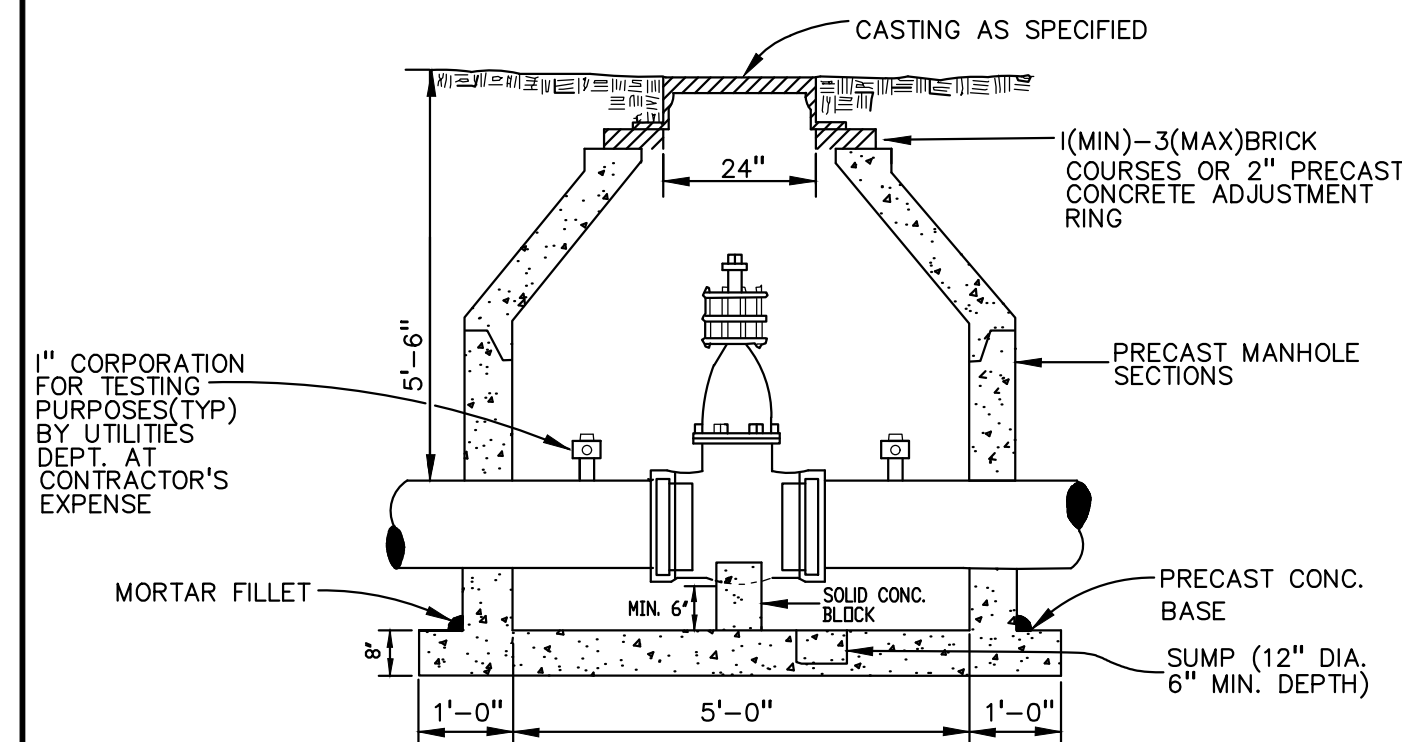
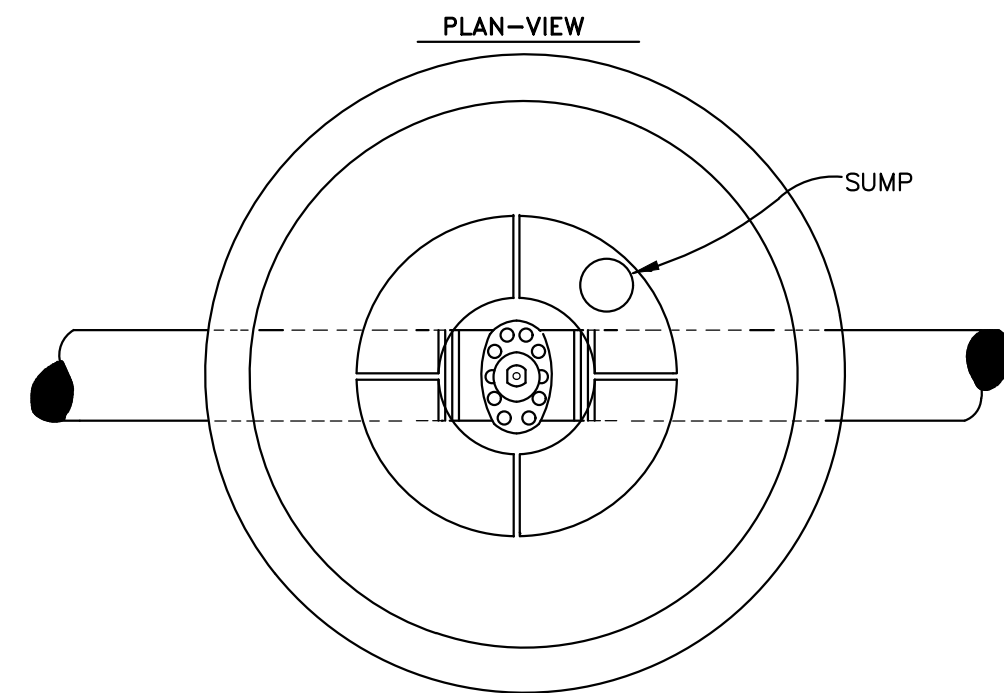
Fittings I.D. Inches	Plug Tee Cross		90°		45°		Bends 22 1/2°		11 1/4°		Hydrant	
	W	H	W	H	W	H	W	H	W	H	W	H
2.5	1	1	1	1	1	1						
4	1	1	1	1	1	1						
6	2	1.5	2	2	2	1	1	1	1	1	2	1.5
8	2.5	2	3.5	2	2	2	2	2	1	1	2.5	2
12	3.5	3	5.5	3	3.5	2.5	2	2	2	1		
16	6	3.5	6	4	5	3	3.5	2.5	2	2		
20	8	4	12	4	6	4	4	3	2			
24	11	4	17	4	9	4	6	4	3.5	2		

W = WIDTH IN FEET
H = HEIGHT IN FEET



NOTE: THESE ARE MINIMUM STANDARDS. WHERE SOIL CONDITIONS DICTATE, ADJUSTMENTS IN SIZE SHALL BE MADE BY THE PUBLIC SERVICES DIRECTOR.

REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
THRUST BLOCK				
DR. BY	D.F.	CH. BY	C.S.S.	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-W-2
INCH	0	1		SHEET NO. OF



NOTE: ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE.

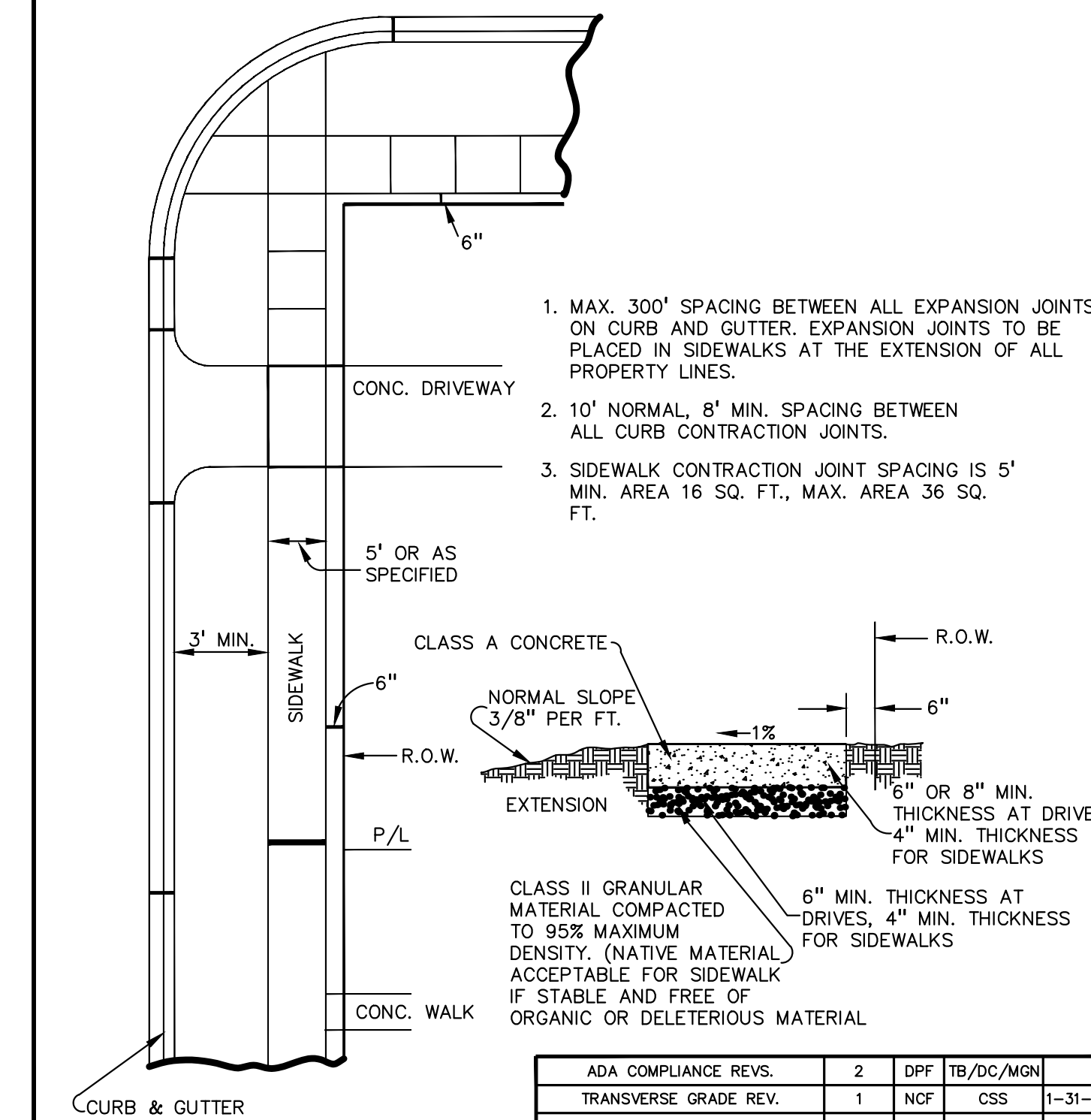
NOTE: NO STEPS PERMITTED

REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
GATE WELL FOR MAIN 12" AND SMALLER				
DR. BY	D.F.	CH. BY	C.S.S.	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-W-3
INCH	0	1		SHEET NO. OF

TYPE OF CASTING	NEEHAH FOUNDRY	EAST JORDAN IRON WORKS
Barrier Curb Inlet	R-3013B, Type S grate (500 Pounds)	7045, Type M1 grate (490 Pounds)
Barrier Curb Double Inlet	R-3249F, Type S grate (410 Pounds)	N/A
Mountable Curb Inlet	R-3034B, Type S grate (500 Pounds)	7065, Type M1 grate (470 Pounds)
Gutter Inlet	R-3448C, Type S grate (315 Pounds)	5080, Type M2 grate (315 Pounds)
Gutter Double Inlet	R-3448B, Type S grate (265 Pounds)	5000, Type M2 grate (285 Pounds)
Yard Drain	R-2560-E1 (285 Pounds)	1040, Type O2 grate (355 Pounds)
Yard Drain in City Park	N/A	1040, Type M1 grate (400 Pounds)
*Manhole Frame & Cover	R-1642, Type C Cover (380 Pounds)	1040, Type A Cover (400 Pounds)
**Watertight Manhole Frame and Cover	N/A	1040-WT (400 Pounds)
Monument Box	N/A	8360 (100 Pounds)

*Frames and covers must have machined bearing surfaces. Covers must have two (2) 1" vent holes located opposite each other and 6" from the edge of the cover. Each cover shall have "Sewer", "S" or "Water", "W" cast in the surface, whichever is applicable.
**Frames and covers must have machined bearing surfaces. Each cover shall have "Sewer", "S" or "Water", "W" cast in the surface, whichever is applicable.

REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
STANDARD CASTING SCHEDULE				
DR. BY	JPB	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	6-12-92	SD-GU-5
INCH	0	1		SHEET NO. OF



LEGEND:
CONTRACTION JOINTS
1/2" EXPANSION JOINTS
3/4" EXPANSION JOINTS

- MAX. 300' SPACING BETWEEN ALL EXPANSION JOINTS. ON CURB AND GUTTER. EXPANSION JOINTS TO BE PLACED IN SIDEWALKS AT THE EXTENSION OF ALL PROPERTY LINES.
- 10' NORMAL, 8' MIN. SPACING BETWEEN ALL CURB CONTRACTION JOINTS.
- SIDEWALK CONTRACTION JOINT SPACING IS 5' MIN. AREA 16 SQ. FT., MAX. AREA 36 SQ. FT.

REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
SIDEWALK & CURB & GUTTER JOINTS				
DR. BY	DPF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-R-9
INCH	0	1		SHEET NO. OF

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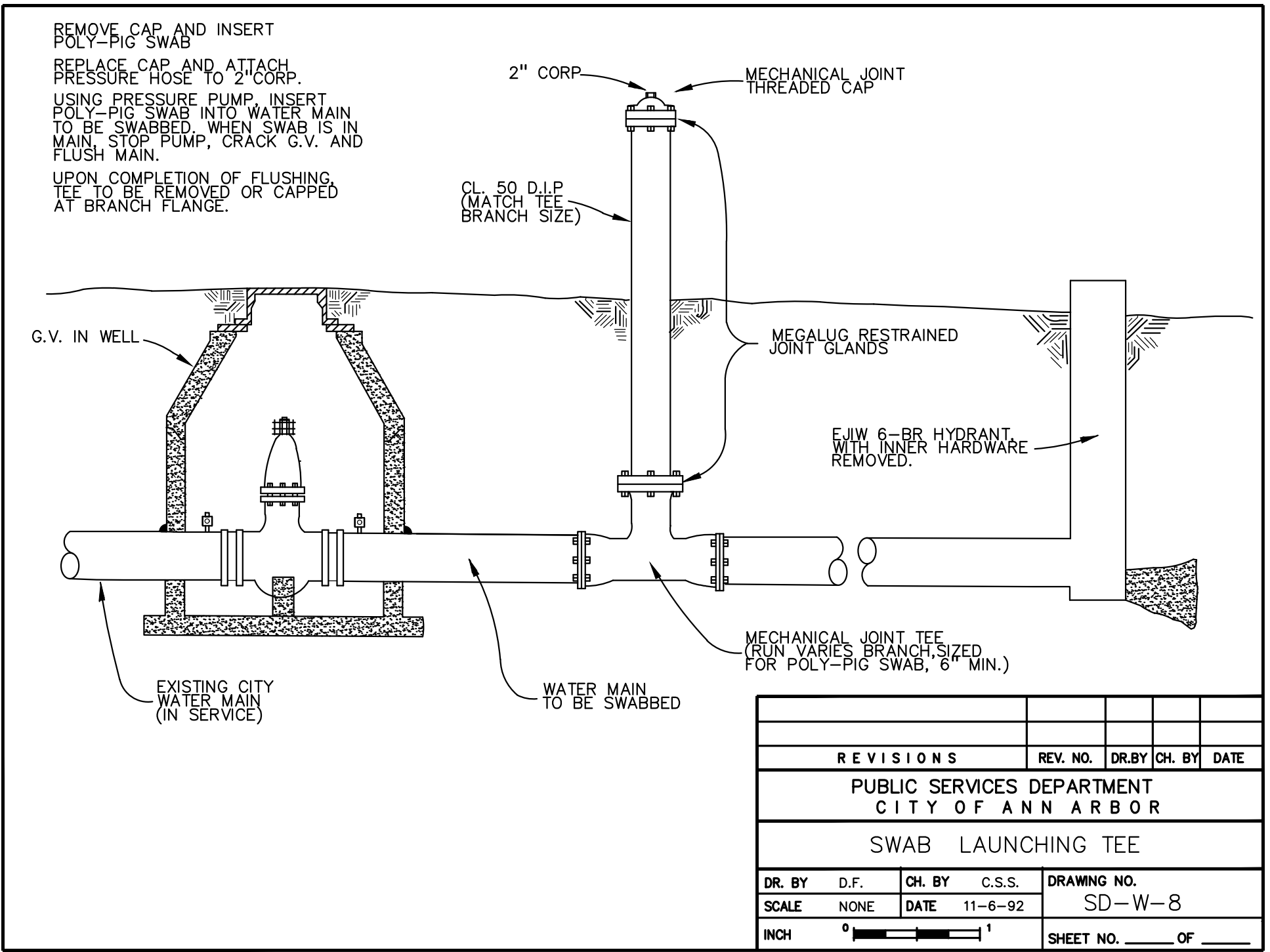
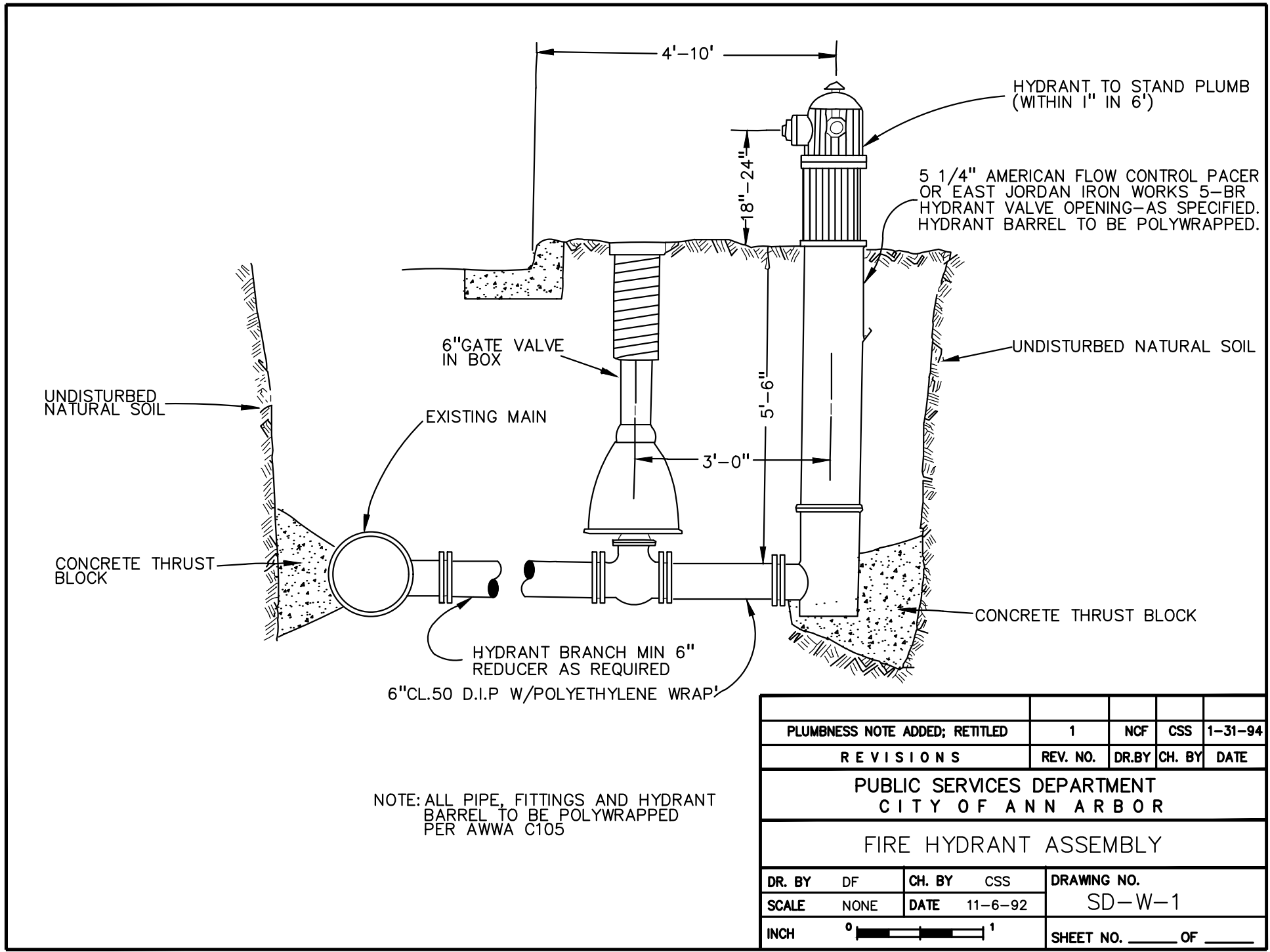
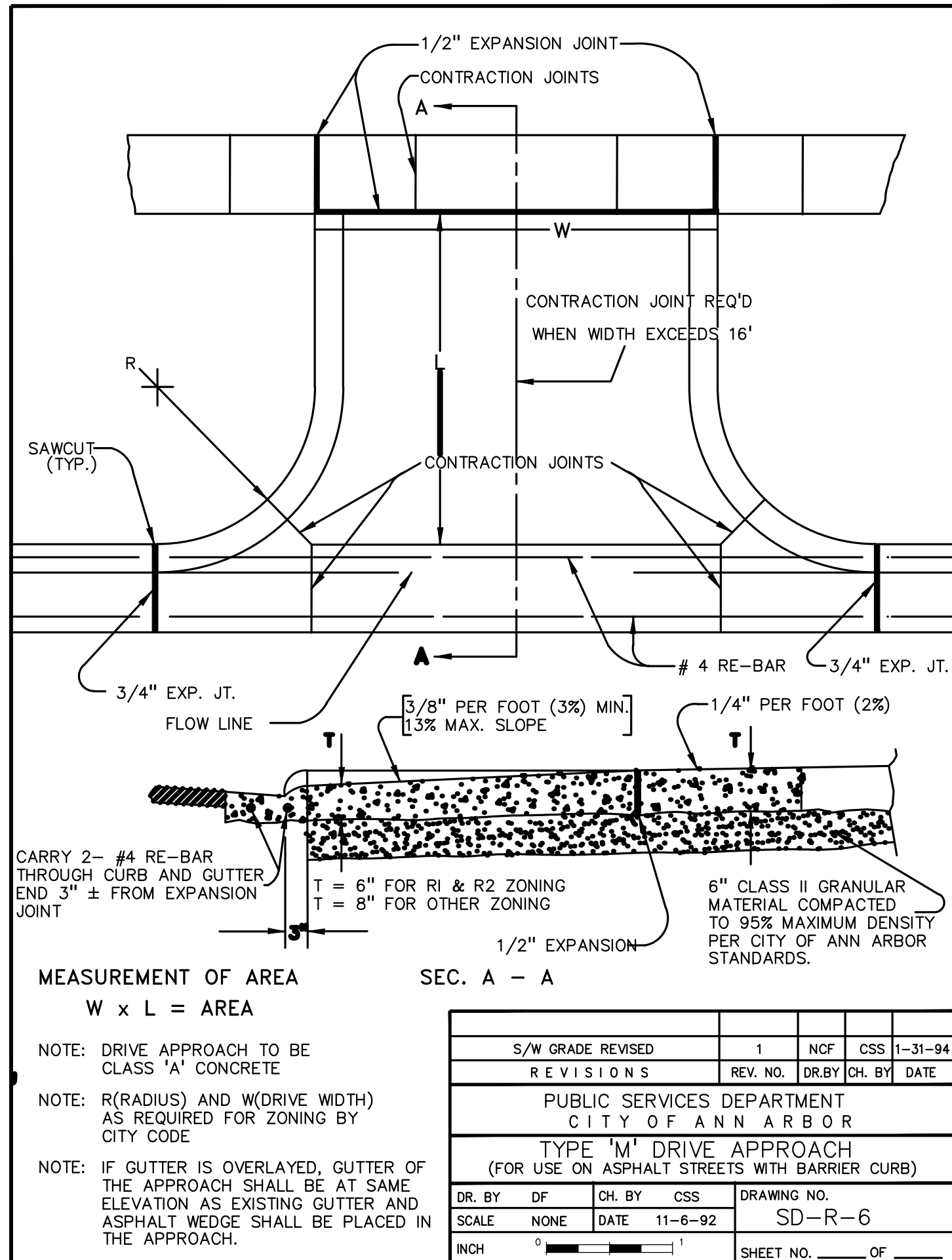
REVISIONS				
REV. NO.	DR. BY	CH. BY	DATE	
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
CONTRACTION JOINTS				
DR. BY	DPF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-R-9
INCH	0	1		SHEET NO. OF

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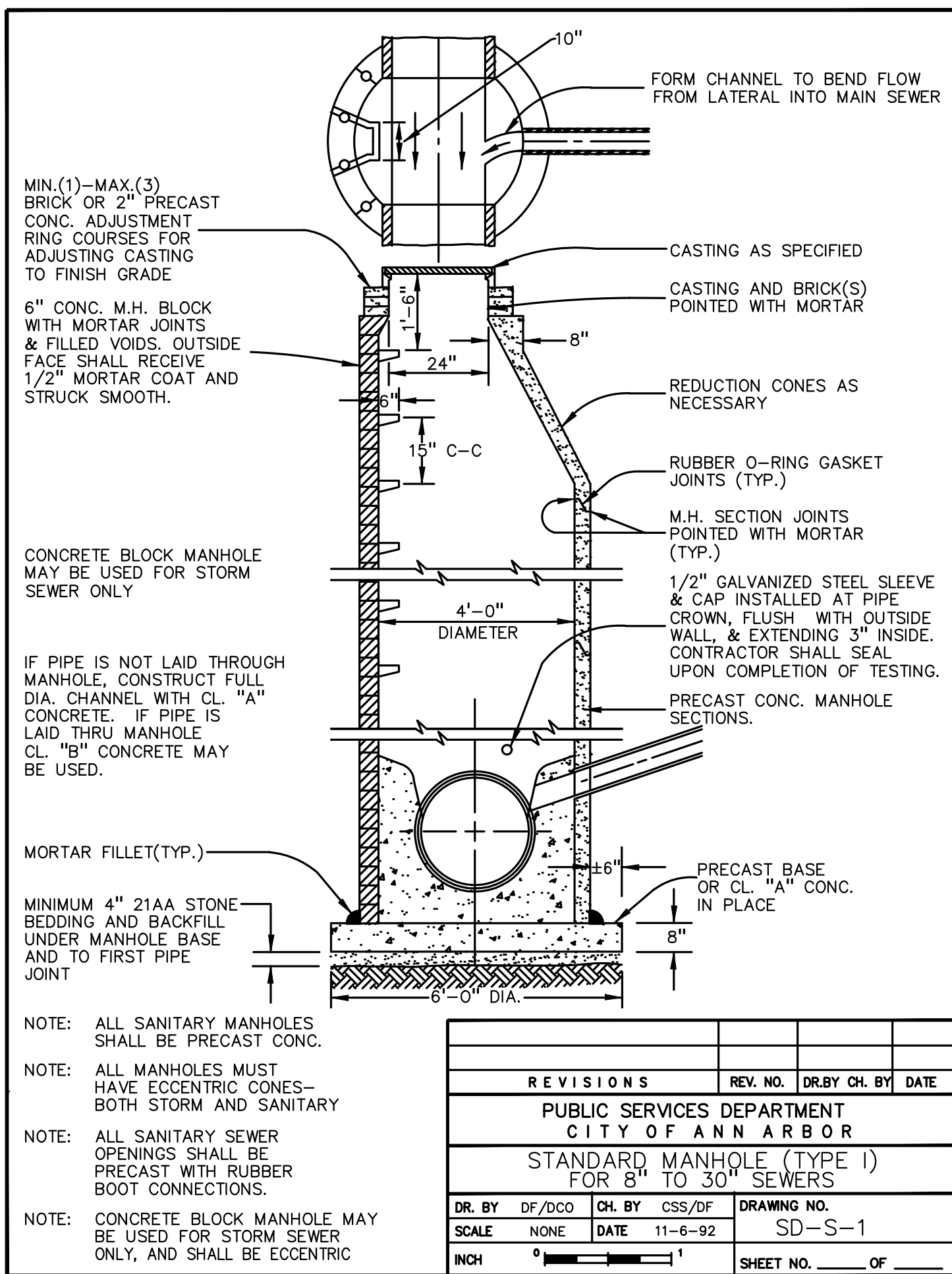
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LIBERTY TOWNHOMES
PART OF THE SE 1/4 OF SECTION 25, T. 25, R. 5E,
CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN
DES. JAH DN. JAH SUR. RS. P.M. JC
S:\PROJECTS\2017-167 -167 -167\MIDSTATE LIBERTY MULTI-FAMILY-25\DWG\SITE PLAN\SD-W-1 TO AA-3 CITY DETAILS-1717-167

ORIGINAL ISSUE DATE:
JULY 27, 2017
PEA JOB NO. 2017-167
SCALE: AS NOTED
DRAWING NUMBER:
AA-2



REV. NO.	DR. BY	CH. BY	DATE

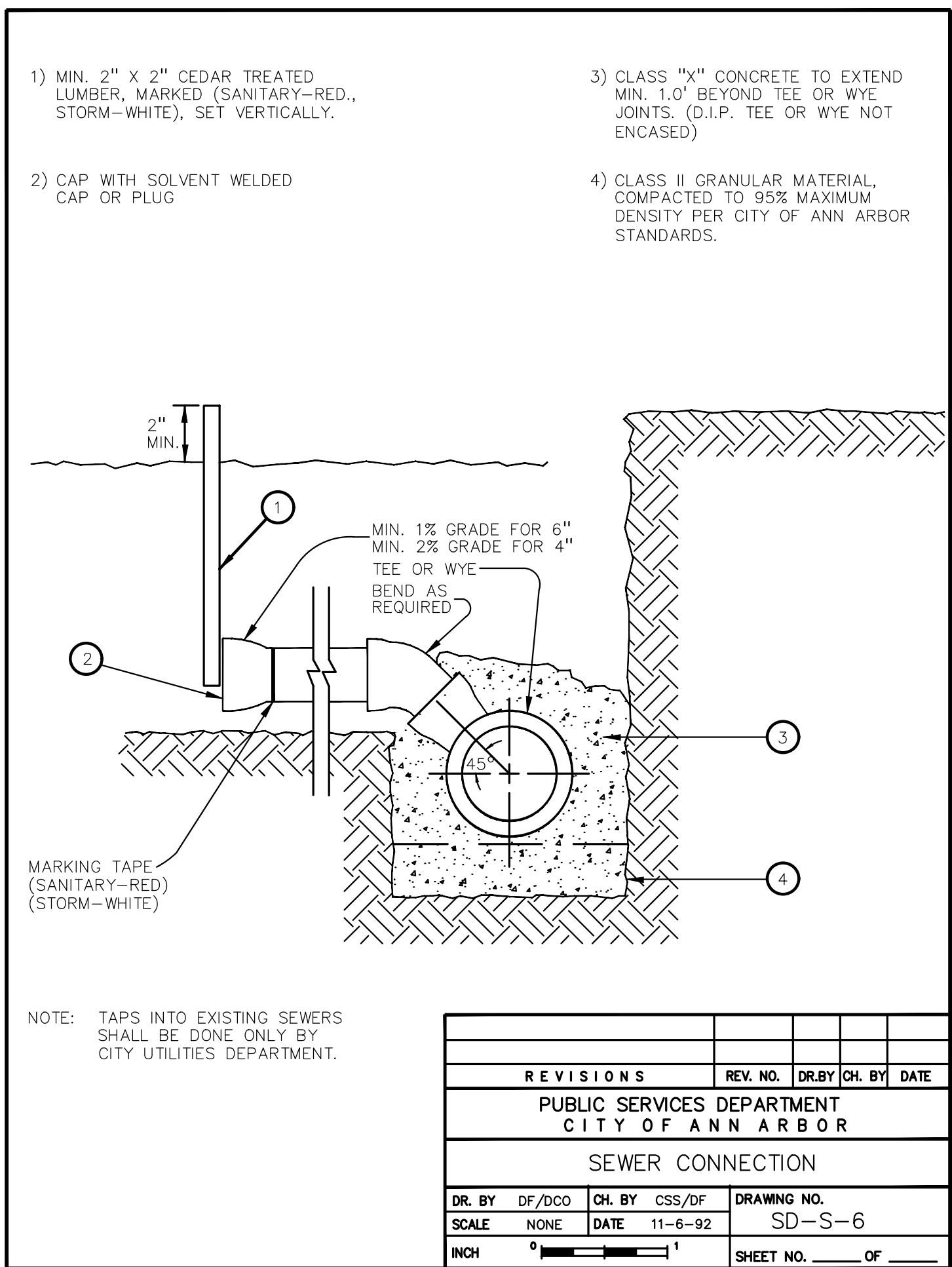
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CITY OF ANN ARBOR

STANDARD MANHOLE (TYPE 1)
FOR 8" TO 30" SEWERS

DR. BY	DF/DCO	CH. BY	CSS/DF	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-S-1

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE

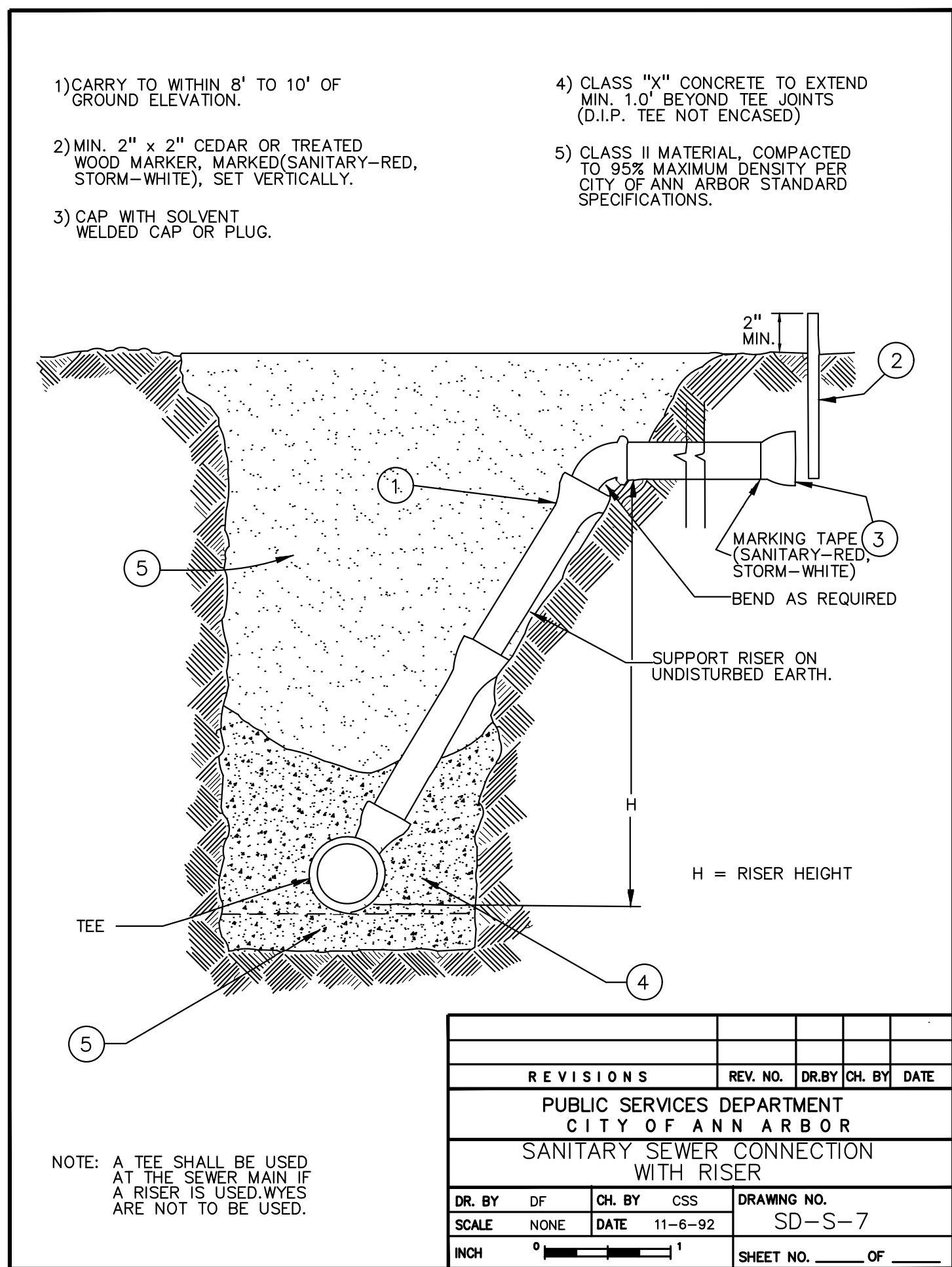
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PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

SEWER CONNECTION

DR. BY	DF/DCO	CH. BY	CSS/DF	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-S-6

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE

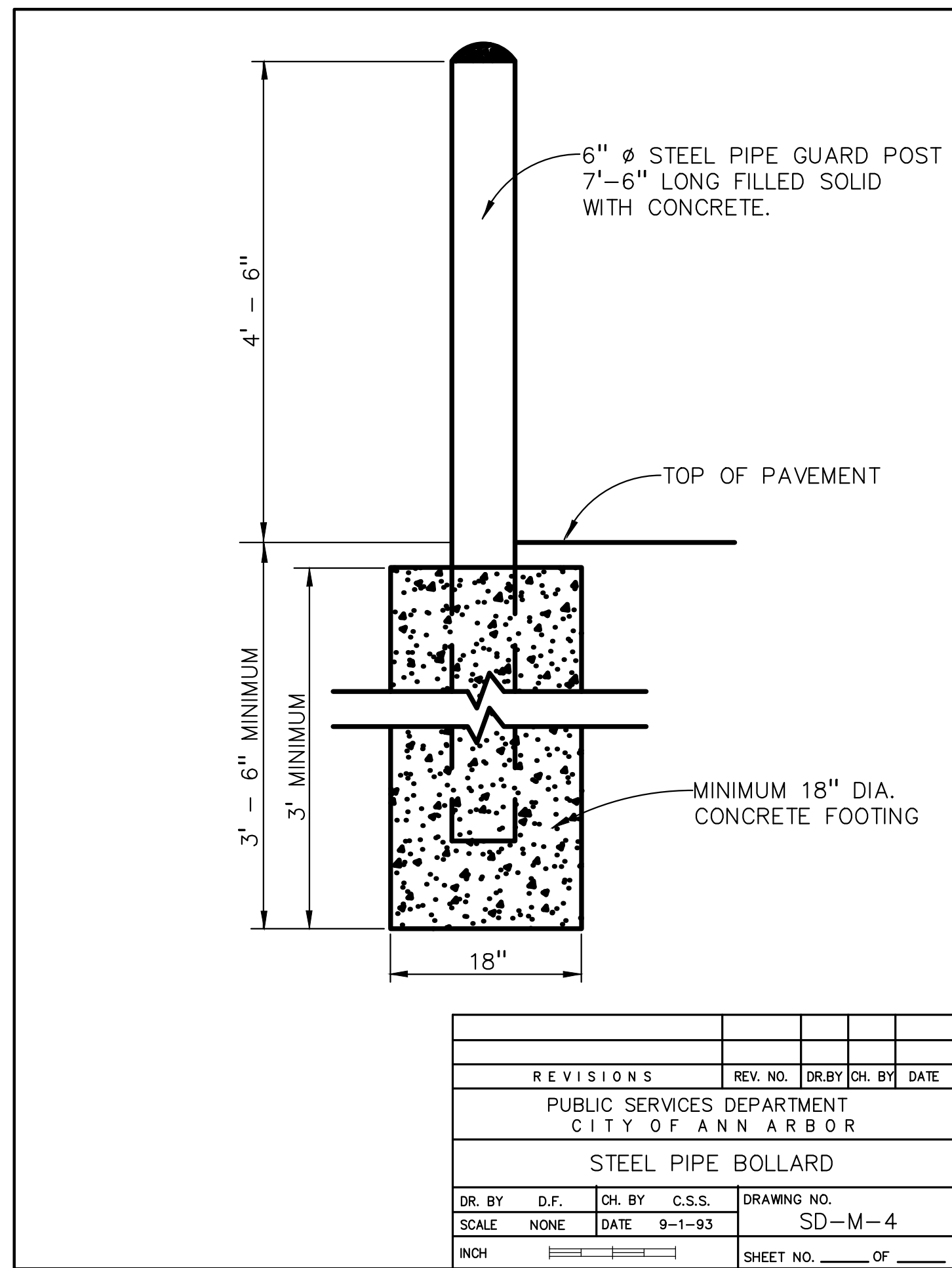
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PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

SANITARY SEWER CONNECTION WITH RISER

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-S-7

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE

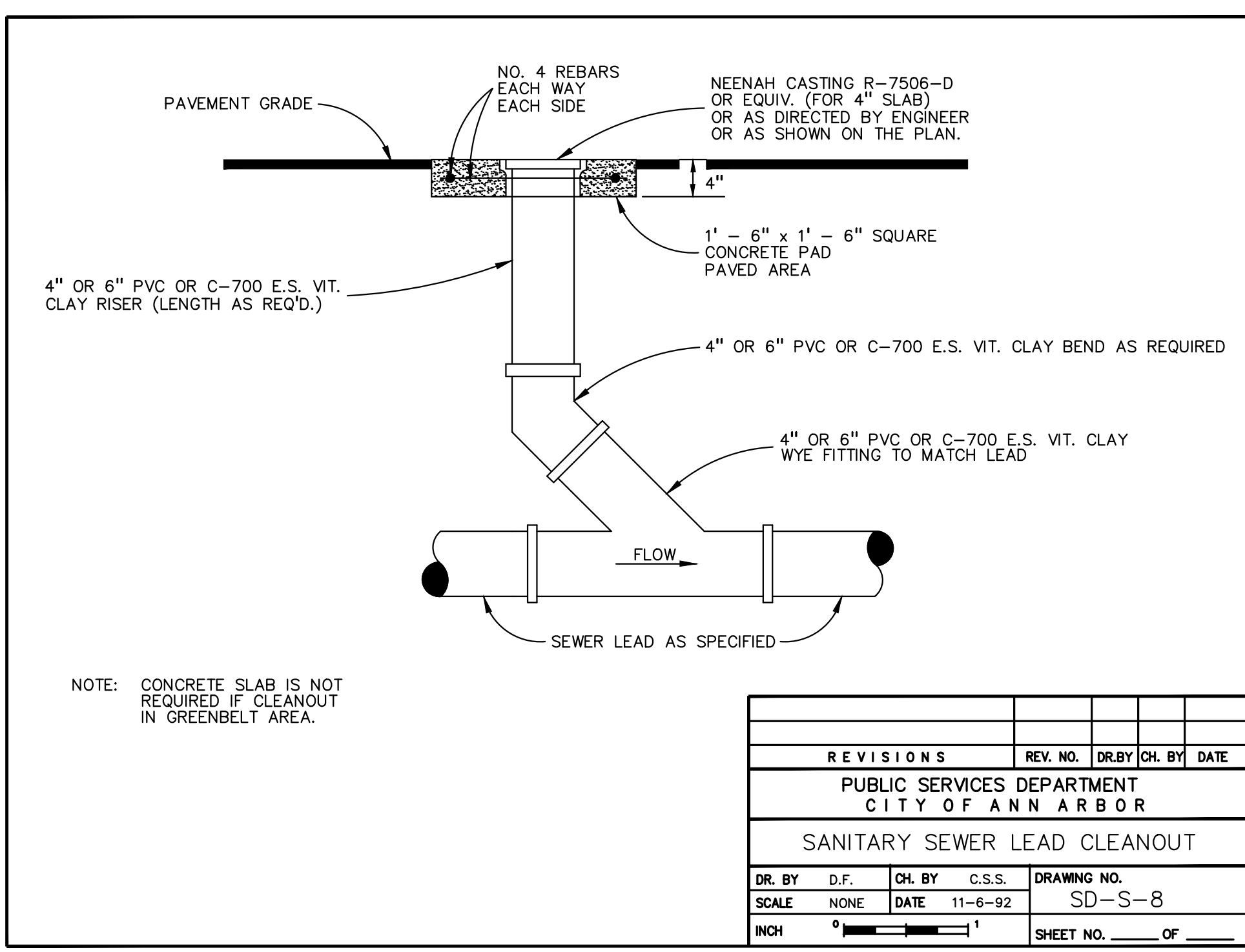
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PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

STEEL PIPE BOLLARD

DR. BY	D.F.	CH. BY	C.S.S.	DRAWING NO.
SCALE	NONE	DATE	9-1-93	SD-M-4

INCH 0 1 SHEET NO. OF



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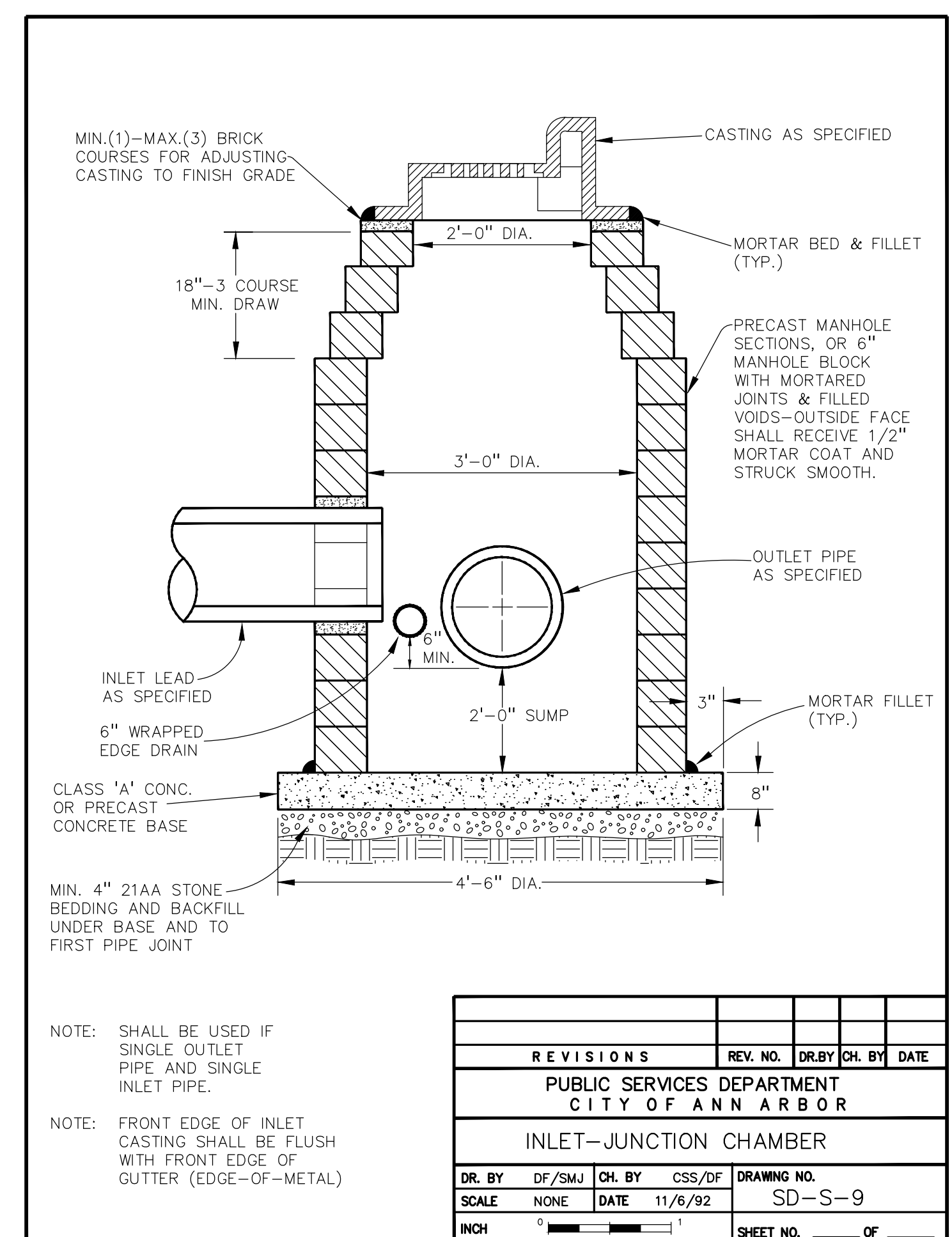
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CITY OF ANN ARBOR

SANITARY SEWER LEAD CLEANOUT

DR. BY	D.F.	CH. BY	C.S.S.	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-S-8

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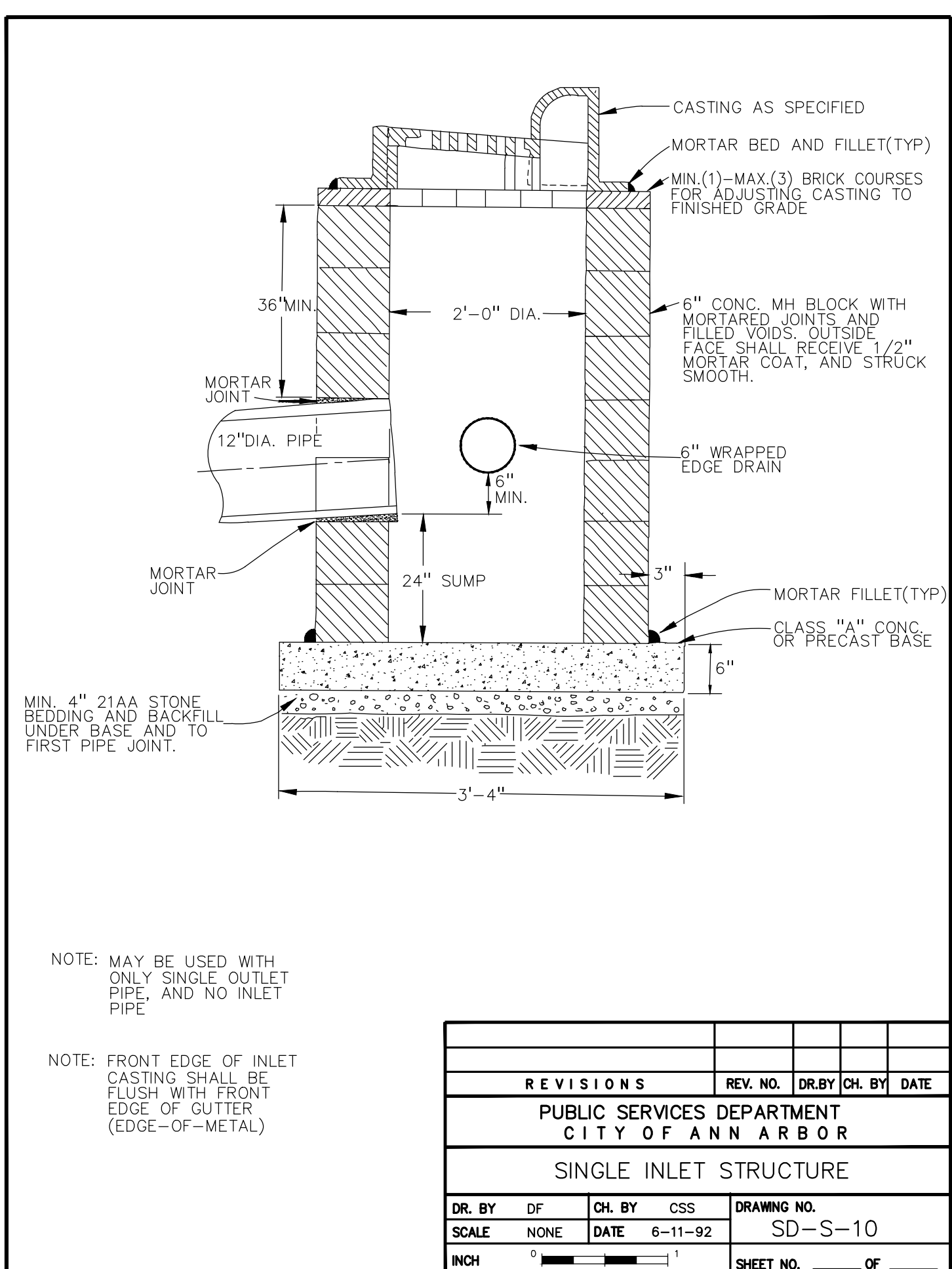
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CITY OF ANN ARBOR

INLET-JUNCTION CHAMBER

DR. BY	DF/SMJ	CH. BY	CSS/DF	DRAWING NO.
SCALE	NONE	DATE	11/6/92	SD-S-9

INCH 0 1 SHEET NO. OF



REV. NO.	DR. BY	CH. BY	DATE

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CITY OF ANN ARBOR

SINGLE INLET STRUCTURE

DR. BY	DF	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	6-11-92	SD-S-10

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CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DES. JAH DN. JAH SUR. RS. P.M. JC
S:\PROJECTS\2017-167_TOWNHOUSE LIBERTY MULTI-FAMILY-25\WORKSHEETS\PLAN\SD-00-(A)-1 TO (A)-3_CITY DETAILS-1767.dwg

ORIGINAL ISSUE DATE:
JULY 27, 2017

PEA JOB NO. 2017-167

SCALE: AS NOTED

DRAWING NUMBER:
AA-3

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